AI-100 Q&As

Designing and Implementing an Azure AI Solution

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QUESTION 1

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 have Azure IoT Edge devices that generate streaming data.

On the devices, you need to detect anomalies in the data by using Azure Machine Learning models. Once an anomaly is detected, the devices must add information about the anomaly to the Azure IoT Hub stream.

Solution: You expose a Machine Learning model as an Azure web service.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B

Instead use Azure Stream Analytics and REST API.

Note. Available in both the cloud and Azure IoT Edge, Azure Stream Analytics offers built-in machine learning based anomaly detection capabilities that can be used to monitor the two most commonly occurring anomalies: temporary and

persistent.

Stream Analytics supports user-defined functions, via REST API, that call out to Azure Machine Learning endpoints.

References:

https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-machine-learning-anomaly-detection

QUESTION 2

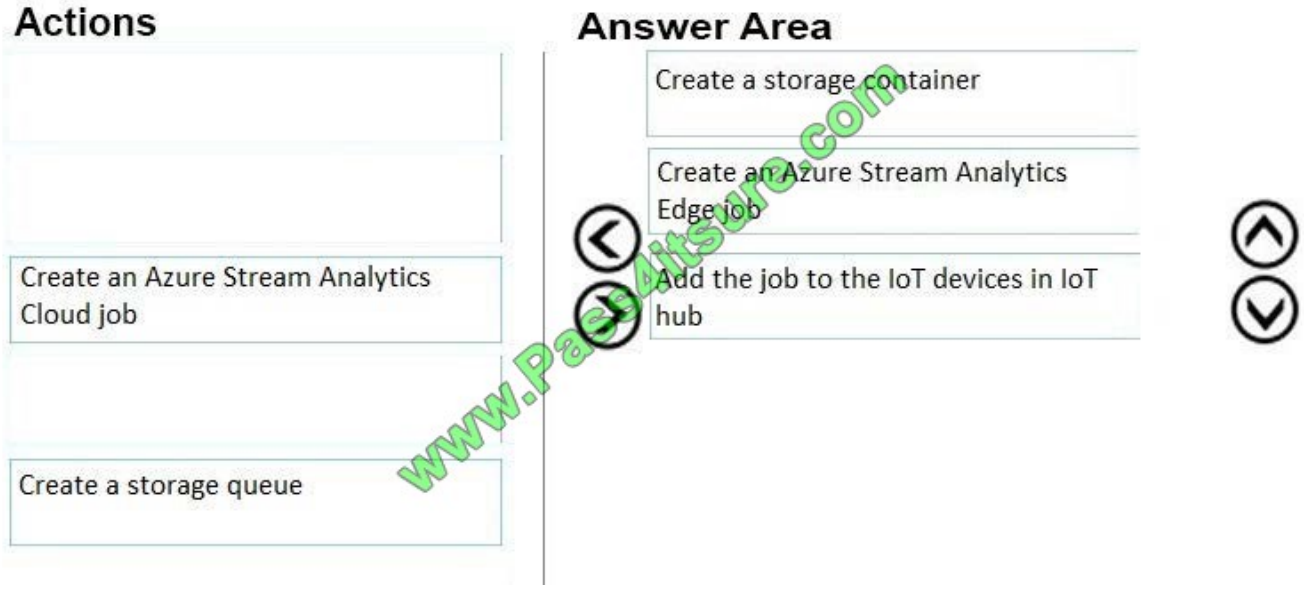
You are designing an AI solution that will use IoT devices to gather data from conference attendees, and then later analyze the data. The IoT devices will connect to an Azure IoT hub.

You need to design a solution to anonymize the data before the data is sent to the IoT hub.

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

Select and Place:

Correct Answer:



