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Exam Code: AI-900

Exam Name: Microsoft Azure AI Fundamentals



Exam A

QUESTION 1

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

  
Statements

Yes

No

You can communicate with a bot by using email.

☐☐

You can communicate with a bot by using Microsoft Teams.

☐☐

You can communicate with a bot by using a webchat interface.

☐☐

Answer Area:

Answer Area

  
Statements

Yes

No

You can communicate with a bot by using email.

☒☐

You can communicate with a bot by using Microsoft Teams.

☒☐

You can communicate with a bot by using a webchat interface.

☒☐

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/bot-service/bot-service-manage-channels?view=azure-bot-service-4.0>

QUESTION 2

DRAG DROP

Match the types of AI workloads to the appropriate scenarios.

To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Workloads Types	Answer Area
Anomaly detection	Workload Type An automated chat to answer questions about refunds and exchange
Computer vision	Workload Type Determining whether a photo contains a person
Conversational AI	Workload Type Determining whether a review is positive or negative
Knowledge mining	
Natural language processing	

Correct Answer:

Workloads Types	Answer Area
Anomaly detection	Conversational AI An automated chat to answer questions about refunds and exchange
	Computer vision Determining whether a photo contains a person
	Natural language processing Determining whether a review is positive or negative
Knowledge mining	

Section:

Explanation:

Box 3: Natural language processing

Natural language processing (NLP) is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

### QUESTION 3

DRAG DROP

Match the Microsoft guiding principles for responsible AI to the appropriate descriptions.

To answer, drag the appropriate principle from the column on the left to its description on the right. Each principle may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

Principles	Answer Area
Accountability	Principle Ensure that AI systems operate as they were originally designed, respond to unanticipated conditions, and resist harmful manipulation.
Fairness	
Inclusiveness	Principle Implementing processes to ensure that decisions made by AI systems can be overridden by humans.
Privacy and security	
Reliability and safety	Principle Provide consumers with information and controls over the collection, use, and storage of their data.

Correct Answer:

Principles	Answer Area
	Reliability and safety Ensure that AI systems operate as they were originally designed, respond to unanticipated conditions, and resist harmful manipulation.
Fairness	
Inclusiveness	Accountability Implementing processes to ensure that decisions made by AI systems can be overridden by humans.
	Privacy and security Provide consumers with information and controls over the collection, use, and storage of their data.

Section:

Explanation:

Box 1: Reliability and safety

To build trust, it's critical that AI systems operate reliably, safely, and consistently under normal circumstances and in unexpected conditions. These systems should be able to operate as they were originally designed, respond safely to unanticipated conditions, and resist harmful manipulation.

Box 2: Accountability

The people who design and deploy AI systems must be accountable for how their systems operate. Organizations should draw upon industry standards to develop accountability norms. These norms can ensure that AI systems are not the final authority on any decision that impacts people's lives and that humans maintain meaningful control over otherwise highly autonomous AI systems.

Box 3: Privacy and security

As AI becomes more prevalent, protecting privacy and securing important personal and business information is becoming more critical and complex. With AI, privacy and data security issues require especially close attention because access to data is essential for AI systems to make accurate and informed predictions and decisions about people. AI systems must comply with privacy laws that require transparency about the collection, use, and storage of data and mandate that consumers have appropriate controls to choose how their data is used

Reference:

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

#### QUESTION 4

Which two scenarios are examples of a conversational AI workload? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. a smart device in the home that responds to questions such as "What will the weather be like today?"
- B. a website that uses a knowledge base to interactively respond to users' questions
- C. assembly line machinery that autonomously inserts headlamps into cars



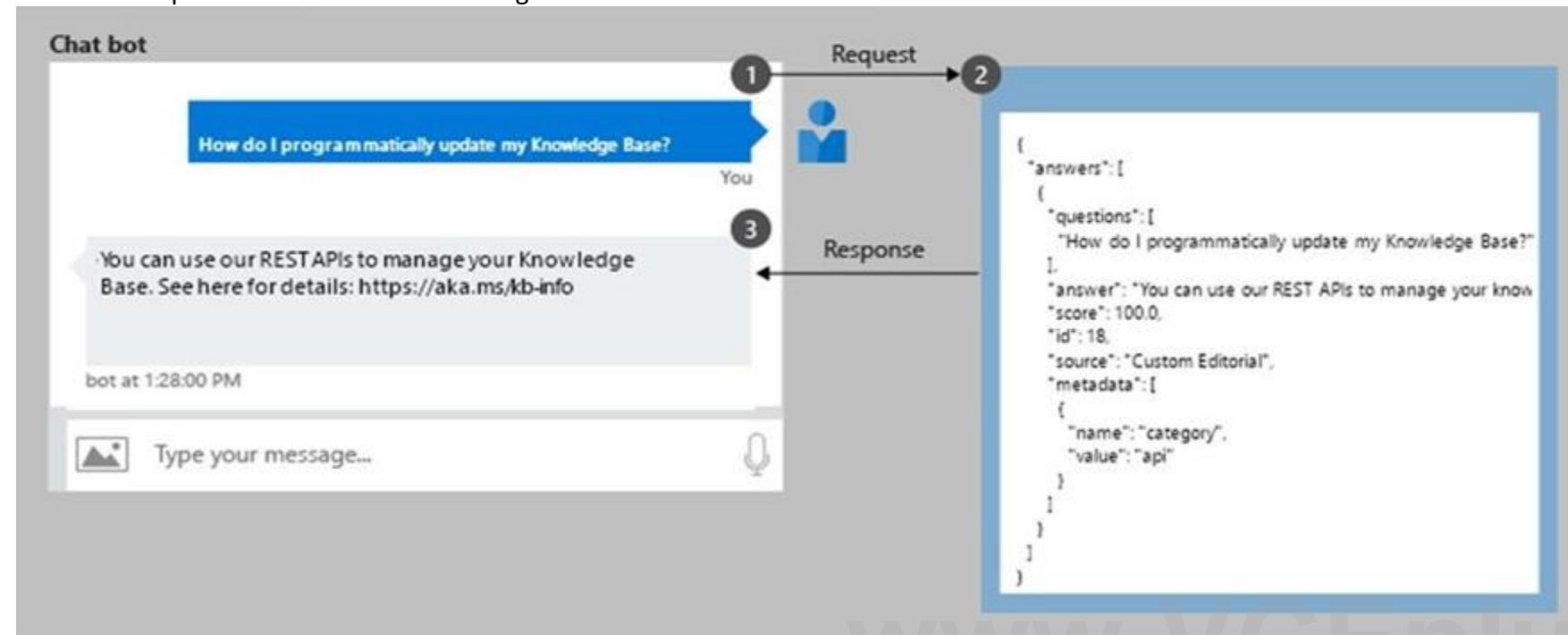
D. monitoring the temperature of machinery to turn on a fan when the temperature reaches a specific threshold

**Correct Answer: A, B**

**Section:**

#### QUESTION 5

You have the process shown in the following exhibit.



Which type AI solution is shown in the diagram?

- A. a sentiment analysis solution
- B. a chatbot
- C. a machine learning model
- D. a computer vision application

**Correct Answer: B**

**Section:**

#### QUESTION 6

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

**Hot Area:**

## Answer Area

According to Microsoft's

	▼
accountability	
fairness	
inclusiveness	
transparency	

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

Answer Area:

## Answer Area

According to Microsoft's

	▼
accountability	
fairness	
inclusiveness	
transparency	

principle of responsible AI,

AI systems should **NOT** reflect biases from the data sets that are used to train the systems.

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

QUESTION 7

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

### Answer Area

	▼
Accuracy	
Confidence	
Root Mean Square Error	
Sentiment	

is the calculated probability of a correct image classification.

Answer Area:

### Answer Area

	▼
Accuracy	
Confidence	
Root Mean Square Error	
Sentiment	

is the calculated probability of a correct image classification.

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/getting-started-build-a-classifier>

#### QUESTION 8

You are processing photos of runners in a race.

You need to read the numbers on the runners' shirts to identity the runners in the photos.

Which type of computer vision should you use?

- A. facial recognition
- B. optical character recognition (OCR)
- C. semantic segmentation
- D. object detection

**Correct Answer: B**

**Section:**

**Explanation:**

Optical character recognition (OCR) allows you to extract printed or handwritten text from images and documents.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview-ocr>

#### QUESTION 9

DRAG DROP

Match the types of machine learning to the appropriate scenarios.

To answer, drag the appropriate machine learning type from the column on the left to its scenario on the right. Each machine learning type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

**Select and Place:**

#### Machine Learning Types

Facial detection

Facial recognition

Image classification

Object detection

Optical character recognition (OCR)

Semantic segmentation

#### Answer Area

Machine Learning Type

Separate images of polar bears and brown bears.

Machine Learning Type

Determine the location of a bear in a photo.

Machine Learning Type

Determine which pixels in an image are part of a bear.

**Correct Answer:**



Machine Learning Types	Answer Area
Facial detection	
Facial recognition	
Optical character recognition (OCR)	

Image classification	Separate images of polar bears and brown bears.
Object detection	Determine the location of a bear in a photo.
Semantic segmentation	Determine which pixels in an image are part of a bear.

**Section:**

**Explanation:**

Box 1: Image classification

Image classification is a supervised learning problem: define a set of target classes (objects to identify in images), and train a model to recognize them using labeled example photos.

Box 2: Object detection

Object detection is a computer vision problem. While closely related to image classification, object detection performs image classification at a more granular scale. Object detection both locates and categorizes entities within images.

Box 3: Semantic Segmentation

Semantic segmentation achieves fine-grained inference by making dense predictions inferring labels for every pixel, so that each pixel is labeled with the class of its enclosing object or region.

Reference:

<https://developers.google.com/machine-learning/practica/image-classification>

<https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/object-detection-model-builder>

<https://nanonets.com/blog/how-to-do-semantic-segmentation-using-deep-learning/>

**QUESTION 10**

You use drones to identify where weeds grow between rows of crops to send an instruction for the removal of the weeds.

This is an example of which type of computer vision?

- A. object detection
- B. optical character recognition (OCR)
- C. scene segmentation

**Correct Answer: A**

**Section:**

**Explanation:**

Object detection is similar to tagging, but the API returns the bounding box coordinates for each tag applied. For example, if an image contains a dog, cat and person, the Detect operation will list those objects together with their coordinates in the image.

Incorrect Answers:

B: Optical character recognition (OCR) allows you to extract printed or handwritten text from images and documents. C: Scene segmentation determines when a scene changes in video based on visual cues. A scene depicts a single event and it's composed by a series of consecutive shots, which are semantically related.

Reference:

<https://docs.microsoft.com/en-us/ai-builder/object-detection-overview>

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview-ocr>

<https://docs.microsoft.com/en-us/azure/azure-video-analyzer/video-analyzer-for-media-docs/video-indexer-overview>

#### QUESTION 11

In which two scenarios can you use a speech synthesis solution? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. an automated voice that reads back a credit card number entered into a telephone by using a numeric keypad
- B. generating live captions for a news broadcast
- C. extracting key phrases from the audio recording of a meeting
- D. an AI character in a computer game that speaks audibly to a player

**Correct Answer: A, D**

**Section:**

**Explanation:**

Azure Text to Speech is a Speech service feature that converts text to lifelike speech.

Incorrect Answers:

C: Extracting key phrases is not speech synthesis.

Reference:

<https://azure.microsoft.com/en-in/services/cognitive-services/text-to-speech/>

#### QUESTION 12

HOTSPOT

You have a database that contains a list of employees and their photos.

You are tagging new photos of the employees.

For each of the following statements select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**



**Statements**

**Yes**

**No**

The Face service can be used to group all the employees who have similar facial characteristics.

☐
☐

The Face service will be more accurate if you provide more sample photos of each employee from different angles.

☐
☐

If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.

☐
☐

**Answer Area:**

## Answer Area



### Statements

Yes

No

The Face service can be used to group all the employees who have similar facial characteristics.

☒
☐

The Face service will be more accurate if you provide more sample photos of each employee from different angles.

☒
☐

If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.

☐
☒


### Section:

### Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview>

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/concepts/face-detection>

### QUESTION 13

#### HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

#### Hot Area:

www.VCEplus.io

## Answer Area

Ensuring an AI system does not provide a prediction when important fields contain unusual or missing values is \_\_\_\_\_ principle for responsible AI.

	▼
an inclusiveness	
a privacy and security	
a reliability and safety	
a transparency	

#### Answer Area:

### Answer Area

Ensuring an AI system does not provide a prediction when important fields contain unusual or missing values is  principle for responsible AI.

- an inclusiveness
- a privacy and security
- a reliability and safety
- a transparency

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

#### QUESTION 14

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

### Answer Area

Ensuring that the numeric variables in training data are on a similar scale is an example of

- data ingestion.
- feature engineering.
- feature selection.
- model training.

