

Passing Score: 800
Time Limit: 120 min
File Version: 1.0



Exam AI-900: Microsoft Azure AI Fundamentals



Sections

1. Hotspot
2. Drag & Drop
3. Multiple Choice

Exam A

QUESTION 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

Correct Answer:

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

QUESTION 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.

Correct Answer: D

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

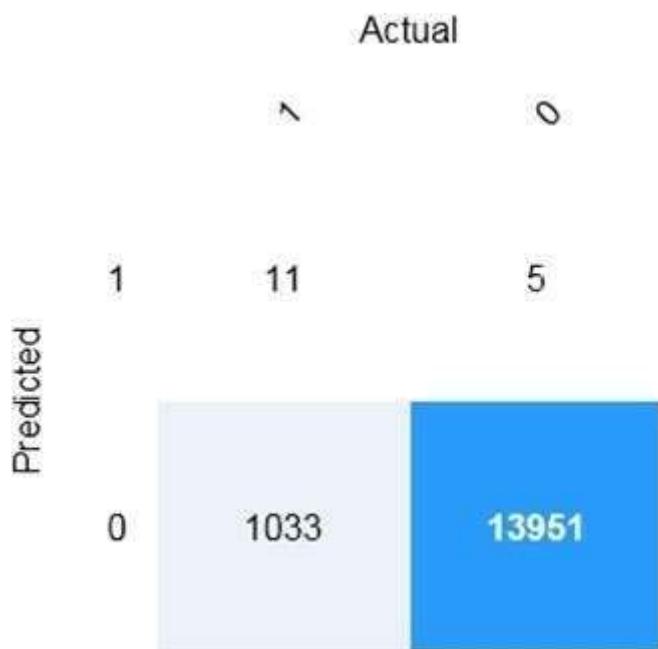
<https://www.sqlshack.com/prediction-in-azure-machine-learning/>

QUESTION 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.

Hot Area:

Hot Area:

Answer Area

There are **[answer choice]** correctly predicted positives.

▼

5
11
1,033
13,951

There are **[answer choice]** false negatives.

▼

5
11
1,033
13,951

Correct Answer:

Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

Section: Hotspot
Explanation

Explanation/Reference:

Explanation:

Box 1: 11

		Predicted	
		Positive	Negative
Actual True	TP	FN	
	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:

QUESTION 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.

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 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.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

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

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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 6 HOTSPOT

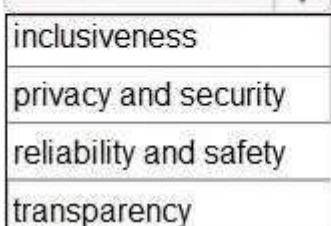
To complete the sentence, select the appropriate option in the answer area.

Hot Area:

Hot Area:

Answer Area

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



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

Correct Answer:

Answer Area

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

inclusiveness
privacy and security
reliability and safety
transparency

Section: Hotspot
Explanation

Explanation/Reference:
Explanation:

Reference:

QUESTION 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.

Select and Place:

Select and Place:

Workloads Types

- Anomaly detection
- Computer vision
- Conversational AI
- Knowledge mining
- Natural language processing

Answer Area

- | | |
|---------------|--|
| Workload Type | An automated chat to answer questions about refunds and exchange |
| Workload Type | Determining whether a photo contains a person |
| Workload Type | Determining whether a review is positive or negative |

Correct Answer:

Workloads Types	Answer Area
Anomaly detection	Conversational AI
Computer vision	Computer vision
Conversational AI	Natural language processing
Knowledge mining	
Natural language processing	

Section: Drag & Drop Explanation

Explanation/Reference:

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 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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 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.

Select and Place:

Select and Place:

Principles

Accountability
Fairness
Inclusiveness
Privacy and security
Reliability and safety

Answer Area

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

Correct Answer:

Principles

Accountability
Fairness
Inclusiveness
Privacy and security
Reliability and safety

Answer Area

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

Section: Drag & Drop Explanation

Explanation/Reference:

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 10**HOTSPOT**

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

Hot Area:**Hot Area:**

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

Correct Answer:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

Section: Hotspot**Explanation****Explanation/Reference:****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 11

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. Ink Recognizer
- D. Custom Vision

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

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 12

HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

The ability to extract subtotals and totals from a receipt is a capability of the

Custom Vision
Form Recognizer
Ink Recognizer
Text Analytics

Correct Answer:

Answer Area

The ability to extract subtotals and totals from a receipt is a capability of the

Custom Vision
Form Recognizer
Ink Recognizer
Text Analytics

Section: Hotspot

Explanation

Explanation/Reference:

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 13

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

Which two parameters should you use to consume the pipeline?

Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: CD

Section: Multiple Choice

Explanation

Explanation/Reference:**Explanation:**

C: Switch to the browser tab containing the Consume page for the predict-auto-price service, and copy the Primary Key for your service. Then switch back to the tab containing the notebook and paste the key into the code, replacing YOUR_KEY.

D: Switch to the browser tab containing the Consume page for the predict-auto-price service, and copy the REST endpoint for your service. Then switch back to the tab containing the notebook and paste the key into the code, replacing YOUR_ENDPOINT

Reference:

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

QUESTION 14**HOTSPOT**

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

Hot Area:

Hot 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

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

Correct Answer:

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.

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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 15

HOTSPOT

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

Hot Area:

Hot 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.

Correct Answer:

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.

Section: Hotspot

Explanation

Explanation/Reference:

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. 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/module-reference/linear-regression>

QUESTION 16

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to include custom JavaScript functions.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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 17

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.

Hot Area:

Hot Area:

Answer Area

Household Income:

A feature
 A label

House Price Category:

A feature
 A label

Correct Answer:

Answer Area

Household Income:

A feature
 A label

House Price Category:

A feature
 A label

Section: Hotspot
Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 18

Which metric can you use to evaluate a classification model?

- A. True positive rate
- B. Mean absolute error (MAE)

- C. Coefficient of determination (R2)
- D. Root mean squared error (RMSE)

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

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 19

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

Correct Answer: AD

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

You can drag-and-drop datasets and modules onto the canvas. <https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

QUESTION 20

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

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

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

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

A common way of evaluating a model is to divide the data into a training and test set by using Split Data, and

then validate the model on the training data.

Use the Split Data module to divide a dataset into two distinct sets.

The studio currently supports training/validation data splits

Reference:

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

QUESTION 21

DRAG DROP

Match the types of machine learning to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point. Select and Place:

Select and Place:

Learning Types

- Classification
- Clustering
- Regression

Answer Area

- Learning Type
- Learning Type
- Learning Type

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

Segment customers into different groups to target them.

Predict whether a student will complete a university course.

Correct Answer:

Learning Types

- Classification
- Clustering
- Regression

Answer Area

- Regression
- Clustering
- Classification

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

Segment customers into different groups to target them.

Predict whether a student will complete a university course.

