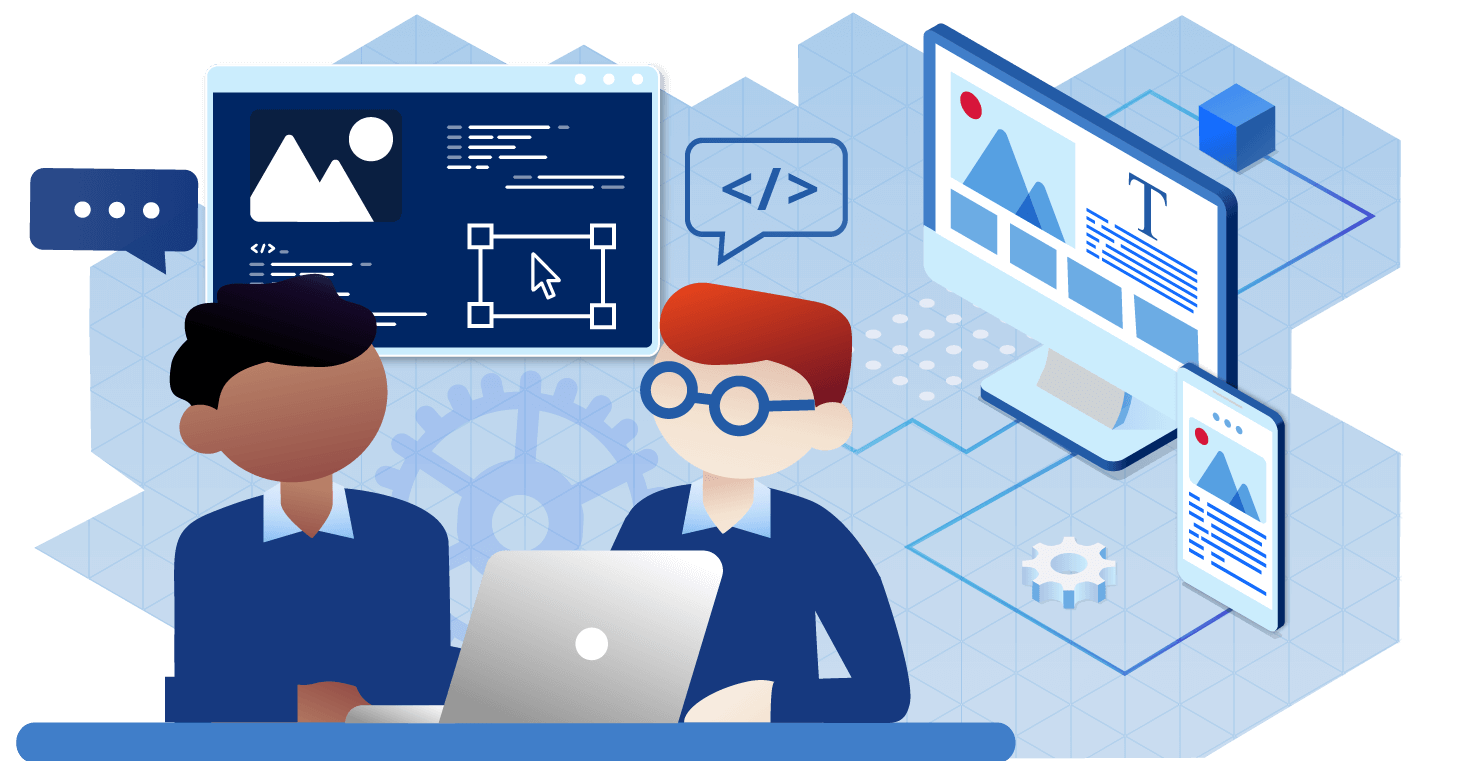
# Enterprise Computing Stage 6 (Year 11) – teacher support resource

**Interactive media and the user experience** **(UX)**



**Teacher note:** this resource has been designed to facilitate the ready conversion into a student booklet by removing the answers within the response windows. Teacher notes can be deleted before distributing to students.

Student name:

Class:

Teacher:

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## Unit overview

In this unit you will develop a fundamental understanding of the area of Interactive media and the user experience (UX). The lessons and sequences in this teacher resource are designed to allow students to develop the knowledge and skills to create an interactive media product as a solution to a user’s needs while considering the UX.

During weeks 1–4 students understand the ubiquity of interactive media. Students research the evolution of interactive media and investigate how interactive media and the UX is used to communicate information to an audience. Students research and plan for creating their own assessment task of developing an interactive media product.

Weeks 5–10 see students apply design thinking to develop a front-end, web-based interactive media system incorporating UX and user interface (UI) principles. Students develop interactive media considering data journalism. Students select an appropriate project management approach to develop an interactive media-based solution and apply features of user interaction and UX within web-based systems.

Students investigate social, ethical and legal issues when developing and implementing interactive media systems. Students evaluate the performance and explain how interactive media systems can support creative processes. Students examine human and consumer behaviour and evaluate social media applications that encourage human connections.

Students learn how interactive media products capture, store and integrate data. Students use hardware and software to digitise assets for use in interactive media systems, including lossy and lossless data compression. Students explain how the UI impacts on the UX and apply design tools and techniques to develop an engaging UI.

## Assessment task description

**Type of task:** develop an interactive media and user experience (UX) digital product with documentation.

**Outcomes being assessed:**

A student:

* describes how data is used in enterprise computing systems **EC-11-04**
* selects and uses tools and resources to design and develop an enterprise computing system **EC-11-08**
* documents the management and evaluates the development of an enterprise solution **EC-11-09**
* communicates an enterprise computing solution to an intended audience **EC-11-11**

[Enterprise Computing 11–12 Syllabus](https://curriculum.nsw.edu.au/syllabuses/enterprise-computing-11-12-2022) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2022.

**Suggested weighting: 25%**

**Teacher note:** students create an interactive media and UX digital product that incorporates data journalism for end users about an issue in the local community.

Students design and develop a digital solution using curated or created assets for a system of information delivery.

Create a digital solution on an issue in your local community. You are encouraged to be creative and use local contacts to develop your own ideas.

Examples of digital solutions could include, but are not limited to:

* an environmental issue in your local community or school
* a school information kiosk and interactive map
* a project to raise awareness of First Nations peoples and their cultures in your local area
* teaching people about the local community groups including diversity or sport or event promotion
* develop a recycling initiative for your school or community group.

The digital solution has many options including:

* a website or app
* media components such as film, animation and music
* a podcast or vodcast
* an augmented reality (AR) or virtual reality (VR) presence
* a social media presence.

### Steps to success

Table 1 – assessment preparation schedule

|  |  |
| --- | --- |
| Steps | What I need to do |
| Identifying and defining  Investigate how your proposed interactive media and UX system is used to communicate information to an audience. | * Define your audience. * Describe the information you wish to communicate to your audience. * Describe how your project will demonstrate safe and ethical use of online tools. * Explain how your product will engage, capture and hold the attention of the audience and collect user feedback. |
| Researching and planning  Explain how your proposed interactive media and UX digital product will be created on a platform and investigate consumer behaviour unique to that platform. | * Outline your research into contemporary and innovative software. * Identify your digital product and explain what platform or media you will use for your solution. * Check with your teacher the suitability of the platform or software you are researching and using for the project. * Investigate how digital marketing techniques influence consumer behaviour. |
| Producing and implementing  Develop your interactive media and UX digital product considering design principles, user interaction and data journalism. | * Apply design thinking to develop a front-end, web-based interactive media system incorporating UX and user interface (UI) principles. * Apply features of user interaction and UX within web-based systems. * Develop and publish an interactive work of data journalism. |
| Testing and evaluating  Review and improve your interactive media and UX digital product. | * Evaluate the performance requirements of hardware for specific interactive media products. * Self and peer assess the success of the product. |

### What is the teacher looking for?

This task will require students to choose an interactive media and UX system to research. This chosen system will be investigated and examined. While completing the steps in the task, students examine user behaviour through the lens of user interaction and data journalism.

Students investigate the effectiveness of a range of applications when communicating information, including the need to design for UX and related social, ethical and legal issues.

Students explore the capture, creation, transmission, storage, analysis, integration, presentation and sharing of interactive media files. They investigate hardware and software including storage, distributed computing, security protocols, the use of intellectual property and the importance of user interfaces.

Students’ understanding of how digital products demonstrate the value of digital design and promote interactive media as a communication tool is developed in this task. Projects should demonstrate the safe and ethical use of online tools and use contemporary and innovative software.

### Glossary

Many of the following words will gather more meaning to you as you work through this booklet.

Each time you see a new word in bold throughout this workbook you can add its definition in the table below in case you need to refer back later.

|  |  |
| --- | --- |
| Word | Definition |
| Assets | Assets refer to the various elements that make up a digital product or experience.  These can include visual assets such as images, videos, and 3D models; audio assets such as sound effects and music; and interactive assets such as buttons, menus, and user interfaces. |
| Augmented Reality (AR) | Augmented reality (AR) is a technology that superimposes computer-generated images, sounds, and other virtual elements onto the user's view of the real world.  The goal of AR is to enhance or augment the user's perception of the physical environment by providing additional information or context. |
| Blogs | Blogs can be created by an individual or a group of people and are often focused on a specific topic or niche.  A blog is a regularly updated website or section of a website that is written in an informal or personal style.  Blogs often feature commentary or news on a particular subject, and most allow visitors to leave comments. |
| Consumer behaviour | Consumer behaviour refers to the actions and decisions made by individuals and households when purchasing and using products or services. |
| Cookies | In the context of technology and the internet, ‘cookies’ refer to small text files that are stored on a user's device (such as a computer or smartphone) when they visit a website. Cookies are created and managed by websites and web applications to store certain information about the user's browsing behaviour and preferences. |
| Crowdsourcing | Crowdsourcing is the process of obtaining information, ideas, or services by soliciting contributions from a large number of people, especially from the general public, rather than from traditional employees or suppliers.  Crowdsourcing is typically done through an open call to the public, usually via the internet, to submit solutions to a problem or participate in the decision-making process. |
| Data journalism | Data journalism is a journalistic approach that involves the use of data analysis, visualisation, and interpretation to uncover and communicate news stories. It combines the principles of journalism with data-driven techniques to provide deeper insights, context, and understanding of complex issues.  Data journalism involves collecting, analysing, and interpreting large datasets to identify patterns, trends, correlations, or anomalies that can inform news reporting. Journalists often use specialised tools and techniques to process and visualise data, making it more accessible and engaging for audiences. |
| Digital Creative Commons | Digital Creative Commons (CC) refers to a set of copyright licenses that allow creators to share their work with others on certain conditions. Creative Commons licenses are designed to make it easy for people to share, reuse, and build upon the work of others legally. |
| Digital identities | A digital identity refers to the online representation of an individual or organisation. It is a set of information and data that is used to identify and authenticate a person or entity in the digital world. |
| File formats | A file format refers to the structure and organisation of a file, including the type of information it contains and the way that information is encoded.  File formats are used to ensure that files can be read, edited, and shared by different software programs and devices. |
| Gamification | Gamification is the use of game design elements and mechanics in non-game contexts to engage and motivate people to achieve their goals. It involves applying game design principles, such as points, badges, leaderboards, and rewards, to non-game activities, such as work, education, and marketing, to encourage participation and increase motivation. |
| Guided choice (nudging) | Guided choice, also known as ‘nudging’, is a behavioural economics concept that refers to the use of subtle cues or suggestions to influence people's decisions without restricting their freedom of choice. The idea is that by providing people with a ‘nudge’ in a particular direction, they can be encouraged to make decisions that are in their own best interest, such as saving money or making healthier choices. |
| Indigenous Cultural and Intellectual Property (ICIP) | Indigenous Cultural and Intellectual Property (ICIP) refers to the traditional knowledge, cultural expressions, and other intangible assets belonging to Indigenous peoples. It includes things like traditional stories, songs, dances, artwork, spiritual practices, and traditional ecological knowledge. |
| Interactive media systems | Where there is facility for a user to interact with multimedia, the term ‘interactive media’ may be used. The use of digital technologies to present combinations of text, graphics, video, animation and/or sound in an integrated way. Examples include interactive games, media-rich websites and electronic books (e-books). |
| Lossless compression | Lossless compression is a method of data compression that reduces the size of a file without losing any data. The process of lossless compression is reversible, which means that the original data can be restored once the file is decompressed. Lossless compression is often used for text, code and other types of data where losing any information would not be acceptable. |
| Lossy compression | Lossy compression is a method of data compression that discards some of the data in a file to reduce its size. The process of lossy compression is irreversible, which means that the discarded data cannot be recovered once the file is compressed. Lossy compression is often used for image, audio and video files, where the human eye or ear can't detect the loss of quality. |
| Massive Multiplayer Online Games (MMOGs) | Massive Multiplayer Online Games (MMOGs) are games that are played by many players over the internet and encourage social interactions, cooperation and competition. These games are typically hosted on gaming platforms that provide the infrastructure and tools needed to support large numbers of players. |
| Massive Online Open Courses (MOOCs) | Massive Online Open Courses (MOOCs) are online courses that are designed for many students and are typically offered for free or at a low cost. These courses are often created by universities and other educational institutions and are delivered through digital platforms. |
| Online gaming | Online gaming allows players to connect with others around the world and play games together in real-time, regardless of their location. |
| Performance requirements | Performance requirements, in the context of software or system development, refer to the specific criteria or expectations that define how well a system or software application should perform in terms of speed, efficiency, capacity, reliability, or other relevant metrics. These requirements outline the desired or acceptable performance characteristics of the system or software and serve as benchmarks for evaluating its performance. |
| Pop-ups | Pop-ups are small windows that automatically appear on a computer or mobile device screen, often in response to a user's action or interaction with a website or application. Pop-ups can contain various types of content, such as text, images, videos, or forms. |
| Project management | Project management is the process of planning, organising, and overseeing the execution of a specific, short-term project with a defined beginning and end. The goal of project management is to successfully deliver the project on-time, within budget, and to the satisfaction of stakeholders. |
| Sandbox gaming | Sandbox gaming is a type of game where players have the freedom to explore and interact with the game's virtual world in a non-linear and open-ended way. The term ‘sandbox’ refers to the idea that the game world is like a sandbox where players can play and experiment with the game's mechanics, objects, and environments. |
| Simulation | The production of a computer model which involves imitation of a situation or process. |
| Social media | Websites and applications that enable users to create and share content or to participate in social networking. |
| Ubiquity | The fact of appearing everywhere or of being very common. |
| User experience (UX) | User experience (UX) is the overall experience of a person using a product, system or service, including the interface, graphics, industrial design, physical interaction, and the manual. It encompasses how a user feels about the usefulness, ease of use, and efficiency of a product or service. |
| User interaction | The user has the possibility to interact with a computer-controlled system. |
| User interface (UI) | A user interface (UI) is the point of interaction between a user and a computer or other electronic device. It consists of the visual and/or auditory elements that a user interacts with to perform tasks, such as buttons, text fields, menus and other controls. |
| Virtual reality (VR) | Virtual reality (VR) refers to a computer-generated simulation of a 3-dimensional environment that can be interacted with using specialised hardware, such as a head-mounted display (HMD) or gloves fitted with sensors. The user is immersed in this environment and can interact with it as if it were real. |
| [insert word] | [insert definition] |

**Teacher note:** for students with an EALD background, the glossary can be provided complete so that they have additional time to understand the key terms with bilingual dictionaries. The glossary can be provided to students in their preferred communication mode.

