AI-900

Microsoft Azure AI Fundamentals

Version 11.0

Topic 1, Describe Artificial Intelligence workloads and considerations

QUESTION NO: 1

A company employs a team of customer service agents to provide telephone and email support to customers.

The company develops a webchat bot to provide automated answers to common customer queries.

Which business benefit should the company expect as a result of creating the webchat bot solution?

A. increased sales
B. a reduced workload for the customer service agents
C. improved product reliability

Answer: B

QUESTION NO: 2

For a machine learning progress, how should you split data for training and evaluation?

A. Use features for training and labels for evaluation.
B. Randomly split the data into rows for training and rows for evaluation.
C. Use labels for training and features for evaluation.
D. Randomly split the data into columns for training and columns for evaluation.

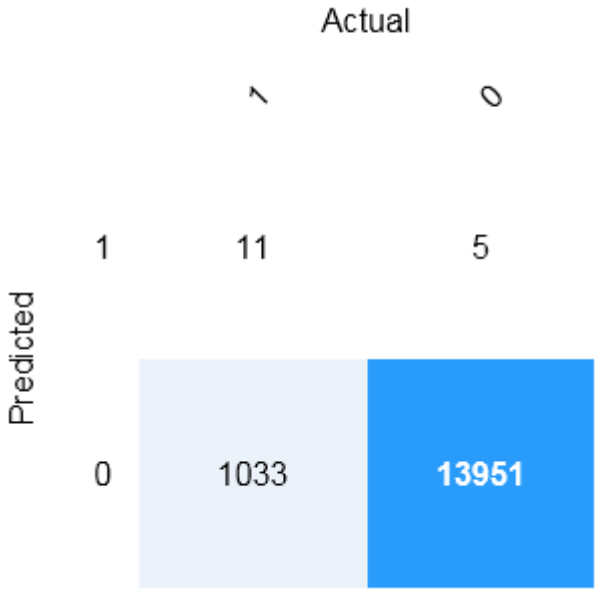
Answer: B
Explanation:
The Split Data module is particularly useful when you need to separate data into training and testing sets. Use the Split Rows option if you want to divide the data into two parts. You can specify the percentage of data to put in each split, but by default, the data is divided 50-50. You can also randomize the selection of rows in each group, and use stratified sampling.

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data

QUESTION NO: 3 HOTSPOT

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

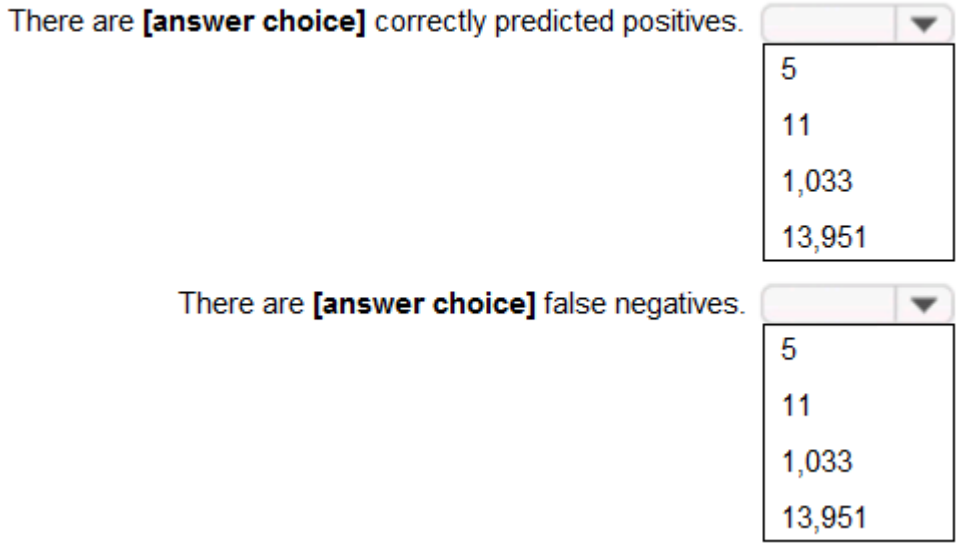
You have a confusion matrix for the model scored on test data as shown in the following exhibit.



Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

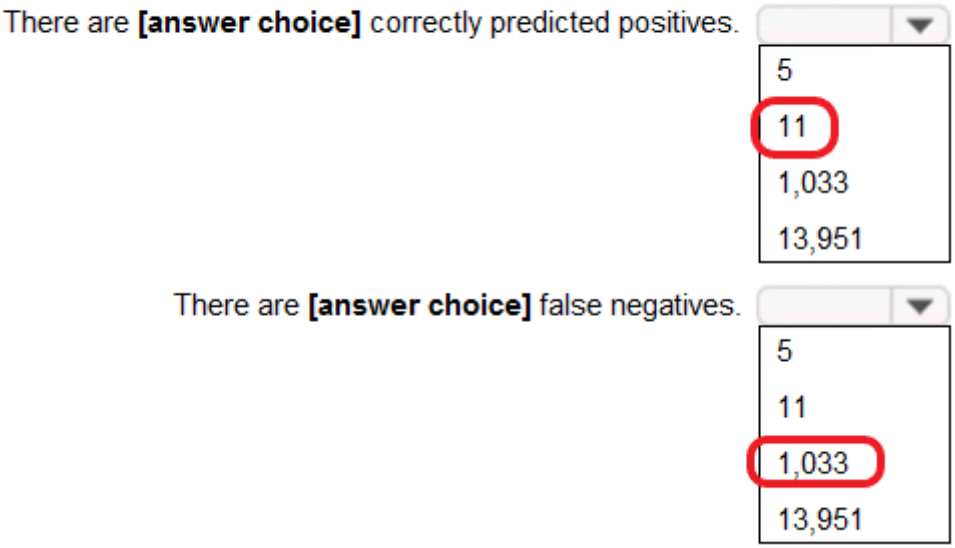
NOTE: Each correct selection is worth one point.

Answer Area



Answer: <map><m x1="399" x2="494" y1="102" y2="126" ss="0" a="0" /><m x1="400" x2="494" y1="269" y2="293" ss="0" a="0" /></map>
Explanation:

Answer Area



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 NO: 4

You build a machine learning model by using the automated machine learning user interface (UI).

You need to ensure that the model meets the Microsoft transparency principle for responsible AI.

What should you do?

A. Set Validation type to **Auto**.
B. Enable Explain best model.
C. Set Primary metric to **accuracy**.
D. Set Max concurrent iterations to **0**.

Answer: B
Explanation:
Model Explain Ability.
Most businesses run on trust and being able to open the ML "black box" helps build transparency and trust. In heavily regulated industries like healthcare and banking, it is critical to comply with regulations and best practices. One key aspect of this is understanding the relationship between input variables (features) and model output. Knowing both the magnitude and direction of the impact each feature (feature importance) has on the predicted value helps

better understand and explain the model. With model explain ability, we enable you to understand feature importance as part of automated ML runs.

Reference:
https://azure.microsoft.com/en-us/blog/new-automated-machine-learning-capabilities-in-azure-machine-learning-service/

QUESTION NO: 5 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.

Answer Area

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

Answer: <map><m x1="629" x2="655" y1="94" y2="118" ss="0" a="0" /><m x1="535" x2="561" y1="146" y2="172" ss="0" a="0" /><m x1="629" x2="655" y1="198" y2="224" ss="0" a="0" /></map>
Explanation:

Answer Area

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

Box 1: No

Box 2: Yes

Box 3: No

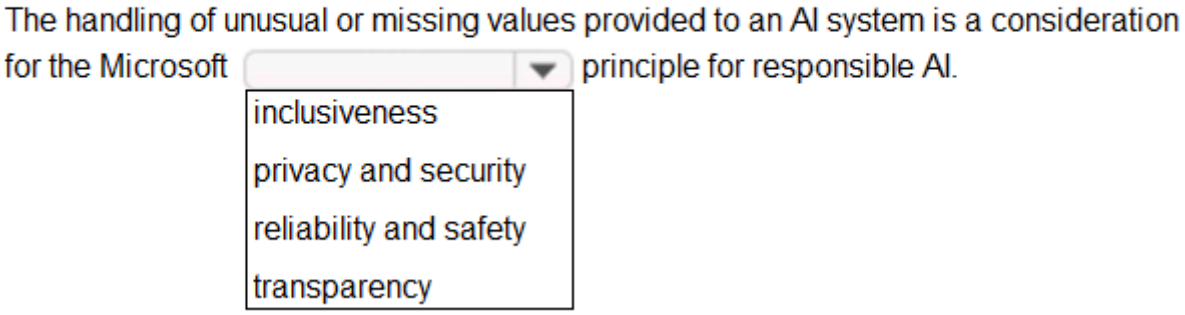
Anomaly detection encompasses many important tasks in machine learning:
Identifying transactions that are potentially fraudulent.
Learning patterns that indicate that a network intrusion has occurred.
Finding abnormal clusters of patients.
Checking values entered into a system.

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/anomaly-detection

QUESTION NO: 6 HOTSPOT

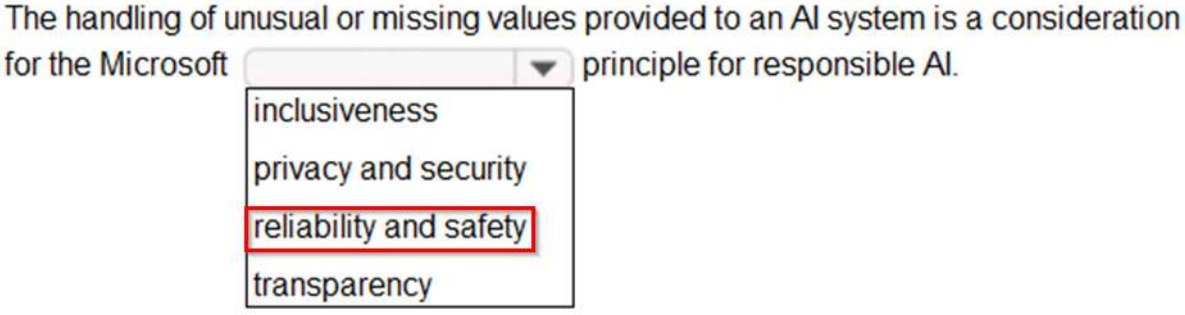
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="133" x2="296" y1="153" y2="180" ss="0" a="0" /></map>
Explanation:

Answer Area



Reliability and safety:
AI systems need to be reliable and safe in order to be trusted. It is important for a system to perform as it was originally designed and for it to respond safely to new situations. Its inherent resilience should resist intended or unintended manipulation. Rigorous testing and validation should be established for operating conditions to ensure that the system responds safely to edge cases, and A/B testing and champion/challenger methods should be integrated into the evaluation process.

An AI system's performance can degrade over time, so a robust monitoring and model tracking process needs to be established to reactively and proactively measure the model's performance and retrain it, as necessary, to modernize it.

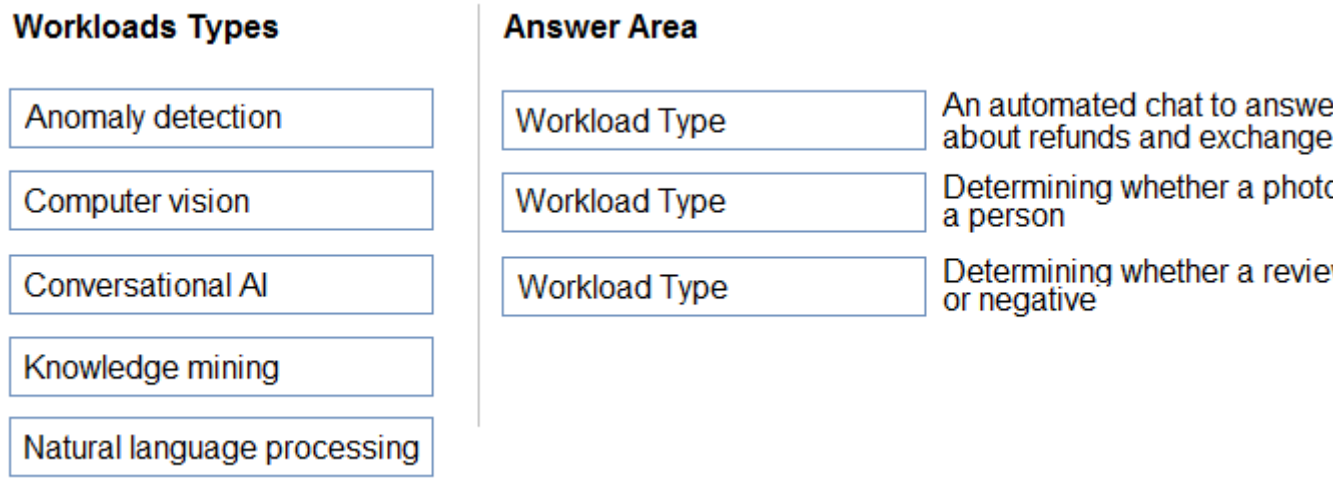
Reference:
https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai

QUESTION NO: 7 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.



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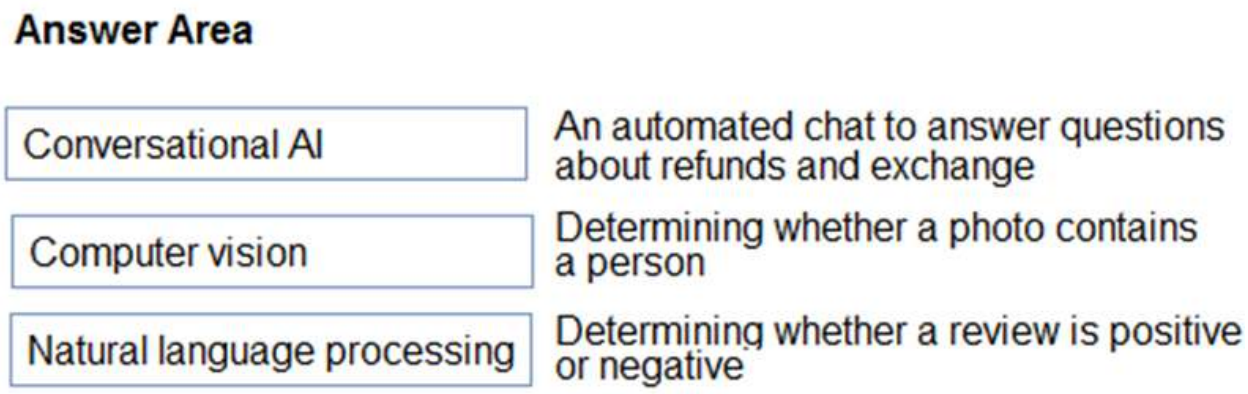
Explanation:



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 NO: 8

You are designing an AI system that empowers everyone, including people who have hearing, visual, and other impairments.

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

A. fairness
B. inclusiveness
C. reliability and safety
D. accountability

Answer: B
Explanation:
Inclusiveness: At Microsoft, we firmly believe everyone should benefit from intelligent technology, meaning it must incorporate and address a broad range of human needs and experiences. For the 1 billion people with disabilities around the world, AI technologies can be a game-changer.

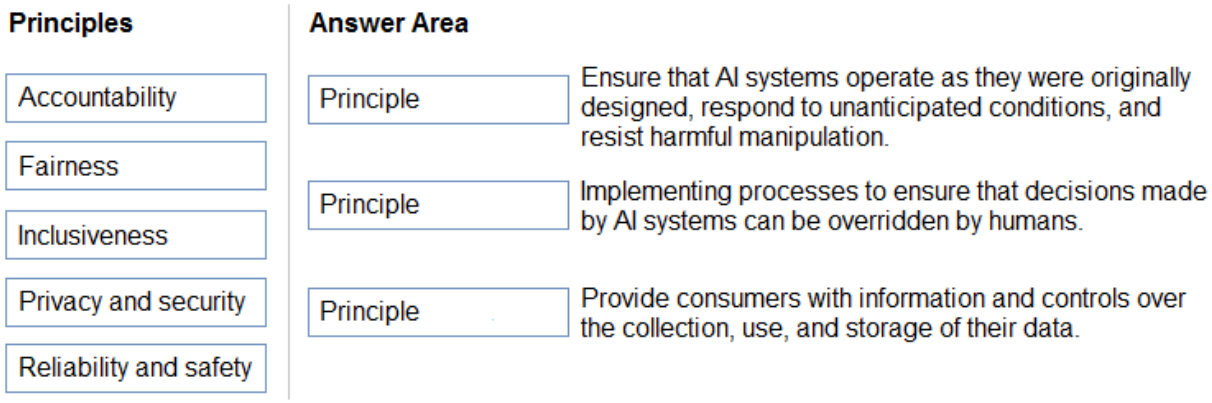
Reference:
https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles

QUESTION NO: 9 DRAG DROP

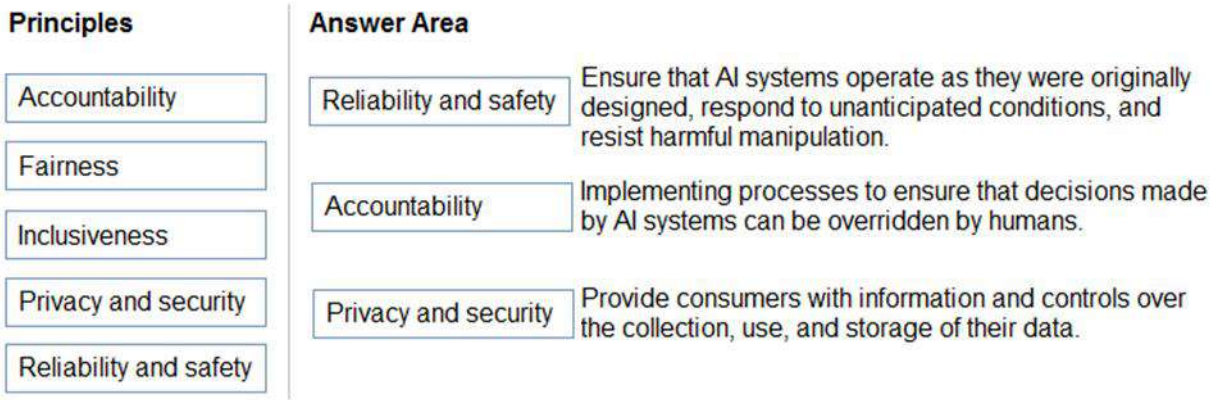
Match the Microsoft guiding principles for responsible AI to the appropriate descriptions.

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.



Answer: <map><m x1="17" x2="174" y1="50" y2="78" ss="0" a="0" /><m x1="15" x2="172" y1="92" y2="121" ss="0" a="0" /><m x1="16" x2="173" y1="133" y2="163" ss="0" a="0" /><m x1="15" x2="175" y1="173" y2="204" ss="0" a="0" /><m x1="15" x2="174" y1="214" y2="243" ss="0" a="0" /><m x1="200" x2="358" y1="50" y2="81" ss="1" a="0" /><m x1="199" x2="358" y1="115" y2="143" ss="1" a="0" /><m x1="200" x2="358" y1="180" y2="209" ss="1" a="0" /><c start="4" stop="0" /><c start="0" stop="1" /><c start="3" stop="2" /></map>
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.

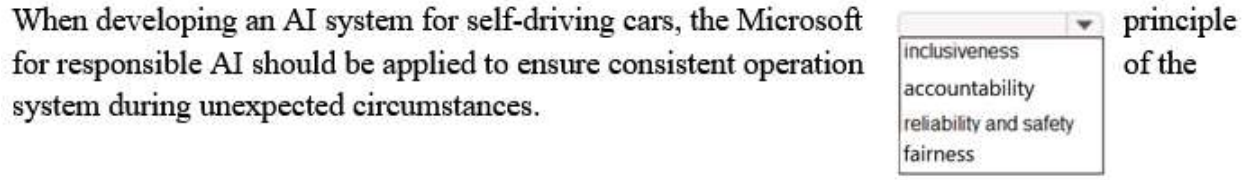
Box 2: Accountability
The people who design and deploy AI systems must be accountable for how their systems operate. Organizations should draw upon industry standards to develop accountability norms. These norms can ensure that AI systems are not the final authority on any decision that impacts people's 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

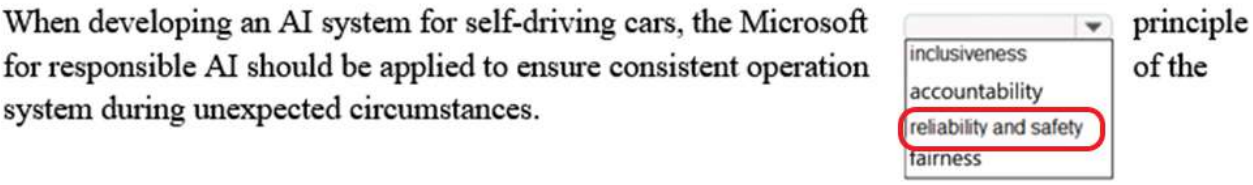
Reference:
https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles

QUESTION NO: 10 HOTSPOT

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



Answer: <map><m x1="499" x2="610" y1="62" y2="80" ss="0" a="0" /></map>
Explanation:



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.

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

QUESTION NO: 11

You are building an AI system.

Which task should you include to ensure that the service meets the Microsoft transparency principle for responsible AI?

A. Ensure that all visuals have an associated text that can be read by a screen reader.
B. Enable autoscaling to ensure that a service scales based on demand.
C. Provide documentation to help developers debug code.
D. Ensure that a training dataset is representative of the population.

Answer: C

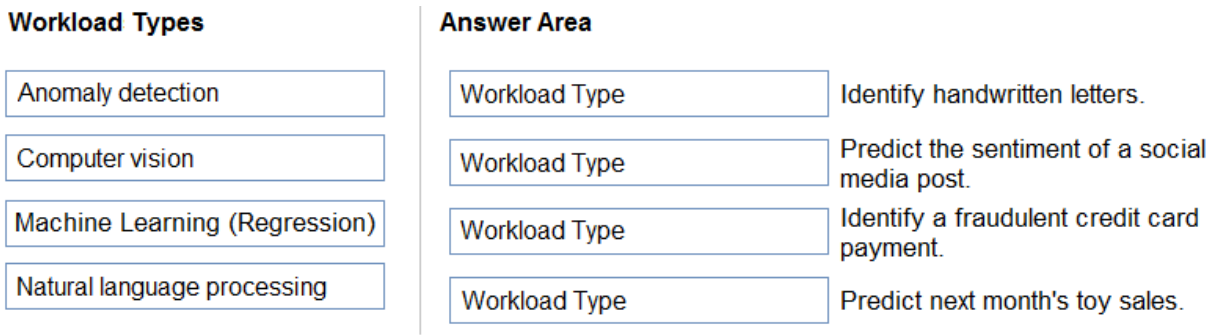
Reference:
https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/4-guiding-principles

QUESTION NO: 12 DRAG DROP

Match the types of AI workloads to the appropriate scenarios.

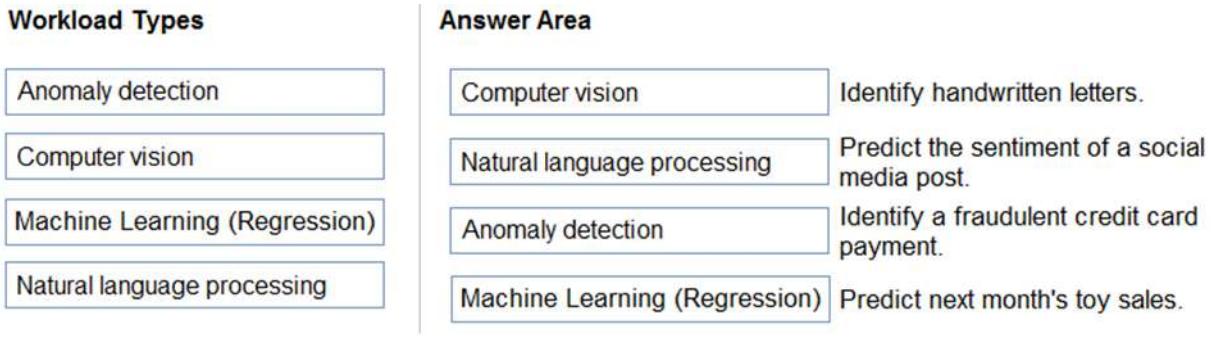
To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="25" x2="266" y1="41" y2="70" ss="0" a="0" /><m x1="24" x2="265" y1="81" y2="111" ss="0" a="0" /><m x1="24" x2="267" y1="124" y2="154" ss="0" a="0" /><m x1="24" x2="266" y1="163" y2="192" ss="0" a="0" /><m x1="308" x2="550" y1="41" y2="71" ss="1" a="0" /><m x1="308" x2="550" y1="85" y2="115" ss="1" a="0" /><m x1="309" x2="550" y1="128" y2="158" ss="1" a="0" /><m x1="309" x2="550" y1="172"

y2="202" ss="1" a="0" /><c start="1" stop="0" /><c start="3" stop="1" /><c start="0" stop="2" /><c start="2" stop="3" /></map>
Explanation:



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

QUESTION NO: 13

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

Answer: C

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

QUESTION NO: 14

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
B. decisiveness

C. inclusiveness
D. fairness
E. opinionatedness
F. reliability and safety

Answer: C, D, F

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

QUESTION NO: 15 HOTSPOT

To complete the sentence, select the appropriate option in the 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 recognizer (OCR).
- semantic segmentation.

Answer: <map><m x1="177" x2="444" y1="130" y2="153" ss="0" a="0" /></map>
Explanation:

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 recognizer (OCR).
- semantic segmentation.

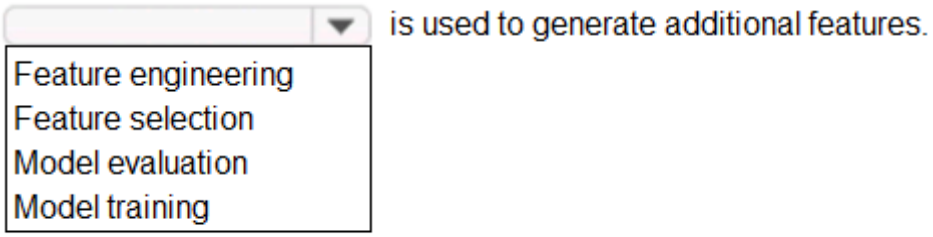
Reference:

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

QUESTION NO: 16 HOTSPOT

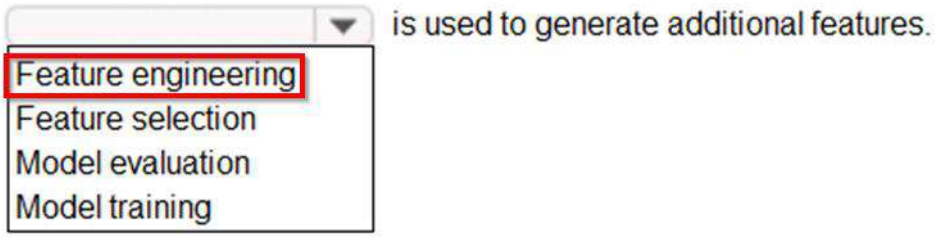
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="27" x2="210" y1="77" y2="102" ss="0" a="0" /></map>
Explanation:

Answer Area



Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/team-data-science-process/create-features

QUESTION NO: 17

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

Answer: B

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

QUESTION NO: 18

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

Answer: A
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 NO: 19 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.

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.	○	○

Answer: <map><m x1="489" x2="508" y1="66" y2="82" ss="0" a="0" /><m x1="570" x2="591" y1="111" y2="129" ss="0" a="0" /><m x1="571" x2="589" y1="158" y2="176" ss="0" a="0" /></map>
Explanation:

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.	○	●

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.

