Categories of AI: 1

Practice 2

To distinguish between different levels of intelligence, researchers often divide artificial intelligence (AI) into three categories.

For each of the following examples of artificial intelligence, pick the most appropriate AI category. Drag the category into the correct row of the table below to label the example described.

Example	Category
A machine with intelligence that surpasses that of humans across all possible domains.	
An autonomous pizza delivery vehicle that could make its way to your home from the pizza shop, without human intervention, to deliver your pizza.	
A machine with the ability to understand, learn, and apply knowledge across a wide range of tasks at human-level proficiency.	
A computer system that can consistently beat the world number one chess player and has never itself been beaten.	

Items:

Narrow intelligence | Super intelligence | General intelligence

Categories of AI: 2

Practice 2

Facial recognition systems are designed to identify and verify people based on their facial features from a photo or video. These systems have diverse applications, ranging from security and law enforcement to user authentication in smartphones.

To distinguish between different levels of intelligence, researchers often divide artificial intelligence (AI) into three categories (as shown in the options below).

How would facial recognition systems be categorised?

- Artificial narrow intelligence
- Artificial super intelligence
- Artificial general intelligence

Quiz:
STEM SMART Computer Science Week 30

SEAME: 1

Practice 2

The SEAME framework, developed by the Raspberry Pi Foundation's research team, can be used as a common language to help you understand and classify the different levels involved in the development and use of AI systems. SEAME is an acronym for social and ethical, application, model, and engine.

Using this framework, assign the most appropriate label to each example. Drag the label into the row of the table next to the relevant example. Each label must be used once only.

Example	Level
Bias and fairness	
A virtual assistant	
Unsupervised learning	
A neural network	

Items:

Social and ethical | Model | Application | Engine

Quiz:
STEM SMART Computer Science Week 30

Social and ethical: data bias

Practice 2

A comprehensive understanding of the social and ethical issues introduced by AI is essential to ensure the responsible development and deployment of these technologies.

An essential aspect to take into account involves examining potential **bias within the data** that is used for training machine learning models.

A university is developing an AI application that will predict the likelihood of a student graduating with a first class honours degree. Which of the following sets of training data would be **least likely** to produce a model that reveals bias?

- A set of data collected by the BBC that shows the outcomes for all of their journalists from various backgrounds who went to that university over the past 5 years.
- A set of data collected by the Girls' Day School Trust that shows the outcomes for all their students who went to that university over the past 20 years.
- A set of data collected by a national university and college admission service that shows the outcomes for a random selection of students who applied to that university over the past 5 years.
- A set of data collected by the School of Computer Science that shows the outcomes for all students who studied for a degree over the past 10 years.

Quiz:
STEM SMART Computer Science Week 30

Application of large language models

Practice 2

Large language models (LLM), such as that used by OpenAI's ChatGPT, are a specific type of AI that are designed to generate a text response to a prompt as realistically as if you were speaking to a human by predicting which words should come next in a sentence.

Which of the following tasks is **best suited** to a large language model?

- Producing a plan for a 2000-word essay on the American Civil War.
- Producing the answer to a logic problem.
- Producing a set of ten questions for a quiz on current affairs.
- Writing a letter to thank an aunt for a gift.

Quiz:
STEM SMART Computer Science Week 30

Social and ethical: explainable AI

Practice 2

Explainable AI is a growing area of research that focuses on creating AI systems where the predictions or decisions can be easily explained to humans.

Why is explainable AI important? You can select one or more options.

- [ ] Developers and users can identify biases, errors, or unethical behaviors within AI models.
- [ ] It provides insights into how AI systems make predictions or decisions, helping users understand the reasoning behind AI-driven outcomes.
- [ ] It helps organisations comply with regulations such as GDPR (General Data Protection Regulation) and ensures that AI systems adhere to legal and ethical standards.

Quiz:
STEM SMART Computer Science Week 30

The Turing test

Practice 2

In 1950, Alan Turing redefined the essential question of artificial intelligence — "can machines think?". In doing so, he defined what is now known as **the Turing test**.

Which of the following options provides the best definition of the Turing test?

- The Turing test focuses on a machine's capacity to recognise and interpret visual patterns in a manner similar to human perception.
- The Turing test assesses a machine's ability to engage in natural language conversations in a manner indistinguishable from that of a human.
- The Turing test assesses a machine's computational speed and processing efficiency in comparison to human capabilities.
- The Turing test evaluates a machine's ability to mimic physical human actions, such as gestures and facial expressions.

Quiz:
STEM SMART Computer Science Week 30

Categories of artificial intelligence

Practice 1

To distinguish between different levels of intelligence, researchers often divide artificial intelligence (AI) into three categories: artificial narrow intelligence (ANI), artificial general intelligence (AGI), and artificial super intelligence (ASI).

State one key difference between **artificial narrow intelligence (ANI)** and **artificial general intelligence (AGI)**

[2 marks]

Quiz:
STEM SMART Computer Science Week 30

Legal Issues with AI

Practice 2

A large retail company is planning to use AI-powered tools to collect and analyse customer data from online purchases, social media activity, and loyalty programs. The AI system will personalise marketing, predict customer preferences, and optimise product recommendations based on this data.

Discuss the legal issues and impacts that might arise from the use of AI in data collection and customer profiling for the Company.

[2 marks]

Quiz:
STEM SMART Computer Science Week 30

Social & Ethical issues with AI

Practice 2

A company has recently started using AI to screen job applications. The AI analyses applications and selects candidates based on specified criteria set by the company.

Identify two social or ethical impacts of using AI in the hiring process

[2 marks]