Answer Area:

**Answer Area**

Ensuring that the numeric variables in training data are on a similar scale is an example of

	▼
data ingestion.	
feature engineering.	
feature selection.	
model training.	

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-science-process/create-features>

**QUESTION 15**

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

**Hot Area:**

**Answer Area**

Assigning classes to images before training a classification model is an example of

	▼
evaluation.	
feature engineering	
hyperparameter tuning.	
labeling.	

**Answer Area:**

**Answer Area**

Assigning classes to images before training a classification model is an example of

	▼
evaluation.	
feature engineering	
hyperparameter tuning.	
labeling.	

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-label-data>

**QUESTION 16**

You need to build an image tagging solution for social media that tags images of your friends automatically.

Which Azure Cognitive Services service should you use?



- A. Face
- B. Form Recognizer
- C. Text Analytics
- D. Computer Vision

**Correct Answer: A**

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview>

<https://docs.microsoft.com/en-us/azure/cognitive-services/face/face-api-how-to-topics/howtodetectfacesinimage>

#### QUESTION 17

HOTSPOT

Select the answer that correctly completes the sentence.

**Hot Area:**

**Answer Area**

Creating a text transcript of a voice recording is an example of

- a computer vision workload.
- a knowledge mining workload.
- a natural language processing (NLP) workload.
- an anomaly detection workload.

Answer selections:

[www.VCEplus.io](http://www.VCEplus.io)

**Answer Area:**

**Answer Area**

Creating a text transcript of a voice recording is an example of

- a computer vision workload.
- a knowledge mining workload.
- a natural language processing (NLP) workload.
- an anomaly detection workload.

Answer selections:

**Section:**

**Explanation:**

#### QUESTION 18

You need to develop a web-based AI solution for a customer support system. Users must be able to interact with a web app that will guide them to the best resource or answer. Which service should you use?

- A. Custom Vision
- B. QnA Maker
- C. Translator Text
- D. Face

**Correct Answer: B**

**Section:**

**Explanation:**

QnA Maker is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data. Use it to build a knowledge base by extracting questions and answers from your semi-structured content, including FAQs, manuals, and documents. Answer users' questions with the best answers from the QnAs in your knowledge base automatically. Your knowledge base gets smarter, too, as it continually learns from user behavior. Incorrect Answers:

A: Azure Custom Vision is a cognitive service that lets you build, deploy, and improve your own image classifiers. An image classifier is an AI service that applies labels (which represent classes) to images, according to their visual characteristics. Unlike the Computer Vision service, Custom Vision allows you to specify the labels to apply. D: Azure Cognitive Services Face Detection API: At a minimum, each detected face corresponds to a faceRectangle field in the response. This set of pixel coordinates for the left, top, width, and height mark the located face. Using these coordinates, you can get the location of the face and its size. In the API response, faces are listed in size order from largest to smallest.

Reference:

<https://azure.microsoft.com/en-us/services/cognitive-services/qna-maker/>

**QUESTION 19**

Which AI service should you use to create a bot from a frequently asked questions (FAQ) document?

- A. QnA Maker
- B. Language Understanding (LUIS)
- C. Text Analytics
- D. Speech

**Correct Answer: A**

**Section:**

**QUESTION 20**

Which scenario is an example of a webchat bot?

- A. Determine whether reviews entered on a website for a concert are positive or negative, and then add a thumbs up or thumbs down emoji to the reviews.
- B. Translate into English questions entered by customers at a kiosk so that the appropriate person can call the customers back.
- C. Accept questions through email, and then route the email messages to the correct person based on the content of the message.
- D. From a website interface, answer common questions about scheduled events and ticket purchases for a music festival.

**Correct Answer: D**

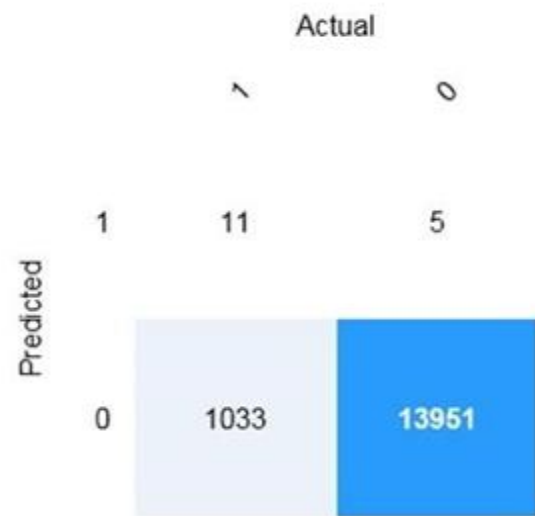
**Section:**

**QUESTION 21**

HOTSPOT

You are developing a model to predict events by using classification.

You have a confusion matrix for the model scored on test data as shown in the following exhibit.



Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.  
NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

There are [answer choice] correctly predicted positives.

- 5
- 11
- 1,033
- 13,951

There are [answer choice] false negatives.

- 5
- 11
- 1,033
- 13,951

Answer Area:

Answer Area

There are [answer choice] correctly predicted positives.

- 5
- 11
- 1,033
- 13,951

There are [answer choice] false negatives.

- 5
- 11
- 1,033
- 13,951

Section:

Explanation:

Box 1: 11

	Predicted	
	Positive	Negative
Actual True	TP	FN
Actual False	FP	TN

TP = True Positive.

The class labels in the training set can take on only two possible values, which we usually refer to as positive or negative. The positive and negative instances that a classifier predicts correctly are called true positives (TP) and true negatives (TN), respectively. Similarly, the incorrectly classified instances are called false positives (FP) and false negatives (FN).

Box 2: 1,033

FN = False Negative

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance>

## QUESTION 22

### HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

#### Answer Area

Statements	Yes	No
Forecasting housing prices based on historical data is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>
Identifying suspicious sign-ins by looking for deviations from usual patterns is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>
Predicting whether a patient will develop diabetes based on the patient's medical history is an example of anomaly detection.	<input type="radio"/>	<input type="radio"/>

Answer Area:

#### Answer Area

Statements	Yes	No
Forecasting housing prices based on historical data is an example of anomaly detection.	<input type="radio"/>	<input checked="" type="radio"/>
Identifying suspicious sign-ins by looking for deviations from usual patterns is an example of anomaly detection.	<input checked="" type="radio"/>	<input type="radio"/>
Predicting whether a patient will develop diabetes based on the patient's medical history is an example of anomaly detection.	<input type="radio"/>	<input checked="" type="radio"/>

Section:

Explanation:

## QUESTION 23

### HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft \_\_\_\_\_ principle for responsible AI.

- inclusiveness
- privacy and security
- reliability and safety
- transparency

Answer Area:

**Answer Area**

The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft \_\_\_\_\_ principle for responsible AI.

- inclusiveness
- privacy and security
- reliability and safety
- transparency

Section:

Explanation:

**QUESTION 24**

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

- Classification
- Clustering
- Regression

\_\_\_\_\_ models can be used to predict the sale price of auctioned items.

Answer Area:



### Answer Area

Classification

Clustering

Regression

models can be used to predict the sale price of auctioned items.

#### Section:

#### Explanation:

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

#### Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

#### QUESTION 25

#### HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

#### Hot Area:

### Answer Area

Statements	Yes	No
The Custom Vision service can be used to detect objects in an image.	<input type="radio"/>	<input type="radio"/>
The Custom Vision service requires that you provide your own data to train the model.	<input type="radio"/>	<input type="radio"/>
The Custom Vision service can be used to analyze video files.	<input type="radio"/>	<input type="radio"/>

#### Answer Area:

### Answer Area

Statements	Yes	No
The Custom Vision service can be used to detect objects in an image.	<input checked="" type="radio"/>	<input type="radio"/>
The Custom Vision service requires that you provide your own data to train the model.	<input checked="" type="radio"/>	<input type="radio"/>
The Custom Vision service can be used to analyze video files.	<input type="radio"/>	<input checked="" type="radio"/>

#### Section:

#### Explanation:

Box 1: Yes

Custom Vision functionality can be divided into two features. Image classification applies one or more labels to an image. Object detection is similar, but it also returns the coordinates in the image where the applied label(s) can be found.

Box 2: Yes

The Custom Vision service uses a machine learning algorithm to analyze images. You, the developer, submit groups of images that feature and lack the characteristics in question. You label the images yourself at the time of submission. Then, the algorithm trains to this data and calculates its own accuracy by testing itself on those same images.

Box 3: No

Custom Vision service can be used only on graphic files.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/Custom-Vision-Service/overview>

#### QUESTION 26

DRAG DROP

Match the types of AI workloads to the appropriate scenarios.

To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

### Workload Types

Anomaly detection

Computer vision

Machine Learning (Regression)

Natural language processing

### Answer Area

Workload Type Identify handwritten letters.

Workload Type Predict the sentiment of a social media post.

Workload Type Identify a fraudulent credit card payment.

Workload Type Predict next month's toy sales.

Correct Answer:

### Workload Types

### Answer Area

Computer vision Identify handwritten letters.

Natural language processing Predict the sentiment of a social media post.

Anomaly detection Identify a fraudulent credit card payment.

Machine Learning (Regression) Predict next month's toy sales.

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/learn/paths/get-started-with-artificial-intelligence-on-azure/>

### QUESTION 27

DRAG DROP

Match the types of machine learning to the appropriate scenarios.

To answer, drag the appropriate machine learning type from the column on the left to its scenario on the right. Each machine learning type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

### Learning Types

Classification

Clustering

Regression

### Answer Area

Learning Type Predict how many minutes late a flight will arrive basen on the amount of snowfall at an airport.

Learning Type Segment customers into different groups to support a marketing department.

Learning Type Predict whether a student will complete a university course.

Correct Answer:

**Learning Types**

**Answer Area**

Regression

Predict how many minutes late a flight will arrive basen on the amount of snowfall at an airport.

Clustering

Segment customers into different groups to support a marketing department.

Classification

Predict whether a student will complete a university course.

#### Section:

#### Explanation:

Box 1: Regression

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

Box 2: Classification

Classification is a machine learning method that uses data to determine the category, type, or class of an item or row of data.

Box 3: Clustering

Clustering, in machine learning, is a method of grouping data points into similar clusters. It is also called segmentation.

Over the years, many clustering algorithms have been developed. Almost all clustering algorithms use the features of individual items to find similar items. For example, you might apply clustering to find similar people by demographics. You might use clustering with text analysis to group sentences with similar topics or sentiment.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/linear-regression>

#### QUESTION 28

DRAG DROP

Match the machine learning tasks to the appropriate scenarios.

To answer, drag the appropriate task from the column on the left to its scenario on the right. Each task may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

**Learning Types**

Feature engineering

Feature selection

Model deployment

Model evaluation

Model training

**Answer Area**

Task

Examining the values of a confusion matrix

Task

Splitting a date into month, day, and year fields

Task

Picking temperature and pressure to train a weather model

Correct Answer:



Learning Types	Answer Area
	Model evaluation Examining the values of a confusion matrix
	Feature engineering Splitting a date into month, day, and year fields
Model deployment	Feature selection Picking temperature and pressure to train a weather model
Model training	

#### Section:

#### Explanation:

Box 1: Model evaluation

The Model evaluation module outputs a confusion matrix showing the number of true positives, false negatives, false positives, and true negatives, as well as ROC, Precision/Recall, and Lift curves.

Box 2: Feature engineering

Feature engineering is the process of using domain knowledge of the data to create features that help ML algorithms learn better. In Azure Machine Learning, scaling and normalization techniques are applied to facilitate feature engineering. Collectively, these techniques and feature engineering are referred to as featurization.

Note: Often, features are created from raw data through a process of feature engineering. For example, a time stamp in itself might not be useful for modeling until the information is transformed into units of days, months, or categories that are relevant to the problem, such as holiday versus working day.

Box 3: Feature selection

In machine learning and statistics, feature selection is the process of selecting a subset of relevant, useful features to use in building an analytical model. Feature selection helps narrow the field of data to the most valuable inputs. Narrowing the field of data helps reduce noise and improve training performance.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance>

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-automated-ml>

#### QUESTION 29

#### HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

#### Hot Area:



### Answer Area

Statements	Yes	No
A restaurant can use a chatbot to empower customers to make reservations by using a website or an app.	<input type="radio"/>	<input type="radio"/>
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	<input type="radio"/>	<input type="radio"/>
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	<input type="radio"/>	<input type="radio"/>

Answer Area:

### Answer Area

Statements	Yes	No
A restaurant can use a chatbot to empower customers to make reservations by using a website or an app.	<input checked="" type="radio"/>	<input type="radio"/>
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	<input checked="" type="radio"/>	<input type="radio"/>
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	<input checked="" type="radio"/>	<input type="radio"/>

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/bot-service/bot-service-overview-introduction?view=azure-bot-service-4.0>

### QUESTION 30

You have a webchat bot that provides responses from a QnA Maker knowledge base.

You need to ensure that the bot uses user feedback to improve the relevance of the responses over time.  
What should you use?