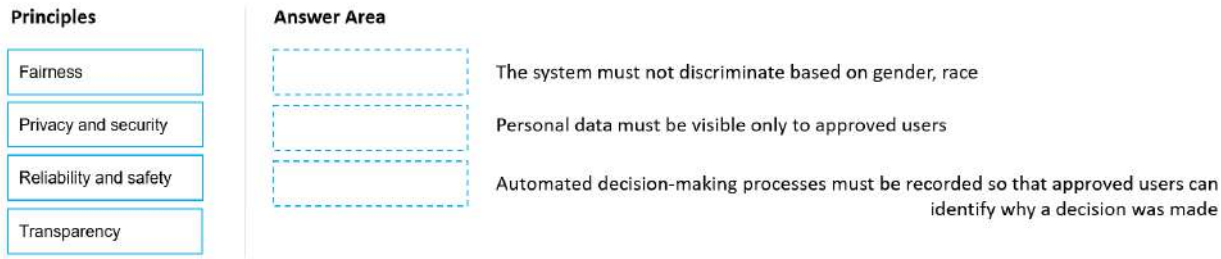
Reference:
https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai

QUESTION NO: 20 DRAG DROP

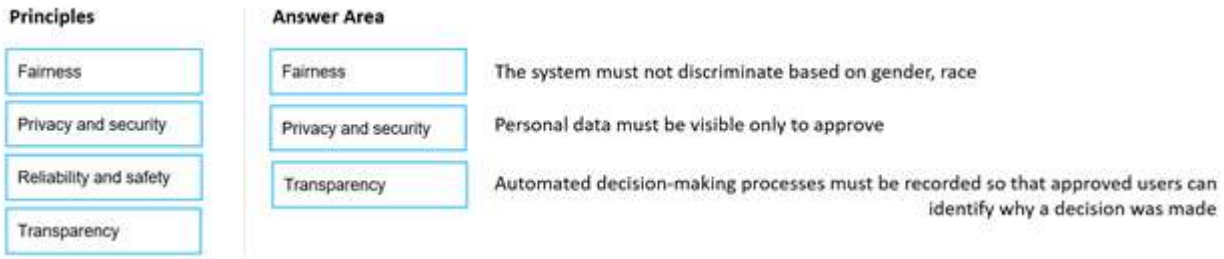
Match the principles of responsible AI to the appropriate requirements.

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.



Answer: <map><m x1="26" x2="296" y1="79" y2="141" ss="0" a="0" /><m x1="27" x2="295" y1="151" y2="212" ss="0" a="0" /><m x1="27" x2="295" y1="225" y2="286" ss="0" a="0" /><m x1="27" x2="295" y1="299" y2="361" ss="0" a="0" /><m x1="393" x2="661" y1="79" y2="141" ss="1" a="0" /><m x1="394" x2="660" y1="156" y2="219" ss="1" a="0" /><m x1="392" x2="659" y1="233" y2="295" ss="1" a="0" /><c start="0" stop="0" /><c start="1" stop="1" /><c start="3" stop="2" /></map>
Explanation:



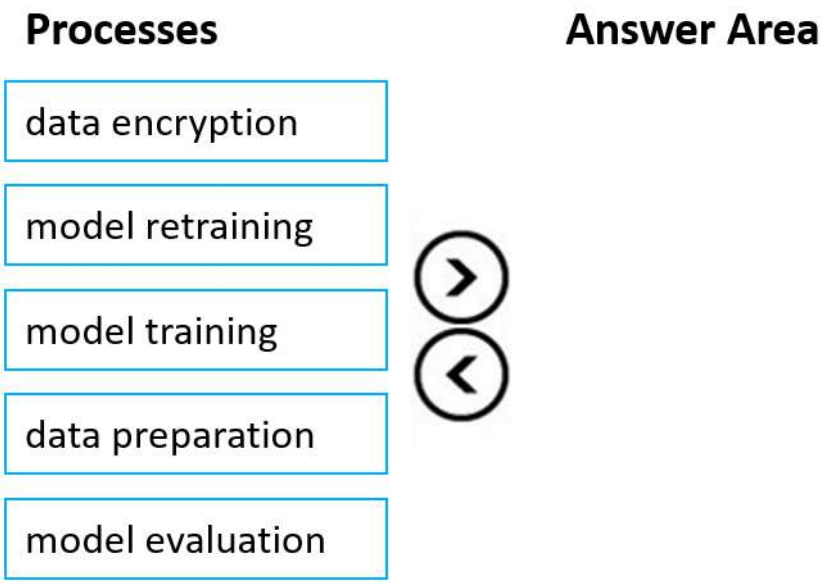
Reference:
https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai

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

QUESTION NO: 21 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.



Answer: <map><m x1="36" x2="333" y1="83" y2="145" ss="0" a="0" /><m x1="36" x2="335" y1="162" y2="226" ss="0" a="0" /><m x1="37" x2="334" y1="245" y2="309" ss="0" a="0" /><m x1="37" x2="333" y1="327" y2="389" ss="0" a="0" /><m x1="37" x2="333" y1="409" y2="471" ss="0" a="0" /><m x1="466" x2="776" y1="81" y2="144" ss="1" a="0" /><m x1="466" x2="775" y1="163" y2="228" ss="1" a="0" /><m x1="467"

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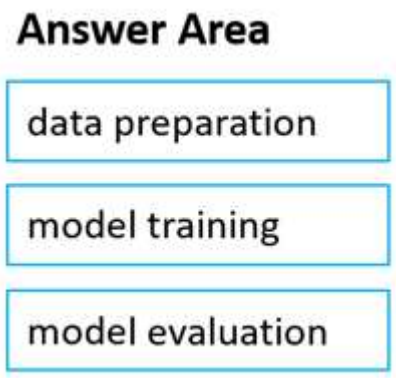
Explanation:



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

QUESTION NO: 22

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

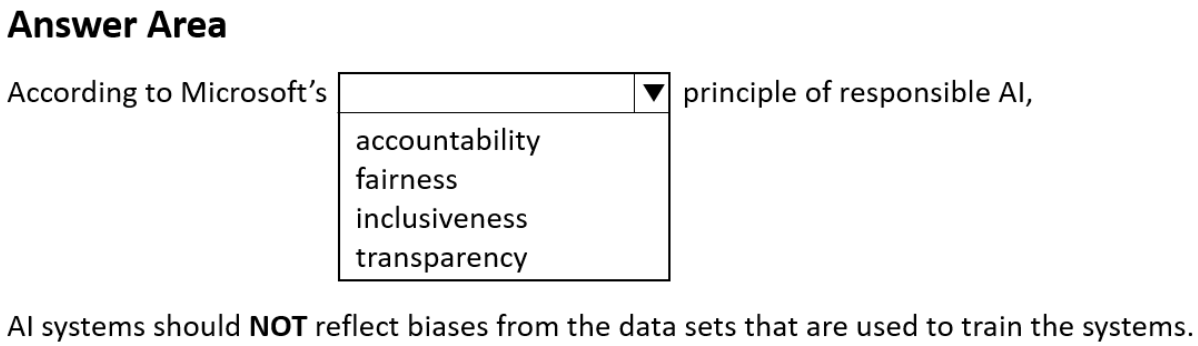
Answer: B, C

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

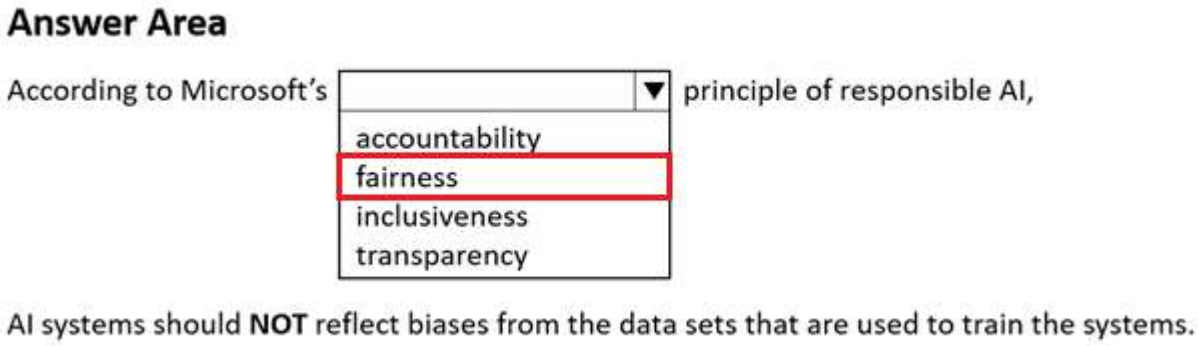
https://docs.microsoft.com/en-us/learn/modules/responsible-ai-principles/3-implications-responsible-ai-practical

QUESTION NO: 23 HOTSPOT

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



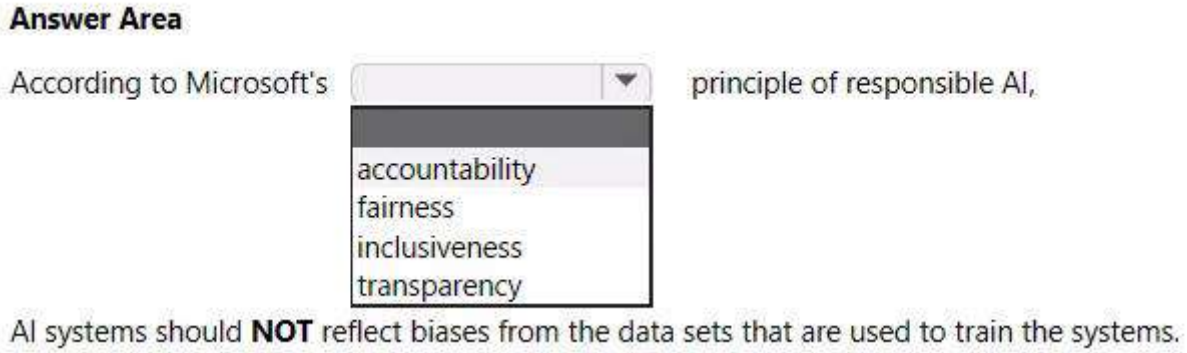
Answer: <map><m x1="321" x2="619" y1="155" y2="194" ss="0" a="0" /></map>
Explanation:



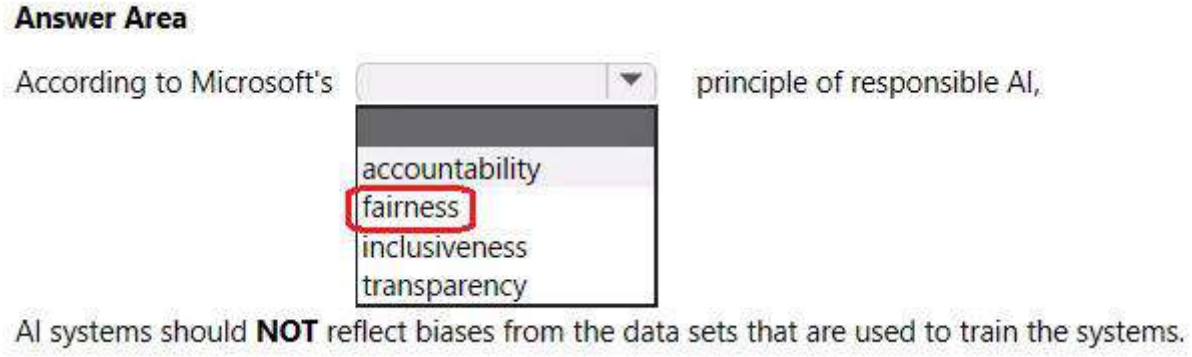
Reference:
https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai

QUESTION NO: 24 HOTSPOT

Select the answer that correctly completes the sentence.



Answer: <map><m x1="185" x2="334" y1="109" y2="128" ss="0" a="0" /></map>
Explanation:



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.

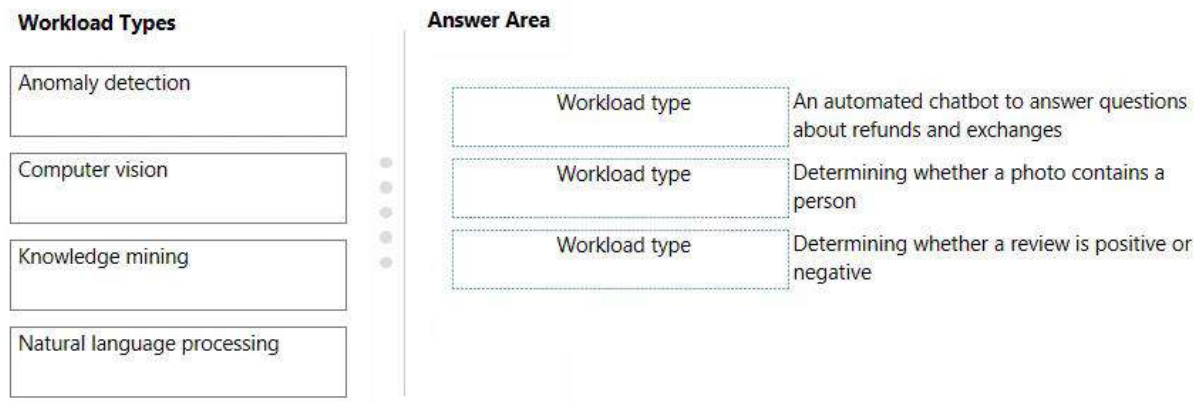
Reference: https://docs.microsoft.com/en-us/azure/cloud-adoption-framework/innovate/best-practices/trusted-ai

QUESTION NO: 25 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.



Answer: <map><m x1="17" x2="252" y1="56" y2="104" ss="0" a="0" /><m x1="15" x2="251" y1="116" y2="165" ss="0" a="0" /><m x1="15" x2="252" y1="177" y2="228" ss="0" a="0" /><m x1="15" x2="251" y1="238" y2="287" ss="0" a="0" /><m x1="327"

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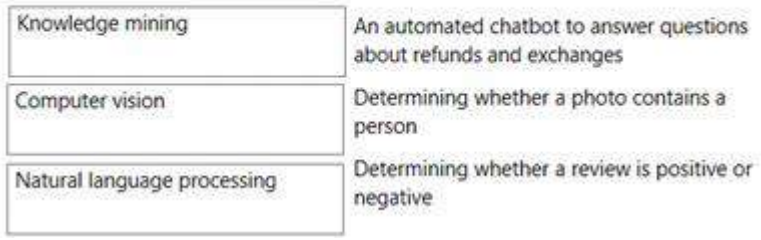
Explanation:

Answer Area



Box 1: Knowledge mining
You can use Azure Cognitive Search's knowledge mining results and populate your knowledge base of your chatbot.

Box 2: Computer vision

Box 3: Natural language processing
Natural language processing (NLP) is used for tasks such as sentiment analysis.

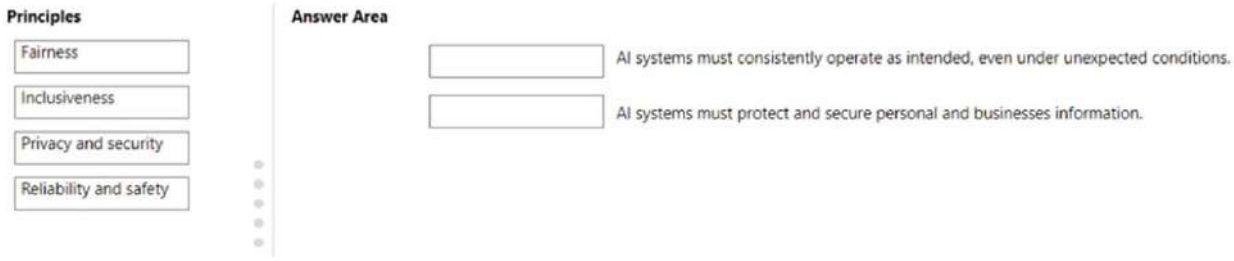
Reference: https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing

QUESTION NO: 26 DRAG DROP

Match the principles of responsible AI to the appropriate descriptions.

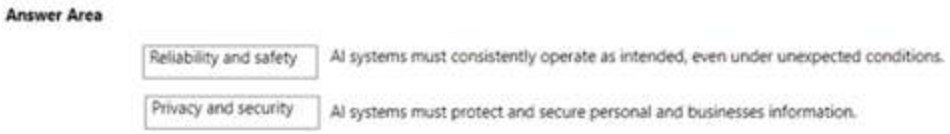
To answer, drag the appropriate principle from the column on the left to its description on the right. Each principle may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="20" x2="210" y1="47" y2="84" ss="0" a="0" /><m x1="20" x2="212" y1="98" y2="134" ss="0" a="0" /><m x1="19" x2="210" y1="147" y2="186" ss="0" a="0" /><m x1="19" x2="208" y1="197" y2="235" ss="0" a="0" /><m x1="474" x2="666" y1="54"

y2="88" ss="1" a="0" /><m x1="475" x2="664" y1="108" y2="142" ss="1" a="0" /><c start="3" stop="0" /><c start="2" stop="1" /></map>
Explanation:



Box 1: Reliability and safety
Reliability and safety: AI systems should perform reliably and safely.

Box 2: Privacy and security
Privacy and security: AI systems should be secure and respect privacy.

Incorrect:
Inclusiveness: AI systems should empower everyone and engage people.
Fairness: AI systems should treat all people fairly.

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

QUESTION NO: 27

During the process of Machine Learning, when should you review evaluation metrics.

A. Before you train a model.
B. After you clean the data.
C. Before you choose the type of model.
D. After you test a model on the validation data.

Answer: D

QUESTION NO: 28

You have a natural language processing (NLP) model that was created by using data obtained without permission.

Which Microsoft principle for responsible AI does this breach?

A. reliability and safety
B. privacy and security
C. inclusiveness
D. transparency

Answer: D

QUESTION NO: 29 HOTSPOT

Select the answer that correctly completes the sentence.

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

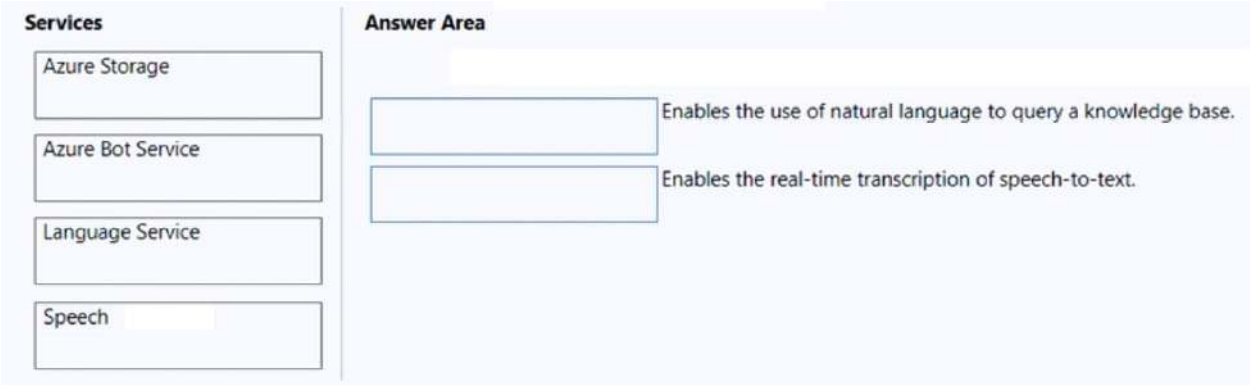
Answer: <map><m x1="278" x2="467" y1="213" y2="248" ss="0" a="0" /></map>
Explanation:

QUESTION NO: 30 DRAG DROP

Match the services to the appropriate descriptions.

To answer, drag the appropriate service from the column on the left to its description on the right. Each service 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.



Answer: <map><m x1="36" x2="352" y1="56" y2="132" ss="0" a="0" /><m x1="36" x2="352" y1="149" y2="224" ss="0" a="0" /><m x1="38" x2="349" y1="243" y2="318" ss="0" a="0" /><m x1="36" x2="350" y1="336" y2="410" ss="0" a="0" /><m x1="405" x2="719" y1="108" y2="171" ss="1" a="0" /><m x1="405" x2="719" y1="184" y2="246" ss="1" a="0" /><c start="1" stop="0" /><c start="3" stop="1" /></map>
Explanation:

Box 1: Azure Bot Service
You can link a QnA Maker knowledge base to an Azure Bot Service.

Box 2: Speech
Language and voice support for the Speech service.
Speech service provides speech-to-text, text-to-speech, pronunciation assessment, speech translation, speaker recognition, and additional service features.

Incorrect:
* Language Service

Reference: https://learn.microsoft.com/en-us/azure/cognitive-services/qnamaker/tutorials/create-faq-bot-with-azure-bot-service
https://learn.microsoft.com/en-us/azure/cognitive-services/speech-service/language-support
https://learn.microsoft.com/en-us/azure/architecture/solution-ideas/articles/loan-chargeoff-prediction-with-sql-server

QUESTION NO: 31

Which machine learning technique can be used for anomaly detection?

A. A machine learning technique that classifies objects based on user supplied images.

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

Answer: D
Explanation:
Anomaly Detector, an AI service that helps you foresee problems before they occur.
Easily embed time-series anomaly detection capabilities into your apps to help users identify problems quickly. Anomaly Detector ingests time-series data of all types and selects the best anomaly detection algorithm for your data to ensure high accuracy. Detect spikes, dips, deviations from cyclic patterns, and trend changes through both univariate and multivariate APIs. Customize the service to detect any level of anomaly. Deploy the anomaly detection service where you need it — in the cloud or at the intelligent edge.

Reference: https://azure.microsoft.com/en-us/products/cognitive-services/anomaly-detector

QUESTION NO: 32

You have an AI-based loan approval system.

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

Which responsible Al principle does this violate?

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

Answer: D
Explanation:
Fairness - AI systems should treat all people fairly

Incorrect:
Accountability - People should be accountable for AI systems
Reliability & Safety - AI systems should perform reliably and safely
Transparency - AI systems should be understandable

Reference: https://dataninja.medium.com/6-principles-of-responsible-ai-b90f745b73dc

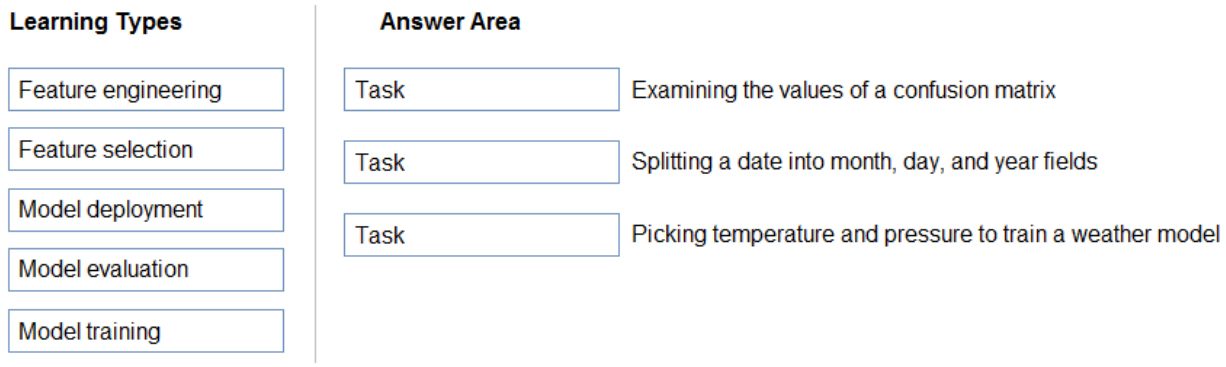
Topic 2, Describe fundamental principles of machine learning on Azure

QUESTION NO: 33 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.



Answer: <map><m x1="17" x2="207" y1="65" y2="93" ss="0" a="0" /><m x1="17" x2="206" y1="107" y2="136" ss="0" a="0" /><m x1="18" x2="206" y1="148" y2="177" ss="0" a="0" /><m x1="18" x2="209" y1="188" y2="218" ss="0" a="0" /><m x1="18" x2="209" y1="231" y2="259" ss="0" a="0" /><m x1="248" x2="440" y1="64" y2="95" ss="1" a="0" /><m x1="248" x2="438" y1="116" y2="146" ss="1" a="0" /><m x1="249" x2="440" y1="165" y2="194" ss="1" a="0" /><c start="3" stop="0" /><c start="0" stop="1" /><c start="1" stop="2" /></map>
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 NO: 34 HOTSPOT

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

Answer Area

Data values that influence the prediction of a model are called [▼]

- dependant variables.
- features.
- identifiers.
- labels.

Answer: <map><m x1="448" x2="620" y1="107" y2="134" ss="0" a="0" /></map>
Explanation:

Answer Area

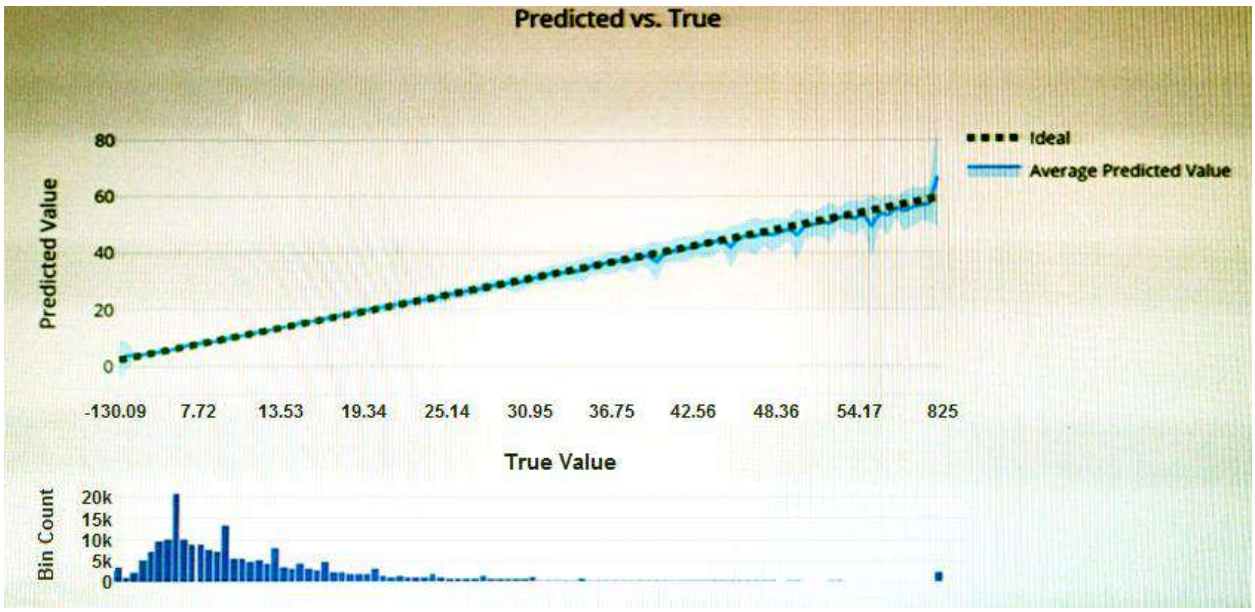
Data values that influence the prediction of a model are called

- dependant variables.
- features.
- identifiers.
- labels.

Reference:
https://www.baeldung.com/cs/feature-vs-label
https://machinelearningmastery.com/discover-feature-engineering-how-to-engineer-features-and-how-to-get-good-at-it/

QUESTION NO: 35

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

Answer: B
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 NO: 36

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

Answer: B
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 NO: 37

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

Answer: B
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 NO: 38

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

Answer: B
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 NO: 39 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.

