

AI-900

## AI 900: Artificial Intelligence Fundamentals Practice Test 2021 - Results

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### Attempt 3

All knowledge areas

Incorrect

Question 11: **Incorrect**

You wish to develop a reservation system for restaurant. Which of the following services would you need?

- ☒ Azure Bot service  
(Correct)
- ☐ Cognitive Services
- ☒ Azure QnA  
(Incorrect)
- ☐ LUIS  
(Correct)

#### Explanation

By using Azure services such as the **Bot Service** and **Language Understanding** or Speech API services, companies can assist customers and process orders or reservations with automated, scalable bots.

<https://docs.microsoft.com/en-us/azure/architecture/example-scenario/ai/commerce-chatbot>

Question 34: **Incorrect**

Your organization has an existing frequently asked questions (FAQ) document. You need to create a QnA Maker knowledge base that includes the questions and answers from the FAQ with the least possible effort. What should you do?

- ☒ Create an empty knowledge base, and then manually copy and paste the FAQ entries into it.  
(Incorrect)
- ☐ Import the existing FAQ document into a new knowledge base.  
(Correct)
- ☐ Import a pre-defined chit-chat data source.

#### Explanation

You can import question and answer pairs from an existing FAQ document into a QnA Maker knowledge base.

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

**Generated from an existing FAQ document or web page.**

Imported from a pre-defined *chit-chat* data source.

Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

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### Attempt 3

All knowledge areas

Incorrect

Question 15: **Incorrect**

You are developing a solution based on facial recognition. You have to ensure that the AI-based solution meets ethical and legal standards that advocate regulations on people civil liberties and works within a framework of governance and organizational principles.

The Microsoft guiding principle for responsible AI considered is?

- ☐ transparency
- ☐ inclusiveness
- ☒ privacy and security  
**(Incorrect)**
- ☐ reliability and safety
- ☐ accountability  
**(Correct)**

#### Explanation

Accountability - People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 27: **Incorrect**

Which of the following is an example of web-chat bot

- ☐ From a website interface, answer common questions  
**(Correct)**
- ☐ Translate into English questions entered at a kiosk
- ☐ Determine whether reviews are positive or not
- ☒ Accepts questions through emails and then route the email to the correct person  
**(Incorrect)**

#### Explanation

From a website interface, answer common questions- **CHATBOT**

Translate into English questions entered at a kiosk- **TEXT TRANSLATION**

Determine whether reviews are positive or not-**SENTIMENT ANALYSIS**

Accepts questions through emails and then route the email to the correct person-**RULE BASED AUTOMATION**

Question 33: **Incorrect**

Which of the following statement(s) is/are CORRECT?

- ☒ Text analytics service can read the text in images, scanned documents.  
**(Incorrect)**
- ☒ Text analytics service can classify a broad range of entities in text, such as people, places, organizations etc.  
**(Correct)**
- ☒ The text analytics service can detect the language of your text.  
**(Correct)**

#### Explanation

the **Text Analytics** cognitive service can help simplify application development by using pre-trained models that can:

**Determine the language of a document or text (for example, French or English).**

Perform sentiment analysis on text to determine a positive or negative sentiment.

Extract key phrases from text that might indicate its main talking points.

Identify and categorize entities in the text. Entities can be people, places, organizations, or even everyday items such as dates, times, quantities, and so on.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

Microsoft's Computer Vision API includes Optical Character Recognition (OCR) and READ API capabilities that extract printed or handwritten text from images and PDF documents.

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

<https://devblogs.microsoft.com/cse/2018/05/07/handwriting-detection-and-recognition-in-scanned-documents-using-azure-ml-package-computer-vision-azure-cognitive-services-ocr/>

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### Attempt 3

All knowledge areas

Incorrect

Question 9: **Incorrect**

Select the most appropriate **Natural Language Processing workload** for below scenario.

**Scenario:** Extract date/time, URLs, email addresses and phone number from the text.

- ☒ Entity recognition  
(Correct)
- ☐ Language modelling
- ☐ Speech recognition and speech synthesis
- ☐ Sentiment analysis
- ☐ Key phrase extraction  
(Incorrect)

#### Explanation

The **Entity Recognition** skill extracts entities of different types from text. This skill uses the machine learning models provided by Text Analytics in Cognitive Services.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 27: **Incorrect**

Which of the following can be achieved using Speech service of Azure

- ☒ providing closed captions for a recorded or live videos  
(Correct)
- ☒ creating a transcript of a telephone call or meeting  
(Correct)
- ☐ an in-car system that reads text messages aloud  
(Correct)
- ☐ creating an automated public address system for a train station

(Correct)

**Explanation**

creating a transcript of a telephone call or meeting - **Speech to Text**

an in-car system that reads text messages aloud - **Text to Speech**

providing closed captions for a recorded or live videos - **Speech to text**

creating an automated public address system for a train station - **Text to Speech**

**Speech to Text :**The recognized words are typically converted to text, which you can use for various purposes, such as.

- **Providing closed captions for recorded or live videos**
- **Creating a transcript of a phone call or meeting**
- Automated note dictation
- Determining intended user input for further processing

**Text to Speech :** You can use the output of speech synthesis for many purposes, including:

- Generating spoken responses to user input.
- Creating voice menus for telephone systems.
- **Reading email or text messages aloud in hands-free scenarios.**
- **Broadcasting announcements in public locations, such as railway stations or airports.**

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

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### Attempt 2

All knowledge areas

All questions

Question 1: **Correct**

You want to create a model to predict sales of ice cream based on historic data that includes daily ice cream sales totals and weather measurements. Which Azure service should you use?

- ☒ Azure Machine Learning  
**(Correct)**
- ☐ QnA Maker
- ☐ Text Analytics

**Explanation**

**Azure Machine Learning enables you to train a predictive model from the existing data.**

From Microsoft Docs : Training and deploying an effective machine learning model involves a lot of work, much of it time-consuming and resource-intensive. Azure Machine Learning is a cloud-based service that helps simplify some of the tasks and reduce the time it takes to prepare data, train a model, and deploy a predictive service.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/what-is-ml>

**Incorrect Answers:-**

**QnA Maker** -This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Text Analytics** - The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced natural language processing over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Question 2: Correct**

You want to train a model that classifies images of dogs and cats based on a collection of your own digital photographs. Which Azure service should you use?

☐ Azure Bot Service

☒ Custom Vision  
(Correct)

☐ Computer Vision

**Explanation**

**Custom Vision enables you to train an image classification model based on your own images.**

Creating an image classification solution with Custom Vision consists of two main tasks. First you must **use existing images** to train the model, and then you must publish the model so that client applications can use it to generate predictions.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

**Incorrect answers:**

In Microsoft Azure, the **Computer Vision** cognitive service uses **pre-trained models** to analyze images, enabling software developers to easily build applications

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/1-introduction>

**Azure Bot Service.** This service provides a framework for developing, publishing, and managing bots on Azure.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Question 3: Correct**

You are designing an AI application that uses computer vision to detect cracks in car windshields, and warn drivers when a windshield should be repaired or replaced. When tested in good lighting conditions, the application successfully detects 99% of dangerously damaged glass. Which of the following statements should you include in the application's user interface?

☒ When used in good lighting conditions, this application can be used to identify potentially dangerous cracks and defects in windshields. If you suspect your windshield is damaged, even if the application does not detect any defects, you should have it inspected by a professional.  
(Correct)

☐ This application detects damage in your windshield. If the application detects a defect, have the windshield replaced or repaired. If no defect is detected, you're good to go!

☐ This application detects damage in any glass surface, but you must accept responsibility for using it only in appropriate lighting conditions.

**Explanation**

**You should be transparent about the limitations of the application.**

**Transparency**

AI systems should be understandable. Users should be made fully aware of the purpose of the system, how it works, and what limitations may be expected.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

**Question 4: Correct**

An automobile dealership wants to use historic car sales data to train a machine learning model. The model should predict the price of a pre-owned car based on its make, model, engine size, and mileage. What kind of machine learning model should the dealership use automated machine learning to create?

- ☐ Classification
- ☒ Regression  
(Correct)
- ☐ Time Series

**Explanation**

To predict a numeric value, use a regression model.

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

**Incorrect answers:**

**Classification** is a form of machine learning that is used to predict which **category, or class**, an item belongs to.

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

**A time series is a sequence of numerical data points in successive order.** In investing, a time series tracks the movement of the chosen data points, such as a security's price, over a specified period of time with data points recorded at regular intervals.

<https://www.investopedia.com/terms/t/timeseries.asp>

Question 5: **Correct**

A bank wants to use historic loan repayment records to categorize loan applications as low-risk or high-risk based on characteristics like the loan amount, the income of the borrower, and the loan period. What kind of machine learning model should the dealership use automated machine learning to create?

- ☒ Classification  
(Correct)
- ☐ Regression
- ☐ Time Series

**Explanation**

To predict a category, or class, use a classification model. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes. In this case, the characteristics of the patient are the features, and the label is a classification of either **0** or **1**, representing non-diabetic or diabetic.

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

**Incorrect answers:**

To predict a numeric value, use a regression model.

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

**A time series is a sequence of numerical data points in successive order.** In investing, a time series tracks the movement of the chosen data points, such as a security's price, over a specified period of time with data points recorded at regular intervals.

<https://www.investopedia.com/terms/t/timeseries.asp>

Question 6: **Correct**

You want to use automated machine learning to train a regression model with the best possible *R2 score*. How should you configure the automated machine learning experiment?

- ☒ Set the Primary metric to R2 score  
(Correct)
- ☐ Block all algorithms other than Gradient Boosting



- ☐ Enable 'Featurization'

**Explanation**

**The primary metric determines the metric used to evaluate the best performing model.**

**Coefficient of Determination (R<sup>2</sup>):** This metric is more commonly referred to as *R-Squared*, and summarizes how much of the variance between predicted and true values is explained by the model. The closer to 1 this value is, the better the model is performing.

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

**Incorrect answers:**

**Block all algorithms other than Gradient Boosting** - This is done when we only want Gradient Boosting to be the model to be used

**Enable Featurization** - This is used when we want the featurization to be taken care of by Azure Machine Learning automatically

Question 7: **Correct**

You are creating a training pipeline for a regression model, using a dataset that has multiple numeric columns in which the values are on different scales. You want to transform the numeric columns so that the values are all on a similar scale relative to the minimum and maximum values in each column. Which module should you add to the pipeline?

- ☐ Select Columns in a Dataset

- ☒ Normalize Data  
(Correct)

- ☐ Clean Missing Data

**Explanation**

**When you need to transform numeric data to be on a similar scale, use Normalize Data module.**

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

**Incorrect answers:**

**Clean Missing Data** - This is used when we want to deal with missing values

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

**Select Columns in a Dataset** - This is used when we want to select the columns which will act as the features for the training

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

Question 8: **Correct**

You use Azure Machine Learning designer to create a training pipeline and an inference pipeline for a regression model. Now you plan to deploy the inference pipeline as a real-time service. What kind of compute target should you create to host the service?

- ☐ Compute Instance

- ☐ Compute Cluster

- ☒ Inference Cluster  
(Correct)

**Explanation**

Use an Inference Cluster for deployment. **Inference cluster has Azure Kubernetes Service** which supports **real time inference**. Compute clusters can also be used for model inference however they support batch inference and not real time inference. These two services are recommended for production.

**Incorrect answers:**

**Use a compute instance** as your fully configured and managed **development environment** in the cloud for machine learning. They can also be used as a compute target for training and inferencing for development and testing purposes.

**Compute Cluster** -Use this for batch inference

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-deploy-and-where?tabs=azcli>

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/create-compute>

<https://docs.microsoft.com/en-us/azure/machine-learning/concept-compute-target#deploy>

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

Question 9: **Correct**

When categorizing an image, the Computer Vision service supports two specialized domain models. Which are those domain models that service would support?

- ☐ Brands
- ☒ Landmarks  
(Correct)
- ☐ Monuments
- ☒ Celebrities  
(Correct)

**Explanation**

When categorizing an image, the Computer Vision service supports two specialized domain models:

**Celebrities** - The service includes a model that has been trained to identify thousands of well-known celebrities from the worlds of sports, entertainment, and business.

**Landmarks** - The service can identify famous landmarks, such as the Taj Mahal and the Statue of Liberty.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 10: **Correct**

You wish to develop an application for tourists which they can use as a text or audio-based translator. Which Azure services can help you develop such an application? Select one or more:

- ☒ Azure Speech  
(Correct)
- ☒ Translator Text  
(Correct)
- ☐ Text Analytics
- ☐ Speech Analytics

**Explanation**

The Text Translator service supports text-to-text translation between **more than 60 languages**.

The Speech service includes the following application programming interfaces (APIs):

**Speech-to-text** - used to transcribe speech from an audio source to text format.

**Text-to-speech** - used to generate spoken audio from a text source.

**Speech Translation** - used to translate speech in one language to text or speech in another.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 11: **Correct**

You wish to develop a reservation system for restaurant. Which of the following services would you need?

- ☒ Azure Bot service  
(Correct)
- ☐ Cognitive Services
- ☐ Azure QnA
- ☒ LUIS  
(Correct)

**Explanation**

By using Azure services such as the **Bot Service** and **Language Understanding** or Speech API services, companies can assist customers and process orders or reservations with automated, scalable bots.





<https://docs.microsoft.com/en-us/azure/architecture/example-scenario/ai/commerce-chatbot>

Question 12: **Correct**

Azure ML studio uses which type of datastores? Select one or more:

- ☒ Blob  
(Correct)
- ☐ Queue
- ☐ Table
- ☒ File  
(Correct)

**Explanation**

When you create a workspace, an **Azure blob container** and an **Azure file share** are automatically registered as datastores to the workspace. They're named **workspaceblobstore** and **workspacefilestore**, respectively. The **workspaceblobstore** is used to store workspace artifacts and your machine learning experiment logs. It's also set as the **default datastore** and can't be deleted from the workspace. The **workspacefilestore** is used to store notebooks and R scripts authorized via **compute instance**.

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

Question 13: **Correct**

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?

- ☐ Custom Vision
- ☐ Face
- ☐ Translator Text
- ☒ QnA Maker  
(Correct)

**Explanation**

QnA Maker is a cloud-based API service that lets you create a conversational Question and-answer layer over your existing data.

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

**Azure Bot Service.** This service provides a framework for developing, publishing, and managing bots on Azure.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Incorrect answers:**

**Custom Vision** -Creating an image classification solution with Custom Vision consists of two main tasks. First you must use existing images to train the model, and then you must publish the model so that client applications can use it to generate predictions.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

**Face**

Face currently supports the following functionality:

Face Detection

Face Verification

Find Similar Faces

Group faces based on similarities

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

**Translator Text**

Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

The **Translator Text** service, which supports text-to-text translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 14: **Correct**

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

- ☐ anomaly detection
- ☐ natural language processing
- ☒ computer vision  
(Correct)
- ☐ conversational AI

**Explanation**

**Azure's Computer Vision** service gives you access to multitude of algorithms that process images and return information based on the image features you're interested in.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/2-object-detection-azure>

**Incorrect answers:**

**anomaly detection** - There might be a infusion to tag this question as an example of anomaly detection which might be wrong, however one might need to understand in this particular case, bottle images are involved which needs to handled first using computer vision service after which either a binary classification or anomaly detection model can be used

**conversational AI** -While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that answers to specific questions are hard to find.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/1-introduction>

**natural language processing** -Analyzing text is a process where you evaluate different aspects of a document or phrase, in order to gain insights into the content of that text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

Question 15: **Correct**

You use natural language processing to process text from a Microsoft news story. You receive the output shown in the following exhibit. Which type of natural languages processing was performed?

[Larger image](#)

- ☐ translation
- ☐ sentiment analysis
- ☐ key phrase extraction
- ☒ entity recognition  
(Correct)

**Explanation**

You can provide the Text Analytics service with unstructured text and it will return a **list of *entities*** in the text that it recognizes. You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category; and in some cases, subtype, such as those as shown in the following table.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**translation** - Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

The **Translator Text** service, which supports text-to-text translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

**sentiment analysis** - The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**key phrase extraction** - Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 16: **Correct**  
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.  
[Larger image](#)

- ☒ Verification  
Similarity  
Grouping  
Identification  
**(Correct)**

- ☐ Identification  
Similarity  
Grouping  
Verification

- ☐ Verification  
Grouping  
Similarity  
Identification

- ☐ Identification  
Grouping  
Similarity  
Verification

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

**Does this person look like other person?** Similarity

**Do all the faces belong together?** Grouping

**Who is this person in this group of people?** Identification

Face API currently supports the following functionality:

Face Detection

Face Verification

Find Similar Faces

Group faces based on similarities

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 17: **Correct**  
You are using Azure Machine Learning designer to create a training pipeline for a binary classification model. You have added a dataset containing features and labels, a Two-Class Decision Forest module, and a Train Model module. You plan to use Score Model and Evaluate Model modules to test the trained model with a subset of the dataset that was not used for training. Which additional kind of module should you add?

- ☐ Join Data

- ☒ Split Data  
(Correct)
- ☐ Select Columns in Dataset

**Explanation**

Use a **Split Data module to randomly split a dataset** into test and validation subsets.

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

**Incorrect answers:**

**Join Data** - This is used to join two tables

**Select Columns in Dataset** - This is used to select columns which will act as features for model training

Question 18: **Incorrect**

You use an Azure Machine Learning designer pipeline to train and test a binary classification model. You review the model's performance metrics in an Evaluate Model module, and note that it has an AUC score of 0.3. What can you conclude about the model?

- ☒ The model can explain 30% of the variance between true and predicted labels.  
(Incorrect)
- ☐ The model predicts accurately for 70% of test cases.
- ☐ The model performs worse than random guessing.  
(Correct)

**Explanation**

An AUC of 0.5 is what you'd expect with random prediction of a binary model. AUC=1 is a perfect model and AUC =0 is the worst possible model.

<https://towardsdatascience.com/understanding-auc-roc-curve-68b2303cc9c5>

Question 19: **Correct**

You use Azure Machine Learning designer to create a training pipeline for a classification model. What must you do before deploying the model as a service?

- ☒ Create an inference pipeline from the training pipeline  
(Correct)
- ☐ Add an Evaluate Model module to the training pipeline
- ☐ Clone the training pipeline with a different name

**Explanation**

**You must create an inference pipeline to deploy as a service.** After creating and running a pipeline to train the model, you need a second pipeline that performs the same data transformations for new data, and then uses the trained model to *inference* (in other words, predict) label values based on its features. This will form the basis for a predictive service that you can publish for applications to use.

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

**Incorrect answers**

**Clone the training pipeline with a different name** - This might be needed if you want to modify the training pipeline

**Add an Evaluate Model module to the training pipeline** - This is done as a part of training itself and not after training

Question 20: **Correct**

You are using an Azure Machine Learning designer pipeline to train and test a K-Means clustering model. You want your model to assign items to one of three clusters. Which configuration property of the K-Means Clustering module should you set to accomplish this?

- ☒ Set Number of Centroids to 3  
(Correct)
- ☐ Set Random number seed to 3
- ☐ Set Iterations to 3

**Explanation**

To create K clusters, you must set the number of centroids to K

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

Question 21: **Correct**

You use Azure Machine Learning designer to create a training pipeline for a clustering model. Now you want to use the model in an inference pipeline. Which module should you use to infer cluster predictions from the model?

- ☐ Score Model
- ☒ Assign Data to Clusters  
(Correct)
- ☐ Train Clustering Model

**Explanation**

Use the Assign Data to Clusters module to generate cluster predictions from a trained clustering model.

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

Question 22: **Correct**

You want to use the Text Analytics service to determine the key talking points in a text document. Which feature of the service should you use?

- ☐ Sentiment analysis
- ☒ Key phrase extraction  
(Correct)
- ☐ Entity detection

**Explanation**

**Key phrase extraction** is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**Sentiment analysis** -The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

**Entity detection**

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 23: **Correct**

You use the Text Analytics service to perform sentiment analysis on a document, and a score of 0.99 is returned. What does this score indicate about the document sentiment?

- ☒ The document is positive.  
(Correct)
- ☐ The document is neutral.
- ☐ The document is negative.

**Explanation**

Using the pre-built machine learning classification model, the service evaluates the text and returns a sentiment score in the range of **0 to 1, with values closer to 1 being a positive sentiment**. Scores that are close to the middle of the range (0.5) are considered neutral or indeterminate.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 24: **Correct**

When might you see NaN returned for a score in Language Detection?

- ☐ When the score calculated by the service is outside the range of 0 to 1
- ☐ When the predominant language in the text is mixed with other languages
- ☒ When the language is ambiguous  
(Correct)

**Explanation**

There may be text that is ambiguous in nature, or that has mixed language content. These situations can present a challenge to the service. An ambiguous content example would be a case where the document contains limited text, or only punctuation. For example, using the service to analyze the text ":-)", results in a value of **unknown** for the language name and the language identifier, and a score of **NaN** (which is used to indicate *not a number*).

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 25: **Correct**

You plan to build an application that uses the Speech service to transcribe audio recordings of phone calls into text, and then submits the transcribed text to the Text Analytics service to extract key phrases. You want to manage access and billing for the application services in a single Azure resource. Which type of Azure resource should you create?

- ☐ Speech
- ☐ Text Analytics
- ☒ Cognitive Services  
(Correct)

**Explanation**

A **Cognitive Services** resource - choose this resource type if you plan to use the Text Analytics service in combination with other cognitive services, and you want to manage access and billing for these services together.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

A **Text Analytics** resource - choose this resource type if you only plan to use the Text Analytics service, or if you want to manage access and billing for the resource separately from other services.

A **Speech Analytics** resource - choose this resource type if you only plan to use the Speech service, or if you want to manage access and billing for the resource separately from other services.

Question 26: **Incorrect**

You want to use the Speech service to build an application that reads incoming email message subjects aloud. Which API should you use?

- ☒ Speech-to-Text  
(Incorrect)
- ☐ Text-to-Speech  
(Correct)
- ☐ Translate

**Explanation**

The text-to-speech API enables you to convert text input to audible speech, which can either be played directly through a computer speaker or written to an audio file.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/2-get-started-azure>

**Incorrect answers**

**Speech-to-Text** - This will perform voice to text conversion

**Translate** - This will perform text to text translation

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 27: **Correct**

As per below description which *Microsoft guiding principles for responsible AI* is followed.

The AI system should be able to operate as they were originally designed, respond safely to unanticipated conditions, and resist harmful manipulation.

- ☐ accountability
- ☐ inclusiveness
- ☐ privacy and security





reliability and safety  
(Correct)

- ☐ fairness

**Explanation**

AI systems should perform **reliably and safely**. For example, consider an AI-based software system for an autonomous vehicle; or a machine learning model that diagnoses patient symptoms and recommends prescriptions. Unreliability in these kinds of system can result in substantial risk to human life.

<https://www.microsoft.com/en-us/ai/our-approach-to-ai>

**Incorrect answers:**

**accountability** - People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

**inclusiveness** - AI systems should empower everyone and engage people. AI should bring benefits to all parts of society, regardless of physical ability, gender, sexual orientation, ethnicity, or other factors.

**privacy and security** - AI systems should be secure and respect privacy. The machine learning models on which AI systems are based rely on large volumes of data, which may contain personal details that must be kept private. Even after the models are trained and the system is in production, it uses new data to make predictions or take action that may be subject to privacy or security concerns.

**fairness** -AI systems should treat all people fairly. For example, suppose you create a machine learning model to support a loan approval application for a bank. The model should make predictions of whether or not the loan should be approved without incorporating any bias based on gender, ethnicity, or other factors that might result in an unfair advantage or disadvantage to specific groups of applicants.

Question 28: **Correct**

Select the most appropriate **Natural Language Processing workload** for below scenario.

Analyses online text review and evaluates if the text content is having a positive or negative review.

- ☐ Entity recognition
- ☐ Key phrase extraction
- ☐ Translation
- ☒ Sentiment analysis  
(Correct)
- ☐ Language modelling
- ☐ Speech recognition and speech synthesis

**Explanation**

The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting **positive and negative sentiment** in social media, customer reviews, discussion forums and more.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**-Entity recognition** - You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes.

**-Translation** -

The **Translator Text** service, which supports text-to-text translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

**-Language modelling** -

After defining the entities and intents with sample utterances in your Language Understanding application, you can train a language model to predict intents and entities from user input - even if it doesn't match the sample utterances exactly. You can then use the model from a client application to retrieve predictions and respond appropriately.



<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/1-introduction>

### -Speech recognition and speech synthesis -

To enable this kind of interaction, the AI system must support two capabilities:

**Speech recognition** - the ability to detect and interpret spoken input.

**Speech synthesis** - the ability to generate spoken output.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

Question 29: **Correct**

You are developing an application that must take English input from a microphone and generate a real-time text-based transcription in Hindi. Which service should you use?

- ☐ Translator Text
- ☒ Speech  
(Correct)
- ☐ Text Analytics

#### Explanation

The Speech service includes the following application programming interfaces (APIs):

**Speech-to-text** - used to transcribe speech from an audio source to text format.

**Text-to-speech** - used to generate spoken audio from a text source.

**Speech Translation** - used to translate speech in one language to text or speech in another.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 30: **Correct**

You need to use the Translator Text service to translate email messages from Spanish into both English and French? What is the most efficient way to accomplish this goal?

- ☒ Make a single call to the service; specifying a "from" language of "es", a "to" language of "en", and another "to" language of "fr".  
(Correct)
- ☐ Make a single call to the service; specifying a "from" language of "es", and a "to" language of "en-fr".
- ☐ Make two calls to the service; one with a "from" language of "es" and a "to" language of "en", and another with a "from" language of "es" and a "to" language of "fr"

#### Explanation

You can specify a single "from" language and multiple "to" languages.

When using the Text Translator service, you can specify one *from* language with multiple *to* languages, enabling you to simultaneously translate a source document into multiple languages.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 31: **Correct**

You need to provision an Azure resource that will be used to author a new Language Understanding application. What kind of resource should you create?

- ☐ Text Analytics
- ☒ Language Understanding  
(Correct)
- ☐ Cognitive Services

#### Explanation

To author a Language Understanding model, you need a Language Understanding resource. You cannot use Cognitive resource because its only used for prediction

**Language Understanding:** A dedicated resource for Language Understanding, which can be either an *authoring* or a *prediction* resource.

**Cognitive Services:** A general cognitive services resource that includes Language Understanding along with many other cognitive services. You can only use this type of resource for ***prediction***.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

Question 32: **Correct**

You are authoring a Language Understanding application to support an international clock. You want users to be able to ask for the current time in a specified city, for example "What is the time in London?". What should you do?