- A. key phrase extraction
- B. sentiment analysis
- C. business logic
- D. active learning

**Correct Answer: D**

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/how-to/improve-knowledge-base>

#### QUESTION 31

You are developing a conversational AI solution that will communicate with users through multiple channels including email, Microsoft Teams, and webchat.  
Which service should you use?

- A. Text Analytics
- B. Azure Bot Service
- C. Translator
- D. Form Recognizer

**Correct Answer: B**

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/bot-service/bot-service-overview-introduction?view=azure-bot-service-4.0>

#### QUESTION 32

Your company is exploring the use of voice recognition technologies in its smart home devices. The company wants to identify any barriers that might unintentionally leave out specific user groups. This an example of which Microsoft guiding principle for responsible AI?

- A. accountability
- B. fairness
- C. inclusiveness
- D. privacy and security

**Correct Answer: C**

**Section:**

**Explanation:**

Reference: <https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

#### QUESTION 33

What are three Microsoft guiding principles for responsible AI? Each correct answer presents a complete solution.  
NOTE: Each correct selection is worth one point.

- A. knowledgeability

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- B. decisiveness
- C. inclusiveness
- D. fairness
- E. opinionatedness
- F. reliability and safety

**Correct Answer: C, D, F**

**Section:**

**Explanation:**

Reference: <https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

#### QUESTION 34

You run a charity event that involves posting photos of people wearing sunglasses on Twitter.

You need to ensure that you only retweet photos that meet the following requirements:

Include one or more faces.

Contain at least one person wearing sunglasses.

What should you use to analyze the images?

- A. the Verify operation in the Face service
- B. the Detect operation in the Face service
- C. the Describe Image operation in the Computer Vision service
- D. the Analyze Image operation in the Computer Vision service

**Correct Answer: B**

**Section:**

**Explanation:**

Reference: <https://docs.microsoft.com/en-us/azure/cognitive-services/face/overview>

#### QUESTION 35

Which metric can you use to evaluate a classification model?

- A. true positive rate
- B. mean absolute error (MAE)
- C. coefficient of determination (R2)
- D. root mean squared error (RMSE)

**Correct Answer: A**

**Section:**

**Explanation:**

What does a good model look like?

An ROC curve that approaches the top left corner with 100% true positive rate and 0% false positive rate will be the best model. A random model would display as a flat line from the bottom left to the top right corner. Worse than random would dip below the  $y=x$  line.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-understand-automated-ml#classification>

#### QUESTION 36

Which two components can you drag onto a canvas in Azure Machine Learning designer? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

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- A. dataset
- B. compute
- C. pipeline
- D. module

**Correct Answer: A, D**

**Section:**

**Explanation:**

You can drag-and-drop datasets and modules onto the canvas.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

### QUESTION 37

You need to create a training dataset and validation dataset from an existing dataset.

Which module in the Azure Machine Learning designer should you use?

- A. Select Columns in Dataset
- B. Add Rows
- C. Split Data
- D. Join Data

**Correct Answer: C**

**Section:**

**Explanation:**

A common way of evaluating a model is to divide the data into a training and test set by using Split Data, and then validate the model on the training data. Use the Split Data module to divide a dataset into two distinct sets.

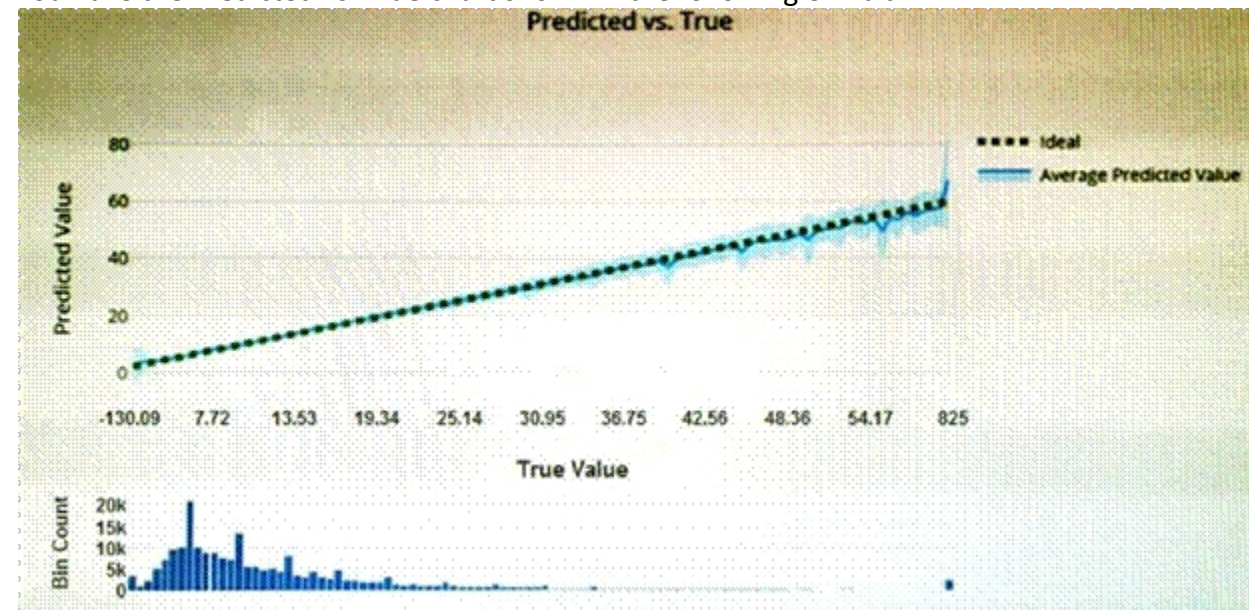
The studio currently supports training/validation data splits

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-cross-validation-data-splits2>

### QUESTION 38

You have the Predicted vs. True chart shown in the following exhibit.



Which type of model is the chart used to evaluate?

- A. classification
- B. regression
- C. clustering

**Correct Answer: B**

**Section:**

**Explanation:**

What is a Predicted vs. True chart?

Predicted vs. True shows the relationship between a predicted value and its correlating true value for a regression problem. This graph can be used to measure performance of a model as the closer to the  $y=x$  line the predicted values are, the better the accuracy of a predictive model.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-understand-automated-m>

#### QUESTION 39

Which type of machine learning should you use to predict the number of gift cards that will be sold next month?

- A. classification
- B. regression
- C. clustering

**Correct Answer: B**

**Section:**

**Explanation:**

In the most basic sense, regression refers to prediction of a numeric target.

Linear regression attempts to establish a linear relationship between one or more independent variables and a numeric outcome, or dependent variable.

You use this module to define a linear regression method, and then train a model using a labeled dataset. The trained model can then be used to make predictions.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/linear-regression>

#### QUESTION 40

You have a dataset that contains information about taxi journeys that occurred during a given period. You need to train a model to predict the fare of a taxi journey.

What should you use as a feature?

- A. the number of taxi journeys in the dataset
- B. the trip distance of individual taxi journeys
- C. the fare of individual taxi journeys
- D. the trip ID of individual taxi journeys

**Correct Answer: B**

**Section:**

**Explanation:**

The label is the column you want to predict. The identified Features are the inputs you give the model to predict the Label. Example:

The provided data set contains the following columns:

vendor\_id: The ID of the taxi vendor is a feature. rate\_code: The rate type of the taxi trip is a feature. passenger\_count: The number of passengers on the trip is a feature. trip\_time\_in\_secs: The amount of time the trip took.

You want to predict the fare of the trip before the trip is completed. At that moment, you don't know how long the trip would take. Thus, the trip time is not a feature and you'll exclude this column from the model.

trip\_distance: The distance of the trip is a feature.

payment\_type: The payment method (cash or credit card) is a feature. fare\_amount: The total taxi fare paid is the label.

Reference:



<https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/predict-prices>

#### QUESTION 41

You need to predict the sea level in meters for the next 10 years.  
Which type of machine learning should you use?

- A. classification
- B. regression
- C. clustering

**Correct Answer: C**

**Section:**

#### QUESTION 42

Which service should you use to extract text, key/value pairs, and table data automatically from scanned documents?

- A. Form Recognizer
- B. Text Analytics
- C. Language Understanding
- D. Custom Vision

**Correct Answer: A**

**Section:**

**Explanation:**

Accelerate your business processes by automating information extraction. Form Recognizer applies advanced machine learning to accurately extract text, key/value pairs, and tables from documents. With just a few samples, Form Recognizer tailors its understanding to your documents, both on-premises and in the cloud. Turn forms into usable data at a fraction of the time and cost, so you can focus more time acting on the information rather than compiling it.

Reference:

<https://azure.microsoft.com/en-us/services/cognitive-services/form-recognizer/>

#### QUESTION 43

You use Azure Machine Learning designer to publish an inference pipeline.

Which two parameters should you use to access the web service? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

- A. the model name
- B. the training endpoint
- C. the authentication key
- D. the REST endpoint

**Correct Answer: C, D**

**Section:**

**Explanation:**

You can consume a published pipeline in the Published pipelines page. Select a published pipeline and find the REST endpoint of it.

To consume the pipeline, you need:

The REST endpoint for your service

The Primary Key for your service

Reference:

<https://docs.microsoft.com/en-in/learn/modules/create-regression-model-azure-machine-learning-designer/deploy-service>

**QUESTION 44**

A medical research project uses a large anonymized dataset of brain scan images that are categorized into predefined brain haemorrhage types. You need to use machine learning to support early detection of the different brain haemorrhage types in the images before the images are reviewed by a person. This is an example of which type of machine learning?

- A. clustering
- B. regression
- C. classification

**Correct Answer: C**

**Section:**

**Explanation:**

Reference: <https://docs.microsoft.com/en-us/learn/modules/create-classification-model-azure-machine-learning-designer/introduction>

**QUESTION 45**

When training a model, why should you randomly split the rows into separate subsets?

- A. to train the model twice to attain better accuracy
- B. to train multiple models simultaneously to attain better performance
- C. to test the model by using data that was not used to train the model

**Correct Answer: C**

**Section:**

**QUESTION 46**

You are evaluating whether to use a basic workspace or an enterprise workspace in Azure Machine Learning. What are two tasks that require an enterprise workspace? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Use a graphical user interface (GUI) to run automated machine learning experiments.
- B. Create a compute instance to use as a workstation.
- C. Use a graphical user interface (GUI) to define and run machine learning experiments from Azure Machine Learning designer.
- D. Create a dataset from a comma-separated value (CSV) file.

**Correct Answer: A, C**

**Section:**

**Explanation:**

Note: Enterprise workspaces are no longer available as of September 2020. The basic workspace now has all the functionality of the enterprise workspace.

Reference: <https://www.azure.cn/en-us/pricing/details/machine-learning/> <https://docs.microsoft.com/en-us/azure/machine-learning/concept-workspace>

**QUESTION 47**

You need to predict the income range of a given customer by using the following dataset.

First Name	Last Name	Age	Education Level	Income Range
Orlando	Gee	45	University	25,000-50,000
Keith	Harris	36	High school	25,000-50,000
Donna	Carreras	52	University	50,000-75,000
Janet	Gates	21	University	75,000-100,000
Lucy	Harrington	68	High school	50,000-75,000

Which two fields should you use as features? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. Education Level
- B. Last Name
- C. Age
- D. Income Range
- E. First Name

**Correct Answer: A, C**

**Section:**

**Explanation:**

First Name, Last Name, Age and Education Level are features. Income range is a label (what you want to predict). First Name and Last Name are irrelevant in that they have no bearing on income. Age and Education level are the features you should use.

#### QUESTION 48

You need to develop a mobile app for employees to scan and store their expenses while travelling. Which type of computer vision should you use?

- A. semantic segmentation
- B. image classification
- C. object detection
- D. optical character recognition (OCR)

**Correct Answer: D**

**Section:**

**Explanation:**

Azure's Computer Vision API includes Optical Character Recognition (OCR) capabilities that extract printed or handwritten text from images. You can extract text from images, such as photos of license plates or containers with serial numbers, as well as from documents - invoices, bills, financial reports, articles, and more.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-recognizing-text>

#### QUESTION 49

You need to determine the location of cars in an image so that you can estimate the distance between the cars. Which type of computer vision should you use?

- A. optical character recognition (OCR)
- B. object detection
- C. image classification
- D. face detection

**Correct Answer: B**

**Section:**

**Explanation:**

Object detection is similar to tagging, but the API returns the bounding box coordinates (in pixels) for each object found. For example, if an image contains a dog, cat and person, the Detect operation will list those objects together with their coordinates in the image. You can use this functionality to process the relationships between the objects in an image. It also lets you determine whether there are multiple instances of the same tag in an image. The Detect API applies tags based on the objects or living things identified in the image. There is currently no formal relationship between the tagging taxonomy and the object detection taxonomy. At a conceptual level, the Detect API only finds objects and living things, while the Tag API can also include contextual terms like "indoor", which can't be localized with bounding boxes.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-object-detection>

#### QUESTION 50

Which AI service can you use to interpret the meaning of a user input such as "Call me back later?"