Answer Area

Statements	Yes	No
Automated machine learning is the process of automating the time-consuming, iterative tasks of machine learning model development.	○	○
Automated machine learning can automatically infer the training data from the use case provided.	○	○
Automated machine learning works by running multiple training iterations that are scored and ranked by the metrics you specify.	○	○
Automated machine learning enables you to specify a dataset and will automatically understand which label to predict.	○	○

Answer: <map><m x1="517" x2="542" y1="101" y2="124" ss="0" a="0" /><m x1="610" x2="634" y1="150" y2="172" ss="0" a="0" /><m x1="517" x2="541" y1="197" y2="221" ss="0" a="0" /><m x1="610" x2="633" y1="241" y2="267" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Automated machine learning is the process of automating the time-consuming, iterative tasks of machine learning model development.	◉	○
Automated machine learning can automatically infer the training data from the use case provided.	○	◉
Automated machine learning works by running multiple training iterations that are scored and ranked by the metrics you specify.	◉	○
Automated machine learning enables you to specify a dataset and will automatically understand which label to predict.	○	◉

Box 1: Yes
Automated machine learning, also referred to as automated ML or AutoML, is the process of automating the time consuming, iterative tasks of machine learning model development. It

allows data scientists, analysts, and developers to build ML models with high scale, efficiency, and productivity all while sustaining model quality.

Box 2: No

Box 3: Yes
During training, Azure Machine Learning creates a number of pipelines in parallel that try different algorithms and parameters for you. The service iterates through ML algorithms paired with feature selections, where each iteration produces a model with a training score. The higher the score, the better the model is considered to "fit" your data. It will stop once it hits the exit criteria defined in the experiment.

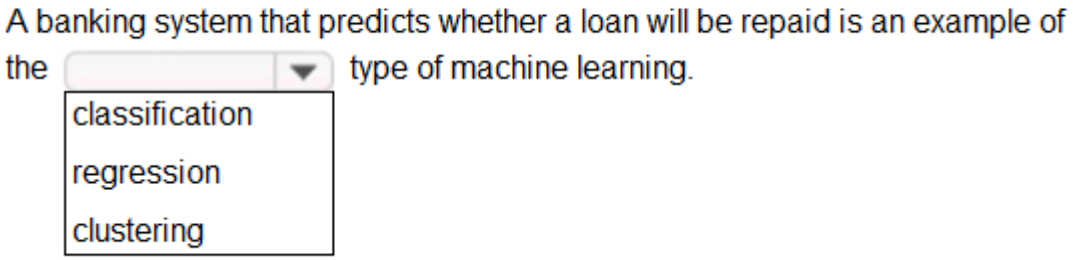
Box 4: No
Apply automated ML when you want Azure Machine Learning to train and tune a model for you using the target metric you specify.
The label is the column you want to predict.

Reference:
https://azure.microsoft.com/en-us/services/machine-learning/automatedml/#features

QUESTION NO: 40 HOTSPOT

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

Answer Area



Answer: <map><m x1="64" x2="198" y1="97" y2="123" ss="0" a="0" /></map>
Explanation:

Answer Area

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

- classification
- regression
- clustering

Two-class classification provides the answer to simple two-choice questions such as Yes/No or True/False.

QUESTION NO: 41 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.

Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	○	○
You should evaluate a model by using the same data used to train the model.	○	○
Accuracy is always the primary metric used to measure a model's performance.	○	○

Answer: <map><m x1="564" x2="587" y1="97" y2="118" ss="0" a="0" /><m x1="657" x2="682" y1="149" y2="173" ss="0" a="0" /><m x1="658" x2="682" y1="200" y2="225" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	○	○
You should evaluate a model by using the same data used to train the model.	○	○
Accuracy is always the primary metric used to measure a model's performance.	○	○

Box 1: Yes
In machine learning, if you have labeled data, that means your data is marked up, or annotated, to show the target, which is the answer you want your machine learning model to predict.
In general, data labeling can refer to tasks that include data tagging, annotation, classification, moderation, transcription, or processing.

Box 2: No

Box 3: No
Accuracy is simply the proportion of correctly classified instances. It is usually the first metric you look at when evaluating a classifier. However, when the test data is unbalanced (where most of the instances belong to one of the classes), or you are more interested in the performance on either one of the classes, accuracy doesn't really capture the effectiveness of a classifier.

Reference:
https://www.cloudfactory.com/data-labeling-guide

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

QUESTION NO: 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

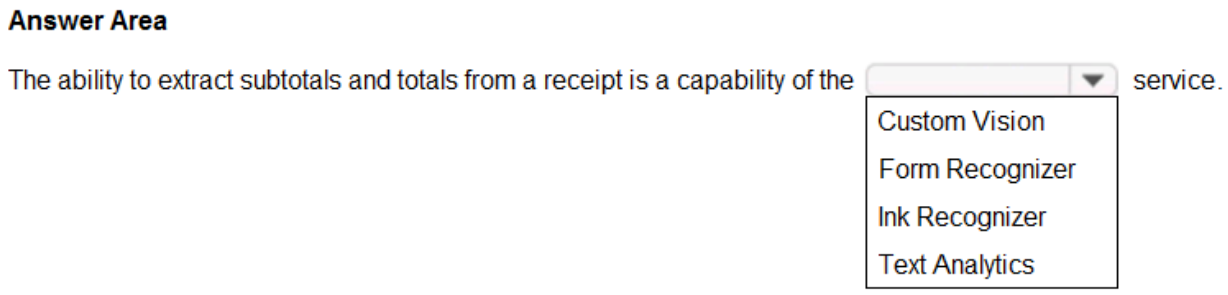
Answer: A
Explanation:
Accelerate your business processes by automating information extraction. Form Recognizer applies advanced machine learning to accurately extract text, key/value pairs, and tables from documents. With just a few samples, Form Recognizer tailors its understanding to your

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.

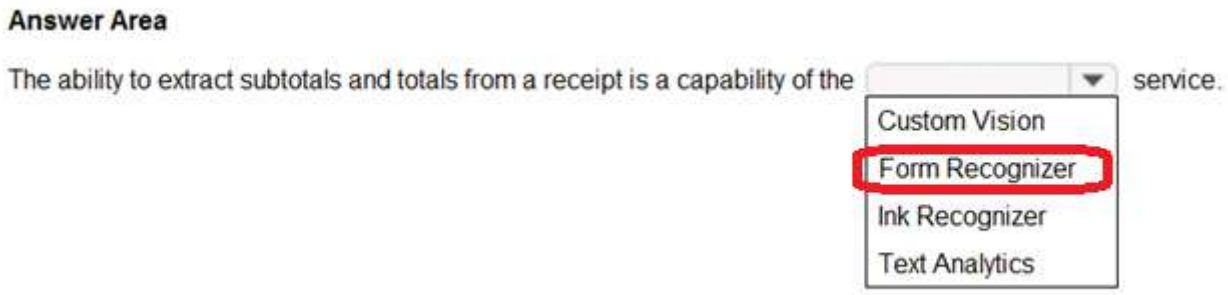
Reference:
https://azure.microsoft.com/en-us/services/cognitive-services/form-recognizer/

QUESTION NO: 43 HOTSPOT

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



Answer: <map><m x1="536" x2="687" y1="92" y2="121" ss="0" a="0" /></map>
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 NO: 44

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

Answer: C, D
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

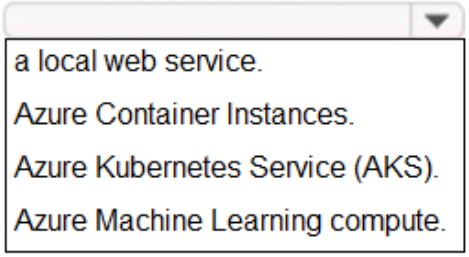
Reference:
https://docs.microsoft.com/en-in/learn/modules/create-regression-model-azure-machine-learning-designer/deploy-service

QUESTION NO: 45 HOTSPOT

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

Answer Area

From Azure Machine Learning designer, to deploy a real-time inference pipeline as a service for others to consume, you must deploy the model to



Answer: <map><m x1="357" x2="606" y1="153" y2="180" ss="0" a="0" /></map>
Explanation:

Answer Area

From Azure Machine Learning designer, to deploy a real-time inference pipeline as a service for others to consume, you must deploy the model to

- a local web service.
- Azure Container Instances.
- **Azure Kubernetes Service (AKS).**
- Azure Machine Learning compute.

To perform real-time inferencing, you must deploy a pipeline as a real-time endpoint. Real-time endpoints must be deployed to an Azure Kubernetes Service cluster.

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer#deploy

QUESTION NO: 46 HOTSPOT

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

Answer Area

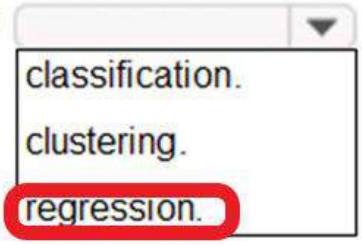
Predicting how many hours of overtime a delivery person will work based on the number of order received is an example of

- classification.
- clustering.
- regression.

Answer: <map><m x1="340" x2="486" y1="148" y2="171" ss="0" a="0" /></map>
Explanation:

Answer Area

Predicting how many hours of overtime a delivery person will work based on the number of order received is an example of



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.

Incorrect Answers:

- Classification is a machine learning method that uses data to determine the category, type, or class of an item or row of data.
- 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/algorithm-module-reference/linear-regression

https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/machine-learning-initialize-model-clustering

QUESTION NO: 47 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.

Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	○	○
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	○	○
Azure Machine Learning designer enables you to include custom JavaScript functions.	○	○

Answer: <map><m x1="527" x2="551" y1="102" y2="123" ss="0" a="0" /><m x1="527" x2="553" y1="154" y2="179" ss="0" a="0" /><m x1="621" x2="644" y1="207" y2="230" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	○	○
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	○	○
Azure Machine Learning designer enables you to include custom JavaScript functions.	○	○

Box 1: Yes
Azure Machine Learning designer lets you visually connect datasets and modules on an interactive canvas to create machine learning models.

Box 2: Yes
With the designer you can connect the modules to create a pipeline draft.
As you edit a pipeline in the designer, your progress is saved as a pipeline draft.

Box 3: No

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

QUESTION NO: 48 HOTSPOT

You have the following dataset.

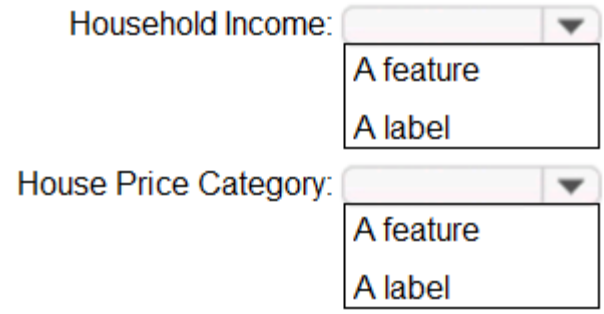
Household Income	Postal Code	House Price Category
20,000	55555	Low
23,000	20541	Middle
80,000	87960	High

You plan to use the dataset to train a model that will predict the house price categories of houses.

What are Household Income and House Price Category? To answer, select the appropriate option in the answer area.

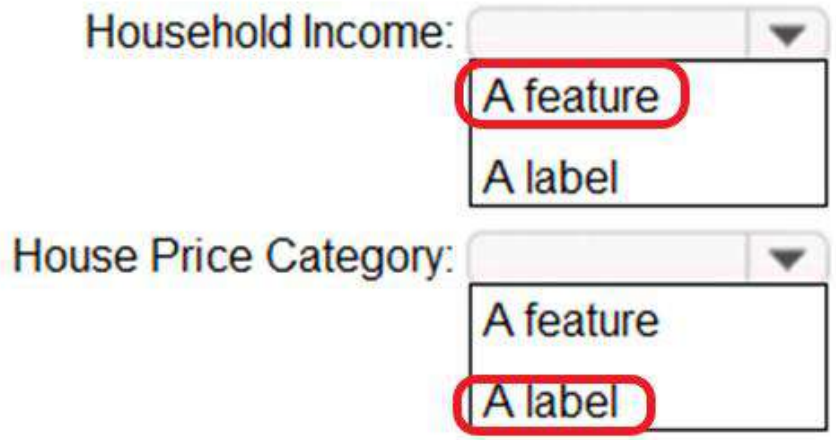
NOTE: Each correct selection is worth one point.

Answer Area



Answer: <map><m x1="178" x2="304" y1="73" y2="101" ss="0" a="0" /><m x1="178" x2="305" y1="181" y2="205" ss="0" a="0" /></map>
Explanation:

Answer Area



Box 1: A feature

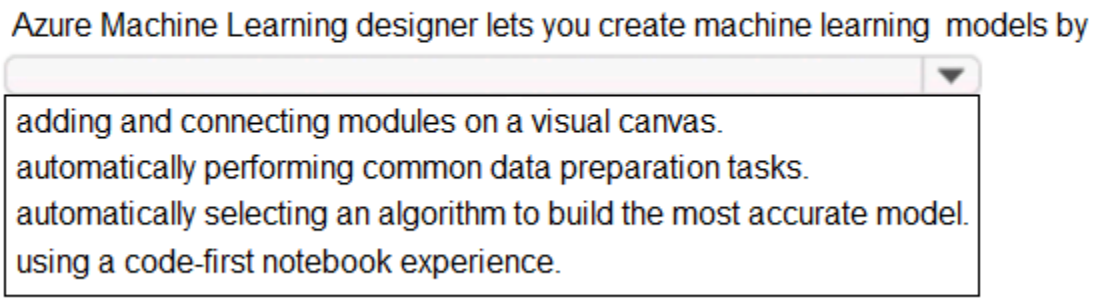
Box 2: A label

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/studio/interpret-model-results

QUESTION NO: 49 HOTSPOT

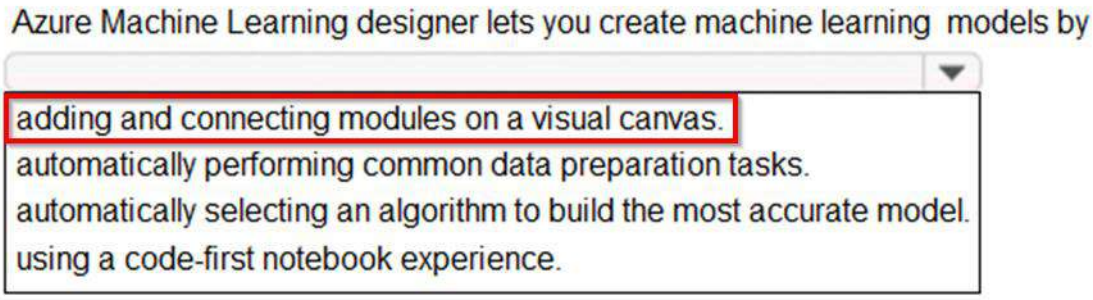
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="19" x2="507" y1="104" y2="128" ss="0" a="0" /></map>
Explanation:

Answer Area



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

QUESTION NO: 50 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.

Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	○	○
Automated machine learning implements machine learning solutions without the need for programming experience.	○	○
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	○	○

Answer: <map><m x1="487" x2="514" y1="99" y2="122" ss="0" a="0" /><m x1="488" x2="513" y1="157" y2="182" ss="0" a="0" /><m x1="487" x2="513" y1="216" y2="241" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	○	○
Automated machine learning implements machine learning solutions without the need for programming experience.	○	○
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	○	○

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/how-to-designer-python

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

QUESTION NO: 51

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

Answer: C

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

QUESTION NO: 52

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

Answer: C

QUESTION NO: 53

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.

Answer: A, C
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 NO: 54

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

Answer: A, C
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 NO: 55

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

The solution will use a custom model.

Which Azure Cognitive Services service should you use?

A. Custom Vision
B. Form Recognizer

C. Face
D. Computer Vision

Answer: A

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/overview

QUESTION NO: 56 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.

Answer Area

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

Answer: <map><m x1="476" x2="496" y1="90" y2="114" ss="0" a="0" /><m x1="478" x2="496" y1="153" y2="171" ss="0" a="0" /><m x1="564" x2="585" y1="208" y2="227" ss="0" a="0" /></map>
Explanation:

Answer Area

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

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 NO: 57 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.

Answer Area

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

Answer: <map><m x1="561" x2="584" y1="90" y2="112" ss="0" a="0" /><m x1="476" x2="494" y1="149" y2="169" ss="0" a="0" /><m x1="564" x2="583" y1="206" y2="228" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A validation set includes the set of input examples that will be used to train a mode.	○	●
A validation set can be used to determine how well a model predicts labels.	●	○
A validation set can be used to verify that all the training data was used to train the model.	○	●

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 NO: 58

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

Answer: AC
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 NO: 59 HOTSPOT

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

Answer Area

Predicting how many vehicles will travel across a bridge on a given day is an example of [▼]
- classification.
- clustering.
- regression.

Answer: <map><m x1="143" x2="291" y1="142" y2="169" ss="0" a="0" /></map>
Explanation:

Answer Area

Predicting how many vehicles will travel across a bridge on a given day is an example of [▼]
- classification.
- clustering.
- regression.

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

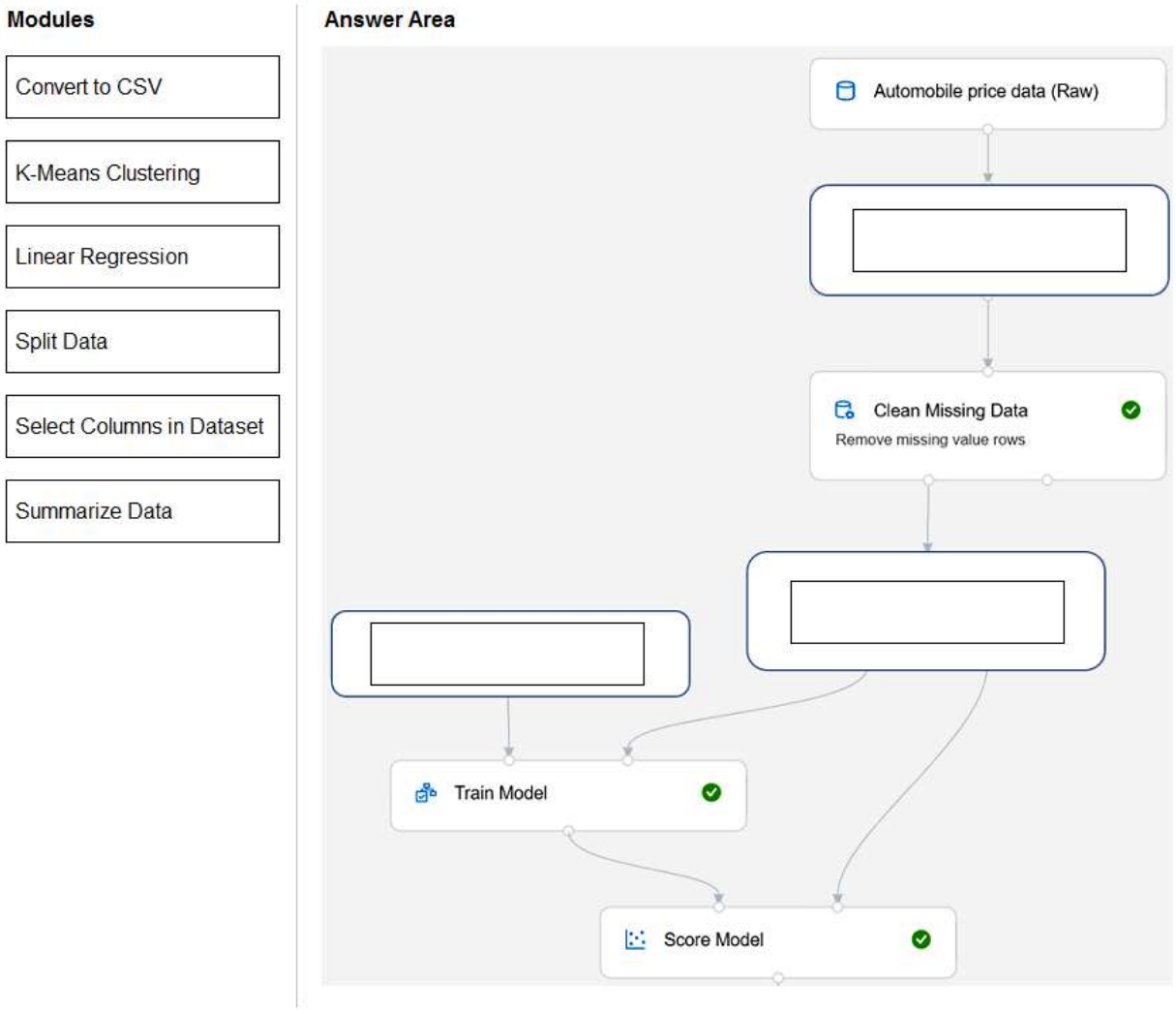
Reference:
https://docs.microsoft.com/en-us/dotnet/machine-learning/resources/tasks

QUESTION NO: 60 DRAG DROP

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

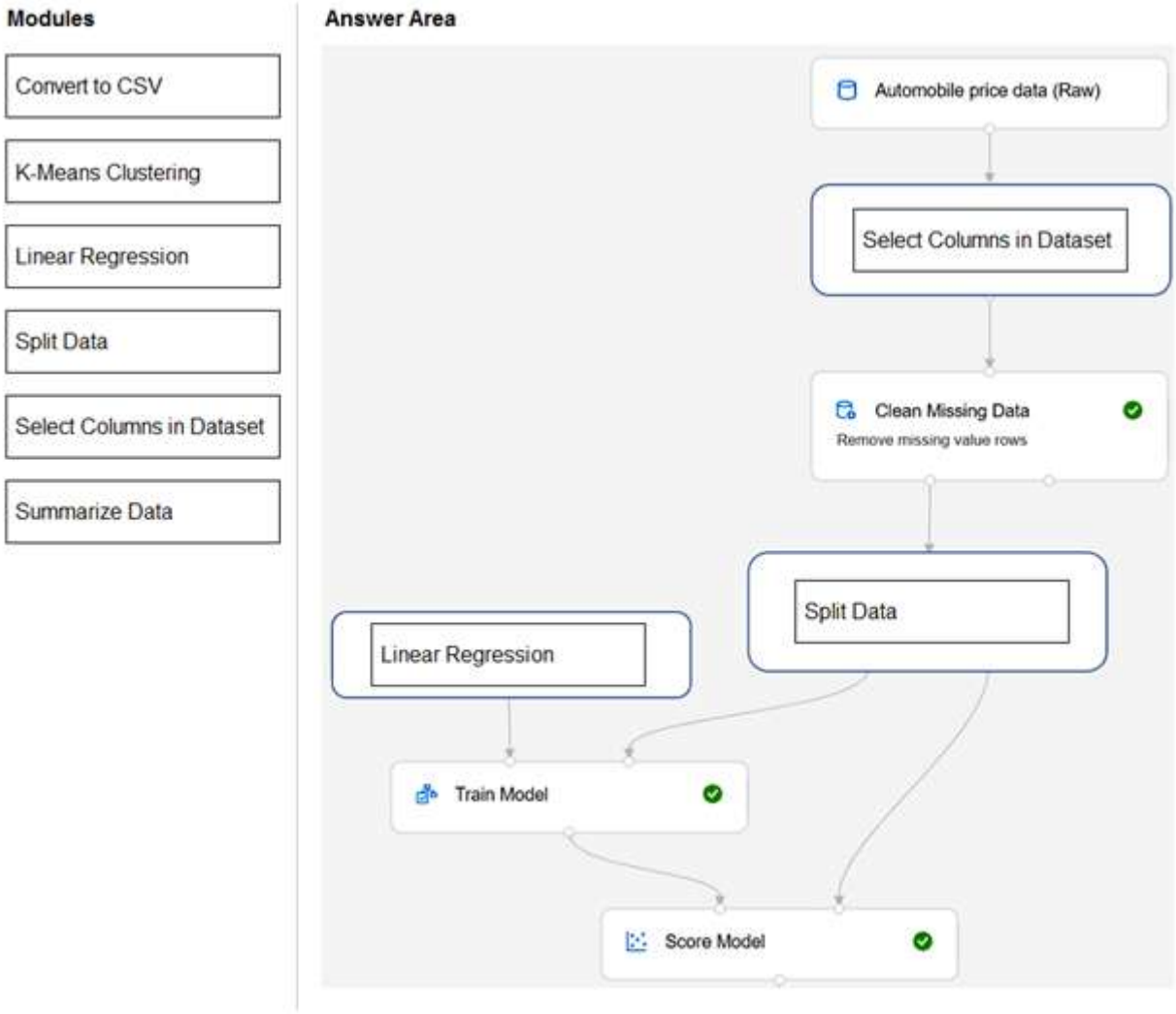
Which type of modules should you use to complete the model? To answer, drag the appropriate modules to the correct locations. Each module may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

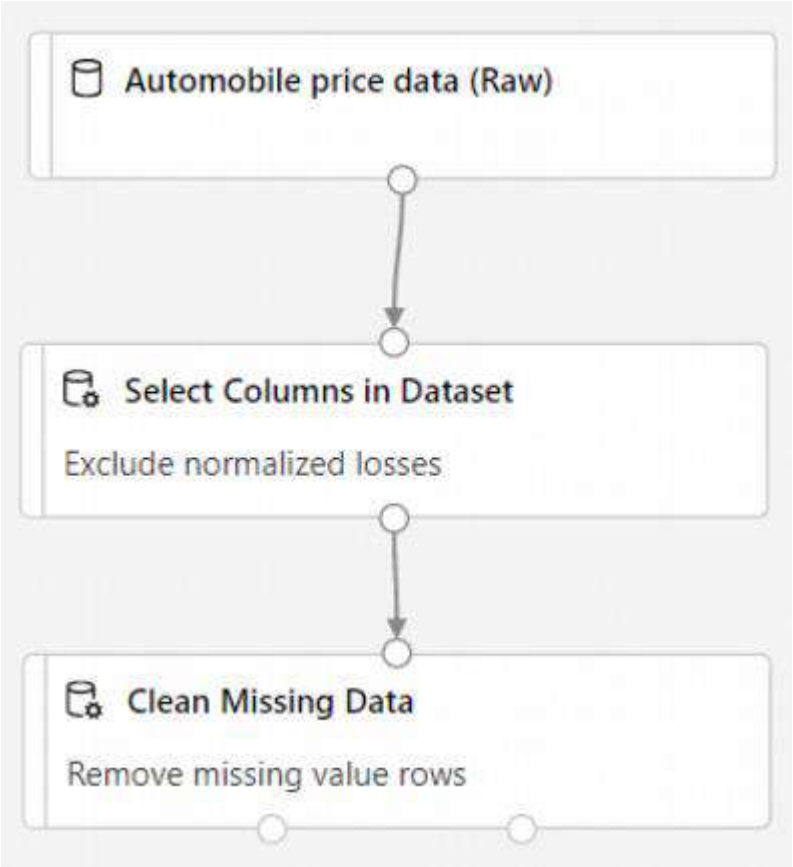


Answer: <map><m x1="25" x2="228" y1="44" y2="89" ss="0" a="0" /><m x1="26" x2="227" y1="107" y2="153" ss="0" a="0" /><m x1="24" x2="227" y1="170" y2="216" ss="0" a="0" /><m x1="25" x2="226" y1="233" y2="279" ss="0" a="0" /><m x1="24" x2="227" y1="297" y2="341" ss="0" a="0" /><m x1="26" x2="228" y1="359" y2="404" ss="0" a="0" /><m x1="652" x2="853" y1="159" y2="204" ss="1" a="0" /><m x1="605" x2="809" y1="434"

y2="480" ss="1" a="0" /><m x1="295" x2="498" y1="465" y2="510" ss="1" a="0" /><c start="4" stop="0" /><c start="3" stop="1" /><c start="2" stop="2" /></map>
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 NO: 61

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

A. classification
B. regression
C. clustering

Answer: C
Explanation:

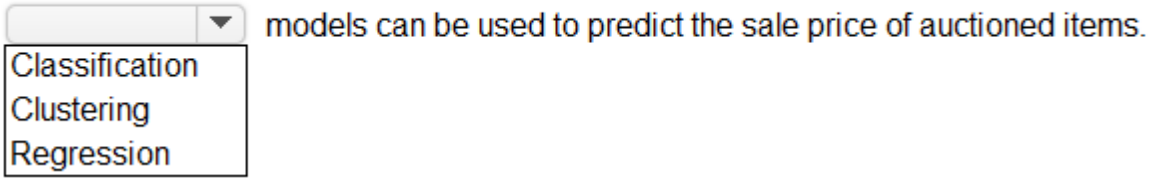
Clustering is a machine learning task that is used to group instances of data into clusters that contain similar characteristics. Clustering can also be used to identify relationships in a dataset

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

QUESTION NO: 62 HOTSPOT

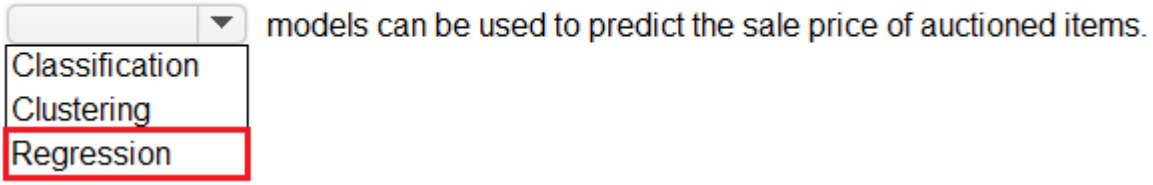
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="30" x2="152" y1="105" y2="128" ss="0" a="0" /></map>
Explanation:

Answer Area



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 NO: 63

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)

Answer: A
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 NO: 64

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.