- ☒ Define a "city" entity and a "GetTime" intent with utterances that indicate the GetTime intent.  
**(Correct)**
- ☐ Create an intent for each city, each with an utterance that asks for the time in that city.
- ☐ Add the utterance "What time is it in city" to the "None" intent.

**Explanation**

The **intent** captures the task which is getting the **time** and the **entity** specifies the item to which the intent is applied which is the **city**

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/1-introduction>

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

Question 33: **Correct**

You have published your Language Understanding application. What information does a client application developer need to get predictions from it?

- ☒ The endpoint and key for the application's prediction resource  
**(Correct)**
- ☐ The endpoint and key for the application's authoring resource
- ☐ The Azure credentials of the user who published the Language Understanding application

**Explanation**

When you are satisfied with the results from the training and testing, you can publish your Language Understanding application to a prediction resource for consumption.

Client applications can use the model by connecting to the **endpoint** for the prediction resource, specifying the appropriate **authentication key**; and submit user input to get predicted intents and entities. The predictions are returned to the client application, which can then take appropriate action based on the predicted intent.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

Question 34: **Incorrect**

Your organization has an existing frequently asked questions (FAQ) document. You need to create a QnA Maker knowledge base that includes the questions and answers from the FAQ with the least possible effort. What should you do?

- ☒ Create an empty knowledge base, and then manually copy and paste the FAQ entries into it.  
**(Incorrect)**
- ☐ Import the existing FAQ document into a new knowledge base.  
**(Correct)**
- ☐ Import a pre-defined chit-chat data source.

**Explanation**

You can import question and answer pairs from an existing FAQ document into a QnA Maker knowledge base.

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

**Generated from an existing FAQ document or web page.**

Imported from a pre-defined *chit-chat* data source.

Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 35: **Incorrect**

You need to deliver a support bot for internal use in your organization. Some users want to be able to submit questions to the bot using Microsoft Teams, others want to use a web chat interface on an internal web site. What should you do?

- ☐ Create a knowledge base. Then create a bot for the knowledge base and connect the Web Chat and Microsoft Teams channels for your bot  
(Correct)
- ☒ Create a knowledge base. Then create two bots that use the same knowledge base - one bot connected to the Microsoft Teams channel, and the other to the Web Chat channel.  
(Incorrect)
- ☐ Create two knowledge bases with the same question and answer pairs. Then create a bot for each knowledge base; one connected to the Microsoft Teams channel, and the other to the Web Chat channel

**Explanation**

When your bot is ready to be delivered to users, you can connect it to **multiple channels; making it possible for users to interact with it through web chat, email, Microsoft Teams, and other common communication media.**

The Microsoft Teams channel enables your bot to receive and respond to messages in Microsoft Teams, and the Web Chat channel enables interactions through a web chat interface.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 36: **Correct**

You plan to use the Computer Vision service to read text in a large PDF document. Which API should you use?

- ☒ The Read API  
(Correct)
- ☐ The OCR API
- ☐ The Recognize Text API

**Explanation**

Not only is the **Read API** better suited for larger images but it runs asynchronously so it will not block your application while it is running.

**The OCR method can have issues with false positives when the image is considered text-dominate.** The Read API uses the latest recognition models and is optimized for images that have a significant amount of text or has considerable visual noise.

**The Read API is a better option for scanned documents that have a lot of text.** The Read API also has the ability to automatically determine the proper recognition model to use, taking into consideration lines of text and supporting images with printed text as well as recognizing handwriting.

<https://docs.microsoft.com/en-us/learn/modules/read-text-computer-vision/2-ocr-azure>

**The Recognize Text API** - There is no such API

Question 37: **Correct**

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

1. Labeling is the process of tagging the training data with known values
2. You should evaluate the model using the same data that was used for training
3. Accuracy is always the primary metrics while evaluating model performance

- ☐
  1. Labeling is the process of tagging the training data with known values - **True**
  2. You should evaluate the model using the same data that was used for training - **False**
  3. Accuracy is always the primary metrics while evaluating model performance - **True**
- ☐
  1. Labeling is the process of tagging the training data with known values - **True**
  2. You should evaluate the model using the same data that was used for training - **True**
  3. Accuracy is always the primary metrics while evaluating model performance - **False**
- ☒
  1. Labeling is the process of tagging the training data with known values - **True**
  2. You should evaluate the model using the same data that was used for training - **False**
  3. Accuracy is always the primary metrics while evaluating model performance - **False**  
(Correct)

**Explanation**

1. Labeling is the process of tagging the training data with known values - **True**

Labeling the process of tagging and annotating the data-set whose labels are already known

2. You should evaluate the model using the same data that was used for training - **False**

We should never evaluate a model on the same data set on which it was trained to avoid bias

3. Accuracy is always the primary metrics while evaluating model performance - **False**

Accuracy is not always the best metric. Depending upon the problem type the evaluation metrics will change. Also accuracy is highly impacted by imbalanced data-set

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

Question 38: **Correct**

You are developing a chat-bot solution in Azure.

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

- ☐ Translator Text
- ☐ QnA Maker
- ☐ Speech
- ☒ Language Understanding (LUIS)  
(Correct)

#### Explanation

Creating a language understanding application with **Language Understanding (LUIS)** consists of two main tasks. **First you must define entities, intents, and utterances** with which to train the language model - referred to as *authoring* the model. Then you must publish the model so that client applications can use it for intent and entity *prediction* based on user input.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

#### Incorrect answers:

**QnA Maker** - After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

- Generated from an existing FAQ document or web page.
- Imported from a pre-defined *chit-chat* data source.
- Entered and edited manually.

Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

The **Translator Text** service, which supports text-to-text translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.

Retake test

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Fullscreen

## AI 900: Artificial Intelligence Fundamentals Practice Test 2021 - Results

[Return to review](#)

### Attempt 2

[All knowledge areas](#)

[All questions](#)

Question 1: **Correct**

A bank wants to use historic loan repayment records to categorize loan applications as low-risk or high-risk based on characteristics like the loan amount, the income of the borrower, and the loan period. What kind of machine learning model does the bank need to create? Select one:

- ☒ Classification  
(Correct)
- ☐ Regression
- ☐ Clustering

#### Explanation

This is an example of Binary classification problem where the output will belong to either of 2 categories(low risk or high risk).

**Classification** is a form of machine learning that is used to predict which category, or *class*, an item belongs to. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes. In this case, the characteristics of the patient are the features, and the label is a classification of either **0** or **1**, representing non-diabetic or diabetic.

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

#### Incorrect answers:

**Regression** - *Regression* is a form of machine learning that is used to predict a **numeric label** based on an item's *features*.

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

**Clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 2: **Correct**

A model is developed to take medical images as input and decide on whether tumor is benign or malignant. Which type of machine learning model it is? Select one:

- ☒ Classification  
(Correct)
- ☐ Linear Regression
- ☐ Multiple Regression
- ☐ Hierarchical Clustering

**Explanation**

This is an example of Binary Classification(Benign or Malignant)

*Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes. In this case, the characteristics of the patient are the features, and the label is a classification of either **0** or **1**, representing non-diabetic or diabetic.

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

**Incorrect answers:**

**Linear Regression, Multiple Regression -**

*Regression* is a form of machine learning that is used to predict a **numeric label** based on an item's *features*.

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

**Hierarchical Clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 3: **Correct**

When you open the gallery section in your mobile phone, you see that thumbnails are generated for images. Which capability do you think makes this happen?

- ☐ Image Tagging
- ☒ Computer Vision  
(Correct)
- ☐ Image classification
- ☐ Conversational AI

**Explanation**

In addition to these capabilities, the Computer Vision service can:

Detect image types - for example, identifying clip art images or line drawings.

Detect image color schemes - specifically, identifying the dominant foreground, background, and overall colors in an image.

**Generate thumbnails - creating small versions of images.**

Moderate content - detecting images that contain adult content or depict violent, gory scenes.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 4: **Correct**

You need to use the Translator Text service to translate email messages from Spanish into both English and French. Which is the most efficient way to accomplish this goal?

- ☒ Make a single call to the service; specifying a "from" language of "es", a "to" language of "en", and another "to" language of "fr".  
(Correct)



- ☐ Make a single call to the service; specifying a "from" language of "es", and a "to" language of "en-fr".
- ☐ Make two calls to the service; one with a "from" language of "es" and a "to" language of "en", and another with a "from" language of "es" and a "to" language of "fr"

**Explanation**

When using the Text Translator service, you can specify one *from* language with multiple *to* languages, enabling you to simultaneously translate a source document into multiple languages.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

**Question 5: Correct**

You observe that your text is comprising of words from multiple languages. In such a scenario, the Text Analytics service outputs in which language?

- ☐ English by default
- ☐ Throws error message
- ☒ Predominant language  
(Correct)
- ☐ It is chosen random

**Explanation**

The language detection service will focus on the *predominant* language in the text. The service uses an algorithm to determine the predominant language, such as length of phrases or total amount of text for the language compared to other languages in the text. The predominant language will be the value returned, along with the language code. The confidence score may be less than 1 as a result of the mixed language text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Question 6: Correct**

You plan to build an application that uses

(i) the Speech service to transcribe audio recordings of phone calls into text.

(ii) You also plan to submit the transcribed text to the Text Analytics service to extract key phrases. (iii) Moreover, you want to manage access and billing for the application services in a single Azure resource.

Which type of Azure resource should you create?

- ☐ Text Analytics
- ☐ Custom Vision
- ☐ Speech
- ☒ Cognitive Services  
(Correct)

**Explanation**

A **Cognitive Services** resource - choose this resource type if you plan to use the Text Analytics service in combination with other cognitive services, and you want to manage access and billing for these services together.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**Text Analytics** - Choose this resource type if you only plan to use the Text Analytics service, or if you want to manage access and billing for the resource separately from other services.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Custom Vision** - This is related to images and videos and not natural language processing

A **Speech** resource - choose this resource type if you only plan to use the Speech service, or if you want to manage access and billing for the resource separately from other services.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/2-get-started-azure>



Question 7: **Correct**

For a classification model, uploading images, labeling, training the model and evaluation can be achieved through which service? Select one or more?

- ☒ Custom Vision portal  
(Correct)
- ☐ AI ML Service
- ☒ Custom Vision service programming language-SDKs  
(Correct)

**Explanation**

Creating an image classification solution with Custom Vision consists of two main tasks. First you must use existing images to train the model, and then you must publish the model so that client applications can use it to generate predictions.

You can perform these tasks in the *Custom Vision portal*, or if you have the necessary coding experience you can use one of the Custom Vision service programming language-specific **software development kits (SDKs)**.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

**Incorrect answers:**

**AI ML Service** - There is no AI ML Service which provides the option to upload images and perform labeling

Question 8: **Incorrect**

If you consider the concept of 'Describing an Image' of Computer Vision, which of the following would be correct to use? Select one or more.

- ☐ Each returned phrase will be associated with a confidence score  
(Correct)
- ☒ Based on the image content, Computer Vision may return multiple phrases  
(Correct)
- ☒ The phrases will be arranged in descending order of their confidence score  
(Correct)
- ☐ The phrases will be arranged in ascending order of their confidence

**Explanation**

Computer Vision has the ability to analyze an image, evaluate the objects that are detected, and generate a human-readable phrase or sentence that can describe what was detected in the image.

Depending on the image contents, the service may return **multiple results, or phrases**. Each returned phrase will have an associated **confidence score**, indicating how confident the algorithm is in the supplied description. **The highest confidence phrases will be listed first.**

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 9: **Correct**

What information do you need to use to access Computer Vision service? Select one or more:

- ☐ IP address of host
- ☐ URL
- ☒ Endpoint  
(Correct)
- ☒ Key  
(Correct)

**Explanation**

Whichever type of resource you choose to create, it will provide two pieces of information that you will need to use it:

A **key** that is used to authenticate client applications.

An **endpoint** that provides the HTTP address at which your resource can be accessed.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 10: **Correct**

Classification machine learning models use a set of inputs. What are those inputs called? Select one:

☒ Features  
(Correct)

☐ Inputs

☐ Pixels

#### Explanation

The inputs in a machine learning model is called features.

*Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes. In this case, the characteristics of the patient **are the features**, and the label is a classification of either **0** or **1**, representing non-diabetic or diabetic.

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

Question 11: **Correct**

Ensuring users are aware of limitations of AI-based application that they are using is an example of which Responsible AI principle? Select one:

☐ Privacy and Security

☐ Accountability

☒ Transparency  
(Correct)

☐ Inclusiveness

#### Explanation

AI systems should be understandable. Users should be made fully aware of the purpose of the system, how it works, and what limitations may be expected.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

#### Incorrect answers:

**Privacy and Security** - AI systems should be secure and respect privacy. The machine learning models on which AI systems are based rely on large volumes of data, which may contain personal details that must be kept private.

**Accountability** -People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

**Inclusiveness**-AI systems should empower everyone and engage people. AI should bring benefits to all parts of society, regardless of physical ability, gender, sexual orientation, ethnicity, or other factors.

Question 12: **Correct**

Image classification is used to describe an image and object classification is used to group similar objects. Select one:

☐ True

☒ False  
(Correct)

#### Explanation

**Image Classification** means classifying each image to a label.

*Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

There is nothing like Object Classification in Azure ML. We have Object Detection.

Object Detection means classifying different objects in an image.

**Object detection** is a form of machine learning based computer vision in which a model is trained to recognize individual types of object in an image, and to identify their location in the image.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

Question 13: **Correct**

Let us consider that you want to use the Text Analytics service to determine the key talking points in a text document. To achieve the purpose, which feature of the service should you use? Select one:

- ☒ Key phrase extraction  
(Correct)
- ☐ Sentiment analysis
- ☐ Entity detection

#### Explanation

While these techniques can be used to great effect, programming them can be complex. In Microsoft Azure, the **Text Analytics** cognitive service can help simplify application development by using pre-trained models that can:

Determine the language of a document or text (for example, French or English).

Perform sentiment analysis on text to determine a positive or negative sentiment.

**Extract key phrases from text that might indicate its main talking points.**

Identify and categorize entities in the text. Entities can be people, places, organizations, or even everyday items such as dates, times, quantities, and so on.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

#### Incorrect answers:

**Sentiment analysis** -The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

**Entity detection** -You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category; and in some cases

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 14: **Correct**

Which of the following service returns a bounding box coordinate? Select one:

- ☒ Object Detection  
(Correct)
- ☐ Object Tagging
- ☐ Image Description

#### Explanation

**Object detection** is a form of computer vision in which artificial intelligence (AI) agents can identify and locate specific types of object in an image or camera feed.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

#### Incorrect Answers :

**Object Tagging** -The image descriptions generated by Computer Vision are based on a set of thousands of recognizable objects, which can be used to suggest *tags* for the image. These tags can be associated with the image as metadata that summarizes attributes of the image; and can be particularly useful if you want to index an image along with a set of key terms that might be used to search for images with specific attributes or contents.

**Image Description** - Computer Vision has the ability to analyze an image, evaluate the objects that are detected, and generate a human-readable phrase or sentence that can describe what was detected in the image.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 15: **Correct**

Which of the following tasks would be a good fit for the Speech-to-Text service? Select one:

Select one:

- ☒ Real-time voice-chat transcription from a microphone  
(Correct)

- ☐ Translating a document written in English into German.
- ☐ Creating an audio file from a famous quote

**Explanation**

**Real-time voice-chat transcription from a microphone-** Speech to Text

**Translating a document written in English into German** - Text to Text

**Creating an audio file from a famous quote** - Text to Speech

Question 16: **Correct**

Which of the following types of machine learning is an example of unsupervised machine learning model? Select one:

- ☐ Regression
- ☐ Classification
- ☒ Clustering  
**(Correct)**

**Explanation**

**Clustering** is an example of *unsupervised* machine learning, in which you train a model to separate items into clusters based purely on their characteristics, or *features*. There is no previously known cluster value (or *label*) from which to train the model.

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

**Incorrect answers**

**Classification** - *Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

**Regression-** *Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.

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

Question 17: **Correct**

Which service has the capability to detect printed and handwritten text in images? Select one:

- ☐ Translator Text
- ☒ Computer Vision- OCR  
**(Correct)**
- ☐ Text Analytics

**Explanation**

The best option among the above is **Computer vision**-OCR. As per official Microsoft documentation, Computer vision-Read API does better job than OCR API for hand written text. See below documentation.

<https://docs.microsoft.com/en-us/learn/modules/read-text-computer-vision/2-ocr-azure>

**Incorrect answers:**

**Translator Text** - *Text translation* can be used to translate documents from one language to another, translate email communications that come from foreign governments, and even provide the ability to translate web pages on the Internet.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/1-introduction>

**Text Analytics** - The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced natural language processing over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 18: **Correct**

Which type of bot template should you use for a bot that distills semi-structured data into distinct and helpful answers?

- ☒ Q&A  
**(Correct)**

- ☐

- ☐ Proactive
- ☐ Basic
- ☐ Language Understanding

**Explanation**

**Q&A service converts semi structured forms into structured Q&A.**

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

Generated from an existing FAQ document or web page.

Imported from a pre-defined *chit-chat* data source.

Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Incorrect answers**

**Basic, Proactive** - There are no such terms in Azure

**Language Understanding** -On Microsoft Azure, language understanding is supported through the **Language Understanding Intelligent Service**, more commonly known as **Language Understanding**. To work with Language Understanding, you need to take into account three core concepts: *utterances*, *entities*, and *intents*.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/1-introduction>

Question 19: **Correct**

You are building a machine learning model to determine a local cab price at a specific time of a day using historic data from a cab service database. Which type of machine learning model should you build?

- ☐ Unsupervised Learning
- ☒ Supervised Learning  
**(Correct)**
- ☐ Deep Learning

**Explanation**

This is an example of a Regression model.

Regression is an example of a **supervised machine learning** technique in which you train a model using data that includes both the features and known values for the label, so that the model learns to *fit* the feature combinations to the label. Then, after training has been completed, you can use the trained model to predict labels for new items for which the label is unknown.

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

**Incorrect answers:**

**Unsupervised Learning** - Clustering is an example of *unsupervised* machine learning, in which you train a model to separate items into clusters based purely on their characteristics, or *features*. There is no previously known cluster value (or *label*) from which to train the model.

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

**Deep Learning** - Deep Learning involves use of neural networks

Question 20: **Correct**

You are designing an AI solution to monitor meetings. The AI model you create should be able to indicate when people are angry or scared using their facial expressions. Which cognitive service should you use for the solution? Select one:

- ☐ Text Analytics
- ☒ Face API  
**(Correct)**
- ☐ Speech-to-text
- ☐ Computer Vision

- ☐ QnA Maker

**Explanation**

Microsoft Azure provides multiple cognitive services that you can use to detect and analyze faces, including:

**Computer Vision**, which offers face detection and some basic face analysis, such as determining age.

**Video Indexer**, which you can use to detect and identify faces in a video.

**Face**, which offers pre-built algorithms that can detect, recognize, and analyze faces.

Of these, Face offers the widest range of facial analysis capabilities.

Moving beyond simple face detection, some algorithms can also return other information, such as facial landmarks (nose, eyes, eyebrows, lips, and others). These facial landmarks can be used as features with which to train a machine learning model from which you can infer information about a person, such as their perceived age or perceived emotional state.

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/1-introduction>

**Incorrect answers:**

**Speech-to-text, QnA Maker and Text Analytics** are natural language technologies and not related to Computer Vision

Question 21: **Correct**

You are developing an application that must take English input from a microphone and generate a real-time text-based transcription in Hindi. Which service should you use?

- ☐ Translator Text
- ☐ QnA Maker
- ☒ Speech  
(Correct)
- ☐ Text Analytics

**Explanation**

The Speech service includes the following application programming interfaces (APIs):

**Speech-to-text** - used to transcribe speech from an audio source to text format.

**Text-to-speech** - used to generate spoken audio from a text source.

**Speech Translation** - used to translate speech in one language to text or speech in another.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

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

**Incorrect answers:**

**Translator Text** - *Text translation* can be used to translate documents from one language to another, translate email communications that come from foreign governments, and even provide the ability to translate web pages on the Internet.

**QnA Maker** - This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

**Text Analytics** - Text analytics is a process where an artificial intelligence (AI) algorithm, running on a computer, evaluates these same attributes in text, to determine specific insights.

Question 22: **Correct**

You are planning to build a regression model. You observe that the data-set has features with numerical values at different scales. How does it impact when you use data-set unchanged?

- ☒ Larger values in data may lead to higher bias  
(Correct)
- ☐ Algorithm works better when we use data unchanged
- ☐ It makes no difference. No risk involved
- ☐ Smaller values in data may lead to higher bias



**Explanation**

Since features have different scales, there is a chance that higher weightage is given to features with higher magnitude. This will impact the performance of the machine learning algorithm and obviously, we do not want our algorithm to be biased towards one feature.

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

<https://www.analyticsvidhya.com/blog/2020/04/feature-scaling-machine-learning-normalization-standardization/>

**Question 23: Correct**

You are planning to design an AI solution to monitor meetings and convert spoken conversation to text. Which cognitive service would you use? Select one:

- ☐ Face API
- ☐ QnA Maker
- ☐ Text Analytics
- ☐ Computer Vision
- ☒ Speech-to-text  
(Correct)

**Explanation**

Microsoft Azure offers both speech recognition and speech synthesis capabilities through the **Speech** cognitive service, which includes the following application programming interfaces (APIs):

The **Speech-to-Text** API

The **Text-to-Speech** API

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/2-get-started-azure>

**Incorrect answers:**

**Face API and Computer vision** are related to Vision and not natural language processing

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Text Analytics** -Text analytics is a process where an artificial intelligence (AI) algorithm, running on a computer, evaluates these same attributes in text, to determine specific insights. A person will typically rely on their own experiences and knowledge to achieve the insights.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

**Question 24: Correct**

You are using the Text Analytics service to perform sentiment analysis on a document. While analyzing the document sentiment, you scored 0.99. What does this score indicate about the document sentiment? Select one:

- ☒ The document is positive.  
(Correct)
- ☐ The document is neutral.
- ☐ The document is negative.

**Explanation**

The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

Using the pre-built machine learning classification model, the service evaluates the text and returns a sentiment score in the range of **0 to 1, with values closer to 1 being a positive sentiment**. Scores that are close to the middle of the range (0.5) are considered neutral or indeterminate.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Question 25: Correct**

You observe that your business's profits is suddenly declining. Which Azure service would you deploy to find out the reason of profit decline? Select one:

- ☐ Azure Bot service



- ☐ Azure ML service
- ☒ Azure Anomaly Detector service  
(Correct)
- ☐ LUIS

**Explanation**

**anomaly detection** - a machine learning based technique that analyzes data over time and identifies unusual changes.

In Microsoft Azure, the **Anomaly Detector** service provides an application programming interface (API) that developers can use to create anomaly detection solutions.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/3-understand-anomaly-detection>

**Incorrect answers:**

**Azure ML service** - This includes all type of algorithms of which one is Anomaly Detection

**Azure Bot service, LUIS** - They are related to Natural Language Understanding

Question 26: **Correct**

You train an image classification model that achieves less than satisfactory evaluation metrics. What would you do to improve its performance? Select one:

- ☐ Add a new label for "unknown" classes
- ☒ Add more images to the training set  
(Correct)
- ☐ Reduce the size of the images used to train the model

**Explanation**

**Adding more data to the training set helps the model to learn better and enhance model metrics**

Having more data is always a good idea. It allows the “data to tell for itself,” instead of relying on assumptions and weak correlations. Presence of more data results in better and accurate models.

<https://www.analyticsvidhya.com/blog/2015/12/improve-machine-learning-results/>

**Incorrect answers:**

**Reduce the size of the images used to train the model** - This is a featurization technique and might help but adding more training data should always be the first option as the model needs to be see more variations to enhance performance

**Add a new label for "unknown" classes** - This is a featurization technique and might help but adding more training data should always be the first option as the model needs to be see more variations to enhance performance

Question 27: **Correct**

You want to create a model to predict sales of ice cream which uses historic data that includes daily ice cream sales totals and weather measurements as inputs to make predictions for the future.

Which Azure service would you use to create the model? Select one:

- ☐ Computer Vision
- ☐ QnA Maker
- ☒ Azure Machine Learning  
(Correct)
- ☐ Text Analytics

**Explanation**

**This is a regression problem.**

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

For this you will need :

- **Use Azure Machine Learning designer to train a regression model.**
- Use a regression model for drawing inferences.
- Deploy a regression model as a service.

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

### Incorrect answers

**Computer Vision** - This is related to images and videos

**QnA Maker & Text Analytics** are related to Natural Language Processing

Question 28: **Correct**

You want to use the Speech service to build an application that loudly reads out incoming email message subjects. Which API should you use? Select one:

- ☐ Translate
- ☐ Speech-to-Text
- ☒ Text-to-Speech  
(Correct)
- ☐ Text Analytics

### Explanation

The Speech service includes the following application programming interfaces (APIs):

**Speech-to-text** - used to transcribe speech from an audio source to text format.

**Text-to-speech** - used to generate spoken audio from a text source.

**Speech Translation** - used to translate speech in one language to text or speech in another.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

**Text Analytics** - The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced natural language processing over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 29: **Correct**

Your organization has an existing frequently asked questions (FAQ) document. You need to create a QnA Maker knowledge base that includes the questions and answers from the FAQ with the least possible effort. What should you do to create the knowledge base with minimal effort? Select one:

- ☒ Import the existing FAQ document into a new knowledge base.  
(Correct)
- ☐ Import a pre defined chat-chat data source.
- ☐ Create an empty knowledge base, and then manually copy and paste the FAQ entries into it

### Explanation

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

**Generated from an existing FAQ document or web page.**

Imported from a pre-defined *chat-chat* data source.

Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 30: **Correct**

Let us assume that an automobile dealership wants to use historic car sales data to train a machine learning model. The model they are planning to use should be able to predict the price of a pre-owned car based on characteristics like its age, engine size, and mileage. What kind of machine learning model do you think that the dealership needs to create?

- ☐ Clustering
- ☒ Regression  
(Correct)
- ☐ Classification

#### Explanation

**Regression** is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

#### Incorrect answers:

**Classification** - *Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

**Clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features.

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

#### Question 31: Correct

Azure resource Computer Vision also includes Cognitive Services to implement AI related applications. Select one:

- ☒ False  
(Correct)
- ☐ True

#### Explanation

Azure Cognitive Services includes Computer Vision and not other way round

**Cognitive Services:** A general cognitive services resource that includes Computer Vision along with many other cognitive services; such as Text Analytics, Translator Text, and others. Use this resource type if you plan to use multiple cognitive services and want to simplify administration and development.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

#### Question 32: Correct

How does the translation engine know when an utterance has finished? Select one:

- ☐ User needs to speak the word 'Stop'
- ☒ After a pause in the audio  
(Correct)
- ☐ After 10 words have been spoken.
- ☐ User presses the space bar

#### Explanation

Translation engine considers a "pause" as the end of utterance for translation.