- A. Translator Text
- B. Text Analytics
- C. Speech
- D. Language Understanding (LUIS)

**Correct Answer: D**

**Section:**

**Explanation:**

Language Understanding (LUIS) is a cloud-based AI service, that applies custom machine-learning intelligence to a user's conversational, natural language text to predict overall meaning, and pull out relevant, detailed information.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/luis/what-is-luis>

#### QUESTION 51

You are developing a Chatbot solution in Azure.

Which service should you use to determine a user's intent?

- A. Translator Text
- B. Azure Cognitive Search
- C. Speech
- D. Language Understanding (LUIS)

**Correct Answer: B**

**Section:**

**Explanation:**

#### QUESTION 52

You need to make the press releases of your company available in a range of languages.

Which service should you use?

- A. Translator Text
- B. Text Analytics
- C. Speech
- D. Language Understanding (LUIS)

**Correct Answer: A**

**Section:**

**Explanation:**

Translator is a cloud-based machine translation service you can use to translate text in near real-time through a simple REST API call. The service uses modern neural machine translation technology and offers statistical machine translation technology. Custom Translator is an extension of Translator, which allows you to build neural translation systems.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/translator/>

#### QUESTION 53

You are developing a natural language processing solution in Azure. The solution will analyze customer reviews and determine how positive or negative each review is. This is an example of which type of natural language

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processing workload?

- A. language detection
- B. sentiment analysis
- C. key phrase extraction
- D. entity recognition

**Correct Answer: B**

**Section:**

**Explanation:**

Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

Reference:


<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

#### QUESTION 54

You use natural language processing to process text from a Microsoft news story.

You receive the output shown in the following exhibit.

For weeks now, students and teachers have been settling into the uncharted routine of distance learning. Today I want to thank all of the educators who are connecting classrooms and classmates together in the sudden shift to remote learning. This change requires everyone working together and is unlike anything we've seen in the modern history of education. We've seen countries, school districts and universities move rapidly into remote learning environments with Microsoft Teams being used in 175 countries by 183,000 institutions.



now	[DateTime]
students	[PersonType]
teachers	[PersonType]
distance learning	[Skill]
Today	[DateTime-Date]
educators	[PersonType]
classrooms	[Location]
classmates	[PersonType]
remote learning	[Skill]
history	[Skill]
education	[Skill]
remote learning	[Skill]
Microsoft	[Organization]
175	[Quantity-Number]
183,000	[Quantity-Number]

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Which type of natural languages processing was performed?

- A. entity recognition
- B. key phrase extraction
- C. sentiment analysis
- D. translation

**Correct Answer: A**

**Section:**

**Explanation:**

Named Entity Recognition (NER) is the ability to identify different entities in text and categorize them into pre-defined classes or types such as: person, location, event, product, and organization.

In this question, the square brackets indicate the entities such as DateTime, PersonType, Skill.

Reference:

<https://docs.microsoft.com/en-in/azure/cognitive-services/text-analytics/how-tos/text-analytics-how-to-entity-linking?tabs=version-3-preview>

#### QUESTION 55

You are developing a solution that uses the Text Analytics service.

You need to identify the main talking points in a collection of documents.

Which type of natural language processing should you use?



- A. entity recognition
- B. key phrase extraction
- C. sentiment analysis
- D. language detection

**Correct Answer: B**

**Section:**

**Explanation:**

Broad entity extraction: Identify important concepts in text, including key

Key phrase extraction/ Broad entity extraction: Identify important concepts in text, including key phrases and named entities such as people, places, and organizations.

Reference: <https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

#### QUESTION 56

In which two scenarios can you use speech recognition? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. an in-car system that reads text messages aloud
- B. providing closed captions for recorded or live videos
- C. creating an automated public address system for a train station
- D. creating a transcript of a telephone call or meeting

**Correct Answer: B, D**

**Section:**

**Explanation:**

Reference: <https://azure.microsoft.com/en-gb/services/cognitive-services/speech-to-text/#features>

#### QUESTION 57

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

**Hot Area:**

**Answer Area**

Natural language processing can be used to

classify email messages as work-related or personal.
predict the number of future car rentals.
predict which website visitors will make a transaction.
stop a process in a factory when extremely high temperatures are registered.

**Answer Area:**

### Answer Area

Natural language processing can be used to

classify email messages as work-related or personal.
predict the number of future car rentals.
predict which website visitors will make a transaction.
stop a process in a factory when extremely high temperatures are registered.

### Section:

### Explanation:

Natural language processing (NLP) is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

### QUESTION 58

### HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

### Hot Area:

### Answer Area

Statements	Yes	No
The Text Analytics service can identify in which language text is written.	<input type="radio"/>	<input type="radio"/>
The Text Analytics service can detect handwritten signatures in a document.	<input type="radio"/>	<input type="radio"/>
The Text Analytics service can identify companies and organizations mentioned in a document.	<input type="radio"/>	<input type="radio"/>

### Answer Area:

### Answer Area

Statements	Yes	No
The Text Analytics service can identify in which language text is written.	<input checked="" type="radio"/>	<input type="radio"/>
The Text Analytics service can detect handwritten signatures in a document.	<input type="radio"/>	<input checked="" type="radio"/>
The Text Analytics service can identify companies and organizations mentioned in a document.	<input checked="" type="radio"/>	<input type="radio"/>

### Section:

**Explanation:**

The Text Analytics API is a cloud-based service that provides advanced natural language processing over raw text, and includes four main functions: sentiment analysis, key phrase extraction, named entity recognition, and language detection.

Box 1: Yes

You can detect which language the input text is written in and report a single language code for every document submitted on the request in a wide range of languages, variants, dialects, and some regional/cultural languages.

The language code is paired with a score indicating the strength of the score.

Box 2: No

Box 3: Yes

Named Entity Recognition: Identify and categorize entities in your text as people, places, organizations, date/time, quantities, percentages, currencies, and more. Well-known entities are also recognized and linked to more information on the web.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/overview>

**QUESTION 59**

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:

**Answer Area**

Statements	Yes	No
Monitoring online service reviews for profanities is an example of natural language processing.	<input type="radio"/>	<input type="radio"/>
Identifying brand logos in an image is an example of natural languages processing.	<input type="radio"/>	<input type="radio"/>
Monitoring public news sites for negative mentions of a product is an example of natural language processing.	<input type="radio"/>	<input type="radio"/>

Answer Area:

**Answer Area**

Statements	Yes	No
Monitoring online service reviews for profanities is an example of natural language processing.	<input checked="" type="radio"/>	<input type="radio"/>
Identifying brand logos in an image is an example of natural languages processing.	<input type="radio"/>	<input checked="" type="radio"/>
Monitoring public news sites for negative mentions of a product is an example of natural language processing.	<input checked="" type="radio"/>	<input type="radio"/>

Section:

**Explanation:**

Box 1: Yes

Content Moderator is part of Microsoft Cognitive Services allowing businesses to use machine assisted moderation of text, images, and videos that augment human review.

The text moderation capability now includes a new machine-learning based text classification feature which uses a trained model to identify possible abusive, derogatory or discriminatory language such as slang, abbreviated words, offensive, and intentionally misspelled words for review.

Box 2: No

Azure's Computer Vision service gives you access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an image contains adult content, find specific brands or objects, or find human faces.

Box 3: Yes

Natural language processing (NLP) is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

Reference:

<https://azure.microsoft.com/es-es/blog/machine-assisted-text-classification-on-content-moderator-public-preview/>

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

## QUESTION 60

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

Answer Area

While presenting at a conference, your session is transcribed into subtitles for the audience. This is an example of

- sentiment analysis.
- speech recognition.
- speech synthesis.
- translation.

Answer Area:

Answer Area

While presenting at a conference, your session is transcribed into subtitles for the audience. This is an example of

- sentiment analysis.
- speech recognition.
- speech synthesis.
- translation.

Section:

Explanation:

Reference:

<https://azure.microsoft.com/en-gb/services/cognitive-services/speech-to-text/#features>

## QUESTION 61

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Hot Area:



### Answer Area



#### Statements

Yes

No

You can use the Speech service to transcribe a call to text.

☐
☐

You can use the Text Analytics service to extract key entities from a call transcript.

☐
☐

You can use the Speech service to translate the audio of a call to a different language.

☐
☐


Answer Area:

### Answer Area



#### Statements

Yes

No

You can use the Speech service to transcribe a call to text.

☒
☐

You can use the Text Analytics service to extract key entities from a call transcript.

☒
☐

You can use the Speech service to translate the audio of a call to a different language.

☒
☐


Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-gb/azure/cognitive-services/text-analytics/overview>

<https://azure.microsoft.com/en-gb/services/cognitive-services/speech-services/>

### QUESTION 62

HOTSPOT

Select the answer that correctly completes the sentence.

Hot Area:



**Answer Area**

A historian can use  to digitize newspaper articles.

- facial analysis
- image classification
- object detection
- optical character recognition (OCR)

**Answer Area:****Answer Area**

A historian can use  to digitize newspaper articles.

- facial analysis
- image classification
- object detection
- optical character recognition (OCR)

**Section:****Explanation:****QUESTION 63****HOTSPOT**

Select the answer that correctly completes the sentence.

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**Hot Area:****Answer Area**

When building a regression model, labels must have a data type of .

- boolean.
- datetime.
- numeric.
- text.

**Answer Area:****Answer Area**

When building a regression model, labels must have a data type of .

- boolean.
- datetime.
- numeric.
- text.

**Section:****Explanation:****QUESTION 64**

You have a bot that identifies the brand names of products in images of supermarket shelves.  
Which service does the bot use?

- A. AI enrichment for Azure Search capabilities
- B. Computer Vision Image Analysis capabilities
- C. Custom Vision Image Classification capabilities
- D. Language understanding capabilities

**Correct Answer: B**  
**Section:**

**QUESTION 65**  
HOTSPOT  
Select the answer that correctly completes the sentence.

**Hot Area:**

Answer Area

Detecting unusual temperature fluctuations for a large machine is an example of

an anomaly detection workload.

a computer vision workload.

a knowledge mining workload.

a natural language processing (NLP) workload.

an anomaly detection workload.

**Answer Area:**

Answer Area

Detecting unusual temperature fluctuations for a large machine is an example of

an anomaly detection workload.

a computer vision workload.

a knowledge mining workload.

a natural language processing (NLP) workload.

an anomaly detection workload.

**Section:**  
**Explanation:**

**QUESTION 66**  
HOTSPOT  
For each of the following statements, select Yes if the statement is true. Otherwise, select No.  
NOTE: Each correct selection is worth one point.

**Hot Area:**

Statements	Yes	No
Azure Bot Service and Azure Cognitive Services can be integrated.	<input type="radio"/>	<input type="radio"/>
Azure Bot Service engages with customers in a conversational manner.	<input type="radio"/>	<input type="radio"/>
Azure Bot Service can import frequently asked questions (FAQ) to question and answer sets.	<input type="radio"/>	<input type="radio"/>

Answer Area:

Statements	Yes	No
Azure Bot Service and Azure Cognitive Services can be integrated.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Bot Service engages with customers in a conversational manner.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Bot Service can import frequently asked questions (FAQ) to question and answer sets.	<input type="radio"/>	<input checked="" type="radio"/>

Section:

Explanation:

Box 1: Yes

Azure bot service can be integrated with the powerful AI capabilities with Azure Cognitive Services.

Box 2: Yes

Azure bot service engages with customers in a conversational manner.

Box 3: No

The QnA Maker service creates knowledge base, not question and answers sets.