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

Answer: AD
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 NO: 65

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

Answer: C
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

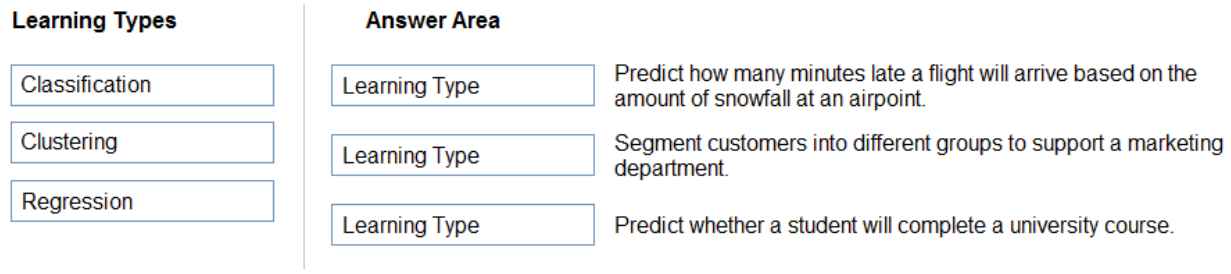
Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-cross-validation-data-splits

QUESTION NO: 66 DRAG DROP

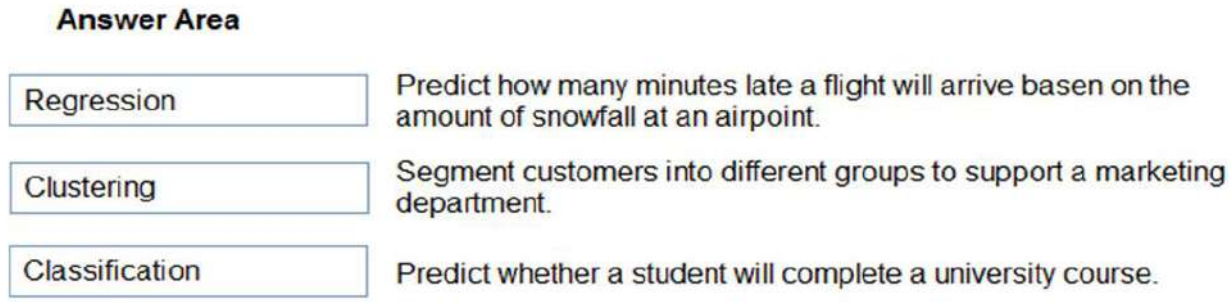
Match the types of machine learning to the appropriate scenarios.

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.



Answer: <map><m x1="17" x2="207" y1="62" y2="90" ss="0" a="0" /><m x1="16" x2="208" y1="103" y2="132" ss="0" a="0" /><m x1="16" x2="205" y1="144" y2="174" ss="0" a="0" /><m x1="249" x2="437" y1="62" y2="91" ss="1" a="0" /><m x1="249" x2="436" y1="114" y2="142" ss="1" a="0" /><m x1="247" x2="438" y1="161" y2="191" ss="1" a="0" /><c start="2" stop="0" /><c start="1" stop="1" /><c start="0" stop="2" /></map>
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: 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.

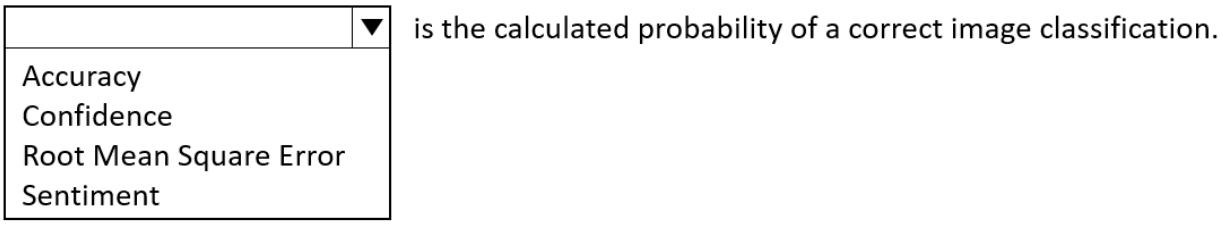
Box 3: Classification
Two-class classification provides the answer to simple two-choice questions such as Yes/No or True/False.

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

QUESTION NO: 67 HOTSPOT

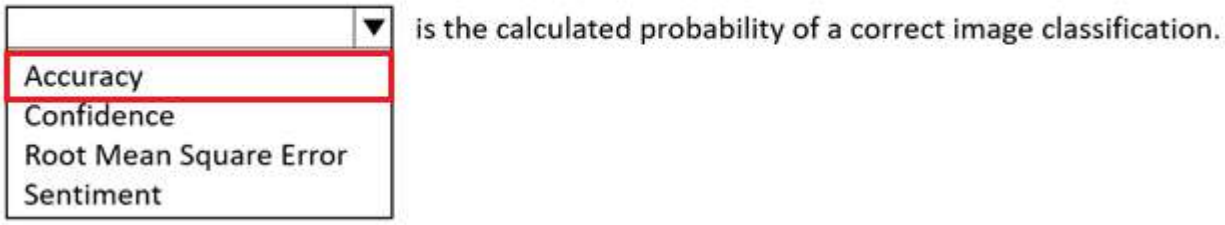
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="12" x2="354" y1="113" y2="157" ss="0" a="0" /></map>
Explanation:

Answer Area

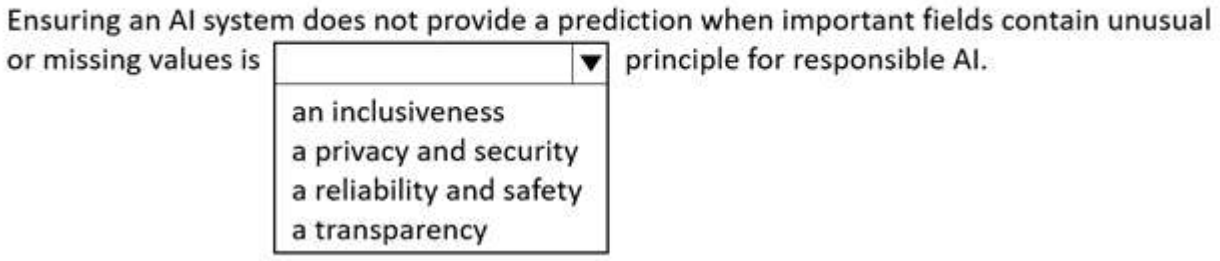


Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/getting-started-build-a-classifier

QUESTION NO: 68 HOTSPOT

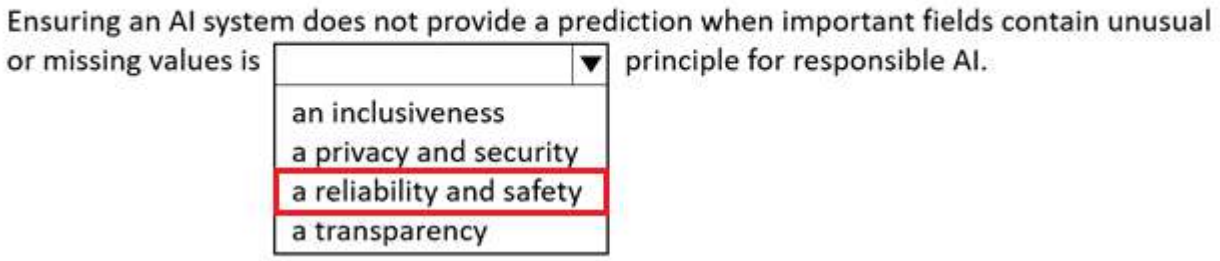
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="144" x2="310" y1="129" y2="150" ss="0" a="0" /></map>
Explanation:

Answer Area



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

QUESTION NO: 69 HOTSPOT

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

Answer: <map><m x1="1103" x2="1386" y1="191" y2="229" ss="0" a="0" /></map>
Explanation:

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.

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

QUESTION NO: 70 HOTSPOT

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

Answer Area

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

- evaluation.
- feature engineering
- hyperparameter tuning.
- labeling.

Answer: <map><m x1="1011" x2="1333" y1="227" y2="263" ss="0" a="0" /></map>
Explanation:

Answer Area

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

- evaluation.
- feature engineering
- hyperparameter tuning.
- **labeling.**

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

QUESTION NO: 71 HOTSPOT

You have an Azure Machine Learning model that predicts product quality. The model has a training dataset that contains 50,000 records. A sample of the data is shown in the following table.

Date	Time	Mass (kg)	Temperature (C)	Quality Test
26/02/2021	15:31:07	2.108	62.5	Pass
26/02/2021	15:31:39	2.099	62.4	Pass
26/02/2021	02:32:21	2.098	66.4	Fail

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

NOTE: Each correct selection is worth one point.

Answer Area

Statements	Yes	No
Mass (kg) is a feature.	○	○
Quality Test is a label.	○	○
Temperature (C) is a label.	○	○

Answer: <map><m x1="432" x2="463" y1="95" y2="124" ss="0" a="0" /><m x1="432" x2="467" y1="143" y2="171" ss="0" a="0" /><m x1="502" x2="535" y1="190" y2="218" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Mass (kg) is a feature.	●	○
Quality Test is a label.	●	○
Temperature (C) is a label.	○	●

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/filter-based-feature-selection

QUESTION NO: 72 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.

Answer Area

Statements	Yes	No
You train a regression model by using unlabeled data.	○	○
The classification technique is used to predict sequential numerical data over time.	○	○
Grouping items by their common characteristics is an example of clustering.	○	○

Answer: <map><m x1="765" x2="798" y1="96" y2="124" ss="0" a="0" /><m x1="766" x2="799" y1="164" y2="195" ss="0" a="0" /><m x1="696" x2="730" y1="250" y2="279" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
You train a regression model by using unlabeled data.	○	●
The classification technique is used to predict sequential numerical data over time.	○	●
Grouping items by their common characteristics is an example of clustering.	●	○

Reference:
https://docs.microsoft.com/en-us/learn/modules/create-regression-model-azure-machine-learning-designer/5-create-training-pipeline

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

https://docs.microsoft.com/en-us/learn/modules/create-clustering-model-azure-machine-learning-designer/1-introduction

QUESTION NO: 73

Which two actions are performed during the data ingestion and data preparation stage of an Azure Machine Learning process? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Calculate the accuracy of the model.
B. Score test data by using the model.
C. Combine multiple datasets.
D. Use the model for real-time predictions.
E. Remove records that have missing values.

Answer: C, E

Reference:
https://docs.microsoft.com/en-us/azure/machine-learning/concept-data-ingestion

https://docs.microsoft.com/en-us/azure/architecture/data-science-process/prepare-data

QUESTION NO: 74

You need to predict the animal population of an area.

Which Azure Machine Learning type should you use?

A. regression
B. clustering
C. classification

Answer: A
Explanation:
Regression is a supervised machine learning technique used to predict numeric values.

Reference: https://docs.microsoft.com/en-us/learn/modules/create-regression-model-azure-machine-learning-designer/1-introduction

QUESTION NO: 75

Which two languages can you use to write custom code for Azure Machine Learning designer? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Python
B. R
C. C#
D. Scala

Answer: AB
Explanation:
Use Azure Machine Learning designer for customizing using Python and R code.

Reference: https://azure.microsoft.com/en-us/services/machine-learning/designer/#features

QUESTION NO: 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.

Answer Area

Statements	Yes	No
For a regression model, labels must be numeric.	○	○
For a clustering model, labels must be used.	○	○
For a classification model, labels must be numeric.	○	○

Answer: <map><m x1="479" x2="504" y1="64" y2="88" ss="0" a="0" /><m x1="578" x2="603" y1="100" y2="123" ss="0" a="0" /><m x1="579" x2="604" y1="135" y2="162" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
For a regression model, labels must be numeric.	○	○
For a clustering model, labels must be used.	○	○
For a classification model, labels must be numeric.	○	○

Box 1: Yes
For regression problems, the label column must contain numeric data that represents the response variable. Ideally the numeric data represents a continuous scale.

Box 2: No
K-Means Clustering
Because the K-means algorithm is an unsupervised learning method, a label column is optional.

If your data includes a label, you can use the label values to guide selection of the clusters and optimize the model.

If your data has no label, the algorithm creates clusters representing possible categories, based solely on the data.

Box 3: No
For classification problems, the label column must contain either categorical values or discrete values. Some examples might be a yes/no rating, a disease classification code or name, or an income group. If you pick a noncategorical column, the component will return an error during training.

Reference: https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/train-model
https://docs.microsoft.com/en-us/azure/machine-learning/component-reference/k-means-clustering

QUESTION NO: 77

You have a dataset.

You need to build an Azure Machine Learning classification model that will identify defective products.

What should you do first?

A. Load the dataset.
B. Create a clustering model.
C. Split the data into training and testing datasets.
D. Create a classification model.

Answer: C
Explanation:
Understand steps for classification
You can think of the steps to train and evaluate a classification machine learning model as:

1. Prepare data: Identify the features and label in a dataset. Pre-process, or clean and transform, the data as needed.
2. Train model: Split the data into two groups, a training and a validation set. Train a machine learning model using the training data set. Test the machine learning model for performance using the validation data set.
3. Evaluate performance: Compare how close the model's predictions are to the known labels.
4. Deploy a predictive service: After you train a machine learning model, you need to convert the training pipeline into a real-time inference pipeline. Then you can deploy the model as an application on a server or device so that others can use it.

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

QUESTION NO: 78

You use Azure Machine Learning designer to build a model pipeline.

What should you create before you can run the pipeline?

A. a registered model
B. a compute resource
C. a Jupyter notebook

Answer: B
Explanation:
To train the model, we will create Azure Machine Learning Compute resource.

Reference: https://github.com/solliancenet/azure-machine-learning-quickstarts/blob/master/aml-visual-interface/README.md

QUESTION NO: 79 HOTSPOT

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

Answer Area

Data values that used to make a prediction are called [▼]
- dependant variables.
- features.
- identifiers.
- labels.

Answer: <map><m x1="414" x2="585" y1="80" y2="104" ss="0" a="0" /></map>
Explanation:

Answer Area

Data values that used to make a prediction are called [▼]
- dependant variables.
- features.
- identifiers.
- labels.

Dependent variables
Different techniques of regression in azure machine learning.
One of the most very common techniques in regression is Linear Regression. The linear regression is a linear approach to modeling the relationship between a dependent variable and one or more independent variables. For example, if you want to predict the house prices (dependent variable) by using independent variables of house location, house size, the relationship will be linear.

Reference: https://www.sqlshack.com/prediction-with-regression-in-azure-machine-learning/

QUESTION NO: 80 DRAG DROP

Match the tool to the Azure Machine Learning task.

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

NOTE: Each correct selection is worth one point.

Answer: <map><m x1="20" x2="306" y1="47" y2="108" ss="0" a="0" /><m x1="19" x2="307" y1="121" y2="182" ss="0" a="0" /><m x1="20" x2="309" y1="196" y2="256" ss="0" a="0" /><m x1="669" x2="957" y1="44" y2="106" ss="1" a="0" /><m x1="669" x2="956" y1="118" y2="180" ss="1" a="0" /><m x1="665" x2="954" y1="193" y2="252" ss="1" a="0" /><c start="1" stop="0" /><c start="2" stop="1" /><c start="0" stop="2" /></map>
Explanation:

Box 1: The Azure portal

Box 2: Machine Learning designer

Box 3: Automated machine learning (automated ML)
Automated machine learning, also referred to as automated ML or AutoML, is the process of automating the time-consuming, iterative tasks of machine learning model development. It allows data scientists, analysts, and developers to build ML models with high scale, efficiency, and productivity all while sustaining model quality.

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

QUESTION NO: 81

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 Al solution should you use?

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

Answer: C
Explanation:
AI chatbots use natural language processing (NLP) to help users to interact with web services or apps through text, graphics, or speech. Chatbots can understand natural human language, emulate human conversation, and run simple, automated tasks. In addition, AI chatbots use predictive intelligence and analytics to learn a user's preferences and use this knowledge to provide recommendations and anticipate needs.

AI chatbots are used in a variety of channels, such as messaging apps, mobile apps, websites, phone lines, and voice-enabled apps. They can be developed to handle just a few simple commands or to serve as complex digital assistants and interactive agents. An AI chatbot can be a part of a larger application or be completely stand-alone.

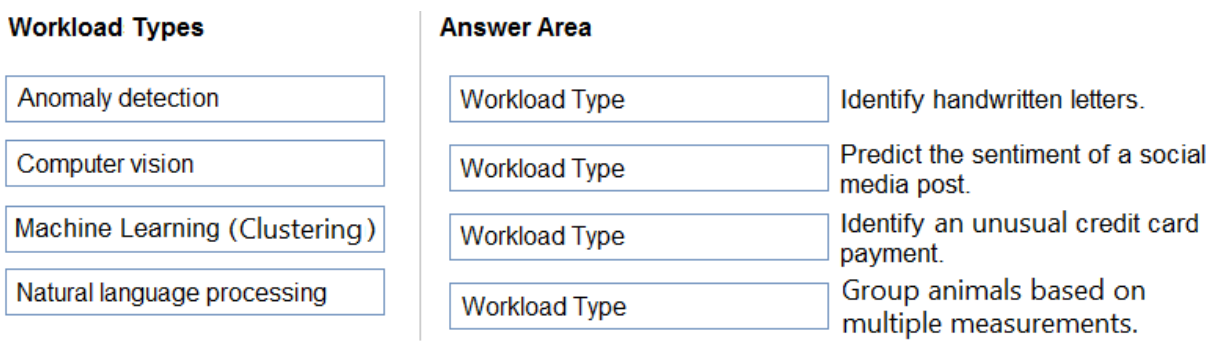
Reference: https://powervirtualagents.microsoft.com/en-us/ai-chatbot/

QUESTION NO: 82 DRAG DROP

Match the types of AI workloads to the appropriate scenarios.

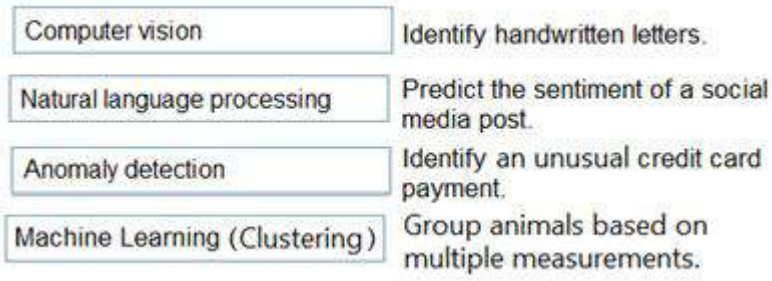
To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="25" x2="267" y1="40" y2="70" ss="0" a="0" /><m x1="25" x2="267" y1="82" y2="111" ss="0" a="0" /><m x1="25" x2="265" y1="123" y2="153" ss="0" a="0" /><m x1="24" x2="267" y1="163" y2="193" ss="0" a="0" /><m x1="307" x2="549" y1="42" y2="69" ss="1" a="0" /><m x1="307" x2="549" y1="84" y2="114" ss="1" a="0" /><m x1="308" x2="549" y1="128" y2="158" ss="1" a="0" /><m x1="309" x2="550" y1="174" y2="202" ss="1" a="0" /><c start="1" stop="0" /><c start="3" stop="1" /><c start="0" stop="2" /><c start="2" stop="3" /></map>
Explanation:

Answer Area



Box 1: Computer vision
Optical character recognition (OCR), included in Computer Vision, allows you to extract printed or handwritten text from images, such as photos of street signs and products, as well as from documents — invoices, bills, financial reports, articles, and more

Box 2: Natural language processing
Choose a natural language processing service for sentiment analysis, topic and language detection, key phrase extraction, and document categorization.

Box 3: Anomaly detection

Box 4: Machine Learning (Clustering)
Clustering is the task of dividing the population or data points into a number of groups such that data points in the same groups are more similar to other data points in the same group and dissimilar to the data points in other groups. It is basically a collection of objects on the basis of similarity and dissimilarity between them.

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview-ocr
https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing
https://www.geeksforgeeks.org/clustering-in-machine-learning/

QUESTION NO: 83

Predicting how many vehicles will travel across a bridge on a give day is an example of _____.

Select the answer that correctly completes the sentence.

A. regression
B. translation
C. classification
D. clustering

Answer: A
Explanation:
Regression is a supervised machine learning technique used to predict numeric values.

Reference: https://docs.microsoft.com/en-us/learn/modules/create-regression-model-azure-machine-learning-designer/

QUESTION NO: 84

In a machine learning model, the data that is used as inputs are called _____.

Select the answer that correctly completes the sentence.

A. dataset
B. labels
C. variables

Answer: B
Explanation:
In machine learning, data labeling is the process of identifying raw data (images, text files, videos, etc.) and adding one or more meaningful and informative labels to provide context so that a machine learning model can learn from it.

Reference: https://docs.microsoft.com/en-us/azure/machine-learning/how-to-create-image-labeling-projects

QUESTION NO: 85 HOTSPOT

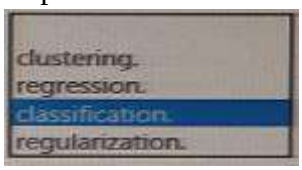
Select the answer that correctly completes the sentence.

Answer Area

Using Recency, Frequency, and Monetary (RFM) values to identify segments of a customer base is an example of

- clustering.
- regression.
- classification.
- regularization.

Answer: <map><m x1="360" x2="498" y1="209" y2="243" ss="0" a="0" /></map>
Explanation:



QUESTION NO: 86 DRAG DROP

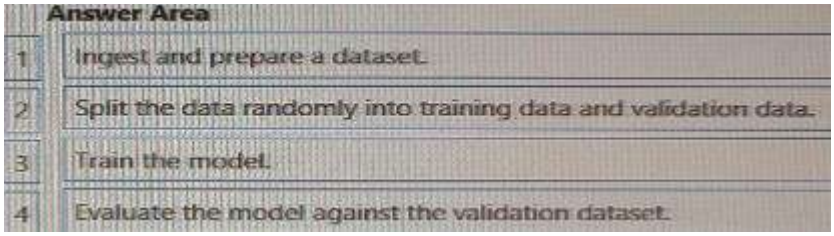
You plan to deploy an Azure Machine Learning model by using the Machine Learning designer.

Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.

Actions	Answer area
Train the model.	
Split the data randomly into training data and validation data.	
Evaluate the model against the original dataset.	
Evaluate the model against the validation dataset.	
Ingest and prepare a dataset.	

Answer: <map><m x1="15" x2="520" y1="47" y2="101" ss="0" a="0" /><m x1="14" x2="520" y1="120" y2="174" ss="0" a="0" /><m x1="15" x2="522" y1="192" y2="247" ss="0" a="0" /><m x1="14" x2="520" y1="265" y2="318" ss="0" a="0" /><m x1="15"

x2="522" y1="338" y2="391" ss="0" a="0" /><m x1="576" x2="1092" y1="47" y2="100" ss="1" a="0" /><m x1="576" x2="1092" y1="120" y2="174" ss="1" a="0" /><m x1="577" x2="1094" y1="194" y2="243" ss="1" a="0" /><m x1="578" x2="1094" y1="264" y2="316" ss="1" a="0" /><m x1="578" x2="1096" y1="339" y2="391" ss="1" a="0" /></map>
Explanation:



QUESTION NO: 87 HOTSPOT

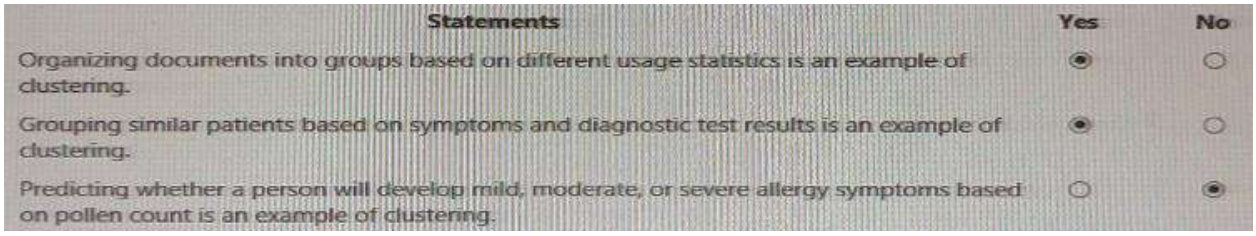
For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Answer Area

Statements	Yes	No
Organizing documents into groups based on different usage statistics is an example of clustering.	○	○
Grouping similar patients based on symptoms and diagnostic test results is an example of clustering.	○	○
Predicting whether a person will develop mild, moderate, or severe allergy symptoms based on pollen count is an example of clustering.	○	○

Answer: <map><m x1="646" x2="674" y1="129" y2="159" ss="0" a="0" /><m x1="646" x2="675" y1="199" y2="228" ss="0" a="0" /><m x1="736" x2="766" y1="274" y2="303" ss="0" a="0" /></map>
Explanation:



QUESTION NO: 88 HOTSPOT

Select the answer that correctly completes the sentence.

Answer Area

When building a regression model, labels must have a data type of [ ]
- boolean.
- datetime.
- numeric.
- text.

Answer: <map><m x1="607" x2="797" y1="189" y2="215" ss="0" a="0" /></map>
Explanation:

Answer Area

When building a regression model, labels must have a data type of [numeric.]
- boolean.
- datetime.
- numeric.
- text.