#### Question 33: Correct

If you create a Cognitive Services resource, client applications need different keys and endpoint for different service they use.

- ☐ TRUE
- ☒ FALSE  
(Correct)

#### Explanation

By using one key and endpoint, one can access all the services if a Cognitive Services resource is used

There are dedicated **Translator Text** and **Speech** resource types for these services, which you can use if you want to manage access and billing for each service individually.

Alternatively, you can create a **Cognitive Services** resource that provides access to both services through a single Azure resource, consolidating billing and enabling applications to access both services through a single endpoint and authentication key.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

<https://docs.microsoft.com/en-us/azure/cognitive-services/cognitive-services-apis-create-account?tabs=multiservice%2Cwindows>

Question 34: **Correct**

OCR API works best synchronously.

Select True or False

☐ FALSE

☒ TRUE  
(Correct)

**Explanation**

The **OCR API** uses an older recognition model, supports only images, and **executes synchronously**, returning immediately with the detected text. See the [OCR supported languages](#) then Read API.

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

Question 35: **Correct**

When might you see NaN returned for a score in Language Detection?

- ☐ When the predominant language in the text is mixed with other languages
- ☐ When the score calculated by the service is outside the range of 0 to 1
- ☒ When the language is ambiguous  
(Correct)

**Explanation**

**There may be text that is ambiguous in nature, or that has mixed language content.** These situations can present a challenge to the service. An ambiguous content example would be a case where the document contains limited text, or only punctuation. For example, using the service to analyze the text ":-)", results in a value of **unknown** for the language name and the language identifier, and a score of **NaN** (which is used to indicate *not a number*).

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

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## AI 900: Artificial Intelligence Fundamentals Practice Test 2021 - Results

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### Attempt 2

All knowledge areas

All questions

Question 1: **Correct**

A banking system that predicts whether a loan will be repaid or not is an example of which type of machine learning?

- ☐ regression
- ☐ clustering
- ☒ classification  
(Correct)

#### Explanation

This is an example of a 2 class classification task.

*Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes. In this case, the characteristics of the patient are the features, and the label is a classification of either **0** or **1**, representing non-diabetic or diabetic.

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

#### Incorrect answers:

**regression** - *Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.

**clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features.

Question 2: **Correct**

K-Means algorithm is used to solve \_\_\_\_\_ problems.

- ☐ Classification
- ☐ Regression
- ☒ Clustering  
(Correct)

#### Explanation

K means is a clustering algorithm.

*Clustering* is a form of machine learning that is used to group similar items into clusters based on their features. For example, a researcher might take measurements of penguins, and group them based on similarities in their proportions.

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

**Incorrect answers:**

**regression** - *Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.

**Classification** - *Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

Question 3: **Correct**

Which of the following statement is CORRECT?

- ☒ Too many failed login attempts indicating the possibility of suspicious cyber activity is an example of anomaly detection.  
(Correct)
- ☐ Predicting whether a patient will develop diabetes based on his diet, workout and patient's medical history is an example of anomaly detection.
- ☐ Forecasting the price of a car based on historical data is an example of anomaly detection.

**Explanation**

Forecasting the price of a car based on historical data is an example of anomaly detection: This is based on regression. Hence false.

Predicting whether a patient will develop diabetes based on the patient's medical history is an example of anomaly detection: This is based on the classification model which classifies if he will be diabetic or not. Hence false.

In Microsoft Azure, the **Anomaly Detector** service provides an application programming interface (API) that developers can use to create anomaly detection solutions.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/3-understand-anomaly-detection>

**Incorrect answers:**

Predicting whether a patient will develop diabetes based on his diet, workout and patient's medical history is an example of **classification**

Forecasting the price of a car based on historical data is an example of **regression**

Question 4: **Correct**

Your brand manager of the company has asked you to develop an AI solution which evaluates the text of a document(s) and then identify the main talking points of the document(s).

Which type of Natural Language Processing should you use?

- ☐ entity recognition
- ☐ language detection
- ☒ key phrase extraction  
(Correct)
- ☐ sentiment analysis

**Explanation**

Explore natural language processing-->Analyze text with the Text Analytics service-->Get started with Text Analytics on Azure

**Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).** Consider the restaurant scenario discussed previously. Depending on the volume of surveys that you have collected, it can take a long time to read through the reviews. Instead, you can use the key phrase extraction capabilities of the Text Analytics service to summarize the main points.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**entity recognition** -You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category;

**language detection** -Use the language detection capability of the Text Analytics service to identify the language in which text is written.

**sentiment analysis**-The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence.

Question 5: **Correct**

The AI solution shown in the diagram is \_\_\_\_\_.

Choose one from below options.

[Larger image](#)

- ☒ Chatbot  
(Correct)
- ☐ Computer Vision
- ☐ Sentiment Analysis
- ☐ Machine Learning model

**Explanation**

This is the UI of a Teams chatbot used in Enterprises to communicate with each other

Question 6: **Correct**

You are building an application which will able to tell if the person looks like other people. Which facial recognition tasks will be appropriate for the above scenario?

- ☐ verification
- ☒ similarity  
(Correct)
- ☐ grouping
- ☐ identification

**Explanation**

Face currently supports the following functionality:

Face Detection

Face Verification

Find Similar Faces

**Group faces based on similarities**

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 7: **Correct**

For the below statement select **YES** if the statement is true otherwise select **NO**.

Apply automated ML when you want Azure Machine Learning to train and tune a model for you using the target metric you specify.

- ☒ YES  
(Correct)
- ☐ NO

**Explanation**

Azure Machine Learning is a cloud-based service that helps simplify some of the tasks and reduce the time it takes to prepare data, train a model, and deploy a predictive service. In the rest of this unit, you'll explore Azure Machine Learning, and in particular its *automated machine learning* capability.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/what-is-ml>

Question 8: **Correct**

The Join Data module in Azure Machine Learning designer is used to \_\_\_\_\_

- ☐ there is no such Join data module rather use merge data module.
- ☐ group data into bins.



- ☐ edit metadata
- ☒ merge two datasets using a database-style join operation  
(Correct)

**Explanation**

This article describes how to use the **Join Data** module in Azure Machine Learning designer to merge two datasets using a database-style join operation.

To perform a join on two datasets, they should be related by a key column

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/join-data>

Question 9: **Correct**

Which of the following statement(s) is/are TRUE for **evaluate** and **score** module?

Select all that apply.

- ☒ **Evaluate module** measures the accuracy of a trained model whereas **score module** is used to generate predictions using a trained classification.  
(Correct)
- ☐ Use output of **evaluate module** to input to **score module**.
- ☐ **Evaluate module** and **score module** are used for data transformation

**Explanation**

To test the trained model, we need to use it to **score the validation dataset we held back** when we split the original data - in other words, **predict labels for the features in the validation dataset**.

**Evaluation means** to define a metrics which can be used to define how **effective the model is**.

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/evaluate-model>

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/score-model>

Question 10: **Correct**

In which of the following scenarios Natural language processing is used?

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

**Explanation**

Emails have textual information which is an example of Natural Language Processing.

Incorrect answers:

predict which website visitors will make a transaction - **classification**

predict the number of future car rentals - **regression**

stop a process in a factory when extremely high temperatures are registered - **anomaly detection**

Question 11: **Correct**

**You send an image to a computer vision API and receive the annotated image shown in the following exhibit.**

Which type of computer vision was used?

[Larger image](#)

- ☐ optical character recognition

- ☐ image classification
- ☒ object detection  
(Correct)
- ☐ semantic segmentation

**Explanation**

*Object detection* is a form of machine learning based computer vision in which a model is trained to recognize individual types of object in an image, and to identify their location in the image.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

**Incorrect answers:**

**optical character recognition** - This related to reading text from images

**image classification** - This is used to classify images into categories like dog or cat images

**semantic segmentation** -It answers "What's in this image, and where in the image is it located?"

<https://www.jeremyjordan.me/semantic-segmentation/>

Question 12: Correct

**You have the following data set**

You plan to use the data set to train a model that will predict the battery requirement for mobile phones.

What are “screen size” and “battery requirement”?

Select 2 correct answers from below options.

[Larger image](#)

- ☒ battery requirement a label  
(Correct)
- ☒ screen size a feature  
(Correct)
- ☐ battery requirement a feature
- ☐ screen size a label

**Explanation**

For both classification and regression problems, simply consider the feature as input and label as output.

In the above problem set, based on screen size, RAM and HDD, we have to develop a model to predict the battery requirement. **So, the battery requirement is the label and the screen size is the feature.**

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

Question 13: Correct

You use Natural Language Processing to process text from a historical data.

You receive the output shown in the following exhibit:

INPUT:

The huge temple complex covers an area of over 400,000 square feet (37,000 m2), and is surrounded by a high fortified wall. This 20 feet (6.1 m) high wall is known as *Meghanada Pacheri*. Another wall known as *kurma bedha* surrounds the main temple. It contains at least 120 temples and shrines. With its sculptural richness and fluidity of the *Oriya* style of temple architecture, it is one of the most magnificent monuments of India.

OUTPUT:

temple complex [Location]  
400,000 square feet [Quantity-Dimension]  
37,000 m2 [Quantity-Dimension]  
20 feet [Quantity-Dimension]  
6.1 m [Quantity-Dimension]  
temple [Location-Structural]  
120 [Quantity-Number]  
fluidity [Skill]  
architecture [Skill]  
one [Quantity-Number]  
India [Location-GPE]

Which type of Natural Language Processing was performed?

- ☐ translation
- ☐ key phrase extraction
- ☒ entity recognition  
(Correct)
- ☐ sentiment analysis

Explanation

You can provide the Text Analytics service with **unstructured text and it will return a list of *entities* in the text that it recognizes**. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category; and in some cases, subtype.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Incorrect answers:

**translation** -*Text translation* can be used to translate documents from one language to another, translate email communications that come from foreign governments, and even provide the ability to translate web pages on the Internet.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/1-introduction>

**key phrase extraction** - Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

**sentiment analysis** -The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 14: Correct

\_\_\_\_\_ is the average of absolute differences between prediction and actual observation where all individual differences have equal weight.

Select the appropriate regression performance metrics from below to complete the sentence.

- ☐ Relative Absolute Error (RAE)
- ☐ Relative Squared Error (RSE)
- ☐

Coefficient of Determination (R2)

- ☒ Mean Absolute Error (MAE)  
(Correct)

**Explanation**

**Mean Absolute Error (MAE):** The average difference between predicted values and true values. This value is based on the same units as the label, in this case dollars. The lower this value is, the better the model is predicting.

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

Question 15: **Correct**

You are developing a solution based on facial recognition. You have to ensure that the AI-based solution meets ethical and legal standards that advocate regulations on people civil liberties and works within a framework of governance and organizational principles.

The Microsoft guiding principle for responsible AI considered is?

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

- ☒ accountability  
(Correct)

**Explanation**

Accountability - People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 16: **Correct**

The *National Highway Traffic Safety* department has asked you to build a vehicle monitoring system which will detect heavy vehicles such as trucks and buses. The AI system will be build based on the shape of the moving object and should able to classify vehicles as heavy or light.

Which type of AI workload should you use?

- ☐ conversational AI

- ☒ computer vision  
(Correct)

- ☐ anomaly detection

- ☐ natural language processing

**Explanation**

Microsoft computer vision: An AI service that analyses content in images

In Microsoft Azure, the **Computer Vision** cognitive service uses pre-trained models to analyze images, enabling software developers to easily build applications that can:

Interpret an image and suggest an appropriate caption.

Suggest relevant *tags* that could be used to index an image.

Categorize an image.

Identify objects in an image.

Detect faces and people in an image.

Recognize celebrities and landmarks in an image.

Read text in an image.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/1-introduction>

**Incorrect answers:**

**conversational AI & Natural language processing** are related to text and not images

**anomaly detection** - This is related to outliers. While this problem can be framed as a anomaly detection, it will still need computer vision to extract the training data

Question 17: **Correct**

Forecasting the Carbon Dioxide Emissions by Energy Consumption Use in *Melbourne* is an example of \_\_\_\_\_

- ☐ classification
- ☐ clustering
- ☒ regression  
**(Correct)**

**Explanation**

Regression analysis is used when you want to predict a continuous dependent variable from several independent variables.

**Regression is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.** For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

Question 18: **Correct**

Which AI service you should use to determine if a customer is upset based on what the customer types in the chatbot?

- ☐ knowledge mining
- ☒ natural language processing  
**(Correct)**
- ☐ computer vision
- ☐ conversational AI
- ☐ anomaly detection

**Explanation**

**Perform sentiment analysis on text to determine a positive or negative sentiment.**

In Microsoft Azure, the **Text Analytics** cognitive service can help simplify application development by using pre-trained models that can:

Determine the language of a document or text (for example, French or English).

**Perform sentiment analysis on text to determine a positive or negative sentiment.**

Extract key phrases from text that might indicate its main talking points.

Identify and categorize entities in the text. Entities can be people, places, organizations, or even everyday items such as dates, times, quantities, and so on.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

Question 19: **Correct**

Which of the following statement(s) is/are false?

- ☒ The primary metric used to measure a model's performance is accuracy.  
**(Correct)**
- ☐ Data labeling is the process of assigning informative tags to subsets of data.
- ☒ You should always evaluate a model by using the same data used to train the model.  
**(Correct)**

**Explanation**

**You should always evaluate a model by using the same data used to train the model. - This is a False statement hence Correct option**

Data is split and provided to train a model and other part to evaluate a model.

**Data labeling is the process of assigning informative tags to subsets of data - This is a True statement hence Incorrect option**

Data labeling is the process of assigning informative tags to subsets of data. There are many examples of labeled data sets. Data containing x-ray images of cancerous and healthy lungs along with their respective tags is an example of labeled data.

<https://towardsdatascience.com/labeling-data-with-pandas-9e573ce59c42>

**The primary metric used to measure a model's performance is accuracy – This is a False statement hence correct answer**

Accuracy is not always the best metrics as it gets impacted by data imbalance

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

Question 20: **Correct**

You are working in a digital marketing company and you have been tasked to build a customer support system. The system should meet the following requirement:

- a) It should be a web-based AI solution.
- b) User must be able to interact with a web app that will advise them the best solution.

As a developer which service in azure should you use?

☐ Translator text

☐ Custom vision

☒ QnA Maker.  
(Correct)

☐ LUIS

☐ Face

#### Explanation

To make a web-based AI solution interactive we need QnA maker to feed questions and answers.

Since this is a multiple choice question QnA maker is the best choice however there is confusion as even LUIS can serve this purpose depending upon how we solutionize this.

However this is the correct option provided by Microsoft

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Language Understanding:** A dedicated resource for Language Understanding, which can be either an *authoring* or a *prediction* resource. Then you must publish the model so that client applications can use it for intent and entity *prediction* based on user input.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

Question 21: **Correct**

Which of the following statements are CORRECT.

Select all that apply.

☐ Azure bot service can import FAQs to question and answer set.

☒



It is possible to integrate intelligent and enterprise-grade azure bots with azure cognitive service.  
(Correct)

- ☒ Azure bot service conversationally engages with customers.  
(Correct)

**Explanation**

It is possible to integrate intelligent and enterprise-grade azure bots with azure cognitive service -**True**

<https://azure.microsoft.com/en-in/services/bot-service/>

Azure bot service conversationally engages with customers -**True**

<https://dev.botframework.com/>

Azure bot service can import FAQs to question and answer set. -**False**

**QnA service** can import FAQs to question and answer set.

<https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/quickstarts/create-publish-knowledge-base>

Question 22: **Correct**  
**Scenarios**

- (1) Predict the price of a pharma stock based upon various macro-economic variables including pandemic crisis like COVID19.
- (2) Predict whether you have survived the sinking of the Titanic if you were a passenger on board.
- (3) Segmenting customers into different categories to send advertisements and recommendations to each group.

**Types of machine learning**

classification

clustering

regression

Choose the option that matches the **scenarios** to appropriate **machine learning** types. Select one.

(1 or 2 or 3) represents a scenario statement in the options below.

- ☐ (1)Regression (2)Regression (3)Classification

- ☒ (1)Regression (2)Classification (3)Clustering  
(Correct)

- ☐ (1)Clustering (2)Regression (3)Classification

- ☐ (1)Classification (2)Clustering (3)Regression

**Explanation**

(1) Predict the price of a pharma stock based upon various macro-economic variables including pandemic crisis like COVID19- **The output is a real value and hence regression**

(2) Predict whether you have survived the sinking of the Titanic if you were a passenger on board- **The output is binary values like 0 or 1 hence classification**

(3) Segmenting customers into different categories to send advertisements and recommendations to each group- **This is a segmentation/clustering example as there is no output to be predicted but we just need to create clusters using input data**

Question 23: **Correct**

You own a service desk company and employs a team of customer service agents to provide telephone and email support to customers. Now you are planning to develop a web chat-bot to automatically answer common customer queries. What business benefit the does owner expect as a result of the web chat-bot?

- ☐ Improve product reliability
- ☒ Reduced workload for the customer service agents  
(Correct)
- ☐ Increase sales

#### Explanation

The Web chatbot will answer frequently asked questions which will reduce workload for the customer service agents

Question 24: **Correct**

Select two task that can be performed by using the computer vision service?

- ☒ detect faces in an image  
(Correct)
- ☒ recognize handwritten text  
(Correct)
- ☐ train a custom image classification model

#### Explanation

Detect faces in an image - **Face API**

Microsoft Azure provides multiple cognitive services that you can use to detect and analyze faces, including:

**Computer Vision**, which offers face detection and some basic face analysis, such as determining age.

**Video Indexer**, which you can use to detect and identify faces in a video.

**Face**, which offers pre-built algorithms that can detect, recognize, and analyze faces.

Recognize hand written text - **Read API**

The Read API is a better option for scanned documents that have a lot of text. The Read API also has the ability to automatically determine the proper recognition model to use, taking into consideration lines of text and supporting images with printed text as well as recognizing handwriting.

**To train a custom image classification model we will use custom vision and not computer vision**

Question 25: **Correct**

\_\_\_\_\_ can be integrated with Azure Bot Service to identify valuable information in a conversation and can interprets user intent.

- ☐ speech
- ☒ language understanding  
(Correct)
- ☐ translator text
- ☐ qna maker

#### Explanation

On Microsoft Azure, language understanding is supported through the **Language Understanding Intelligent Service**, more commonly known as **Language Understanding**. To work with Language Understanding, you need to take into account three core concepts: *utterances*, *entities*, and *intents*.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-luis/1-introduction>

Question 26: **Correct**

Which following 2 activities can be performed using computer vision

- ☒ detect faces in an image  
(Correct)
- ☒ recognize hand written text  
(Correct)

- ☐ translate the text in an image between languages

- ☐ train a custom image classification model

**Explanation**

Custom vision and not computer vision is used for training custom models

Translator text is used to translate between language

Computer vision can detect faces using Face API and it can read handwritten text using Read API

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/1-introduction>

Interpret an image and suggest an appropriate caption.

Suggest relevant *tags* that could be used to index an image.

Categorize an image.

Identify objects in an image.

Detect faces and people in an image.

Recognize celebrities and landmarks in an image.

Read text in an image.

Question 27: **Correct**

Which of the following is an example of web-chat bot

- ☒ From a website interface, answer common questions  
(Correct)
- ☐ Translate into English questions entered at a kiosk
- ☐ Determine whether reviews are positive or not
- ☐ Accepts questions through emails and then route the email to the correct person

**Explanation**

From a website interface, answer common questions- **CHATBOT**

Translate into English questions entered at a kiosk- **TEXT TRANSLATION**

Determine whether reviews are positive or not-**SENTIMENT ANALYSIS**

Accepts questions through emails and then route the email to the correct person-**RULE BASED AUTOMATION**

Question 28: **Correct**

You are developing an AI system that empowers everyone including blind and deaf.

This is an example of which guiding principle of Responsible AI?

- ☐ fairness
- ☐ accountability
- ☒ inclusiveness  
(Correct)
- ☐ reliability and safety

**Explanation**

**Inclusiveness** : AI systems should empower everyone and engage people. AI should bring benefits to all parts of society, regardless of physical ability, gender, sexual orientation, ethnicity, or other factors.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

**Incorrect answers:**

**fairness** - AI systems should treat all people fairly. For example, suppose you create a machine learning model to support a loan approval application for a bank. The model should make predictions of whether or not the loan should be approved without incorporating any bias based on gender, ethnicity, or other factors that might result in an unfair advantage or disadvantage to specific groups of applicants.

**accountability** -People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

**reliability and safety** -AI systems should perform reliably and safely. For example, consider an AI-based software system for an autonomous vehicle; or a machine learning model that diagnoses patient symptoms and recommends prescriptions. Unreliability in these kinds of system can result in substantial risk to human life.

Question 29: **Correct**  
You need to find images which have one or more faces and should have at least one classes

- ☒ the Detect operation in the Face service  
**(Correct)**
- ☐ the Analyze Image operation in the Computer Vision service
- ☐ the Verify operation in the Face service
- ☐ the Describe Image operation in the Computer Vision service

**Explanation**  
Face currently supports the following functionality:

**Face Detection**

Face Verification

Find Similar Faces

Group faces based on similarities

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/1-introduction>

<https://westus.dev.cognitive.microsoft.com/docs/services/563879b61984550e40cbbe8d/operations/563879b61984550f30395236>

Question 30: **Correct**  
Select statements which are TRUE

- ☒ The face service can be used to group all the employees which have similar facial characteristics  
**(Correct)**
- ☒ The Face service will be more accurate if you provide more sample photos of each employee from different angles  
**(Correct)**
- ☐ If an employee is wearing sunglasses, the Face API will always fail

**Explanation**  
The Group API divides a set of unknown faces into several groups based on similarity.

More data helps in improving machine learning models.

Face API can recognize face with glasses or sunglasses

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

Question 31: **Correct**  
Select all which are TRUE

- ☐ While creating an object detection model in the Custom vision service you must choose a classification type as either *MULTILABEL* OR *MULTI-CLASS*
- ☒ You can create an object detection model in custom vision service to find the contents of an image  
**(Correct)**
- ☒ When creating an object detection model in the Custom Vision service you can select from a set of predefined domains  
**(Correct)**

**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.

Sign in to the [Custom Vision website](#) and create a new project. Specify an Object Detection project and use the **Logo domain**; this will let the service use an algorithm optimized for logo detection.

**Multilabel and Multi-class** option is present in **Object Classification** and not Object Detection

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

Question 32: **Correct**

Which type of machine learning task most accurately defines the below scenario?

*"Picking temperature and pressure to train with the model."*

- ☒ feature selection  
(Correct)
- ☐ model training
- ☐ model deployment
- ☐ feature engineering
- ☐ model evaluation

**Explanation**

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the **characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price**. In this case, the characteristics of the car are the features, and the selling price is the label.

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

Question 33: **Correct**

Which of the following statement(s) is/are CORRECT?

- ☐ Text analytics service can read the text in images, scanned documents.
- ☒ Text analytics service can classify a broad range of entities in text, such as people, places, organizations etc.  
(Correct)
- ☒ The text analytics service can detect the language of your text.  
(Correct)

**Explanation**

the **Text Analytics** cognitive service can help simplify application development by using pre-trained models that can:

**Determine the language of a document or text (for example, French or English).**

Perform sentiment analysis on text to determine a positive or negative sentiment.

Extract key phrases from text that might indicate its main talking points.

Identify and categorize entities in the text. Entities can be people, places, organizations, or even everyday items such as dates, times, quantities, and so on.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

**Microsoft's Computer Vision API includes Optical Character Recognition (OCR) and READ API capabilities that extract printed or handwritten text from images and PDF documents.**

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

<https://devblogs.microsoft.com/cse/2018/05/07/handwriting-detection-and-recognition-in-scanned-documents-using-azure-ml-package-computer-vision-azure-cognitive-services-ocr/>

Question 34: **Correct**

Which of the following statement(s) is/are CORRECT?

Select all that apply.

- ☒ Azure machine learning designer provides a drag-and-drop visual Canvas to build test and deploy machine learning models.  
(Correct)
- ☒ Azure machine learning designer enables you to save your progress as a pipeline draft.  
(Correct)
- ☐ Azure machine learning designer enables you to include custom JavaScript functions.

**Explanation**

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

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

An Azure Machine Learning **pipeline is an independently executable workflow** of a complete machine learning task. Subtasks are encapsulated as a series of steps within the pipeline. An Azure Machine Learning pipeline can be as simple as one that calls a Python script, so *may* do just about anything

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

In this article, you learn how to use the **Execute Python Script** module to add custom logic to Azure Machine Learning designer.

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

Question 35: **Correct**

What is a Use Case for classification?

- ☐ Predicting how many minutes a flight will be delayed based on weather data.
- ☐ Paleontologists collecting bone samples and grouping them according to similar structure resembling fossils.
- ☐ Predicting the shelf life of a cookie-based on the oven temperature where the cookie was baked.
- ☒ Predicting if someone will walk to office from home based on the outside weather and the distance between the office and home.  
(Correct)

**Explanation**

Classification model involves assigning a class label to input examples from the problem domain.

Predicting how many minutes a flight will be delayed based on weather data - **Regression**

Paleontologist collecting bone samples and grouping them that have a similar structure resembling fossils - **Clustering**

Predicting the shelf life of a cookie-based on the oven temperature where the cookie was baked - **Regression**

Predicting if someone will walk to office from home based on the outside weather and the distance

between the office and home - **Classification**

Question 36: **Correct**

While developing an AI system you encountered a situation where the AI system should be ingested with unusual and missing values. Which Microsoft guiding principle for responsible AI you should consider?

- ☒ reliability and safety  
(Correct)
- ☐ privacy and security
- ☐ transparency
- ☐ inclusiveness

**Explanation**

To make systems reliable we will have to ingest missing information for completeness.



AI systems should perform reliably and safely. For example, consider an AI-based software system for an autonomous vehicle; or a machine learning model that diagnoses patient symptoms and recommends prescriptions. **Unreliability in these kinds of system can result in substantial risk to human life.**

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

<https://blogs.partner.microsoft.com/mpn/shared-responsibility-ai-2/>

Question 37: **Correct**

You need to deploy a real-time inference pipeline as a service for others to consume. Select the appropriate option to where you must deploy the model.