Section: Drag & Drop Explanation

Explanation/Reference:

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

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

Reference:

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

Exam B

QUESTION 1 DRAG DROP

Match the machine learning tasks to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Select and Place:

Learning Types

Feature engineering
Feature selection
Model deployment
Model evaluation
Model training

Answer Area

Task	Examining the values of a confusion matrix
Task	Splitting a date into month, day, and year fields
Task	Picking temperature and pressure to train a model

Correct Answer:

Learning Types

Feature engineering
Feature selection
Model deployment
Model evaluation
Model training

Answer Area

Model evaluation	Examining the values of a confusion matrix
Feature engineering	Splitting a date into month, day, and year fields
Feature selection	Picking temperature and pressure to train a model

Section: Drag & Drop

Explanation

Explanation/Reference:

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 2**HOTSPOT**

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

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

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Correct Answer:**Answer Area**

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

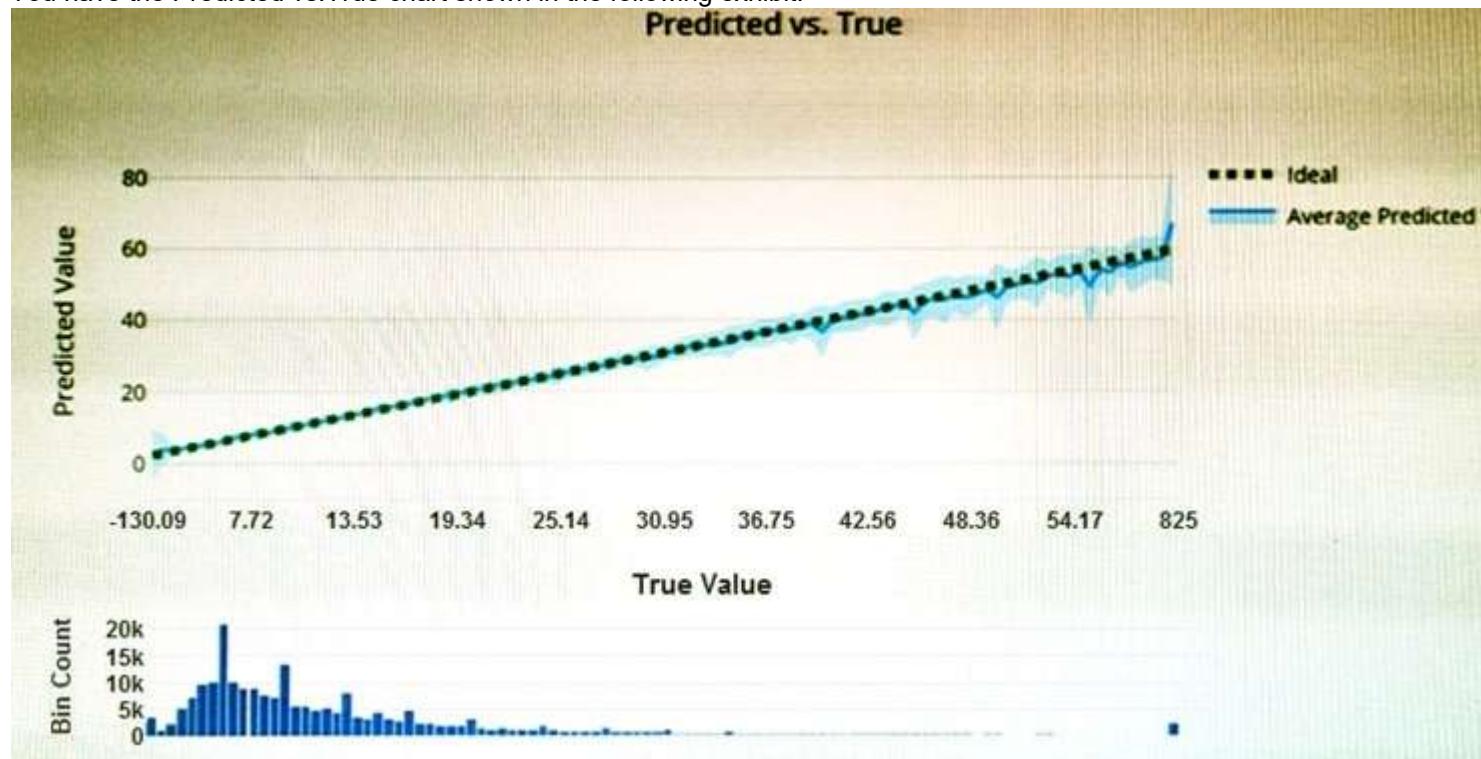
Section: Hotspot**Explanation****Explanation/Reference:**

Explanation:

Reference:

QUESTION 3

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



Which type of model is the chart used to evaluate?

- A. Classification
- B. Regression
- C. Clustering

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 4

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

- A. Classification
- B. Regression

C. Clustering

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

QUESTION 5

You have a dataset that contains information about taxi journeys that occurred during a given period.

You need to train a model to predict the fare of a taxi journey.

What should you use as a feature?

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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 6

You need to predict the sea level in meters for the next 10 years.

Which type of machine learning should you use?

- A. Classification
- B. Regression
- C. Clustering

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 7

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

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

Section: Hotspot Explanation

Explanation/Reference:

Explanation:

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 8 HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

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

classification
regression
clustering

Correct Answer:

Answer Area

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

classification
regression
clustering

Section: Hotspot

Explanation:

Explanation/Reference:

Explanation:

Reference:

QUESTION 9

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input type="radio"/>	<input type="radio"/>

Correct Answer:
Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input checked="" type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input checked="" type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Hotspot
Explanation

Explanation/Reference:

Explanation:

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>

QUESTION 10

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

- A. Semantic segmentation
- B. Image classification
- C. Object detection
- D. Optical character recognition (OCR)

Correct Answer: D

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation/Reference:

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. <https://>

QUESTION 11
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.

Select and Place:

Select and Place:

Tasks

grouping
identification
similarity
verification

Answer Area

Task
Task
Task
Task

Do two images of a face belong to the same person?

Does this person look like other people?

Do all the faces belong together?

Who is this person in this group of people?

Correct Answer:

Tasks

grouping
identification
similarity
verification

Answer Area

verification
similarity
grouping
identification

Do two images of a face belong to the same person?

Does this person look like other people?

Do all the faces belong together?

Who is this person in this group of people?

Section: Drag & Drop Explanation

Explanation/Reference:

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 12**DRAG DROP**

Match the types of computer vision to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Select and Place:

Workloads Types

Facial recognition

Image classification

Object detection

Optical character recognition (OCR)

Answer Area

Workload Type

Workload Type

Workload Type

Identif

Extract movie

Locat

Correct Answer:

Workloads Types

Facial recognition

Image classification

Object detection

Optical character recognition (OCR)

Answer Area

Facial recognition

Optical character recognition (OCR)

Object detection

Identif

Extract movie

Locat

Section: Drag & Drop**Explanation****Explanation/Reference:****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 13

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

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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

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 14

HOTSPOT

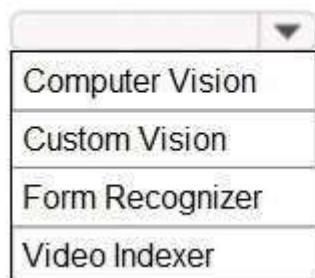
To complete the sentence, select the appropriate option in the answer area.