Box 1: Numeric
For regression problems, the label column must contain numeric data that represents the response variable. Ideally the numeric data represents a continuous scale.

Reference: https://learn.microsoft.com/en-us/azure/machine-learning/component-reference/train-model

QUESTION NO: 89

You need to create a clustering model and evaluate the model by using Azure Machine Learning designer.

What should you do?

A. Split the original dataset into a dataset for training and a dataset for testing. Use the testing dataset for evaluation.
B. Use the original dataset for training and evaluation.

C. Split the original dataset into a dataset for features and a dataset for labels. Use the features dataset for evaluation.
D. Split the original dataset into a dataset for training and a dataset for testing. Use the training dataset for evaluation.

Answer: A
Explanation:
Understand steps for clustering
You can think of the steps to train and evaluate a clustering machine learning model as:

1. Prepare data: Identify the features and label in a dataset. Pre-process, or clean and transform, the data as needed.
2. Train model: Split the data into two groups, a training and a validation set. Train a machine learning model using the training data set. Test the machine learning model for performance using the validation data set.
3. Evaluate performance.
4. Deploy a predictive service: After you train a machine learning model, you need to convert the training pipeline into a real-time inference pipeline. Then you can deploy the model as an application on a server or device so that others can use it.

Reference: https://learn.microsoft.com/en-us/azure/machine-learning/component-reference/train-clustering-model

QUESTION NO: 90

You have a dataset that contains the columns shown in the following table.

Name	Type
ColumnA	Integer
ColumnB	Numeric
ColumnC	Numeric
ColumnD	Numeric
ColumnE	Numeric

You have a machine learning model that predicts the value of ColumnE based on the other numeric columns.

Which type of model is this?

A. analysis
B. clustering
C. regression

Answer: C
Explanation:
Regression is a supervised machine learning technique used to predict numeric values.

Reference: https://learn.microsoft.com/en-us/training/modules/create-regression-model-azure-machine-learning-designer/

QUESTION NO: 91

You need to track multiple versions of a model that was trained by using Azure Machine Learning.

What should you do?

A. Explain the model.
B. Register the model.
C. Register the training data.
D. Provision an inference cluster.

Answer: B
Explanation:
Register and track machine learning models
With model registration, you can store and version your models in the Azure cloud, in your workspace. The model registry makes it easy to organize and keep track of your trained models.

Reference: https://learn.microsoft.com/en-us/azure/machine-learning/concept-model-management-and-deployment

QUESTION NO: 92

You need to identify groups of rows with similar numeric values in a dataset.

Which type of machine learning should you use?

A. clustering
B. regression
C. classification

Answer: A
Explanation:
Clustering is an unsupervised machine learning technique used to group similar entities based on their features. Learn how to create clustering models using Azure Machine Learning designer.

Scenarios for clustering machine learning models

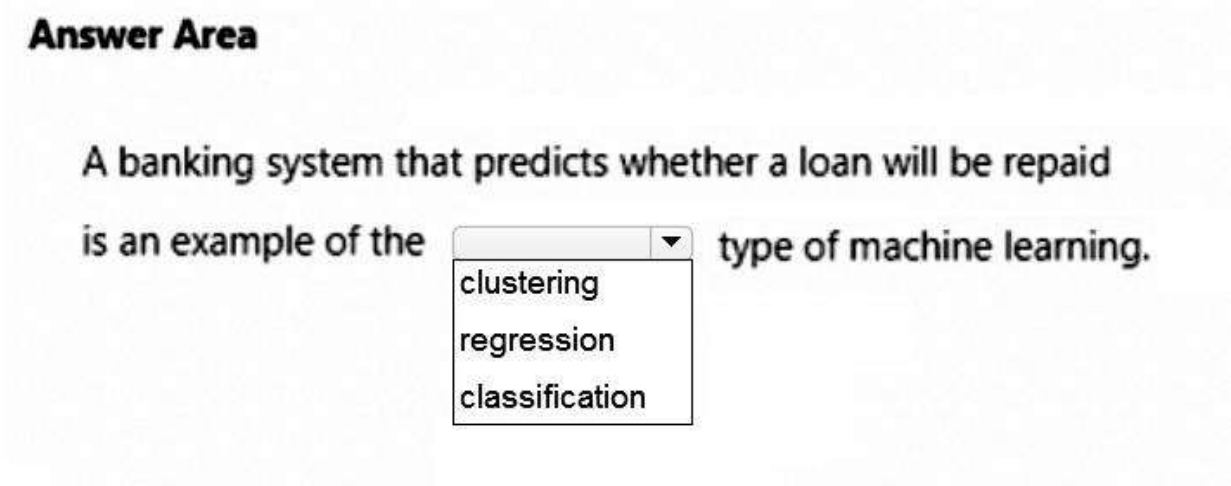
Clustering machine learning models are used in many industries. A few scenarios are:

Cluster customer attribute data into segments for marketing analysis.
Cluster geographic coordinates into regions of high traffic in a city for a ride-share application.
Cluster written feedback into topics to prioritize customer service changes.

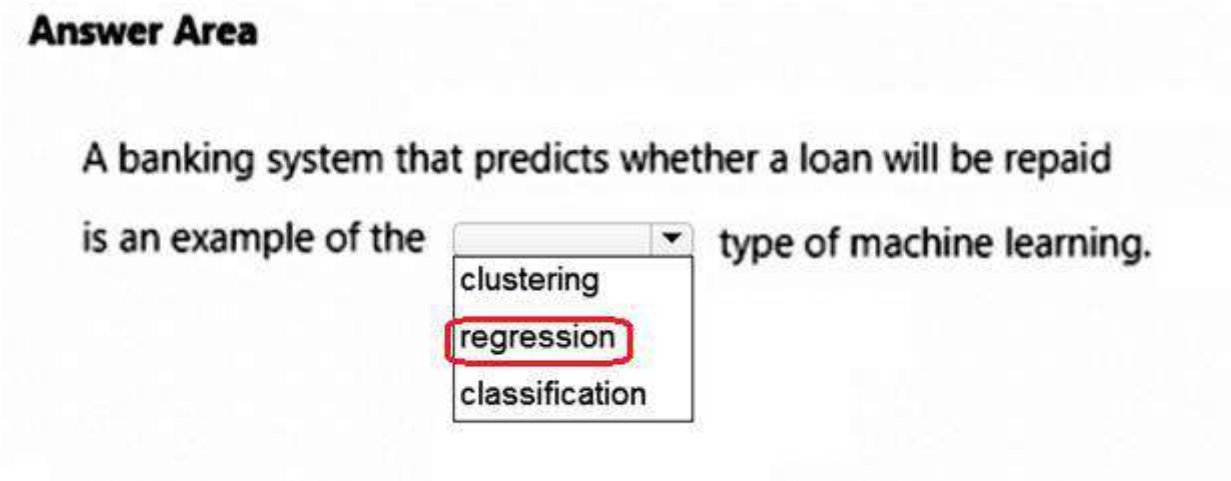
Reference: https://learn.microsoft.com/en-us/training/modules/create-clustering-model-azure-machine-learning-designer/2-clustering-scenarios

QUESTION NO: 93 HOTSPOT

Select the answer that correctly completes the sentence.



Answer: <map><m x1="272" x2="410" y1="190" y2="220" ss="0" a="0" /></map>
Explanation:



Box 1: Regression
Regression is a supervised machine learning technique used to predict numeric values.

Scenarios for regression machine learning models

Regression machine learning models are used in many industries. A few scenarios are:

Using characteristics of houses, such as square footage and number of rooms, to predict home prices.
Using characteristics of farm conditions, such as weather and soil quality, to predict crop yield.
Using characteristics of a past campaign, such as advertising logs, to predict future advertisement clicks.

Note: Loan chargeoff prediction with SQL Server, example.
Solution details
A charged off loan is a loan that is declared by a creditor (usually a lending institution) that an amount of debt is unlikely to be collected, usually when the loan repayment is severely delinquent by the debtor. Given that high chargeoff has a negative impact on lending institutions' year-end financials, lending institutions often monitor loan chargeoff risk very closely to prevent loans from getting charged-off.

There are multiple benefits for lending institutions to equip with loan chargeoff prediction data. Charging off a loan is the last resort that the bank will do on a severely delinquent loan, with the prediction data at hand, the loan officer could offer personalized incentives like lower interest rate or longer repayment period to help customers to keep making loan payments and thus prevent the loan of getting charged off. To get to this type of prediction data, often credit unions or banks manually handcraft the data based on customers' past payment history and performed simple statistical regression analysis.

Reference: https://learn.microsoft.com/en-us/training/modules/create-regression-model-azure-machine-learning-designer/2-regression-scenarios

Topic 3, Describe features of computer vision workloads on Azure

QUESTION NO: 94

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

Answer: C

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 NO: 95 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.

Answer Area

Statements	Yes	No
When creating an object detection model in the Custom Vision service, you must choose a classification type of either **Multilabel** or **Multiclass**.	○	○
You can create an object detection model in the Custom Vision service to find the location of content within an image.	○	○
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	○	○

Answer: <map><m x1="612" x2="637" y1="104" y2="129" ss="0" a="0" /><m x1="519" x2="544" y1="166" y2="193" ss="0" a="0" /><m x1="519" x2="545" y1="225" y2="254" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
When creating an object detection model in the Custom Vision service, you must choose a classification type of either **Multilabel** or **Multiclass**.	○	◉
You can create an object detection model in the Custom Vision service to find the location of content within an image.	◉	○
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	◉	○

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/get-started-build-detector

QUESTION NO: 96

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.

Answer: A, D

Reference:
https://azure.microsoft.com/en-gb/services/cognitive-services/form-recognizer/#features
https://docs.microsoft.com/en-us/azure/applied-ai-services/form-recognizer/overview?tabs=v2-1

QUESTION NO: 97 HOTSPOT

Select the answer that correctly completes the sentence.

Answer Area

Counting the number of animals in an area based on a video feed is an example of [▼]

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

Answer: <map><m x1="358" x2="600" y1="171" y2="204" ss="0" a="0" /></map>
Explanation:

Answer Area

Counting the number of animals in an area based on a video feed is an example of [▼]

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

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

https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/intro-to-spatial-analysis-public-preview

QUESTION NO: 98 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.

Answer Area

Statements	Yes	No
The Face service can be used to perform facial recognition for employees	○	○
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: <map><m x1="456" x2="478" y1="101" y2="126" ss="0" a="0" /><m x1="455" x2="478" y1="162" y2="189" ss="0" a="0" /><m x1="548" x2="571" y1="226" y2="246" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
The Face service can be used to perform facial recognition for employees	●	○
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.	○	●

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 NO: 99

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)

Answer: D
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 NO: 100 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.

Answer Area

Statements	Yes	No
The Custom Vision service can be used to detect objects in an image.	○	○
The Custom Vision service requires that you provide your own data to train the model.	○	○
The Custom Vision service can be used to analyze video files.	○	○

Answer: <map><m x1="496" x2="517" y1="93" y2="114" ss="0" a="0" /><m x1="497" x2="515" y1="153" y2="175" ss="0" a="0" /><m x1="590" x2="610" y1="215" y2="236" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
The Custom Vision service can be used to detect objects in an image.	●	○
The Custom Vision service requires that you provide your own data to train the model.	●	○
The Custom Vision service can be used to analyze video files.	○	●

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 NO: 101

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. image classification
D. object detection

Answer: B

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

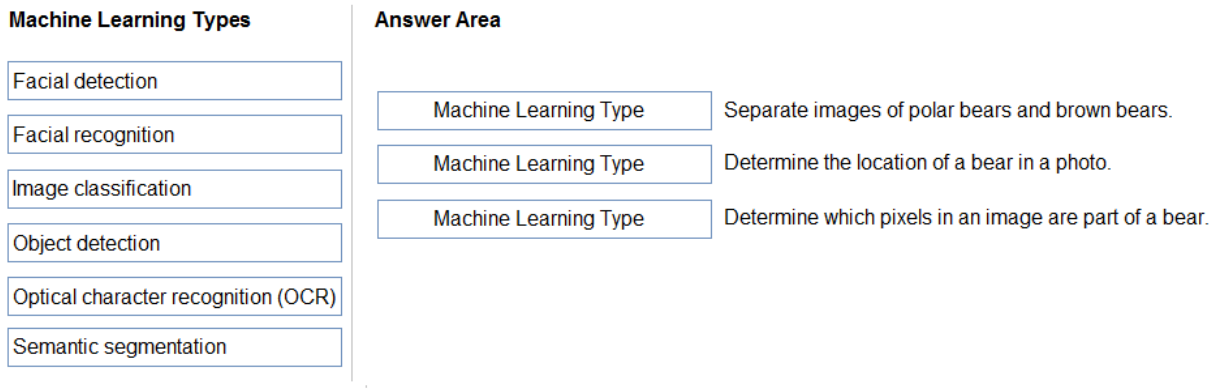
Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview-ocr

QUESTION NO: 102 DRAG DROP

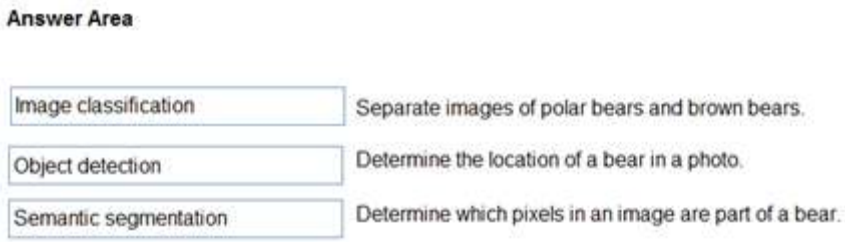
Match the types of machine learning to the appropriate scenarios.

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.



Answer: <map><m x1="28" x2="284" y1="48" y2="78" ss="0" a="0" /><m x1="28" x2="283" y1="91" y2="119" ss="0" a="0" /><m x1="28" x2="284" y1="132" y2="161" ss="0" a="0" /><m x1="28" x2="283" y1="173" y2="202" ss="0" a="0" /><m x1="28" x2="285" y1="214" y2="242" ss="0" a="0" /><m x1="28" x2="284" y1="253" y2="281" ss="0" a="0" /><m x1="312" x2="568" y1="71" y2="100" ss="1" a="0" /><m x1="311" x2="568" y1="113" y2="141" ss="1" a="0" /><m x1="312" x2="568" y1="156" y2="183" ss="1" a="0" /><c start="2" stop="0" /><c start="3" stop="1" /><c start="5" stop="2" /></map>
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 ore 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 NO: 103

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

Answer: A
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

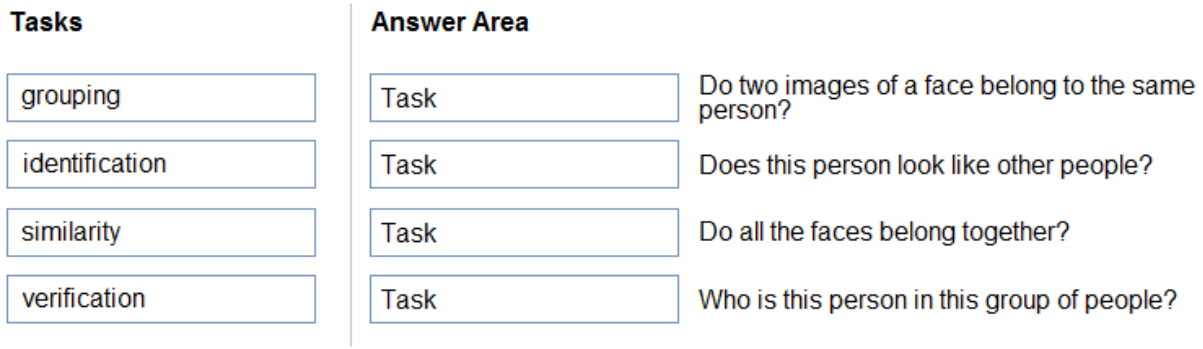
https://docs.microsoft.com/en-us/azure/azure-video-analyzer/video-analyzer-for-media-docs/video-indexer-overview

QUESTION NO: 104 DRAG DROP

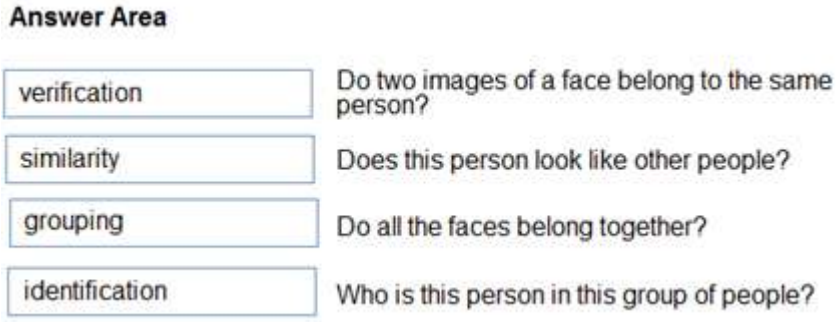
Match the facial recognition tasks to the appropriate questions.

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

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="21" x2="210" y1="55" y2="83" ss="0" a="0" /><m x1="19" x2="209" y1="95" y2="125" ss="0" a="0" /><m x1="19" x2="207" y1="137" y2="166" ss="0" a="0" /><m x1="20" x2="210" y1="179" y2="208" ss="0" a="0" /><m x1="244" x2="433" y1="56" y2="84" ss="1" a="0" /><m x1="242" x2="433" y1="95" y2="126" ss="1" a="0" /><m x1="242" x2="434" y1="139" y2="167" ss="1" a="0" /><m x1="243" x2="433" y1="179" y2="206" ss="1" a="0" /><c start="3" stop="0" /><c start="2" stop="1" /><c start="0" stop="2" /><c start="1" stop="3" /></map>
Explanation:



Box 1: verification

Face verification: Check the likelihood that two faces belong to the same person and receive a confidence score.

Box 2: similarity

Box 3: Grouping

Box 4: identification
Face detection: Detect one or more human faces along with attributes such as: age, emotion, pose, smile, and facial hair, including 27 landmarks for each face in the image.

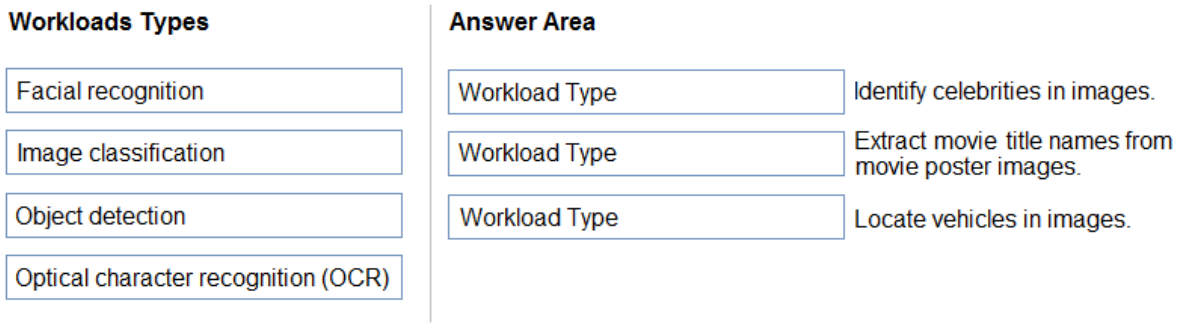
Reference:
https://azure.microsoft.com/en-us/services/cognitive-services/face/#features

QUESTION NO: 105 DRAG DROP

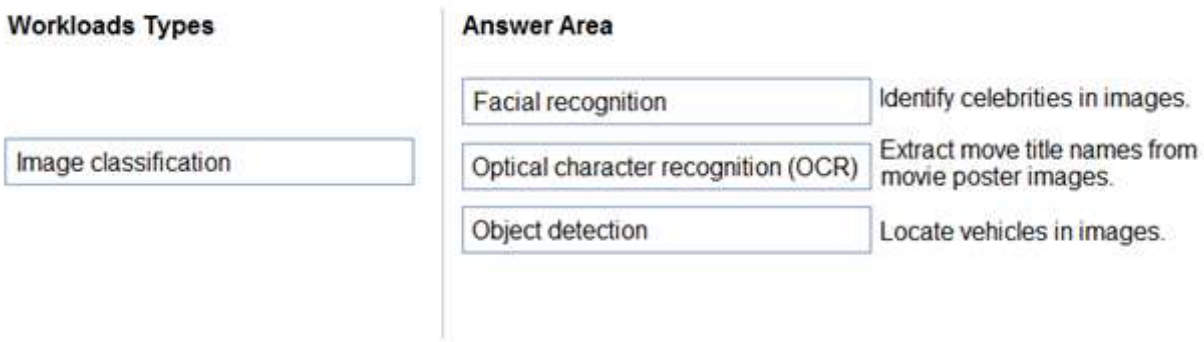
Match the types of computer vision workloads to the appropriate scenarios.

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 selection is worth one point.



Answer: <map><m x1="21" x2="283" y1="59" y2="87" ss="0" a="0" /><m x1="21" x2="282" y1="100" y2="128" ss="0" a="0" /><m x1="21" x2="283" y1="142" y2="170" ss="0" a="0" /><m x1="21" x2="282" y1="183" y2="212" ss="0" a="0" /><m x1="314" x2="576" y1="60" y2="88" ss="1" a="0" /><m x1="314" x2="576" y1="101" y2="129" ss="1" a="0" /><m x1="314" x2="575" y1="143" y2="171" ss="1" a="0" /><c start="0" stop="0" /><c start="3" stop="1" /><c start="2" stop="2" /></map>
Explanation:



Box 1: Facial recognition
Face detection that perceives faces and attributes in an image; person identification that matches an individual in your private repository of up to 1 million people; perceived emotion recognition that detects a range of facial expressions like happiness, contempt, neutrality, and fear; and recognition and grouping of similar faces in images.

Box 2: OCR

Box 3: Objection detection
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://azure.microsoft.com/en-us/services/cognitive-services/face/

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

QUESTION NO: 106

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

Answer: B
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.

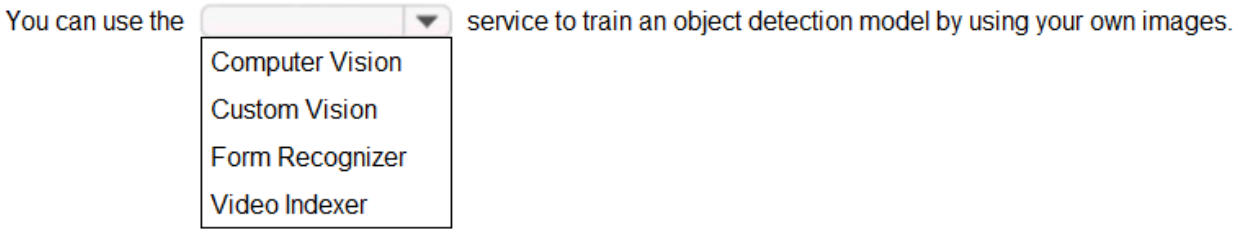
The Detect API applies tags based on the objects or living things identified in the image. There is currently no formal relationship between the tagging taxonomy and the object detection taxonomy. At a conceptual level, the Detect API only finds objects and living things, while the Tag API can also include 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 NO: 107 HOTSPOT

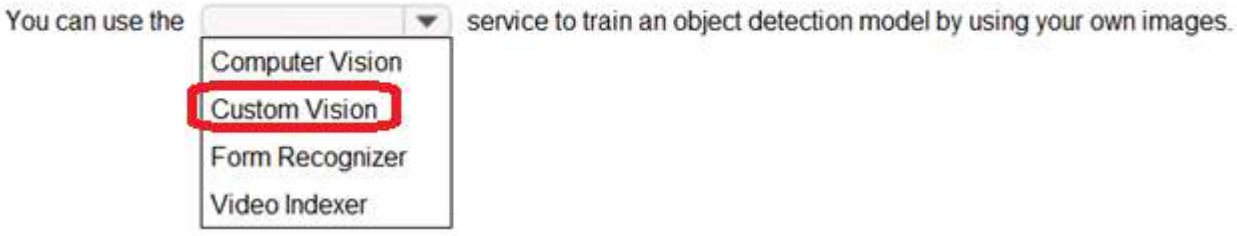
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="127" x2="281" y1="101" y2="127" ss="0" a="0" /></map>
Explanation:

Answer Area



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.

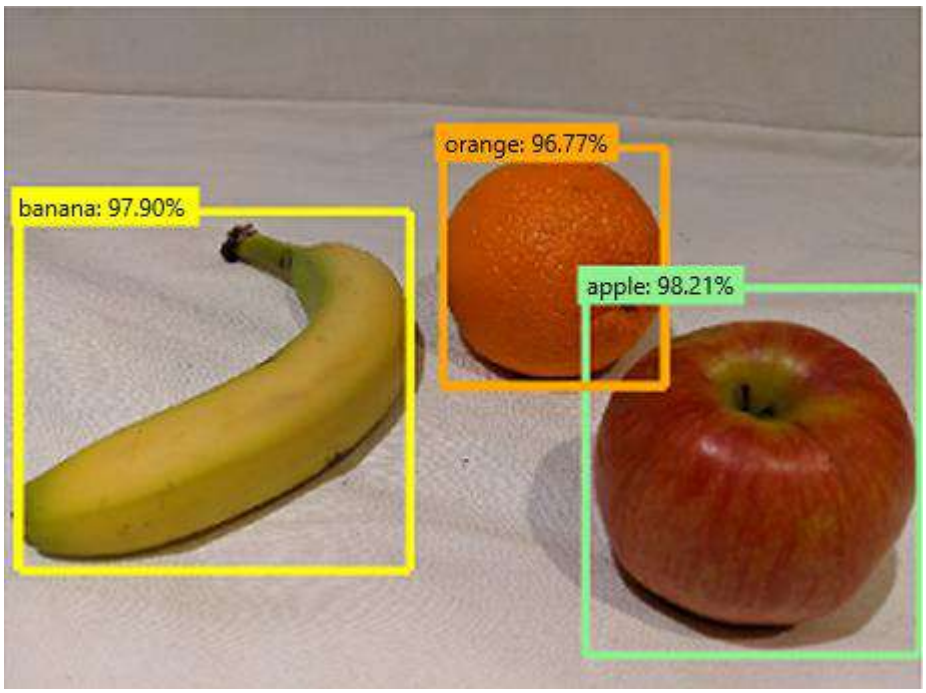
Note: The Custom Vision service uses a machine learning algorithm to apply labels to images. You, the developer, must submit groups of images that feature and lack the characteristics in question. You label the images yourself at the time of submission. Then the algorithm trains to this data and calculates its own accuracy by testing itself on those same images. Once the algorithm is trained, you can test, retrain, and eventually use it to classify new images according to the needs of your app. You can also export the model itself for offline use.

Incorrect Answers:
Computer Vision:
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.

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/home

QUESTION NO: 108

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

Answer: A
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 NO: 109

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.

Answer: BC
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 NO: 110

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

Answer: C
Explanation:
Two-class classification provides the answer to simple two-choice questions such as Yes/No or True/False.

Incorrect Answers:
A: This is Regression.
B: This is Clustering.
D: This is Regression.

Reference:

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

https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/machine-learning-initialize-model-clustering

QUESTION NO: 111

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.

Answer: B, C
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 NO: 112

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

Answer: A

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 NO: 113

A historian can use _____ to digitize newspaper articles.

Select the answer that correctly completes the sentence.