- ☐ From Azure machine learning designer to Azure machine learning compute.
- ☐ From Azure machine learning designer to Local web service
- ☒ From Azure machine learning designer to Azure Kubernetes service  
(Correct)
- ☐ From Azure machine learning designer to Azure container instances

#### Explanation

**Azure Machine Learning compute instance web service** - Use for limited testing and troubleshooting.

**Local web service** - Use for limited testing and troubleshooting. Hardware acceleration depends on use of libraries in the local system.

**Azure Kubernetes Service (AKS)** -Use for high-scale production deployments. Provides fast response time and autoscaling of the deployed service. **To publish a real-time inference pipeline as a service, you must deploy it to an Azure Kubernetes Service (AKS) cluster.**

**Azure Container Instances** - Use for low-scale CPU-based workloads that require less than 48 GB of RAM.

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

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-deploy-and-where?tabs=azcli>

Question 38: **Correct**

Below is the Coefficient of Determination (R2 R-Squared) of four different models. Which model is best performing as per below R2 data?

- ☒ Model-2 having Coefficient of Determination (R2) =0.91  
(Correct)
- ☐ Model-3 having Coefficient of Determination (R2) =0.00
- ☐ Model-4 having Coefficient of Determination (R2) =0.13
- ☐ Model-1 having Coefficient of Determination (R2) =0.50

#### Explanation

**Coefficient of Determination (R2):** This metric is more commonly referred to as R-Squared, and summarizes how much of the variance between predicted and true values is explained by the model. The closer to 1 this value is, the better the model is performing.

**Coefficient of determination**, often referred to as R2, represents the predictive power of the model as a value between 0 and 1. Zero means the model is random (explains nothing); 1 means there is a perfect fit. However, caution should be used in interpreting R2 values, as low values can be entirely normal and high values can be suspect.

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

Question 39: **Correct**

You are working as an AI developer in a large London based eCommerce company where you have developed a business chatbot. As a next step, you need to add content to the bot that will help answer simple user queries.

By using the QnA maker, what are the 3 ways to create a knowledge base that consists of question-and-answer pairs?

Each correct answer presents a complete solution.

- ☒ manually enter questions and answers..  
(Correct)
- ☒ generate question and answer from an existing web page.  
(Correct)

- ☒ chit-chat contain from a predefined data source.  
(Correct)
- ☐ use automated machine learning to train a model based on a file that contains the question.
- ☐ connect the bot to the Cortana channel and ask questions by using Cortana

**Explanation**

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

Generated from an existing FAQ document or web page.

Imported from a pre-defined *chit-chat* data source.

Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 40: **Correct**

Which of the following statement is CORRECT.

Select one from below options.

- ☐ Azure ML supports code written ONLY in R language.
- ☐ Azure ML is fully automated. It does not support any external CODE in any language.
- ☒ Azure ML supports code written in both Python and R languages.  
(Correct)
- ☐ Azure ML supports code written ONLY in Python.

**Explanation**

Best-in-class support for open-source frameworks and languages including MLflow, Kubeflow, ONNX, PyTorch, TensorFlow, **Python and R**

Note: The question is about Azure Machine Learning and not Azure AutoML. Azure AutoML supports only Python. Hence sometimes students get confused with the options

<https://azure.microsoft.com/en-in/services/machine-learning/#features>

<https://azure.microsoft.com/en-in/services/machine-learning/#product-overview>

<https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/r-developers-guide>

Question 41: **Correct**

The weighted average of precision and recall can be interpreted as \_\_\_\_\_

- ☐ True positive rate
- ☒ F1 score  
(Correct)
- ☐ Accuracy
- ☐ Receiver operator characteristic

**Explanation**

**F1 Score:** An overall metric that essentially combines precision and recall.

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

Retake test

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4

## AI 900: Artificial Intelligence Fundamentals Practice Test 2021 - Results

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### Attempt 2

All knowledge areas

All questions

Question 1: **Correct**

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

- ☐ random split the data into columns for training and columns for evaluation
- ☐ use feature for training and labels for evaluation
- ☐ use labels for training and features for evaluation
- ☒ randomly split the data into rows for training and rows for evaluation  
**(Correct)**

**Explanation**

**Split Rows:** Use this option if you just want to divide the data into two parts. You can specify the percentage of data to put in each split, but by default, the data is divided 50-50.

You can also randomize the selection of rows in each group, and use stratified sampling. In stratified sampling, you must select a single column of data for which you want values to be apportioned equally among the two result datasets.

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

Question 2: **Correct**

You have dataset "*Microsoft\_Employee1*" having 16 rows and 4 columns. You have another data-set "*Microsoft\_Employee2*" having 16 rows and 3 columns. You want to combine these 2 datasets in such a way that the resultant data-set will have 16 rows and 7 columns. You dragged these 2 datasets in the azure machine learning designer canvas. Which module will help to achieve the desired result?

- ☐ Drag the **Add Rows** module into the canvas and connect the output of Microsoft\_Employee1 and Microsoft\_Employee2 as input.
- ☐ Drag the **Remove duplicate Rows** module into the canvas and connect the output of Microsoft\_Employee1 and Microsoft\_Employee2 as input.
- ☐ Drag the **Select columns in Data-set** module into the canvas and connect the output of Microsoft\_Employee1 and Microsoft\_Employee2 as input.
- ☒ Drag the **Add Columns** module into the canvas and connect the output of Microsoft\_Employee1 and Microsoft\_Employee2 as input.  
**(Correct)**

**Explanation**

You combine all columns from the two datasets that you specify as inputs to create a single data-set. If you need to concatenate more than two datasets, use several instances of **Add Columns**.

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

Question 3: **Correct**

You have been tasked to build an AI solution which takes English text as input and generates natural, reliable and expressive sounding speech that fits different emotions in the context of various patterns of human voices like lyrical, empathy etc.

Which azure cognitive service is best suited for the above use case?

- ☐ Text-to-speech (TTS)
- ☐ Language Understanding Intelligent Service
- ☒ Neural TTS  
**(Correct)**
- ☐ Translator Text

**Explanation**

Neural TTS enables fluid, **natural-sounding** speech that matches the patterns and intonation of human voices, helping developers bring their solutions to life.

Built on a powerful base model, our neural TTS voices are very **natural, reliable, and expressive**. Through transfer learning, the neural TTS model can learn different speaking styles from various speakers, enabling nuanced voices.

<https://techcommunity.microsoft.com/t5/azure-ai/introducing-new-voice-styles-in-azure-cognitive-services/ba-p/1248368>

**Incorrect answers:**

**Text-to-speech (TTS)** - This will not have voice flexibility like NTTS

**Language Understanding Intelligent Service** - This is a Chatbot with natural language understanding

**Translator Text** - This translates text from one language to another

Question 4: **Correct**

To interpret, the meaning of a voice message "**meet me at 9 pm**" which Azure AI service will be most appropriate?

- ☐ text Analytics
- ☐ translator text
- ☐

Speech



language understanding  
(Correct)

**Explanation**

Ans-LUIS

On Microsoft Azure, language understanding is supported through the **Language Understanding Intelligent Service**, more commonly known as **Language Understanding**. To work with Language Understanding, you need to take into account three core concepts: *utterances*, *entities*, and *intents*.

**Utterances**

An utterance is an example of something a user might say, and which your application must interpret. For example, when using a home automation system, a user might use the following utterances:

"Switch the fan on."

"Turn on the light."

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/1-introduction>

Question 5: **Correct**

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

To answer, select the appropriate option.

**Scenarios:**

(1) automatically tag known friends in social media photographs

(2) digitizing historical documents

(3) locate vehicles in images

**[Options]Computer Vision workloads:**

-facial recognition

-image classification

-object detection

-optical character recognition

Choose the option that matches the scenarios to appropriate machine learning types. Select one.

(1 or 2 or 3) represents a scenario statement in the options below.



(1)image classification (2)object detection (3)optical character recognition



(1)object detection (2)object detection (3)image classification



(1)facial recognition (2)optical character recognition (3)object detection  
(Correct)



(1)object detection (2)image classification (3)optical character recognition

**Explanation**

(1) automatically tag known friends in social media photographs - **facial recognition**

(2) digitizing historical documents - **OCR**

(3) locate vehicles in images - **object detection**

Question 6: **Correct**

Which *Microsoft guiding principle for responsible AI* you should consider as most important while developing an AI system for a self-driving car?

- ☐ accountability
- ☐ inclusiveness
- ☐ fairness
- ☐ transparency
- ☒ reliability and safety  
(Correct)

#### Explanation

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. It's also important to be able to verify that these systems are behaving as intended under actual operating conditions. How they behave and the variety of conditions they can handle reliably and safely largely reflects the range of situations and circumstances that developers anticipate during design and testing.

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

#### Question 7: Correct

Which ML model you should use to predict the hours of overtime a service desk person will work based on 'the number of Incidents received'?

- ☐ classification
- ☒ regression  
(Correct)
- ☐ clustering

#### Explanation

**Regression** is a supervised machine learning technique used to predict numeric values.

*Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

#### Incorrect answers:

**Classification** is a form of machine learning that is used to predict which category, or *class*, an item belongs to. For example, a health clinic might use the characteristics of a patient (such as age, weight, blood pressure, and so on) to predict whether the patient is at risk of diabetes.

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

**Clustering** is a form of machine learning that is used to group similar items into clusters based on their features. For example, a researcher might take measurements of penguins, and group them based on similarities in their proportions.

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

#### Question 8: Correct

While reviewing the performance metrics for a binary classification model (in the Evaluate module of azure machine learning designer) you noted that the model has an AUC=0.25.

What can be said about the model's performance?

- ☒ The model is performing worse than random guessing.  
(Correct)
- ☐ The model is performing better than random guessing.
- ☐ There is a 75% chance that the model will be able to distinguish between positive class and negative class.

#### Explanation

An AUC of 0.5 means the model has no discrimination capacity to distinguish between positive class and negative class.



If the AUC for your model is higher than 0.5 for a binary classification model, then the model performs better than a random guess.

Hence, the model is performing worse than random guessing.

<https://www.analyticsvidhya.com/blog/2020/06/auc-roc-curve-machine-learning/>

Question 9: **Incorrect**

Select the most appropriate **Natural Language Processing workload** for below scenario.

**Scenario:** Extract date/time, URLs, email addresses and phone number from the text.

- ☒ Entity recognition  
(Correct)
- ☐ Language modelling
- ☐ Speech recognition and speech synthesis
- ☐ Sentiment analysis  
(Incorrect)
- ☐ Key phrase extraction

**Explanation**

The **Entity Recognition** skill extracts entities of different types from text. This skill uses the machine learning models provided by Text Analytics in Cognitive Services.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 10: **Correct**

The ROC-AUC curve for a classification model is depicted in the image below.

Choose the best answer from below options.

[Larger image](#)

- ☐ the AUC of the model is 0.
- ☐ the AUC of the model is 0.5.
- ☐ the AUC of the model is infinite.
- ☒ the AUC of the model is 1  
(Correct)

**Explanation**

The AUC of the model is 1. The area under the curve is  $1 \times 1 = 1$

<https://www.analyticsvidhya.com/blog/2020/06/auc-roc-curve-machine-learning/>

Question 11: **Correct**

You are working on a classification model and currently examining the values of a confusion matrix.

Which machine learning task most appropriately describes the scenario?

- ☒ model evaluation  
(Correct)
- ☐ model deployment
- ☐ model training
- ☐ feature engineering
- ☐ feature selection

**Explanation**

Examining the values of a confusion matrix - model evaluation

View the *confusion matrix* for the model, which is a tabulation of the predicted and actual value counts for each possible class. For a binary classification model like this one, where you're predicting one of two possible values, the confusion matrix is a 2x2 grid showing the predicted and actual value counts for classes **0** and **1**

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

Incorrect answers:

**model deployment** - **Deploying** a machine learning **model**, known as **model deployment**, simply means to integrate a machine learning **model** and integrate it into an existing production environment (1) where it can take in an input and return an output.

**model training** - A **training model** is a dataset that is used to train an ML algorithm. It consists of the sample output data and the corresponding sets of input data that have an influence on the output. The **training model** is used to run the input data through the algorithm to correlate the processed output against the sample output.

**feature engineering** - **Feature engineering** is the process of using domain knowledge to extract **features** from raw data via data mining techniques. These **features** can be used to improve the performance of machine learning algorithms. **Feature engineering** can be considered as applied machine learning itself.

**feature selection** - **Feature Selection** is the process where you automatically or manually **select** those **features** which contribute most to your prediction **variable** or output in which you are interested in. Having irrelevant **features** in your data can decrease the accuracy of the models and make your model learn based on irrelevant **features**.

Question 12: **Correct**

An automated chat to answer questions about the price of a product, orders, refunds, exchanges and returns is an example of \_\_\_\_\_?

- ☒ conversational AI  
(Correct)
- ☐ computer vision
- ☐ anomaly detection
- ☐ knowledge mining
- ☐ natural language processing

Explanation

**Conversational AI**- While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that answers to specific questions are hard to find. Often, these organizations find their support personnel being overloaded with requests for help through phone calls, email, text messages, social media, and other channels.

<https://docs.microsoft.com/en-us/learn/paths/explore-conversational-ai/>

Incorrect answers:

**computer vision**- This is related to images and video related use cases

**natural language processing** - This is a higher family of machine learning which has Conversational AI under it. So Conversational AI should be the first option and if the same is not present then Natural Language Processing.

**Knowledge mining** is an emerging category in artificial intelligence (AI), using a combination of AI services to drive content understanding over vast amounts of unstructured, semi-structured, and structured information that allow businesses to deeply understand their information, explore it, uncover insights.

**anomaly detection** - a machine learning based technique that analyzes data over time and identifies unusual changes.

Question 13: **Incorrect**

You are building an AI system for a remote proctor testing system where you need to check if two images of a face belong to the same person.

Which facial recognition tasks will be appropriate for the above scenario?

- ☒ verification  
(Correct)
- ☐ identification

- ☒ similarity  
(Incorrect)
- ☐ grouping

**Explanation**

Face currently supports the following functionality:

- Face Detection
- **Face Verification**
- Find Similar Faces
- Group faces based on similarities
- Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 14: **Correct**

**17 images of fruits are fed to a machine learning model to identify the number of apples. In actual, the number of apples is 12 but the model predicted 9 apples out of which 6 are apple. The remaining 3 are bananas.**

What is *precision* and *recall* for the model?

- ☐ precision is 3/12 and recall is 3/9
- ☐ precision is 6/12 and recall is 6/9
- ☒ precision is 6/9 and recall is 6/12  
(Correct)
- ☐ precision is 6/17 and recall is 9/17

**Explanation**

[https://en.wikipedia.org/wiki/Precision\\_and\\_recall](https://en.wikipedia.org/wiki/Precision_and_recall)

**17 images of fruits are fed to a machine learning model to identify the number of apples. In actual, the number of apples is 12 but the model predicted 9 apples out of which 6 are apple. The remaining 3 are bananas.**

tp = 6

fp = 3

fn = 6 (12 -6)

$$= 6/(6+3)=6/9$$

$$=6/(6+6)= 6/12$$

Question 15: **Correct**

You are using Azure Machine Learning designer to predict the price of a house.

What will be the ideal sequence of modules in Azure Machine Learning designer pipeline?

- ☒ train model --> score model --> evaluate model  
(Correct)
- ☐ train model --> evaluate model --> score model
- ☐ score model --> train model --> evaluate model
- ☐ evaluate model --> train model --> score model

**Explanation**

Find the correct flow below:

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

Question 16: **Correct**

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

- ☒ Regression  
(Correct)
- ☐ Clustering
- ☐ Classification

**Explanation**

**Regression** is a form of machine learning that is used to predict a numeric label based on an item's features. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price.

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

**Incorrect answers:**

**Clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features. For example, a researcher might take measurements of penguins, and group them based on similarities in their proportions.

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

**Classification** - *Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

Question 17: **Correct**

Which of the following statement(s) is/are CORRECT? Select all that apply.

- ☐ Identifying famous landmarks in an image is an example of natural language processing.
- ☒ Analyze social media feeds to detect a sentiment around a political campaign is an example of natural language processing.  
(Correct)
- ☒ With the help of NLP, a developer can automatically blacklist/whitelist to allow or deny certain words in a retail website review.  
(Correct)

**Explanation**

**Identifying famous landmarks in an image is an example of natural language processing** - Computer Vision

**Detecting domain-specific content**

When categorizing an image, the Computer Vision service supports two specialized domain models:

- **Celebrities** - The service includes a model that has been trained to identify thousands of well-known celebrities from the worlds of sports, entertainment, and business.

- **Landmarks** - The service can identify famous landmarks, such as the Taj Mahal and the Statue of Liberty.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

**Analyze social media feeds to detect a sentiment around a political campaign is an example of natural language processing** - The Text Analytics service can evaluate text and return **sentiment scores** and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more. The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced **natural language processing** over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Azure Content Moderator is an AI service that lets you handle content that is potentially offensive, risky, or otherwise undesirable.** It includes the AI-powered content moderation service which scans **text**, image, and videos and applies content flags automatically, as well as the Review tool, an online moderator environment for a team of human reviewers. For text it will use **natural language processing** techniques.

<https://docs.microsoft.com/en-us/azure/cognitive-services/content-moderator/text-moderation-api>

Question 18: **Correct**

Which AI service you should use to determine if a photo contains a person?

- ☐ conversational AI

- ☒ computer vision  
(Correct)
- ☐ anomaly detection
- ☐ knowledge mining
- ☐ natural language processing

**Explanation**

In Microsoft Azure, the **Computer Vision** cognitive service uses pre-trained models to analyze images, enabling software developers to easily build applications that can:

- Interpret an image and suggest an appropriate caption.
- Suggest relevant *tags* that could be used to index an image.
- Categorize an image.
- Identify objects in an image.
- **Detect faces and people in an image.**
- Recognize celebrities and landmarks in an image.
- Read text in an image.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/1-introduction>

Question 19: **Correct**

You have developed a web chat-bot for a retail company and now you want to add additional features to the bot so that it can detect how upset the customer is based on what the customer types.

This is an example of which type of Natural Language Processing workload?

- ☐ entity recognition
- ☐ key phrase extraction
- ☐ language detection
- ☒ sentiment analysis  
(Correct)

**Explanation**

The **Text Analytics service** can evaluate text and return **sentiment scores** and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**

**entity recognition** - You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes.

**key phrase extraction** - Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

**language detection** - Use the language detection capability of the Text Analytics service to identify the language in which text is written.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 20: **Correct**

You are working on a traffic management system where you need to estimate the distance between the cars by determining the location of cars in an image. Which computer vision service should you choose?

- ☐ image classification
- ☐ face detection

- ☐ optical character recognition

- ☒ object detection  
(Correct)

**Explanation**

**Object detection** is a form of machine learning based computer vision in which a model is trained to recognize individual types of object in an image and to identify their location in the image.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/2-object-detection-azure>

**Incorrect answers:**

**image classification** - This is a classification job example where an image contains an object or not

**face detection** - This service works in identifying face in an image

**optical character recognition** - This is about reading text from images/pdfs

Question 21: **Correct**

You have created a training pipeline in azure machine learning designer and now you want to experiment with the pipeline/code for which you need scalable clusters of virtual machines. Which type of compute target is suitable for the task mentioned?

- ☐ Inference Clusters
- ☐ Compute Instances

- ☒ Compute Clusters  
(Correct)

**Explanation**

**Compute Instances:** Development workstations that data scientists can use to work with data and models.

**Compute Clusters:** Scalable clusters of virtual machines for on-demand processing of experiment code.

**Inference Clusters:** Deployment targets for predictive services that use your trained models.

**Attached Compute:** Links to existing Azure compute resources, such as Virtual Machines or Azure Databricks clusters.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/create-compute>

Question 22: **Correct**

You are working as a solution architect for an online retail store and have been tasked to create a service that will go through all the reviews of a product and should be able to detect if a customer is happy with the product or upset.

Which type of AI workload should you use?

- ☐ semantic segmentation

- ☐ anomaly detection

- ☐ regression

- ☒ natural language processing  
(Correct)

**Explanation**

What is Sentiment analysis? Is it a part of NLP?

The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more. The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced **natural language processing** over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/>

**Incorrect answers:**

**semantic segmentation** - In [digital image processing](#) and [computer vision](#), **image segmentation** is the process of partitioning a [digital image](#) into multiple segments ([sets](#) of [pixels](#), also known as image objects). The goal of segmentation is to simplify and/or change the representation of an image into something that is more meaningful and easier to analyze.[\[1\]](#)[\[2\]](#) Image segmentation is typically used to locate



objects and **boundaries** (lines, curves, etc.) in images. More precisely, image segmentation is the process of assigning a label to every pixel in an image such that pixels with the same label share certain characteristics.

**anomaly detection** - a machine learning based technique that analyzes data over time and identifies unusual changes.

**regression** - *Regression* is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.

Question 23: **Correct**

Which of the following can help to build an app for employees to scan and store their expenses from a receipt?

- ☐ semantic segmentation
- ☒ OCR  
(Correct)
- ☐ image classification
- ☐ object detection

#### Explanation

The best answer of the options is OCR. In Azure for receipt reading there is a special API called Form Recognizer which could have been a better answer. However from an understanding perspective.

Form Recognizer is built on top of OCR which is built on top of Computer Vision

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/1-introduction>

Question 24: **Correct**

While presenting at a conference, your sessions is transcribed into subtitles. This is an example of \_\_\_\_\_?

- ☐ Text to Speech
- ☐ Text Translation
- ☐ Speech synthesis
- ☒ Speech recognition  
(Correct)

#### Explanation

Speech recognition means Speech to Text. In the above example as a person speaks the words are converted into text of the same language. Hence Speech to Text also called Speech recognition is the right answer.

**Speech recognition** - the ability to detect and interpret spoken input.

**Speech synthesis** - the ability to generate spoken output.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

Question 25: **Correct**

Choose all that is correct

- ☒ You can use the Speech service to transcribe a call to text  
(Correct)
- ☒ You can use text analytics service to extract key entities from a call transcript  
(Correct)
- ☒ You can use a speech service to translate the audio of a call to a different language  
(Correct)

#### Explanation

All the 3 options are correct

You can use the Speech service to transcribe a call to text - **Yes we can use Speech to Text API to achieve this**

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

You can use a speech service to translate the audio of a call to a different language - **Yes we can use Speech translation service to achieve this**

The Speech service includes the following application programming interfaces (APIs):

**Speech-to-text** - used to transcribe speech from an audio source to text format.

**Text-to-speech** - used to generate spoken audio from a text source.

**Speech Translation** - used to translate speech in one language to text or speech in another.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

You can use text analytics service to extract key entities from a call transcript -**Yes Text Analytics API helps to achieve this**

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 26: **Correct**

You need to make the press release of your company available in multiple different languages. Which service would you use?

- ☐ LUIS
- ☐ Text Analytics
- ☐ Speech
- ☒ Translator text  
(Correct)

**Explanation**

Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

The **Translator Text** service, which supports **text-to-text** translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.

We will use **Translator Text** as we have requirement of text-to-text translation in this use case.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>

Question 27: **Incorrect**

Which of the following can be achieved using Speech service of Azure

- ☐ providing closed captions for a recorded or live videos  
(Correct)
- ☒ creating a transcript of a telephone call or meeting  
(Correct)
- ☒ an in-car system that reads text messages aloud  
(Correct)
- ☐ creating an automated public address system for a train station  
(Correct)

**Explanation**

creating a transcript of a telephone call or meeting - **Speech to Text**

an in-car system that reads text messages aloud - **Text to Speech**

providing closed captions for a recorded or live videos - **Speech to text**

creating an automated public address system for a train station - **Text to Speech**

**Speech to Text** :The recognized words are typically converted to text, which you can use for various purposes, such as.

- **Providing closed captions for recorded or live videos**
- **Creating a transcript of a phone call or meeting**
- Automated note dictation
- Determining intended user input for further processing

**Text to Speech :** You can use the output of speech synthesis for many purposes, including:

- Generating spoken responses to user input.
- Creating voice menus for telephone systems.
- **Reading email or text messages aloud in hands-free scenarios.**
- **Broadcasting announcements in public locations, such as railway stations or airports.**

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

Question 28: **Correct**

Which of the following is an example of Responsible AI principle "Transparency"

- ☐ Ensure that a training data-set is representative of the population
- ☒ Provide documentation to help developers debug code  
**(Correct)**
- ☐ Enable auto scaling to ensure that a service scales based on demand
- ☐ Ensure that all visuals have an associated text that can be read by a screen reader

**Explanation**

AI systems should be understandable. Users should be made fully aware of the purpose of the system, how it works, and what limitations may be expected.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

In the above link under the heading "Transparency" , there is a video. Please watch the video and at 0:17 seconds, it says debugging AI systems is an example of transparency.

Question 29: **Incorrect**

When developing an AI system for self driving cars, which Microsoft principle for Responsible AI should be applied to ensure consistent performance during unexpected circumstances?

- ☒ accountability  
**(Incorrect)**
- ☐ inclusiveness
- ☒ reliability and safety  
**(Correct)**
- ☐ fairness

**Explanation**

AI systems should perform **reliably and safely**. For example, consider an AI-based software system for an autonomous vehicle; or a machine learning model that diagnoses patient symptoms and recommends prescriptions. Unreliability in these kinds of system can result in substantial risk to human life.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 30: **Correct**

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

- ☐ Text Analytics
- ☒ Form Recognizer  
**(Correct)**
- ☐ Ink Recognizer
- ☐ Custom Vision

**Explanation**

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents such as forms, invoices, and receipts. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

Matching **field names to values**.

Processing **tables of data**.

Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

Question 31: **Correct**

Match the machine learning tasks to the appropriate scenarios.

1. Examine the values of a confusion matrix

2. Splitting a date into date, month and year fields

3. Picking temperature and pressure to train a model

- ☐
  - 1. Examine the values of a confusion matrix - Model Training
  - 2. Splitting a date into date, month and year fields - Feature Engineering
  - 3. Picking temperature and pressure to train a model - Feature Evaluation
- ☐
  - 1. Examine the values of a confusion matrix - Model Evaluation
  - 2. Splitting a date into date, month and year fields - Feature Selection
  - 3. Picking temperature and pressure to train a model - Feature Evaluation
- ☒
  - 1. Examine the values of a confusion matrix - Model Evaluation
  - 2. Splitting a date into date, month and year fields - Feature Engineering
  - 3. Picking temperature and pressure to train a model - Feature Evaluation

**(Correct)**

**Explanation**

**1. Examine the values of a confusion matrix** - Model Evaluation

**2. Splitting a date into date, month and year fields** - Feature Engineering

**3. Picking temperature and pressure to train a model** - Feature Evaluation (This is also called Feature Selection)

Question 32: **Correct**

You have the below pipeline in the azure machine learning designer. What is the output of the pipeline (at node 1)?

[Larger image](#)

Select the most suitable option.