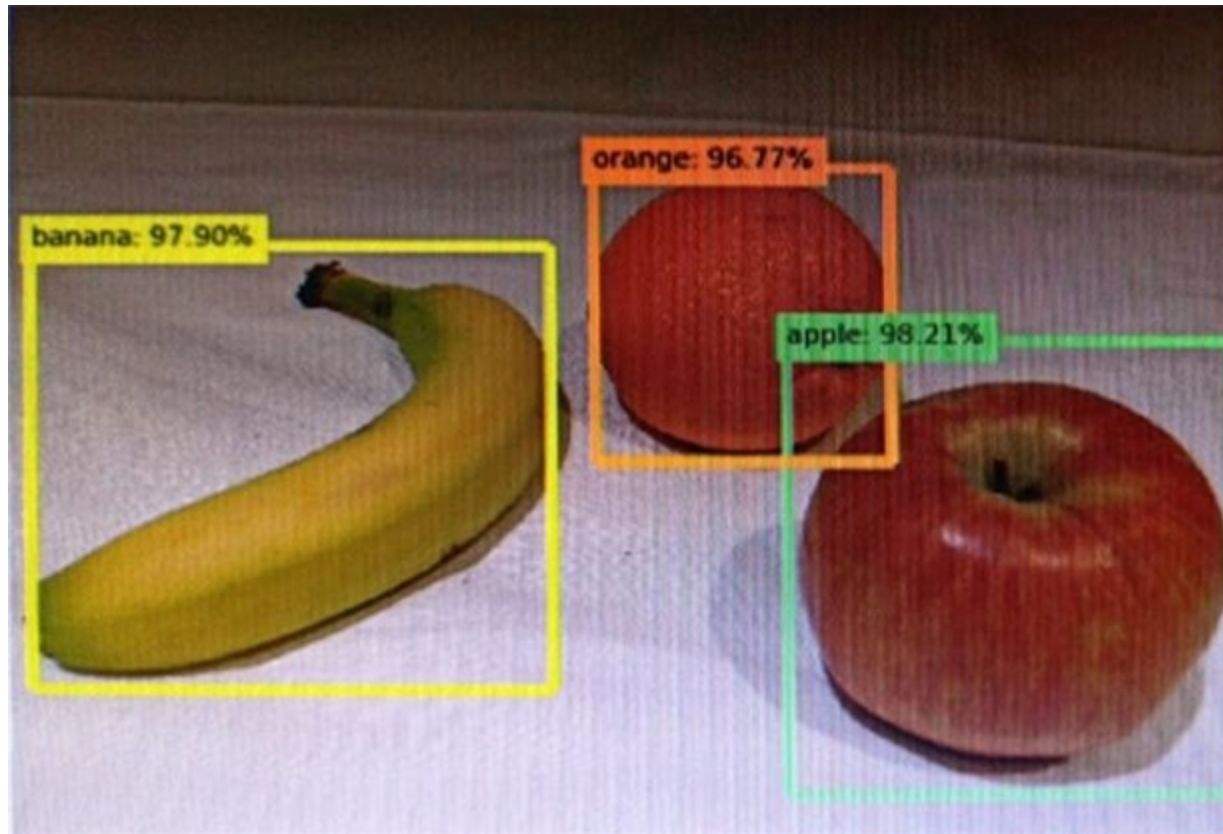
Note: You can use the QnA Maker service and a knowledge base to add question-and-answer support to your bot. When you create your knowledge base, you seed it with questions and answers.

Reference:

<https://docs.microsoft.com/en-us/azure/bot-service/bot-builder-tutorial-add-qna>

#### QUESTION 67

You send an image to a Computer Vision API and receive back the annotated image shown in the exhibit.



Which type of computer vision was used?

- A. object detection
- B. face detection
- C. optical character recognition (OCR)
- D. image classification

**Correct Answer: A**

**Section:**

**Explanation:**

Object detection is similar to tagging, but the API returns the bounding box coordinates (in pixels) for each object found. For example, if an image contains a dog, cat and person, the Detect operation will list those objects together with their coordinates in the image. You can use this functionality to process the relationships between the objects in an image. It also lets you determine whether there are multiple instances of the same tag in an image. The Detect API applies tags based on the objects or living things identified in the image. There is currently no formal relationship between the tagging taxonomy and the object detection taxonomy. At a conceptual level, the Detect API only finds objects and living things, while the Tag API can also include contextual terms like "indoor", which can't be localized with bounding boxes.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-object-detection>

#### QUESTION 68

What are two tasks that can be performed by using the Computer Vision service? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Train a custom image classification model.
- B. Detect faces in an image.
- C. Recognize handwritten text.
- D. Translate the text in an image between languages.

**Correct Answer: B, C**

**Section:**

**Explanation:**

B: Azure's Computer Vision service provides developers with access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an image contains adult content, find specific brands or objects, or find human faces.

C: Computer Vision includes Optical Character Recognition (OCR) capabilities. You can use the new Read API to extract printed and handwritten text from images and documents.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/home>

**QUESTION 69**

What is a use case for classification?

- A. predicting how many cups of coffee a person will drink based on how many hours the person slept the previous night.
- B. analyzing the contents of images and grouping images that have similar colors
- C. predicting whether someone uses a bicycle to travel to work based on the distance from home to work
- D. predicting how many minutes it will take someone to run a race based on past race times

**Correct Answer: D**

**Section:**

**QUESTION 70**

What are two tasks that can be performed by using computer vision? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Predict stock prices.
- B. Detect brands in an image.
- C. Detect the color scheme in an image
- D. Translate text between languages.
- E. Extract key phrases.

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**Correct Answer: B, C**

**Section:**

**Explanation:**

B: Identify commercial brands in images or videos from a database of thousands of global logos. You can use this feature, for example, to discover which brands are most popular on social media or most prevalent in media product placement.

C: Analyze color usage within an image. Computer Vision can determine whether an image is black & white or color and, for color images, identify the dominant and accent colors.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview>

**QUESTION 71**

Your company wants to build a recycling machine for bottles. The recycling machine must automatically identify bottles of the correct shape and reject all other items. Which type of AI workload should the company use?

- A. anomaly detection
- B. conversational AI
- C. computer vision
- D. natural language processing

**Correct Answer: C**

**Section:**

**Explanation:**

Azure's Computer Vision service gives you access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an



image contains adult content, find specific brands or objects, or find human faces.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview>

#### QUESTION 72

In which two scenarios can you use the Form Recognizer service? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Extract the invoice number from an invoice.
- B. Translate a form from French to English.
- C. Find image of product in a catalog.
- D. Identify the retailer from a receipt.

**Correct Answer: A, D**

**Section:**

**Explanation:**

Reference:

<https://azure.microsoft.com/en-gb/services/cognitive-services/form-recognizer/#features>

#### QUESTION 73

Your website has a chatbot to assist customers.

You need to detect when a customer is upset based on what the customer types in the chatbot.

Which type of AI workload should you use?

- A. anomaly detection
- B. semantic segmentation
- C. regression
- D. natural language processing

**Correct Answer: D**

**Section:**

**Explanation:**

Natural language processing (NLP) is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

#### QUESTION 74

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

**Hot Area:**

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**Answer Area**

The interactive answering of questions entered by a user as part of an application is an example of

- anomaly detection.
- computer vision.
- conversational AI.
- forecasting.

**Answer Area:****Answer Area**

The interactive answering of questions entered by a user as part of an application is an example of

- anomaly detection.
- computer vision.
- conversational AI.
- forecasting.

**Section:****Explanation:**

With Microsoft's Conversational AI tools developers can build, connect, deploy, and manage intelligent bots that naturally interact with their users on a website, app, Cortana, Microsoft Teams, Skype, Facebook Messenger, Slack, and more.

**Reference:**

<https://azure.microsoft.com/en-in/blog/microsoft-conversational-ai-tools-enable-developers-to-build-connect-and-manage-intelligent-bots>

**QUESTION 75****HOTSPOT**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

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**Answer Area****Statements****Yes****No**

You can use QnA Maker to query an Azure SQL database.

☐☐

You should use QnA Maker when you want a knowledge base to provide the same answer to different users who submit similar questions.

☐☐

The QnA Maker service can determine the intent of a user utterance.

☐☐**Answer Area:****Answer Area****Statements****Yes****No**

You can use QnA Maker to query an Azure SQL database.

☐☒

You should use QnA Maker when you want a knowledge base to provide the same answer to different users who submit similar questions.

☒☐

The QnA Maker service can determine the intent of a user utterance.

☐☒**Section:****Explanation:**

Reference:

<https://docs.microsoft.com/en-gb/azure/cognitive-services/qnamaker/concepts/data-sources-and-content>

<https://docs.microsoft.com/en-us/azure/cognitive-services/luis/choose-natural-language-processing-service>

**QUESTION 76****HOTSPOT**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

### Answer Area

Statements	Yes	No
A bot that responds to queries by internal users is an example of a conversational AI workload.	<input type="radio"/>	<input type="radio"/>
An application that displays images relating to an entered search term is an example of a conversational AI workload.	<input type="radio"/>	<input type="radio"/>
A web form used to submit a request to reset a password is an example of a conversational AI workload.	<input type="radio"/>	<input type="radio"/>

Answer Area:

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### Answer Area

Statements	Yes	No
A bot that responds to queries by internal users is an example of a conversational AI workload.	<input checked="" type="radio"/>	<input type="radio"/>
An application that displays images relating to an entered search term is an example of a conversational AI workload.	<input type="radio"/>	<input checked="" type="radio"/>
A web form used to submit a request to reset a password is an example of a conversational AI workload.	<input checked="" type="radio"/>	<input type="radio"/>

Section:

Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/bot-service/bot-service-overview-introduction?view=azure-bot-service-4.0>

#### QUESTION 77

When you design an AI system to assess whether loans should be approved, the factors used to make the decision should be explainable.

This is an example of which Microsoft guiding principle for responsible AI?

- A. transparency
- B. inclusiveness
- C. fairness
- D. privacy and security

**Correct Answer: A**

**Section:**

**Explanation:**

Achieving transparency helps the team to understand the data and algorithms used to train the model, what transformation logic was applied to the data, the final model generated, and its associated assets. This information offers insights about how the model was created, which allows it to be reproduced in a transparent way.

Incorrect Answers:

B: Inclusiveness mandates that AI should consider all human races and experiences, and inclusive design practices can help developers to understand and address potential barriers that could unintentionally exclude people. Where possible, speech-to-text, text-to-speech, and visual recognition technology should be used to empower people with hearing, visual, and other impairments. C: Fairness is a core ethical principle that all humans aim to understand and apply. This principle is even more important when AI systems are being developed. Key checks and balances need to make sure that the system's decisions don't discriminate or run a gender, race, sexual orientation, or religion bias toward a group or individual. D: A data holder is obligated to protect the data in an AI system, and privacy and security are an integral part of this system. Personal needs to be secured, and it should be accessed in a way that doesn't compromise an individual's privacy.

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/strategy/responsible-ai>

#### QUESTION 78

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**



### Answer Area

#### Statements

Yes

No

Providing an explanation of the outcome of a credit loan application is an example of the Microsoft transparency principle for responsible AI.

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☐

A triage bot that prioritizes insurance claims based on injuries is an example of the Microsoft reliability and safety principle for responsible AI.

☐
☐

An AI solution that is offered at different prices for different sales territories is an example of the Microsoft inclusiveness principle for responsible AI.

☐
☐

Answer Area:

### Answer Area

#### Statements

Yes

No

Providing an explanation of the outcome of a credit loan application is an example of the Microsoft transparency principle for responsible AI.

☒
☐

A triage bot that prioritizes insurance claims based on injuries is an example of the Microsoft reliability and safety principle for responsible AI.

☐
☒

An AI solution that is offered at different prices for different sales territories is an example of the Microsoft inclusiveness principle for responsible AI.

☐
☒

Section:

Explanation:

Box 1: Yes

Achieving transparency helps the team to understand the data and algorithms used to train the model, what transformation logic was applied to the data, the final model generated, and its associated assets. This information offers insights about how the model was created, which allows it to be reproduced in a transparent way.

Box 2: No

A data holder is obligated to protect the data in an AI system, and privacy and security are an integral part of this system. Personal needs to be secured, and it should be accessed in a way that doesn't compromise an individual's privacy.

Box 3: No

Inclusiveness mandates that AI should consider all human races and experiences, and inclusive design practices can help developers to understand and address potential barriers that could unintentionally exclude people.

Where possible, speech-to-text, text-to-speech, and visual recognition technology should be used to empower people with hearing, visual, and other impairments.  
Reference:  
<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

**QUESTION 79**

**HOTSPOT**

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

Answer Area

Statements	Yes	No
Organizing documents into groups based on similarities of the text contained in the documents is an example of clustering.	<input type="radio"/>	<input type="radio"/>
Grouping similar patients based on symptoms and diagnostic test results is an example of clustering.	<input type="radio"/>	<input type="radio"/>
Predicting whether a person will develop mild, moderate, or severe allergy symptoms based on pollen count is an example of clustering.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

### Answer Area

Statements	Yes	No
Organizing documents into groups based on similarities of the text contained in the documents is an example of clustering.	<input checked="" type="radio"/>	<input type="radio"/>
Grouping similar patients based on symptoms and diagnostic test results is an example of clustering.	<input checked="" type="radio"/>	<input type="radio"/>
Predicting whether a person will develop mild, moderate, or severe allergy symptoms based on pollen count is an example of clustering.	<input type="radio"/>	<input checked="" type="radio"/>

#### Section:

#### Explanation:

Clustering is a machine learning task that is used to group instances of data into clusters that contain similar characteristics. Clustering can also be used to identify relationships in a dataset

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

#### QUESTION 80

#### HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

#### Hot Area:

**Answer Area**

Statements	Yes	No
A validation set includes the set of input examples that will be used to train a mode.	<input type="radio"/>	<input type="radio"/>
A validation set can be used to determine how well a model predicts labels.	<input type="radio"/>	<input type="radio"/>
A validation set can be used to verify that all the training data was used to train the model.	<input type="radio"/>	<input type="radio"/>

Answer Area:

**Answer Area**

Statements	Yes	No
A validation set includes the set of input examples that will be used to train a mode.	<input type="radio"/>	<input checked="" type="radio"/>
A validation set can be used to determine how well a model predicts labels.	<input checked="" type="radio"/>	<input type="radio"/>
A validation set can be used to verify that all the training data was used to train the model.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

Box 1: No

The validation dataset is different from the test dataset that is held back from the training of the model.