A. Object detection
B. Facial recognition
C. Image classification
D. Optical character recognition (OCR)

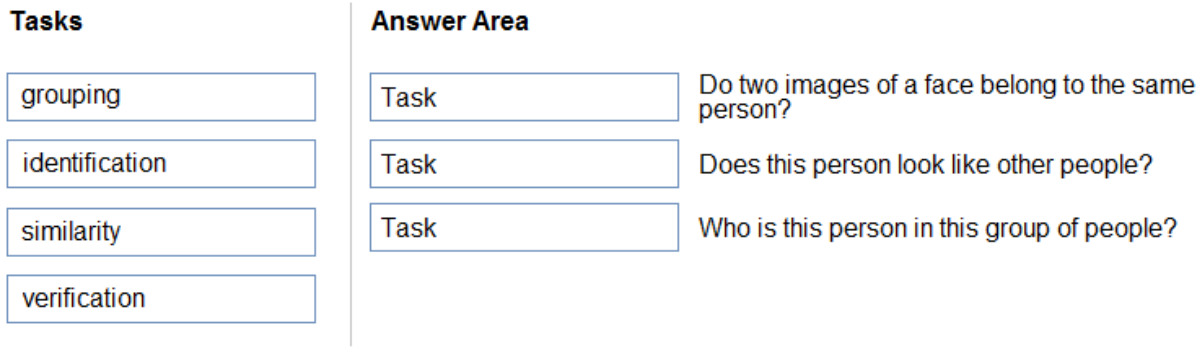
Answer: D

QUESTION NO: 114 DRAG DROP

Match the facial recognition tasks to the appropriate questions.

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

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="19" x2="208" y1="56" y2="84" ss="0" a="0" /><m x1="19" x2="210" y1="95" y2="126" ss="0" a="0" /><m x1="20" x2="209" y1="138" y2="168" ss="0" a="0" /><m x1="20" x2="209" y1="178" y2="207" ss="0" a="0" /><m x1="242" x2="435" y1="54" y2="85" ss="1" a="0" /><m x1="243" x2="434" y1="97" y2="125" ss="1" a="0" /><m

x1="243" x2="431" y1="134" y2="164" ss="1" a="0" /><c start="3" stop="0" /><c start="2" stop="1" /><c start="1" stop="2" /></map>
Explanation:
Answer Area

verification	Do two images of a face belong to the same person?
similarity	Does this person look like other people?
identification	Who is this person in this group of people?

Box 1: verification
Identity verification
Modern enterprises and apps can use the Face identification and Face verification operations to verify that a user is who they claim to be.

Box 2: similarity
The Find Similar operation does face matching between a target face and a set of candidate faces, finding a smaller set of faces that look similar to the target face. This is useful for doing a face search by image.

The service supports two working modes, matchPerson and matchFace. The matchPerson mode returns similar faces after filtering for the same person by using the Verify API. The matchFace mode ignores the same-person filter. It returns a list of similar candidate faces that may or may not belong to the same person.

Box 3: identification
Face identification can address "one-to-many" matching of one face in an image to a set of faces in a secure repository. Match candidates are returned based on how closely their face data matches the query face. This scenario is used in granting building or airport access to a certain group of people or verifying the user of a device.

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

QUESTION NO: 115

Which Computer Vision feature can you use to generate automatic captions for digital photographs?

A. Recognize text.
B. Identify the areas of interest.
C. Detect objects.
D. Describe the images.

Answer: D
Explanation:
Describe images with human-readable language
Computer Vision can analyze an image and generate a human-readable phrase that describes its contents. The algorithm returns several descriptions based on different visual features, and each description is given a confidence score. The final output is a list of descriptions ordered from highest to lowest confidence.
The image description feature is part of the Analyze Image API.

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-describing-images

QUESTION NO: 116

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

A. Custom Vision
B. Face
C. Form Recognizer
D. Language

Answer: C
Explanation:
Form Recognizer applies advanced machine learning to accurately extract text, key-value pairs, tables, and structures from documents.

Reference: https://azure.microsoft.com/en-us/services/form-recognizer/

QUESTION NO: 117 HOTSPOT

Select the answer that correctly completes the sentence.

Answer Area

Answer: <map><m x1="9" x2="308" y1="118" y2="137" ss="0" a="0" /></map>
Explanation:

Answer Area

Handwriting OCR (optical character recognition) is the process of automatically extracting handwritten information from paper, scans and other low-quality digital documents.

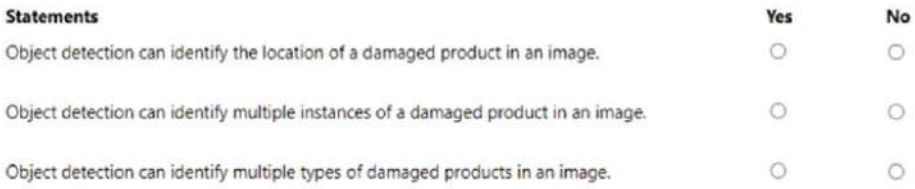
Reference: https://vidado.ai/handwriting-ocr

QUESTION NO: 118 HOTSPOT

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

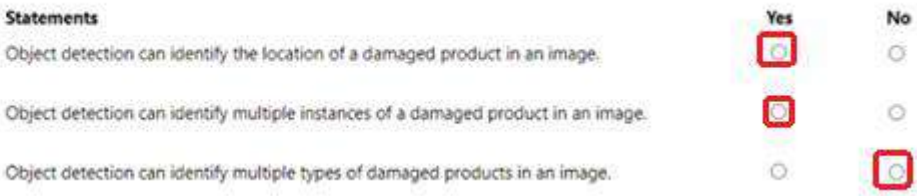
NOTE: Each correct selection is worth one point.

Answer Area



Answer: <map><m x1="1116" x2="1149" y1="83" y2="114" ss="0" a="0" /><m x1="1116" x2="1150" y1="142" y2="177" ss="0" a="0" /><m x1="1238" x2="1268" y1="207" y2="238" ss="0" a="0" /></map>
Explanation:

Answer Area



Box 1: Yes
Image classification is a popular area of artificial intelligence. One application of image classification that's already being used in industry is the detection of quality issues on assembly lines during manufacturing. In a typical production line, components travel down the assembly line from one station to another, at the end of which an inspector steps in to look for problems—a manual and error-prone process. AI-driven image classification reduces human effort and automatically classifies images as pass or fail. This improves not only the efficiency of the

human operators in the validation process, but also the quality of the overall manufacturing process.

Box 2: Yes
Object detection is similar to tagging, but the API returns the bounding box coordinates (in pixels) for each object found in the image. For example, if an image contains a dog, cat and person, the Detect operation will list those objects 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 object in an image.

Box 3: No

Reference: https://azure.microsoft.com/en-us/use-cases/defect-detection-with-image-analysis/ https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-object-detection

QUESTION NO: 119

You need to create a model that labels a collection of your personal digital photographs.

Which Azure Cognitive Services service should you use?

A. Form Recognizer
B. Custom Vision
C. Language
D. Computer Vision

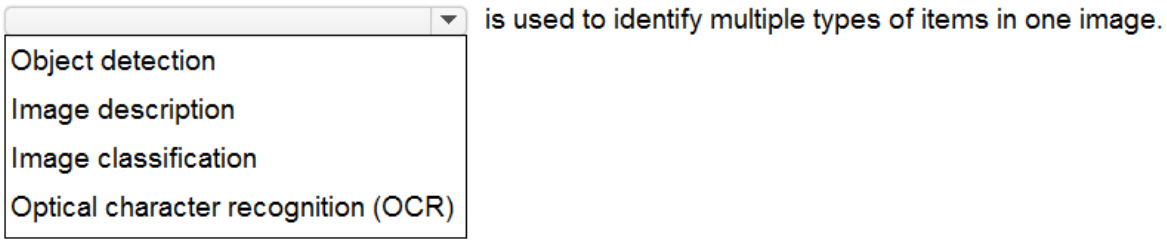
Answer: D
Explanation:
Computer Vision, an AI service that analyzes content in images and video.
Extract rich information from images and video
Boost content discoverability, automate text extraction, analyze video in real time, and create products that more people can use by embedding cloud vision capabilities in your apps with Computer Vision, part of Azure Cognitive Services. Use visual data processing to label content with objects and concepts, extract text, generate image descriptions, moderate content, and understand people's movement in physical spaces. No machine learning expertise is required.

Reference: https://azure.microsoft.com/en-us/services/cognitive-services/computer-vision/

QUESTION NO: 120 HOTSPOT

Select the answer that correctly completes the sentence.

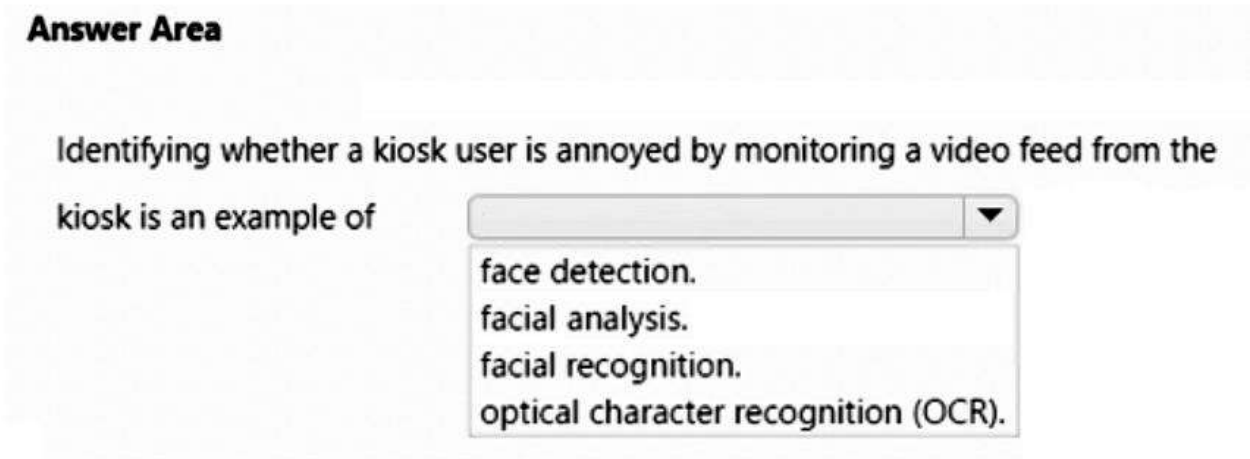
Answer Area



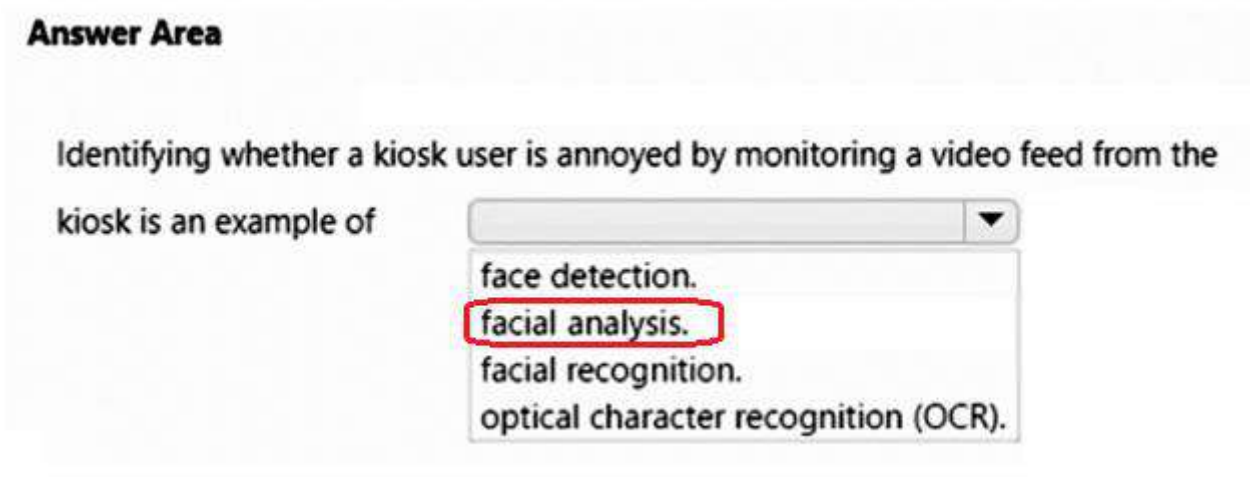
Answer: <map><m x1="55" x2="367" y1="185" y2="218" ss="0" a="0" /></map>
Explanation:

QUESTION NO: 121 HOTSPOT

Select the answer that correctly completes the sentence.



Answer: <map><m x1="319" x2="691" y1="205" y2="239" ss="0" a="0" /></map>
Explanation:



Box 1: Facial analysis.
In another change, we [Microsoft] will retire facial analysis capabilities that purport to infer emotional states and identity attributes such as gender, age, smile, facial hair, hair, and makeup. We collaborated with internal and external researchers to understand the limitations and potential benefits of this technology and navigate the tradeoffs. In the case of emotion classification specifically, these efforts raised important questions about privacy, the lack of consensus on a definition of "emotions," and the inability to generalize the linkage between facial expression and emotional state across use cases, regions, and demographics. API access to capabilities that predict sensitive attributes also opens up a wide range of ways they can be misused — including subjecting people to stereotyping, discrimination, or unfair denial of services.

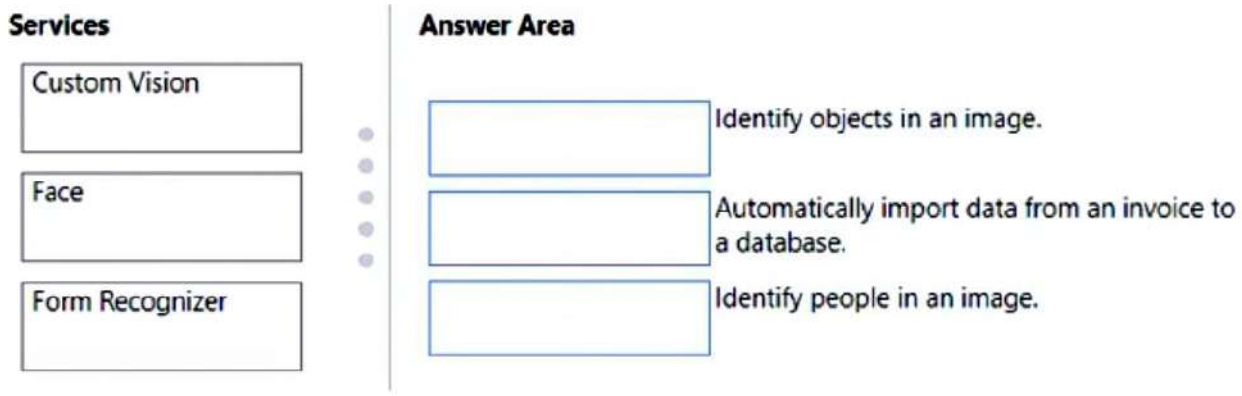
Reference: https://azure.microsoft.com/en-us/blog/responsible-ai-investments-and-safeguards-for-facial-recognition/300

QUESTION NO: 122 DRAG DROP

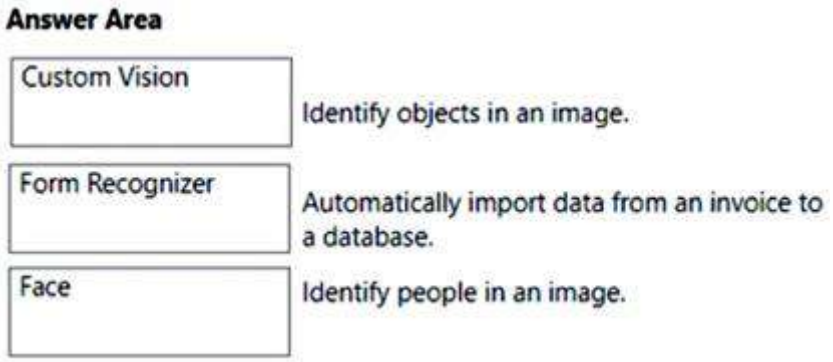
Match the Azure Cognitive Services to the appropriate actions.

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 selection is worth one point.



Answer: <map><m x1="21" x2="256" y1="59" y2="132" ss="0" a="0" /><m x1="21" x2="257" y1="151" y2="225" ss="0" a="0" /><m x1="21" x2="256" y1="245" y2="320" ss="0" a="0" /><m x1="365" x2="604" y1="91" y2="154" ss="1" a="0" /><m x1="367" x2="604" y1="167" y2="229" ss="1" a="0" /><m x1="366" x2="604" y1="244" y2="306" ss="1" a="0" /><c start="0" stop="0" /><c start="2" stop="1" /><c start="1" stop="2" /></map>
Explanation:



Box 1: Custom Vision
Azure Custom Vision is an image recognition service that lets you build, deploy, and improve your own image identifier models. An image identifier applies labels to images, according to their visual characteristics. Each label represents a classification or object.

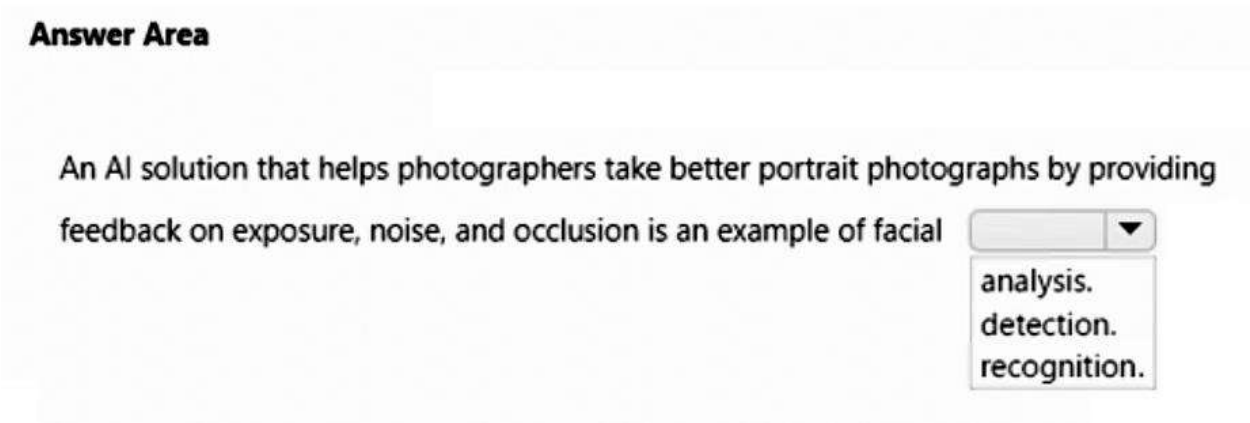
Box 2: Form Recognizer

Box 3: Face

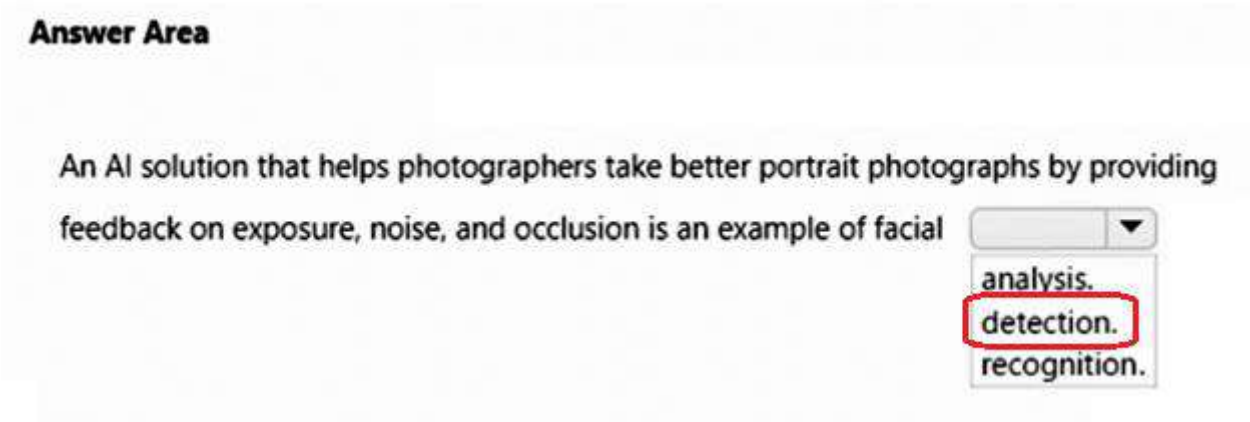
Reference: https://learn.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/overview

QUESTION NO: 123 HOTSPOT

Select the answer that correctly completes the sentence.



Answer: <map><m x1="713" x2="851" y1="226" y2="256" ss="0" a="0" /></map>
Explanation:



Box 1: detection.
Attributes are a set of features that can optionally be detected by the Face - Detect API. The following attributes can be detected:

* Exposure. The exposure of the face in the image. This attribute returns a value between zero and one and an informal rating of underExposure, goodExposure, or overExposure.

* Noise. The visual noise detected in the face image. This attribute returns a value between zero and one and an informal rating of low, medium, or high.

* Occlusion. Whether there are objects blocking parts of the face. This attribute returns a Boolean value for eyeOccluded, foreheadOccluded, and mouthOccluded.

* Etc.

Reference: https://learn.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-face-detection

QUESTION NO: 124

Your company manufactures widgets.

You have 1,000 digital photos of the widgets.

You need to identify the location of the widgets within the photos.

What should you use?

A. Computer Vision Spatial Analysis
B. Custom Vision object detection
C. Computer Vision Image Analysis
D. Custom Vision classification

Answer: B
Explanation:
Object detection is similar to tagging, but the API returns the bounding box coordinates (in pixels) for each object found in the image. For example, if an image contains a dog, cat and person, the Detect operation will list those objects 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 object in an image.

The object detection function applies tags based on the objects or living things identified in the image.

Incorrect:
* Computer Vision Spatial Analysis
Spatial analysis detects and locates human presence in video footage and outputs by using a bounding box around a human body. The AI models don't detect faces or determine individuals' identities or demographics.

Reference: https://learn.microsoft.com/en-us/azure/cognitive-services/computer-vision/concept-object-detection

Topic 4, Describe features of Natural Language Processing (NLP) work-loads on Azure

QUESTION NO: 125

Natural language processing can be used to _____.

Select the answer that correctly completes the sentence.

A. Analyze video content

B. Generate speech
C. Classify email messages as work-related or personal.
D. Classify images

Answer: C
Explanation:
Natural language processing (NLP) has many uses: sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Note: Specifically, you can use NLP to:

*-> Classify documents. For instance, you can label documents as sensitive or spam.
Do subsequent processing or searches. You can use NLP output for these purposes.
Summarize text by identifying the entities that are present in the document.
Tag documents with keywords. For the keywords, NLP can use identified entities.
Do content-based search and retrieval. Tagging makes this functionality possible.
Summarize a document's important topics. NLP can combine identified entities into topics.
Categorize documents for navigation. For this purpose, NLP uses detected topics.
Enumerate related documents based on a selected topic. For this purpose, NLP uses detected topics.
Score text for sentiment. By using this functionality, you can assess the positive or negative tone of a document.

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

QUESTION NO: 126

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

Answer: B
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 NO: 127

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

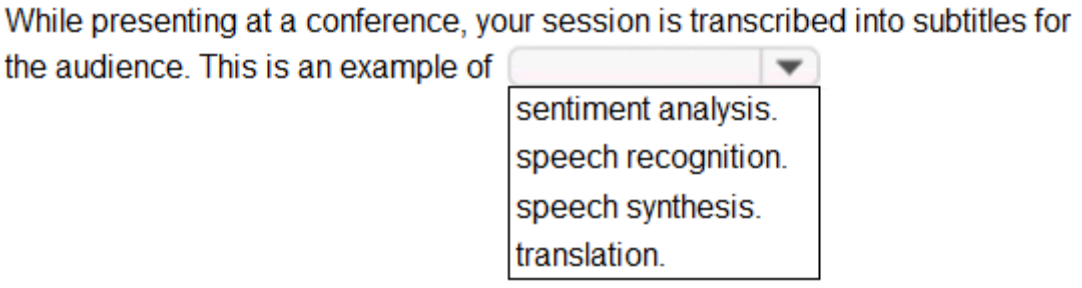
Answer: B, D

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

QUESTION NO: 128 HOTSPOT

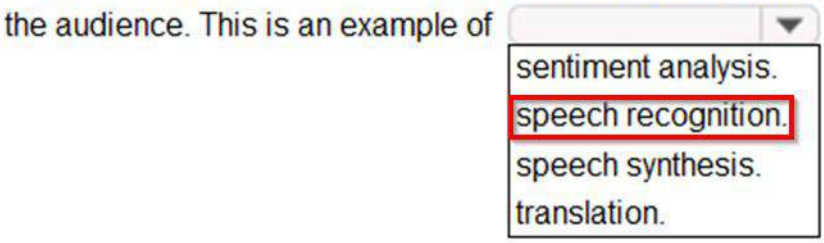
To complete the sentence, select the appropriate option in the answer area.

Answer Area



Answer: <map><m x1="258" x2="411" y1="114" y2="137" ss="0" a="0" /></map>
Explanation:

Answer Area



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

QUESTION NO: 129

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
C. Speech
D. Language Understanding (LUIS)

Answer: C

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

QUESTION NO: 130 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.

Answer Area

Statements	Yes	No
You can use the Speech service to transcribe a call to text.	○	○
You can use the Language 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: <map><m x1="492" x2="511" y1="113" y2="134" ss="0" a="0" /><m x1="492" x2="511" y1="161" y2="181" ss="0" a="0" /><m x1="490" x2="511" y1="220" y2="244" ss="0" a="0" /></map>
Explanation:

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.	○	○

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 NO: 131

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. computer vision
C. regression
D. natural language processing

Answer: D
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.

Note:
There are several versions of this question in the exam. The question can have other incorrect answer options, including the following:

- semantic segmentation

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

QUESTION NO: 132

You plan to develop a bot that will enable users to query a knowledge base by using natural language processing.

Which two services should you include in the solution? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. QnA Maker
B. Azure Bot Service
C. Form Recognizer
D. Anomaly Detector

Answer: A, B

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

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

QUESTION NO: 133

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

Answer: AD
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 NO: 134 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.