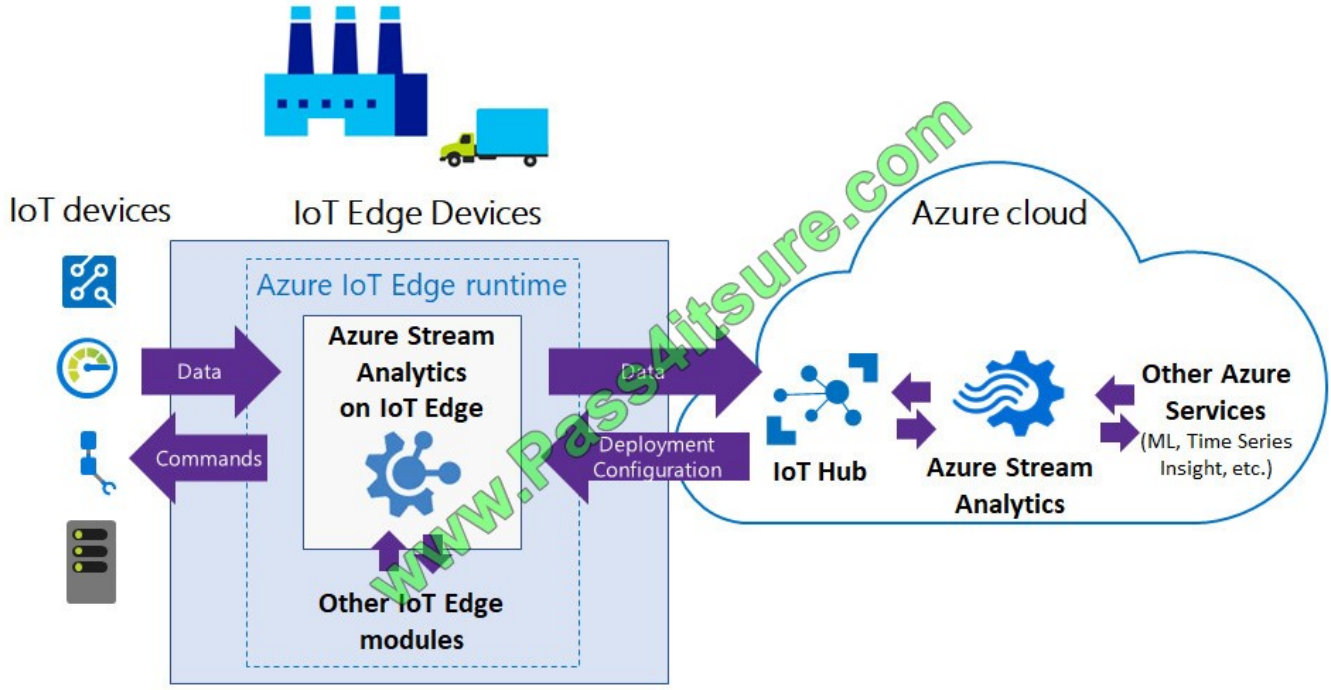
Step 1: Create a storage container

ASA Edge jobs run in containers deployed to Azure IoT Edge devices.

Step 2: Create an Azure Stream Analytics Edge Job

Azure Stream Analytics (ASA) on IoT Edge empowers developers to deploy near-real-time analytical intelligence closer to IoT devices so that they can unlock the full value of device-generated data.

Scenario overview:



QUESTION 3

Your company has 1,000 AI developers who are responsible for provisioning environments in Azure. You need to control the type, size, and location of the resources that the developers can provision. What should you use?

A. Azure Key Vault

B. Azure service principals

C. Azure managed identities

D. Azure Security Center

E. Azure Policy

Correct Answer: B

When an application needs access to deploy or configure resources through Azure Resource Manager in Azure Stack, you create a service principal, which is a credential for your application. You can then delegate only the necessary permissions to that service principal.

References: https://docs.microsoft.com/en-us/azure/azure-stack/azure-stack-create-service-principals

QUESTION 4

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others might not have a correct solution.

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You are developing an application that uses an Azure Kubernetes Service (AKS) cluster.

You are troubleshooting a node issue.

You need to connect to an AKS node by using SSH.

Solution: You create a managed identity for AKS, and then you create an SSH connection.

Does this meet the goal?

A. Yes

B. No

Correct Answer: B

Instead add an SSH key to the node, and then you create an SSH connection.

References: https://docs.microsoft.com/en-us/azure/aks/ssh

QUESTION 5

You are designing a solution that will ingest temperature data from IoT devices, calculate the average temperature, and then take action based on the aggregated data. The solution must meet the following requirements:

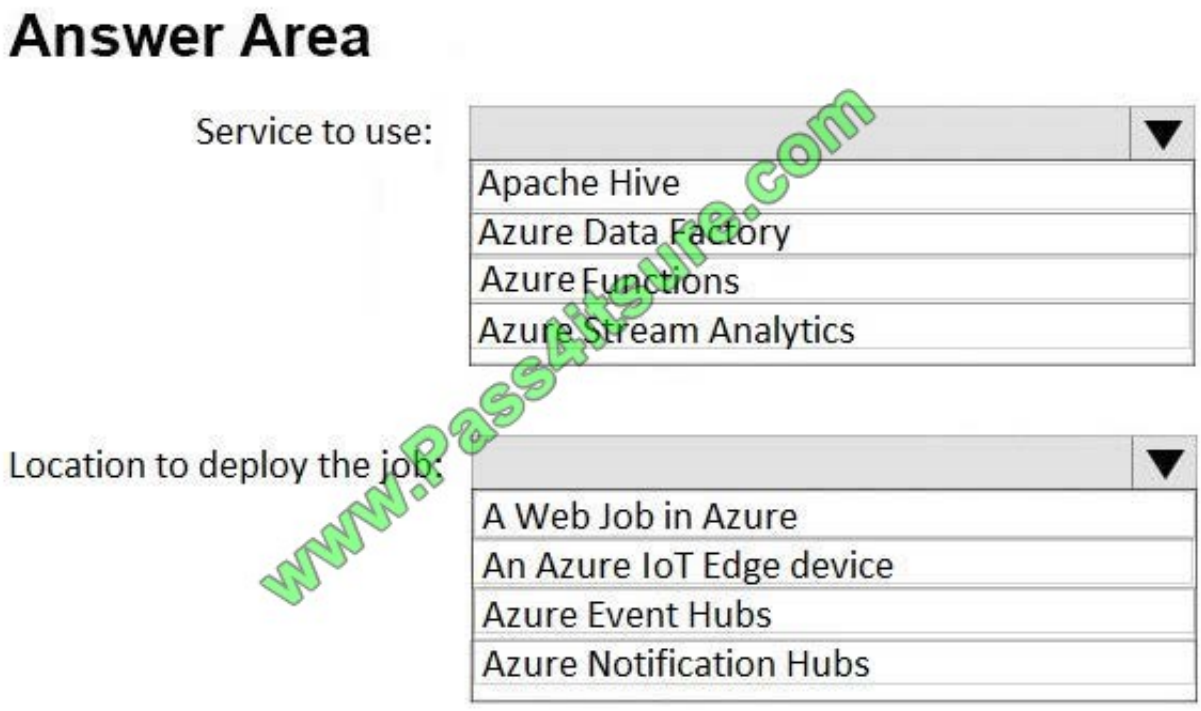
Minimize the amount of uploaded data.

Take action based on the aggregated data as quickly as possible.

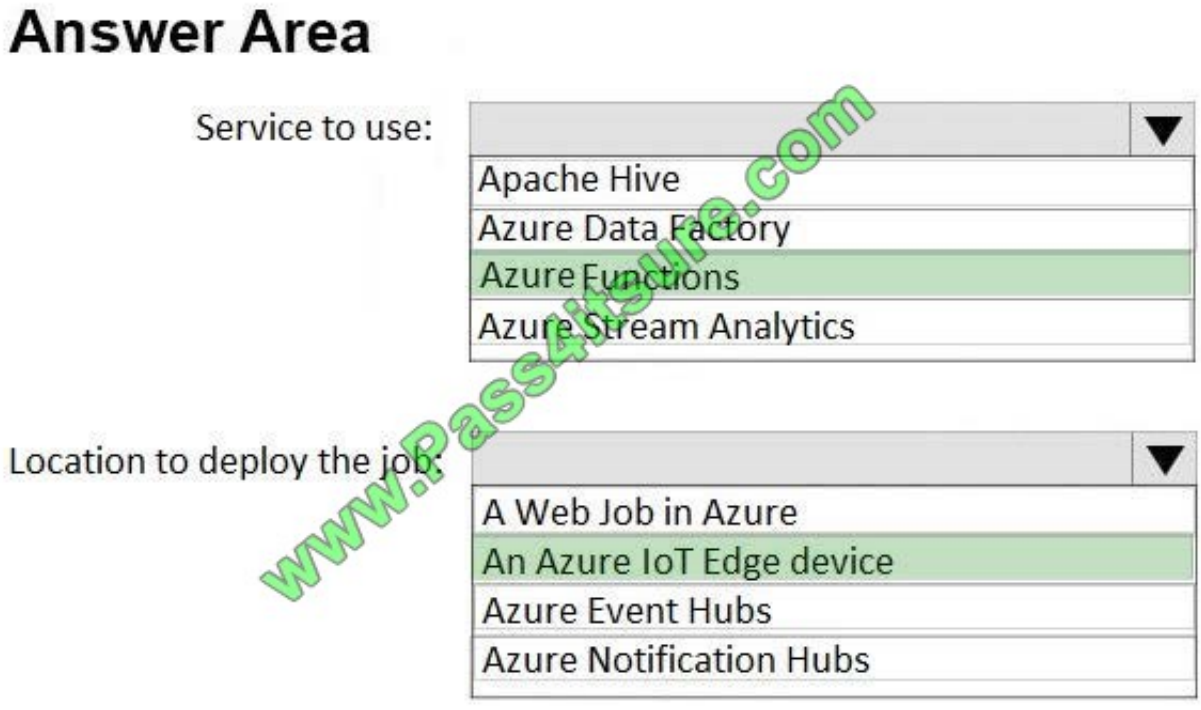
What should you include in the solution? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:



Correct Answer:



Box 1: Azure Functions

Azure Function is a (serverless) service to host functions (little piece of code) that can be used for e. g. event driven applications.

General rule is always difficult since everything depends on your requirement but if you have to analyze a data stream,

you should take a look at Azure Stream Analytics and if you want to implement something like a serverless event driven or

timer-based application, you should check Azure Function or Logic Apps.

Note: Azure IoT Edge allows you to deploy complex event processing, machine learning, image recognition, and other high value AI without writing it in-house. Azure services like Azure Functions, Azure Stream Analytics, and Azure Machine

Learning can all be run on-premises via Azure IoT Edge.

Box 2: An Azure IoT Edge device

Azure IoT Edge moves cloud analytics and custom business logic to devices so that your organization can focus on business insights instead of data management.

References:

https://docs.microsoft.com/en-us/azure/iot-edge/about-iot-edge

QUESTION 6

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You are developing an application that uses an Azure Kubernetes Service (AKS) cluster.

You are troubleshooting a node issue.

You need to connect to an AKS node by using SSH.

Solution: You add an SSH key to the node, and then you create an SSH connection.

Does this meet the goal?

A. Yes

B. No

Correct Answer: A

By default, SSH keys are generated when you create an AKS cluster. If you did not specify your own SSH keys when you created your AKS cluster, add your public SSH keys to the AKS nodes. You also need to create an SSH connection to the AKS node.

References: https://docs.microsoft.com/en-us/azure/aks/ssh

QUESTION 7

You have thousands of images that contain text.

You need to process the text from the images to a machine-readable character stream.

Which Azure Cognitive Services service should you use?

A. the Image Moderation API

B. Text Analytics

C. Translator Text

D. Computer Vision

Correct Answer: D

With Computer Vision you can detect text in an image using optical character recognition (OCR) and extract the recognized words into a machine-readable character stream.

Incorrect Answers:

A: Use Content Moderator\\'s machine-assisted image moderation and human-in-the-loop Review tool to moderate images for adult and racy content. Scan images for text content and extract that text, and detect faces. You can match images against custom lists, and take further action.

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

https://docs.microsoft.com/en-us/azure/cognitive-services/content-moderator/image-moderation-api

QUESTION 8

Your company has a data team of Transact-SQL experts.

You plan to ingest data from multiple sources into Azure Event Hubs.

You need to recommend which technology the data team should use to move and query data from Event Hubs to Azure Storage. The solution must leverage the data team\\'s existing skills.

What is the best recommendation to achieve the goal? More than one answer choice may achieve the goal.

A. Azure Notification Hubs

B. Azure Event Grid

C. Apache Kafka streams

D. Azure Stream Analytics

Correct Answer: B

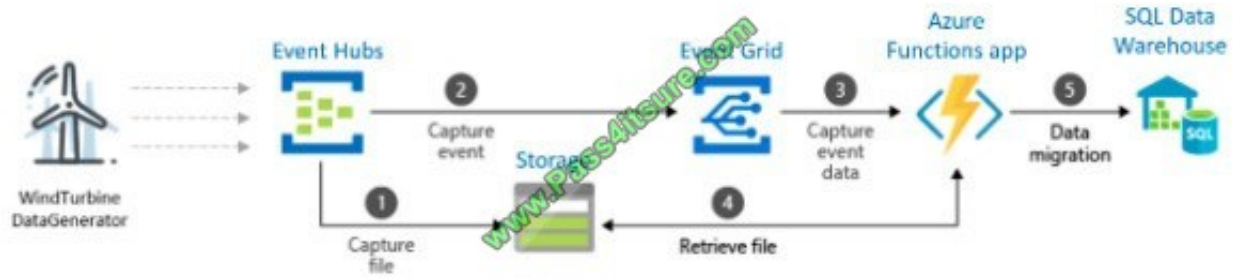
Event Hubs Capture is the easiest way to automatically deliver streamed data in Event Hubs to an Azure Blob storage

or Azure Data Lake store. You can subsequently process and deliver the data to any other storage destinations of your

choice, such as SQL Data Warehouse or Cosmos DB.