- ☐ Data will be prepared in a normalized format
  - ☒ Student\_Dataset\_all.zip will be unzipped
  - ☐ Error: there is no such model "Unpack Zipped Datasets"
- (Correct)**

**Explanation**

**Unpack Zipped Datasets** : Unpacks datasets from a zip package in user storage.

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/unpack-zipped-datasets>

Incorrect answers:

**Data will be prepared in a normalized format**- For this we will use a different item called "**Normalize Data**"

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

Question 33: **Correct**

You have an input data-set where one column has values ranging from 0 to 1 while another column with values ranging from 10,000 to 100,000. You plan to combine the values of 2 columns to use it as a feature during modelling.

Which mathematical function will be applied to the data-set to re-scale every feature to the [0,1] interval linearly.

Select the best answer from below options.

- ☒ Use *Normalize Data* module and select *min-max* normalizer.  
(Correct)
- ☐ Use *Normalize Data* module and select *TanH* normalizer.
- ☐ Use the *Edit Metadata* module.
- ☐ Use *Clip Values* module and select Set of thresholds-ClipSubpeaks.

**Explanation**

**MinMax:** The min-max normalizer linearly rescales every feature to the [0,1] interval.

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

**Incorrect answers:**

**Use Normalize Data module and select TanH normalizer -**

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

**Use Clip Values module and select Set of thresholds-ClipSubpeaks - ClipSubpeaks:** When you clip values by sub-peaks, you specify only a lower boundary. Values that are less than that boundary value are replaced or removed.

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

**Use the Edit Metadata module -** Use the Edit Metadata module to change metadata that's associated with columns in a dataset. The value and data type of the dataset will change after use of the Edit Metadata module.

- Typical metadata changes might include:
- Treating Boolean or numeric columns as categorical values.
- Indicating which column contains the **class** label or contains the values you want to categorize or predict.
- Marking columns as features.
- Changing date/time values to numeric values or vice versa.
- Renaming columns.

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/edit-metadata>

Question 34: **Correct**

The only way to enter data in the Azure Machine Learning designer is to use *Import data* module.

Select True if the statement is correct else select False.

- ☐ TRUE
- ☒ FALSE  
(Correct)

**Explanation**

Azure machine learning studio supports manually entering data through the module "*Enter Data Manually*".

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/data-input-and-output>

Question 35: **Correct**

Which machine learning algorithm is mostly used for predicting the values of categorical variables?

- ☐ K-Means
- ☐ Linear regression
- ☒ Logistic regression  
(Correct)

**Explanation**

**Logistic Regression** is used for classification problems. **Logistic regression** is a [statistical model](#) that in its basic form uses a [logistic function](#) to model a **binary dependent variable**, although many more complex [extensions](#) exist.

[https://en.wikipedia.org/wiki/Logistic\\_regression#:~:text=Logistic%20regression%20is%20a%20statistical,a%20form%20of%20binary%20regression\).](https://en.wikipedia.org/wiki/Logistic_regression#:~:text=Logistic%20regression%20is%20a%20statistical,a%20form%20of%20binary%20regression).)

**Incorrect answers:**

**Linear regression** - In [statistics](#), **linear regression** is a [linear](#) approach to modelling the relationship between a **scalar response** and one or more explanatory variables (also known as [dependent and independent variables](#)). This is preferred for Regression problems and not classification problems.

[https://en.wikipedia.org/wiki/Linear\\_regression](https://en.wikipedia.org/wiki/Linear_regression)

**K-Means - *k*-means clustering** is a method of [vector quantization](#), originally from [signal processing](#), that aims to [partition](#)  $n$  observations into  $k$  clusters in which each observation belongs to the [cluster](#) with the nearest [mean](#) (cluster centers or cluster [centroid](#)), serving as a prototype of the cluster. This is a clustering algorithm.

[https://en.wikipedia.org/wiki/K-means\\_clustering](https://en.wikipedia.org/wiki/K-means_clustering)

Question 36: **Correct**

Select **two items** from the below list which can be dragged onto the azure machine learning designer canvas.

☐ pipeline

☒ module  
(Correct)

☒ data set  
(Correct)

☐ compute

**Explanation**

1. When you open the designer, there is option to create new pipeline or select an existing template hence there is no need to drag and drop.
2. Compute is something that needs to be something that is set and not dragged
3. Dataset and Module are dragged and dropped as there are multiple options for the same

Below links provides end to end flow.

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

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

Question 37: **Correct**

You have a lecture note which is sorted as text. For your exam, you need to extract key terms from the notes to generate summaries.

Which type of AI workload should you use?

- ☐ anomaly detection
- ☐ conversational AI
- ☐ computer vision

☒ natural language processing  
(Correct)

**Explanation**

**Key phrase extraction** is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

Key phase extraction is a part of Text Analytics. The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform **advanced natural language processing** over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Incorrect answers:**



**Anomaly detection** - The capability to automatically detect errors or unusual activity in a system.

**Computer vision** - The capability of software to interpret the world visually through cameras, video, and images.

**Conversational AI** - The capability of a software "agent" to participate in a conversation.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/1-introduction>

Question 38: **Correct**

Which statements are true for computer vision? Select 2 options from below.

- ☐ Predict the house price based on historical data is done by computer vision.
- ☒ Computer Vision can analyze the colours and can detect the colour scheme in an image. **(Correct)**
- ☒ Computer Vision has the ability to identify commercial brands. **(Correct)**
- ☐ Extract key phrases from product reviews are done by computer vision.
- ☐ Computer Vision can translate text between languages.

**Explanation**

In addition to these capabilities, the Computer Vision service can:

- Detect image types - for example, identifying clip art images or line drawings.
- **Detect image color schemes - specifically, identifying the dominant foreground, background, and overall colors in an image.**
- Generate thumbnails - creating small versions of images.
- Moderate content - detecting images that contain adult content or depict violent, gory scenes.

**Computer Vision provides the ability to identify commercial brands.** The service has an existing database of thousands of globally recognized logos from commercial brands of products.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

**Incorrect answers:**

**Predict the house price based on historical data is done by computer vision** - This is Regression problem

**Computer Vision can translate text between languages** - This will be handled by text analytics under natural language processing

Question 39: **Correct**

You are working as a cloud consultant for a major retail company. You are planning to create a bot from a frequently asked questions (FAQ) document. You found out that Microsoft Azure AI has many services that can help in creating a bot seamlessly. Which azure AI service should you use?

- ☐ Text analysis
- ☐ Language understanding
- ☒ QnA Maker **(Correct)**
- ☐ Speech

**Explanation**

QnA Maker is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**Incorrect answers:**

**Text analysis** - The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced natural language processing over raw text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**Language understanding** - Creating a language understanding application with Language Understanding consists of two main tasks. First you must define entities, intents, and utterances with which to train the language model - referred to as *authoring* the model. Then you must publish the model so that client applications can use it for intent and entity *prediction* based on user input.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

**Speech** - Microsoft Azure offers both speech recognition and speech synthesis capabilities through the **Speech** cognitive service, which includes the following application programming interfaces (APIs):

The **Speech-to-Text** API

The **Text-to-Speech** API

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/2-get-started-azure>

Question 40: **Correct**

Which of the following is/are example(s) of conversational AI workload? Choose 2 scenarios from below options.

- ☒ Interactively responding to a user’s question through a website that uses a knowledge base.  
**(Correct)**
- ☐ Assembly line machinery that independently dismantles various parts of car and places them in a conveyor belt.
- ☐ A machine that monitors the pressure of a coffee machine and automatically turns it OFF when the pressure reaches a specific threshold.
- ☒ An AI enabled smart device in the car that responds to questions such as “What is the distance between *Goldcoast* and *Brisbane* ?”  
**(Correct)**

**Explanation**

-Interactively responding to a user’s question through a website that uses a knowledge base.-conversational AI.

-An AI enabled smart device in the car that responds to questions such as “What will the distance between Goldcoast and Brisbane?” conversational AI

**Incorrect answers:**

Assembly line machinery that independently dismantles various parts of car and places them in a conveyor belt - Automation

A machine that monitors the pressure of a coffee machine and automatically turns it OFF when the pressure reaches a specific threshold - Anomaly detection

Question 41: **Correct**

Which of the following types of machine learning is **NOT** an example of supervised machine learning?

- ☐ Regression
- ☐ Classification
- ☒ Clustering  
**(Correct)**

**Explanation**

Classification and regression are supervised machine learning, clustering is unsupervised.

Regression is an example of a *supervised* machine learning technique in which you train a model using data that includes both the features and known values for the label, so that the model learns to *fit* the feature combinations to the label.

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

Classification is an example of a *supervised* machine learning technique in which you train a model using data that includes both the features and known values for the label, so that the model learns to *fit* the feature combinations to the label.

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

**Clustering is an example of *unsupervised* machine learning**, in which you train a model to separate items into clusters based purely on their characteristics, or *features*. There is no previously known cluster value (or *label*) from which to train the model.

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

Question 42: **Correct**

Which of the following is commonly used to predict a categorical variable?

- ☐

Clustering

☐

Anomaly detection

☐

Linear regression

☒

Binary or Multi-class Classification  
(Correct)

**Explanation**

**Classification** is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

**Incorrect answers:**

**Clustering** - *Clustering* is a form of machine learning that is used to group similar items into clusters based on their features. For example, a researcher might take measurements of penguins, and group them based on similarities in their proportions.

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

**Anomaly detection** - a machine learning based technique that analyzes data over time and identifies unusual changes.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/3-understand-anomaly-detection>

**Linear regression** - Regression is an example of a *supervised* machine learning technique in which you train a model using data that includes both the features and known values for the label, so that the model learns to *fit* the feature combinations to the label.

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

Question 43: **Correct**

What is the minimum number of features required to perform clustering?

☐  
2

☐  
0

☐  
3

☒  
1

(Correct)

**Explanation**

Clustering can be performed with one dimensional data to start with. For example clustering people basis their age.

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

Question 44: **Correct**

**You have selected the *Clean Missing Data Module* into the canvas and want to replace only 80% of all the missing values present in *Product\_detail Dataset.csv* dataset.**

What parameters you should set in the Clean Missing Data module to get the required result?

[Larger image](#)

☐

Set Minimum missing value ratio to 20.

☒

Set Maximum missing value ratio to 0.8  
(Correct)

☐

Set Minimum missing value ratio to 0.2.

☐

Set Maximum missing value ratio to 80

**Explanation**

Maximum missing value ratio to 0.8 means that the Clean Missing data module will not replace more than 80% of all the missing values in the dataset. The values are replaced based on the ***Cleaning mode*** you select.

For **Minimum missing value ratio**, specify the minimum number of missing values required for the operation to be performed. The value is set between 0 and 1.

For **Maximum missing value ratio**, specify the maximum number of missing values that can be present for the operation to be performed. The value is set between 0 and 1.

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/clean-missing-data>

Question 45: **Correct**

Match the types of computer vision to the appropriate scenarios.

Identify celebrities in Images

Extract movie names from movie poster

locate vehicles in an image

- ☐ Identify celebrities in Images - **Facial Recognition**  
Extract movie names from movie poster - **OCR**  
locate vehicles in an image - **Image classification**
- ☐ Identify celebrities in Images - **Facial Recognition**  
Extract movie names from movie poster - **OCR**  
locate vehicles in an image - **Object detection**
- ☒ Identify celebrities in Images - **Image Classification**  
Extract movie names from movie poster - **OCR**  
locate vehicles in an image - **Object detection**  
**(Correct)**

**Explanation**

Identify celebrities in Images - **Image Classification**

Detecting domain-specific content

When categorizing an image, the Computer Vision service supports two specialized domain models:

**Celebrities** - The service includes a model that has been trained to identify thousands of well-known celebrities from the worlds of sports, entertainment, and business.

**Landmarks** - The service can identify famous landmarks, such as the Taj Mahal and the Statue of Liberty.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

**Note :** This example of identifying celebrities in an image fulfills all 3 below:

- It is an example of computer vision
- It is an example of image classification
- It is an example of facial recognition(not Face API)

but if you to have choose in priority then it would be

Computer Vision > Image Classification > Facial Recognition

Extract movie names from movie poster - **OCR**

The ability for computer systems to process written or printed text is an area of artificial intelligence (AI) where *computer vision* intersects with *natural language processing*. OCR is a sub category of Computer Vision.

<https://docs.microsoft.com/en-us/learn/modules/read-text-computer-vision/1-introduction>

Locate vehicles in an image - **Object detection**

*Object detection* is a form of machine learning based computer vision in which a model is trained to recognize individual types of object in an image, and to identify their location in the image.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

Retake test

[Continue](#)

Fullscreen

5

## AI 900: Artificial Intelligence Fundamentals Practice Test 2021 - Results

Return to review

### Attempt 1

All knowledge areas

All questions

Question 1: **Correct**

For the below statement select **YES** if the statement is true otherwise select **NO**.

Automated machine learning (AutoML) is the process of automating the iterative and time-consuming tasks of machine learning model development for real-world problems.

- ☐ NO

- ☒ YES  
(Correct)

#### Explanation

**What is automated machine learning (AutoML)?**

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. Automated ML in Azure Machine Learning is based on a breakthrough from our [Microsoft Research division](#).

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

Question 2: **Correct**

An application which intelligently and interactively answers the questions asked by a user is an example of \_\_\_\_\_.

- ☐ forecasting

- ☐ anomaly detection

- ☐ computer vision

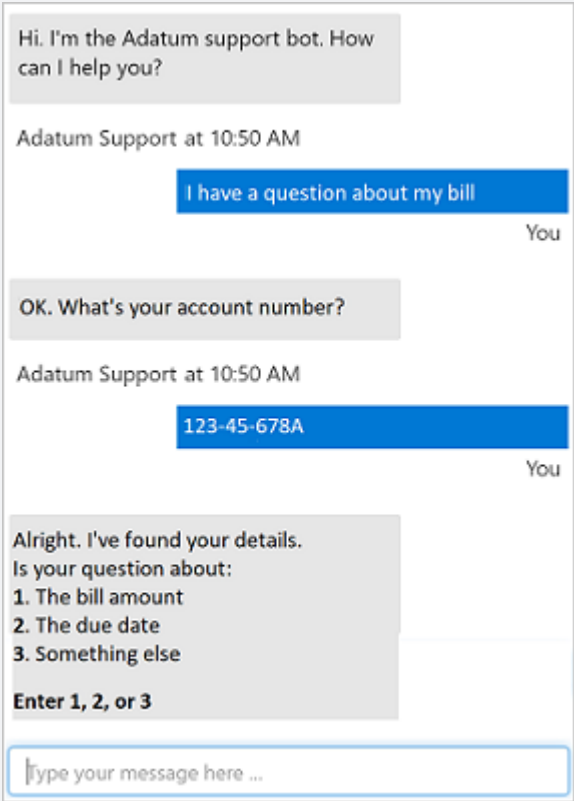
- ☒ conversational AI  
(Correct)

#### Explanation

Conversational AI

While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that answers to specific questions are hard to find. Often, these organizations find their support personnel being overloaded with requests for help through phone calls, email, text messages, social media, and other channels.

Increasingly, organizations are turning to artificial intelligence (AI) solutions that make use of AI agents, commonly known as *bots* to provide a first-line of automated support through the full range of channels that we use to communicate. Bots are designed to interact with users in a conversational manner, as shown in this example of a chat interface:



<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/1-introduction>

Incorrect answers:

- forecasting** - This is a regression problem
- anomaly detection** - This used to find abnormal behavior over a period of time
- computer vision** - This is used for image and video analytics

Question 3: **Correct**  
Select the most appropriate **Natural Language Processing workload** for below scenario.

Scenario:

Translate email communication to a specific language.

- ☐ Sentiment analysis
- ☐ Entity recognition
- ☐ Language modelling
- ☐ Key phrase extraction
- ☐ Speech recognition and speech synthesis
- ☒ Translation **(Correct)**

Explanation

Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

The **Translator Text** service, which supports text-to-text translation.

The **Speech** service, which enables speech-to-text and speech-to-speech translation.<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/2-get-started-azure>



**Incorrect answers:**

**Sentiment analysis** - This is used for identifying positive and negative sentiments

**Entity recognition** - This helps in pulling entities like data, place, email id from raw text

**Language modelling** - This is a higher job family which involves determining the probability of a sequence of words. This is useful in a large variety of areas including speech recognition, optical character recognition, handwriting recognition, machine translation, and spelling correction.

**Key phrase extraction** - This helps to extract key phrases from a raw text

**Speech recognition and speech synthesis** - This used for speech to text and text to speech conversion and this example requires text to text conversion

Question 4: **Correct**

The prediction of a model is determined by which of the following data values?

- ☐ identifiers
- ☒ features  
(Correct)
- ☐ labels
- ☐ dependent variables

**Explanation**

**Features** are also known as independent variables. They act as an input for a process that is been analysed.

Whereas **dependent variables** are the output of the process. This is also called **Labels**

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/what-is-ml>

There is no such term as **identifier** in machine learning.

Question 5: **Correct**

Select the appropriate option in the answer area.

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

- ☒ custom vision  
(Correct)
- ☐ computer vision
- ☐ video indexer
- ☐ form recognizer

**Explanation**

**custom vision** - This is a type of computer vision service which helps in building/training models using user provided data

Creating an object detection solution with Custom Vision consists of three main tasks. **First you must use upload and tag images**, then you can train the model, and finally you must publish the model so that client applications can use it to generate predictions.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/2-object-detection-azure>

**Incorrect answers:**

A **Computer Vision** resource cannot be used to train an object detection model from your own images.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/2-object-detection-azure>

**video indexer** - Video Indexer provides ability to extract deep insights (with no need for data analysis or coding skills) using machine learning models based on multiple channels (voice, vocals, visual). You can further customize and train the models.

[https://docs.microsoft.com/en-us/azure/media-services/video-indexer/video-indexer-overview#:~:text=Video%20Indexer%20\(VI\)%20is%20the,the%20Azure%20Cognitive%20Services%20brand.&text=When%20you%20upload%20your%20videos,extracted%20by%20the%20AI%20models.](https://docs.microsoft.com/en-us/azure/media-services/video-indexer/video-indexer-overview#:~:text=Video%20Indexer%20(VI)%20is%20the,the%20Azure%20Cognitive%20Services%20brand.&text=When%20you%20upload%20your%20videos,extracted%20by%20the%20AI%20models.)

**form recognizer** - A type of computer vision service which helps in extracting text from forms and receipts

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

Question 6: **Correct**

Which two services should you use to reduce the load on telephone operators by implementing a chatbot to answer simple questions with predefined answers?

- ☒ Azure bot service  
(Correct)
- ☐ text Analytics
- ☐ translator text
- ☒ qna Maker  
(Correct)

#### Explanation

While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that answers to specific questions are hard to find. Often, these organizations find their support personnel **being overloaded with requests for help through phone calls, email, text messages, social media, and other channels.**

You can easily create a user support bot solution on Microsoft Azure using a combination of two core technologies:

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

**Azure Bot Service.** This service provides a framework for developing, publishing, and managing bots on Azure.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

#### Incorrect answers:

**text Analytics** - Used for drawing insights from raw text

**translator text** - Used for text to text translation

Question 7: **Correct**

The ability to extract date, time, quantity and price from a receipt is a capability of the \_\_\_\_\_ service.

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

- ☐ text Analytics
- ☒ form recognizer  
(Correct)
- ☐ Ink recognizer
- ☐ computer vision

#### Explanation

It's relatively easy to scan receipts to create digital images or PDF documents, and it's possible to use optical character recognition (OCR) technologies to extract the text contents from the digitized documents.

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents such as forms, invoices, and receipts. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

- Matching field names to values.

- Processing tables of data.

- **Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.**

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/1-introduction>

**text Analytics** - This is used to draw insights from raw text.

**computer vision** - This is higher family which has form recognizer as a sub service however in this case we will choose form recognizer which is a direct answer. If form recognizer is missing then we should choose computer vision as the answer.

**ink recognizer** - The Ink Recognizer Cognitive Service provides a cloud-based REST API to analyze and recognize digital ink content. Unlike services that use Optical Character Recognition (OCR), the API requires digital ink stroke data as input. Digital ink strokes are time-ordered sets of 2D points (X,Y coordinates) that represent the motion of input tools such as digital pens or fingers. It then recognizes the shapes and handwritten content from the input and returns a JSON response containing all recognized entities.

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

Question 8: **Correct**

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?

- ☐ set validation type to auto
- ☐ set primary metric to accuracy
- ☒ enable explain best model  
(Correct)
- ☐ set Max concurrent iterations to zero

#### Explanation

**explain best model** - Select to enable or disable, in order to show explanations for the recommended best model. When a model is created, its important to understand why the model predicted the output along with what the model predicted.

Example: It is not enough for a model to predict a person has cancer. Its equally important to understand what patterns did the model find to predict the same.

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-use-automated-ml-for-ml-models>

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-auto-train>

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

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

#### Incorrect answers:

Each of the below though incorrect answer does contribute to making the model transparent esp the metrics chosen and the validation dataset.

**set validation type to auto** - When either a custom validation set or an automatically selected validation set is used, model evaluation metrics are computed from only that validation set, not the training data

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-configure-cross-validation-data-splits#metric-calculation-for-cross-validation-in-machine-learning>

**set primary metric to accuracy** - This is used to define the metric that will be used to calculate the model performance

**set Max concurrent iterations to zero** - Maximum number of pipelines (iterations) to test in the training job. The job will not run more than the specified number of iterations. Maximum number of pipelines (iterations) to test in the training job. The job will not run more than the specified number of iterations.

<https://docs.microsoft.com/en-us/azure/machine-learning/how-to-use-automated-ml-for-ml-models>

Question 9: **Correct**

Which type of computer vision AI service can help you to build a mobile application for employees to scan and store their expenses while traveling?

- ☐ object detection
- ☐ semantic segmentation
- ☒ optical character recognition  
(Correct)
- ☐ image classification

**Explanation**

The service that helps is called Form Recognizer which is a type of computer vision service

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in **documents such as forms, invoices, and receipts**. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

- Matching field names to values.
- Processing tables of data.
- Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/read-text-computer-vision/2-ocr-azure>

**Incorrect answers:**

**object detection** - This helps in identifying objects in an image. For example finding all the cars in an image. This is a type of computer vision technique.

**semantic segmentation** - This a type of computer vision technique which links each pixel in an **image** to a class label

**image classification** - This is a technique which takes an image as an input and helps in classifying it into a set of pre defined classes. For example whether a photo belongs to cat or dog category. This is a type of computer vision technique.

Question 10: **Correct**

You're developing an AI system that will apply text analytics API feature to an application that visits NEWS websites.

Match the **text analytics API features** to the appropriate **natural language processing scenarios**.

*text analytics API features*

- entity recognition
- keyphrase extraction
- language detection
- sentiment analysis

*natural language processing scenarios*

- (1)Understand how upset a writer is based on the text contained in the discussion forum of the news website.
- (2)Summarize important information from the content of the webpage.
- (3)Extract key names from the news webpage.

Choose the option that matches the **scenarios** to appropriate **text analytics API features**.

(1 or 2 or 3) represents a scenario statement in the options below.

To answer, select the appropriate option.

- ☒ (1)sentiment analysis (2)key-phrase extraction (3)Entity recognition  
**(Correct)**
- ☐ (1)language detection (2)entity recognition (3)sentiment analysis
- ☐ (1)key phrase extraction (2)language detection (3)language detection
- ☐ (1)entity recognition (2)sentiment analysis (3)key phrase extraction

**Explanation**

(1)Understand how upset a writer is based on the text contained in the discussion forum of the news website - **sentiment analysis**

The Text Analytics service can evaluate text and **return sentiment scores** and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

(2) Summarize important information from the content of the webpage - **key-phrase extraction**

Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s). Consider the restaurant scenario discussed previously.

(3) Extract key names from the news webpage- **Entity recognition**

You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 11: **Correct**

You want to use the Computer Vision service to analyze images. You also want to use the Text Analytics service to analyze text. You want developers to require only one key and endpoint to access all of your services. What kind of resource should you create in your Azure subscription?

- ☐ Computer Vision
- ☒ Cognitive Services  
(Correct)
- ☐ Custom Vision
- ☐ Text Analytics

#### Explanation

A **Cognitive Services** resource - choose this resource type if you plan to use the Text Analytics service in combination with other cognitive services, and you want to manage access and billing for these services together.

Incorrect answers:

A **Text Analytics** resource - choose this resource type if you only plan to use the Text Analytics service, or if you want to manage access and billing for the resource separately from other services.

**Computer Vision:** A specific resource for the Computer Vision service. Use this resource type if you don't intend to use any other cognitive services, or if you want to track utilization and costs for your Computer Vision resource separately.

**Custom Vision:** A dedicated resource for the custom vision service, which can be *training*, a *prediction*, or *both* resources.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

Question 12: **Correct**

You want to use the Computer Vision service to identify the location of individual items in an image. Which of the following features should you retrieve?

- ☒ Objects  
(Correct)
- ☐ Tags
- ☐ Categories

#### Explanation

In Microsoft Azure, the **Computer Vision** cognitive service uses pre-trained models to analyze images, enabling software developers to easily build applications that can:

- Interpret an image and suggest an appropriate caption.

- **Suggest relevant tags that could be used to index an image** - This doesn't provide a location. Instead they provide text tags depending upon the content of the image

- **Categorize an image** - This doesn't provide location. When analyzing an image, detected objects are compared to the existing categories to determine the best way to provide the categorization. As an example, one of the parent categories is **people\_**. This image of a person on a roof is assigned a category of **people\_**.

- **Identify objects in an image** - The object detection capability is similar to tagging, in that the service can identify common objects; but rather than tagging, or providing tags for the recognized objects only, this service can also return what is known as bounding box coordinates. Not only will you get the type of object, but you will also receive a set of coordinates that indicate the top, left, width, and height of the object detected, which you can use to identify the location of the object in the image, like this:

- Detect faces and people in an image.
- Recognize celebrities and landmarks in an image.
- Read text in an image.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 13: **Correct**

Which facial recognition task can answer below question appropriately

"Do all the faces belong together?"

- ☒ grouping  
(Correct)
- ☐ similarity
- ☐ verification
- ☐ identification

**Explanation**

Face currently supports the following functionality:

Face Detection

Face Verification

Find Similar Faces

**Group faces based on similarities**

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 14: **Correct**

The below description follows which *Microsoft guiding principles for responsible AI* ?

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.

- ☐ fairness
- ☐ inclusiveness
- ☒ privacy and security  
(Correct)
- ☐ reliability and safety
- ☐ accountability

**Explanation**

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 15: **Incorrect**

Which scenarios are examples of conversational AI?