Answer Area

Statements	Yes	No
You can use the Translator service to translate text between languages.	○	○
You can use the Translator service to detect the language of a given text.	○	○
You can use the Translator service to transcribe audible speech into text.	○	○

Answer: <map><m x1="469" x2="487" y1="90" y2="110" ss="0" a="0" /><m x1="469" x2="486" y1="146" y2="166" ss="0" a="0" /><m x1="556" x2="577" y1="201" y2="225" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
You can use the Translator service to translate text between languages.	●	○
You can use the Translator service to detect the language of a given text.	●	○
You can use the Translator service to transcribe audible speech into text.	○	●

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

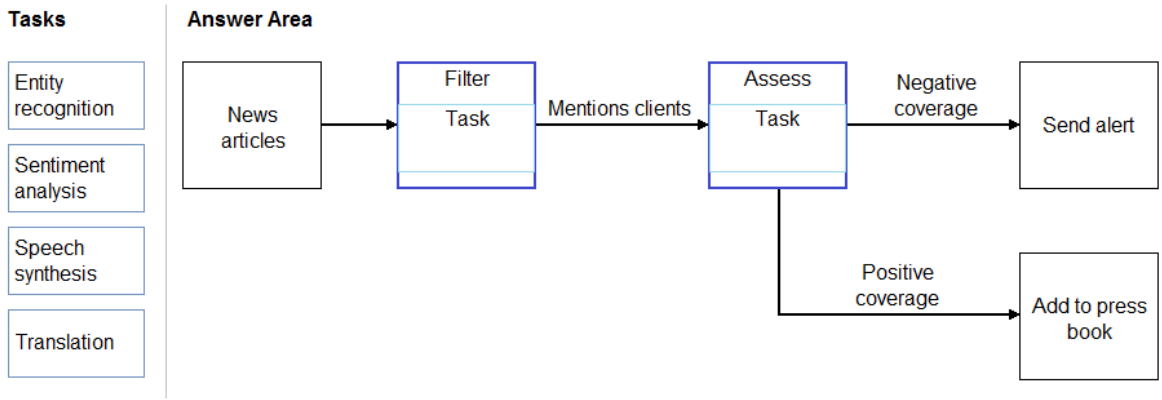
https://docs.microsoft.com/en-us/legal/cognitive-services/speech-service/speech-to-text/transparency-note

QUESTION NO: 135 DRAG DROP

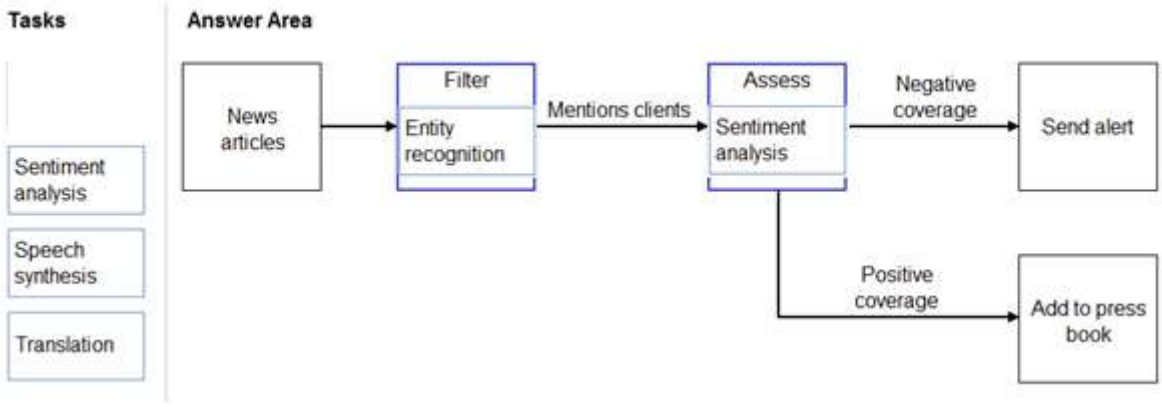
You need to scan the news for articles about your customers and alert employees when there is a negative article. Positive articles must be added to a press book.

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.



Answer: <map><m x1="34" x2="140" y1="62" y2="115" ss="0" a="0" /><m x1="33" x2="139" y1="127" y2="178" ss="0" a="0" /><m x1="34" x2="140" y1="191" y2="243" ss="0" a="0" /><m x1="34" x2="140" y1="255" y2="306" ss="0" a="0" /><m x1="335" x2="441" y1="97" y2="148" ss="1" a="0" /><m x1="576" x2="682" y1="96" y2="147" ss="1" a="0" /><c start="0" stop="0" /><c start="1" stop="1" /></map>
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 NO: 136

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

Answer: D
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 NO: 137

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

Answer: C

QUESTION NO: 138

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

Answer: A

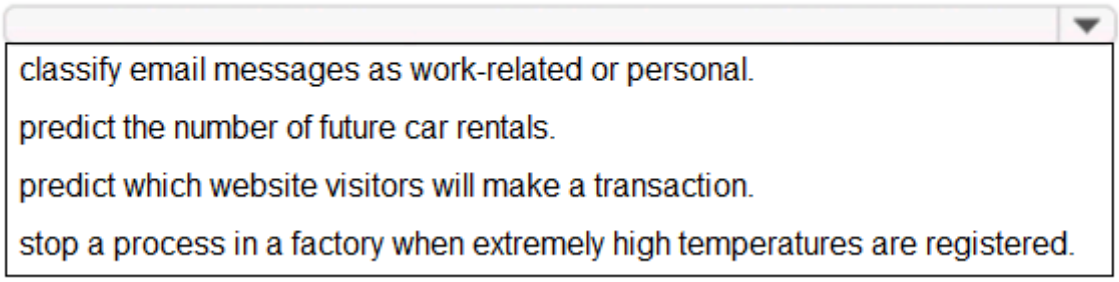
Reference:
https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing

QUESTION NO: 139 HOTSPOT

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

Answer Area

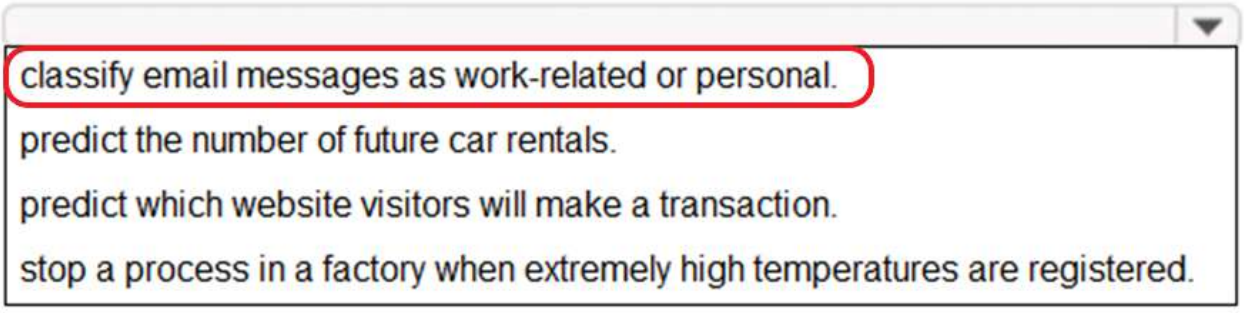
Natural language processing can be used to



Answer: <map><m x1="20" x2="573" y1="91" y2="119" ss="0" a="0" /></map>
Explanation:

Answer Area

Natural language processing can be used to



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 NO: 140

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

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

Answer: D

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 NO: 141

You are developing a chatbot solution in Azure.

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

A. Translator
B. QnA Maker
C. Speech
D. Language Understanding (LUIS)

Answer: D
Explanation:
Language Understanding (LUIS) is a cloud-based API 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.

Design your LUIS model with categories of user intentions called intents. Each intent needs examples of user utterances. Each utterance can provide data that needs to be extracted with machine-learning entities.

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

QUESTION NO: 142

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

Which service should you use?

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

Answer: A

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 NO: 143 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.

Answer Area

Statements	Yes	No
The Text Analytics service can identify in which language text is written.	○	○
The Text Analytics service can detect handwritten signatures in a document.	○	○
The Text Analytics service can identify companies and organizations mentioned in a document.	○	○

Answer: <map><m x1="514" x2="539" y1="97" y2="120" ss="0" a="0" /><m x1="607" x2="631" y1="133" y2="157" ss="0" a="0" /><m x1="515" x2="537" y1="187" y2="207" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
The Text Analytics service can identify in which language text is written.	○	○
The Text Analytics service can detect handwritten signatures in a document.	○	○
The Text Analytics service can identify companies and organizations mentioned in a document.	○	○

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.

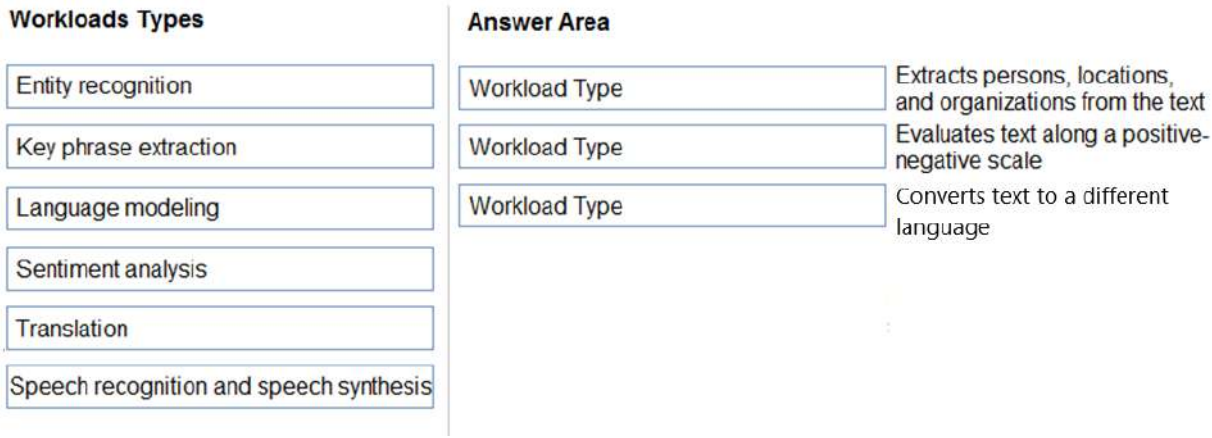
Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/overview

QUESTION NO: 144 DRAG DROP

Match the types of natural languages processing workloads to the appropriate scenarios.

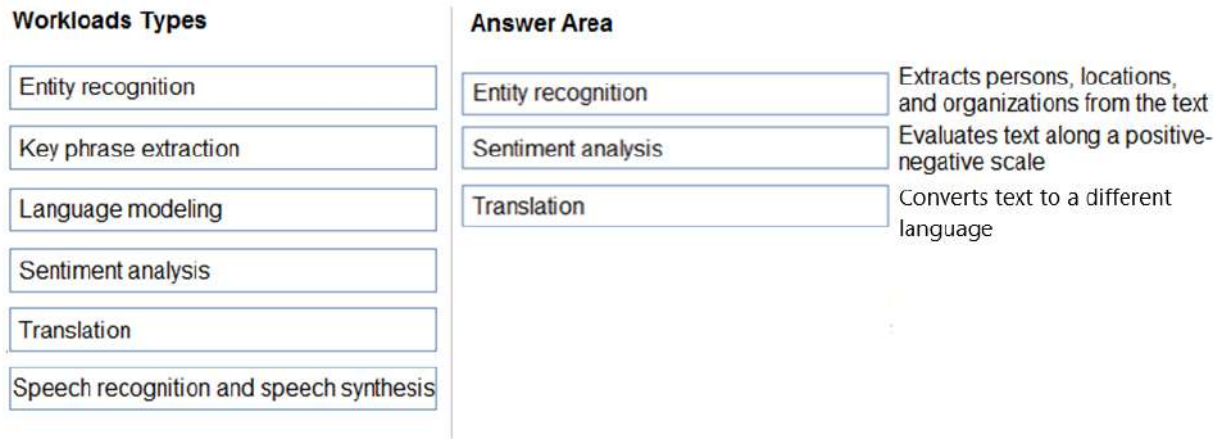
To answer, drag the appropriate workload type from the column on the left to its scenario on the right. Each workload type may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="22" x2="367" y1="70" y2="104" ss="0" a="0" /><m x1="22" x2="367" y1="118" y2="155" ss="0" a="0" /><m x1="23" x2="364" y1="168" y2="204" ss="0" a="0" /><m x1="22" x2="365" y1="219" y2="251" ss="0" a="0" /><m x1="22" x2="365" y1="265" y2="300" ss="0" a="0" /><m x1="21" x2="367" y1="314" y2="348"

ss="0" a="0" /><m x1="387" x2="732" y1="71" y2="106" ss="1" a="0" /><m x1="386" x2="730" y1="118" y2="154" ss="1" a="0" /><m x1="387" x2="730" y1="166" y2="201" ss="1" a="0" /><c start="0" stop="0" /><c start="3" stop="1" /><c start="4" stop="2" /></map>
Explanation:



Box 1: Entity recognition
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.

Box 2: Sentiment analysis
Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

Box 3: Translation
Using Microsoft's Translator text API

This versatile API from Microsoft can be used for the following:
Translate text from one language to another.
Transliterate text from one script to another.
Detecting language of the input text.
Find alternate translations to specific text.
Determine the sentence length.

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

https://azure.microsoft.com/en-us/services/cognitive-services/text-analytics

QUESTION NO: 145 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.

Answer Area

Statements	Yes	No
Monitoring online service reviews for profanities is an example of natural language processing.	○	○
Identifying brand logos in an image is an example of natural languages processing.	○	○
Monitoring public news sites for negative mentions of a product is an example of natural language processing.	○	○

Answer: <map><m x1="485" x2="508" y1="94" y2="116" ss="0" a="0" /><m x1="577" x2="603" y1="147" y2="170" ss="0" a="0" /><m x1="486" x2="508" y1="199" y2="221" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Monitoring online service reviews for profanities is an example of natural language processing.	○	○
Identifying brand logos in an image is an example of natural languages processing.	○	○
Monitoring public news sites for negative mentions of a product is an example of natural language processing.	○	○

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 NO: 146

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 processing workload?

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

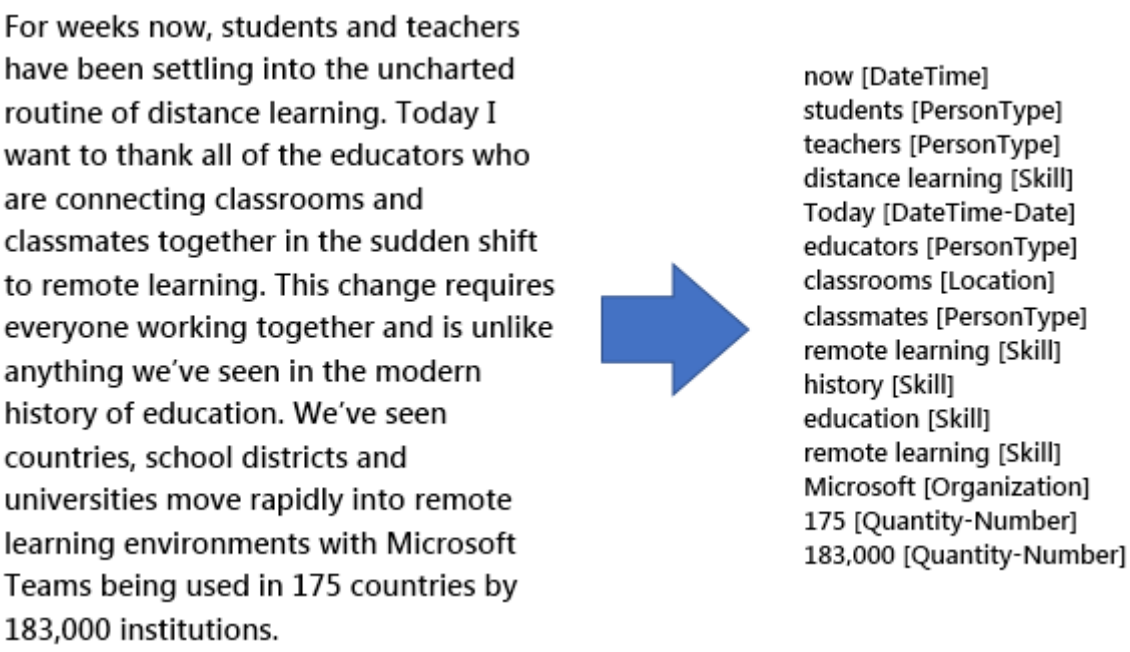
Answer: B
Explanation:
Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

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

QUESTION NO: 147

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

You receive the output shown in the following exhibit.



Which type of natural languages processing was performed?

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

Answer: A
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

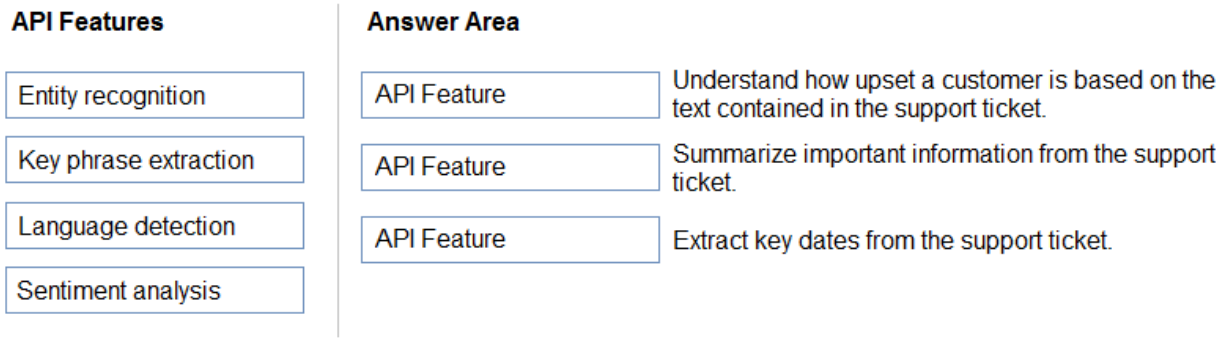
QUESTION NO: 148 DRAG DROP

You plan to apply Text Analytics API features to a technical support ticketing system.

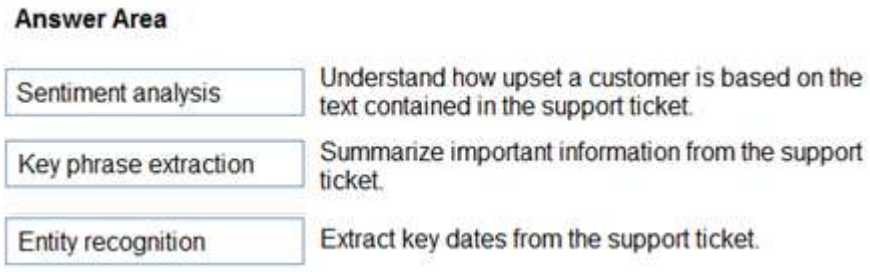
Match the Text Analytics API features to the appropriate natural language processing scenarios.

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

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="18" x2="207" y1="54" y2="84" ss="0" a="0" /><m x1="18" x2="206" y1="96" y2="125" ss="0" a="0" /><m x1="16" x2="208" y1="137" y2="168" ss="0" a="0" /><m x1="19" x2="207" y1="179" y2="207" ss="0" a="0" /><m x1="243" x2="434" y1="55" y2="84" ss="1" a="0" /><m x1="244" x2="433" y1="101" y2="131" ss="1" a="0" /><m x1="244" x2="434" y1="147" y2="175" ss="1" a="0" /><c start="3" stop="0" /><c start="1" stop="1" /><c start="0" stop="2" /></map>
Explanation:



Box1: Sentiment analysis
Sentiment Analysis is the process of determining whether a piece of writing is positive, negative or neutral.

Box 2: Broad entity extraction
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.

Box 3: Entity Recognition
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/architecture/data-guide/technology-choices/natural-language-processing

https://azure.microsoft.com/en-us/services/cognitive-services/text-analytics

QUESTION NO: 149

You are authoring a Language Understanding (LUIS) application to support a music festival.

You want users to be able to ask questions about scheduled shows, such as: “Which act is playing on the main stage?”

The question “Which act is playing on the main stage?” is an example of which type of element?

A. an intent
B. an utterance
C. a domain
D. an entity

Answer: B
Explanation:
Utterances are input from the user that your app needs to interpret.

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/LUIS/luis-concept-utterance

QUESTION NO: 150

You build a QnA Maker bot by using a frequently asked questions (FAQ) page.

You need to add professional greetings and other responses to make the bot more user friendly.

What should you do?

A. Increase the confidence threshold of responses
B. Enable active learning
C. Create multi-turn questions
D. Add chit-chat

Answer: D

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/how-to/chit-chat-knowledge-base?tabs=v1

QUESTION NO: 151

You need to develop a chatbot for a website. The chatbot must answer users' questions based on the information in the following documents:

- A product troubleshooting guide in a Microsoft Word document
- A frequently asked questions (FAQ) list on a webpage

Which service should you use to process the documents?

A. Azure Bot Service
B. Language Understanding
C. Text Analytics
D. QnA Maker

Answer: D

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/QnAMaker/Overview/overview

QUESTION NO: 152

You are building a Language Understanding model for an e-commerce business.

You need to ensure that the model detects when utterances are outside the intended scope of the model.

What should you do?

A. Test the model by using new utterances
B. Add utterances to the None intent
C. Create a prebuilt task entity
D. Create a new model

Answer: B
Explanation:
The **None** intent is filled with utterances that are outside of your domain.

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/LUIS/luis-concept-intent

QUESTION NO: 153

Which two scenarios are examples of a natural language processing workload? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. monitoring the temperature of machinery to turn on a fan when the temperature reaches a specific threshold
B. a smart device in the home that responds to questions such as, "What will the weather be like today?"
C. a website that uses a knowledge base to interactively respond to users' questions
D. assembly line machinery that autonomously inserts headlamps into cars

Answer: BC
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 NO: 154

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

Answer: BC
Explanation:
Key phrase extraction is one of the features offered by Azure Cognitive Service for Language, a collection of machine learning and AI algorithms in the cloud for developing intelligent applications that involve written language. Use key phrase extraction to quickly identify the main concepts in text. For example, in the text "The food was delicious and the staff were wonderful.", key phrase extraction will return the main topics: "food" and "wonderful staff".

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/language-service/key-phrase-extraction/overview

QUESTION NO: 155 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.

Answer Area

Statements	Yes	No
The Language service can identify in which language text is written.	○	○
The Language service can detect handwritten signatures in a document.	○	○
The Language service can identify companies and organizations mentioned in a document.	○	○

Answer: <map><m x1="646" x2="669" y1="58" y2="84" ss="0" a="0" /><m x1="726" x2="750" y1="108" y2="134" ss="0" a="0" /><m x1="646" x2="669" y1="158" y2="184" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
The Language service can identify in which language text is written.	◉	○
The Language service can detect handwritten signatures in a document.	○	◉
The Language service can identify companies and organizations mentioned in a document.	◉	○

Box 1: Yes
Azure Cognitive Service for Language provides features including:
* Language detection: This pre-configured feature evaluates text, and determines the language it was written in. It returns a language identifier and a score that indicates the strength of the analysis.

Box 2: No
Handwritten detection is part of OCR (Optical Character Recognition).

Box 3: Yes
Azure Cognitive Service for Language provides features including:
* Named Entity Recognition (NER): This pre-configured feature identifies entities in text across several pre-defined categories.

Note: Named entity recognition is a natural language processing technique that can automatically scan entire articles and pull out some fundamental entities in a text and classify them into predefined categories. Entities may be,

Organizations,
Quantities,
Monetary values,
Percentages, and more.
People's names
Company names
Geographic locations (Both physical and political)
Product names
Dates and times
Amounts of money
Names of events

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/language-service/overview

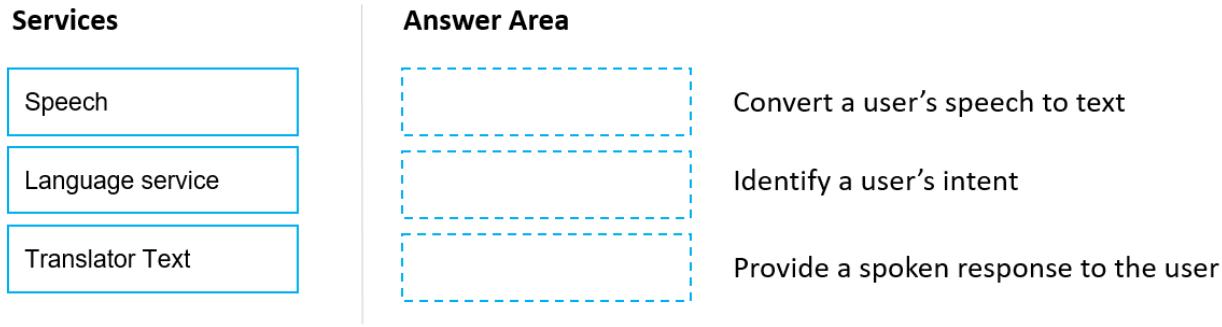
QUESTION NO: 156 DRAG DROP

You plan to use Azure Cognitive Services to develop a voice controlled personal assistant app.

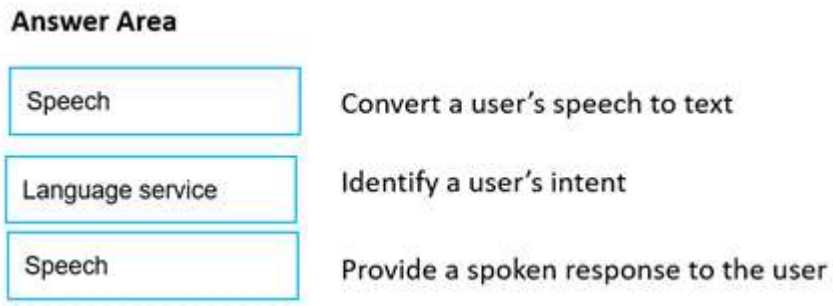
Match the Azure Cognitive Services to the appropriate tasks.

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

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="14" x2="284" y1="71" y2="134" ss="0" a="0" /><m x1="13" x2="282" y1="147" y2="205" ss="0" a="0" /><m x1="12" x2="281" y1="217" y2="279" ss="0" a="0" /><m x1="379" x2="647" y1="72" y2="134" ss="1" a="0" /><m x1="378" x2="647" y1="151" y2="212" ss="1" a="0" /><m x1="379" x2="646" y1="225" y2="289" ss="1" a="0" /><c start="0" stop="0" /><c start="1" stop="1" /><c start="0" stop="2" /></map>
Explanation:



Box 1: Speech
The Speech service provides speech-to-text and text-to-speech capabilities with an Azure Speech resource. You can transcribe speech to text with high accuracy, produce natural-sounding text-to-speech voices, translate spoken audio, and use speaker recognition during conversations.

Box 2: Language service
Build applications with conversational language understanding, a Cognitive Service for Language feature that understands natural language to interpret user goals and extracts key information from conversational phrases. Create multilingual, customizable intent classification and entity extraction models for your domain-specific keywords or phrases across 96 languages.

Box 3: Speech

Incorrect:
Not Translator text: Text translation is a cloud-based REST API feature of the Translator service that uses neural machine translation technology to enable quick and accurate source-to-target text translation in real time across all supported languages.

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/overview
https://azure.microsoft.com/en-us/services/cognitive-services/conversational-language-understanding/
https://docs.microsoft.com/en-us/azure/cognitive-services/translator/text-translation-overview

QUESTION NO: 157

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

Which service should you use?

A. Speech
B. Language
C. Translator
D. Personalizer

Answer: C
Explanation:

Translator, an AI service for real-time document and text translation.
Translate text instantly or in batches across more than 100 languages, powered by the latest innovations in machine translation. Support a wide range of use cases, such as translation for call centers, multilingual conversational agents, or in-app communication.

Reference: https://azure.microsoft.com/en-us/services/cognitive-services/translator/4

QUESTION NO: 158

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. anomaly detection
B. natural language processing
C. computer vision
D. knowledge mining

Answer: B
Explanation:
Key phrase extraction is one of the features offered by Azure Cognitive Service for Language, a collection of machine learning and AI algorithms in the cloud for developing intelligent applications that involve written language. Use key phrase extraction to quickly identify the main concepts in text. For example, in the text "The food was delicious and the staff were wonderful.", key phrase extraction will return the main topics: "food" and "wonderful staff".

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/language-service/key-phrase-extraction/overview

QUESTION NO: 159

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. Language service
B. Translator
C. Speech
D. Personalizer

Answer: C

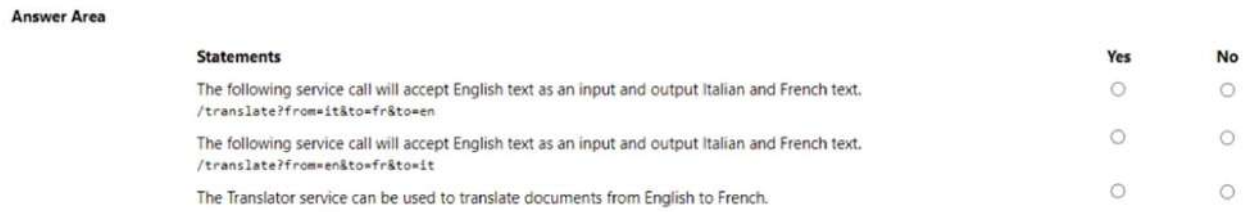
Explanation:
Speech, a managed service offering industry-leading speech capabilities such as speech-to-text, text-to-speech, speech translation, and speaker recognition.