### NESA glossary key words

NESA key words can be used in the syllabus and in the Higher School Certificate examination. Familiarisation with these key words can assist in understanding how to write and respond to questions.

|  |  |
| --- | --- |
| Key term | Definition |
| Apply | Use, utilise, employ in a particular situation |
| Describe | Provide characteristics and features |
| Discuss | Identify issues and provide points for and/or against |
| Evaluate | Make a judgement based on criteria; determine the value of |
| Examine | Inquire into |
| Explain | Relate cause and effect; make the relationships between things evident; provide why and/or how |
| Investigate | Plan, inquire into and draw conclusions about |

[NESA: A Glossary of Key Words](https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords)

## The design and production process

Throughout your study of Enterprise Computing, you will learn about design processes and how to apply them. You will explore different types of design processes and learn how to apply them in your design project.

The design and production process:

* involves a sequence of organised steps which provide a solution to design needs and opportunities
* may take a few seconds or minutes, such as when you select what clothes to wear, or may take years as is the case with the design of a motor vehicle
* may involve one person or may involve many people
* may be simple or complex, depending on the task
* involves questioning (or evaluating) throughout the iterative process.

Figure 1 – flowchart of design and production process

Design and production process diagram
A flowchart labelled 'Ongoing evaluation' with a two-headed arrow indicating both directions. 
The first part of the flowchart is called '1. Identifying and defining'. It says 'identify and define the needs, opportunities and wants of a computing challenge, practise the technical skills, develop evaluation criteria.' There is an arrow pointing to the next section, which is labelled '2. researching and planning'. It says 'research, generate and practise ideas, be creative and propose new approaches to problems, explore new design opportunities.' An arrow points to the next section, labelled '3. producing and implementing', it says 'build and implement ideas, apply a variety of skills and techniques to create products that meet set criteria, modify and iterate solutions'. The arrow points to the next section, labelled '4. testing and evaluating'. It says 'test and evaluate solutions/products, evaluate quality and effectiveness against the criteria, make judgements throughout the solution and use these to refine the product.'
After testing and evaluating is a big arrow called 'Review if required to improve' and it goes all the way back up to the first part of the flowchart, indicating a cycle.


## Ubiquity of interactive media

### Define and understand the concept of interactive media and its ubiquity in modern society

**Activity 1:** [brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) examples of interactive media you have encountered in daily life and paste your results below.

|  |
| --- |
| **Sample answers:**   * interactive websites * social media * games * mobile applications. |

**Activity 2:** define the following concepts in the space below.

What does ubiquity mean? Justify your response with real life examples.

|  |
| --- |
| **Sample answer:**  Ubiquity refers to the state or quality of being omnipresent or present everywhere at the same time. It describes the characteristic of being widespread, prevalent, or found in many places or situations. When something is described as having ubiquity, it means it can be found or experienced in a wide range of contexts or locations. It suggests a sense of being universally or extensively present. |

What is interactive media? Provide a real-life example of an interactive media system.

|  |
| --- |
| **Sample answer:**  Interactive media refers to any form of media or content that allows users or viewers to actively participate and engage with it. Unlike traditional media, which is typically passive and consumed without direct involvement, interactive media encourages user interaction, input, and manipulation. Interactive media can take various forms including, websites and web applications, video games, virtual reality and augmented reality. |

What is UX design? Answer in the space below.

|  |
| --- |
| **Sample answer:**  UX design is a multidisciplinary approach to designing and enhancing the overall experience that users have when interacting with a product, system, or service. It focuses on creating meaningful, enjoyable, and user-cantered experiences by understanding user needs, behaviours, and preferences. |

In the space below, describe different types of interactive media, such as social media, video games, virtual reality, and interactive websites.

|  |
| --- |
| **Sample answers**:  Social Media – social media platforms, such as Facebook, Twitter, Instagram and LinkedIn enable users to create profiles, connect with others, share content and engage in conversations. Users can interact through comments, likes, shares, and direct messages, fostering communication and community-building.  Video Games – video games are interactive media that provide virtual experiences through gameplay. Players control characters or objects in a digital environment and engage in challenges, puzzles or competitive activities. Video games often offer immersive narratives, multiplayer functionality and various genres catering to different interests.  Virtual Reality (VR) – virtual reality immerses users in a simulated environment using specialised headsets or devices. Users can interact with and navigate through a 3D virtual world, often with a sense of presence and realistic interactions. VR is utilised in gaming, education, training simulations, and entertainment experiences.  Augmented Reality (AR) – augmented reality overlays digital content onto the real world, typically through smartphone cameras or wearable devices. AR enhances the user's perception of reality by adding interactive and contextual information. Applications range from mobile games and interactive advertising to navigation aids and industrial training.  Interactive Websites – interactive websites incorporate user engagement and interactivity. They can feature animations, interactive elements, forms, multimedia content, and user-generated contributions. Interactive websites often facilitate information retrieval, online shopping, communication, and entertainment creating dynamic and engaging user experiences. |

**Activity 3**: research and provide (a) screenshot example(s) with annotation of each role in the table below.

|  |  |
| --- | --- |
| Role | Screenshot examples with annotations |
| **Social media** |  |
| **Video games** |  |
| **Virtual reality** |  |
| **Interactive websites** |  |

Communication, entertainment, and commerce are 3 categories in which interactive media has become ubiquitous in modern society.

**Activity 4:** complete 3 examples for each that you regularly use in the table below.

|  |  |
| --- | --- |
| Role | Identify real-world applications of interactive media |
| **Communication** | * Example 1 * Example 2 * Example 3 |
| **Entertainment** | * Example 1 * Example 2 * Example 3 |
| **Commerce** | * Example 1 * Example 2 * Example 3 |

**Activity 5**: watch the video on [future technology evolution](https://www.youtube.com/watch?v=Ftf7WDwz8eo) (12:23).

In the space below, list which of these 15 potential future developments relate to interactive media and UX.

|  |
| --- |
| **Sample answers:**  Number 1: people will control things around them by merely thinking about them (0:31).  Number 3: food that tastes exactly as you want (2:09).  Number 5: digital perfumes and deodorants (4:00).  Number 7: robots will be doing many everyday tasks (5:35).  Number 8: doctor visits will be replaced by automated examinations (6:58).  Number 9: we will be wearing smart clothing (7:45).  Number 10: 3D printing of everyday goods (8:18).  Number 11: infrared drone monitoring systems (8:53).  Number 12: wireless electricity (9:30).  Number 13: 6G technology and Internet of Things (IoT) (10:03).  Number 14: our cars will drive themselves (10:42).  Number 15: automated robotic police (11:21). |

Students are grouped in small teams and discuss how all of these developments will require interactive media and UX design, some more so than others.

Student teams choose one of these future technologies and discuss using critical thinking.

After discussing in teams, use the space below to imagine and design the prototype of the UI with this system considering UX and interactive media.

|  |
| --- |
|  |

**Activity 6**: table of Interactive media examples. This grid can be cut into tiles and arranged by students into correct categories.

|  |  |  |
| --- | --- | --- |
| Communication | Entertainment | Commerce |
| Social media platforms: platforms like Facebook, Twitter, Instagram and LinkedIn allow users to connect and communicate with friends, family and colleagues, share updates, and engage with content. | Video games: platforms like PlayStation, Xbox and PC offer a wide variety of games that allow users to engage in interactive gameplay and experience immersive storylines, worlds and characters. | Online marketplaces: platforms like Amazon, eBay and Etsy allow users to buy and sell a wide variety of goods and services. |
| Instant messaging and chat apps: apps like WhatsApp and Zoom allow users to communicate in real-time with individuals or groups, share files and media and make audio and video calls. | Online streaming services: platforms like Netflix, Stan, Paramount and Disney+ offer a wide selection of movies, TV shows and original content that users can watch on demand. | Online retail stores: platforms like Woolworths, Kmart and Target allow users to browse and purchase products online. |
| Online forums and discussion boards: platforms like Reddit and GitHub allow users to ask and answer questions, share information and engage in discussions about various topics. | Music streaming platforms: platforms like Spotify, Apple Music and Pandora allow users to listen to music and discover new songs and artists. | Social media commerce: platforms like Instagram, Facebook and Pinterest allow users to discover, buy and sell products within the platform. |
| Virtual worlds and online gaming: platforms like Second Life and World of Warcraft allow users to interact and communicate with others in a virtual environment, form communities, and engage in collaborative gameplay. | Virtual reality gaming: VR platforms like Oculus, PlayStation VR and HTC Vive offer immersive gaming experiences that allow users to explore virtual worlds and interact with others. | Mobile commerce apps: apps like Amazon and eBay, allow users to browse and purchase products using their mobile devices. |
| Video conferencing and collaboration tools: platforms like Zoom, Google Meet and Microsoft Teams allow users to hold virtual meetings, share screens and collaborate on documents and projects in real-time. | Interactive fiction: platforms like choose-your-own-adventure books, games and apps allow users to make decisions and shape the outcome of the story. | Online travel agencies: platforms like Expedia, Booking.com and Priceline allow users to book flights, hotels and rental cars. |
| Virtual and augmented reality: platforms like Zoom and Microsoft Teams are also used to communicate in virtual and augmented reality. This technology allows users to communicate and interact with others in a more immersive and realistic way. | Mobile games: platforms like iOS and Android offer a wide range of games that can be played on mobile devices, from simple puzzle games to more complex RPG and strategy games. | Online classifieds: platforms like Gumtree allow users to buy and sell items locally. |
| Live streaming: platforms like Twitch, YouTube Live and Facebook Live allow users to broadcast live video and interact with viewers in real-time through chat and other features. | Augmented Reality apps: platforms like Pokemon Go, Ingress and Minecraft Earth allow users to engage with the real world through their mobile device, overlaying digital objects and characters on the real world. | Online food ordering and delivery platforms: platforms like Menulog and UberEats, allow users to order food and have it delivered to their door. |

### Investigate how interactive media and the user experience (UX) is used to communicate information to an audience

**Activity 7:** the teacher provides students with stimulus such as a street directory or map. Students compare the street directory or physical map with [Google Maps](https://www.google.com/maps) or another wayfinding app and complete the table below.

|  |  |
| --- | --- |
| Street Directory | Google Maps |
| Physical | Digital |
| Static | Dynamic/interactive |
| Flat – 2D or 2-dimensional | Layers |

Under what circumstance could a static paper-based map be advantageous?

|  |
| --- |
| **Sample answers:**   * When there is no available wi-fi connection. * When there is no available electricity. * If communication devices have been strategically or tactically cut off. |

**Activity 8:** students investigate the use of interactive media and UX design to communicate information to an audience and understand the advantages of using interactive media to communicate information. In this scenario the information is location and navigation.

[Google Maps: saving the road ahead — a UX case study](https://uxdesign.cc/google-maps-saving-the-road-ahead-2460f0f3715a)

Students take inspiration from the case study above to design added features to the Maps app.

|  |
| --- |
|  |

**Activity 9:** [Think-Pair-Share](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/645#.ZCFIk74Z-24.link)

Divide students into groups of 3 or 4 and ask each group to choose one interactive media example from the list:

* interactive websites
* social media
* games
* mobile applications
* online video
* blogs
* digital radio.

Discuss if this is an example of communication, entertainment, commerce or a combination of these?

Each team describes how the interactive media uses UX design to communicate information to the audience including identifying key characteristics like ease of use, navigation, interactivity, engagement, intuitive use and how these come together as a positive experience for the user.

Student groups present their findings to the class.

In the space below, take notes on the key elements of the UX design of these interactive media examples and how they enhance the communication of information.

|  |
| --- |
| **Sample answers**:  **UX design**  UX design in interactive media involves creating intuitive and visually appealing interfaces that facilitate user interaction. This includes designing menus, buttons, navigation systems, and other interactive elements that users engage with to access information.  **Interaction design**  UX design focuses on defining how users interact with the interactive media. This includes designing interactive elements, gestures, animations and feedback mechanisms that provide a seamless and engaging UX.  **Visual design**  UX design considers the visual aesthetics of the interactive media. This includes colour schemes, typography, imagery, iconography and overall visual style that aligns with the branding and enhances the communication of information.  **Information architecture**  UX design ensures that the interactive media is structured and organised in a way that enables users to find and access information easily. This involves designing information hierarchies, content categorisation and search functionalities.  **Content presentation**  UX design focuses on presenting content in a clear, concise, and visually appealing manner. This includes using appropriate layouts, typography, multimedia elements and visual hierarchy to communicate information effectively.  **User flow and navigation**  UX design involves designing intuitive user flows and navigation systems that guide users through the interactive media. This includes considering the logical sequence of screens, providing clear pathways and enabling users to navigate smoothly.  **User feedback and response**  UX design incorporates feedback mechanisms that provide users with timely and meaningful feedback on their actions. This includes visual cues, notifications, progress indicators, and error messages that guide users and keep them informed. |

Identify and describe the advantages of using interactive media to communicate information.

|  |
| --- |
| **Sample answers:**  **Enhanced engagement**  Interactive media encourages active participation and engagement from users. By involving them in the information-sharing process it captivates their attention and increases their level of engagement. Users can interact with the content, make choices, explore different pathways and have a more personalised and immersive experience.  **Improved understanding and retention**  Interactive media can facilitate better comprehension and retention of information. By presenting content in a dynamic and interactive manner, it can cater to different learning styles and help users grasp complex concepts more effectively. Interactive elements such as simulations, quizzes and interactive visualisations enable users to interact with the content, reinforcing understanding and memory retention.  **Data-driven insights**  Interactive media often incorporates data-driven elements such as charts, graphs, and visualisations. These visual representations can simplify complex data sets and make patterns or trends more accessible and understandable. Users can explore the data interactively, gain insights, and make informed decisions based on the presented information.  **Multi-sensory experience**  Interactive media can engage multiple senses simultaneously, creating a richer and more immersive experience. It can combine visual, auditory and tactile elements to convey information making it more engaging and memorable. This multi-sensory approach can enhance user understanding and emotional connection to the content.  **Feedback and iteration**  Interactive media facilitates real-time feedback and iteration. Users can provide feedback, answer questions and actively participate in discussions enabling continuous improvement and refinement of the content. This iterative process allows for ongoing enhancement of the interactive media based on user input ensuring that it remains relevant and effective.  **Accessibility and inclusivity**  Interactive media can be designed to be accessible and inclusive to a wide range of users. It can incorporate features such as adjustable font sizes, text-to-speech functionality, colour contrast options and alternative navigation methods. By considering diverse user needs, interactive media can ensure that information is accessible to individuals with disabilities or different abilities. |

**Activity 10:** Web1.0–Web 3.0

Students navigate to a website and read the content about [Web 1.0 vs Web 2.0: Full Comparison](https://history-computer.com/web-1-0-vs-web-2-0-full-comparison/).

* Web 1.0 was where content (data and information) could be read from the internet.
* Web 2.0 was where content (data and information) could also be written to the internet.

In the space below, describe how the shift from Web 1.0 to 2.0 enabled the ubiquity of interactive media?