Hot Area:

Hot Area:

Answer Area

You can use the

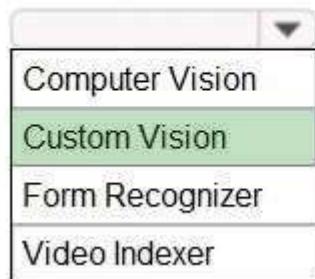


service to train an object detection model by using your own imag

Correct Answer:

Answer Area

You can use the



service to train an object detection model by using your own imag

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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:

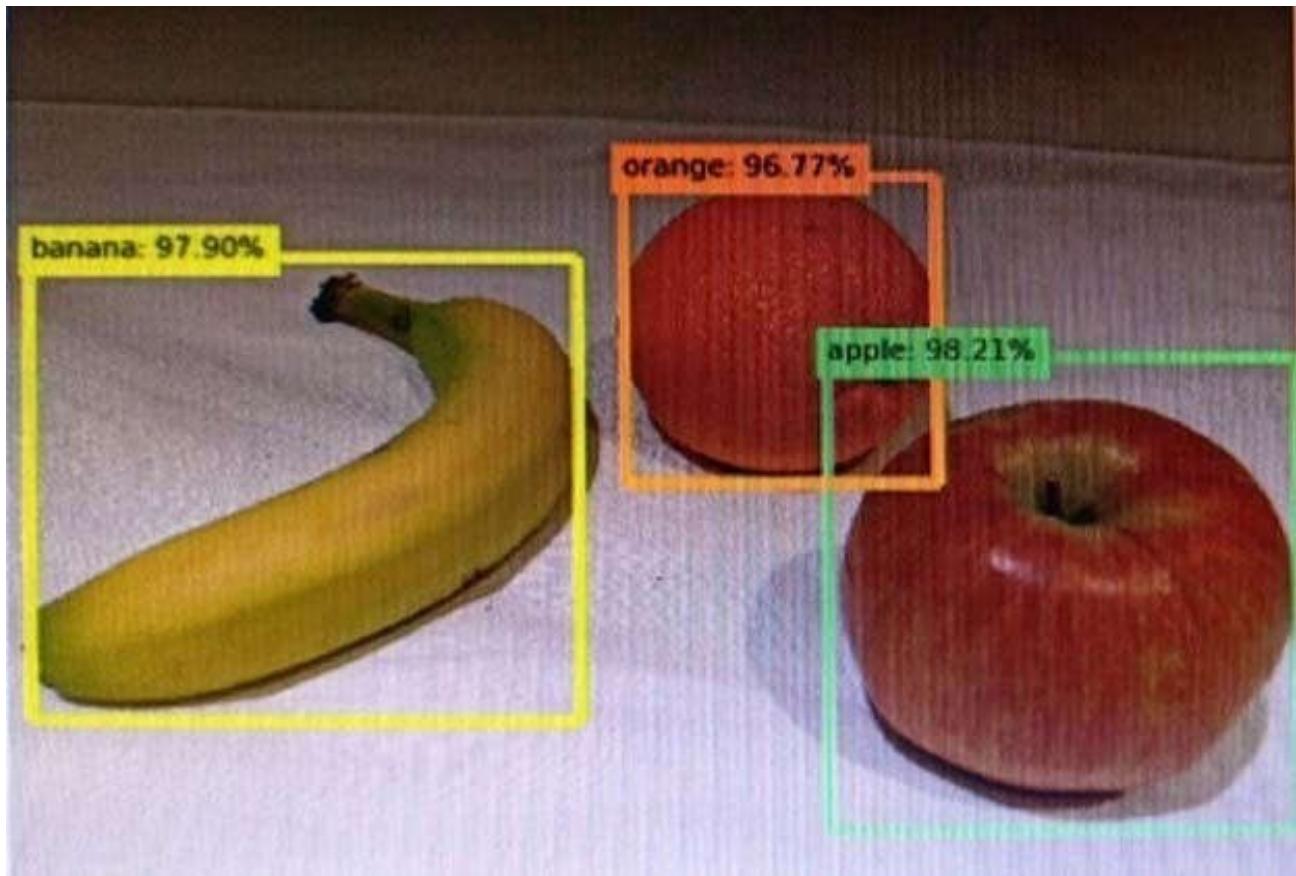
Azure's Computer Vision service provides developers with access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an image contains adult content, find specific brands or objects, or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

Reference:

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

QUESTION 15

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. Semantic segmentation
- C. Optical character recognition (OCR)
- D. Image classification

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

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 16

What are two tasks that can be performed by using the Computer Vision service?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: BC

Section: Multiple Choice

Explanation

Explanation/Reference:

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 17

What is a use case for classification?

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

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Classification is a machine learning method that uses data to determine the category, type, or class of an item or row of data. <https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/linear-regression>

Reference:

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

QUESTION 18

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.

Correct Answer: BC

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

B: 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.

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. It uses the latest models and works with text on a variety of surfaces and backgrounds. These include receipts, posters, business cards, letters, and whiteboards. The two OCR APIs support extracting printed text in several languages.

Reference:

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

QUESTION 19

QUESTION 53our company wants to build a recycling machine for bottles. The recycling machine must automatically identify bottles of the correct shape and reject all other items.

Which type of AI workload should the company use?

- A. Anomaly detection
- B. Conversational AI
- C. Computer vision
- D. Natural language processing

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

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 20

Your website has a chatbot to assist customers.

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

Which type of AI workload should you use?

- A. Anomaly detection
- B. Semantic segmentation

- C. Regression
- D. Natural language processing

Correct Answer: D

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

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

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

Reference:

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

QUESTION 21

HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

Natural language processing can be used to

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

Correct Answer:

Answer Area

Natural language processing can be used to

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

Section: Hotspot

Explanation

Explanation/Reference:

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 22

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

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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Text Analytics is an AI service that uncovers insights such as sentiment, entities, and key phrases in unstructured text.

Incorrect Answers:

D: Language Understanding (LUIS) is a cloud-based API service, not an 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://azure.microsoft.com/en-us/services/cognitive-services/text-analytics/>

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

Exam C

QUESTION 1

You are developing a chatbot solution in Azure.
Which service should you use to determine a user's intent?

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

Correct Answer: D

Section: Multiple Choice

Explanation

Explanation/Reference:

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 2

You need to make the press releases of your company available in a range of languages.
Which service should you use?

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

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

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 3

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

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

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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

Box 1: Yes

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

Box 2: No

Box 3: Yes

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

Reference:

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

QUESTION 4

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.

Select and Place:

Select and Place:

Workloads Types

Entity recognition
Key phrase extraction
Language modeling
Sentiment analysis
Natural language processing
Translation
Speech recognition and speech synthesis

Answer Area

Workload Type	Extracts persons, locations, and organizations from text
Workload Type	Evaluates text along a negative scale
Workload Type	Returns text translated to a specified target language

Correct Answer:

Workloads Types

Entity recognition
Key phrase extraction
Language modeling
Sentiment analysis
Natural language processing
Translation
Speech recognition and speech synthesis

Answer Area

Entity recognition	Extracts persons, locations, and organizations from text
Sentiment analysis	Evaluates text along a negative scale
Translation	Returns text translated to a specified target language

Section: Drag & Drop Explanation

Explanation/Reference:

Explanation:

Box 1: Key phrase extraction

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

Box 2: 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 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.

Incorrect Answers:

Not Natural language processing (NLP), which is used for tasks such as sentiment analysis, topic detection, language detection, key phrase extraction, and document categorization.

Reference:

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

QUESTION 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.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

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

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

Box 1: Yes

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

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

Box 2: No

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

Box 3: Yes

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

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

Reference:

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

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

QUESTION 6

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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

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

Reference:

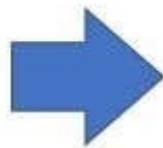
<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/natural-language-processing>

QUESTION 7

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

You receive the output shown in the following exhibit.

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



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

Which type of natural languages processing was performed?

- A. Entity recognition
- B. Key phrase extraction
- C. Sentiment analysis
- D. Translation

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 8

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.

Select and Place:

Select and Place:

API Features

Entity recognition
Key phrase extraction
Language detection
Sentiment analysis

Answer Area

API Feature	Understand how upset a customer is based on text contained in the support ticket.
API Feature	Summarize important information from the support ticket.
API Feature	Extract key dates from the support ticket.

