# GCSE OCR

Computer Science
J277

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## Ethical and cultural issues

Unit 5
Impacts of
digital technology

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# Objectives

- Discuss the impacts of digital technology on the wider society including:

  - Ethical issues

  - Cultural issues

# Starter

- In January 2020, London's Metropolitan Police began to use live facial recognition

  - The system identifies people on a 'watchlist'

  - If it finds a match it can alert officers so that they can stop the person

- What are the advantages of such as system?

  - Are there any disadvantages or ethical concerns?

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# Advantages

- The system is used to find criminals wanted by the police or courts

    - They may be at risk of harm to themselves or others

    - They may be reported as missing

- The system is hoped to 'deter and prevent crime'

    - It may also save the police time

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# Ethical Concerns

- Such systems use personal biometric data and some people may not consent to this

- The systems may alter public behaviour

  - For example, people may no longer wish to take part in peaceful public protests

- There is evidence that facial recognition technology may be more likely to misidentify children or people of colour

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# Ethics of CS technologies

- New digital technologies are developed very quickly, however, they often raise serious ethical concerns to many people

  - One issue is whether social networks should limit free speech

  - What other ethical issues do social networks create?

These are private companies that can choose who should have access

Free speech shouldn't be denied to anyone

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# Internet addiction

- Many users of social networks have symptoms similar to an addiction

- Software is often designed with features that make people want to use it more

  - What limits, if any, should be placed on companies and the way they design their software?
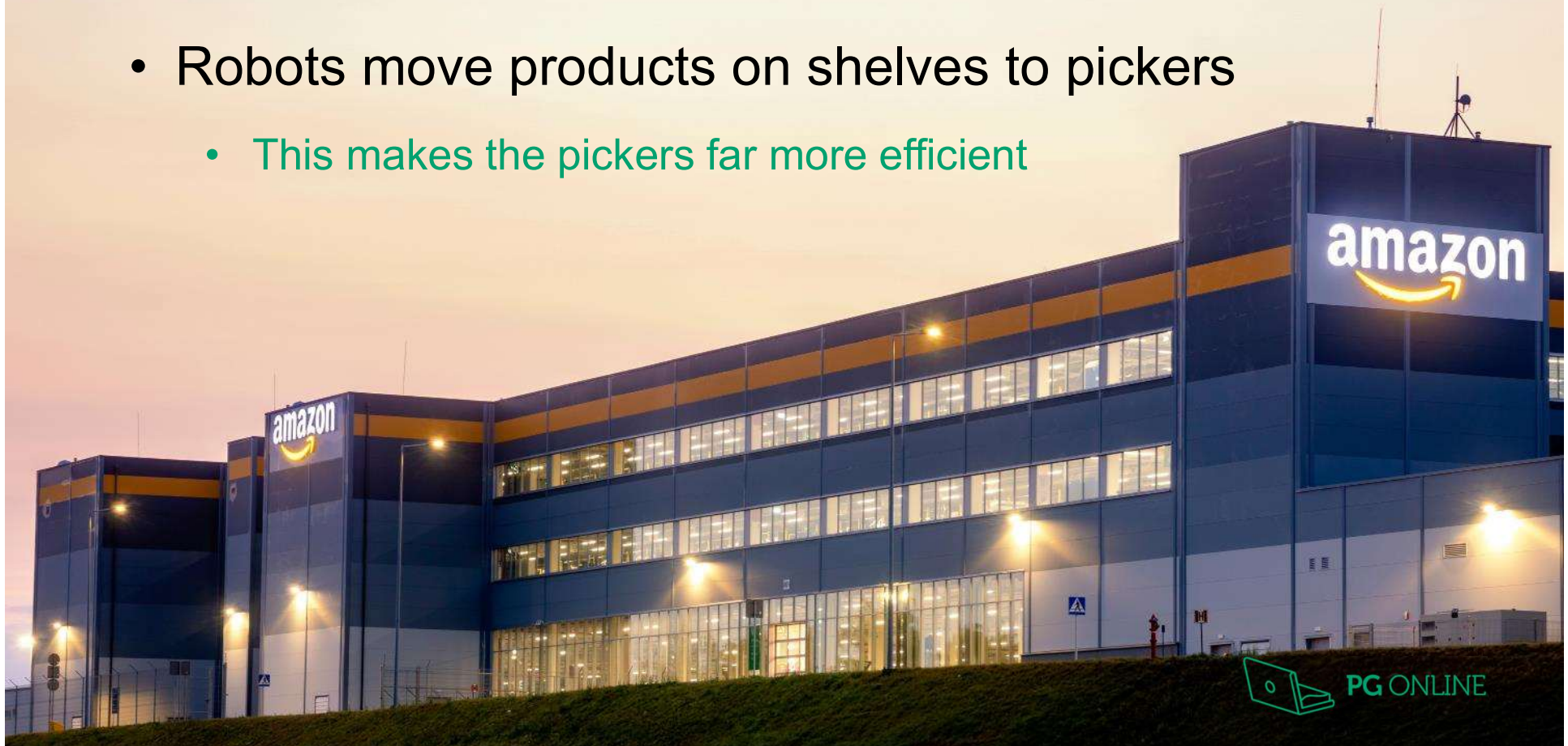
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# Worksheet 1