You to capture data from your event hub into a SQL data warehouse by using an Azure function triggered by an event grid.

Example:



First, you create an event hub with the Capture feature enabled and set an Azure blob storage as the destination. Data generated by WindTurbineGenerator is streamed into the event hub and is automatically captured into Azure Storage as

Avro files.

Next, you create an Azure Event Grid subscription with the Event Hubs namespace as its source and the Azure Function endpoint as its destination. Whenever a new Avro file is delivered to the Azure Storage blob by the Event Hubs Capture

feature, Event Grid notifies the Azure Function with the blob URI. The Function then migrates data from the blob to a SQL data warehouse.

References:

https://docs.microsoft.com/en-us/azure/event-hubs/store-captured-data-data-warehouse

QUESTION 9

Your company has factories in 10 countries. Each factory contains several thousand IoT devices.

The devices present status and trending data on a dashboard.

You need to ingest the data from the IoT devices into a data warehouse.

Which two Microsoft Azure technologies should you use? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. Azure Stream Analytics

B. Azure Data Factory

C. an Azure HDInsight cluster

D. Azure Batch

E. Azure Data Lake

Correct Answer: CE

With Azure Data Lake Store (ADLS) serving as the hyper-scale storage layer and HDInsight serving as the Hadoop-based compute engine services. It can be used for prepping large amounts of data for insertion into a Data Warehouse

References: https://www.blue-granite.com/blog/azure-data-lake-analytics-holds-a-unique-spot-in-the-modern-data-architecture

QUESTION 10

You are configuring data persistence for a Microsoft Bot Framework application. The application requires a structured NoSQL cloud data store.

You need to identify a storage solution for the application. The solution must minimize costs.

What should you identify?

A. Azure Blob storage

B. Azure Cosmos DB

C. Azure HDInsight

D. Azure Table storage

Correct Answer: D

Table Storage is a NoSQL key-value store for rapid development using massive semi-structured datasets

You can develop applications on Cosmos DB using popular NoSQL APIs.

Both services have a different scenario and pricing model.

While Azure Storage Tables is aimed at high capacity on a single region (optional secondary read only region but no failover), indexing by PK/RK and storage-optimized pricing; Azure Cosmos DB Tables aims for high throughput (single-digit

millisecond latency), global distribution (multiple failover), SLA-backed predictive performance with automatic indexing of each attribute/property and a pricing model focused on throughput.

References:

https://db-engines.com/en/system/Microsoft+Azure+Cosmos+DB%3BMicrosoft+Azure+Table+Storage

QUESTION 11

You are designing an AI solution that must meet the following processing requirements:

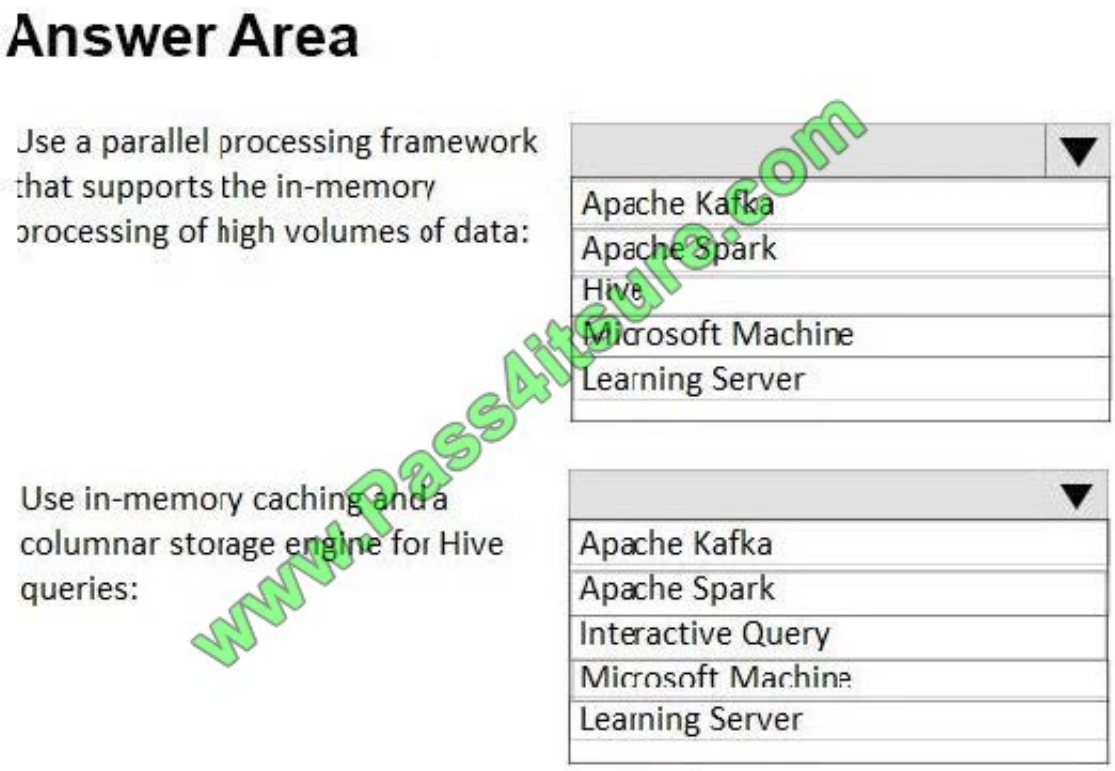
Use a parallel processing framework that supports the in-memory processing of high volumes of data.

Use in-memory caching and a columnar storage engine for Apache Hive queries.

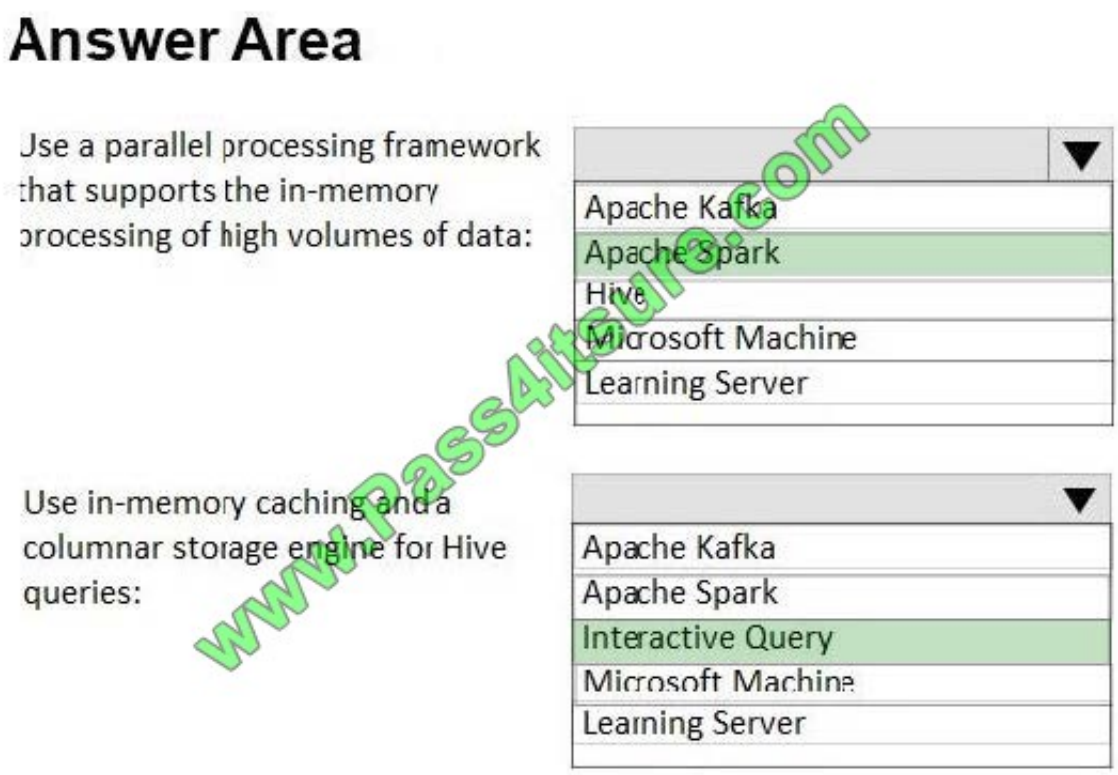
What should you use to meet each requirement? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:



Correct Answer:



Box 1: Apache Spark

Apache Spark is a parallel processing framework that supports in-memory processing to boost the performance of big-data analytic applications. Apache Spark in Azure HDInsight is the Microsoft implementation of Apache Spark in the cloud.