Correct Answer:

API Features

Entity recognition
Key phrase extraction
Language detection
Sentiment analysis

Answer Area

Sentiment analysis	Understand how upset a customer is based on text contained in the support ticket.
Key phrase extraction	Summarize important information from the support ticket.
Entity recognition	Extract key dates from the support ticket.

Section: Drag & Drop Explanation

Explanation/Reference:

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 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 9

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

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

Which type of natural language processing should you use?

- A. Entity recognition
- B. Key phrase extraction
- C. Sentiment analysis
- D. Language detection

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

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 10

Which two scenarios are examples of a conversational AI workload?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: BC

Section: Multiple Choice

Explanation

Explanation/Reference:

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 11**HOTSPOT**

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

NOTE: Each correct selection is worth one point.

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

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

Correct Answer:**Answer Area**

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

Section: Hotspot**Explanation****Explanation/Reference:****Explanation:****Box 1: Yes**

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

Box 2: Yes

Azure bot service engages with customers in a conversational manner.

Box 3: No

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

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

Reference:

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

QUESTION 12

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

What are three ways to create question and answer text by using QnA Maker?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: ACE

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

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 13

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

You need to create a conversational support system based on the FAQ. Which service should you use?

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

Correct Answer: A

Section: Multiple Choice

Explanation

Explanation/Reference:

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 14

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

Which two AI service should you use to achieve the goal?

Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: BC

Section: Multiple Choice

Explanation

Explanation/Reference:

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 15

Which two scenarios are examples of a conversational AI workload?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: AB

Section: Multiple Choice

Explanation

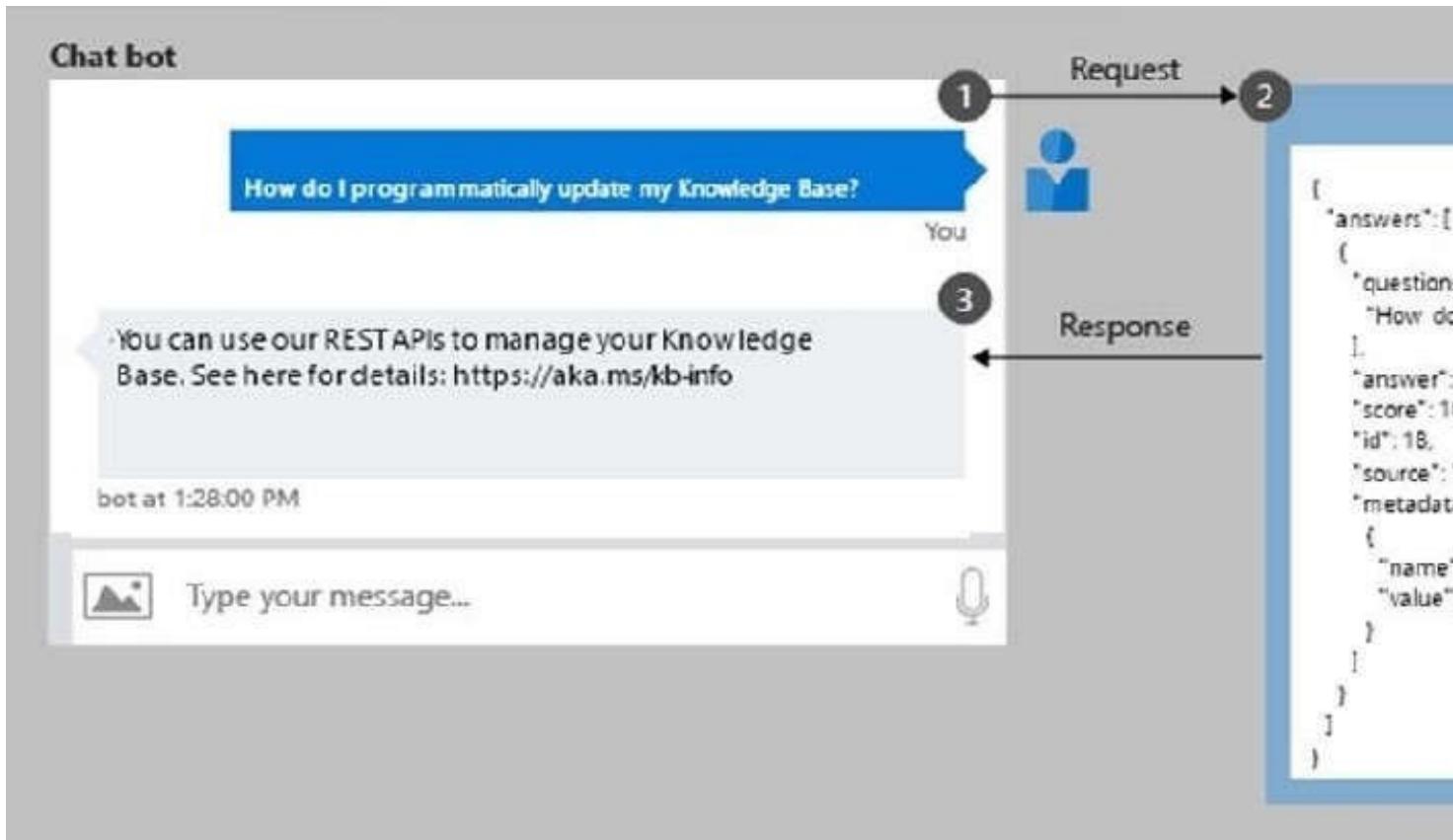
Explanation/Reference:

Explanation:

Reference:

QUESTION 16

You have the process shown in the following exhibit.



Which type AI solution is shown in the diagram?

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

Correct Answer: B

Section: Multiple Choice

Explanation:

Explanation/Reference:

Explanation:

Reference:

QUESTION 17

You need to develop a web-based AI solution for a customer support system.

Users must be able to interact with a web app that will guide them to the best resource or answer.

Which service should you use?

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

Correct Answer: B

Section: Multiple Choice
Explanation

Explanation/Reference:

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 18

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

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

Correct Answer: A

Section: Multiple Choice
Explanation

Explanation/Reference:

Explanation:

Reference:

QUESTION 19

HOTSPOT

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

Hot Area:

Hot 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.

Correct Answer:

Answer Area

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

anomaly detection.
computer vision.
conversational AI.
forecasting.

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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

Reference:

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

QUESTION 20

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.

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 21

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

- A. Accountability
- B. Fairness
- C. Inclusiveness
- D. Privacy and security

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

Exam D

QUESTION 1

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

Correct Answer: CDE

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 2

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

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

- Include one or more faces.
- Contain at least one person wearing sunglasses.

What should you use to analyze the images?

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

Correct Answer: B

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 3

A medical research project uses a large anonymized dataset of brain scan images that are categorized into predefined brain haemorrhage types.

You need to use machine learning to support early detection of the different brain haemorrhage types in the images before the images are reviewed by a person.

This is an example of which type of machine learning?

- A. Clustering
- B. Regression
- C. Classification

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 4

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

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

Correct Answer: C

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

QUESTION 5

You are evaluating whether to use a basic workspace or an enterprise workspace in Azure Machine Learning.

What are two tasks that require an enterprise workspace?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: AC

Section: Multiple Choice

Explanation

Explanation/Reference:

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 6

In which two scenarios can you use the Form Recognizer service?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: AD

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 7

In which two scenarios can you use speech recognition?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: BD

Section: Multiple Choice

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 8

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

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

Correct Answer: C
Section: Multiple Choice
Explanation

Explanation/Reference:
Explanation:

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

QUESTION 9

Which scenario is an example of a webchat bot?

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

Correct Answer: D
Section: Multiple Choice
Explanation

Explanation/Reference:
Explanation:

Reference:

QUESTION 10
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.