Box 2: Yes

A validation dataset is a sample of data that is used to give an estimate of model skill while tuning model's hyperparameters.

Box 3: No



The Test Dataset, not the validation set, used for this. The Test Dataset is a sample of data used to provide an unbiased evaluation of a final model fit on the training dataset.

Reference:

<https://machinelearningmastery.com/difference-test-validation-datasets/>

#### QUESTION 81

What are two metrics that you can use to evaluate a regression model? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

- A. coefficient of determination (R2)
- B. F1 score
- C. root mean squared error (RMSE)
- D. area under curve (AUC)
- E. balanced accuracy

**Correct Answer: A, C**

**Section:**

**Explanation:**

A: R-squared (R2), or Coefficient of determination represents the predictive power of the model as a value between -inf and 1.00. 1.00 means there is a perfect fit, and the fit can be arbitrarily poor so the scores can be negative. C: RMS-loss or Root Mean Squared Error (RMSE) (also called Root Mean Square Deviation, RMSD), measures the difference between values predicted by a model and the values observed from the environment that is being modeled.

Incorrect Answers:

B: F1 score also known as balanced F-score or F-measure is used to evaluate a classification model. D: aucROC or area under the curve (AUC) is used to evaluate a classification model.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/metrics>

#### QUESTION 82

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

**Hot Area:**

#### Answer Area

Predicting how many vehicles will travel across a bridge on a given day is an example of

- classification.
- clustering.
- regression.



Answer Area:

### Answer Area

Predicting how many vehicles will travel across a bridge on a given day is an example of

	▼
classification.	
clustering.	
regression.	

**Section:**

**Explanation:**

Regression is a machine learning task that is used to predict the value of the label from a set of related features.

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

### QUESTION 83

DRAG DROP

You need to use Azure Machine Learning designer to build a model that will predict automobile prices.

Which type of modules should you use to complete the model? To answer, drag the appropriate modules to the correct locations. Each module may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

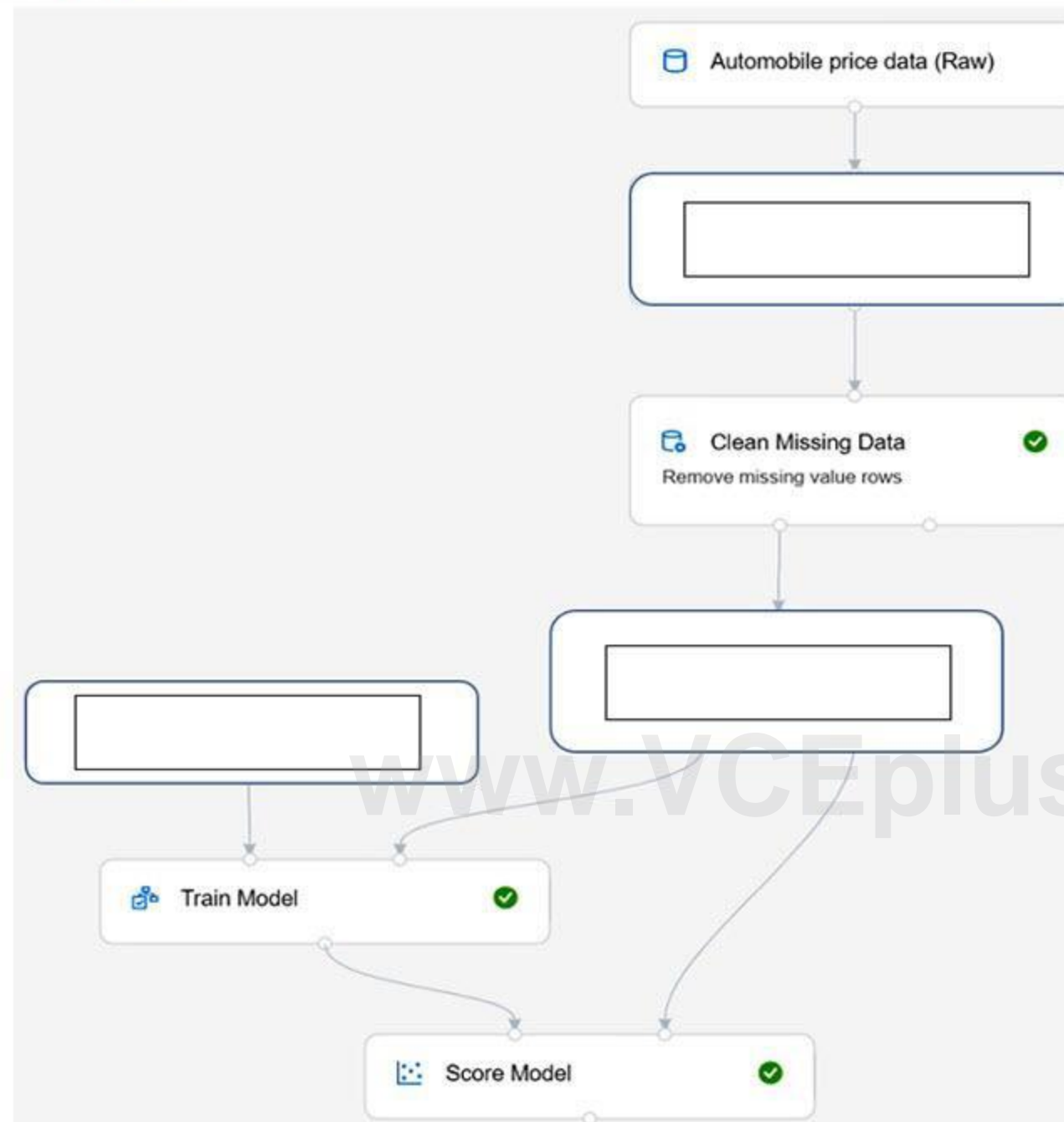
NOTE: Each correct selection is worth one point.

**Select and Place:**

**Modules**

- Convert to CSV
- K-Means Clustering
- Linear Regression
- Split Data
- Select Columns in Dataset
- Summarize Data

**Answer Area**



Correct Answer:

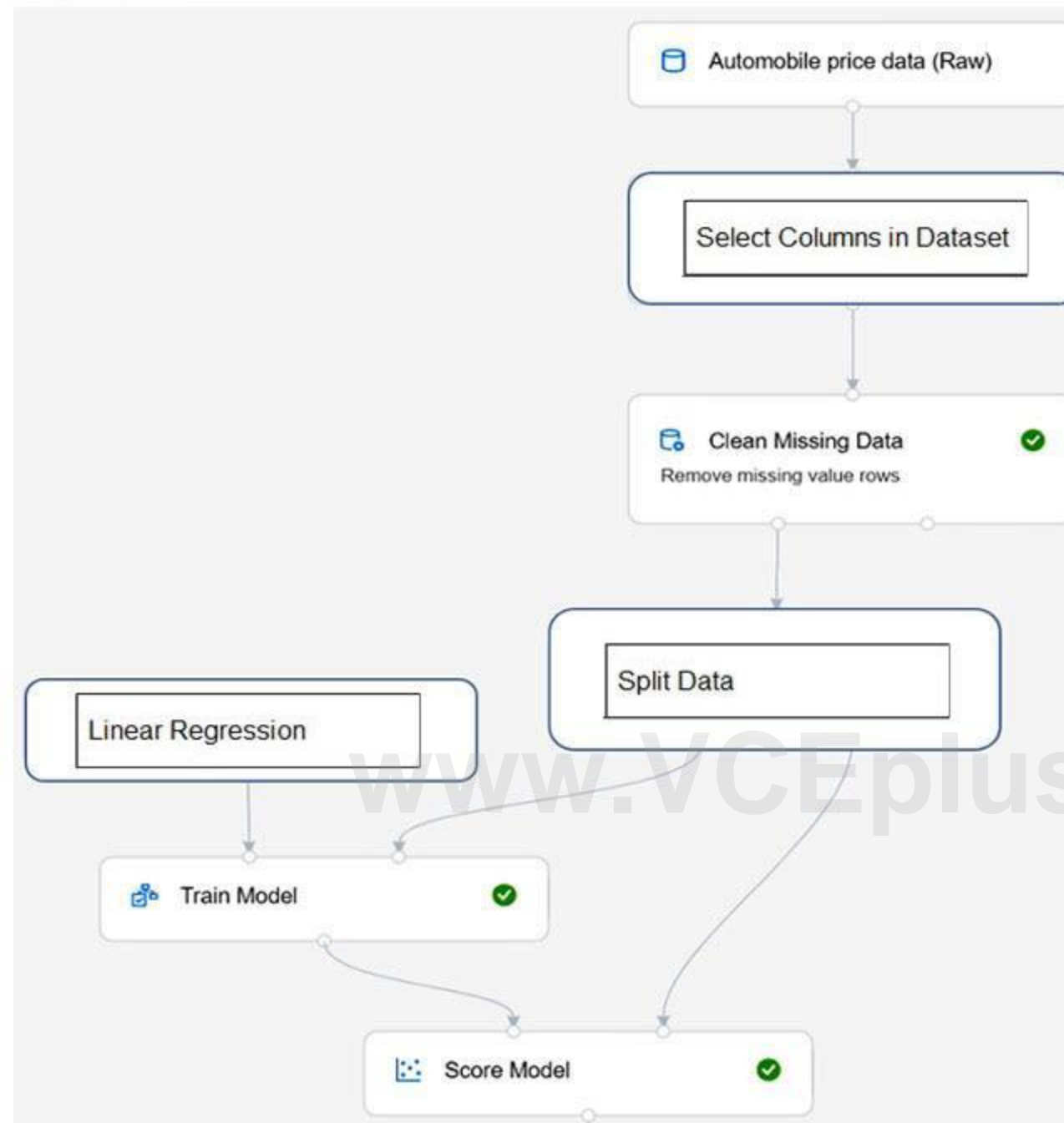
## Modules

Convert to CSV

K-Means Clustering

Summarize Data

## Answer Area

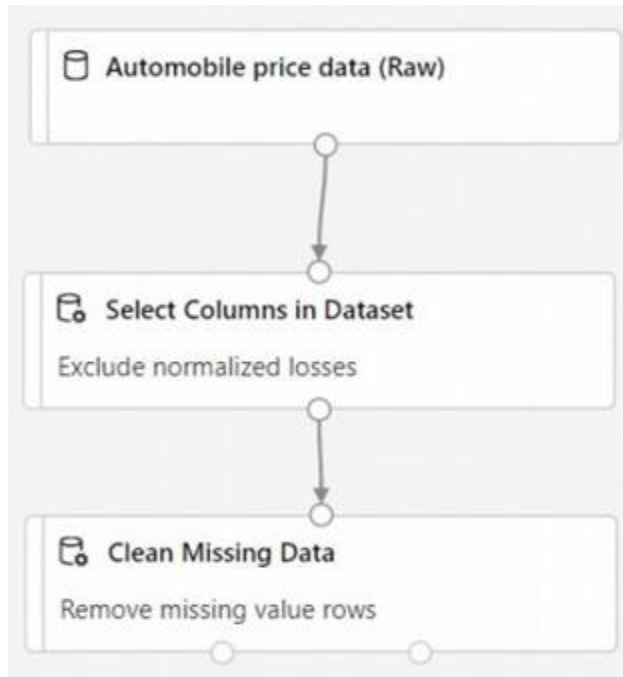


### Section:

### Explanation:

Box 1: Select Columns in Dataset

For Columns to be cleaned, choose the columns that contain the missing values you want to change. You can choose multiple columns, but you must use the same replacement method in all selected columns. Example:



Box 2: Split data

Splitting data is a common task in machine learning. You will split your data into two separate datasets. One dataset will train the model and the other will test how well the model performed.

Box 3: Linear regression

Because you want to predict price, which is a number, you can use a regression algorithm. For this example, you use a linear regression model.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/tutorial-designer-automobile-price-train-score>

#### QUESTION 84

Which type of machine learning should you use to identify groups of people who have similar purchasing habits?

- A. classification
- B. regression
- C. clustering

**Correct Answer: C**

**Section:**

**Explanation:**

Clustering is a machine learning task that is used to group instances of data into clusters that contain similar characteristics. Clustering can also be used to identify relationships in a dataset

Reference:

<https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks>

#### QUESTION 85

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**

Statements	Yes	No
You can use the Translator service to translate text between languages.	<input type="radio"/>	<input type="radio"/>
You can use the Translator service to detect the language of a given text.	<input type="radio"/>	<input type="radio"/>
You can use the Translator service to transcribe audible speech into text.	<input type="radio"/>	<input type="radio"/>

Answer Area:

**Answer Area**

Statements	Yes	No
You can use the Translator service to translate text between languages.	<input checked="" type="radio"/>	<input type="radio"/>
You can use the Translator service to detect the language of a given text.	<input checked="" type="radio"/>	<input type="radio"/>
You can use the Translator service to transcribe audible speech into text.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

The translator service provides multi-language support for text translation, transliteration, language detection, and dictionaries.

