



# Module 1: Understanding AI

## Summative assessment

**LO: Recognise that AI is a tool that can solve a range of complex problems**

1. For each AI application below, which problem is solved using AI?

a. Driverless car

A. Using sensors and a computer system to avoid pedestrians	
B. Making ethical decisions about what to do in different situations	

b. Music streaming service

A. Playing the music selected by the user on the app	
B. Making recommendations based on a user's previous music selections	

**LO: Use appropriate technical descriptions of AI systems**

2. Which of the following options uses the correct language to describe AI?

A. Social media apps use an AI to recommend content to users. This AI enjoys learning about you and understanding enough about you to decide what content you will like.	
B. Social media apps use an AI model to recommend content to users. This AI model uses data about what you like to produce predictions about what content you will like.	



**LO: Describe the difference between 'data-driven' and 'rule-based' approaches to application development**

**3. What is the difference between a traditional computer program and a machine learning model?**

A. Machine learning models use rule-based IF/THEN statements.	
B. Machine learning models use a data-driven approach.	
C. They are the same; the only difference is that machine learning models use more data.	

**LO: Describe the difference between 'data-driven' and 'rule-based' approaches to application development**

**4. Is this statement true or false?**

**A rule-based approach requires human developers and engineers, but a data-driven approach does not.**

True	
False	

**LO: Define the role of machine learning in creating models**

**5. How do developers use machine learning to create a data-driven model?**

A. By writing rules to solve problems based on patterns that are identified in large amounts of data	
B. By training a model to identify patterns in large amounts of data, which can then be tested and used to solve problems	

**LO: Describe the impact of data on the output of a machine learning (ML) model**

**6. Some pictures produced by generative AI systems do not accurately represent the real world. Why is this?**

A. Generative AI is trained on patterns identified from many pictures. These patterns might be applied in unusual ways.	
B. Generative AI is trained on patterns identified from many pictures. The only way to guarantee that pictures accurately represent the real world is to use more training data.	

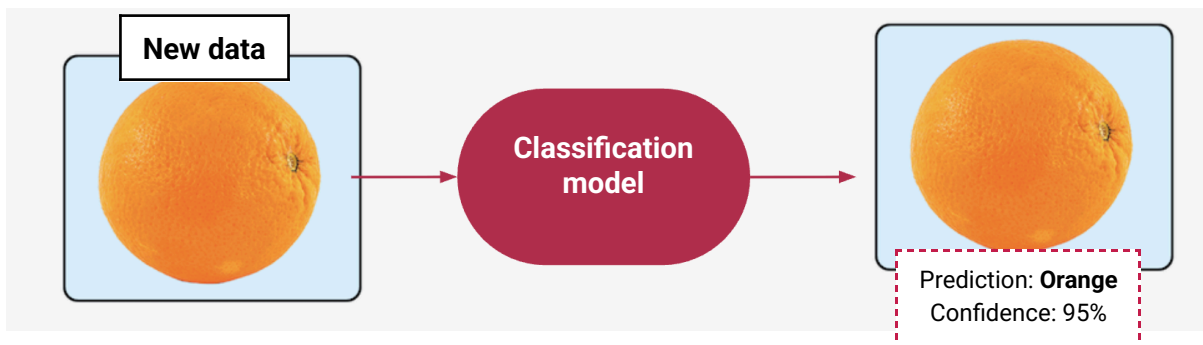
**LO: Describe how supervised learning is used to create a classification model using classes and labelled data**

**7. When supervised learning is used to create a classification model, how is data prepared?**

A. Before the model is trained, the machine learning algorithm labels the data and puts it into classes.	
B. Before the model is trained, the human developer labels the data and puts it into classes.	
C. Before the model is trained, the data is input into the model and the model then outputs labels for the data.	

**LO: Describe how supervised learning is used to create a classification model using classes and labelled data**

**8. The following diagram shows that a piece of data has been labelled as an orange. Which **one** of the following options best describes the term 'label'?**



A. A category that data can be placed into	
B. Applied to a single piece of data to show which class it belongs to	
C. The confidence score that is returned by the model	

**LO: Explain the need for both training and test data**

**9. Which one of the following options best describes what test data is?**

A. Data that is removed from the training data and used to check the accuracy of the model	
B. Data that is used to train the model	
C. New data, which is not from the same set as the training data, which is entered into an application that uses the model, to check the accuracy of the model	

**10. A machine learning model has been developed to identify African birds from sound alone.**

**LO: Describe the impact of data on the accuracy of a machine learning (ML) model**

**Part A:**

**When developers tested the model, they found that many confidence scores were very low. Which two options might be the reasons for this?**

A. They may not have used enough sound recordings of different types of African birds in the training data.	
B. Machine learning models cannot be trained very well with sound data.	
C. The sound quality of the recordings may not have been good enough.	

**LO: Explain how bias can influence the predictions generated by an ML model**

**Part B:**

**While testing and evaluating the model, developers have found that the model cannot identify a particular type of bird. What should the developers do to improve their model? Select one option.**

A. Add more sound recordings of all known types of birds	
B. Add sound recordings of humans and other animals in different environments	
C. Add sound recordings of this particular bird in different conditions, such as close up and far away	