Reference: https://azure.microsoft.com/en-us/services/cognitive-services/speech-services/

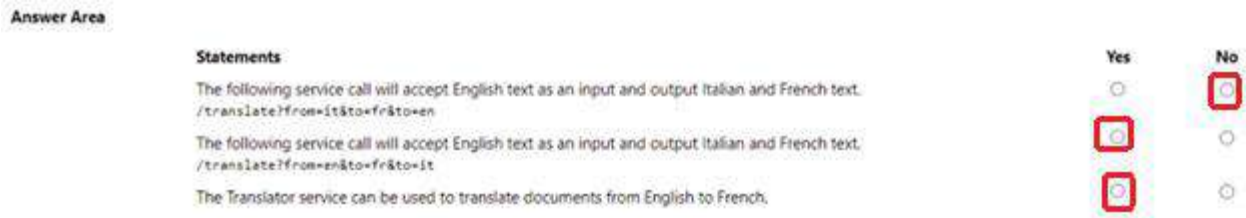
QUESTION NO: 160 HOTSPOT

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

NOTE: Each correct selection is worth one point.



Answer: <map><m x1="1363" x2="1396" y1="85" y2="117" ss="0" a="0" /><m x1="1239" x2="1272" y1="139" y2="169" ss="0" a="0" /><m x1="1241" x2="1276" y1="202" y2="230" ss="0" a="0" /></map>
Explanation:



Box 1: No
From is set to Italian, not English.

Box 2: Yes
It's possible to translate to multiple languages simultaneously by repeating the parameter in the query string. For example, use to=de&to=it to translate to German and Italian.

Box 3: Yes
Document Translation is a cloud-based feature of the Azure Translator service. The Document Translation API enables the translation of whole documents while preserving source document structure and text formatting.

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/translator/reference/v3-0-translate
https://docs.microsoft.com/en-us/azure/cognitive-services/translator/document-translation/get-started-with-document-translation

QUESTION NO: 161

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. speech recognition
C. key phrase extraction
D. entity recognition

Answer: A
Explanation:
Sentiment analysis is analytical technique that uses statistics, natural language processing, and machine learning to determine the emotional meaning of communications. Companies use sentiment analysis to evaluate customer messages, call center interactions, online reviews, social media posts, and other content.

Reference: https://www.cio.com/article/189218/what-is-sentiment-analysis-using-nlp-and-ml-to-extract-meaning.html

QUESTION NO: 162

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. named entity recognition
C. translation
D. language modeling

Answer: B
Explanation:
What is custom named entity recognition (NER)?
Custom NER is one of the custom features offered by Azure Cognitive Service for Language. It is a cloud-based API service that applies machine-learning intelligence to enable you to build custom models for custom named entity recognition tasks.

Custom NER enables users to build custom AI models to extract domain-specific entities from unstructured text, such as contracts or financial documents.

Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/language-service/custom-named-entity-recognition/overview

QUESTION NO: 163 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 selection is worth one point.

Answer: <map><m x1="27" x2="187" y1="54" y2="102" ss="0" a="0" /><m x1="29" x2="187" y1="117" y2="164" ss="0" a="0" /><m x1="28" x2="187" y1="178" y2="226" ss="0" a="0" /><m x1="786" x2="946" y1="55" y2="103" ss="1" a="0" /><m x1="787" x2="947" y1="117" y2="165" ss="1" a="0" /><m x1="787" x2="947" y1="181" y2="229" ss="1" a="0" /><c start="1" stop="0" /><c start="0" stop="1" /><c start="0" stop="2" /></map>
Explanation:

Box 1: Speech
Custom Speech: Code-free automated machine learning for speech recognition
Speech to text is a Speech service feature that accurately transcribes spoken audio to text.

Make spoken audio actionable
Quickly and accurately transcribe audio to text in more than 100 languages and variants. Customize models to enhance accuracy for domain-specific terminology. Get more value from spoken audio by enabling search or analytics on transcribed text or facilitating action—all in your preferred programming language.

Box 2: Language service
Add intents to your LUIS app to identify groups of questions or commands that have the same intention.

Note: Language understanding (LU) is a very centric component to enable conversational services such as bots, IoT experiences, analytics, and others. In a spoken dialog system, LU converts from the words in a sentence into a machine-readable meaning representation, typically indicating the intent of the sentence and any present entities. For example, consider a physical fitness domain, with a dialog system embedded in a wearable device like a watch. This dialog system could recognize intents like StartActivity and StopActivity, and could recognize entities like ActivityType. In the user input "begin a jog", the goal of LU is to identify the intent as StartActivity, and identify the entity ActivityType= ''jog''.

Box 3: Language service
Intent compared to entity
The intent represents the action the application should take for the user, based on the entire utterance. An utterance can have only one top-scoring intent, but it can have many entities.

Create an intent when the user's intention would trigger an action in your client application, like a call to the checkweather() function from the table above. Then create entities to represent parameters required to execute the action.

Reference: https://azure.microsoft.com/en-us/services/cognitive-services/speech-to-text
https://azure.microsoft.com/en-us/blog/luis-ai-automated-machine-learning-for-custom-language-understanding/
https://docs.microsoft.com/en-us/azure/cognitive-services/luis/concepts/intents

QUESTION NO: 164 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.

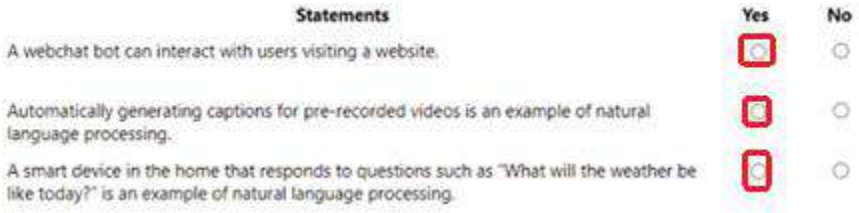
Answer Area

Statements	Yes	No
A webchat bot can interact with users visiting a website.	○	○
Automatically generating captions for pre-recorded videos is an example of natural language processing.	○	○
A smart device in the home that responds to questions such as "What will the weather be like today?" is an example of natural language processing.	○	○

Answer: <map><m x1="1131" x2="1161" y1="82" y2="113" ss="0" a="0" /><m x1="1130" x2="1163" y1="141" y2="176" ss="0" a="0" /><m x1="1129" x2="1164" y1="202" y2="237" ss="0" a="0" /></map>

Explanation:

Answer Area



Box 1: Yes
The Bot Framework Web Chat component is a highly customizable web-based client for the Bot Framework V4 SDK. The Bot Framework SDK v4 enables developers to model conversation and build sophisticated bot applications.

Box 2: Yes
Captioning is the process of converting the audio content of a television broadcast, webcast, film, video, live event, or other production into text, and then displaying the text on a screen, monitor, or other visual display system.

Concepts include how to synchronize captions with your input audio, apply profanity filters, get partial results, apply customizations, and identify spoken languages for multilingual scenarios.

Box 3: Yes
Natural language processing supports applications that can see, hear, speak with, and understand users. Using text analytics, translation, and language understanding services, Microsoft Azure makes it easy to build applications that support natural language.

Reference: https://docs.microsoft.com/en-us/azure/bot-service/bot-builder-webchat-overview?view=azure-bot-service-4.0
https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/captioning-concepts?pivots=programming-language-csharp
https://docs.microsoft.com/en-us/learn/paths/explore-natural-language-processing/

QUESTION NO: 165

You have a website that includes customer reviews.

You need to store the reviews in English and present the reviews to users in their respective language by recognizing each user's geographical location.

Which type of natural language processing workload should you use?

A. key phrase extraction
B. speech recognition
C. language modeling

D. translation

Answer: A

QUESTION NO: 166 HOTSPOT

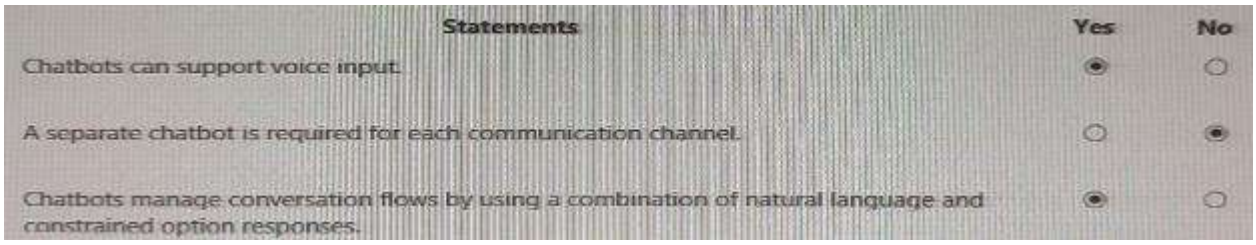
For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

Answer Area

Statements	Yes	No
Chatbots can support voice input.	○	○
A separate chatbot is required for each communication channel.	○	○
Chatbots manage conversation flows by using a combination of natural language and constrained option responses.	○	○

Answer: <map><m x1="591" x2="620" y1="143" y2="174" ss="0" a="0" /><m x1="683" x2="710" y1="214" y2="244" ss="0" a="0" /><m x1="591" x2="620" y1="301" y2="330" ss="0" a="0" /></map>
Explanation:



QUESTION NO: 167 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.

Answer Area

Statements	Yes	No
A bot that responds to queries by internal users is an example of a natural language processing workload.	◯	◯
A mobile application that displays images relating to an entered search term is an example of a natural language processing workload.	◯	◯
A web form used to submit a request to reset a password is an example of a natural language processing workload.	◯	◯

Answer: <map><m x1="585" x2="626" y1="140" y2="178" ss="0" a="0" /><m x1="584" x2="627" y1="209" y2="248" ss="0" a="0" /><m x1="676" x2="717" y1="296" y2="335" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A bot that responds to queries by internal users is an example of a natural language processing workload.	◉	◯
A mobile application that displays images relating to an entered search term is an example of a natural language processing workload.	◉	◯
A web form used to submit a request to reset a password is an example of a natural language processing workload.	◯	◉

Box 1: Yes

Box 2: Yes

Box 3: No

QUESTION NO: 168

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

Answer: C
Explanation:

Incorrect:
Skill actions include
* Use skills for complex, multi-turn operations. For example, schedule a meeting or book a flight. (Not A, Not B)
* Use skills to emit any supported bot response. For example, show an adaptive card or send random responses. (not C)

Reference: https://learn.microsoft.com/en-us/power-virtual-agents/configuration-add-skills

QUESTION NO: 169

You have a solution that analyzes social media posts to extract the mentions of city names and the city names discussed most frequently.

Which type of natural language processing (NLP) workload does the solution use?

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

Answer: C
Explanation:
Key phrase extraction is one of the features offered by Azure Cognitive Service for Language, a collection of machine learning and AI algorithms in the cloud for developing intelligent applications that involve written language. Use key phrase extraction to quickly identify the main concepts in text. For example, in the text "The food was delicious and the staff were wonderful.", key phrase extraction will return the main topics: "food" and "wonderful staff".

Reference: https://learn.microsoft.com/en-us/azure/cognitive-services/language-service/key-phrase-extraction/overview

QUESTION NO: 170 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.

Answer Area

Statements	Yes	No
You can use Language Service's question answering to query an Azure SQL database.	○	○
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.	○	○
Language Service's question answering can determine the intent of a user utterance.	○	○

Answer: <map><m x1="1092" x2="1132" y1="111" y2="148" ss="0" a="0" /><m x1="988" x2="1026" y1="186" y2="223" ss="0" a="0" /><m x1="1091" x2="1131" y1="264" y2="299" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
You can use Language Service's question answering to query an Azure SQL database.	○	○
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.	○	○
Language Service's question answering can determine the intent of a user utterance.	○	○

Box 1: No

Box 2: Yes
Create a conversational question-and-answer layer over your existing data with question answering, an Azure Cognitive Service for Language feature. Build a knowledge base by adding unstructured documents or extracting questions and answers from your semi-structured content, including FAQ, manuals, and documents. Get the best answers from the questions and answers in your knowledge base automatically. Your knowledge base gets smarter, too, as it continually learns from user behavior.

Box 3: No

For Intent recognition use the Speech and Language Understanding (LUIS) services, which enables real-time transcription of audio streams into text, while identifying intent and entities.

Note: Question answering provides cloud-based Natural Language Processing (NLP) that allows you to create a natural conversational layer over your data. It is used to find the most appropriate answer for any input from your custom knowledge base (KB) of information.

Question answering is commonly used to build conversational client applications, which include social media applications, chat bots, and speech-enabled desktop applications. Several new features have been added including enhanced relevance using a deep learning ranker, precise answers, and end-to-end region support.

Question answering comprises of two capabilities:

Custom question answering: Using these capability users can customize different aspects like edit question and answer pairs extracted from the content source, define synonyms and metadata, accept question suggestions etc.
Prebuilt question answering: This capability allows users to get a response by querying a text passage without having the need to manage knowledgebases.

Reference: https://azure.microsoft.com/en-us/products/cognitive-services/question-answering/#overview
https://learn.microsoft.com/en-us/azure/cognitive-services/language-service/question-answering/overview

Topic 5, Describe features of conversational AI workloads on Azure

QUESTION NO: 171

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

Answer: D

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

QUESTION NO: 172

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

Answer: B

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

QUESTION NO: 173 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.

Answer Area

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

Answer: <map><m x1="636" x2="672" y1="114" y2="146" ss="0" a="0" /><m x1="752" x2="787" y1="196" y2="230" ss="0" a="0" /><m x1="637" x2="670" y1="279" y2="313" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A bot that responds to queries by internal users is an example of a conversational AI workload.	●	○
An application that displays images relating to an entered search term is an example of a conversational AI workload.	○	●
A web form used to submit a request to reset a password is an example of a conversational AI workload.	●	○

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

QUESTION NO: 174

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.

Answer: ACE
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 NO: 175

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)

Answer: A
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 NO: 176

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

Answer: BC
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 NO: 177

Which two scenarios are examples of a conversational AI workload? Each correct answer presents a complete solution.

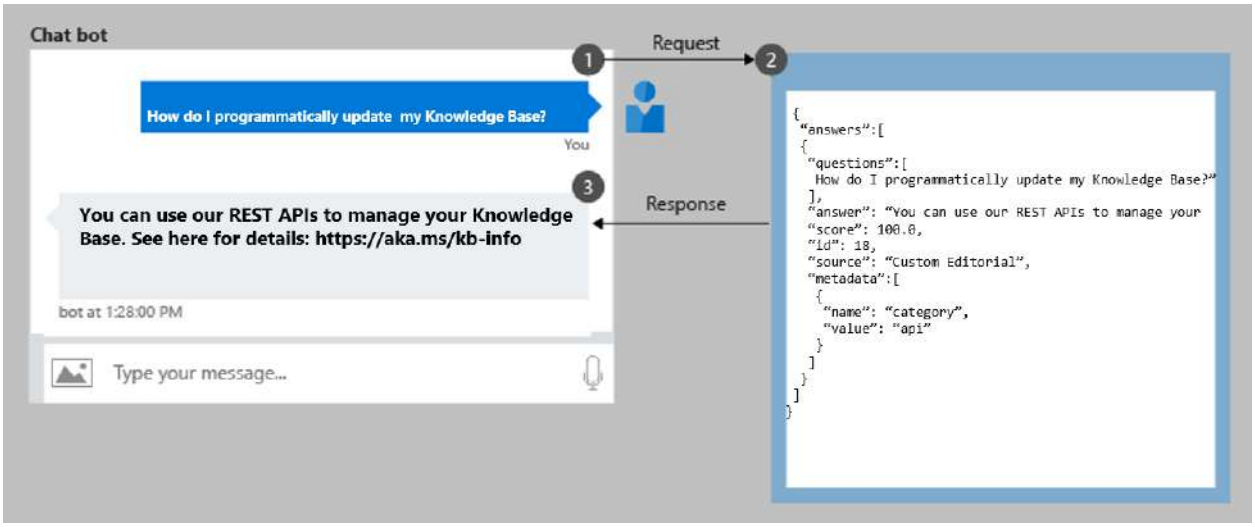
NOTE: Each correct selection is worth one point.

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

Answer: AB

QUESTION NO: 178

You have the process shown in the following exhibit.



Which type of 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

Answer: B

QUESTION NO: 179

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

Answer: B
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 NO: 180

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

Answer: A

QUESTION NO: 181 HOTSPOT

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

Answer: <map><m x1="234" x2="399" y1="151" y2="176" ss="0" a="0" /></map>
Explanation:

Answer Area

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

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

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 NO: 182

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.

Answer: D

QUESTION NO: 183 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.

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: <map><m x1="603" x2="628" y1="103" y2="126" ss="0" a="0" /><m x1="510" x2="533" y1="149" y2="172" ss="0" a="0" /><m x1="604" x2="627" y1="210" y2="235" ss="0" a="0" /></map>
Explanation:

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.	○	◉

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 NO: 184 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.

Answer Area

Statements	Yes	No
You can communicate with a bot by using Cortana.	○	○
You can communicate with a bot by using Microsoft Teams.	○	○
You can communicate with a bot by using a webchat interface.	○	○

Answer: <map><m x1="443" x2="469" y1="95" y2="120" ss="0" a="0" /><m x1="444" x2="470" y1="151" y2="176" ss="0" a="0" /><m x1="442" x2="471" y1="204" y2="228" ss="0" a="0" /></map>
Explanation:

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.	○	○

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

QUESTION NO: 185 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.

Answer Area

Statements	Yes	No
A restaurant can use a chatbot to empower customers to make reservations by using a website or an app.	○	○
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	○	○
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	○	○

Answer: <map><m x1="633" x2="668" y1="114" y2="146" ss="0" a="0" /><m x1="632" x2="668" y1="169" y2="208" ss="0" a="0" /><m x1="633" x2="667" y1="237" y2="273" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A restaurant can use a chatbot to empower customers to make reservations by using a website or an app.	●	○
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	●	○
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	●	○

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

QUESTION NO: 186

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

Answer: BC
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, self-service 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 NO: 187 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.

Answer Area

Statements	Yes	No
Azure Bot Service and Azure Congnitive Services can be integrated.	○	○
Azure Bot Service engages with customers in a conversational manner.	○	○
Azure Bot Service can import frequently asked questions (FAQ) to question and answer sets.	○	○

Answer: <map><m x1="552" x2="576" y1="90" y2="114" ss="0" a="0" /><m x1="552" x2="576" y1="144" y2="168" ss="0" a="0" /><m x1="645" x2="671" y1="197" y2="218" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Azure Bot Service and Azure Congnitive Services can be integrated.	○	○
Azure Bot Service engages with customers in a conversational manner.	○	○
Azure Bot Service can import frequently asked questions (FAQ) to question and answer sets.	○	○

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 NO: 188 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.

Answer Area

Statements	Yes	No
A webchat bot can interact with users visiting a website	○	○
Automatically generating captions for pre-recorded videos is an example of conversational AI	○	○
A smart device in the home that responds to questions such as “What will the weather like today?” is an example of conversational AI	○	○

Answer: <map><m x1="854" x2="901" y1="115" y2="162" ss="0" a="0" /><m x1="958" x2="1003" y1="203" y2="250" ss="0" a="0" /><m x1="856" x2="900" y1="333" y2="377" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A webchat bot can interact with users visiting a website	●	○
Automatically generating captions for pre-recorded videos is an example of conversational AI	○	●
A smart device in the home that responds to questions such as "What will the weather like today?" is an example of conversational AI	●	○

Reference:
https://docs.microsoft.com/en-us/azure/architecture/reference-architectures/ai/conversational-bot

https://docs.microsoft.com/en-us/azure/bot-service/bot-builder-webchat-overview?view=azure-bot-service-4.0

QUESTION NO: 189

You have a knowledge base of frequently asked questions (FAQ).

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

Answer: C

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/overview/overview

QUESTION NO: 190 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.

Answer Area

Statements	Yes	No
A restaurant can use a chatbot to answer queries through Cortana.	○	○
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	○	○
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	○	○

Answer: <map><m x1="618" x2="642" y1="59" y2="82" ss="0" a="0" /><m x1="618" x2="642" y1="109" y2="134" ss="0" a="0" /><m x1="617" x2="643" y1="158" y2="184" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
A restaurant can use a chatbot to answer queries through Cortana.	○	○
A restaurant can use a chatbot to answer inquiries about business hours from a webpage.	○	○
A restaurant can use a chatbot to automate responses to customer reviews on an external website.	○	○

Box 1: Yes
You can create and build a cortana bot using microsoft bot framework.

Note: Connect Cortana Channels
Login to Azure portal > Select the “All Resources” > Select Channels > Select Cortana icon. Let us start to configure the “Cortana “Channel and follow the below steps, at the end of this article you will be able to deploy the Bot into the Cortana.

Etc.

Box 2: Yes
QnA Maker is an easy-to-use web-based service that makes it easy to power a question-answer application or chatbot from semi-structured content like FAQ documents and product manuals. With QnA Maker, developers can build, train, and publish question and answer bots in minutes.

Box 3: Yes

Reference: https://www.c-sharpcorner.com/article/create-and-build-a-cortana-bot-using-microsoft-bot-framework/

QUESTION NO: 191 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.

Answer Area

Statements	Yes	No
Chatbots can only be built by using custom code.	○	○
The Azure Bot Service provides services that can be used to host conversational bots.	○	○
Bots built by using the Azure Bot Service can communicate with Microsoft Teams users.	○	○

Answer: <map><m x1="747" x2="772" y1="69" y2="92" ss="0" a="0" /><m x1="647" x2="673" y1="107" y2="132" ss="0" a="0" /><m x1="647" x2="676" y1="147" y2="171" ss="0" a="0" /></map>
Explanation:

Answer Area

Statements	Yes	No
Chatbots can only be built by using custom code.	○	◉
The Azure Bot Service provides services that can be used to host conversational bots.	◉	○
Bots built by using the Azure Bot Service can communicate with Microsoft Teams users.	◉	○

Box 1: No
Build conversational experiences with Power Virtual Agents and Azure Bot Service
Azure Bot Service provides an integrated development environment for bot building. Its integration with Power Virtual Agents, a fully hosted low-code platform, enables developers of all technical abilities build conversational AI bots—no code needed.

Box 2: Yes

Box 3: Yes
You can configure your bot to communicate with people via Microsoft Teams.

Reference: https://azure.microsoft.com/en-us/services/bot-services/#overview
https://docs.microsoft.com/en-us/azure/bot-service/channel-connect-teams

QUESTION NO: 192 HOTSPOT

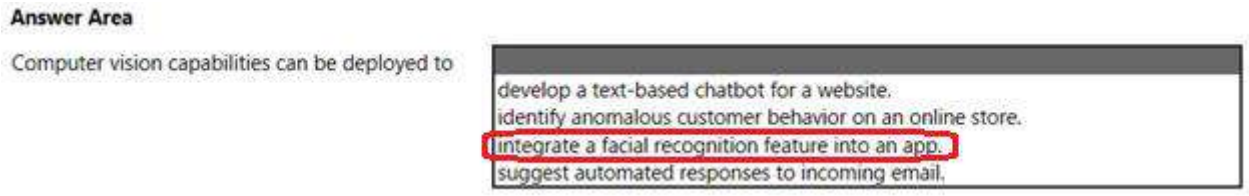
Select the answer that correctly You need to create a customer support solution to help customers access information. The solution must support email, phone, and live chat channels. Which type of Al solution should you use? 0 A. machine learning 0 B. computer vision C. chatbot 0 D. natural language processing (NLP)

Answer Area

Computer vision capabilities can be deployed to

develop a text-based chatbot for a website.
identify anomalous customer behavior on an online store.
integrate a facial recognition feature into an app.
suggest automated responses to incoming email.

Answer: <map><m x1="347" x2="874" y1="91" y2="111" ss="0" a="0" /></map>
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.
* Optical Character Recognition (OCR)
* Spatial Analysis
* Image Analysis
The Image Analysis service extracts many visual features from images, such as objects, faces, adult content, and auto-generated text descriptions. Follow the Image Analysis quickstart to get started.

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

QUESTION NO: 193

You have an Azure Machine Learning pipeline that contains a Split Data module.

The Split Data module outputs to a Train Model module and a Score Model module.

What is the function of the Split Data module?

A. scaling numeric variables so that they are within a consistent numeric range
B. creating training and validation datasets
C. diverting records that have missing data
D. selecting columns that must be included in the model

Answer: B

QUESTION NO: 194

Which statement is an example of a Microsoft responsible AI principle?

A. AI systems must use only publicly available data
B. AI systems must be transparent and inclusive
C. AI systems must keep personal details public
D. AI systems must protect the interests of the company

Answer: B

QUESTION NO: 195 DRAG DROP

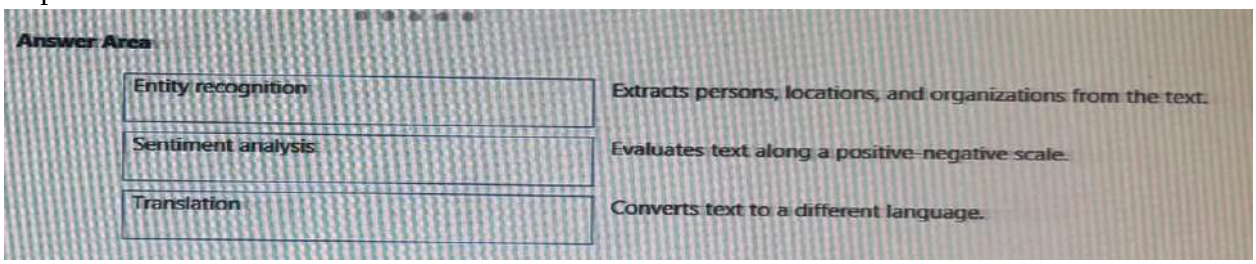
Match the types of natural language processing workloads to the appropriate scenarios.

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.

Workload types	Answer Area	
Entity recognition		Extracts persons, locations, and organizations from the text.
Key phrase extraction		Evaluates text along a positive-negative scale.
Language modeling		Converts text to a different language.
Sentiment analysis		
Speech recognition and speech synthesis		
Translation		

Answer: <map><m x1="12" x2="520" y1="63" y2="112" ss="0" a="0" /><m x1="13" x2="519" y1="120" y2="168" ss="0" a="0" /><m x1="12" x2="519" y1="179" y2="226" ss="0" a="0" /><m x1="13" x2="519" y1="234" y2="283" ss="0" a="0" /><m x1="13" x2="519" y1="293" y2="339" ss="0" a="0" /><m x1="14" x2="520" y1="351" y2="398" ss="0" a="0" /><m x1="571" x2="1076" y1="84" y2="132" ss="1" a="0" /><m x1="570" x2="1077" y1="176" y2="223" ss="1" a="0" /><m x1="570" x2="1079" y1="278" y2="328" ss="1" a="0" /><c start="0" stop="0" /><c start="3" stop="1" /><c start="5" stop="2" /></map>
Explanation:



QUESTION NO: 196

You need to reduce the load on telephone operators by implementing a chatbot to answer simple questions with predefined answers.

Which two AI services should you use to achieve the goal? Each correct answers presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Azure Machine Learning
B. Azure Bot Service
C. Language Service
D. Translator

Answer: A, B