- ☒ a telephone answering service that has pre-recorded message.  
(Incorrect)
- ☒ telephone voice menus to reduce the load on human resources.  
(Correct)
- ☒ an application that creates FAQs by visiting public websites.  
(Correct)



- ☒ a chat-bot that provides users with the ability to find answers on a website by themselves  
(Correct)

**Explanation**

**an application that creates FAQs by visiting public websites** - This is an example of FAQ based chat-bot which can be built in Azure by using Q&A maker

**a chat-bot that provides users with the ability to find answers on a website by themselves** - The statement itself states that its a chat-bot which is an example of conversational AI

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/1-introduction>

**telephone voice menus to reduce the load on human resources** - I would have marked this option as False as it is not very clear from the wording whether there is any sort of intelligence built in the voice menus. Most IVR system in the market are just voice recording played as per the option selected by the user. We find this in most of the call centers to redirect the query to the right department for resolution. However Microsoft official document says as below and hence by above statement they are referring to intelligent system hence this is a correct option.

You can use the output of speech synthesis for many purposes, including:

- Generating spoken responses to user input.
- **Creating voice menus for telephone systems.**
- Reading email or text messages aloud in hands-free scenarios.
- Broadcasting announcements in public locations, such as railway stations or airports.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

**Incorrect answers:**

**a telephone answering service that has pre-recorded message** - This is an example of plain recording being read aloud and there is no aspect of conversation or Intelligence built in.

Question 16: **Correct**

You are working in a data analytics company and have been provided with a bunch of scanned documents. Which Microsoft AI service should you use to extract text key/value pairs and table data automatically?

- ☒ form recognizer  
(Correct)
- ☐ ink recognizer
- ☐ text Analytics
- ☐ custom vision

**Explanation**

A common problem in many organizations is the need to process receipt or invoice data.

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents such as forms, invoices, and receipts. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

- **Matching field names to values.**
- Processing tables of data.
- Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/1-introduction>

**Incorrect answers:**

**ink recognizer** - The Ink Recognizer Cognitive Service provides a cloud-based REST API to analyze and recognize digital ink content.

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

**text Analytics** - There is a natural language processing technique and deals with text data and not image data which is more of a computer vision problem

**custom vision** - Custom vision is a sub category of computer vision which deals with building models with custom data.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

Question 17: **Incorrect**

Select true/false

Logistic regression is mostly used for solving regression problems.

- ☒ TRUE  
(Incorrect)
- ☐ FALSE  
(Correct)

#### Explanation

**Logistic regression** is a **classification algorithm** which is most commonly used when the data in question has binary output ie 0/1, true/false etc.

Please note that classification tasks have discrete categories, unlike regressions tasks which has continuous values.

[https://en.wikipedia.org/wiki/Logistic\\_regression#:~:text=Logistic%20regression%20is%20a%20statistical,a%20form%20of%20binary%20regression\).](https://en.wikipedia.org/wiki/Logistic_regression#:~:text=Logistic%20regression%20is%20a%20statistical,a%20form%20of%20binary%20regression).)

Question 18: **Correct**

The below description follows which *Microsoft guiding principles for responsible AI* ?

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.

- ☐ fairness
- ☐ inclusiveness
- ☐ reliability and safety
- ☒ accountability  
(Correct)
- ☐ privacy and security

#### Explanation

**The people who designed and developed the AI system are accountable for how the system works in real world.** Humans maintain meaningful control over autonomous systems. AI systems are not the final authority.

An example could be an AI system predicting whether a patient has cancer or not. However the same needs to be ratified by a doctor before administering any type of medicine. The AI system should not be the final authority.

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

Question 19: **Correct**

In Azure machine learning designer, you should use \_\_\_\_\_ module to create a training data set and validation data set from an existing data set.

- ☐ select columns in data set
- ☐ join data
- ☒ split data  
(Correct)
- ☐ add rows

#### Explanation

**Split Rows** option in the **Split Data** module of Azure Machine Learning Studio (classic) is particularly useful when you need to divide datasets used for training and testing, either randomly or by some criteria.

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data-using-split-rows>

**Incorrect answers:**

**select columns in data set** - This is an example of feature engineering where you might want to select only a subset of columns for training purpose

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/select-columns-in-dataset>

**join data** - This module is used when one wants to merge two tables

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

**add rows** - This is used when you want to append a set of rows from an input dataset to the end of another dataset

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

Question 20: **Incorrect**

You got a set of predictions and the AUC was very low for the model. As none of the predictions was close to 1, you decided to multiply all values with 3.0 to make it close to 1.

Will that change the model's performance based on AUC?

- ☐ No, it will degrade the model's performance.
- ☒ Yes, it will enhance the model's performance.  
**(Incorrect)**
- ☐ No change in the model's performance.  
**(Correct)**

**Explanation**

**AUC is calculated based on the relative ranking of the predictions.** Transforming the prediction by multiplying with 3 will still maintain the relative ranking. So the AUC remains the same no matter whatever we multiply with.

<https://www.analyticsvidhya.com/blog/2020/06/auc-roc-curve-machine-learning/>

Question 21: **Correct**

In a group of people, \_\_\_\_\_ is a facial recognition task that can point out, who the person is?

- ☐ verification
- ☐ grouping
- ☒ identification  
**(Correct)**
- ☐ similarity

**Explanation**

Face currently supports the following functionality:

- Face Detection
- Face Verification
- Find Similar Faces
- Group faces based on similarities
- **Identify people**

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 22: **Correct**

From a frequently asked question (FAQ) PDF file which AI service should be used to create a conversational support system?

- ☒ qna maker  
**(Correct)**
- ☐ text Analytics
- ☐ computer vision

**Explanation**

**QnA Maker** is a cloud-based API service that lets you create a conversational question-and-answer layer over your existing data.

After provisioning a QnA Maker resource, you can use the QnA Maker portal to create a knowledge base that consists of question-and-answer pairs. These questions and answers can be:

- **Generated from an existing FAQ document or web page.**

- Imported from a pre-defined *chit-chat* data source.

- Entered and edited manually.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**text Analytics** - The Text Analytics service is a part of the Azure Cognitive Services offerings that can perform advanced natural language processing over raw text. This is not the service to create chatbots which is an example of conversational AI

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**computer vision** - This is related to images and video analytics and not related to building conversational AI solutions of which QnA maker is an example

Question 23: **Correct**

You are developing a travel app in which you need to train a model to predict the fare of a taxi journey. You have a data set of all taxi journeys since 2005 in major cities of the US. What data should you use as a feature?

- ☐ the number of taxi Journeys in the data set
- ☒ the trip distance of individual taxi Journeys  
(Correct)
- ☐ the name and age of the passengers in the data set.
- ☐ the fare of individual taxi Journeys
- ☐ the trip ID of individual taxi Journeys.

**Explanation**

**the number of taxi Journeys in the data set** - This is a single no and adding this as a feature to every row will add no value

**the trip distance of individual taxi Journeys** - This is the best feature as trip price will be largely related to trip distance along with other factors like demand and weather

**the name and age of the passengers in the data set** - Name is of no importance. The fare should not be changed basis age for the same trip and distance as that would be against the principle of fairness

**the fare of individual taxi Journeys** - This will be the output to be predicted and hence will be the output label

**the trip ID of individual taxi Journeys** - This is not of much use as the same is a unique identifier for each trip that is taken

Question 24: **Correct**

You have a website content in English and you want it to publish it in a range of language-based upon the geographic location of the user.

Which two services should you use?

- ☐ text Analytics
- ☒ speech  
(Correct)
- ☐ language understanding
- ☒ translator text  
(Correct)

**Explanation**

**Explanation**

Microsoft Azure provides cognitive services that support translation. Specifically, you can use the following services:

**The Translator Text service**, which supports text-to-text translation.

**The Speech service**, which enables speech-to-text and speech-to-speech translation.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/1-introduction>

**Note:** Given that the question asks for 2 services specifically hence we have selected Speech service. However in reality for text to text translation we have only Translator Text service

**Incorrect answers:**

**text Analytics** - This is a service for generating insights from text and not for translation.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

**language understanding** - This is used to make **Chat-bots** and not used for translation.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/2-get-started>

Question 25: **Incorrect**

Which metric can you use to evaluate a classification model?

- ☐ Mean Absolute Error(MAE)
- ☐ Coefficient of determination R2
- ☒ Root Mean Square Error RMSE  
(Incorrect)
- ☐ Relative Squared Error (RSE)
- ☐ True Positive Rate and False Positive Rate  
(Correct)

**Explanation**

**Mean Absolute Error(MAE)** - Regression

**Coefficient of determination R2** - Regression

**Relative Squared Error (RSE)** - Regression

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

**True Positive Rate and False Positive Rate** - Classification

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

Question 26: **Incorrect**

Select the statements which most appropriately describe below scenario.

In azure machine learning designer, you have dragged **Split Data module** and want to apply it in **Product\_detail.csv dataset** having **price** as one of the columns. You have selected the below attributes:

**Splitting mode: Relative expression**

**Relational expression: \ 'Price' < 70**

It will split the dataset into 2,

- ☒ having one of the datasets with all rows where Price of a product is greater than and equal to 70.  
(Correct)
- ☐ having one of the datasets with all rows where Price of a product is less than 70.  
(Correct)
- ☐ having one of the datasets with all rows where Price of a product is less than 30.
- ☒ having one of the datasets with all rows where Price of a product is greater than and equal to 30.  
(Incorrect)

**Explanation**

Below expression:

**Relational expression:** \ 'Price' < 70

will divide the data-set into two as 1) having less than 70 and 2) having >= 70

**Split Data** module of Azure Machine Learning Studio (classic) is helpful when you need to divide a data-set into training and testing datasets using a numerical expression.

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data-using-relative-expression>

Question 27: **Correct**

Splitting the address field into country, city and street number can be appropriately mapped to \_\_\_\_\_ machine learning task.

- ☐ model deployment
- ☐ model training
- ☒ feature engineering  
(Correct)
- ☐ feature selection
- ☐ model evaluation

**Explanation**

**Feature engineering** is the process of using domain knowledge to extract **features** from raw data via data mining techniques. These **features** can be used to improve the performance of machine learning algorithms. **Feature engineering** can be considered as applied machine learning itself.

[https://en.wikipedia.org/wiki/Feature\\_engineering#:~:text=Feature%20engineering%20is%20the%20process,as%20applied%20machine%20learning%20itself.](https://en.wikipedia.org/wiki/Feature_engineering#:~:text=Feature%20engineering%20is%20the%20process,as%20applied%20machine%20learning%20itself.)

**Incorrect answers:**

**model deployment** - Putting the model into deployment

**model training** - Training the model so that it can predict future outcomes

**feature selection** - Continuous experiment by choosing different columns in the dataset for model training and evaluation

**model evaluation** - Checking the performance of model basis a metrics

Question 28: **Correct**

A media company is implementing an AI system that entitles everyone including people with disabilities such as vision impairment, deaf or hard of hearing.

Identify the Microsoft guiding principle for responsible AI which the company is trying to implement.

- ☐ accountability
- ☐ reliability and safety
- ☐ fairness
- ☒ inclusiveness  
(Correct)

**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.**

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

Question 29: **Incorrect**

You want to use the Computer Vision service to analyze images of locations and identify well-known buildings? What should you do?

- ☐



Retrieve the objects in the image.

- ☒ Retrieve the categories for the image, specifying the celebrities domain  
(Incorrect)
- ☐ Retrieve the categories for the image, specifying the landmarks domain  
(Correct)

**Explanation**

The landmarks domain includes many well-known buildings around the world.

**Detecting domain-specific content**

When categorizing an image, the Computer Vision service supports two specialized domain models:

**Celebrities** - The service includes a model that has been trained to identify thousands of well-known celebrities from the worlds of sports, entertainment, and business.

**Landmarks** - The service can identify famous landmarks, such as the Taj Mahal and the Statue of Liberty.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

Question 30: **Correct**

You have published an image classification model. What information must you provide to developers who want to use it?

- ☐ Only the project ID.
- ☒ The project ID, the model name, and the key and endpoint for the prediction resource  
(Correct)
- ☐ The project ID, iteration number, and the key and endpoint for the training resource.

**Explanation**

To use a published model, you need the project ID, the model name, and the key and endpoint for the prediction resource.

**Using the model for prediction**

After you've trained the model, and you're satisfied with its evaluated performance, you can publish the model to your prediction resource. When you publish the model, you can assign it a name (the default is "IterationX", where X is the number of times you have trained the model).

To use your model, client application developers need the following information:

**Project ID:** The unique ID of the Custom Vision project you created to train the model.

**Model name:** The name you assigned to the model during publishing.

**Prediction endpoint:** The HTTP address of the endpoints for the *prediction* resource to which you published the model (**not** the training resource).

**Prediction key:** The authentication key for the *prediction* resource to which you published the model (**not** the training resource).

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

Question 31: **Correct**

You plan to use the Custom Vision service to train an image classification model. You want to create a resource that can only be used for model training, and not for prediction. Which kind of resource should you create in your Azure subscription?

- ☒ Custom Vision  
(Correct)
- ☐ Cognitive Services
- ☐ Computer Vision

**Explanation**

When you create a Custom Vision resource, you can specify whether it is to be used for training, prediction, or both.

**Custom Vision:** A dedicated resource for the custom vision service, which can be *training*, a *prediction*, or *both* resources.

**Incorrect:**

**Cognitive Services:** A general cognitive services resource that includes Custom Vision along with many other cognitive services. You can use this type of resource for *training*, *prediction*, or both. This can be used but if the requirement is only custom vision, then the specific custom vision service should be used.

<https://docs.microsoft.com/en-us/learn/modules/classify-images-custom-vision/2-azure-image-classification>

**Computer Vision-** This service cannot be used for Custom Vision

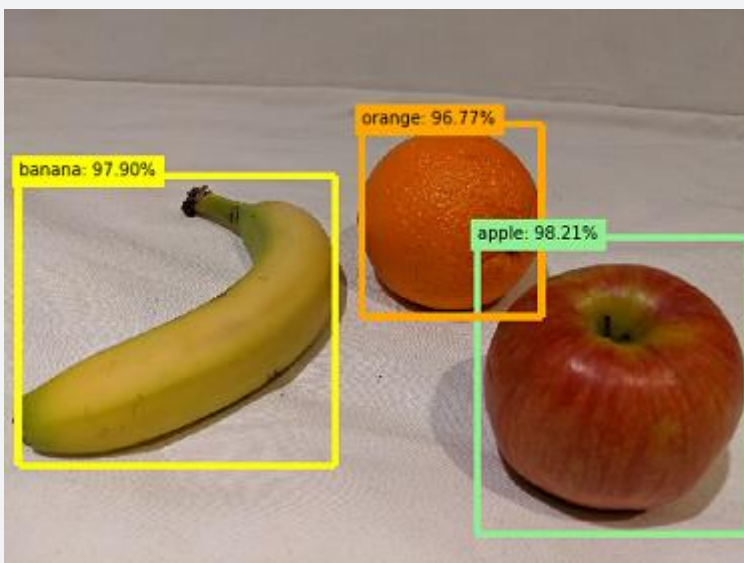
Question 32: **Incorrect**

Which of the following results does an object detection model typically return for an image?

- ☐ A class label and probability score for the image
- ☒ Bounding box coordinates that indicate the region of the image where all of the objects it contains are located  
(Incorrect)
- ☐ A class label, probability, and bounding box for each object in the image  
(Correct)

### Explanation

An object detection model predicts a class label, probability, and bounding box for each object in the image.



Notice that an object detection model returns the following information:

- The *class* of each object identified in the image.
- The probability score of the object classification (which you can interpret as the *confidence* of the predicted class being correct)
- The coordinates of a *bounding box* for each object.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

Question 33: **Correct**

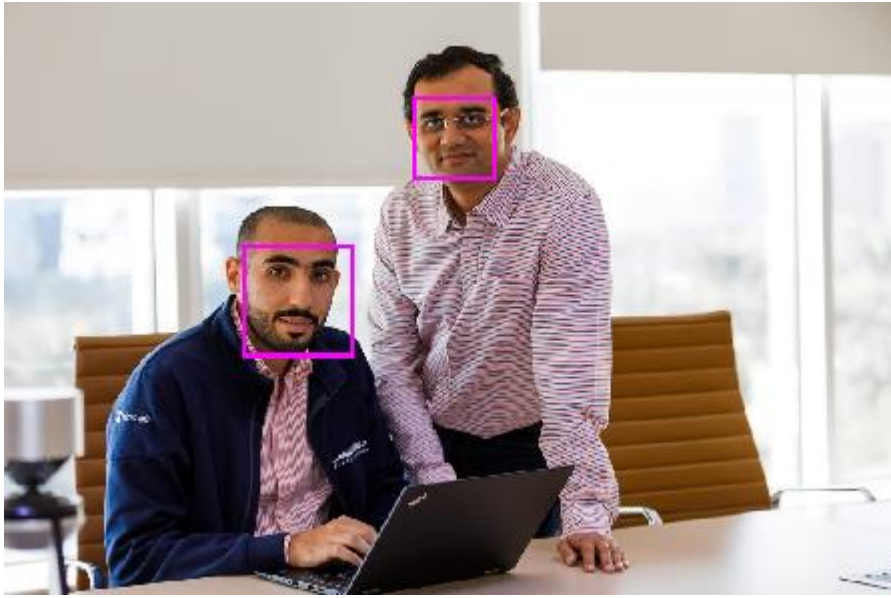
You plan to use Face to detect human faces in an image. How does the service indicate the location of the faces it detects?

- ☐ A pair of coordinates for each face, indicating the center of the face
- ☐ Two pairs of coordinates for each face, indicating the location of the eyes
- ☒ A set of coordinates for each face, defining a rectangular bounding box around the face  
(Correct)

### Explanation

The location of detected faces are indicated by a coordinates for a rectangular bounding box

**Face detection :** Face detection involves identifying regions of an image that contain a human face, typically by returning *bounding box* coordinates that form a rectangle around the face, like this:



<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/1-introduction>

Question 34: **Incorrect**

What is one aspect that may impair facial detection?

☐ Sunglasses  
(Incorrect)

☐ Fast shutter speed

☒ Extreme angles  
(Correct)

#### Explanation

##### Tips for more accurate results

There are some considerations that can help improve the accuracy of the detection in the images:

- image format - supported images are JPEG, PNG, GIF, and BMP
- file size - 6 MB or smaller
- face size range - from 36 x 36 up to 4096 x 4096. Smaller or larger faces will not be detected
- other issues - face detection can be impaired by **extreme face angles**, occlusion (objects blocking the face such as sunglasses or a hand). Best results are obtained when the **faces are full-frontal or as near as possible to full-frontal**

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

**Note:** Sunglasses is the second top issue.

Question 35: **Correct**

You want to use Face to identify named individuals. What must you do?

☐ Use the Computer Vision service - Face cannot perform facial recognition

☐ Use Face to retrieve age and emotional state for each person

☒ Use Face to create a group containing multiple images of each named individual, and train a model based on the group  
(Correct)

#### Explanation

**Creating a group that contains multiple images of named individuals enables you to train a facial recognition model.**

**Facial recognition :** A further application of facial analysis is **to train a machine learning model to identify known individuals from their facial features. This usage is more generally known as *facial recognition*, and involves using multiple images of each person you want to recognize to train a model so that it can detect those individuals in new images on which it wasn't trained.**

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/1-introduction>

#### Incorrect answers:

**Use Face to retrieve age and emotional state for each person** - This is facial analysis and cannot identify named individual

**Use the Computer Vision service - Face cannot perform facial recognition** - This is false as Face recognition can perform this as this service is specialized for Facial Recognition whereas Computer vision can do very basic activities

Question 36: **Correct**

Tick the options which are correct

- ☒ You can communicate with a bot using email  
(Correct)
- ☒ You can communicate with a bot using Microsoft Teams  
(Correct)
- ☒ You can communicate with a bot using webchat interface  
(Correct)

**Explanation**

All 3 are correct as they are the different channels to connect with a bot

**Office 365 email** - Enable a bot to communicate with users via Office 365 email.

**Microsoft Teams** - Configure a bot to communicate with users through Microsoft Teams.

**Web Chat** - Automatically configured for you when you create a bot with the Bot Framework Service.

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

Question 37: **Incorrect**

Select all which is correct

- ☒ You can use QnA Maker to query an Azure SQL database  
(Incorrect)
- ☒ You should use QnA Maker when you want a knowledge base to provide the same answer to different users who submit similar questions  
(Correct)
- ☒ The QnA Maker service can determine the intent of a user utterance  
(Incorrect)

**Explanation**

**QnA maker conversational AI service** and has **nothing to do with SQL database**

You can easily create a user support bot solution on Microsoft Azure using a combination of two core technologies:

- **QnA Maker**. This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.
- **Azure Bot Service**. This service provides a framework for developing, publishing, and managing bots on Azure.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

**LUIS is used to understand user intent from utterances.**

Creating a language understanding application with Language Understanding consists of two main tasks. First you must define entities, intents, and utterances with which to train the language model - referred to as *authoring* the model. Then you must publish the model so that client applications can use it for intent and entity *prediction* based on user input.

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

Question 38: **Incorrect**

Select sentences which are True

- ☒ Automated ML is the process of automating the time-consuming, iterative tasks of machine learning model development  
(Correct)
- ☒ Automated ML can automatically infer the training data from the use case provided  
(Incorrect)
- ☒ Automated ML works by running multiple training iterations that are scored and ranked by the metrics you specify  
(Correct)
- ☒ Automated ML enables you to specify a data-set and will automatically understand the label to predict  
(Incorrect)

**Explanation**

**1. Automated ML is the process of automating the time-consuming, iterative tasks of machine learning model development** - True

Training and deploying an effective machine learning model involves a lot of work, much of it time-consuming and resource-intensive. Azure Machine Learning is a cloud-based service that **helps simplify some of the tasks** and reduce the time it takes to prepare data, train a model, and deploy a predictive service.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/what-is-ml>

**2. Automated ML can automatically infer the training data from the use case provided** - False

User has to define the training dataset. Create a new Automated ML run with the following settings:

**Select dataset:** Dataset: bike-rentals

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

**3. Automated ML works by running multiple training iterations that are scored and ranked by the metrics you specify** - True

**Multiple runs of training happen.** After the experiment has finished; you can review the best performing model that was generated (note that in this case, we used exit criteria to stop the experiment - so the "best" model found by the experiment may not be the best possible model, just the best one found within the time allowed for this exercise!).

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

**4. Automated ML enables you to specify a dataset and will automatically understand the label to predict** - False

We will have to define the input and output

Configure run:

- New experiment name: mslearn-bike-rental
- **Target column: rentals** (*this is the label the model will be trained to predict*)
- Training compute target: *the compute cluster you created previously*

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

Question 39: **Incorrect**  
Select all that are TRUE

- ☐ Automated ML provides you with the ability to include custom python scripts
- ☒ Automated ML implements machine learning solutions without the need of programming experience  
(Correct)
- ☒ Automated ML provides you with the ability to visually connect datasets and modules on an interactive canvas  
(Incorrect)

**Explanation**  
Automated ML provides you with the ability to include custom python scripts - **False**

This article describes the **Execute Python Script** module in Azure Machine Learning designer. Use this module to run Python code. This is a feature of Designer and not AutoML

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/execute-python-script>

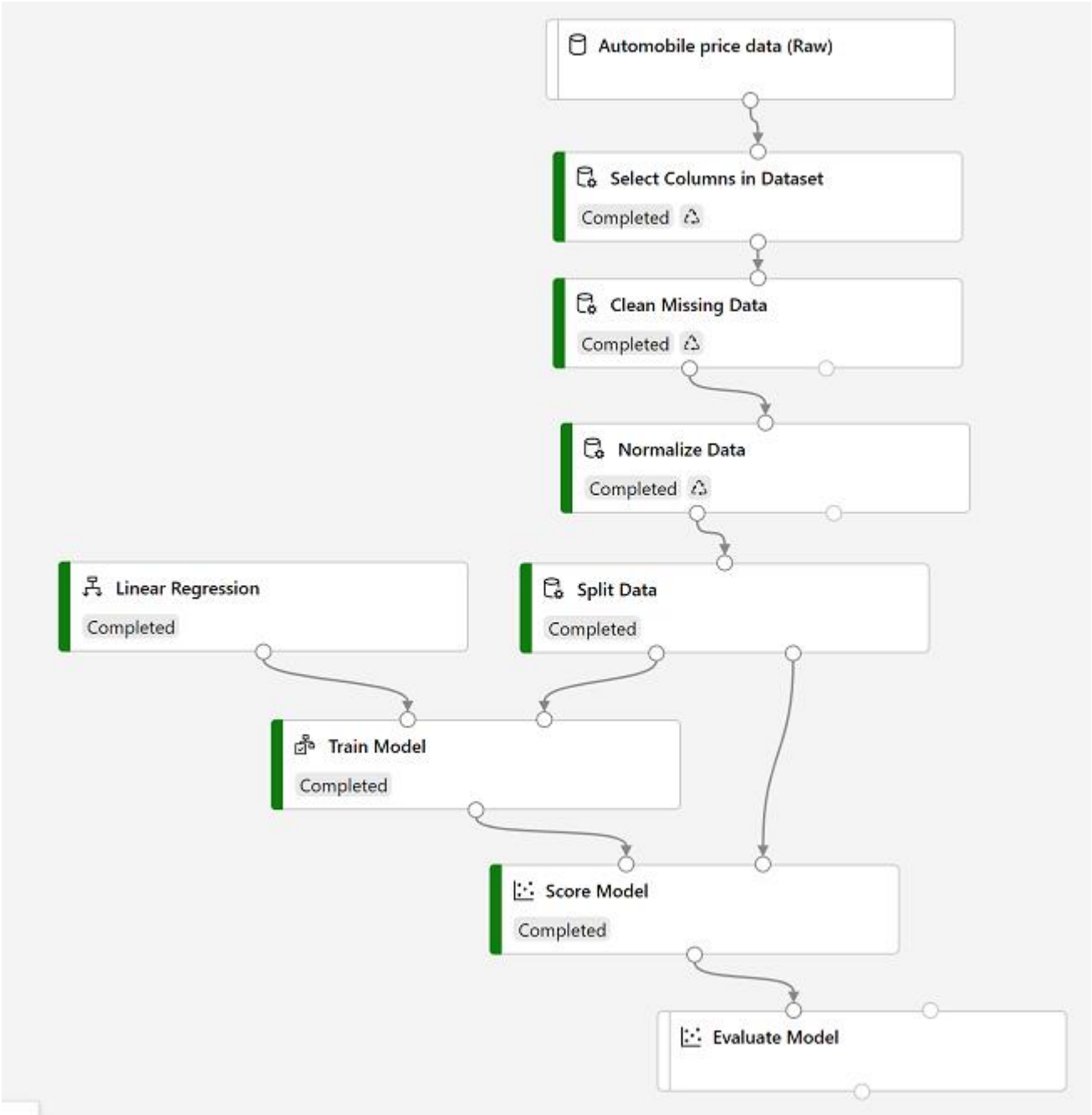
Automated ML implements machine learning solutions without the need of programming experience - **True**

Training and deploying an effective machine learning model involves a lot of work, much of it time-consuming and resource-intensive. **Azure Machine Learning is a cloud-based service that helps simplify some of the tasks and reduce the time it takes to prepare data, train a model, and deploy a predictive service.** In the rest of this unit, you'll explore Azure Machine Learning, and in particular its *automated machine learning* capability.