- Complete **Task 1** on **Worksheet 1**

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# Case study: Amazon fulfilment

- Amazon makes use of large warehouses called fulfilment centres

- Robots move products on shelves to pickers

  - This makes the pickers far more efficient

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# What jobs can robots do?

- Cars have been built by robots for many years

- Fast food restaurants now allow customers to order their own food

- Robots such as Maidbot are able to clean hotel rooms

  - In 2018, more than 11 million service robots were sold

  - By 2022, it is estimated that more than 60 million service robots will be sold each year

- Are any groups of people particularly likely to be affected by these changes?

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# Computers in healthcare

- There are more than 300,000 healthcare apps for smartphones

- By 2020, more than 50% of smartphone users have downloaded a health app

- Wearable technology can offer continuous, long-term monitoring

  - This can lead to improvements in the way that diseases like epilepsy, asthma and diabetes are managed
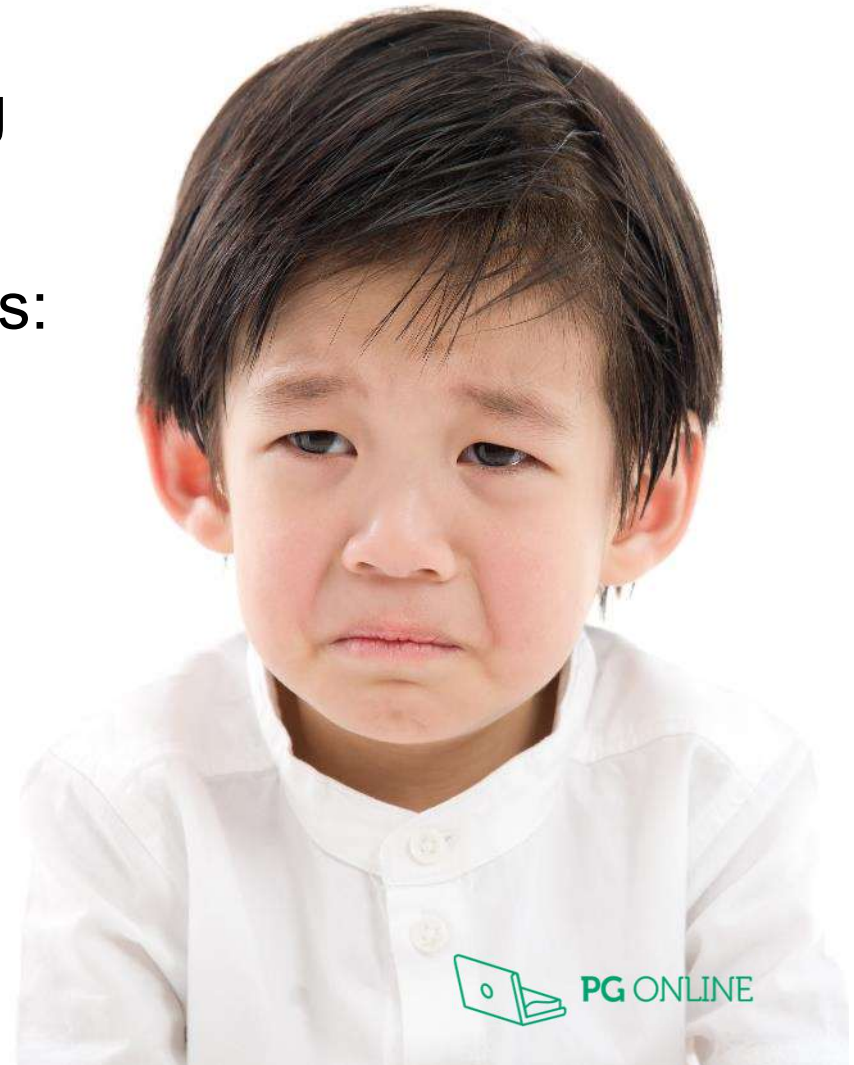
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# The healthcare robot