Speech-to-Text, also known as automatic speech recognition (ASR), is a feature of Speech Services that provides transcription.

Reference:



<https://docs.microsoft.com/en-us/azure/cognitive-services/Translator/translator-info-overview>  
<https://docs.microsoft.com/en-us/legal/cognitive-services/speech-service/speech-to-text/transparency-note>

#### QUESTION 86

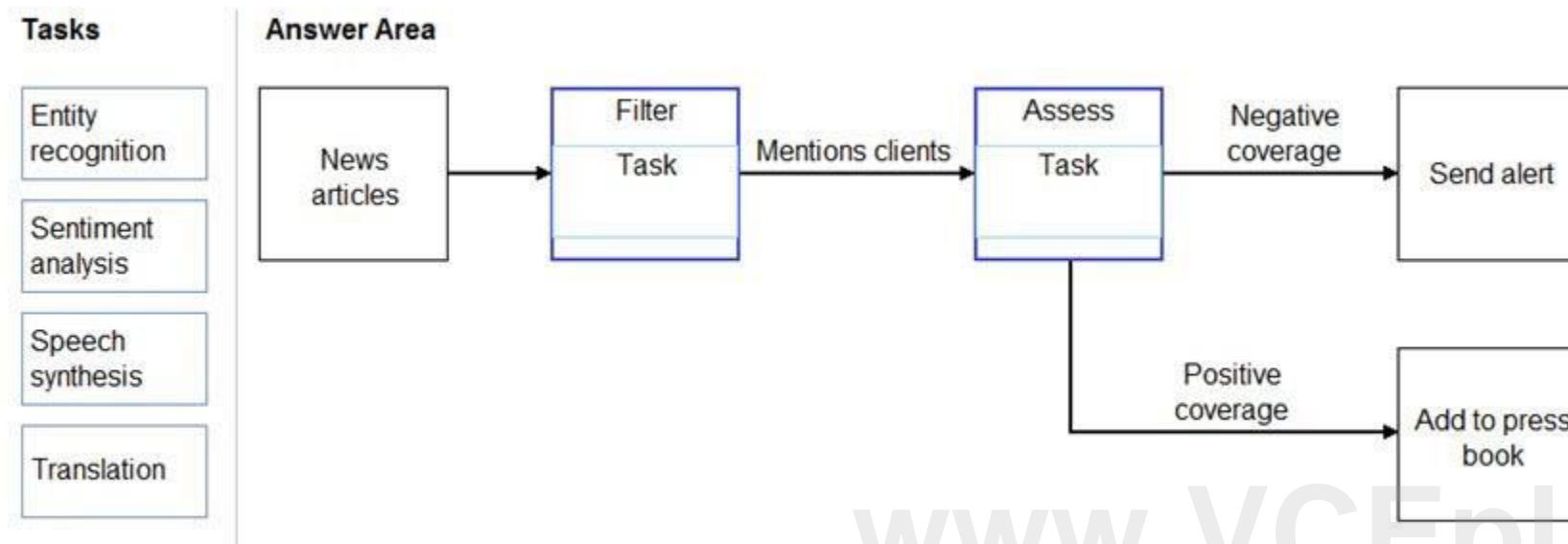
DRAG DROP

You need to scan the news for articles about your customers and alert employees when there is a negative article. Positive articles must be added to a press book.

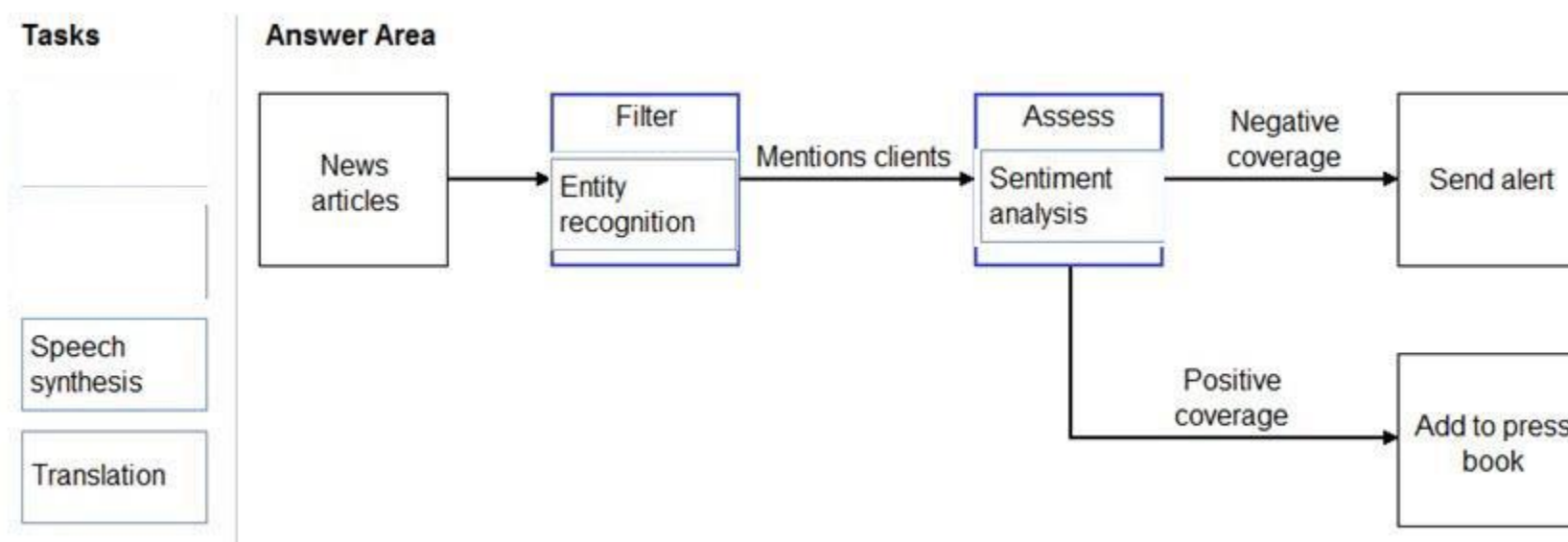
Which natural language processing tasks should you use to complete the process? To answer, drag the appropriate tasks to the correct locations. Each task may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Select and Place:



Correct Answer:



Section:

Explanation:

Box 1: Entity recognition

the Named Entity Recognition module in Machine Learning Studio (classic), to identify the names of things, such as people, companies, or locations in a column of text.

Named entity recognition is an important area of research in machine learning and natural language processing (NLP), because it can be used to answer many real-world questions, such as:

Which companies were mentioned in a news article?

Does a tweet contain the name of a person? Does the tweet also provide his current location?

Were specified products mentioned in complaints or reviews?

Box 2: Sentiment Analysis

The Text Analytics API's Sentiment Analysis feature provides two ways for detecting positive and negative sentiment. If you send a Sentiment Analysis request, the API will return sentiment labels (such as "negative", "neutral" and "positive") and confidence scores at the sentence and document-level.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/named-entity-recognition>

<https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/how-tos/text-analytics-how-to-sentiment-analysis>

#### QUESTION 87

You are building a knowledge base by using QnA Maker.

Which file format can you use to populate the knowledge base?

- A. PPTX
- B. XML
- C. ZIP
- D. PDF

**Correct Answer: D**

**Section:**

**Explanation:**

D: Content types of documents you can add to a knowledge base:

Content types include many standard structured documents such as PDF, DOC, and TXT.

Note: The tool supports the following file formats for ingestion:

.tsv: QnA contained in the format Question(tab)Answer.

.txt, .docx, .pdf: QnA contained as regular FAQ content--that is, a sequence of questions and answers.

Incorrect Answers:

A: PPTX is the default presentation file format for new PowerPoint presentations.

B: It is not possible to ingest xml file directly.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/concepts/data-sources-and-content>

#### QUESTION 88

In which scenario should you use key phrase extraction?

- A. identifying whether reviews of a restaurant are positive or negative
- B. generating captions for a video based on the audio track
- C. identifying which documents provide information about the same topics
- D. translating a set of documents from English to German

**Correct Answer: C**

**Section:**

#### QUESTION 89

You have insurance claim reports that are stored as text.

You need to extract key terms from the reports to generate summaries.

Which type of AI workload should you use?

- A. natural language processing
- B. conversational AI
- C. anomaly detection
- D. computer vision

**Correct Answer: A**

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

#### QUESTION 90

DRAG DROP

Match the principles of responsible AI to appropriate requirements.

To answer, drag the appropriate principles from the column on the left to its requirement on the right. Each principle may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

**Select and Place:**

#### Principles

Fairness

Privacy and security

Reliability and safety

Transparency

#### Answer Area

The system must not discriminate based on gender, race

Personal data must be visible only to approve

Automated decision-making processes must be recorded so that approved users can identify why a decision was made

**Correct Answer:**

## Principles

Reliability and safety

## Answer Area

Fairness

Privacy and security

Transparency

The system must not discriminate based on gender, race

Personal data must be visible only to approve

Automated decision-making processes must be recorded so that approved users can identify why a decision was made

### Section:

### Explanation:

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles>

### QUESTION 91

#### DRAG DROP

You plan to deploy an Azure Machine Learning model as a service that will be used by client applications.

Which three processes should you perform in sequence before you deploy the model? To answer, move the appropriate processes from the list of processes to the answer area and arrange them in the correct order.

#### Select and Place:

## Processes

data encryption

model retraining

model training

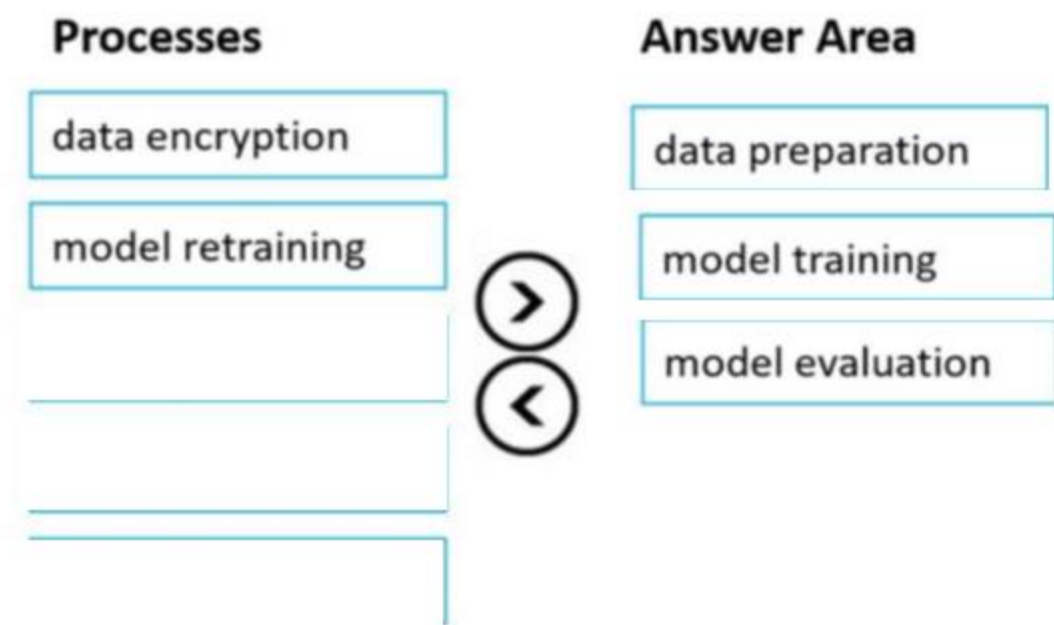
data preparation

model evaluation



## Answer Area

### Correct Answer:



**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-ml-pipelines>

#### QUESTION 92

You are building an AI-based app.

You need to ensure that the app uses the principles for responsible AI.

Which two principles should you follow? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Implement an Agile software development methodology
- B. Implement a process of AI model validation as part of the software review process
- C. Establish a risk governance committee that includes members of the legal team, members of the risk management team, and a privacy officer
- D. Prevent the disclosure of the use of AI-based algorithms for automated decision making

**Correct Answer: B, C**

**Section:**

**Explanation:**

Reference:

<https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai>

<https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/3-implications-responsible-ai-practical>

#### QUESTION 93

You need to create a customer support solution to help customers access information. The solution must support email, phone, and live chat channels. Which type of AI solution should you use?