Automated ML provides you with the ability to visually connect datasets and modules on an interactive canvas - **False**

This is a feature of Designer and not AutoML





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

Question 40: **Incorrect**

Which of the following are examples of speech syntheses

- ☐ an AI character in a computer game that speaks audibly to a player  
(Correct)
- ☒ an automated voice that reads aloud a credit card number entered into a telephone  
(Correct)
- ☒ generating captions for a news broadcast  
(Incorrect)
- ☐ extracting key phrases from the audio recording of a meeting

**Explanation**

**Speech synthesis: Text to Speech**

Speech synthesis is in many respects the reverse of speech recognition. It is concerned with vocalizing data, usually by converting text to speech. A speech synthesis solution typically requires the following information:

- The text to be spoken.
- The voice to be used to vocalize the speech.

You can use the output of speech synthesis for many purposes, including:

- **Generating spoken responses to user input.**
- **Creating voice menus for telephone systems.**
- Reading email or text messages aloud in hands-free scenarios.
- Broadcasting announcements in public locations, such as railway stations or airports.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>



Question 41: Correct

The inputs and output field in a machine learning model is called as

- ☒ Feature, Label  
(Correct)
- ☐ Label, Feature
- ☐ Feature, Feature
- ☐ Label, Label

Explanation

*Regression* is a form of machine learning that is used to **predict a numeric *label* based on an item's *features***. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

Question 42: Correct

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.

What are the values of True Positives and False Negatives

[Larger image](#)

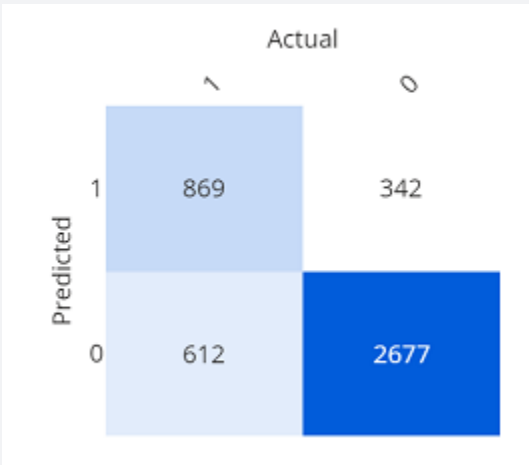
- ☐ TP = 11  
FN = 13951
- ☒ TP = 11  
FN = 1033  
(Correct)
- ☐ TP = 5  
FN = 1033
- ☐ TP = 11  
FN = 5

Explanation

Finding TP is easy. It basically means the value where Predicted and True value is 1 and that is 11 in this case.

False Negative means where true value was 1 but predicted value was 0 and that is 1033 in this case

The confusion matrix shows cases where both the predicted and actual values were 1 (known as *true positives*) at the top left, and cases where both the predicted and the actual values were 0 (*true negatives*) at the bottom right. The other cells show cases where the predicted and actual values differ (*false positives* and *false negatives*).



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

Question 43: Correct

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?

- ☐

fairness

- ☒ inclusiveness  
(Correct)
- ☐ reliability and safety
- ☐ accountability

**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.** AI can improve access to education, government services, employment, information, and a wide range of other opportunities. Intelligent solutions such as real-time speech-to-text transcription, visual recognition services, and predictive text functionality are already empowering those with hearing, visual, and other impairments.



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

Question 44: **Correct**  
For each of the following statements, select Yes if the statement is true. Otherwise, select No.  
[Larger image](#)

- ☐ 1) True 2) True 3) False
- ☐ 1) False 2) True 3) True
- ☒ 1) False 2) True 3) False  
(Correct)

**Explanation**  
Forecasting housing prices based on historical data - **Regression**

**Regression** is a form of machine learning that is used to predict a numeric *label* based on an item's *features*.

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

Identifying suspicious sign ins by looking for deviations from usual patterns - **Anomaly Detection**

**anomaly detection** - a machine learning based technique that analyzes data over time and identifies unusual changes

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/3-understand-anomaly-detection>

Predicting whether a patient will develop diabetes based on patient's medical history - **Classification**

**Classification** is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

Question 45: **Correct**

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

- ☐ Custom Vision
- ☐ Ink Recognizer
- ☒ Form Recognizer  
(Correct)
- ☐ Text Analytics

**Explanation**

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents **such as forms, invoices, and receipts**. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

- Matching field names to values.
- Processing tables of data.
- Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

**Incorrect answers:**

**Ink Recognizer** - The Ink Recognizer Cognitive Service provides a cloud-based REST API to analyze and recognize digital ink content. Unlike services that use Optical Character Recognition (OCR), the API requires digital ink stroke data as input. Digital ink strokes are time-ordered sets of 2D points (X,Y coordinates) that represent the motion of input tools such as digital pens or fingers. It then recognizes the shapes and handwritten content from the input and returns a JSON response containing all recognized entities.

**Custom Vision** - This service helps to build computer vision model using user provided images

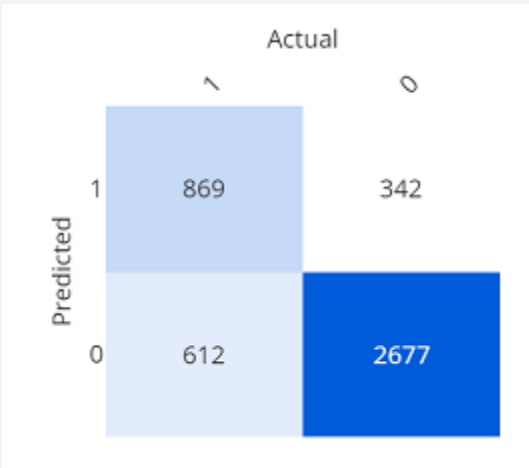
Question 46: **Correct**

Which metric can you use to evaluate a classification model?

- ☒ true positive rate  
(Correct)
- ☐ mean absolute error (MAE)
- ☐ coefficient of determination (R2)
- ☐ root mean squared error (RMSE)

**Explanation**

The confusion matrix shows cases where both the predicted and actual values were 1 (**known as true positives**) at the top left, and cases where both the predicted and the actual values were 0 (*true negatives*) at the bottom right. The other cells show cases where the predicted and actual values differ (*false positives* and *false negatives*).



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

**mean absolute error (MAE)** - Regression metrics

**coefficient of determination (R2)** - Regression metrics

**root mean squared error (RMSE)** - Regression metrics

Question 47: **Correct**

Data value that influence the prediction of a model is called:

- ☐ dependent variable
- ☒ features  
(Correct)
- ☐ identifiers
- ☐ labels

**Explanation**

*Regression* is a form of machine learning that is used to **predict a numeric *label* based on an item's *features***. For example, an automobile sales company might use the characteristics of car (such as engine size, number of seats, mileage, and so on) to predict its likely selling price. In this case, the characteristics of the car are the features, and the selling price is the label.

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

**dependent variable** - This is the label

**features** - This is the input variables to be used for training

**identifiers** No such term in Machine Learning

**labels** - This is the output to be predicted

Question 48: **Correct**

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?

- ☐ the number of taxi journeys in the dataset
- ☒ the trip distance of individual taxi journeys  
(Correct)
- ☐ the fare of individual taxi journeys
- ☐ the trip ID of individual taxi journeys

**Explanation**

the number of taxi journeys in the dataset - **This is an aggregate no hence not a good feature**

the trip distance of individual taxi journeys - **Yes this is a good feature**

the fare of individual taxi journeys - **this will be the value to be predicted and hence the label**

the trip ID of individual taxi journeys - **Trip ids are just identifiers and don't impact predicted value**

Question 49: **Incorrect**

Select True or False:

Azure Machine Learning enables you to specify a dataset and will automatically understand which label to predict

- ☒ True  
(Incorrect)
- ☐ False  
(Correct)

**Explanation**

One has to explicitly define the variable which will act as the value to be predicted.

See an example below

Scroll back to the left and select the **normalized-losses** column header. Then review the statistics for this column noting, there are quite a few missing values in this column. This will limit its usefulness in predicting the **price** label; **so you might want to exclude it from training.**

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

Question 50: **Correct**

Please select as TRUE or FALSE

Automated Machine Learning can automatically infer the training data from the use case provided

☐ True

☒ False  
(Correct)

**Explanation**

**False.** We have to define the training data for each use we define. Machine cannot automatically do it

"The model we're training will predict the **price** value, so select the **Train Model** module and modify its settings **to set the Label column to price** (matching the case and spelling exactly!)"

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

Question 51: **Correct**

Automated ML is the process of automating the time consuming process, iterative task of machine learning model development

☒ True  
(Correct)

☐ False

**Explanation**

Azure Machine Learning is a cloud-based service that helps simplify some of the tasks and reduce the time it takes to prepare data, train a model, and deploy a predictive service.

Empower professional and non-professional data scientists to build machine learning models rapidly. Automate time-consuming and iterative tasks of model development using breakthrough research—and accelerate time to market.

<https://azure.microsoft.com/en-in/services/machine-learning/automatedml/>

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/what-is-ml>

Question 52: **Correct**

Select True or False:

Automated ML works by running multiple training iterations that are trained and scored by the metrics defined

☒ True  
(Correct)

☐ False

**Explanation**

**The model will have multiple runs.** After the experiment has finished; you can review the best performing model that was generated. The best model is identified based on the evaluation metric you specified. The best model is identified based on the evaluation metric you specified (*Normalized root mean square error*). To calculate this metric, the training process used some of the data to train the model, and applied a technique called *cross-validation* to iteratively test the trained model with data it wasn't trained with and compare the predicted value with the actual known value.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

Retake test

[Continue](#)

Fullscreen

Practice Test 6: Bonus( Real exam questions 2021 to be taken before actual exam) - Results

[Return to review](#)

Attempt 1

All knowledge areas

All questions

Question 1: **Correct**

Select True/False

[Larger image](#)

1. False

2. True

3. False

(Correct)

1. False

2. True

3. True

1. True

2. True

3. True

Explanation

Statement 1 : Regression

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

Statement 2 : Anomaly Detection

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/3-understand-anomaly-detection>

Statement 3 : Classification

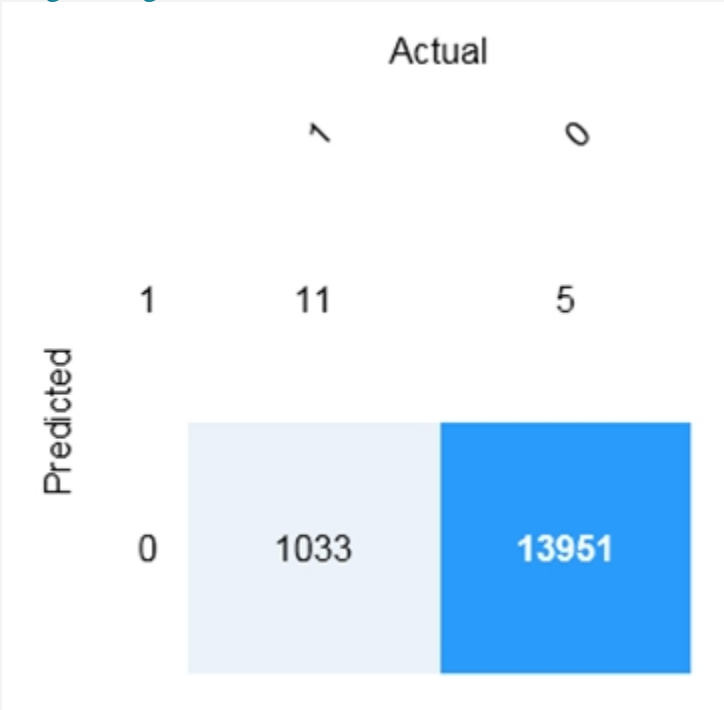
<https://docs.microsoft.com/en-us/learn/modules/create-classification-model-azure-machine-learning-designer/introduction>

Question 2: **Correct**

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.

[Larger image](#)



There are ----- false negatives



☐ 11

☐ 5

☒ 1033  
(Correct)

☐ 13951

Explanation

Below is how the table should be interpreted. As per the question we need to find "false negatives" which is 1033.

Question 3: Correct

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

- ☐ the model name
- ☐ the training endpoint

☒ the authentication key  
(Correct)

☒ the REST endpoint  
(Correct)

Explanation

In Azure Machine Learning studio, view the **Endpoints** page and select the **predict-rentals** real-time endpoint. Then select the **Consume** tab and note the following information there. You need this information to connect to your deployed service from a client application.

The REST endpoint for your service

the Primary Key for your service

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/deploy-model>

Question 4: Correct

Complete the sentence

[Larger image](#)

Answer Area

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

▼

Custom Vision

Form Recognizer

Ink Recognizer

Text Analytics

☐ Custom Vision

☒ Form Recognizer  
(Correct)

☐ Ink Recognizer

☐ Text Analytics

Explanation

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents such as forms, invoices, and **receipts**. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

Matching field names to values.

Processing tables of data.

Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

Question 5: **Correct**  
Complete the sentence  
[Larger image](#)

**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.

- ☐ a local web service
- ☐ Azure Container Instances
- ☒ Azure Kubernetes Service (Correct)
- ☐ Azure Machine Learning compute

**Explanation**  
In this exercise, you'll deploy the web service to to an Azure Container Instance (ACI). This type of compute is created dynamically, and is useful for development and testing. For production, you should create an *inference cluster*, which provide an Azure Kubernetes Service (AKS) cluster that provides better scalability and security.

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

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

Question 6: **Correct**  
An automated chat to answer questions about refunds and exchange

- ☐ Anomaly Detection
- ☐ Computer vision
- ☒ Conversational AI (Correct)
- ☐ Natural Language Processing
- ☐ Knowledge Mining

**Explanation**  
Creating a chatbot is an example of Conversational AI

**Conversational AI**

While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that answers to specific questions are hard to find. Often, these organizations find their support personnel being overloaded with requests for help through phone calls, email, text messages, social media, and other channels.

Increasingly, organizations are turning to artificial intelligence (AI) solutions that make use of AI agents, commonly known as *bots* to provide a first-line of automated support through the full range of channels that we use to communicate. Bots are designed to interact with users in a conversational manner, as shown in this example of a chat interface:

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/1-introduction>

Question 7: **Correct**  
Select the correct answer  
[Larger image](#)

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

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

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

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

**Explanation**  
**Ensure that AI systems operate as they were originally designed, respond to unanticipated conditions, and resist harmful manipulations - Reliability and safety**

AI systems should perform reliably and safely. For example, consider an AI-based software system for an autonomous vehicle; or a machine learning model that diagnoses patient symptoms and recommends prescriptions.

**Implementing processes to ensure that decisions made by AI systems can be overridden by humans - Accountability**

People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

**Provide consumers with information and controls over the collection, use and storage of their data - Privacy and security**

People should be accountable for AI systems. Designers and developers of AI-based solution should work within a framework of governance and organizational principles that ensure the solution meets ethical and legal standards that are clearly defined.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 8: **Correct**  
Determining whether a review is positive or negative is an example of

Anomaly detection

Computer visions

Conversational AI

Natural Language Processing  
**(Correct)**

**Explanation**

Analyzing text is a process where you evaluate different aspects of a document or phrase, in order to gain insights into the content of that text. For the most part, humans are able to read some text and understand the meaning behind it. Even without considering grammar rules for the language the text is written in, specific insights can be identified in the text.

As an example, you might read some text and identify some key phrases that indicate the main talking points of the text. You might also recognize names of people or well-known landmarks such as the Eiffel Tower. **Although difficult at times, you might also be able to get a sense for how the person was feeling when they wrote the text, also commonly known as sentiment.**

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

Question 9: **Correct**

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

- ☐ Custom Vision
- ☒ Form Recognizer (Correct)
- ☐ Ink Recognizer
- ☐ Text Analytics

**Explanation**

Form Recognizer supports automated document processing through:

**A pre-built receipt model** that is provided out-of-the-box, and is trained to recognize and **extract data from sales receipts.**

**Custom models**, which enable you to extract what are known as key/value pairs and table data from forms. Custom models are trained using your own data, which helps to tailor this model to your specific forms. Starting with only five samples of your forms, you can train the custom model. After the first training exercise, you can evaluate the results and consider if you need to add more samples and re-train.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

**Incorrect answers:**

**Custom Vision** - This is used for Image classification and Object detection where documents have images and not text

<https://docs.microsoft.com/en-us/learn/paths/explore-computer-vision-microsoft-azure/>

**Ink Recognizer**- There is no such service in Azure

**Text Analytics** -Analyzing text is a process where you evaluate different aspects of a document or phrase, in order to gain insights into the content of that text.

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/1-introduction>

Question 10: **Correct**

Determining if a photo contains a person is an example of :

- ☐ Anomaly detection
- ☒ Computer vision (Correct)
- ☐ Conversational AI
- ☐ Natural Language Processing

**Explanation**

*Computer vision* is one of the core areas of artificial intelligence (AI), and focuses on creating solutions that enable AI-enabled applications to "see" the world and make sense of it.

Of course, computers don't have biological eyes that work the way ours do, but they are capable of processing images; either from a live camera feed or from digital photographs or videos. This ability to process images is the key to creating software that can emulate human visual perception.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/1-introduction>

Question 11: **Correct**

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

Which type of machine learning should you use?

- ☒ Regression  
(Correct)
- ☐ Clustering
- ☐ Classification

**Explanation**

*Regression* is a form of machine learning that is used to predict a **numeric *label* based on an item's *features***.

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

**Incorrect answers:**

**Classification** -*Classification* is a form of machine learning that is used to predict which category, or *class*, an item belongs to.

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

**Clustering** -*Clustering* is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 12: **Correct**

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

- ☒ Form Recognizer  
(Correct)
- ☐ Text Analytics
- ☐ Ink Recognizer
- ☐ Custom Vision

**Explanation**

The **Form Recognizer** in Azure provides intelligent form processing capabilities that you can use to automate the processing of data in documents such as forms, invoices, and receipts. It combines state-of-the-art optical character recognition (OCR) with predictive models that can interpret form data by:

**Matching field names to values.**

Processing tables of data.

Identifying specific types of field, such as dates, telephone numbers, addresses, totals, and others.

<https://docs.microsoft.com/en-us/learn/modules/analyze-receipts-form-recognizer/2-receipts-azure>

Question 13: **Correct**

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.

This is an example of which type of Machine Learning?

- ☐ Regression
- ☒ Classification  
(Correct)
- ☐ Clustering

**Explanation**

**Classification** -*Classification* is a form of machine learning that is used to predict which category, or class, an item belongs to.

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

**Incorrect answers:**

**Regression** is a form of machine learning that is used to predict a numeric label based on an item's features.

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

**Clustering** is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 14: **Incorrect**

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

- ☐ to train the model twice to achieve better accuracy
- ☒ to test the model by using data that was not used to train the model  
(Correct)
- ☐ to train multiple models simultaneously to attain better performance  
(Incorrect)

**Explanation**

The goal is to produce a trained (fitted) model that generalizes well to new, unknown **data**. The fitted model is evaluated using “new” examples from the held-out datasets (validation and **test** datasets) to estimate the model's accuracy in classifying new **data**.

[https://en.wikipedia.org/wiki/Training,\\_validation,\\_and\\_test\\_sets#:~:text=Training%20dataset,-A%20training%20dataset&text=The%20goal%20is%20to%20produce,accuracy%20in%20classifying%20new%20data.](https://en.wikipedia.org/wiki/Training,_validation,_and_test_sets#:~:text=Training%20dataset,-A%20training%20dataset&text=The%20goal%20is%20to%20produce,accuracy%20in%20classifying%20new%20data.)

Question 15: **Correct**

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

Which are the two tasks that require an enterprise workspace?

- ☒ Use a graphical interface interface (GUI) to define and run machine learning experiments from Azure Machine Learning designer  
(Correct)
- ☐ Create a compute instance to use as a workstation
- ☐ Create a dataset from a comma-separated file
- ☒ Use a graphical user interface to run automated machine learning experiments  
(Correct)

**Explanation**

This question is obsolete as Enterprise workspace has been retired and all features integrated in Basic workspace however it was still found in Jan 2021 exam.

Explanations cant be provided as Enterprise workspace was pulled down in Sept 2020

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

Question 16: **Incorrect**

Which scenario is an example of webchat bot?

- ☐ Accepts questions through email and then route the email messages to the correct person based on the content of the message  
(Incorrect)
- ☐ Determine whether reviews entered on a website for a concert are positive or negative
- ☐ Translate into English questions entered by customers at a kiosk so that the appropriate person can call the customer
- ☒ From a website interface answer common questions about the scheduled events and ticket purchases for a music festival  
(Correct)

**Explanation**

From a website interface answer common questions about the scheduled events and ticket purchases for a music festival - **Conversational AI**

**Incorrect answers:**

Accepts questions through email and then route the email messages to the correct person based on the content of the message - **Language Natural Processing & Classification**

Determine whether reviews entered on a website for a concert are positive or negative - **Natural Language Processing and Classification**



Translate into English questions entered by customers at a kiosk so that the appropriate person can call the customer - **Text Translation**

Question 17: **Correct**

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

- ☐ Classification
- ☒ Regression  
(Correct)
- ☐ Clustering

**Explanation**

**Regression** is a form of machine learning that is used to predict a numeric label based on an item's features.

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

**Incorrect answers:**

**Classification** is a form of machine learning that is used to predict which category, or class, an item belongs to.

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

**Clustering** is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 18: **Correct**

\_\_\_\_\_ is used to generate additional features.

- ☒ feature engineering  
(Correct)
- ☐ feature selection
- ☐ model evaluation
- ☐ model training

**Explanation**

**Feature engineering** is the process of using [domain knowledge](#) to extract [features](#) from raw [data](#) via [data mining](#) techniques. These features can be used to improve the performance of [machine learning](#) algorithms.

[https://en.wikipedia.org/wiki/Feature\\_engineering](https://en.wikipedia.org/wiki/Feature_engineering)

**Incorrect answers:**

**feature selection** - Selecting the right features from the engineered features for model training

**model training**- Training a model on train data

**model evaluation** - Evaluating the trained model on test data

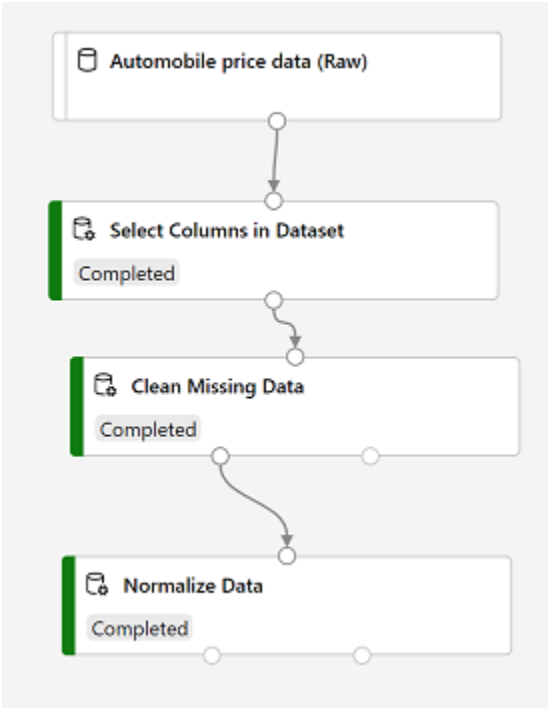
Question 19: **Incorrect**

Azure Machine Learning designer lets you create machine learning models by \_\_\_\_\_

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

**Explanation**

Azure Machine Learning designer provides a canvas for designing machine learning problems as below



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

Question 20: **Incorrect**

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

Which three processes should you perform?

- ☒ data preparation  
(Correct)
- ☒ model training  
(Correct)
- ☐ model retraining
- ☐ model evaluation  
(Correct)
- ☐ data encryption

**Explanation**

<https://docs.microsoft.com/en-us/learn/paths/create-no-code-predictive-models-azure-machine-learning/>

Question 21: **Correct**

You are building an AI system.

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

- ☐ Ensure that a training dataset is representative of the population
- ☐ Enable autoscaling to ensure that a service scales based on demand
- ☐ Ensure that all visuals have an associated text that can be read by a screen reader
- ☒ Provide documentation to help developers debug code  
(Correct)

**Explanation**

Provide documentation to help developers debug code - **Transparency**

**Incorrect answers**

Ensure that a training dataset is representative of the population - **Fairness**

Enable autoscaling to ensure that a service scales based on demand - **Inclusiveness**

Ensure that all visuals have an associated text that can be read by a screen reader - **Reliability and Safety**

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 22: **Correct**

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

- ☐ Use features for training and labels for evaluation
- ☒ Randomly split the data into rows for training and rows for evaluation.  
**(Correct)**
- ☐ Use labels for training and features for evaluation.
- ☐ Randomly split the data into columns for training and columns for evaluation.

**Explanation**

**Splitting mode:** Choose one of the following modes, depending on the type of data you have, and how you want to divide it. Each splitting mode has different options. Click the following topics for detailed instructions and examples.

**Split Rows:** Use this option if you just want to divide the data into two parts. You can specify the percentage of data to put in each split, but by default, the data is divided 50-50.

You can also randomize the selection of rows in each group, and use stratified sampling. In stratified sampling, you must select a single column of data for which you want values to be apportioned equally among the two result datasets.

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data#how-to-configure-split-data>

Question 23: **Incorrect**

In which two scenarios can you use speech recognition?