Correct Answer: C
Section: Multiple Choice
Explanation

Explanation/Reference:
Explanation:

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

QUESTION 11 **DRAG DROP**

Match the types of AI workloads to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Select and Place:

Workload Types

Anomaly detection

Computer vision

Machine Learning (Regression)

Natural language processing

Answer Area

Workload Type

Workload Type

Workload Type

Workload Type

Identify handwritten letters.

Predict the sentiment of a social media post.

Identify a fraudulent credit card payment.

Predict next month's toy sales.

Correct Answer:

Workload Types

Anomaly detection

Computer vision

Machine Learning (Regression)

Natural language processing

Answer Area

Computer vision

Natural language processing

Anomaly detection

Machine Learning (Regression)

Identify handwritten letters.

Predict the sentiment of a social media post.

Identify a fraudulent credit card payment.

Predict next month's toy sales.

Section: Drag & Drop

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 12

HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

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

- image classification.
- object detection.
- optical character recognizer (OCR).
- semantic segmentation.

Correct Answer:

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.

Section: Hotspot

Explanation

Explanation/Reference:

Explanation

Reference:

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

QUESTION 13

HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

is used to generate additional features.

- Feature engineering
- Feature selection
- Model evaluation
- Model training

Correct Answer:

Answer Area

Feature engineering
Feature selection
Model evaluation
Model training

is used to generate additional features.

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 14

HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

Azure Machine Learning designer lets you create machine learning models by

adding and connecting modules on a visual canvas.
automatically performing common data preparation tasks.
automatically selecting an algorithm to build the most accurate model.
using a code-first notebook experience.

Correct Answer:

Answer Area

Azure Machine Learning designer lets you create machine learning models by

adding and connecting modules on a visual canvas.
automatically performing common data preparation tasks.
automatically selecting an algorithm to build the most accurate model.
using a code-first notebook experience.

Section: Hotspot
Explanation

Explanation/Reference:
Explanation:

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

QUESTION 15 **HOTSPOT**

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:
Answer Area

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

Correct Answer:

Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning implements machine learning solutions without the need for programming experience.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

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 16

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

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

Which two fields should you use as features?

Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

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

Correct Answer: AC

Section: Multiple Choice

Explanation

Explanation/Reference:

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.

Reference:

QUESTION 17

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

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 .	<input type="radio"/>	<input type="radio"/>
You can create an object detection model in the Custom Vision service to find the location of content within an image.	<input type="radio"/>	<input type="radio"/>
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

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 .	<input type="radio"/>	<input checked="" type="radio"/>
You can create an object detection model in the Custom Vision service to find the location of content within an image.	<input checked="" type="radio"/>	<input type="radio"/>
When creating an object detection model in the Custom Vision service, you can select from a set of predefined domains.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Hotspot
Explanation:

Explanation/Reference:
Explanation:

Reference:

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

QUESTION 18
HOTSPOT

You have a database that contains a list of employees and their photos.
You are tagging new photos of the employees.

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

Statements	Yes	No
The Face service can be used to group all the employees who have similar facial characteristics.	<input type="radio"/>	<input type="radio"/>
The Face service will be more accurate if you provide more sample photos of each employee from different angles.	<input type="radio"/>	<input type="radio"/>
If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
The Face service can be used to group all the employees who have similar facial characteristics.	<input checked="" type="radio"/>	<input type="radio"/>
The Face service will be more accurate if you provide more sample photos of each employee from different angles.	<input checked="" type="radio"/>	<input type="radio"/>
If an employee is wearing sunglasses, the Face service will always fail to recognize the employee.	<input type="radio"/>	<input checked="" type="radio"/>

Section: Hotspot
Explanation:

Explanation/Reference:
Explanation:

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

QUESTION 19 HOTSPOT

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

Hot Area:

Hot Area:

Answer Area

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

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

Correct Answer:

Answer Area

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

sentiment analysis.
speech recognition.
speech synthesis.
translation.

Section: Hotspot

Explanation:

Explanation/Reference:

Explanation:

Reference:

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

QUESTION 20

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

Statements	Yes	No
You can use the Speech service to transcribe a call to text.	<input type="radio"/>	<input type="radio"/>
You can use the Text Analytics service to extract key entities from a call transcript.	<input type="radio"/>	<input type="radio"/>
You can use the Speech service to translate the audio of a call to a different language.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
You can use the Speech service to transcribe a call to text.	<input checked="" type="radio"/>	<input type="radio"/>
You can use the Text Analytics service to extract key entities from a call transcript.	<input checked="" type="radio"/>	<input type="radio"/>
You can use the Speech service to translate the audio of a call to a different language.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Hotspot
Explanation

Explanation/Reference:
Explanation:

Reference:

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

QUESTION 21 HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

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

Correct Answer:

Answer Area

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

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

Reference:

<https://docs.microsoft.com/en-gb/azure/cognitive-services/qnamaker/concepts/data-sources-and-content>
<https://docs.microsoft.com/en-us/azure/cognitive-services/luis/choose-natural-language-processing-service>

QUESTION 22

HOTSPOT

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

NOTE: Each correct selection is worth one point.

Hot Area:

Hot Area:

Answer Area

Statements	Yes	No
You can communicate with a bot by using email.	<input type="radio"/>	<input type="radio"/>
You can communicate with a bot by using Microsoft Teams.	<input type="radio"/>	<input type="radio"/>
You can communicate with a bot by using a webchat interface.	<input type="radio"/>	<input type="radio"/>

Correct Answer:

Answer Area

Statements	Yes	No
You can communicate with a bot by using email.	<input checked="" type="radio"/>	<input type="radio"/>
You can communicate with a bot by using Microsoft Teams.	<input checked="" type="radio"/>	<input type="radio"/>
You can communicate with a bot by using a webchat interface.	<input checked="" type="radio"/>	<input type="radio"/>

Section: Hotspot

Explanation

Explanation/Reference:

Explanation:

Reference:

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



AI-900 Exam Info

- **Exam Code:** AI-900
- **Exam Title:** Microsoft Azure AI Fundamentals
- **Vendor:** Microsoft
- **Exam Questions:** 85
- **Last Updated:** February 14th, 2021

MICROSOFT AZURE AI FUNDAMENTALS (AI-900)

Question 1 (Describe Artificial Intelligence workloads and considerations)

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 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: D

Explanation:

In Azure Machine Learning, the percentage split is the available technique to split the data. In this technique, random data of a given percentage will be split to train and test data.

Reference:

<https://www.sqlshack.com/prediction-in-azure-machine-learning/>

Question 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.

		Actual	
		0	1
Predicted	0	1033	11
	1	5	

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

Answer:

Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

Explanation:

Box 1: 11 -

		Predicted	
		Positive	Negative
Actual True	TP	FN	TN
	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 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 explainability, 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 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.

Hot Area:

Answer Area

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

Answer :

Answer Area

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

Explanation:

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 6:

HOTSPOT -

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

Hot Area:

Answer Area

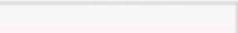
The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft principle for responsible AI.

inclusiveness
privacy and security
reliability and safety
transparency

Answer

:

Answer Area

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

inclusiveness
privacy and security
reliability and safety
transparency

Explanation:

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. At Microsoft, we are continuing to research privacy and security breakthroughs (see next unit) and invest in robust compliance processes to ensure that data collected and used by our AI systems is handled responsibly.

Reference:

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

Question 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.

Select and Place:

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

Answer:

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

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 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 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.