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| **Sample answer:**  The shift from Web 1.0 to Web 2.0 played a significant role in enabling the ubiquity of interactive media. Web 1.0 was primarily characterised by static websites that provided one-way communication where users could only consume information passively. In contrast, Web 2.0 introduced a paradigm shift that emphasised user participation, collaboration and interactivity. This shift enabled the widespread adoption and integration of interactive media across the digital landscape.  Web 2.0 introduced social networking platforms like Facebook, Twitter and LinkedIn which facilitated connections, communication and collaboration among users. These platforms enabled the sharing of interactive media content, such as photos, videos and live streams, fostering a sense of community and interaction among users. |

**Extension:** read this article on the [comparison between Web 1.0, Web 2.0 and Web 3.0](https://www.geeksforgeeks.org/web-1-0-web-2-0-and-web-3-0-with-their-difference/).

In the space below, compare Web 1.0, Web 2.0 and Web 3.0 by examining their similarities and differences. Students may use a Venn diagram.

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| **Sample answers:**  **Similarities**  Internet access – all 3 versions of the web rely on internet connectivity to access and interact with online content.  Hypertext Markup Language (HTML) – HTML serves as the foundational language for structuring and presenting content on the web, regardless of the version.  Web browsers – web browsers are the primary software used to access and navigate websites in all versions of the web.  Information retrieval – all versions enable users to search and retrieve information through search engines although the capabilities and sophistication of search engines have improved over time.  **Differences**  Web 1.0 was characterised by static web pages that provided basic information and were primarily read-only. Content was created and published by a limited number of individuals or organisations.  Web 2.0 brought about user participation and interactivity. Users could actively engage with websites, contribute content and interact with other users through social media, commenting systems and collaborative platforms.  Web 2.0 introduced user-generated content on a large scale. Blogs, social media platforms, wikis and content sharing websites empowered users to create, share and discuss content democratising the web.  Web 2.0 popularised social networking platforms, enabling users to connect, communicate and share information with their peers. It facilitated online communities and fostered social interactions.  Web 3.0 aims to enhance the web's understanding of content by utilising semantic technologies. It focuses on making data machine-readable, enabling more intelligent search, personalised recommendations, and automated information processing.  Web 3.0 seeks to provide more personalised and contextualised experiences based on user preferences, location, and browsing history. It aims to deliver tailored content and services to individual users.  Web 3.0 integrates with IoT devices, enabling the web to interact with the physical world. It allows for seamless communication and data exchange between web-enabled devices expanding the web's reach beyond traditional computing devices.  Web 3.0 incorporates Artificial Intelligence (AI) technologies, such as natural language processing and machine learning, to improve data analysis, personalisation, and automation of tasks on the web.  Web 3.0 explores the concept of decentralised networks and blockchain technology, aiming for a more distributed and secure web infrastructure, reducing reliance on centralised authorities. |

Designing an effective UI is a complex process that requires an understanding of user needs and goals, as well as the constraints of the technology and platform.

Some key principles to designing an effective UI include:

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| Key principle | User interface (UI) |
| Usability | The UI should be easy to understand and use with a logical layout and clear labelling.  Navigation should be intuitive and the user should be able to accomplish their tasks quickly and efficiently. |
| Consistency | The UI should be consistent across different pages, screens and features of the system or product. This makes it easy for users to learn and use and reduces confusion and frustration. |
| Flexibility | The UI should be flexible and adaptable to different contexts and devices so that users can use it on different platforms and in different environments. |
| Accessibility | The UI should be accessible to users with different abilities and needs including those with visual, auditory, motor and cognitive impairments. |
| Aesthetics | The UI should be visually pleasing and engaging with appropriate use of colour, typography, images and other design elements. |
| Feedback | The UI should provide clear and appropriate feedback, to inform users of the outcome of their actions. |
| User-centred design | The UI should be designed with the user in mind, taking into account their needs, goals and context of use and continuously testing and iterating the design based on user feedback. |
| Simplicity | The UI should be simple, avoiding unnecessary complexity. |
| White or negative space | White or negative space helps create visual clarity by separating and organising different elements within a UI. It provides breathing room between content, icons, buttons and other interface components preventing visual clutter and making it easier for users to focus on the relevant information and see visual hierarchy. |

In the space below, screenshot an example of a well-designed interface and annotate the screenshot. Describe the features which make it a well-designed interface including the use of white space as a principle of effective UI design.

Screenshot:

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Annotations:

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**Activity 11:** User Inyerface

Students play the website game [User Inyerface](https://userinyerface.com/game.html) to examine what happens when every frustrating element of UI design is put together in a website. We rarely get to see how much effort goes into making every online interaction as smooth as possible.

Great UI design is invisible. But when bad designs pop up it can complicate an otherwise simple process.

List the UI issues you encounter below.

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| **Sample answers:**   * Buttons that should be clickable cannot be interacted with. * Drop-down menus are sorted incorrectly. * Instructions are misleading. |

### Investigate social, ethical and legal issues when developing and implementing interactive media systems

There are several social, ethical, and legal issues that can arise when developing and implementing interactive media systems. It is important for developers and designers to be aware of these issues and take steps to mitigate them when creating interactive media systems.

**Activity 12:** [brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) several different issues that could be experienced when developing and implementing interactive media solutions.

Some of the key issues may include:

**Privacy –** interactive media systems often collect and store personal data, which can be used to personalise the UX. However, this data can also be used to track users' behaviour and target them with advertising or other types of communication. This raises concerns about privacy and data security.

**Bias and discrimination –** interactive media systems can be designed in ways that perpetuate bias and discrimination. For example, algorithms used in machine learning can perpetuate societal biases based on the data they are trained on, leading to unfair or discriminatory outcomes.

**Dependence –** interactive media systems can be designed to be addictive, leading to excessive use and dependence. This can have negative impacts on mental and physical health, as well as on relationships and other areas of life.

**Misinformation –** interactive media systems can be used to spread misinformation and fake news leading to confusion and mistrust among users.

**Censorship –** interactive media systems can be used to restrict access to information or suppress free speech. Governments, organisations or individuals may use the systems to control or manipulate the information that users are exposed to.

**Cyberbullying –** interactive media systems can be used to bully, harass or intimidate others online leading to emotional distress and other negative consequences.

**Legal issues –** there are also several legal issues that can arise when developing and implementing interactive media systems. These include issues related to copyright, trademark and patent infringement as well as issues related to data protection and privacy laws.

**Activity 13:** scenario – Ring Video Doorbell (RVD)

The RVD is a popular home security device that allows users to view live footage from their doorbell camera and communicate with visitors remotely.

Read about the privacy invasion of the [Ring video doorbell](https://www.diggitmagazine.com/papers/ring-video-doorbell-privacy-invasion-).

Describe examples of social, ethical, and legal issues that have been raised in relation to the RVD.

**Privacy**

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| **Sample answer:**  The RVD collects and stores footage from the doorbell camera, which can be used to track users' behaviour and target them with advertising or other types of communication. This raises concerns about privacy and data security, as well as the potential for the footage to be used for surveillance or other unauthorised purposes. |

**Bias and discrimination**

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| **Sample answer:**  There have been concerns that the facial recognition technology used in some RVD could perpetuate bias and discrimination, particularly against people of colour. |

**Dependence**

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| **Sample answer:**  Some have raised concerns that the RVD can be designed to be addictive, leading to excessive use and dependence. |

**Misinformation**

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| **Sample answer:**  There have been instances of misinformation and fake news being spread through Ring's Neighbors App, a feature that allows users to share footage and information about suspicious activity in their neighbourhoods. |

**Censorship**

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| **Sample answer:**  Some have raised concerns that Ring's Neighbors App could be used to restrict access to information or suppress free speech. |

**Cyberbullying**

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| **Sample answer:**  The RVD has the potential to be used to bully, harass or intimidate others leading to emotional distress and other negative consequences. |

**Legal issues**

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| **Sample answer:**  There are also legal issues that can arise when using the RVD such as issues related to data. |

In the space below, describe the issue of privacy that the RVD is creating in society.

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| **Sample answer:**  New and advancing technology has a profound impact on the way we act and the laws of society. Technological advancements often outpace the development of corresponding laws and regulations, leading to a need for adaptation and updates to address the evolving landscape.  The digital age has brought about new concerns regarding the collection, storage and use of personal data. Technologies like social media, smart devices and surveillance systems can collect vast amounts of personal information, raising questions about privacy and the need for regulations to protect individuals' data and establish guidelines for its handling.  Technology such social media, smart devices, and surveillance systems have revolutionised the way we communicate and interact with others. This has led to new challenges related to privacy, cyberbullying, online harassment and the spread of misinformation. Laws and regulations are continuously being revised and developed to address these issues and ensure the safety and well-being of individuals in the digital realm. |

In the space below, describe how new and advancing technology changes the way we act and the laws of society.

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| **Sample answer:**  New and advancing technology has a profound impact on how we act as individuals and on the laws of society. Technological advancements have the potential to reshape our behaviours, interactions, and the overall fabric of society in numerous ways.  Technology has revolutionised the way we communicate and interact with one another.  Platforms such as social media, instant messaging and video conferencing have connected people across the globe, allowing for instant and continuous communication. These advancements have changed the way we form relationships, express opinions and share information. Consequently, laws and regulations have emerged to address concerns related to privacy, cyberbullying, online harassment and the spread of misinformation.  The internet has democratised access to information enabling individuals to acquire knowledge on virtually any subject. This easy access to information has empowered people to make more informed decisions in various aspects of life including education, healthcare and consumer choices. However, it also raises concerns about the authenticity and reliability of information. Laws and regulations have been developed to address issues like intellectual property rights, digital piracy and data privacy.  The proliferation of technology has raised concerns about personal privacy and surveillance. Surveillance technologies including facial recognition, biometrics and data tracking have the potential to monitor and collect vast amounts of personal information. This has prompted debates about the balance between security and privacy, leading to the development of laws and regulations to safeguard individuals' privacy rights and regulate the use of surveillance technologies. |

### Research the evolution of interactive media

**Activity 14:** students watch the following video on the [evolution of traditional to new media (1:25)](https://www.youtube.com/watch?v=GA9Ld6HgqKM). Students participate in a class discussion around technology changes they have personally experienced from primary school to high school.

The evolution of interactive media has been driven by several key factors, including:

**Technological advancements**

The development of new technologies such as the internet, smartphones and virtual reality has enabled the creation of new types of interactive media and made it possible for people to access and engage with interactive media in new ways.

Technology has made it possible for people to access and share a wide range of digital content. As technology has progressed, the ways in which people interact with media has evolved as well with interactive media becoming more immersive, personalised and accessible.

**Widespread access to high-speed internet**

The availability of high-speed internet has made it possible for people to access and share a wide range of digital content including video, audio and interactive media. This has also allowed for the development of new technologies such as streaming services and cloud-based platforms, which have further enabled the evolution of interactive media.

**Changes in consumer behaviour**

As people have become more accustomed to consuming interactive media, the demand for more immersive and personalised experiences has increased. This has driven the development of new technologies and platforms such as virtual and augmented reality that provide more engaging and interactive experiences.

**Advancements in Artificial Intelligence (AI) and machine learning**

The advancements in AI and machine learning have enabled the development of more sophisticated and personalised interactive media experiences. This has driven the evolution of interactive media to be more interactive, personalised and responsive to users' needs.

**Societal changes**

The widespread availability of high-speed internet and mobile devices has made interactive media an integral part of daily life. As people have become increasingly connected, they have also come to expect a more interactive and personalised media experience.

**Economic factors**

The growth of digital media has been driven by the increasing demand for online content and the development of new business models such as advertising, subscriptions and e-commerce. As more people have come to rely on interactive media for entertainment, information and communication, businesses have invested in the development of new technologies and platforms to meet this demand.

**Changes in communication**

Interactive media also has been driven by the changes in communication and the way people connect and interact with each other.

In the space below, describe why the personalisation of interactive media has been a focus and theme in developing the UX in new technology.

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| **Sample answer:**  Personalisation allows users to have a more tailored and engaging experience with interactive media. By catering content, recommendations and features to individual preferences, users feel more connected to the technology and are more likely to stay engaged and invested in the platform or application. This leads to increased user satisfaction and retention.  Personalisation enables the delivery of content that is specifically relevant and meaningful to each user. Through data analysis and user profiling, technology can understand user preferences, interests, and behaviours to curate and present content that aligns with their individual needs. This creates a more personalised and targeted experience, reducing information overload and increasing the likelihood of user interaction.  Personalisation allows for customised recommendations based on user preferences and past behaviours. Platforms can leverage machine learning algorithms and data analysis to suggest relevant content, products or services tailored to the individual user's interests and needs. This not only enhances the UX but also facilitates discovery and promotes user engagement.  In an increasingly competitive market, personalisation has become a differentiating factor for technology companies. By offering a more personalised and tailored UX, companies can attract and retain users in a crowded marketplace. Personalisation has become an essential component of user-centred design and can contribute to a competitive edge for businesses. |

### Chronological timeline

**1950s:** the first computer-based interactive systems, such as the SAGE air defence system, are developed.

**1960s:** the first interactive computer games, such as ‘Spacewar!’, are created.

**1970s:** the first home video game consoles, such as the Atari 2600, are released.

**1980s:** the first personal computers, such as the Commodore 64 and the Apple Macintosh, are introduced. These computers are capable of running interactive software, such as games and educational programs.

**1990s:** the World Wide Web is created, making it possible for people to access and share information online. The first web browsers such as Mosaic and Netscape Navigator are developed.

**Early 2000s**: the first generations of smartphones and mobile devices are released, but internet access is not as widely available as it is in later years.

**2000s:** broadband internet becomes widely available, making it possible for people to access and share rich media, such as video and audio, online. Social media platforms such as MySpace and Facebook are created.

**2010s:** the rise of mobile devices such as smartphones and tablets and the development of mobile applications make interactive media more accessible and portable. Virtual reality and augmented reality technologies become more widely available.

**Early 2010s**: social media platforms continue to evolve and new platforms such as Instagram, Snapchat and TikTok are created. Mobile apps like WhatsApp, Viber and other instant messaging apps become popular for communication.

**Mid 2010s:** the rise of streaming services such as Netflix, Hulu and Amazon Prime Video and the emergence of on-demand streaming services like Spotify, Pandora and Apple Music.

**Late 2010s:** the rise of virtual and augmented reality technologies, with the release of consumer-oriented VR and AR headsets such as Oculus Rift, HTC Vive, and Playstation VR.

**2020s:** interactive media continues to evolve with the emergence of new technologies such as 5G, Artificial Intelligence (AI), and the Internet of Things (IoT). The use of interactive media becomes more widespread and ingrained in everyday life, with the use of virtual and augmented reality becoming more common in different areas such as education, entertainment and healthcare.

It's worth noting that the evolution of interactive media has been driven by technological advancements, but also by societal and cultural changes. As technology has progressed, the ways in which people interact with media has evolved as well, with interactive media becoming more immersive, personalised and accessible.

**Activity 15:** students view an example of a [timeline of new social media](https://www.booksaresocial.com/wp-content/uploads/2016/02/New-Media-Timeline-e1455890319643.jpg) and use this as stimulus to create a visual timeline for their history of interactive media.

Students research the latest developments and update the timeline with significant recent developments.

**Activity 16:** students work in small groups. Each group is given one of the date ranges above and research the development of that era or specific topic.

Students collect resources including photographs and content. Students use video editing software to make a 1–2 minute video on their topic or era.

As a class, each video clip is combined to create a complete interactive media timeline.

Students should explore software tools during this development.

The following learning tools are available to DoE students and teachers via their login portal from the [Digital Selector](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/?UD=ALL&PY=ALL&AG=ALL). Each includes video tutorials on how to use the software.