- ☐ providing closed captions for recorded or live videos  
**(Correct)**
- ☒ an in car system that reads text messages aloud  
**(Incorrect)**
- ☐ creating an automated public address system for a train station
- ☒ creating a transcript of a telephone call or meeting  
**(Correct)**

**Explanation**

- creating a transcript of a telephone call or meeting- **Speech to Text**

-providing closed captions for recorded or live videos - **Speech to Text**

To enable this kind of interaction, the AI system must support two capabilities:

**Speech recognition** - the ability to detect and interpret spoken input.

**Speech synthesis** - the ability to generate spoken output.

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

**Incorrect answers:**

-an in car system that reads text messages aloud - **Speech synthesis(Text to Speech)**

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/1-introduction>

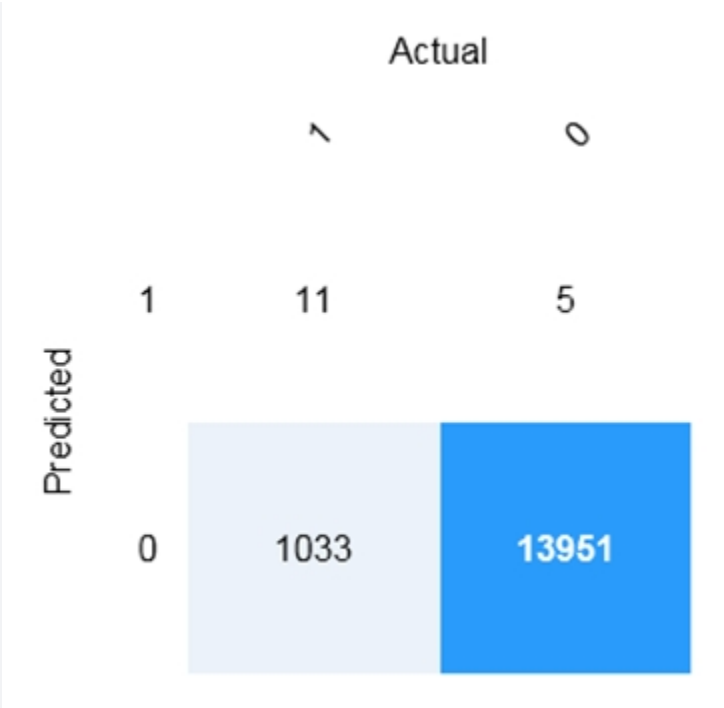
-creating an automated public address system for a train station - **Simple automation or voice over to text with no Intelligence in built**

Question 24: **Correct**

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.

[Larger image](#)



There are ----- correctly predicted positives

☐ 5

☒ 11

(Correct)

☐ 1033

☐ 13951

**Explanation**

Below is how the table should be interpreted. As per the question we need to find "predicted positives" which is also called True Positives and should be 11

Question 25: **Correct**

You are developing a conversational AI solution that will communicate with users through multiple channel including email, Microsoft Teams and webchat.

Which service should you use?

☒

Azure Bot service

(Correct)

☐

Translator Text

☐

Form recognizer

☐

Text Analytics

**Explanation**

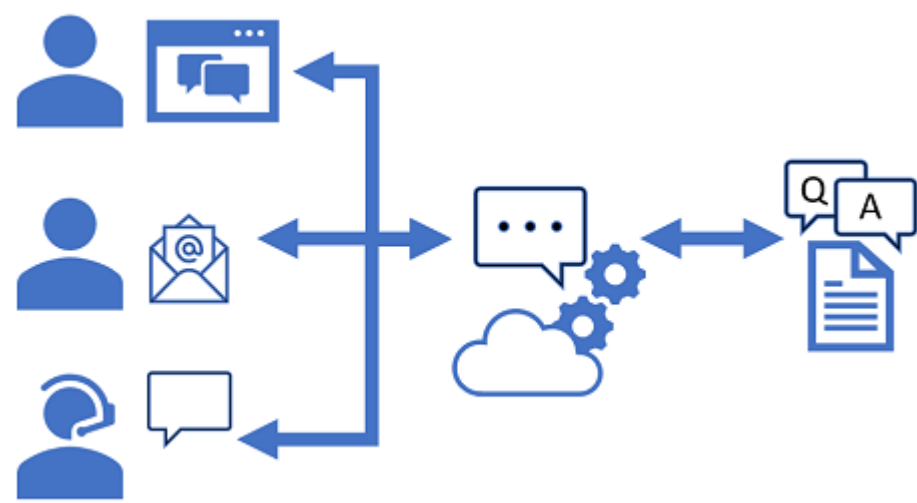
You can easily create a user support bot solution on Microsoft Azure using a combination of two core technologies:

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

**Azure Bot Service.** This service provides a framework for developing, publishing, and managing bots on Azure.

**Connect channels**

When your bot is ready to be delivered to users, you can connect it to multiple *channels*; making it possible for users to interact with it through web chat, email, Microsoft Teams, and other common communication media.



Users can submit questions to the bot through any of its channels, and receive an appropriate answer from the knowledge base on which the bot is based.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 26: **Correct**

Which two scenarios are examples of a conversational AI workload?

- ☐ monitoring the temperature of machinery to turn on a fan when the temperature reaches a specific threshold
- ☒ a smart device in the home that responds to questions such as "What will the weather be like today?"  
(Correct)
- ☒ a website that uses a knowledge base to interactively respond to users' questions  
(Correct)
- ☐ assembly line machinery that autonomously inserts headlamps into cars

**Explanation**

**Incorrect answers:**

monitoring the temperature of machinery to turn on a fan when the temperature reaches a specific threshold - **anomaly detection**

assembly line machinery that autonomously inserts headlamps into cars - **simple automation**

Question 27: **Correct**

Natural language processing cab be used to \_\_\_\_\_

- ☒ classify emails messages as work related or personal  
(Correct)
- ☐ 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

**Explanation**

classify emails messages as work related or personal - **Natural Language Processing & Classification**

**Incorrect answers:**

predict the number of future car rentals - **Regression**

predict which website visitors will make a transaction -**Classification**

stop a process in a factory when extremely high temperatures are registered- **Anomaly Detection**

Question 28: **Correct**

You need to build an app that will read recipe instructions aloud to support users who have reduced vision.

Which service will you use?

- ☐ Language Understanding

- ☐ Text Analytics

- ☒ Speech  
(Correct)

- ☐ Translator Text

**Explanation**

Microsoft Azure offers both speech recognition and speech synthesis capabilities through the **Speech** cognitive service, which includes the following application programming interfaces (APIs):

The **Speech-to-Text** API

The **Text-to-Speech** API

<https://docs.microsoft.com/en-us/learn/modules/recognize-synthesize-speech/2-get-started-azure>

Question 29: **Correct**

Which are three Microsoft guiding principles for responsible AI?

- ☐ opinionatedness
- ☐ knowledgeable

- ☒ fairness  
(Correct)

- ☒ inclusiveness  
(Correct)

- ☐ decisiveness

- ☒ reliability and safety  
(Correct)

**Explanation**

**Fairness**

**Reliability and safety**

**Privacy and security**

**Inclusiveness**

**Transparency**

**Accountability**

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 30: **Correct**

**Select True or False:**

You can communicate with bot using email

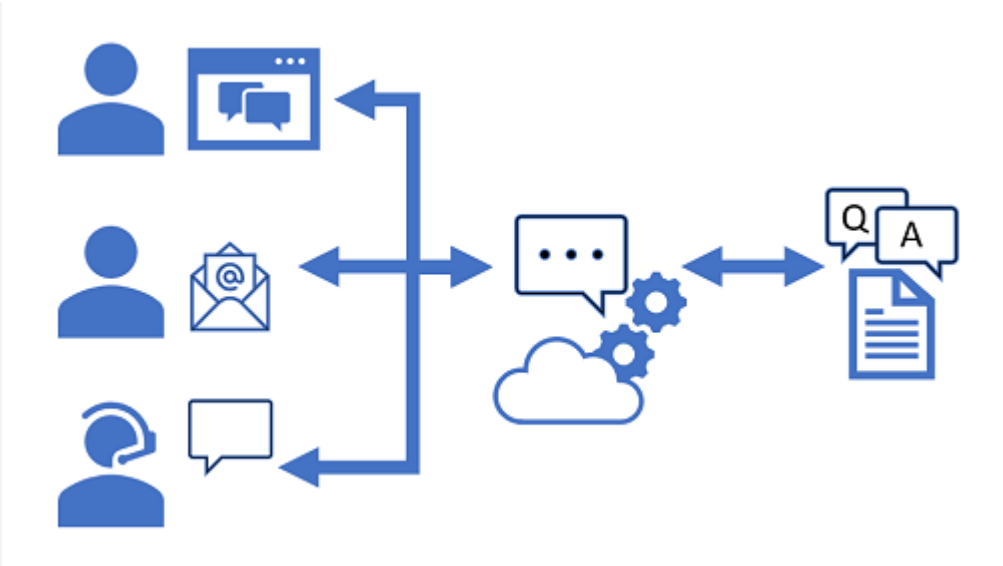
- ☒ True  
(Correct)

- ☐ False

**Explanation**

When your bot is ready to be delivered to users, you can connect it to multiple *channels*; making it possible for users to interact with it through web chat, **email**, Microsoft Teams, and other common communication media.





Users can submit questions to the bot through any of its channels, and receive an appropriate answer from the knowledge base on which the bot is based.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 31: **Correct**

Which are the two tasks that can be performed by using Computer Visions?

- ☐ Predict stock prices
- ☐ Extract key phrases
- ☐ Translate text between languages
- ☒ Detect brands in an image  
(Correct)
- ☒ Detect the colour scheme in an image  
(Correct)

**Explanation**

**Incorrect answers:**

Predict stock prices - **Regression**

Extract key phrases - **Text Analytics**

Translate text between languages - **Text Translation**

Question 32: **Correct**

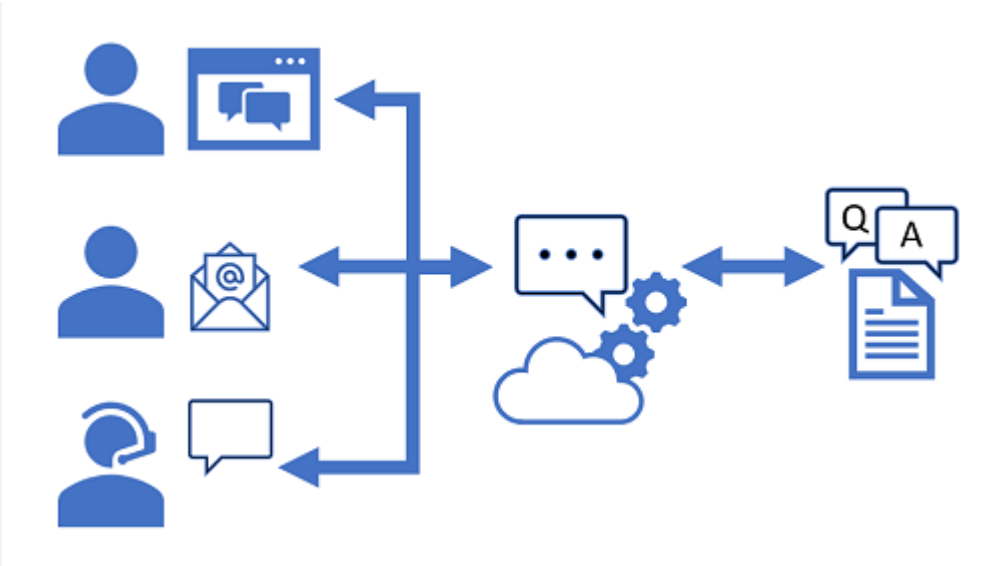
**Select True or False:**

You can communicate with a bot using Microsoft Teams.

- ☒ True  
(Correct)
- ☐ False

**Explanation**

When your bot is ready to be delivered to users, you can connect it to multiple *channels*; making it possible for users to interact with it through web chat, email, **Microsoft Teams**, and other common communication media.



Users can submit questions to the bot through any of its channels, and receive an appropriate answer from the knowledge base on which the bot is based.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 33: **Correct**

Your company is exploring the use of voice recognition techniques 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?

- ☐ accountability
- ☐ fairness
- ☒ inclusiveness  
(Correct)
- ☐ privacy and safety

**Explanation**  
**Inclusiveness**

AI systems should empower everyone and engage people. AI should bring benefits to all parts of society, regardless of **physical ability, gender, sexual orientation, ethnicity, or other factors**.

<https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-understand-responsible-ai>

Question 34: **Correct**

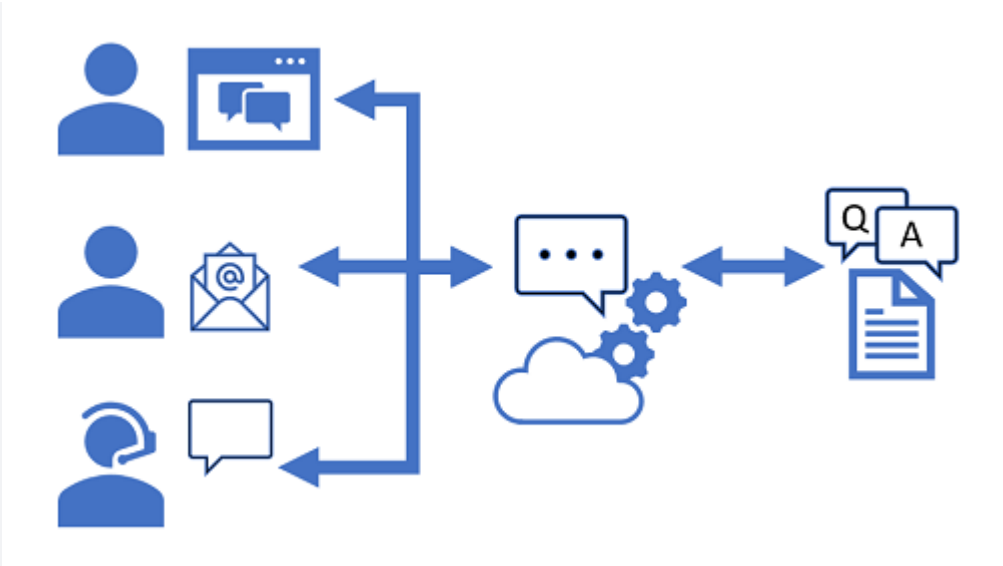
Select True or False

You can communicate with a bot using webchat interface

- ☒ True  
(Correct)
- ☐ False

**Explanation**

When your bot is ready to be delivered to users, you can connect it to multiple *channels*; making it possible for users to interact with it through **web chat**, email, Microsoft Teams, and other common communication media.



Users can submit questions to the bot through any of its channels, and receive an appropriate answer from the knowledge base on which the bot is based.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 35: **Incorrect**  
Select True or False.

You can use Q&A Maker to query an Azure SQL database

- ☒ True  
(Incorrect)
- ☐ False  
(Correct)

**Explanation**  
Q&A Maker is a chatbot service that queries its knowledge base and not a structured query language that queries databases

**QnA Maker.** This cognitive service enables you to create and publish a knowledge base with built-in natural language processing capabilities.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/2-get-started-qna-bot>

Question 36: **Correct**  
Select True or False

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

- ☒ True  
(Correct)
- ☐ False

**Explanation**  
While many organizations publish support information and answers to frequently asked questions (FAQs) that can be accessed through a web browser or dedicated app. The complexity of the systems and services they offer means that **answers to specific questions are hard to find**. Often, these organizations find their support personnel being overloaded with requests for help through phone calls, email, text messages, social media, and other channels.

Increasingly, organizations are turning to artificial intelligence (AI) solutions that make use of AI agents, commonly known as *bots* to provide a first-line of automated support through the full range of channels that we use to communicate.

<https://docs.microsoft.com/en-us/learn/modules/build-faq-chatbot-qna-maker-azure-bot-service/1-introduction>

Question 37: **Correct**  
Select True or False

The Q&A Maker service can determine the intent of a user utterance.

- ☐ True
- ☒ False  
(Correct)

**Explanation**

On Microsoft Azure, language understanding is supported through the **Language Understanding Intelligent Service**, more commonly known as **Language Understanding**. To work with Language Understanding, you need to take into account three core concepts: *utterances*, *entities*, and *intents*.

<https://docs.microsoft.com/en-us/learn/modules/create-language-model-with-language-understanding/1-introduction>

Question 38: **Correct**

Select True or False

Automated machine learning is the processes of automating the time consuming , iterative tasks of machine learning model development

- ☒ True  
(Correct)

- ☐ False

#### Explanation

Data scientists expend a lot of effort exploring and pre-processing data, and trying various types of model-training algorithms to produce accurate models, which is time consuming, and often makes inefficient use of expensive compute hardware.

Azure Machine Learning is a cloud-based platform for building and operating machine learning solutions in Azure. It includes a wide range of features and capabilities that help data scientists prepare data, train models, publish predictive services, and monitor their usage. **Most importantly, it helps data scientists increase their efficiency by automating many of the time-consuming tasks associated with training models; and it enables them to use cloud-based compute resources that scale effectively to handle large volumes of data while incurring costs only when actually used.**

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/create-workspace>

Question 39: **Correct**

Select True or False

Automated machine learning can automatically infer the training data from the use case provided

- ☐ True

- ☒ False  
(Correct)

#### Explanation

We need to provide the training data to the Auto ML.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/data>

Question 40: **Correct**

Select True or False

Automated machine learning works by running multiple training iterations that are scored and ranked by the metrics you specify

- ☒ True  
(Correct)

- ☐ False

#### Explanation

Azure Machine Learning includes an *automated machine learning* capability that leverages the scalability of cloud compute to automatically try multiple pre-processing techniques and model-training algorithms **in parallel** to find the best performing supervised machine learning model for your data.

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

Question 41: **Correct**

Select True or False

Automated machine learning enables you to specify a dataset and will automatically understand which label to predict

- ☐ True

- ☒ False  
(Correct)

#### Explanation

We have to define the columns which will act as features and the one which we need to predict(label)

<https://docs.microsoft.com/en-us/learn/modules/use-automated-machine-learning/use-auto-ml>

Question 42: **Incorrect**

Select True or False

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

☐ True  
(Correct)

☒ False  
(Incorrect)

#### Explanation

Face currently supports the following functionality:

Face Detection

Face Verification

Find Similar Faces

#### Group faces based on similarities

Identify people

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 43: **Correct**

Select True or False

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

☒ True  
(Correct)

☐ False

#### Explanation

Like any Machine Learning model, providing more training data will help to improve model performance

Question 44: **Correct**

Select True or False

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

☐ True

☒ False  
(Correct)

#### Explanation

It can be impaired but not completely fail.

#### Tips for more accurate results

There are some considerations that can help improve the accuracy of the detection in the images:

image format - supported images are JPEG, PNG, GIF, and BMP

file size - 4 MB or smaller

face size range - from 36 x 36 up to 4096 x 4096. Smaller or larger faces will not be detected

other issues - **face detection can be impaired by extreme face angles, occlusion (objects blocking the face such as sunglasses or a hand).** Best results are obtained when the faces are full-frontal or as near as possible to full-frontal

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 45: **Correct**

Select the correct option

- ☒ Examining the values of a confusion matrix - **Model Evaluation**  
Splitting data into month, day and year fields - **Feature Engineering**  
Picking temperature and pressure to train a weather model - **Feature Selection**  
**(Correct)**
- ☐ Examining the values of a confusion matrix - **Model Deployment**  
Splitting data into month, day and year fields - **Feature Engineering**  
Picking temperature and pressure to train a weather model - **Feature Selection**
- ☐ Examining the values of a confusion matrix - **Model Evaluation**  
Splitting data into month, day and year fields - **Feature Selection**  
Picking temperature and pressure to train a weather model - **Feature Engineering**

**Explanation**

Examining the values of a confusion matrix - **Model Evaluation**

Splitting data into month, day and year fields - **Feature Engineering**

Picking temperature and pressure to train a weather model - **Feature Selection**

<https://docs.microsoft.com/en-us/learn/paths/create-no-code-predictive-models-azure-machine-learning/>

Question 46: **Correct**

Select the correct option

- ☐ Identify celebrities in images - **Facial Recognition**  
Extract movie title names from movie poster - **Optical Character Recognition**  
Locate vehicles in images - **Object Detection**
- ☐ Identify celebrities in images - **Optical Character Recognition**  
Extract movie title names from movie poster - **Image Classification**  
Locate vehicles in images - **Object Detection**
- ☐ Identify celebrities in images - **Object Detection**  
Extract movie title names from movie poster - **Image Classification**  
Locate vehicles in images - **Optical Character Recognition**
- ☒ Identify celebrities in images - **Image Classification**  
Extract movie title names from movie poster - **Optical Character Recognition**  
Locate vehicles in images - **Object Detection**  
**(Correct)**

**Explanation**

Identify celebrities in images - **Image Classification**

When categorizing an image, the Computer Vision service supports two specialized domain models:

**Celebrities** - The service includes a model that has been trained to identify thousands of well-known celebrities from the worlds of sports, entertainment, and business.

<https://docs.microsoft.com/en-us/learn/modules/analyze-images-computer-vision/2-image-analysis-azure>

**Landmarks** - The service can identify famous landmarks, such as the Taj Mahal and the Statue of Liberty.

Extract movie title names from movie poster - **Optical Character Recognition**

The ability for computer systems to process written or printed text is an area of artificial intelligence (AI) where *computer vision* intersects with *natural language processing*. You need computer vision capabilities to "read" the text, and then you need natural language processing capabilities to make sense of it.

<https://docs.microsoft.com/en-us/learn/modules/read-text-computer-vision/1-introduction>

Locate vehicles in images - **Object Detection**

*Object detection* is a form of machine learning based computer vision in which a model is trained to recognize individual types of object in an image, and to identify their location in the image.

<https://docs.microsoft.com/en-us/learn/modules/detect-objects-images-custom-vision/1-introduction>

Question 47: **Incorrect**

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 images?

- ☒ the Verify operation in the Face service  
(Incorrect)
- ☐ the Describe Image operation in the Computer Vision service
- ☒ the Detect operation in the Face service  
(Correct)
- ☐ the Analyze Image operation in the Computer Vision service

### Explanation

#### Face

Face currently supports the following functionality:

**Face Detection** - The Face service **detects human faces** in an image and returns the rectangle coordinates of their locations. Optionally, face detection can extract a series of face-related attributes, such as head pose, gender, age, emotion, facial hair, **and glasses**.

**Face Verification** - The Verify API does an authentication against two detected faces or from one detected face to one person object. Practically, it evaluates whether two faces belong to the same person. This capability is potentially useful in security scenarios.

**Find Similar Faces** - The Find Similar API does face matching between target face and a set of candidate faces, finding a smaller set of faces that look similar to the target face. This is useful for doing a face search by image.

**Group faces based on similarities** - The Group API divides a set of unknown faces into several groups based on similarity.

**Identify people** - The Identify API is used to identify a detected face against a database of people (facial recognition search).

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

Face can return the rectangle coordinates for any human faces that are found in an image, as well as a series of attributes related to those faces such as:

**Age:** a guess at an age

**Blur:** how blurred the face is (which can be an indication of how likely the face is to be the main focus of the image)

**Emotion:** what emotion is displayed

**Exposure:** aspects such as underexposed or over exposed and applies to the face in the image and not the overall image exposure

**Facial hair:** the estimated facial hair presence

**Glasses:** if the person is wearing glasses

**Hair:** the hair type and hair color

**Head pose:** the face's orientation in a 3D space

**Makeup:** whether the face in the image has makeup applied

**Noise:** refers to visual noise in the image. If you have taken a photo with a high ISO setting for darker settings, you would notice this noise in the image. The image looks grainy or full of tiny dots that make the image less clear

**Occlusion:** determines if there may be objects blocking the face in the image

**Smile:** whether the person in the image is smiling

<https://docs.microsoft.com/en-us/learn/modules/detect-analyze-faces/2-face-analysis-azure>

Question 48: **Correct**

Select the correct option

- ☒ Predict how many minutes late a flight will arrive based on the amount of snowfall at an airport- **Regression**

Segment customers into different groups to support a marketing department -**Clustering**  
Predict whether a student will complete a university course - **Classification**  
(Correct)

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

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

**Explanation**

**Regression** is a form of machine learning that is used to predict a numeric label based on an item's features.

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

**Classification** -Classification is a form of machine learning that is used to predict which category, or class, an item belongs to.

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

**Clustering** -Clustering is a form of machine learning that is used to group similar items into clusters based on their features.

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

Question 49: **Correct**

Select the correct option

- ☒ Extracts persons, locations and organizations from the text - **Entity Recognition**  
Evaluates text along a positive-negative scale -**Sentiment Analysis**  
Returns text translated to a specified target language - **Translation**  
(Correct)
- ☐ Extracts persons, locations and organizations from the text - **Key phrase extraction**  
Evaluates text along a positive-negative scale -**Sentiment Analysis**  
Returns text translated to a specified target language - **Speech recognition and speech synthesis**
- ☐ Extracts persons, locations and organizations from the text - **Key phrase extraction**  
Evaluates text along a positive-negative scale - **Language Modelling**  
Returns text translated to a specified target language - **Speech recognition and speech synthesis**

**Explanation**

Extracts persons, locations and organizations from the text - **Entity Recognition**

You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category; and in some cases, subtype,

Evaluates text along a positive-negative scale -**Sentiment Analysis**

The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

Returns text translated to a specified target language - **Translation**

*Text translation* can be used to translate documents from one language to another, translate email communications that come from foreign governments, and even provide the ability to translate web pages on the Internet.

<https://docs.microsoft.com/en-us/learn/modules/translate-text-with-translation-service/1-introduction>

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

Question 50: **Correct**

Select the correct option

- ☒ Understand how upset a customer is based on the text contained in the support ticket -**Sentiment Analysis**  
Summarize important information from the support ticket - **Key Phrase Extraction**  
Extract key dates from the support ticket - **Entity Recognition**  
(Correct)



- Understand how upset a customer is based on the text contained in the support ticket -**Language Detection**  
Summarize important information from the support ticket - **Key Phrase Extraction**  
Extract key dates from the support ticket - **Entity Recognition**



- Understand how upset a customer is based on the text contained in the support ticket -**Sentiment Analysis**  
Summarize important information from the support ticket - **Entity Recognition**  
Extract key dates from the support ticket - **Key Phrase Extraction**

**Explanation**

Understand how upset a customer is based on the text contained in the support ticket -**Sentiment Analysis**

The Text Analytics service can evaluate text and return sentiment scores and labels for each sentence. This capability is useful for detecting positive and negative sentiment in social media, customer reviews, discussion forums and more.

Summarize important information from the support ticket - **Key Phrase Extraction**

Key phrase extraction is the concept of evaluating the text of a document, or documents, and then identifying the main talking points of the document(s).

Extract key dates from the support ticket - **Entity Recognition**

You can provide the Text Analytics service with unstructured text and it will return a list of *entities* in the text that it recognizes. The service can also provide links to more information about that entity on the web. An entity is essentially an item of a particular type or a category; and in some cases, subtype

<https://docs.microsoft.com/en-us/learn/modules/analyze-text-with-text-analytics-service/2-get-started-azure>

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