Select and Place:

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

Answer :

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

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: Fairness -

Fairness: AI systems should treat everyone fairly and avoid affecting similarly situated groups of people in different ways. For example, when AI systems provide guidance on medical treatment, loan applications, or employment, they should make the same recommendations to everyone with similar symptoms, financial circumstances, or professional qualifications. We believe that mitigating bias starts with people understanding the implications and limitations of AI predictions and recommendations. Ultimately, people should supplement AI decisions with sound human judgment and be held accountable for consequential decisions that affect others.

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 10:

HOTSPOT -

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

Hot Area:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle
of the

Answer:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle
of the

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 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 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.

Select and Place:

Workload Types	Answer Area	
Anomaly detection	Workload Type	Identify handwritten letters.
Computer vision	Workload Type	Predict the sentiment of a social media post.
Machine Learning (Regression)	Workload Type	Identify a fraudulent credit card payment.
Natural language processing	Workload Type	Predict next month's toy sales.

Answer:

Workload Types	Answer Area	
Anomaly detection	Computer vision	Identify handwritten letters.
Computer vision	Natural language processing	Predict the sentiment of a social media post.
Machine Learning (Regression)	Anomaly detection	Identify a fraudulent credit card payment.
Natural language processing	Machine Learning (Regression)	Predict next month's toy sales.

Reference:

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

Question 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 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: CDF

Reference:

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

Question 15:

HOTSPOT -

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

Hot Area:

Answer Area

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

image classification.
object detection.
optical character recognizer (OCR).
semantic segmentation.

Answer :

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 16:

HOTSPOT -

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

Hot Area:

Answer Area

is used to generate additional features.

Feature engineering
Feature selection
Model evaluation
Model training

Answer :

Answer Area

is used to generate additional features.

Feature engineering
Feature selection
Model evaluation
Model training

Reference:

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

Question 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 18:

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 19:

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 20:

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 21:

DRAG DROP -

Match the types of machine learning to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Learning Types	Answer Area
Classification	Learning Type Predict how many minutes late a flight will arrive based on the amount of snowfall at an airport.
Clustering	Learning Type Segment customers into different groups to support a marketing department.
Regression	Learning Type Predict whether a student will complete a university course.

Answer:

Learning Types	Answer Area	
Classification	Regression	Predict how many minutes late a flight will arrive based on the amount of snowfall at an airport.
Clustering	Classification	Segment customers into different groups to support a marketing department.
Regression	Clustering	Predict whether a student will complete a university course.

Explanation:

Box 1: Regression -

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

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

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

Box 2: Classification -

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

Box 3: Clustering -

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

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

Reference:

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

Question 22:**DRAG DROP -**

Match the machine learning tasks to the appropriate scenarios.

To answer, drag the appropriate task from the column on the left to its scenario on the right.

Each task may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

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

Answer:

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

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 23:

HOTSPOT -

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

Hot Area:

Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Answer:

Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Explanation:

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.

Incorrect Answers:

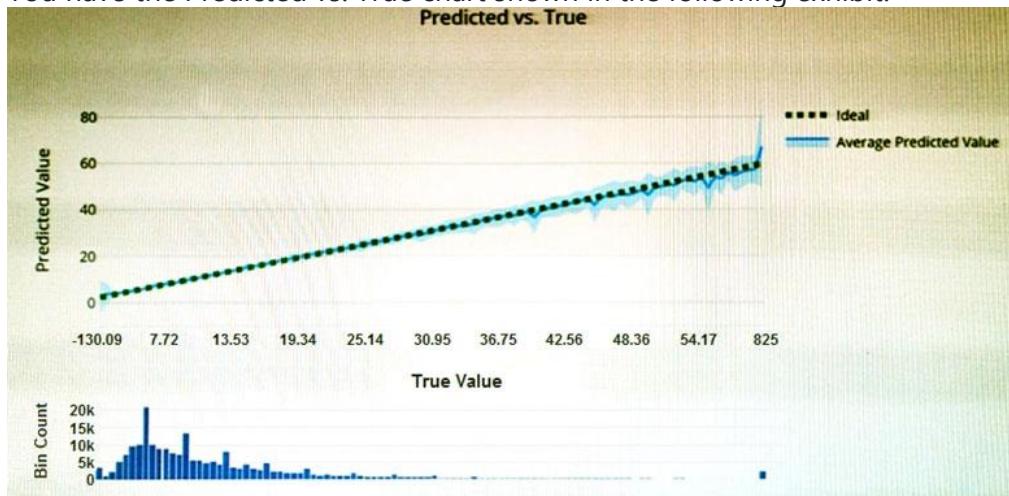
Not features: In machine learning and statistics, feature selection is the process of selecting a subset of relevant, useful features to use in building an analytical model. Feature selection helps narrow the field of data to the most valuable inputs. Narrowing the field of data helps reduce noise and improve training performance.

Reference:

<https://www.cloudfactory.com/data-labeling-guide>

Question 24:

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 25:

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 : C

Explanation:

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

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

Reference:

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

Question 26:

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 27:

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 28:

HOTSPOT -

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

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

Answer:

Answer Area

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

Explanation:

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 29:

HOTSPOT -

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

Hot Area:

Answer Area

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

classification
regression
clustering

Answer:

Answer Area

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

classification
regression
clustering

Explanation:

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

Example: Regression Model: A Boosted Decision Tree algorithm was used to create and train the model for predicting the repayment rate.

Reference:

<https://gallery.azure.ai/Experiment/Student-Loan-Repayment-Rate-Prediction>

Question 30 :

HOTSPOT -

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input type="radio"/>	<input type="radio"/>

Answer:

Answer Area

Statements	Yes	No
Labelling is the process of tagging training data with known values.	<input checked="" type="radio"/>	<input type="radio"/>
You should evaluate a model by using the same data used to train the model.	<input type="radio"/>	<input checked="" type="radio"/>
Accuracy is always the primary metric used to measure a model's performance.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

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 30 :

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. Ink Recognizer
- 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 32:

HOTSPOT -

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

Hot Area:

Answer Area

The ability to extract subtotals and totals from a receipt is a capability of the

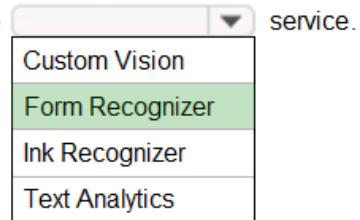
Custom Vision
Form Recognizer
Ink Recognizer
Text Analytics

service.

Answer:

Answer Area

The ability to extract subtotals and totals from a receipt is a capability of the



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 33:

You use Azure Machine Learning designer to publish an inference pipeline. Which two parameters should you use to consume the pipeline? 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 : AD

Explanation:

A: The trained model is stored as a Dataset module in the module palette. You can find it under My Datasets.

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

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

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-run-batch-predictions-designer> <https://docs.microsoft.com/en-us/azure/machine-learning/concept-designer>

Question 34:

HOTSPOT -

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

Hot 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

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

Answer:

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.

Explanation:

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 35:

HOTSPOT -

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

Hot Area:

Answer Area

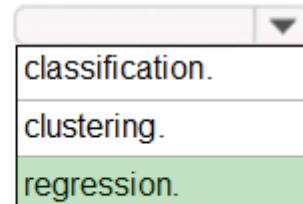
Predicting how many hours of overtime a delivery person will work based on the number of orders received is an example of

classification.
clustering.
regression.

Answer :

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.

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.

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 36:

HOTSPOT -

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

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

Answer :

Answer Area

Statements	Yes	No
Azure Machine Learning designer provides a drag-and-drop visual canvas to build, test, and deploy machine learning models.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to save your progress as a pipeline draft.	<input checked="" type="radio"/>	<input type="radio"/>
Azure Machine Learning designer enables you to include custom JavaScript functions.	<input type="radio"/>	<input checked="" type="radio"/>

Explanation:

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 37:

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

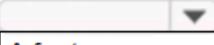
You plan to use the dataset to train a model that will predict the house price categories of houses.

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.

Hot Area:

Answer Area

Household Income: 

A feature
A label

House Price Category: 

A feature
A label

Answer :

Answer Area

Household Income: 

A feature
A label

House Price Category: 

A feature
A label

Reference:

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

Question 38:

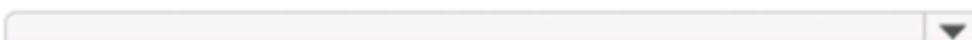
HOTSPOT -

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

Hot Area:

Answer Area

Azure Machine Learning designer lets you create machine learning models by



adding and connecting modules on a visual canvas.
automatically performing common data preparation tasks.
automatically selecting an algorithm to build the most accurate model.
using a code-first notebook experience.

Answer:

Answer Area

Azure Machine Learning designer lets you create machine learning models by

- adding and connecting modules on a visual canvas.
- automatically performing common data preparation tasks.
- automatically selecting an algorithm to build the most accurate model.
- using a code-first notebook experience.

Reference:

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

Question 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.

Hot Area:

Answer Area

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

Answer :

Answer Area

Statements	Yes	No
Automated machine learning provides you with the ability to include custom Python scripts in a training pipeline.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning implements machine learning solutions without the need for programming experience.	<input checked="" type="radio"/>	<input type="radio"/>
Automated machine learning provides you with the ability to visually connect datasets and modules on an interactive canvas.	<input checked="" type="radio"/>	<input type="radio"/>

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 40:

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 41:

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 42:

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 : AC

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 43:

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 : AC

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 44:

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 45:

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.

Select and Place:

Tasks	Answer Area
grouping	Task Do two images of a face belong to the same person?
identification	Task Does this person look like other people?
similarity	Task Do all the faces belong together?
verification	Task Who is this person in this group of people?

Answer :

Tasks	Answer Area
grouping	verification
identification	similarity
similarity	grouping
verification	identification

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 46:

DRAG DROP -

Match the types of computer vision to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Workloads Types	Answer Area
Facial recognition	Workload Type
Image classification	Workload Type
Object detection	Workload Type
Optical character recognition (OCR)	Workload Type

Answer :

Workloads Types	Answer Area	
Facial recognition	Facial recognition	Identify celebrities in images.
Image classification	Optical character recognition (OCR)	Extract movie title names from movie poster images.
Object detection	Object detection	Locate vehicles in images.
Optical character recognition (OCR)		

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: Object 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 47:

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>

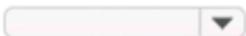
Question 48:

HOTSPOT -

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

Hot Area:

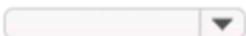
Answer Area

You can use the  service to train an object detection model by using your own images.

Computer Vision
Custom Vision
Form Recognizer
Video Indexer

Answer :

Answer Area

You can use the  service to train an object detection model by using your own images.

Computer Vision
Custom Vision
Form Recognizer
Video Indexer

Explanation:

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:

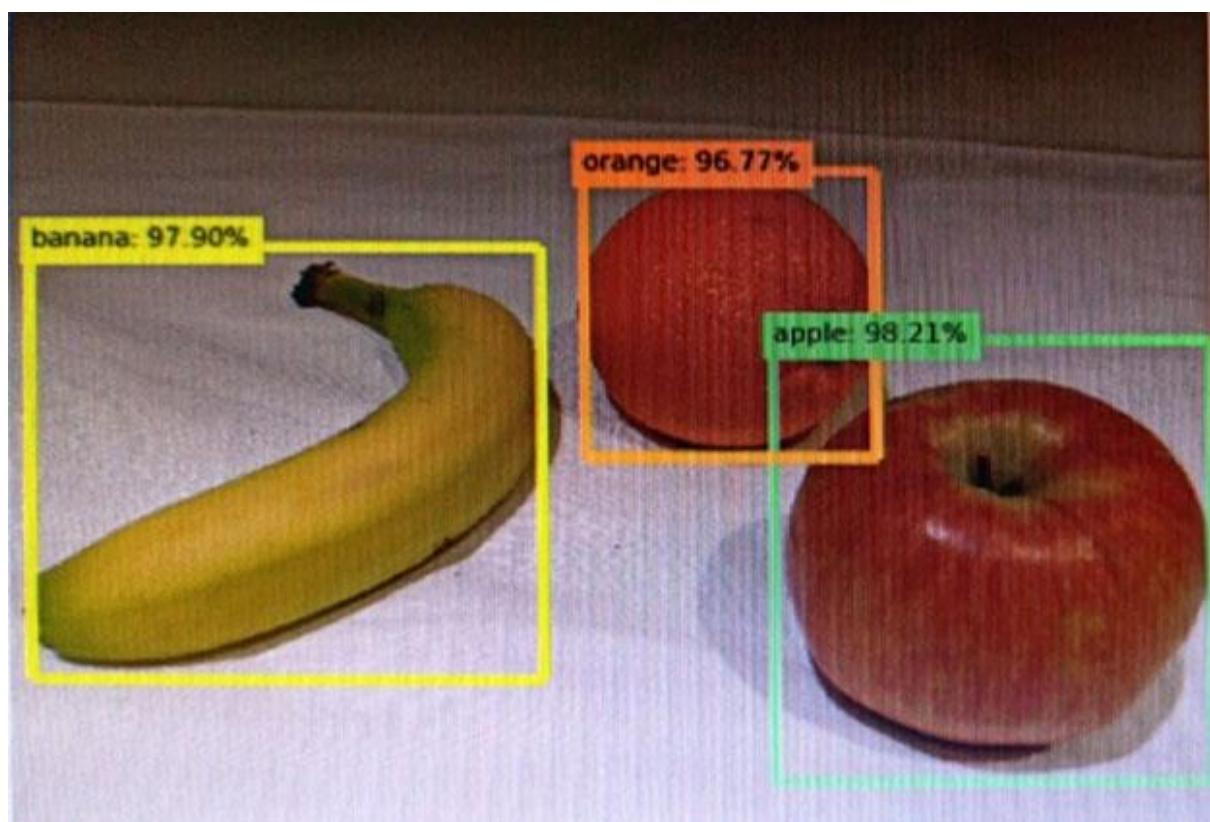
Azure's Computer Vision service provides developers with access to advanced algorithms that process images and return information based on the visual features you're interested in. For example, Computer Vision can determine whether an image contains adult content, find specific brands or objects, or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

Reference:

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

Question 49:

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. semantic segmentation
- 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 50:

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>

MICROSOFT AZURE AI FUNDAMENTALS (AI-900)

Question 1 (Describe Artificial Intelligence workloads and considerations)

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 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: D

Explanation:

In Azure Machine Learning, the percentage split is the available technique to split the data. In this technique, random data of a given percentage will be split to train and test data.