* [Adobe After Effects](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/59#.ZCIqTRjhVK4.link)
* [Adobe Animate](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/51#.ZCIqTTLVABk.link)
* [Adobe Audition](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/58#.ZCIqTQl_SMI.link)
* [Adobe Bridge](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/48#.ZCIqTV0Yslk.link)
* [Adobe Illustrator](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/43#.ZCIqTcfykug.link)
* [Adobe InDesign](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/46#.ZCIqTWSh6l4.link)
* [Adobe Media Encoder](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/50#.ZCIqTXMXSgs.link)
* [Adobe Photoshop](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/42#.ZCIqTVjlMt8.link)
* [Adobe Photoshop Lightroom](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/61#.ZCIqTYg5uAE.link)
* [Adobe Premiere Pro](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/60#.ZCIqTRWtPbw.link)
* [Apple Clips](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/616#.ZCIqTdFJWCE.link)
* [Apple iMovie](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/617#.ZCIqTXraTBk.link)
* [Canva for Education](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/653#.ZCIqTRNVcvw.link)
* [Google Slides](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/70#.ZCIqTemZmFw.link)
* [Loom](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/623#.ZCIqTQByGjM.link)
* [Microsoft PowerPoint](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/116#.ZCIqTTgntJ8.link) Online
* [Microsoft Stream](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/126#.ZCIqTQ1z-p0.link) (on SharePoint)
* [Pear Deck](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/627#.ZCIqTUGLQvE.link)
* [PowToon Edu](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/115#.ZCIqTR9DTDI.link)
* [TouchCast Studio](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/590#.ZCIqTeWz_aE.link)
* [VideoAnt](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/589#.ZCIqTbc2EiA.link)
* [WeVideo](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/649#.ZCIqTSJAwfs.link).

### Prevalence of blogs, online video and digital radio

The prevalence of blogs, online video and digital radio occurred in the early to mid-2000s.

Blogs, which are websites that feature regularly updated content in the form of posts, became popular in the early 2000s. The first blogs were primarily used for personal expression and as a way for individuals to share their thoughts and ideas with a wider audience. However, as blogging platforms and tools improved, blogs began to be used for a variety of purposes including journalism, marketing and business.

Online video, which refers to the distribution of video content via the internet, also became popular in the early 2000s. The widespread adoption of high-speed internet and the development of video streaming technologies such as YouTube and Vimeo made it possible for individuals and organisations to easily share and distribute video content online.

Digital radio, also known as internet radio, refers to the distribution of audio content via the internet. It became popular in the mid-2000s with the advent of streaming technologies and the widespread adoption of high-speed internet. This allowed for the development of online radio stations and platforms that made it easy for listeners to access a wide range of audio content from anywhere in the world.

Overall, the early to mid-2000s saw a significant increase in the use of the internet for the distribution of various forms of digital content including blogs, online video and digital radio and marked a turning point in the way that information and entertainment was shared and consumed online.

**Activity 17:** reflect on the development and impact of one chosen real-world application and describe the development in the space below.

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### Privacy issues and the use of intellectual property, including Indigenous Cultural and Intellectual Property (ICIP)

**Privacy issues**

It is important for developers and designers to be aware of privacy issues and take steps to mitigate them when creating interactive media systems. Users should also be aware of the privacy policies and settings of the interactive media systems they use and take steps to protect their personal information.

As a class watch a video on [Data Privacy and Consent](https://www.youtube.com/watch?v=2iPDpV8ojHA) (13:22).

**Activity 18:** in the space below, discuss what information you consider should be private.

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| **Sample answers:**   * personal data * images and videos * financial history or credit risk * shopping and spending habits * body Mass Index * sleep quality.   The concept of ‘I have nothing to hide’ is that privacy is about agency and that you should have the right to keep your data private. |

**Privacy issues when using interactive media can take many forms, including:**

**Data collection**

Interactive media systems often collect and store personal data such as browsing history, location and demographics which can be used to personalise the UX. However, this data can also be used to track users’ behaviour and target them with advertising or other types of communication raising concerns about privacy and data security.

**Data sharing**

Interactive media systems can share personal data with third parties such as advertisers, analytics providers or other companies. This can lead to concerns about the use of personal data for targeted advertising or other purposes.

**Data breaches**

Interactive media systems can be vulnerable to data breaches where personal data is accessed or stolen by unauthorised parties. This can lead to sensitive information being exposed, such as financial data or personal identification information.

**Data retention**

Interactive media systems may retain personal data for long periods of time, even after a user has deleted their account. This can lead to concerns about the security and disposal of personal data.

**Location tracking**

Interactive media systems can use location tracking to personalise the UX or target advertising. This can raise concerns about privacy as well as the potential for location data to be used for surveillance or other unauthorised purposes.

**Privacy settings**

Interactive media systems may have complex privacy settings that are difficult for users to understand or control. This can lead to users inadvertently sharing more personal information than they intended.

**Manipulation**

Interactive media systems can be designed in ways that manipulate users into sharing personal information or performing certain actions such as using persuasive design techniques.

**Activity 19:** reflect on what steps you currently take to protect your privacy in the space below.

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**Intellectual property (IP) and Indigenous Cultural and Intellectual Property (ICIP)**

IP refers to creations of the mind, such as inventions, literary and artistic works, symbols, names, images and designs used in commerce. It is protected by law through patents, trademarks, copyrights and trade secrets, which provide exclusive rights to the creators of these works.

ICIP refers to the traditional knowledge, cultural expressions and other intangible assets belonging to Aboriginal peoples. It includes things like traditional stories, songs, dances, artwork, spiritual practices and traditional ecological knowledge.

ICIP is different from other forms of IP in that it is often collectively held and passed down through generations, rather than being held by an individual or organisation. The protection of ICIP is important because it helps to preserve Indigenous cultures, languages and heritage, and it also ensures that the rights and interests of Indigenous peoples are respected.

There are various ways to protect ICIP such as through national and international laws, collective agreements and community protocols. The United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) recognises the rights of Indigenous peoples to maintain, control, protect and develop their cultural heritage, including traditional knowledge and expressions.

It is important to respect and acknowledge the rights of Indigenous peoples over their cultural and intellectual property and to work with Indigenous communities to ensure that their knowledge and expressions are protected and shared in a way that is appropriate and respectful. This includes obtaining informed consent, sharing benefits, and respecting the community's decision-making processes.

IP refers to creations of the mind that are protected by law, while ICIP refers to the traditional knowledge, cultural expressions and other intangible assets belonging to Indigenous peoples. ICIP is different from other forms of IP in that it is often collectively held and passed down through generations and it is protected through various ways such as laws, agreements and community protocols, and it is important to respect and acknowledge the rights of Indigenous peoples over their cultural and intellectual property.

**Activity 20:** the [Australian Institute of Aboriginal and Torres Strait Islander Studies](https://aiatsis.gov.au/) (AIATSIS) website contains many educational and informative online materials for Aboriginal and Torres Strait Islander peoples.

Listen to this [audio](https://aiatsis.gov.au/publication/116723) (35:47) of Terri Janke who is a Wuthathi/Meriam woman from Cairns. Terri is an international authority on ICIP and has written the leading protocols and ICIP models in the film, arts, museum and archival sector.

### Describe the contribution of interactive media systems to a range of enterprises

Interactive media systems have allowed businesses to reach new customers, improve their operations and provide new services.

They have also enabled businesses to access new markets and to compete more effectively in an increasingly digital world.

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| Range of enterprises | Interactive media systems |
| Marketing and advertising | Interactive media systems have transformed the way businesses market and advertise their products and services. Online platforms such as social media allow businesses to reach and engage with customers in real-time and to target advertising to specific demographics or interests. Interactive media systems also allow businesses to track and measure the success of their marketing campaigns. |
| e-commerce | Interactive media systems have made it possible for businesses to sell their products and services online. Online marketplaces such as Amazon and eBay and e-commerce platforms such as Shopify have made it easy for businesses of all sizes to reach customers and sell products. |
| Customer service | Interactive media systems have transformed the way businesses interact with customers. Online chat and social media platforms have made it possible for businesses to provide customer service in real-time and to respond to customer complaints and feedback more quickly and effectively. |
| Education and training | Interactive media systems have made it possible for businesses to provide online education and training to employees and customers. Online learning platforms allow businesses to offer training and education on a wide range of topics and to reach a global audience. |
| Entertainment | Interactive media systems have transformed the entertainment industry. Streaming platforms such as Netflix and YouTube allow businesses to distribute and monetise their content and to reach a global audience. |
| Healthcare | Interactive media systems have contributed to the healthcare industry by enabling patients to access medical information, communicate with healthcare professionals and manage their health remotely. Telemedicine platforms allow patients to have virtual consultations with doctors and to receive treatment remotely. |
| Smart home | Interactive media systems have allowed the industry to offer a variety of smart home devices such as smart thermostats, security cameras, doorbells and speakers that enable users to control, monitor and automate their homes. |

**Activity 21:** choose an interactive media product to further research.

Using a [graphic organiser](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/599#.ZDTeKlZR1us.link) look at the interactive media product and examine the enterprise using the Who? What? When? Where? Why? How? chart.

Paste or link to your chart below.

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### How does simulation, gamification and augmented reality (AR) support online training and learning?

Simulation, gamification and AR can be used in combination to create a multi-sensory and immersive learning experience that can enhance the retention of knowledge and skills. For example, an AR-based simulation game for a medical training program can provide a realistic and interactive experience for learners to practice surgical procedures and receive feedback on their performance in real-time.

All interactive technologies allow learners to experience a more engaging, interactive and realistic learning experience. They can provide hands-on practice, instant feedback and the opportunity to learn by doing. They also provide learners with a sense of autonomy and make them feel like they are in control of their own learning process.

Simulation, gamification and AR can support online training and learning in several ways:

**Simulation:** simulation allows learners to experience and practice real-world scenarios in a safe and controlled environment. This can be especially useful for training in fields such as medicine, aviation and engineering where hands-on experience is essential. Simulations can also be used to train employees in customer service, sales and other areas where role-playing is beneficial.

**Gamification:** gamification is the use of game design elements in non-game contexts, such as education and training. Gamification can make online training more engaging and interactive and can increase learners' motivation and retention of information. It can also provide learners with immediate feedback and allow them to track their progress, which can help to build self-confidence and improve their skills.

**Augmented Reality (AR):** AR enhances the real world with digital information allowing learners to interact with virtual objects and environments. AR can be used to create immersive and interactive learning experiences, such as virtual labs and field trips, and can make it possible for learners to experience real-world scenarios without the need for expensive equipment or travel.

**Activity 22:** scenario – getting a NSW driver licence

In NSW to get your L plates, you need to pass the Driver Knowledge Test (DKT) and later to get your P plates, a Hazard Perception Test (HPT). The DKT has an app for learner drivers to familiarise themselves with road rules by practising answering questions. The HPT simulates hazards that the driver has to avoid. Using a device, drivers interact when they perceive a potential hazard in a simulation of the real world.

In the space below, describe how the government uses simulation, gamification and AR to support online training and learning of drivers?

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****Students take inspiration from the scenario above to design added features of online training to assist in helping the broad community learn to drive.

[Brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) possible improvements to the current system.

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### How do streaming services, gaming and virtual reality (VR) improve access to entertainment?

Streaming services, gaming, and VR have made entertainment more accessible by providing more options and greater convenience for consumers. They have also made it possible for people to connect with others and share their interests and have opened up new ways for people to experience and enjoy entertainment.

**Streaming services:** streaming services, such as Netflix, Hulu and Amazon Prime Video allow users to access a wide variety of TV shows, movies and other video content from any device with an internet connection at any time. This has greatly expanded the options available to viewers and has made it possible for people to watch content that would have been difficult or impossible to access otherwise.

**Gaming:** gaming has become more accessible with the rise of online gaming, cloud gaming and mobile gaming. Online gaming allows players to connect with others around the world and play games together in real-time, regardless of their location. Cloud gaming services such as Google Stadia and Microsoft xCloud, enable users to play high-end games on low-end devices, by streaming the game to the device. Mobile gaming has also made it possible for players to access a wider range of games and to play on the go.

**Virtual Reality (VR):** VR technology has improved access to entertainment by providing users with immersive, interactive virtual experiences. VR can be used to create realistic and engaging gaming experiences, as well as to provide access to virtual tours, concerts and other live events. VR also allows users to experience entertainment in new and unique ways, such as watching movies in a virtual cinema or exploring a virtual world.

Sample of minimum system requirements for Adobe Animate for Windows.

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| --- | --- |
| Hardware | Minimum requirement |
| Processor | Intel Pentium 4 or Intel Centrino, Intel Xeon or Intel Core Duo (or compatible) processor (2Ghz or faster processor) |
| Operating system | Windows 10 version V2004, V20H2 and V21H1 |
| RAM | 8 GB of RAM (16 GB recommended) |
| Hard disk space | 4 GB of available hard-disk space for installation; more free space required during installation (cannot install on removable flash storage devices) |
| Monitor resolution | 1024 × 900 display (1280 × 1024 recommended) |
| GPU | OpenGL version 3.3 or higher (DirectX 12 with feature level 12\_0 recommended) |
| Internet | Internet connection and registration are necessary for required software activation, validation of subscriptions and access to online services. |

**Activity 23:** in the space below, explain from your experience what has helped to improve access to entertainment in interactive media.

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### How do specialist apps support delivery tracking, advertising and communication?

Specialist apps can support delivery tracking, advertising and communication by providing real-time information, facilitating communication and providing a personalised experience to the users. This can benefit both the customers and the businesses by making the process of delivery tracking, advertising and communication more efficient and convenient.

Specialist apps can support delivery tracking, advertising, and communication in several ways:

**Delivery tracking –** specialist apps can provide real-time updates on the status of a delivery, including the location of the package and an estimated time of arrival. This can be useful for both the sender and the recipient as it allows them to plan their schedules and to know when to expect the package.

**Advertising –** specialist apps can use location-based advertising to target users with relevant ads, based on their location, browsing history, and other data. This can be useful for businesses as it allows them to reach potential customers who are most likely to be interested in their products or services.

**Communication –** specialist apps can facilitate communication between customers and businesses, allowing customers to ask questions, provide feedback and make complaints. They can also be used to facilitate communication between businesses and delivery services, allowing businesses to track their deliveries and to communicate with delivery drivers.

**Personalised experience –** specialist apps can provide a personalised experience to the users by tracking their browsing and purchase history and providing personalised recommendations and offers.

**Ordering and payment –** specialist apps can provide an easy way for the customers to place an order and make payments. They can also provide the customers with the ability to track their orders and to make changes to their orders.

**Activity 24:** as a class discuss online purchasing experiences. Some may be from eBay, Amazon or using a fast-food app, for example Domino’s pizza. In the space below, describe an experience of purchasing online. Your description should include the ease of purchase, communication types and should specify the use of delivery tracking.

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### Evaluate the performance requirements of hardware for specific interactive media projects

The performance requirements of hardware for specific interactive media projects will depend on the specific requirements of the project, such as the type of interactive media being used, the number of users and the complexity of the project.

It is important to note that the requirements for a project may change as the project progresses and it is essential to consider the scalability of the hardware for future developments. It is also important to consider the cost-benefit of the hardware and ensure that the hardware is not over-specified for the project requirements.

Some general factors to consider when evaluating the performance requirements of hardware for interactive media projects include:

**Processing power –** the amount of processing power required will depend on the complexity of the interactive media being used, such as the number of animations and special effects. High-end interactive media projects will require more powerful processors in order to run smoothly.

**Memory –** the amount of memory required will depend on the number of users and the complexity of the project. Interactive media projects that require a large amount of data to be stored, such as virtual reality, will require more memory than projects that do not.

**Graphics –** the quality and performance of the graphics card will depend on the complexity of the interactive media being used. High-end interactive media projects will require more powerful graphics cards in order to render complex images and animations.

**Networking –** the interactive media project may require a stable and fast network connection to transfer data between users, devices and the server.

**Operating System –** the interactive media project may require a specific operating system for compatibility with the software and hardware.

**Input devices –** the interactive media project may require specific input devices such as VR headset, touch screen monitors, motion sensing controllers and cameras.

**Power –** the interactive media project may require specific power requirements to run all the hardware and software.

**Activity 25**: research the hardware requirements of a range of interactive experiences and complete the table below.

|  |  |
| --- | --- |
| Interactive media | Hardware requirements |
| **Social media** |  |
| **Video games** |  |
| **Virtual reality** |  |
| **Interactive websites** |  |

### Explain how interactive media systems can support creative processes

Interactive media systems can support creative processes by providing tools for collaboration, simulation and prototyping, digital tools, feedback and testing and virtual and augmented reality experiences. This can allow creatives to work more efficiently, improve the quality of their work and to reach a wider audience.

Interactive media systems can support creative processes in several ways:

**Collaboration –** interactive media systems can facilitate collaboration between artists, designers and other creatives, allowing them to work together on projects, share ideas and provide feedback in real-time. This can speed up the creative process and lead to more innovative and high-quality results.

**Simulation and prototyping –** interactive media systems can be used to create simulations and prototypes of creative projects, such as video games, animations and websites. This allows creatives to test and refine their ideas and to make changes in real-time without having to start the process from scratch.

**Digital tools –** interactive media systems can provide digital tools that can help creatives to be more efficient and to improve the quality of their work. For example, digital painting and illustration software allows artists to create digital art quickly and easily, and 3D modelling software allows designers to create 3D models of buildings, products and other objects.

**Feedback and testing –** interactive media systems can provide real-time feedback and testing, allowing creatives to understand how the audience interacts with their work and adjust accordingly. This can be particularly useful in fields such as game design, where player feedback can help to improve the overall experience.

**Virtual and Augmented Reality –** interactive media systems can be used to create virtual and augmented reality experiences which can be a powerful tool to support creative processes. This technology can be used to create realistic simulations of real-world environments and to allow users to interact with digital objects in a way that is not possible with traditional media.

**Activity 26:** complete the table below to explain how you have used features of interactive media systems to support creative processes.

|  |  |
| --- | --- |
| Creative process | Interactive media system example |
| **Collaboration** |  |
| **Simulation and prototyping** |  |
| **Digital tools** |  |
| **Digital testing** |  |
| **Virtual and augmented reality** |  |

### Sandbox gaming

Sandbox gaming is a type of game where players have the freedom to explore and interact with the game's virtual world in a non-linear and open-ended way. The term ‘sandbox’ refers to the idea that the game world is like a sandbox where players can play and experiment with the game's mechanics, objects and environments.

In a sandbox game, players are not constrained by a linear storyline or set objectives but are free to explore the game world and interact with it in various ways. Players can choose their own goals and objectives and can experiment with different strategies and approaches to achieve them. This type of gameplay allows for greater player creativity and encourages players to experiment and discover new ways to play the game.

Examples of sandbox games include SimCity, Grand Theft Auto, Minecraft, Terraria and Saints Row. These games are characterised by a large open-world environment, a wide range of activities and a high degree of player freedom.

Sandbox games can be of different types, some of them are:

* open-world sandbox games, where players can explore a vast open-world environment and interact with the game's world in various ways
* physics-based sandbox games, where players can experiment with the game's physics engine and manipulate objects and environments
* survival sandbox games, where players must survive in a harsh environment, gathering resources and building shelter.

Overall, sandbox gaming is a type of game that provides players with a high degree of freedom and creativity and encourages them to explore and experiment with the game's mechanics and environments in a non-linear and open-ended way.

**Activity 27**: in the space below, explain from your experience when you have used sandbox gaming.

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### Social media

Social media refers to websites and mobile applications that allow users to create and share content, or to participate in social networking. Social media platforms typically include features such as user profiles, messaging and the ability to share multimedia content, like photos and videos.

Some popular examples of social media platforms include:

**Facebook –** a social networking site that allows users to connect with friends and family, share photos and videos, and join groups and communities.

**Twitter –** a social media platform that allows users to share short messages, known as tweets, and to follow other users and view their tweets in a timeline.

**Instagram –** a social media platform that focuses on visual content, allowing users to share photos and videos and to edit and filter them with various effects.

**TikTok –** a social media platform that allows users to create and share short videos, usually set to music or other audio.

**LinkedIn –** a social media platform designed for professional networking, allowing users to connect with colleagues and other professionals, share their work experience, and find job opportunities.

Social media has become a ubiquitous tool for communication and information sharing. It allows people to connect and interact with others, share ideas and access news and information. However, it also raises concerns about privacy and security, and the impact on mental health and well-being.

As a class, students watch this short film on [Social Media Addiction (2:46)](https://www.youtube.com/watch?v=VJcxbOmV6Do).

**Activity 28:** in the space below, create 5 tips to help combat the impact of social media on mental health and well-being.

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### Digital creative commons

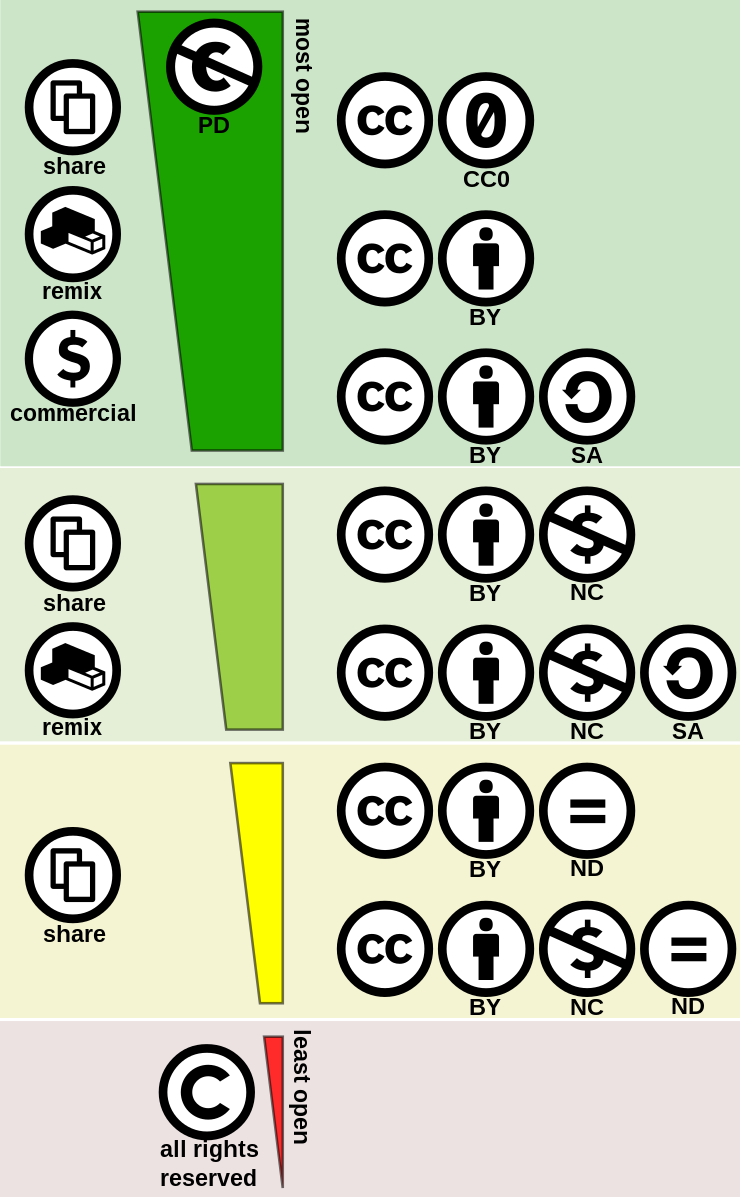
Creative Commons (CC) is a non-profit organisation that provides a system of copyright licenses for creative works, such as text, images and videos. These licenses allow creators to retain their copyright while also allowing others to use, share and build upon their work, subject to certain conditions.

Digital Creative Commons licenses are a set of standard copyright licenses that can be applied to digital content such as text, images, videos and audio files. They provide a simple, standardised way for creators to share their works and for others to use them.

As a class, watch [Creative Commons License and how it helps us share digital content (5:32)](https://www.youtube.com/watch?v=HKfqoPYJdVc).

Examine the graphic below.

Figure 2 – creative commons license spectrum



‘[Creative commons license spectrum](https://commons.wikimedia.org/wiki/File:Creative_commons_license_spectrum.svg)’ by [MJL](https://commons.wikimedia.org/wiki/User:MJL) is licensed under [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

**Activity 29:** there are several types of Creative Commons licenses, each with different levels of permissions and conditions. Complete the table below.

**Teacher note: the content under the ‘Level of permissions and conditions’ heading can be deleted when distributing to students as a resource.**

|  |  |
| --- | --- |
| Attribution | Levels of permissions and conditions |
| (CC BY) | Allows others to use, share and build upon the work, as long as they give credit to the creator. |
| ShareAlike  (CC BY-SA) | Allows others to use, share and build upon the work, as long as they give credit to the creator and license any new work they create under the same terms. |
| NoDerivatives  (CC BY-ND) | Allows others to use and share the work, as long as they give credit to the creator and do not make any changes to the work. |
| NonCommercial  (CC BY-NC) | Allows others to use, share and build upon the work, as long as they give credit to the creator and do not use the work for commercial purposes. |
| NonCommercial-ShareAlike  (CC BY-NC-SA) | Allows others to use, share and build upon the work, as long as they give credit to the creator, do not use the work for commercial purposes, and license any new work they create under the same terms. |
| NonCommercial-NoDerivatives  (CC BY-NC-ND) | Allows others to use and share the work, as long as they give credit to the creator, do not make any changes to the work, and do not use the work for commercial purposes. |
| Attribution | Levels of permissions and conditions |

These licenses make it easy for creators to share their work and for others to use it, while also protecting the rights of the creators. They are widely used by artists, musicians, photographers and other creators to share their work online, and they are a popular alternative to traditional copyright licenses.

### Examine how human behaviour may be influenced by interactive media, including opportunities for people with disability to explore and participate in their environment

Interactive media, such as video games and virtual reality, have had a significant impact on human behaviour by providing new ways for people to explore and participate in their environment.

For individuals with disabilities, these technologies have the potential to provide new opportunities for socialisation, entertainment, and education. For example, virtual reality can be used to simulate real-world environments, allowing people with mobility impairments to experience things they may not be able to in real life.

Additionally, video games and other interactive media can provide a way for people with disabilities to engage in activities that may be difficult for them in the physical world, such as sports or other physical activities. Overall, interactive media can help to promote inclusion and accessibility for people with disabilities, providing them with new ways to explore and participate in their environment.

**Activity 30:** many devices and interactive systems have been designed for people with disabilities. In this scenario we will look at Amazon’s Alexa.

In the space below, list 5 different ways that [Alexa helps people with disabilities](https://www.aboutamazon.com/news/devices/how-alexa-helps-customers-with-disabilities-every-day) complete everyday tasks.

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### Investigate how digital marketing techniques influence consumer behaviour

Digital marketing techniques can influence consumer behaviour by making products and services more visible, building trust and loyalty, and providing personalised and targeted advertising.

Digital marketing techniques can have a significant influence on consumer behaviour and include techniques such as:

* search engine optimisation (SEO)
* pay-per-click advertising (PPC)
* social media marketing
* email marketing
* content marketing.

SEO and PPC can influence consumer behaviour by making it easier for them to find products and services through search engines.

Social media marketing can influence consumer behaviour by creating a sense of community and social proof around a product or brand.

Email marketing can influence consumer behaviour by keeping potential customers informed and engaged with a brand.

Content marketing can influence consumer behaviour by providing valuable information and building trust and authority around a brand.

Additionally, data tracking and analysis of consumer behaviour on the web can allow businesses to personalise their marketing strategies and target specific consumer groups with precision.

#### Guided choice (nudging)

As a class, watch this video on [nudges and choice architecture (15:50)](https://www.youtube.com/watch?v=AZExnUKfik0) and discuss examples of when nudging has been experienced by students in the class.

Guided choice, also known as ‘nudging’, is a behavioural economics concept that refers to the use of subtle cues or suggestions to influence people's decisions without restricting their freedom of choice. The idea is that by providing people with a ‘nudge’ in a particular direction, they can be encouraged to make decisions that are in their own best interest, such as saving money or making healthier choices.

Nudges can take many forms, such as default options, framing and salience. For example, setting a savings account as the default option when signing up for a new bank account can increase the likelihood that people will save money. Framing information in a certain way, such as highlighting the benefits of a healthier food choice, can also influence people's decisions. Making a certain option more salient, such as by placing healthier food options at eye level in a grocery store, can also nudge people towards making better choices.

Nudging has been applied in various fields such as health, public policy, and marketing, and it has been found to be effective in encouraging positive behaviour changes. However, it also has been criticised for being manipulative or paternalistic, and it is important to ensure that nudging is implemented ethically and transparently.

The digital marketing technique of nudging can influence consumer behaviour in several ways as described below:

**Default options –** nudging can be used to influence consumer behaviour by setting certain options as the default. For example, if a website has a ‘buy now’ button as the default option, users may be more likely to make a purchase without considering other options.

**Framing –** nudging can also be used to influence consumer behaviour by framing information in a certain way. For example, highlighting the benefits of a healthier food choice can influence users to make healthier food choices.

**Salience –** nudging can make certain options or products more visible or prominent, which can influence consumer behaviour. For example, placing healthier food options at eye level in a grocery store can encourage users to make healthier food choices.

**Convenience –** nudging can make it more convenient for users to make certain choices, by reducing the cognitive effort and time required to complete a form. This can make it more likely that users will complete a form or purchase.

**Impulsivity –** nudging can make it easier for users to make impulsive decisions, as they do not have to actively think about what they are doing, which can lead to less reflection and a higher likelihood of purchase.

**Activity 31**: in the space below, describe how nudging can influence consumer behaviour.

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| **Sample answer:**  Nudging can influence consumer behaviour by making certain options or products more visible or prominent, making it more convenient for users to make certain choices, and making it easier for users to make impulsive decisions.  However, it is important to ensure that nudging is implemented ethically and transparently, as it can also be seen as manipulative. |

#### Default settings, including cookies

As a class, watch this video on [How cookies can track you (6:50)](https://www.youtube.com/watch?v=QWw7Wd2gUJk) and discuss the use of cookies on website browsers over the history of the internet.

Default settings and cookies can influence consumer behaviour in a number of ways:

**Ease of use –** default settings can make it easier for consumers to use a product or service, by pre-selecting options that are most likely to be used. For example, if the default setting for cookies is to accept them, users may be more likely to accept cookies without considering the potential privacy implications.

**Personalisation –** cookies can track and collect user data, which can then be used to personalise and target advertising. For example, if a user visits a website and searches for a specific product, a cookie can be placed on their computer to remember that search. Then, when the user visits other websites, they may be shown ads for that product. This can influence consumer behaviour by making it more likely that the user will purchase that product.

**Visibility –** default settings and cookies can also influence consumer behaviour by making certain options or products more visible or prominent. For example, if a website has a ‘featured product’ section that is influenced by cookies, users may be more likely to purchase that product because it is more visible or prominently displayed.

**Convenience –** default settings and cookies can make it more convenient for users to browse and purchase by remembering their preferences and making it easier to find what they are looking for.

It is important to note that while these features can improve UX, they can also be used to manipulate and influence consumer behaviour. Users should be aware of these features and have the ability to control them, to make informed decisions and protect their privacy.

**Activity 32:** in the space below, discuss an experience you have had, where the digital marketing techniques of default settings and cookies has influenced your consumer behaviour.

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#### Autofill

As a class watch [Digital Marketing Strategies That Just Work (5:12)](https://www.youtube.com/watch?v=3rrcT0wD7Ik).

Lead a class discussion on how the 5 strategies each can use autofill features.

Autofill, also known as autocomplete, is a feature that automatically fills in forms or fields with previously entered information. This feature is intended to make it easier and faster for users to enter information, but it can also influence consumer behaviour.

Autofill can influence consumer behaviour by reducing the cognitive effort and time required to complete a form. This can make it more likely that users will complete a form or purchase, as it requires less time and effort on their part. Autofill can also make it easier for users to make impulsive decisions, as they don't have to actively think about what information they are entering, which can lead to less reflection and a higher likelihood of purchase.

Additionally, autofill can be influenced by previous browsing history, search history and other data, and this can also have an impact on consumer behaviour. For example, if a user has previously searched for a specific product, autofill may suggest that product when the user visits a website. This can lead to users being more likely to purchase that product, as it has been suggested to them.

It's important to note that autofill can be a useful tool for improving UX and can help users quickly find what they are looking for, but it can also be used to manipulate and influence consumer behaviour, which is why user should be aware of this feature and should be able to control it if they want to.

**Activity 33:** in the space below, describe what data autofill collects when using a browser such as Google Chrome.

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| **Sample answer:**  Using the autofill feature on Google Chrome can be very convenient and the data is stored in the Google Cloud’s storage.  Sample answers can include that it remembers your contact information such as:   * name * address * phone number * credit card details * email addresses.   When your details change you need to update or remove this information by accessing the settings in Chrome. |

#### Pop-ups promoting online shopping

Pop-ups are small windows that automatically appear on a computer or mobile device screen, often in response to a user's action or interaction with a website or application. Pop-ups can contain various types of content, such as text, images, videos or forms. They can be used for a variety of purposes, such as displaying advertisements, collecting user information or providing additional information or options.

Pop-ups can be created using JavaScript or other programming languages, and are often triggered by specific events, such as clicking on a link or button, hovering over a specific area, or visiting a website. They can be set to appear immediately or after a certain amount of time has passed.

Pop-ups have been widely used in the past, but they have become less popular due to the negative UX they create. They often appear unexpectedly, interrupting the user's browsing experience and can be difficult to close. Some pop-ups are also used to spread malware or viruses.

Many web browsers now have built-in pop-up blockers that prevent unwanted pop-ups from appearing. Some websites also use alternative methods such as interstitials or modals to display similar information without using pop-ups.

Pop-ups promoting online shopping can influence consumer behaviour in a number of ways:

**Visibility –** pop-ups can make products or services more visible to consumers, which can increase their likelihood of purchasing.

**Urgency –** pop-ups can create a sense of urgency by promoting limited-time offers, flash sales, or special deals. This can influence consumers to make a purchase decision more quickly.

**Personalisation –** pop-ups can be targeted to specific consumers based on their browsing history, search history, and other data. This can increase the relevance and effectiveness of the promotion and make it more likely that the consumer will make a purchase.

**Convenience –** pop-ups can make it more convenient for consumers to make a purchase, by providing them with direct links to the product or service and making the purchasing process more streamlined.

**Impulsivity –** pop-ups can make it easier for consumers to make impulsive purchase decisions, as they don't have to actively seek out the product or service. It is presented to them in the moment.

However, it is important to note that pop-ups can also be perceived as intrusive and annoying by some users, which can lead to a negative impact on consumer behaviour. It is important for businesses to use pop-ups in an ethical way, by providing relevant and useful information, and providing an easy way for users to close or turn off the pop-up.

As a class, watch the video, [Do Popups Still Work? (2:35)](https://www.youtube.com/watch?v=iQ8PX4aPy6w). Discuss when to use pop-ups, including the use of exit pop-ups.

**Activity 34:** in the space below, write from the perspective of a website designer and detail when you would use a pop-up as a digital marketing technique to influence consumer behaviour.

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### Evaluate social media applications that encourage human connections

Social media applications that encourage human connections are designed to bring people together and foster social interactions.

Social media applications can be effective in encouraging human connections by providing a platform for people to share their interests, experiences, and ideas, and to interact with others who share those interests. They can also be a great way for people to make new friends, find support and build relationships, but it's important to use them in a balanced way and to be mindful of the potential negative effects of social media use.

Some examples of these types of applications include:

**Facebook –** Facebook is one of the most popular social media platforms, and it is designed to connect people with friends, family and other people they know. It allows users to share photos, videos, and updates about their lives, and to connect with others through comments, likes, and private messages.

**Instagram –** Instagram is a visual social media platform that allows users to share photos and videos with friends and followers. It is designed to encourage people to connect through shared interests, by allowing users to follow and interact with other users based on the content they post.

**LinkedIn –** LinkedIn is a professional social media platform that allows users to connect with other professionals in their industry or field. It allows users to share their professional experience and skills, and to connect with others through comments, likes, and private messages.

**TikTok –** TikTok is a short-form video-sharing platform where users can share 15-second videos that can be edited with filters, music and special effects. It is designed to encourage users to connect with others through shared interests, and to discover new content through a personalised feed.

**Activity 35:** complete the table below to describe how you foster human connections using a range of social media applications.

|  |  |
| --- | --- |
| Social media platform | Description of how you foster human connections |
| **Facebook** |  |
| **Instagram** |  |
| **LinkedIn** |  |
| **TikTok** |  |
| **[insert other]** |  |

#### Crowdsourcing through a social media app

The term crowdsourcing was originally coined by [Wired Magazine](https://www.wired.com/2006/06/crowds/) writer Jeff Howe in 2006 and is a combination of the words ‘outsourcing’ and ‘crowd’.

Outsourcing traditionally describes transferring work processes from your own company to an external service provider to use the economies of scale involved and minimise costs. A crowd generally describes a large number of individuals who form a community.

The principle therefore describes a process in which companies outsource parts of their work processes and fall back on a community of thousands of people (the crowd) instead of individual service providers. Companies, so to speak, work with the ‘intelligence of the masses’. Individual persons who participate in the crowd are called crowd workers or clickworkers, often registered on crowdsourcing platforms.

Crowdsourcing through a social media app for human connections can be an effective way to gather ideas, feedback, and contributions from a large and diverse group of people, which can be beneficial for businesses, organisations, and individuals.

Crowdsourcing through a social media app for human connections can provide a number of benefits, including:

**Innovation –** crowdsourcing can generate new ideas and solutions by tapping into the collective knowledge and creativity of a large group of people.

**Cost-effectiveness –** crowdsourcing can be a cost-effective way to gather information or ideas, as it utilises the contributions of many individuals rather than relying on a small group of experts.

**Diversification –** crowdsourcing can provide a diverse range of perspectives and ideas, as it draws from a large and varied group of people.

**Reach –** social media apps for human connections can have a wide reach, allowing the crowdsourcing to be done globally and gather a large number of people.

**Speed –** crowdsourcing can be done quickly, as it allows for the simultaneous participation of many individuals.

**Community building –** crowdsourcing through a social media app can help to build a sense of community and engagement among users, as they feel like they are contributing to something bigger and meaningful.

**User-generated content –** crowdsourcing can generate user-generated content, which can be valuable for companies and organisations to use for marketing and research purposes.

**Feedback –** crowdsourcing can be used to gather feedback from users, which can be valuable for improving products and services.

**Activity 36:** scenario – Waze

Traffic apps are designed to help drivers avoid accidents by providing them with up-to-date information about traffic conditions in their area.

Traffic apps rely on the contributions of thousands of ‘citizen scientists’ who use their smartphones to report road incidents and traffic congestion.

This data helps traffic engineers develop better algorithms and make more informed decisions about how best to manage traffic flow.

Waze is one of the most popular crowd-powered startups.

****In the space below, describe what the users of the app Waze can do to help crowd source information about traffic.

|  |
| --- |
| Users of the app can report traffic congestion, and the app will also suggest the best route to travel.  Waze gathers information from users by asking them to report road closures and tracking driving speed to identify traffic jams. |

****In the space below, write a persuasive argument for the following topic:

**Users of Waze should report where police are using speed cameras.**

|  |
| --- |
|  |

#### Learning via Massive Online Open Courses (MOOCs)

MOOCs are online courses that are designed for a large number of students and are typically offered for free or at a low cost. These courses are often created by universities and other educational institutions, and are delivered through digital platforms such as edX, Coursera and Udemy.

MOOCs typically include pre-recorded video lectures, readings, quizzes and other interactive activities, and they are often delivered in short segments that can be completed at the student's own pace. Some MOOCs also include opportunities for student-to-student interactions and collaboration through online forums, chats, and other tools.

MOOCs offer a variety of benefits for students, including:

**Accessibility –** MOOCs are available to anyone with an internet connection, making education more accessible to people who may not have the opportunity to attend traditional on-campus classes.

**Flexibility –** MOOCs allow students to learn at their own pace and on their own schedule, which can be beneficial for those with busy lives or other commitments.

**Low cost –** many MOOCs are offered for free, which can make education more affordable for people who may not be able to afford traditional on-campus classes.

**Variety –** MOOCs offer a wide variety of courses from different institutions, which allows students to explore different subjects and find what they are passionate about.

**Networking –** MOOCs offer the opportunity for students to connect with others from around the world, which can be beneficial for building professional networks and making new friends.

**Activity 37: **in the space below, describe the difference between a MOOC and a Learning Management System (LMS).

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| --- |
| **Sample answer:**  A LMS is used by educators to create and manage online classes, assignments and assessments. It provides a platform for educators to create and deliver course materials, and for students to access and interact with those materials.  MOOCs are typically free, open to anyone, and can be taken at any time. They are usually offered by universities and other educational institutions and designed to provide a high-quality education to a large number of students. They usually include video lectures, quizzes, and interactive exercises and may also include peer-to-peer interaction and networking opportunities. |

#### Gaming platforms that encourage Massive Multiplayer Online Games (MMOGs)

MMOGs are games that are played by a large number of players over the internet and encourage social interactions, cooperation and competition. These games are typically hosted on gaming platforms that provide the infrastructure and tools needed to support large numbers of players. Some examples of gaming platforms that encourage MMOGs include:

**Steam –** Steam is a digital distribution platform for video games, which offers multiplayer gaming, matchmaking, and other community features.

**Xbox Live –** Xbox Live is a gaming service for the Xbox gaming console, which offers multiplayer gaming, matchmaking, and other community features.

**PlayStation Network –** PlayStation Network is a gaming service for the PlayStation gaming console, which offers multiplayer gaming, matchmaking, and other community features.

**Battle.net –** Battle.net is a gaming platform developed by Blizzard Entertainment, which is known for popular MMOGs such as World of Warcraft, Diablo III and Hearthstone.

**Roblox –** Roblox is a MMOG platform that allows users to create their own games and play games created by other users. It is particularly popular among young people.

**Minecraft –** Minecraft is a sandbox MMOG that allows players to build and explore virtual worlds. It is available on multiple platforms including PC, Xbox, PlayStation and Nintendo Switch.

These gaming platforms offer a variety of features and services to support MMOGs, such as matchmaking, voice chat and other community features. They provide a way for players to connect and interact with each other and to compete or cooperate in a shared virtual world.

**Activity 38:** [brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) examples of MOOGs you have encountered recently and paste your results below.

|  |
| --- |
|  |

****In the space below, identify and describe the UX of a MMOG you have used.

|  |
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|  |

### Explore how interactive media platforms support the creation of digital identities

Interactive media platforms, such as social media, gaming, and other online communities support the creation of digital identities by providing users with a space to express themselves and interact with others.

Some ways in which interactive media platforms support the creation of digital identities include:

**Profile creation –** many interactive media platforms allow users to create a profile, which is a representation of themselves within the platform. This profile can include information such as the user's name, interests, and other personal information.

**Self-expression –** interactive media platforms provide users with a variety of tools and features for self-expression, such as the ability to post photos, videos and updates about their lives, and to interact with others through comments, likes and private messages.

**Customisation –** interactive media platforms allow users to customise their profile and online space, such as choosing a profile picture, background, and other elements. This allows users to create a unique and personalised digital identity.

**Interaction –** interactive media platforms allow users to interact with others, which can help to shape and develop their digital identities. For example, users can connect with others based on shared interests, participate in online communities, and form relationships with others online.

**Social cues –** interactive media platforms can provide social cues to users on how to behave.

#### Personal e-profiles

Personal e-profiles are digital representations of an individual, usually on the internet, that provide information about the person, their interests, and their online presence. Personal e-profiles are commonly found on social media platforms, professional networking sites, and other online communities. Some examples of personal e-profiles include Facebook profiles, LinkedIn profiles, and Twitter accounts.

It is important to be aware of the potential risks and negative aspects of personal e-profiles, such as privacy concerns, and the potential for oversharing, and to manage them accordingly.

Personal e-profiles offer a variety of benefits, including:

**Connecting with others –** personal e-profiles allow individuals to connect with others online, by providing a way for people to find and interact with each other based on shared interests and connections.

**Branding and self-promotion –** personal e-profiles can be used to create a positive and professional image of oneself, which can be beneficial for personal and professional development.

**Job search –** personal e-profiles can be useful for job searching and professional networking, as they allow individuals to showcase their skills, qualifications and experience to potential employers.

**Career opportunities –** personal e-profiles can increase the visibility of an individual, which can help to open up new career opportunities and connections.

**Self-expression –** personal e-profiles allow individuals to express themselves and their interests, which can be beneficial for personal growth and self-awareness.

**Access to information –** personal e-profiles can provide access to a wide range of information and resources, such as news, articles and other content that can be relevant and interesting to the user.

**Convenience –** personal e-profiles can make it more convenient to keep in touch with friends and family, by providing a way to share updates, photos and other information quickly and easily.

**Activity 39:** complete the table below to describe 3 digital identities you have created using interactive media platforms.

|  |  |
| --- | --- |
| Interactive media platform | Description of your digital identity |
| **Facebook** |  |
| **Instagram** |  |
| **Online game** |  |

#### Identifier versus identity

An identifier is a piece of information used to reference an identity, while identity is the set of characteristics, attributes and traits that define who a person is. Identifiers are used to access an identity, but they don't reveal the whole identity of a person.

An identifier is a piece of information or a set of characters that is used to identify or distinguish something or someone from others. Identifiers can be used to identify anything, such as a username, email address or IP address.

Identity, on the other hand, is the set of characteristics, attributes and traits that define who a person is. It includes the person's name, age, gender, occupation, interests and other personal information. Identity also includes the person's social roles, relationships, and reputation.