- A. natural language processing (NLP)
- B. computer vision
- C. machine learning
- D. chatbot



**Correct Answer: D**  
**Section:**

**QUESTION 94**

You are building a chatbot that will use natural language processing (NLP) to perform the following actions based on the text input of a user:

- Accept customer orders.
- Retrieve support documents.
- Retrieve order status updates.

Which type of NLP should you use?

- A. sentiment analysis
- B. translation
- C. language modeling
- D. named entity recognition

**Correct Answer: D**  
**Section:**

**QUESTION 95**

DRAG DROP

Match the Azure Cognitive Services service to the appropriate actions.

To answer, drag the appropriate service from the column on the left to its action on the right. Each service may be used once, more than once, or not at all. NOTE: Each correct match is worth one point.

**Select and Place:**

Azure Cognitive Services	Answer Area
Language service	Service Convert spoken requests into text.
Speech	Service Identify the intent of a user's requests.
Translator	Service Apply intent to entities and utterances.

**Correct Answer:**

Azure Cognitive Services	Answer Area
Translator	Convert spoken requests into text.
Speech	Identify the intent of a user's requests.
Language service	Apply intent to entities and utterances.

**Section:**  
**Explanation:**

**QUESTION 96**

HOTSPOT

Select the answer that correctly completes the sentence.

**Hot Area:**

**Answer Area**

A historian can use \_\_\_\_\_ to digitize newspaper articles.

facial analysis image classification object detection optical character recognition (OCR)
--

**Answer Area:**

**Answer Area**

A historian can use \_\_\_\_\_ to digitize newspaper articles.

facial analysis image classification object detection optical character recognition (OCR)
--

**Section:**

**Explanation:**

#### QUESTION 97

HOTSPOT

For each of the following statements, select Yes If the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

**Answer Area**

Statements	Yes	No
Object detection can identify the location of a damaged product in an image.	<input type="radio"/>	<input type="radio"/>
Object detection can identify multiple instances of a damaged product in an image.	<input type="radio"/>	<input type="radio"/>
Object detection can identify multiple types of damaged products in an image.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

**Answer Area**

Statements	Yes	No
Object detection can identify the location of a damaged product in an image.	<input checked="" type="radio"/>	<input type="radio"/>
Object detection can identify multiple instances of a damaged product in an image.	<input type="radio"/>	<input checked="" type="radio"/>
Object detection can identify multiple types of damaged products in an image.	<input checked="" type="radio"/>	<input type="radio"/>

**Section:**

**Explanation:**

#### QUESTION 98

HOTSPOT

To complete the sentence, select the appropriate option in the answer area.

Hot Area:

**Answer Area**

Returning a bounding box that indicates the location of a vehicle in an image is an example of

image classification.
object detection.
optical character recognition (OCR).
facial detection.

Answer Area:

**Answer Area**

Returning a bounding box that indicates the location of a vehicle in an image is an example of

image classification.
object detection.
optical character recognition (OCR).
facial detection.

Section:

Explanation:

#### QUESTION 99

You have an AI solution that provides users with the ability to control smart devices by using verbal commands.

Which two types of natural language processing (NLP) workloads does the solution use? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. text-to-speech
- B. translation
- C. language modeling
- D. key phrase extraction
- E. speech-to-text

**Correct Answer: C, D**

Section:

#### QUESTION 100

DRAG DROP

Match the Azure Cognitive Services to the appropriate AI workloads.

To answer, drag the appropriate service from the column on the left to its workload on the right. Each service may be used once, more than once, or not at all. NOTE: Each correct match is worth one point.

Select and Place:

Services	Answer Area
Custom Vision	<input type="text"/> Identify objects in an image.
Face	<input type="text"/> Automatically import data from an invoice to a database.
Form Recognizer	<input type="text"/> Identify people in an image.

**Correct Answer:**

Services	Answer Area
<input type="text"/>	Custom Vision Identify objects in an image.
<input type="text"/>	Form Recognizer Automatically import data from an invoice to a database.
<input type="text"/>	Face Identify people in an image.

**Section:**

**Explanation:**

#### QUESTION 101

An app that analyzes social media posts to identify their tone is an example of which type of natural language processing (NLP) workload?

- A. sentiment analysis
- B. key phrase extraction
- C. entity recognition
- D. speech recognition

**Correct Answer: A**

**Section:**

#### QUESTION 102

You have an AI-based loan approval system.

During testing, you discover that the system has a gender bias.

Which responsible AI principle does this violate?

- A. accountability
- B. transparency
- C. fairness
- D. reliability and safety

**Correct Answer: C**

**Section:**

#### QUESTION 103

You have a custom question answering solution.

You create a bot that uses the knowledge base to respond to customer requests. You need to identify what the bot can perform without adding additional skills. What should you identify?



- A. Register customer complaints.
- B. Answer questions from multiple users simultaneously.
- C. Register customer purchases.
- D. Provide customers with return materials authorization (RMA) numbers.

**Correct Answer: B**

**Section:**

#### QUESTION 104

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No. NOTE:

Each correct selection is worth one point.

**Hot Area:**

Answer Area	Statements	Yes	No
	You can use Language Service's question answering to query an Azure SQL database.	<input type="radio"/>	<input type="radio"/>
	You should use Language Service's question answering when you want a knowledge base to provide the same answer to different users who submit similar questions.	<input type="radio"/>	<input type="radio"/>
	Language Service's question answering can determine the intent of a user utterance.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Answer Area	Statements	Yes	No
	You can use Language Service's question answering to query an Azure SQL database.	<input type="radio"/>	<input checked="" type="radio"/>
	You should use Language Service's question answering when you want a knowledge base to provide the same answer to different users who submit similar questions.	<input checked="" type="radio"/>	<input type="radio"/>
	Language Service's question answering can determine the intent of a user utterance.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

#### QUESTION 105

Which machine learning technique can be used for anomaly detection?

- A. A machine learning technique that understands written and spoken language.
- B. A machine learning technique that classifies objects based on user supplied images.
- C. A machine learning technique that analyzes data over time and identifies unusual changes.
- D. A machine learning technique that classifies images based on their contents.

**Correct Answer: C**

**Section:**

#### QUESTION 106



HOTSPOT  
Select the answer that correctly completes the sentence.

Hot Area:

Answer Area

A banking system that predicts whether a loan will be repaid is an example of the  type of machine learning.

classification

clustering

regression

Answer Area:

Answer Area

A banking system that predicts whether a loan will be repaid is an example of the  type of machine learning.

classification

clustering

regression

Section:  
Explanation:

QUESTION 107  
HOTSPOT

You have an app that identifies birds in images. The app performs the following tasks:

- \* Identifies the location of the birds in the image
- \* Identifies the species of the birds in the image

Which type of computer vision does each task use? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Locate the birds:

Object detection

Automated captioning

Image classification

Object detection

Optical character recognition (OCR)

Identify the species of the birds:

Image classification

Automated captioning

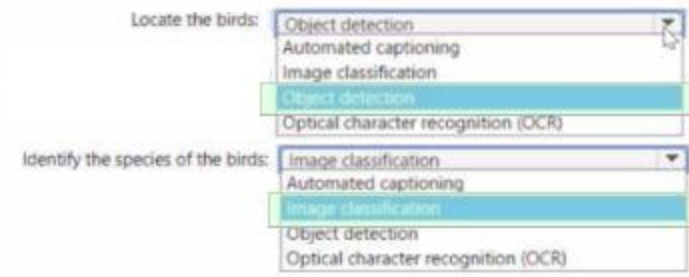
Image classification

Object detection

Optical character recognition (OCR)

Answer Area:

Answer Area



**Section:**

**Explanation:**

#### QUESTION 108

Which two tools can you use to call the Azure OpenAI service? Each correct answer presents a complete solution.

NOTE: Each correct answer is worth one point.

- A. Azure Command-Line Interface (CLI)
- B. Azure REST API
- C. Azure SDK for Python
- D. Azure SDK for JavaScript

**Correct Answer: A, B**

**Section:**

#### QUESTION 109

You need to build an app that will read recipe instructions aloud to support users who have reduced vision. Which version service should you use?

- A. Text Analytics
- B. Translator Text
- C. Speech
- D. Language Understanding (LUIS)

**Correct Answer: C**

**Section:**

**Explanation:**

Reference:

<https://azure.microsoft.com/en-us/services/cognitive-services/text-to-speech/#features>

#### QUESTION 110

Which two scenarios are examples of a conversational AI workload? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. a telephone answering service that has a pre-recorder message
- B. a chatbot that provides users with the ability to find answers on a website by themselves
- C. telephone voice menus to reduce the load on human resources
- D. a service that creates frequently asked questions (FAQ) documents by crawling public websites

**Correct Answer: B, C**

**Section:**

**Explanation:**

B: A bot is an automated software program designed to perform a particular task. Think of it as a robot without a body. C: Automated customer interaction is essential to a business of any size. In fact, 61% of consumers prefer to communicate via speech, and most of them prefer self-service. Because customer satisfaction is a priority for all businesses, selfservice is a critical facet of any customer-facing communications strategy.

Incorrect Answers:

D: Early bots were comparatively simple, handling repetitive and voluminous tasks with relatively straightforward algorithmic logic. An example would be web crawlers used by search engines to automatically explore and catalog web content.

Reference: <https://docs.microsoft.com/en-us/azure/architecture/data-guide/big-data/ai-overview> <https://docs.microsoft.com/en-us/azure/architecture/solution-ideas/articles/interactive-voice-response-bot>

**QUESTION 111**

You need to provide content for a business chatbot that will help answer simple user queries.

What are three ways to create question-and answer text by using QnA Maker? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Generate the questions and answers from an existing webpage.
- B. Use automated machine learning to train a model based on a file that contains the questions.
- C. Manually enter the questions and answers.
- D. Connect the bot to the Cortana channel and ask questions by using Cortana.
- E. Import chit-chat content from a predefined data source.

**Correct Answer: A, C, E**

**Section:**

**Explanation:**

Automatic extraction

Extract question-answer pairs from semi-structured content, including FAQ pages, support websites, excel files, SharePoint documents, product manuals and policies.

Reference:

<https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/concepts/content-types>

**QUESTION 112**

You have a frequently asked questions (FAQ) PDF file.

You need to create a conversational support system based on the FAQ.

Which service should you use?

- A. QnA Maker
- B. Text Analytics
- C. Computer Vision
- D. Language Understanding (LUIS)

**Correct Answer: A**

**Section:**

**Explanation:**

QnA Maker is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data. Use it to build a knowledge base by extracting questions and answers from your semi-structured content, including FAQs, manuals, and documents.

Reference:

<https://azure.microsoft.com/en-us/services/cognitive-services/qna-maker/>

**QUESTION 113**

You need to reduce the load on telephone operators by implementing a chatbot to answer simple questions with predefined answers. Which two AI service should you use to achieve the goal? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

- A. Text Analytics
- B. QnA Maker
- C. Azure Bot Service
- D. Translator Text

**Correct Answer: B, C**

**Section:**

**Explanation:**

Bots are a popular way to provide support through multiple communication channels. You can use the QnA Maker service and Azure Bot Service to create a bot that answers user questions.

Reference:

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/>

#### QUESTION 114

HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

**Hot Area:**

Answer Area

Statements	Yes	No
You can use Azure AI Language Service's question answering to query an Azure SQL database.	<input type="radio"/>	<input type="radio"/>
You should use Azure AI Language Service's question answering when you want a knowledge base to provide the same answer to different users who submit similar questions.	<input type="radio"/>	<input type="radio"/>
Azure AI Language Service's question answering can determine the intent of a user utterance.	<input type="radio"/>	<input type="radio"/>

**Answer Area:**

Answer Area

Statements	Yes	No
You can use Azure AI Language Service's question answering to query an Azure SQL database.	<input type="radio"/>	<input checked="" type="radio"/>
You should use Azure AI Language Service's question answering when you want a knowledge base to provide the same answer to different users who submit similar questions.	<input checked="" type="radio"/>	<input type="radio"/>
Azure AI Language Service's question answering can determine the intent of a user utterance.	<input type="radio"/>	<input checked="" type="radio"/>

**Section:**

**Explanation:**

#### QUESTION 115

You are building a tool that will process images from retail stores and identify the products of competitors.

The solution must be trained on images provided by your company.

Which Azure AI service should you use?

- A. Azure AI Custom Vision
- B. Azure AI Computer Vision

- C. Face
- D. Azure AI Document Intelligence

Correct Answer: A  
Section:

QUESTION 116  
DRAG DROP

Match the types of computer vision workloads to the appropriate scenarios.  
To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once more than once, or not at all.  
NOTE: Each correct match is worth one point.

Select and Place:

Workload Types

Image classification

Object detection

Optical character recognition (OCR)

Answer Area

Generate captions for images.

Extract movie title names from movie poster images.

Locate vehicles in images.

Correct Answer:

Workload Types

Answer Area

Image classification

Optical character recognition (OCR)

Object detection

Generate captions for images.

Extract movie title names from movie poster images.

Locate vehicles in images.

Section:  
Explanation: