

GCSE OCR

Computer Science
J277

Legislation and privacy

Unit 5
Impacts of
digital technology



PG ONLINE

3

Objectives

- Discuss the impacts of digital technology on wider society including:
 - Legal issues
 - Privacy issues
- Describe legislation relevant to Computer Science:
 - The Data Protection Act 2018
 - Computer Misuse Act 1990
 - Copyright Designs and Patents Act 1988
 - Software licences including open source and proprietary

Starter

- An employee of a web design company loses their job and is upset
 - Before they leave, they log in to a computer using a colleagues username and password
 - They then copy graphics from the company such as logos, photos and web layouts for their own use
 - They also copy a list of all the company's clients and their contact details
- Which laws has the employee broken?



Starter

Answers

- Laws broken:
 - Logging in without permission – Computer Misuse Act (1990)
 - Copying the graphics without permission – Copyright, Designs and Patents Act (1988)
 - Copying personal details without their permission – Data Protection Act (2018)

Data protection

- Data protection is about looking after the personal data of people
- The Data Protection Act (2018) is the law that covers this
 - In 2018, the EU General Data Protection Regulation (GDPR) was incorporated into a new UK law called the Data Protection Act (2018)
- Give **two** ways that personal data could be misused

Data collection

- Organisations that collect personal data must:
 - Only collect the data for a specific purpose
 - Make sure the data is accurate
 - Data that is not necessary for the specific purpose may not be collected
- Data can come from user sign-up details
 - What are **three** other ways that organisations can collect data?

SIGN UP

Enter your personal details

Enter your personal details

 I agree to the [Terms of Service & Privacy Policy](#)



Data collection sources

- There are many ways that companies can collect data, including:
 - 3rd parties – other companies can sell or share the data
 - Cookies track users as they browse websites
 - Paper registration forms
 - CCTV
 - Viewing habits with streaming services

Data processing

- There are six reasons for lawful processing
 - Consent
 - Legal obligation
 - Public task
 - Contract
 - Vital interests
 - Legitimate interests
- What do each of the above reasons mean?



Data processing

Answers

- Lawful processing reasons:

Lawful reason	Meaning	Example
Consent	A person has agreed to their data being used	A tick box to consent to receive a newsletter
Contract	Processing is needed for a contract	A contract for buying a house
Legal obligation	Processing the data is needed to meet the law	Keeping tax records
Vital interests	Processing is needed to protect someone's life	A teacher gives a collapsed student's name to a paramedic
Public task	For performing an official task	A criminal court
Legitimate interests	There is a clear benefit to the user or company	Processing customer data

Data storage

- Data must be stored so that:
 - The data is kept accurate and up to date
 - It is not kept any longer than necessary
 - It must not be transferred to other countries unless they can keep it protected
 - Customers must be told of a data breach within 72 hours of it happening
- Data must be stored so that it is protected from unauthorised access
 - Give **two** ways this can be achieved



Methods of securing data

Answers

- Personal data needs to be carefully secured using reasonable methods including:
 - Using passwords for any systems with access to the data
 - Encrypting the data
 - Only allowing access to those users that need it
- If the data is more sensitive then the following may be used
 - CCTV
 - Security guards
 - Two-factor authentication

Rights

- The Data Protection Act (2018) gives a number of rights:
 - The right to view data stored about you by organisations for free – previously it cost up to £10
 - You must consent to having marketing sent to you – this consent must be ‘opt-in’
 - The right to withdraw consent – mailing lists have an unsubscribe link for this
 - The right to make changes to your data if it is inaccurate
 - The right to be forgotten – allows you to delete your personal data



Penalties

- Penalties from the Data Protection Act include:
 - Issuing warnings to the organisation
 - Order the organisation to comply
- For serious breaches, fines are up to:
 - 4% of company turnover
 - €20 million
- Shell is the largest UK company earning over £298 billion per year
 - How big could their fine be?



Privacy issues

- Every time you log on to a web site, data about your visit may be collected and stored
- Every time you use your phone to make a call, data about the number called, time and date called, and the duration of the call, is collected and stored
 - Why might people have concerns about this?

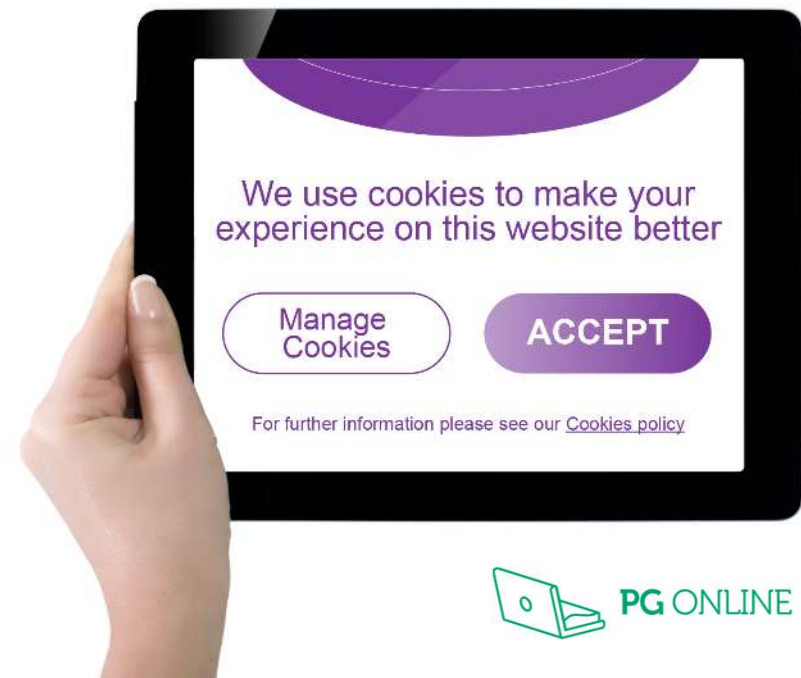


Privacy online

- Many online services such as search engines and social media are free to use
- These services are paid for by targeted advertising
 - How does a social media site know personal information about their users that they can target specific people with advertising messages?
 - If you visit a website that sells a holiday then many other websites will now show you adverts for holidays. What technology makes this possible?

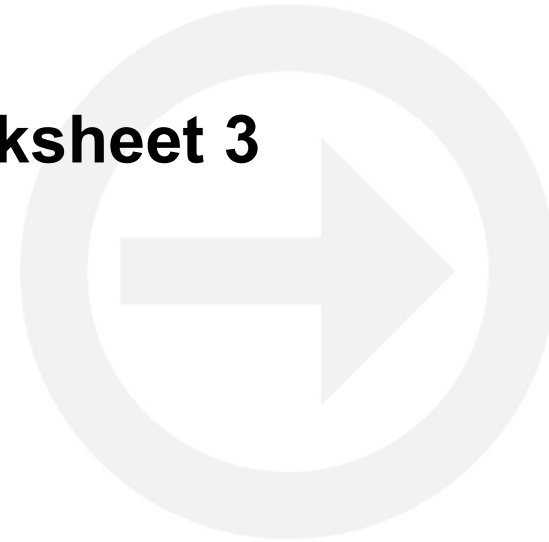
Cookies

- Cookies are sent to a user's computer from web sites. They allow websites to:
 - Store data such as the contents of your shopping basket
 - Remember that you are logged into a website
 - Remember who you are
 - Track you
 - Target advertising to you
- Users must consent to receiving cookies
 - What are your views of this?



Worksheet 3

- Now complete **Task 1** on **Worksheet 3**



Computer Misuse Act (1990)

- The Computer Misuse Act (1990) created the following offences:
 - Unauthorised access to computer material
 - Unauthorised access with intent to commit or facilitate a crime
 - Unauthorised modification of software or data
 - Making, supplying or obtaining anything which can be used in computer misuse offences
- Committing any of these crimes can result in up to 10 years in prison and a fine
 - What does unauthorised access and unauthorised modification mean?



Unauthorised access

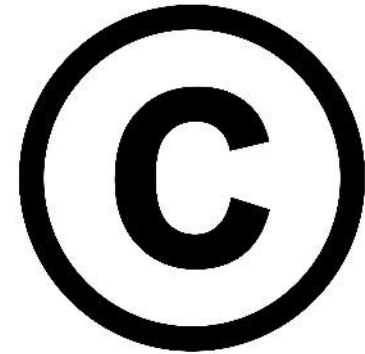
- Unauthorised access is where a person gains access to a computer system without permission
 - This could be a hacker who gains permission to a system they shouldn't be using
 - It may also be an employee who has permission to use some of a system, but gains access to another part
- Hackers try to find weaknesses in a computer system
 - They will often gain access with one user account and then try to alter the permissions to get root or admin access

Unauthorised modification

- Unauthorised modification includes:
 - Deleting another user's files
 - Changing the content of documents
 - Altering the content of web pages
 - Rewriting computer programs to remove activation keys
- What is **one** other unauthorised modification that can be made?



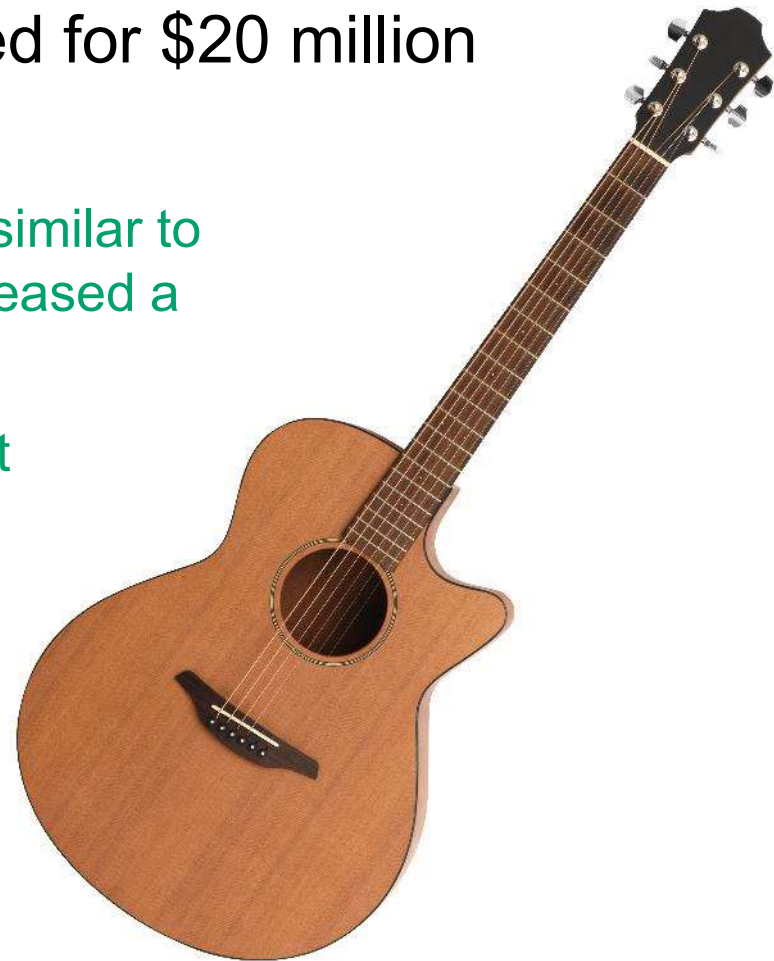
Copyright and patents



- Inventions are covered by patents
 - A patent prevents anyone else using the invention for 20 years
- Copyright protects books, video, music and software
 - Copyright typically lasts 70 years after publication or an author's death
 - Copyright lets an author or musician decide how their work should be used
- Copyrighted materials and patents are protected by the Copyright, Designs and Patents Act (1988)
 - Why do you think that copyright lasts longer than patents?

Case study: Ed Sheeran

- In 2017, Ed Sheeran was sued for \$20 million for copyright infringement
 - His song 'Photograph' was very similar to Matt Cardle's song 'Amazing' released a few years earlier
 - The case was settled out of court with Ed Sheeran having to pay £16 million



Penalties

- Copying books, webpages, music, video or software is known as copyright infringement
- Copyright or trademark infringement can result in:
 - Fines
 - Up to 10 years in prison
- What methods are used to protect software from being illegally copied?



Preventing copyright

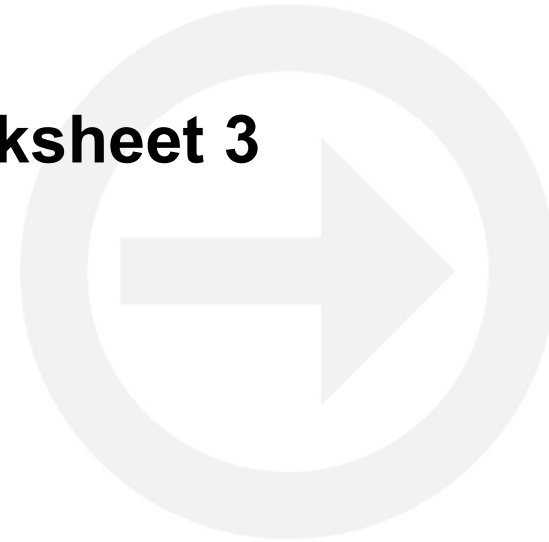
Answers

- The following are some of the ways that software is made harder to copy without permission
 - Licence keys, activation keys and serial numbers
 - Holograms on physical products to show they are genuine
 - Online registration or activation will prevent the software from working if a licence has not been purchased
- Many companies are moving to software in the cloud
 - This is very hard to copy as the software is accessible only within the companies servers
 - The user views the output of the software through their web browser



Worksheet 3

- Now complete **Task 2** on **Worksheet 3**



Software licences

- Software is protected by copyright law
 - It may only be used if you created it yourself or you are licensed to use it
- For proprietary software a licence must be purchased before the software can be used
- For open source software the licence normally permits the software to be downloaded for free – the licence often has conditions such as requiring you not to sell it
 - What does proprietary and open source software mean?

Proprietary software

- Proprietary software is the most commonly used software by the general public today
 - The source code is usually kept by the developer (closed-source) and the user receives the compiled programs
 - The software cannot be adapted or modified by the user
 - The software can only be used if the user has a licence (which is usually paid for)
 - This type of software is typically off-the-shelf and not custom made



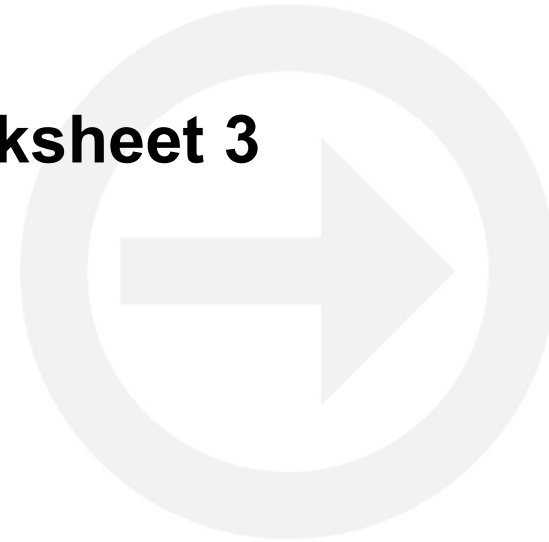
Open source software

- Open source software provides access to the source code that was used to create it
 - By having the source code, users have the freedom to develop or modify it
- Open source software is often developed collaboratively by many programmers and companies that give up their time to improve the software
 - Name **three** different examples of open source software



Worksheet 3

- Now complete **Task 3** on **Worksheet 3**



Plenary

- Jenny works in Human Resources for Bell & Smith
- She arrived at work this morning at 9 am
 - How is it possible for her to break three laws before 9:15 am using only her computer?



Plenary

Answers

- Three possible ways that Jenny could have broken the laws include:
 - Logging onto her computer with a colleague's username and password without their permission – Computer Misuse Act (1990)
 - Copying an image from the web for a company brochure without paying for the required licence – Copyright, Designs and Patents Act (1988)
 - Emailing another company the names and contact details of all employees at her company without their permission – Data Protection Act (2018)

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