An identifier is a way to reference an identity, but it does not necessarily reveal the whole identity of a person, it just serves as a unique reference. For example, a username on a social media platform is an identifier. It is a way to reference a person's account, but it doesn't reveal much about the person behind the account.

In the digital world, an identifier is often used to access an identity, such as a username and password combination, or a biometric identification method like a fingerprint or facial recognition. These identifiers are used to verify the identity of a person and grant access to resources, services or information.

**Activity 40:** emails and handle names on accounts can be an identifier and different from your name or identity. Complete the table below with examples that will remain appropriate for the next 20 years.

|  |  |
| --- | --- |
| Interactive media platform | Example of an identifier |
| **Email address** |  |
| **Account name or handle** |  |

#### Profiling and auto-profiling

In UX, profiling and auto-profiling refer to the process of collecting and analysing data about users to understand their needs, preferences and behaviours. This information can be used to create user profiles, which can be used to improve the overall user experience by tailoring the design and functionality of products and services to meet the specific needs of different user segments.

Auto-profiling specifically refers to the process of automatically collecting and analysing data about users without their explicit input or consent. This can be done using tracking technologies such as cookies or device fingerprints, or by using machine learning algorithms that can analyse user behaviour and infer user characteristics. This information can be used to create detailed user profiles and to personalise the UX, such as by recommending products or services based on past behaviour.

Both profiling and auto-profiling are used to improve the UX, but they can also raise concerns around privacy as they involve the collection and use of personal information.

Profiling and auto-profiling can be used to support digital identities by collecting and analysing data about an individual or organisation. This information can be used to create a unique digital profile that can be used to identify and authenticate the individual or organisation when accessing online services or resources. Auto-profiling can automate the process of collecting and analysing data, making it more efficient and accurate. This can be useful for verifying the identity of users in online transactions, such as banking or e-commerce, and for providing personalised services or content based on the user's profile.

**Activity 41:** scenario – Flybuys

****Flybuys is one of Australia's largest loyalty programs with over 8 million members. It rewards you with Flybuys points when you shop at partnered retailers including Coles, Kmart, Target and Bunnings Warehouse.

Read the article on [What are loyalty schemes like Flybuys and Everyday Rewards doing with your data?](https://www.choice.com.au/consumers-and-data/data-collection-and-use/who-has-your-data/articles/loyalty-program-data-collection)

****In the space below, identify how many people take up a loyalty scheme?

|  |
| --- |
| **Sample answer:**  A recent CHOICE survey found that 9 in 10 people belong to at least one loyalty program. |

****In the space below, identify and describe how data is like a goldmine for loyalty schemes and how they use these for profiling and auto-profiling.

|  |
| --- |
| **Sample answer:**  Loyalty schemes create something of a data goldmine, enabling retailers to collect valuable and highly specific data about their customers to develop consumer profiles, which they can use to target customers with tailored offers. These details may also be shared with or sold to other businesses to deepen these profiles.  ‘Loyalty programs share data well beyond consumer expectations, for instance, supermarket rewards programs sharing data with their insurance businesses.’  Some loyalty schemes may also use this data to deliver targeted, personalised advertising to their own customers on behalf of other businesses. |

****In the space below, identify and describe how data broking affects the UX.

|  |
| --- |
| **Sample answer:**  Data brokers are companies that deal in personal information and consumer data, holding vast troves of information on billions of people. They have even been described as a threat to democracy because of the extent of data that can be shared and sold, all without adequate protections from privacy laws.  Using this data in digital profiles for decision-making, as well as applying algorithms and AI, can create or reinforce existing biases, create inequalities in opportunities and lead to digital discrimination, all without people fully appreciating the pervasive nature of digital data collection and profiling. |

#### Privacy settings

There are a variety of settings and options that can be adjusted in privacy settings to control the amount and type of personal information that is shared and how it is used. Some examples of privacy settings that can be adjusted include:

**Profile visibility –** this setting controls who can see your profile information, such as your name, profile picture and posts. You can choose to make your profile private, visible only to approved followers, or public and visible to anyone.

**Location sharing –** this setting controls whether your device's location is shared with the platform or app you are using. You can choose to turn off location sharing, share your location only with specific individuals or groups, or share it with everyone.

**Ad targeting –** this setting controls whether your personal information is used for targeted advertising. You can choose to opt-out of targeted advertising, limit the use of your personal information for specific purposes, or allow it to be used for any purpose.

**Data sharing –** this setting controls whether your personal information is shared with third parties. You can choose to limit the sharing of your personal information with third parties or allow it to be shared for specific purposes.

**Notification settings –** this setting controls whether you receive notifications from the platform or app you are using. You can choose to turn off notifications, receive notifications only for specific events or activities, or receive notifications for everything.

**Multi-factor authentication –** this setting adds an extra layer of security to your account by requiring a second form of authentication, usually in the form of a code sent to your mobile phone or an authentication app.

Privacy settings can support digital identities by allowing individuals to control the amount and type of personal information that is shared online. By providing users with the ability to adjust their privacy settings, they can limit the amount of personal information that is available to others and to control who has access to that information.

For example, social media platforms allow users to adjust their privacy settings to control who can see their posts and profile information. Users can choose to make their profiles and posts private, allowing only approved individuals to access that information, or they can choose to make their profiles public and visible to anyone.

Additionally, privacy settings can also support digital identities by providing users with the ability to control how their personal information is used by others. For example, users can choose to opt-out of targeted advertising or to limit the use of their personal information for specific purposes.

Privacy settings can provide individuals with greater control over their personal information and how it is shared and used online, which can support the integrity and security of their digital identities.

**Activity 42:** explore the [Australian Cyber Security Centre](https://www.cyber.gov.au/protect-yourself) (ACSC) website andlearn about the various ways to protect yourself. List below several approaches you can take.

|  |
| --- |
| **Sample answers:**   * Securing your accounts using passphrases. * Securing your accounts using multi-factor authentication. * Securing your devices including backup. * Staying secure online. |

## Capture, store and integrate data

### Select and use appropriate file formats for a defined purpose

There are many file formats used in interactive media, each with their own specific characteristics and uses.

Some common file formats used in interactive media include:

**Images –** JPEG, PNG, GIF, and BMP are common file formats used for images. JPEG is a lossy format that is best for photographs and images with many colours, while PNG and GIF are lossless formats that are best for graphics and images with limited colours. BMP is a basic file format that is used for simple images and graphics.

**Audio –** MP3, WAV, and AIFF are common file formats used for audio. MP3 is a compressed format that is widely supported and can be played on most devices, while WAV and AIFF are uncompressed formats that provide higher quality audio but take up more storage space.

**Video –** MP4, AVI, and MOV are common file formats used for video. MP4 is a widely supported format that is best for streaming and online playback, while AVI and MOV are more versatile formats that can be used for a variety of purposes.

**Animation –** SWF and GIF are common file formats used for animation. SWF is a vector-based format that is best for interactive animations and games, while GIF is a raster-based format that is best for simple animations and animations with limited colours.

**3D –** STL, FBX and COLLADA are common file formats used for 3D models. STL is a file format that is mostly used for 3D printing, FBX is a proprietary format developed by Autodesk and COLLADA is an open standard format for 3D data exchange.

**Documents –** PDF, Word, and PowerPoint are common file formats used for documents. PDF is a widely supported format that is best for displaying documents in a fixed layout, while Word and PowerPoint are more versatile formats that can be used for a variety of purposes.

These are just a few examples of the many file formats used in interactive media. The choice of file format will depend on the specific needs of the project and the devices or platforms that will be used to display the media.

****[Brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) examples of file formats you will use in your project and paste below.

|  |
| --- |
|  |

**Activity 43:** planning file formats for Assessment task 1.

****Examine what file formats you will use in your Assessment task 1 where you are designing an interactive media experience for a user.

Complete the table below outlining what appropriate media types you will use and why the type of file will fit the defined purpose.

|  |  |
| --- | --- |
| Appropriate file type | Defined purpose in Assessment task 1 |
| **Images**  For example JPEG, PNG, GIF, and BMP | * Define the purpose of using images and explain your choice of appropriate file type. |
| **Audio**  For example MP3, WAV, and AIFF | * Define the purpose of using audio and explain your choice of appropriate file type. |
| **Video**  For example MP4, AVI, and MOV | * Define the purpose of using video and explain your choice of appropriate file type. |
| **Animation**  For example SWF and GIF | * Define the purpose of using animation and explain your choice of appropriate file type. |
| **3D**  For example STL, FBX and COLLADA | * Define the purpose of using 3D and explain your choice of appropriate file type. |
| **Documents**  For example PDF, Word, and PowerPoint | * Define the purpose of using documents and explain your choice of appropriate file type. |

### Use software to develop elements of interactive media in a project

When creating interactive media, there are several file formats that are commonly used, each with their own specific characteristics and uses. Some examples of appropriate file formats include:

**HTML and CSS –** these are markup languages and stylesheet languages used to create and format the structure and layout of web pages. They are the backbone of the web and support interactivity through the use of JavaScript and other scripting languages.

**JavaScript –** JavaScript is a scripting language that is commonly used to create interactive elements on web pages, such as forms, buttons and animations. It can also be used to create interactive web and mobile applications.

**Flash –** Flash is a multimedia platform that was widely used in the past to create interactive animations and games. It is not widely used anymore, but it still supports SWF file format which can be used to create interactive content.

**Unity –** Unity is a game engine that allows developers to create 2D and 3D games and interactive experiences for a variety of platforms. It supports a wide range of file formats, including 3D models, textures and audio.

**Adobe Animate –** Adobe Animate is a multimedia authoring tool that allows developers to create interactive animations and vector graphics for web, mobile, and other platforms. It supports a wide range of file formats, including SWF, HTML5 and video.

**Adobe XD –** Adobe XD is a UX design tool that allows developers to create interactive wireframes, prototypes, and user interfaces for web, mobile and other platforms. It supports a wide range of file formats, including XD and PDF.

These are just a few examples of the many file formats used to create interactive media. The choice of file format will depend on the specific needs of the project, the target platform and the skills of the developer.

****[Brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) elements of interactive media you will use in your project.

|  |
| --- |
|  |

**Activity 44:** planning to use software to develop elements of interactive media for Assessment task 1.

Examine what your final product will consist of in developing your idea for Assessment task 1. When designing an interactive media experience, what key elements are you developing and designing to produce your interactive media experience for a user?

Complete the table below, outlining what appropriate software and elements you will develop and use in the project.

|  |  |
| --- | --- |
| Appropriate software | Interactive media element in Assessment Task 1 |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

### Use hardware and software to digitise assets for use in interactive media systems, including lossy and lossless data compression

Data compression is the process of reducing the size of a file or data set without losing any important information.

There are 2 main types of data compression: lossy and lossless.

Lossy compression is a method of data compression that discards some of the data in a file in order to reduce its size. The process of lossy compression is irreversible, which means that the discarded data cannot be recovered once the file is compressed. Lossy compression is often used for image, audio and video files, where the human eye or ear can't detect the loss of quality.

Lossless compression is a method of data compression that reduces the size of a file without losing any data. The process of lossless compression is reversible, which means that the original data can be restored once the file is decompressed. Lossless compression is often used for text, code and other types of data where losing any information would not be acceptable.

When digitising assets, lossy compression is often used for image, audio and video files to reduce the file size without a noticeable loss of quality, while lossless compression is used for text, code and other types of data where the preservation of the original data is important.

It is important to note that not all files can be compressed equally, as the amount of compression will depend on the type of data, the algorithm used and the settings applied. In some cases, it may be beneficial to use a combination of both lossy and lossless compression to achieve the best balance between file size and quality.

As a class watch [What is the difference in lossy vs lossless compression? (3:25)](https://www.youtube.com/watch?v=3nym3fkHqyk) and discuss the importance of using compression for speed of transmission.

**Activity 45: **in the space below, describe your considerations when you are saving your various elements for your project and thinking about compression.

|  |
| --- |
|  |

**Cloze passage**

Complete the passage below using the words provided.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| colours | data | storage | compact | people | product | lossy |
| internet | retrieved | original | clarity | lossless | processing | quality |

Files are compressed so that they require less \_\_\_\_\_\_\_\_\_\_\_\_\_\_ space, less \_\_\_\_\_\_\_\_\_\_\_\_\_\_ power and can be downloaded from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ more quickly. There are 2 main types of compression: lossy and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Lossy compression removes some of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the file resulting in a lower quality \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Examples include images with fewer \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or sound files with less \_\_\_\_\_\_\_\_\_\_\_\_\_\_. The discarded data cannot be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ so the output will never be full \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (although the differences may be undetectable to most \_\_\_\_\_\_\_\_\_\_\_\_\_\_). Lossless compression keeps all the data so that the output is exactly the same quality as the \_\_\_\_\_\_\_\_\_\_\_. Clever algorithms are used to \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the data without losing any of it. The space savings of lossless compression are not as good as they are with \_\_\_\_\_\_\_\_\_\_\_\_\_\_ compression.

### Explain how the user interface (UI) impacts on the user experience (UX)

The UI and UX are closely related concepts in interactive media design. The UI is the interface through which users interact with a system or product, while UX refers to the overall experience that users have when interacting with the system or product.

The UI of a system or product plays a crucial role in determining the UX. The UI is the surface of the interactive media product and is what the user sees and interacts with. It is the first impression and the foundation of the UX.

A well-designed UI can make the system or product easy to use and understand, while a poorly-designed UI can make it frustrating and difficult to use.

A good UI should be:

**Intuitive –** it should be easy for users to understand and use, with a logical layout and clear labelling.

**Consistent –** it should be consistent across different pages, screens and features of the system or product, making it easy for users to learn and use.

**Accessible –** it should be accessible to users with different abilities and needs, including those with visual, auditory, motor and cognitive impairments.

**Flexible –** it should be flexible and adaptable to different contexts and devices, so that users can use it on different platforms and in different environments.

**Aesthetically pleasing –** it should be visually pleasing and engaging, with appropriate use of colour, typography, images, and other design elements.

The UI of a system or product can have a significant impact on the overall UX, as it can either enhance or detract from the user's experience.

The UI can impact the UX in several ways, including:

**Navigation –** a clear and intuitive navigation structure makes it easy for users to find the information they need and complete tasks.

**Feedback –** the UI should provide feedback to the user, such as confirming that a button has been pressed or an action has been completed.

**Consistency –** the UI should be consistent in terms of layout, design and functionality, which helps users to feel comfortable and confident using the product.

**Aesthetics –** the UI should be visually appealing and easy on the eye, which can help to create a positive emotional response in users.

**Accessibility –** the UI should be accessible to all users, including those with disabilities, which can improve the overall UX for a wider audience.

**Activity 46:** research 2 interactive media products and, using these as examples, explain how the UI impacts on the UX.

Complete the table by identifying the interactive media product, collecting a screenshot of the user interfaces and then explaining how the UI impacts the UX. The 2 interactive media product examples can be chosen to highlight the similarities and differences of each UI and UX.

|  |  |  |
| --- | --- | --- |
| Name of interactive media product | Screen shot of UI | Explanation of how the UI impacts the UX |
| Name 1 | Screenshot of UI |  |
| Name 2 | Screenshot of UI |  |

### Apply design tools and techniques to develop an engaging user interface (UI)

There are several design tools and techniques that can be used to develop an engaging UI. Some examples include:

**Wireframing –** wireframing is a technique for creating simple, low-fidelity representations of the layout, structure and navigation of a UI. Wireframes are used to quickly prototype and test different design concepts and layouts before moving on to higher-fidelity designs.

