

AI-100^{Q&As}

Designing and Implementing an Azure AI Solution

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QUESTION 1

You have deployed 1,000 sensors for an AI application that you are developing. The sensors generate large amounts of data that is ingested on an hourly basis.

You want your application to analyze the data generated by the sensors in real-time.

Which of the following actions should you take?

- A. Make use of Azure Kubernetes Service (AKS)
- B. Make use of Azure Cosmos DB
- C. Make use of an Azure HDInsight Hadoop cluster
- D. Make use of Azure Data Factory

Correct Answer: A

To analyze the data generated by the sensors in real-time, you can make use of Azure Kubernetes Service (AKS). AKS is a container orchestration service that allows you to deploy, manage, and scale containerized applications. By deploying your AI application on AKS, you can process the data in real-time using containers and take advantage of the scalability and flexibility offered by AKS.

QUESTION 2

You are designing an AI solution that will provide feedback to teachers who train students over the Internet. The students will be in classrooms located in remote areas. The solution will capture video and audio data of the students in the classrooms.

You need to recommend Azure Cognitive Services for the AI solution to meet the following requirements:

1.

Alert teachers if a student seems angry or distracted.

2.

Identify each student in the classrooms for attendance purposes.

3.

Allow the teachers to log the text of conversations between themselves and the students. Which Cognitive Services should you recommend?

- A. Computer Vision, Text Analytics, and Face API
- B. Video Indexer, Face API, and Text Analytics
- C. Computer Vision, Speech to Text, and Text Analytics
- D. Text Analytics, QnA Maker, and Computer Vision

E. Video Indexer, Speech to Text, and Face API

Correct Answer: E

Azure Video Indexer is a cloud application built on Azure Media Analytics, Azure Search, Cognitive Services (such as the Face API, Microsoft Translator, the Computer Vision API, and Custom Speech Service). It enables you to extract the insights from your videos using Video Indexer video and audio models.

Face API enables you to search, identify, and match faces in your private repository of up to 1 million people.

The Face API now integrates emotion recognition, returning the confidence across a set of emotions for each face in the image such as anger, contempt, disgust, fear, happiness, neutral, sadness, and surprise. These emotions are

understood to be cross-culturally and universally communicated with particular facial expressions.

Speech-to-text from Azure Speech Services, also known as speech-to-text, enables real-time transcription of audio streams into text that your applications, tools, or devices can consume, display, and take action on as command input. This

service is powered by the same recognition technology that Microsoft uses for Cortana and Office products, and works seamlessly with the translation and text-to-speech.

Incorrect Answers:

Computer Vision or the QnA is not required.

References:

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

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

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

QUESTION 3

Your company's marketing department is creating a social media campaign that will allow users to submit video messages for the company's social media sites.

You are developing an AI app for the campaign. Your app must meet the following requirements:

Add captions to the video messages before they are posted to the social media sites.

Ensure that no negative video messages are posted to the social media sites. Which of the following actions should you take?

A. Implement Form Recognizer in your app.

B. Implement the Face API in your app.

C. Implement Custom Vision in your app.

D. Implement Video Indexer in your app.

Correct Answer: D

Video Indexer includes Audio transcription: Converts speech to text in 12 languages and allows extensions. Supported languages include English, Spanish,

French, German, Italian, Mandarin Chinese, Japanese, Arabic, Russian, Portuguese, Hindi, and Korean.

When indexing by one channel, partial result for those models will be available, such as sentiment analysis: Identifies positive, negative, and neutral sentiments from speech and visual text.

Reference:

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

QUESTION 4

Which RBAC role should you assign to the KeyManagers group?

- A. Cognitive Services Contributor
- B. Security Manager
- C. Cognitive Services User
- D. Security Administrator

Correct Answer: A

References: <https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles>

QUESTION 5

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while

others might not have a correct solution.

After you answer a question, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You need to create an IoT solution that performs the following tasks:

1.
Identifies hazards
2.
Provides a real-time online dashboard
3.
Takes images of an area every minute

4.

Counts the number of people in an area every minute

Solution: You configure the IoT devices to send the images to an Azure IoT hub, and then you configure an Azure Functions call to Azure Cognitive Services that sends the results to an Azure event hub. You configure Microsoft Power BI to

connect to the event hub by using Azure Stream Analytics.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B

Instead use Cognitive Services containers on the IoT devices.

References: <https://azure.microsoft.com/es-es/blog/running-cognitive-services-on-iot-edge/>
<https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-live-data-visualization-in-power-bi>

QUESTION 6

You plan to deploy a bot that will use the following Azure Cognitive Services:

1.

Language Understanding (LUIS)

2.

Text Analytics

Your company's compliance policy states that all data used by the bot must be stored in the on-premises network.

You need to recommend a compute solution to support the planned bot.

What should you include in the recommendation?

A. an Azure Databricks cluster

B. a Docker container

C. Microsoft Machine Learning Server

D. the Azure Machine Learning service

Correct Answer: B

You can deploy LUIS on-premise as Docker Image in a container.

Note: Azure Cognitive LUIS service can be deployed on any hardware or on any host (Linux, Windows and IOS). This feature allows enterprises to quickly train the LUIS model on the cloud and deploy it anywhere which makes Cognitive

services to be available truly to every person and every Organization - "Democratizing AI".

Reference: <https://www.linkedin.com/pulse/deploying-microsoft-azure-cognitive-luis-service-on-premise-s>

QUESTION 7

You are developing an AI solution that will use in-memory caching and a columnar storage engine for Apache Hive queries. What HDInsight platform should you use?

- A. Apache Kafka
- B. Apache Spark
- C. Interactive Query
- D. Apache Storm

Correct Answer: C

Interactive Query provides In-memory caching and improved columnar storage engine for Hive queries. Reference: <https://docs.microsoft.com/bs-latn-ba/azure/hdinsight/interactive-query/apache-interactive-query-get-started>

QUESTION 8

Von have an Azure SQL database w Azure Data Lake Storage Gen 2 account, and an API developed by using Azure Machine Learning Studio.

You need to ingest data once daily from the database, score each row by using the API, and write the data to the storage account.

Solution: You create a scheduled Jupyter Notebook in Azure Databricks.

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

QUESTION 9

You are designing an AI solution in Azure that will perform image classification.

You need to identify which processing platform will provide you with the ability to update the logic over time. The solution must have the lowest latency for inferencing without having to batch.

Which compute target should you identify?

- A. graphics processing units (GPUs)
- B. field-programmable gate arrays (FPGAs)
- C. central processing units (CPUs)
- D. application-specific integrated circuits (ASICs)

Correct Answer: B

FPGAs, such as those available on Azure, provide performance close to ASICs. They are also flexible and reconfigurable over time, to implement new logic. Incorrect Answers:

D: ASICs are custom circuits, such as Google's TensorFlow Processor Units (TPU), provide the highest efficiency. They can't be reconfigured as your needs change.

References: <https://docs.microsoft.com/en-us/azure/machine-learning/service/concept-accelerate-with-fpgas>

QUESTION 10

You are designing an AI solution that will analyze millions of pictures by using Azure HDInsight Hadoop cluster.

You need to recommend a solution for storing the pictures. The solution must minimize costs.

Which storage solution should you recommend?

- A. Azure Table storage
- B. Azure File Storage
- C. Azure Data Lake Storage Gen2
- D. Azure Databricks File System

Correct Answer: C

Azure Data Lake Store is optimized for storing large amounts of data for reporting and analytical and is geared towards storing data in its native format, making it a great store for non-relational data.

Reference: <https://stackify.com/store-data-azure-understand-azure-data-storage-options/>

QUESTION 11

You are developing a mobile application that will perform optical character recognition (OCR) from photos.

The application will annotate the photos by using metadata, store the photos in Azure Blob storage, and then score the photos by using an Azure Machine Learning model.

What should you use to process the data?

- A. Azure Event Hubs
- B. Azure Functions

C. Azure Stream Analytics

D. Azure Logic Apps

Correct Answer: A

QUESTION 12

You are developing a bot for an ecommerce application. The bot will support five languages.

The bot will use Language Understanding (LUIS) to detect the language of the customer, and QnA Maker to answer common customer questions. LUIS supports all the languages.

You need to determine the minimum number of Azure resources that you must create for the bot.

You create five instances of QnA Maker and one instance Language Understanding (LUIS).

Does this action accomplish your objective?

A. Yes, it does

B. No, it does not

Correct Answer: A

By creating one instance of Language Understanding (LUIS) that supports all five languages, and five instances of QnA Maker to handle the common customer questions in each language, you have fulfilled the requirement of supporting five

languages in the bot. This approach ensures that you have the necessary Azure resources in place to handle the language detection and question answering functionalities for each language.

Reference:

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

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

QUESTION 13

You plan to build an application that will perform predictive analytics. Users will be able to consume the application data by using Microsoft Power BI or a custom website.

You need to ensure that you can audit application usage.

Which auditing solution should you use?

A. Azure Storage Analytics

B. Azure Application Insights

C. Azure diagnostics logs

D. Azure Active Directory (Azure AD) reporting

Correct Answer: A

QUESTION 14

You are developing a Microsoft Bot Framework application. The application consumes structured NoSQL data that must be stored in the cloud.

You implement Azure Blob storage for the application. You want access to the blob store to be controlled by using a role.

You implement On-premises Active Directory Domain Services (AD DS).

Does this action accomplish your objective?

- A. Yes, it does
- B. No, it does not

Correct Answer: B

Implementing On-premises Active Directory Domain Services (AD DS) alone does not accomplish the objective of controlling access to Azure Blob storage based on a role.

On-premises AD DS is designed for managing user accounts, groups, and authentication within an on-premises network. It does not directly integrate with Azure Blob storage to control access based on roles.

To achieve role-based access control (RBAC) for Azure Blob storage, you should consider integrating Azure Active Directory (Azure AD) with your application. Azure AD provides a cloud-based identity and access management solution that can be used to define roles, assign permissions, and control access to Azure resources, including Blob storage.

By implementing Azure AD integration, you can manage access to Blob storage based on roles defined in Azure AD, granting or restricting access to users or groups based on their assigned roles.

QUESTION 15

You have Azure IoT Edge devices that collect measurements every 30 seconds.

You plan to send the measurements to an Azure IoT hub.

You need to process events in the cloud.

What should you use?

- A. Apache Kafka
- B. Azure Stream Analytics record functions
- C. Azure Stream Analytics windowing functions
- D. Azure Machine Learning on the IoT Edge devices

Correct Answer: D

Use Azure Notebooks to develop a machine learning module and deploy it to a Linux device running Azure IoT Edge. You can use IoT Edge modules to deploy code that implements your business logic directly to your IoT Edge devices.

References: <https://docs.microsoft.com/en-us/azure/iot-edge/tutorial-deploy-machine-learning>

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