- Mabu, the healthcare robot, was launched in 2018

- Mabu sits on the owner's bedside table as a 'personal healthcare companion'

  - It is intended for patients managing chronic diseases

  - The robot talks to patients and reminds them to take their medication

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# Robots as carers

- In Japan and South Korea, childminding robots are being developed

- Scientists warn of the dangers:

  - *"We already see the overuse of robots looking after children – we expect severe attachment disorders that could wreak havoc in our society"* – Noel Sharkey, professor of AI

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# Worksheet 1

- Complete **Task 2** on **Worksheet 1**

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# Digital divide

- This is the difference between those who have and don't have access to technology, and includes:

  - Internet connection speed

  - Mobile phone signal

  - 4G signal for mobile Internet

- There is also a divide between other groups of people, such as:

  - Elderly

  - People in poverty

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# Case study: Rural internet

- In December 2019, Kingsclere in Huntington (York) averaged 0.14 Mb/s

  - Darwin Street in Livingston averaged 183 Mb/s

- Often places in the countryside only have access to Internet slower than 1 Mb/s

  - What information and services will they struggle to access?

  - How would this affect someone starting a business?

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# Case study

**Answers**

- What information and services will they struggle to access?

  - Video services such as iPlayer, Netflix or YouTube

  - Communication tools such as Skype

  - Video games and cloud services

- How would this affect someone starting a business?

  - They may find it harder to set up a website

  - Sharing photos or videos of products will be harder

  - It may be slower to respond to customer queries

  - They may not have access to newer cloud services

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# Remote working

- In 2020, more than two-thirds of UK companies allow staff to work remotely

- 70% of 18-34 year olds already regularly work remotely

  - What are the benefits of remote working?

  - What are some disadvantages?

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# Advantages

**Answers**

- Some advantages of remote working include:

  - Time and money saved commuting

  - Less commuting can be better for the environment

  - Saves the company the cost of building more office space

  - Companies have a wider pool of people to choose from, and employees don't need to relocate

  - Work-life balance can be improved

  - Allows virtual meetings to take place where face to face conversation is not possible

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# Disadvantages

**Answers**

- Some disadvantages of remote working include:

  - Remote workers can feel isolated

  - There is less face to face contact, which can make it harder to build relationships with colleagues or participate in meetings

  - Difficult for companies to monitor employee performance

  - It can be difficult to stop focusing on work, which disrupts work-life balance

  - It can be hard to avoid distractions when working at home from children, spouses, pets and doorbells

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# Worksheet 1

- Complete **Task 3** on **Worksheet 1**

# Plenary

- Social networks are able to remove users who post or say things that go against their policies

- They can do this, even if the user hasn't broken any laws

    - Give **two** reasons why this can be considered ethical

    - Give **two** reasons why this can be considered unethical

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# Plenary

**Answers**

- Some suggestions in support of it being ethical:

  - The companies are private so should be able to decide who uses their service

  - Removing certain users can make the environment safer or more pleasant for other users

  - Anti-social people can be removed from public spaces in real life – e.g. with ASBOs

- Some suggestions that it is unethical:

  - A few people can control the views of billions of others

  - With very few social media channels, removal from just a few denies people any ability to participate in social media

  - It denies freedom of speech

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