**Prototyping –** prototyping is a technique for creating interactive, high-fidelity representations of the UI. Prototypes can be used to test and evaluate different design concepts, layouts and interactions before the final product is developed.

**User testing –** user testing is a technique for evaluating the usability and effectiveness of a UI by observing real users as they interact with the interface. User testing can be used to identify and fix usability problems and to gather feedback on the design.

**Visual design –** visual design is the process of creating the visual elements of a UI, such as colour, typography, images and other design elements. Visual design can be used to create an engaging and aesthetically pleasing interface that is consistent with the branding and style of the product.

**Interaction design –** interaction design is the process of designing the interactions and behaviours of the UI, including the layout, navigation and controls. Interaction design can be used to create an intuitive and easy-to-use interface that guides users through the tasks and functions of the product.

**Accessibility –** accessibility is the practice of designing interfaces that can be used by people with disabilities. It includes techniques such as providing alternative text for images, using proper semantics for buttons and forms, and providing clear and useful error messages.

These are just a few examples of the many design tools and techniques that can be used to develop an engaging UI. The choice of tools and techniques will depend on the specific needs of the project.

**Activity 47:** in the space below, develop a wireframe for your interactive media project, showcasing an engaging UI.

**Wireframe design with labels of envisioned UI for project**

|  |
| --- |
|  |

## Create interactive media systems

### Apply design thinking to develop a front-end, web-based interactive media system incorporating UX and UI principles

Design thinking is defined as a process where a need or opportunity is identified and a design solution is developed. The consideration of economic, environmental and social impacts that result from designed solutions are core to design thinking. Design thinking methods can be used when trying to understand a problem, generate ideas and refine a design based on evaluation and testing.

When developing a front-end, web-based interactive media system, incorporating UX and UI principles is crucial. UX design focuses on creating a seamless and satisfying experience for users, while UI design focuses on creating an attractive, user-friendly interface. Together, these principles help to ensure that the final product is easy to use, visually pleasing and responsive to the users’ needs.

When developing a front-end, web-based interactive media system, design thinking principles can be used to ensure that the UX and UI are intuitive, user-centred and effective.

**Empathy:** design thinking starts with understanding the needs, wants and problems of the users. This means that in the early stages of development, designers conduct research and gather feedback from users to understand their pain points and goals. This helps to ensure that the final product is designed to meet the needs of the users.

**Experimentation:** design thinking encourages experimentation and iteration, which means that designers can test and refine their ideas throughout the development process. This can include creating wireframes, mock-ups and prototypes, and testing them with users to gather feedback and make adjustments.

**Iteration:** design thinking encourages continuous improvement and iteration. This means that designers should be open to feedback and willing to make changes throughout the development process to improve the UX.

**Activity 48:** use 2 design thinking tools, POOCH and SCAMPER, to improve the development of your front-end, web-based interactive media system you are developing for your project.

**POOCH**

|  |  |  |  |
| --- | --- | --- | --- |
| P | O | O | CH |
| Problem | **Options**  What might be done? | **Outcomes**  Possible results for each option | **Choices**  What option will I go with? |
|  | *Option 1* |  |  |
|  | *Option 2* |  |  |
|  | *Option 3* |  |  |

Reflect on how things went:

|  |
| --- |
|  |

**SCAMPER**

Purpose: SCAMPER is a technique for looking at various or possible transformations that you could apply to a product or a process. Looking at these transformations can help you identify alternative approaches by looking at the problem from different perspectives.

**Process/Product reviewed:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Transformation | Typical questions | Solutions/Ideas |
| S | **SUBSTITUTE** | What can I substitute to make an improvement?  What happens if I swap X for Y?  How can I substitute the place, time, materials or people? |  |
| C | **COMBINE** | What materials, features, processes, people products or components can I combine within the problem area?  Where can I build synergy with other products/processes? |  |
| A | **ADAPT** | What other products/processes are like the one at the root cause of the problem?  What if we adapted them?  What could we change to make them fit our purpose? |  |
| M | **MODIFY/**  **MAGNIFY/**  **MINIFY** | What ways can we completely change the product/processes? Can it be improved by making it stronger, larger, higher, longer, exaggerated or more frequent?  Can it be improved by making it smaller, lighter, shorter, less prominent, or less frequent? |  |
| P | **PUT TO**  **OTHER USES** | What other produces/processes could do what we need to do?  What other things are going on that we could make use of? |  |
| E | **ELIMINATE** | What would happen if we removed a component of the product/process?  What would happen if we removed the whole thing?  How could we achieve the same objective if we weren’t able to do it this way? |  |
| R | **REARRANGE/**  **REVERSE** | What if we reversed the process?  What if we step B before step A?  What if we moved step A and did it last or put step Z first?  What if we did these 2 steps together? |  |

### Develop and publish an interactive work of data journalism

Data journalism is a valuable tool for journalists and news organisations to gain new insights, produce more accurate and informative stories, and engage with audiences in new ways.

Data journalism is the practice of using data to inform and tell news stories. It involves collecting, analysing and visualising data to uncover insights and patterns that can be used to support or refute news stories.

Data journalists use a variety of tools and techniques, such as data visualisation, data cleaning and analysis, and data scraping, to collect and analyse large amounts of data from various sources, such as government databases, social media platforms, and online surveys.

Data journalism can be used to investigate and report on a wide range of topics, such as politics, crime, the economy, and social issues. It can be used to uncover patterns and trends that might not be immediately apparent in traditional news stories, and to provide a more in-depth and nuanced understanding of a particular issue or event.

Data journalism can also be used to create interactive and engaging content, such as interactive maps, data visualisations, and data-driven articles, that can help to engage and inform readers in new ways.

**Activity 49:** examine 2 uses of data journalism and consider how you might include data journalism in your project.

****Read the [USA TODAY](https://www.usatoday.com/in-depth/graphics/2023/02/09/national-pizza-day-super-bowl-favorite-toppings-graphics/11201105002/) article on Super Bowl pizza sales to discover the toppings most favoured in the US.

****In the space below, describe how graphics that use data to inform and tell news stories are supporting the article.

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****Read the [Budget Direct](https://www.budgetdirect.com.au/blog/cats-vs-dogs-which-does-the-world-prefer.html) article that examines whether the world prefers cats or dogs.

****In the space below, describe how the graphics have been created using Instagram data to inform and tell the audience what the data concludes.

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****In the space below, examine your concept for Assessment task 1 and describe the purpose of your interactive media and who your typical user is.

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****[Brainstorm](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/542#.ZC4skSv0RLg.link) elements and ideas for data journalism that could be included in your task.

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****Describe what data collection and software you will use to incorporate data journalism into your project. If necessary, re-examine your wireframe of your interface and design a space to include data journalism.

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### Select an appropriate project management approach to develop an interactive media-based solution

The choice of project management approach will depend on the specific requirements of the interactive media-based solution and the needs of the development team. It is important to choose an approach that is well-suited to the project's goals, constraints and resources.

There are several project management approaches that can be used to develop an interactive media-based solution.

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| Method | Project management approach description |
| Waterfall | The Waterfall approach is a traditional, linear approach that follows a strict sequence of phases: planning, design, development, testing, deployment and maintenance.  This approach is suitable for projects with well-defined requirements and a clear scope. |
| Agile | The Agile approach is an iterative and flexible approach that focuses on delivering small chunks of the project, called ‘sprints’, in a short period of time.  Agile teams work closely with the client to adapt to changing requirements and incorporate feedback throughout the project. |
| Scrum | Scrum is an Agile framework that is widely used in software development. It is based on the principles of transparency, inspection and adaptation.  Scrum teams work in short sprints and hold regular meetings to keep everyone on track and identify any obstacles that need to be overcome. |
| Kanban | Kanban is a pull-based method that emphasises visualising the flow of work and limiting work in progress.  It is a simple approach that can be applied to any process, and is designed to help teams focus on delivering value and improving continuously. |
| Hybrid | The Hybrid approach is a combination of different methodologies.  They are often used when a project has both well-defined and changing requirements, or when it's necessary to combine the strengths of different methodologies. |

**What is Wagile?**

‘Wagile’ is a term that is used to describe a hybrid approach that combines the best aspects of both the Waterfall and Agile methodologies.

The Wagile approach combines both methodologies. It starts with a detailed planning and design phase, similar to the Waterfall method, but then uses Agile methodologies for the rest of the project, allowing for more flexibility and adaptability as the project progresses. This approach can be beneficial when a project has both well-defined and changing requirements, or when it is necessary to combine the strengths of different methodologies.

The Wagile project management approach can help to balance the need for detailed planning and design with the ability to respond to changing requirements. It can also help to ensure that the project stays on track and within budget.

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| Identify the project management solution approach or methodology selected here. |

**Activity 50:** select an appropriate project management approach for your project to develop an interactive media-based solution.

In the space below, describe how you will use this project management approach in your project.

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### Apply features of user interaction and user experience (UX) within web-based systems

There are several key features of user interaction and UX within web-based systems, which include:

**Navigation –** navigation is a key feature of web-based systems, as it allows users to easily move around the site and access the information they need. Navigation should be intuitive and easy to use, with clear labels and consistent design.

**Search –** search functionality allows users to quickly find the information they need by entering key words or phrases. A good search function should be easily accessible and should return relevant results.

**Responsive design –** responsive design ensures that web-based systems adapt to different screen sizes and devices, providing an optimal UX on any device.

**Accessibility –** accessibility is the practice of making web-based systems usable by people with disabilities. This includes providing alternative text for images, keyboard accessibility, and support for screen readers.

**Feedback –** feedback mechanisms, such as error messages or confirmation notifications, provide users with information about the system's status, and helps to guide their actions.

**Personalisation –** personalisation allows the web-based system to tailor the UX to the individual user, by providing personalised content, recommendations and settings.

**Speed –** speed is an important aspect of UX, as users expect web-based systems to load quickly. This can be achieved through techniques such as optimisation of images, caching and compression.

**Simplicity –** simplicity is key to an effective UX, as users are more likely to engage with a web-based system that is easy to understand and use.

**Consistency –** consistency in design, layout and functionality helps users understand how to interact with the system and makes it easier to navigate and use.

**Error prevention –** error prevention helps to reduce the number of errors that users make when interacting with the system, by providing clear instructions, validation and confirmation prompts.

**Activity 51:** select an appropriate number of features of user interactions and UX for your project to develop an interactive media-based solution. List these below.

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In the space below, describe how you will use these user interactions and UX within the web-based systems in your project.

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#### Communication processes via social media

When it comes to user interaction and UX in communication processes via social media, some of the key features include:

**Ease of use –** social media platforms should be easy to use, with intuitive navigation and simple interfaces. Users should be able to quickly find what they're looking for and easily communicate with others.

**Personalisation –** social media platforms should allow users to personalise their experience, such as by adjusting their settings, creating custom lists, and curating their news feed.

**Speed –** social media platforms should load quickly and be responsive to user input, so that users can communicate and share information in real time.

**Notifications –** social media platforms should provide users with real-time notifications of new messages, comments, and other updates. Users should be able to easily manage their notifications and choose which ones they receive.

**Privacy and security –** social media platforms should provide users with control over their personal information and who can see their posts and profile. Users should be able to easily adjust their privacy settings and be informed of how their data is being used.

**Multimodality –** social media platforms should support different forms of communication, such as text, images, videos and audio, to allow users to express themselves in different ways.

**Interactivity –** social media platforms should facilitate interactions between users, such as through comments, likes and shares, to create a sense of community and engagement.

**Discovery –** social media platforms should provide users with tools to discover new content, such as through hashtags, recommendations and trending topics, to keep users engaged and informed.

**Analytics –** social media platforms should provide users with analytics and metrics on their engagement, followers and reach, to help them understand how their content is being received and improve their performance.

**Support –** social media platforms should provide users with access to support and resources, such as help centres, community forums, and customer service, to help them with any issues they may encounter.

All these features when used correctly can help to create a social media platform that is easy to use, engaging and satisfying for users in their communication processes.

**Activity 52:** in the space below, describe how you use social media for communication processes in your daily life.

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In the space below, discuss how you could or will use social media communication processes in your project.

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#### Search, sort and selection processes via online retail services

When it comes to user interaction and UX in search, sort and selection processes via online retail services, some of the key features include:

**Search functionality –** online retail services should provide users with a powerful and intuitive search functionality that allows them to quickly find the products they are looking for. This should include features such as autocomplete, spell check, and advanced filtering options.

**Sort and filter options –** online retail services should allow users to sort and filter products based on various criteria such as price, brand, colour, size, and rating, to help them narrow down their search results and find the products that best meet their needs.

**Product details and reviews –** online retail services should provide users with detailed product information and customer reviews, to help them make informed decisions about the products they are interested in purchasing.

**Product images and videos –** online retail services should provide users with high-quality product images and videos, to help them get a better sense of what the products look like and how they function.

**Add to cart and wish list –** online retail services should provide users with an easy and seamless way to add products to their shopping cart or wish list, to help them keep track of the products they are interested in purchasing.

**Recommendations –** online retail services should provide users with personalised product recommendations based on their browsing and purchase history, to help them discover new products that they may be interested in.

**Order tracking –** online retail services should provide users with real-time order tracking, to help them stay informed about the status of their orders and track delivery.

**Customer service –** online retail services should provide users with easy access to customer service, such as through live chat, email, and phone support, to help them with any issues they may encounter.

**Mobile optimisation –** online retail services should be optimised for mobile devices, to provide users with a seamless experience on the go.

**Security –** online retail services should provide users with secure payment options, to ensure the safety of their personal and financial information.

All these features when used correctly can help to create an online retail service that is easy to use, efficient and satisfying for users in their search, sort and selection processes.

**Activity 53:** in the space below, describe how you use search, sort and selection processes via online retail services in your daily life.

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In the space below, discuss how you could or will use search, sort and selection processes via online retail services in your project.

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#### Online gaming platforms

When it comes to user interaction and UX in online gaming platforms, some of the key features include:

**Gameplay –** the core gameplay should be intuitive, challenging and engaging, with smooth and responsive controls.

**User interface (UI) –** the UI should be easy to navigate and understand, with clear and concise labels, and intuitive icons and buttons.

**Customisation –** the platform should allow users to customise their gaming experience, such as by adjusting settings, creating custom profiles, and choosing avatars.

**Social features –** the platform should provide users with social features such as chat, friend lists, and leader boards, to help them connect and compete with other players.

**Multiplayer –** the platform should provide users with the ability to play with or against other players in real-time, to increase engagement and competition.

**Matchmaking –** the platform should provide users with a matchmaking system that pairs them with players of similar skill levels, to ensure fair and competitive gameplay.

**In-game purchases –** the platform should provide users with the ability to purchase in-game items, such as weapons, armour, and power-ups, to enhance their gaming experience.

**Support –** the platform should provide users with access to support and resources, such as help centres, community forums, and customer service, to help them with any issues they may encounter.

**Mobile optimisation –** the platform should be optimised for mobile devices, to provide users with a seamless experience on the go.

**Security –** the platform should provide users with secure payment options, to ensure the safety of their personal and financial information.

All these features when used correctly can help to create an online gaming platform that is easy to use, engaging and satisfying for users.

**Activity 54:** in the space below, describe how you use online gaming platforms in your daily life.

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In the space below, discuss how you could or will use online gaming platforms in your project.

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# References

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