Reference:

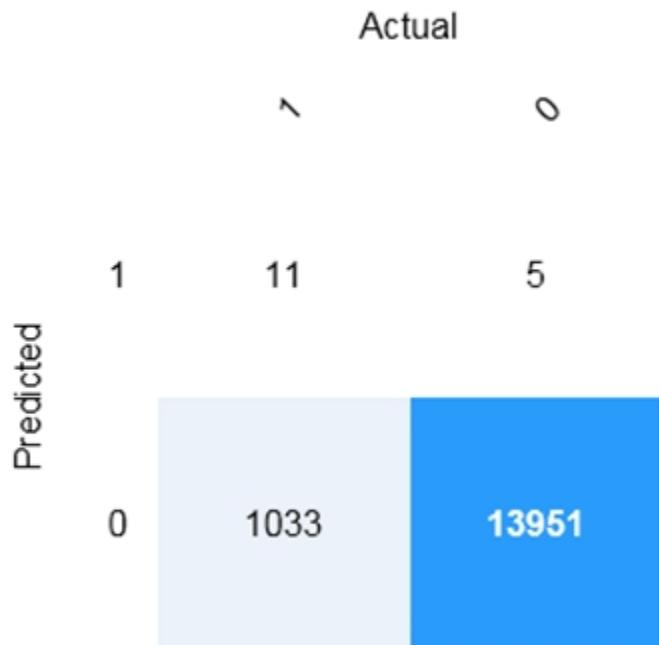
<https://www.sqlshack.com/prediction-in-azure-machine-learning/>

Question 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.

Hot Area:

Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

Answer:

Answer Area

There are [answer choice] correctly predicted positives.

5
11
1,033
13,951

There are [answer choice] false negatives.

5
11
1,033
13,951

Explanation:

Box 1: 11 -

	Predicted	
	Positive	Negative
Actual True	TP	FN
Actual False	FP	TN

TP = True Positive.

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

Box 2: 1,033 -

FN = False Negative -

Reference:

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

Question 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 explainability, 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 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.

Hot Area:

Answer Area

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

Answer :

Answer Area

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

Explanation:

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 6:

HOTSPOT -

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

Hot Area:

Answer Area

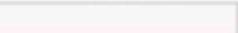
The handling of unusual or missing values provided to an AI system is a consideration for the Microsoft principle for responsible AI.

inclusiveness
privacy and security
reliability and safety
transparency

Answer

:

Answer Area

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

inclusiveness
privacy and security
reliability and safety
transparency

Explanation:

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. At Microsoft, we are continuing to research privacy and security breakthroughs (see next unit) and invest in robust compliance processes to ensure that data collected and used by our AI systems is handled responsibly.

Reference:

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

Question 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.

Select and Place:

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

Answer:

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

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 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 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.

Select and Place:

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

Answer :

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

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: Fairness -

Fairness: AI systems should treat everyone fairly and avoid affecting similarly situated groups of people in different ways. For example, when AI systems provide guidance on medical treatment, loan applications, or employment, they should make the same recommendations to everyone with similar symptoms, financial circumstances, or professional qualifications. We believe that mitigating bias starts with people understanding the implications and limitations of AI predictions and recommendations. Ultimately, people should supplement AI decisions with sound human judgment and be held accountable for consequential decisions that affect others.

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 10:

HOTSPOT -

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

Hot Area:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle
of the

Answer:

When developing an AI system for self-driving cars, the Microsoft for responsible AI should be applied to ensure consistent operation system during unexpected circumstances.

inclusiveness
accountability
reliability and safety
fairness

principle
of the

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 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 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.

Select and Place:

Workload Types	Answer Area	
Anomaly detection	Workload Type	Identify handwritten letters.
Computer vision	Workload Type	Predict the sentiment of a social media post.
Machine Learning (Regression)	Workload Type	Identify a fraudulent credit card payment.
Natural language processing	Workload Type	Predict next month's toy sales.

Answer:

Workload Types	Answer Area	
Anomaly detection	Computer vision	Identify handwritten letters.
Computer vision	Natural language processing	Predict the sentiment of a social media post.
Machine Learning (Regression)	Anomaly detection	Identify a fraudulent credit card payment.
Natural language processing	Machine Learning (Regression)	Predict next month's toy sales.

Reference:

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

Question 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 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: CDF

Reference:

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

Question 15:

HOTSPOT -

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

Hot Area:

Answer Area

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

image classification.
object detection.
optical character recognizer (OCR).
semantic segmentation.

Answer :

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 16:

HOTSPOT -

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

Hot Area:

Answer Area

is used to generate additional features.

Feature engineering
Feature selection
Model evaluation
Model training

Answer :

Answer Area

is used to generate additional features.

Feature engineering
Feature selection
Model evaluation
Model training

Reference:

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

Question 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 18:

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 19:

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 20:

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 21:

DRAG DROP -

Match the types of machine learning to the appropriate scenarios.

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

NOTE: Each correct selection is worth one point.

Select and Place:

Learning Types	Answer Area
Classification	Learning Type Predict how many minutes late a flight will arrive based on the amount of snowfall at an airport.
Clustering	Learning Type Segment customers into different groups to support a marketing department.
Regression	Learning Type Predict whether a student will complete a university course.

Answer:

Learning Types	Answer Area	
Classification	Regression	Predict how many minutes late a flight will arrive based on the amount of snowfall at an airport.
Clustering	Classification	Segment customers into different groups to support a marketing department.
Regression	Clustering	Predict whether a student will complete a university course.

Explanation:

Box 1: Regression -

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

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

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

Box 2: Classification -

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

Box 3: Clustering -

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

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

Reference:

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

Question 22:**DRAG DROP -**

Match the machine learning tasks to the appropriate scenarios.

To answer, drag the appropriate task from the column on the left to its scenario on the right.

Each task may be used once, more than once, or not at all.

NOTE: Each correct selection is worth one point.

Select and Place:

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

Answer:

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

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 23:

HOTSPOT -

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

Hot Area:

Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Answer:

Answer Area

Data values that influence the prediction of a model are called

dependant variables.
features.
identifiers.
labels.

Explanation:

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.

Incorrect Answers:

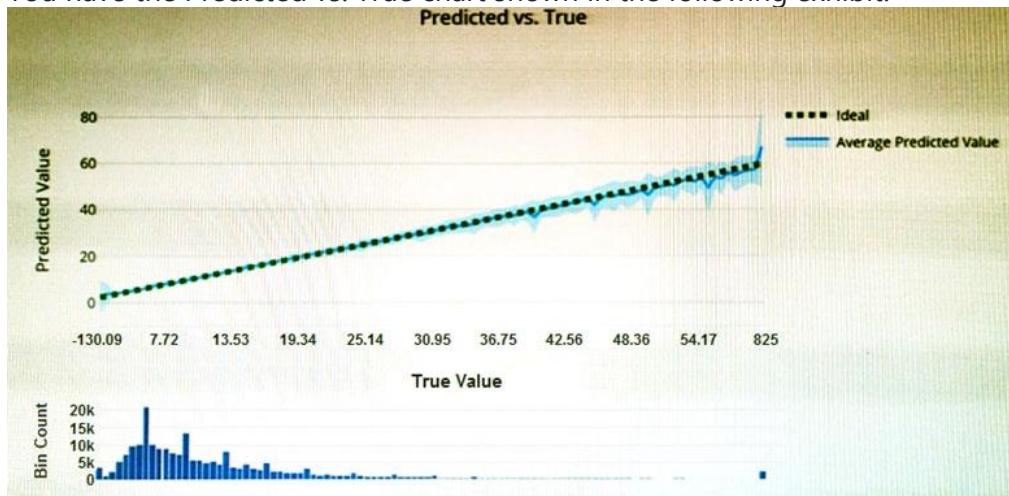
Not features: In machine learning and statistics, feature selection is the process of selecting a subset of relevant, useful features to use in building an analytical model. Feature selection helps narrow the field of data to the most valuable inputs. Narrowing the field of data helps reduce noise and improve training performance.

Reference:

<https://www.cloudfactory.com/data-labeling-guide>

Question 24:

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 25:

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 : **C**

Explanation:

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

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

Reference:

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