Box 2: Interactive Query

Interactive Query provides In-memory caching and improved columnar storage engine for Hive queries.

References:

https://docs.microsoft.com/en-us/azure/hdinsight/spark/apache-spark-overview

https://docs.microsoft.com/bs-latn-ba/azure/hdinsight/interactive-query/apache-interactive-query-get-started

QUESTION 12

You plan to design an application that will use data from Azure Data Lake and perform sentiment analysis by using Azure Machine Learning algorithms.

The developers of the application use a mix of Windows- and Linux-based environments. The developers contribute to shared GitHub repositories.

You need all the developers to use the same tool to develop the application.

What is the best tool to use? More than one answer choice may achieve the goal.

A. Microsoft Visual Studio Code

B. Azure Notebooks

C. Azure Machine Learning Studio

D. Microsoft Visual Studio

Correct Answer: C

References: https://github.com/MicrosoftDocs/azure-docs/blob/master/articles/machine-learning/studio/algorithm-choice.md

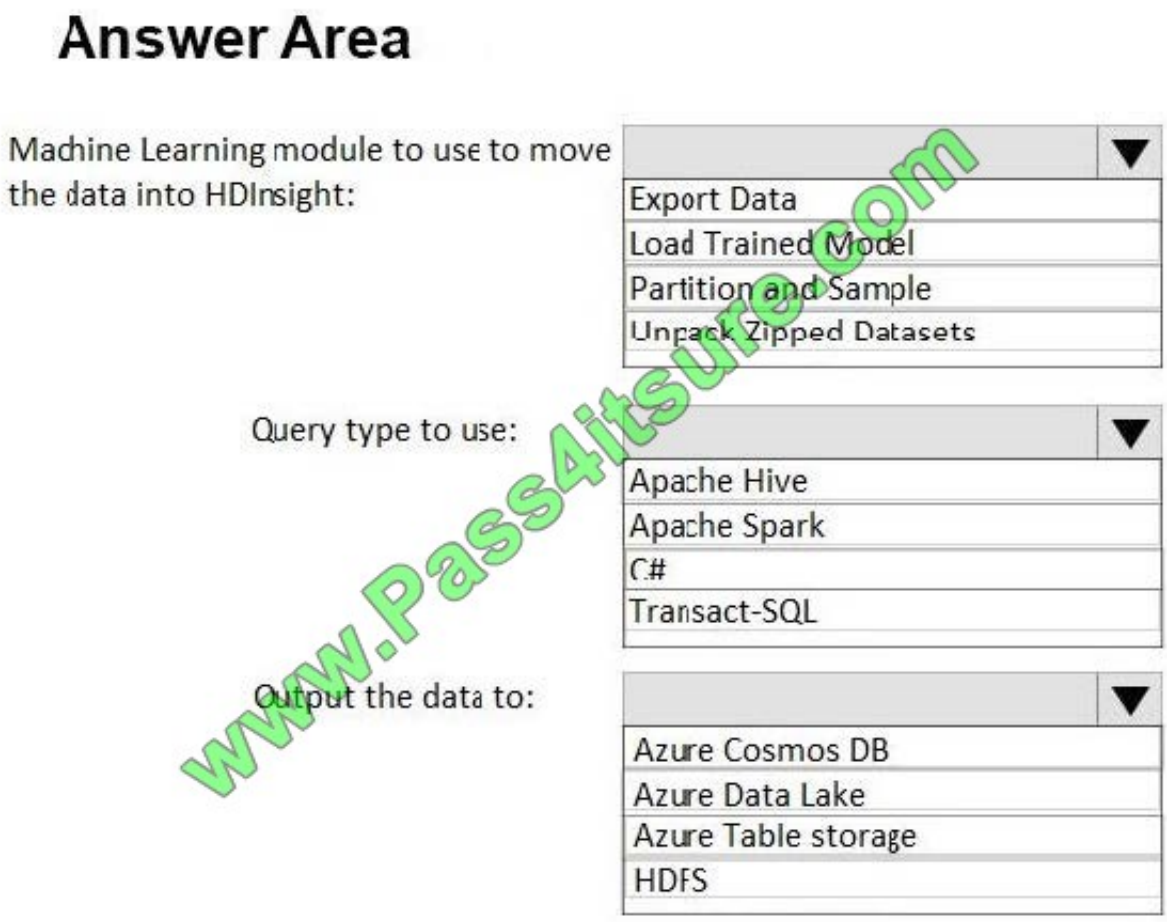
QUESTION 13

You are designing a solution that will ingest data from an Azure IoT Edge device, preprocess the data in Azure Machine Learning, and then move the data to Azure HDInsight for further processing.

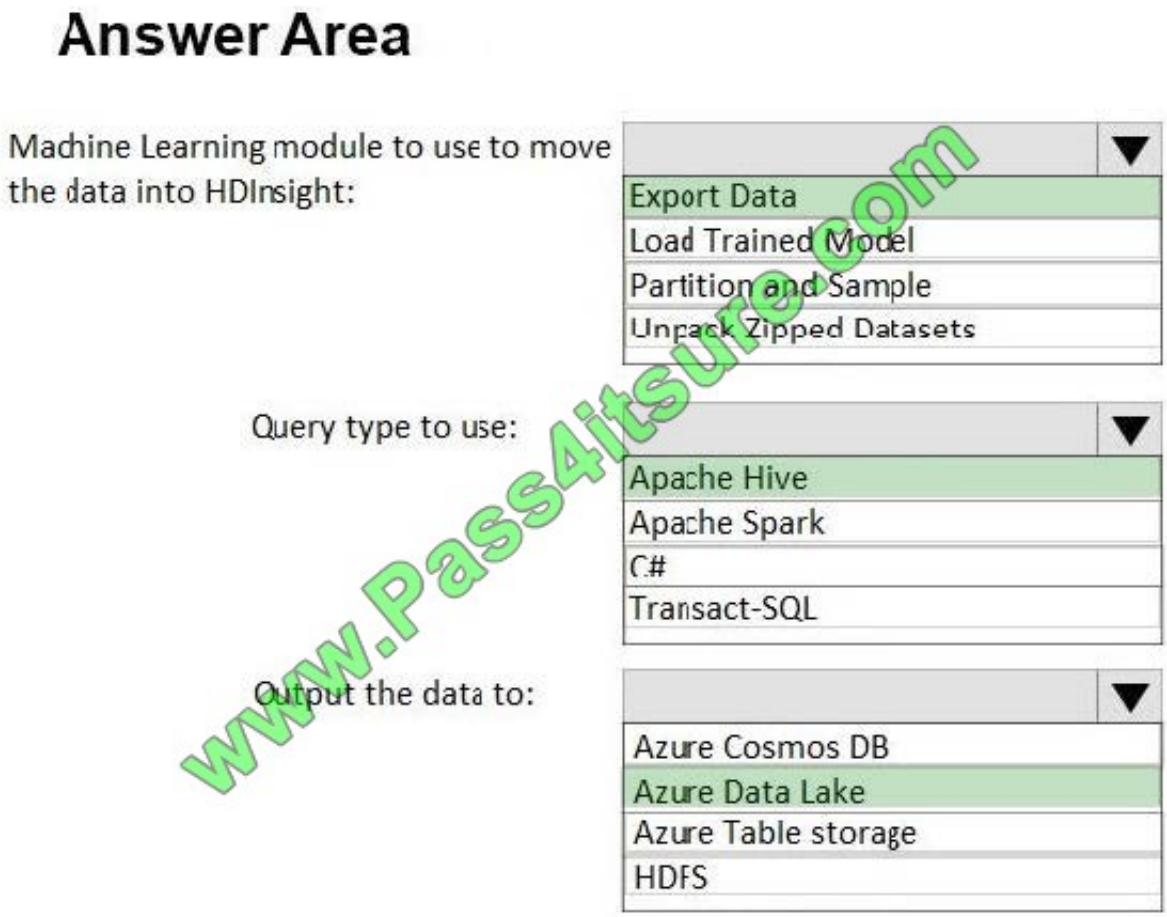
What should you include in the solution? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Hot Area:



Correct Answer:



Box 1: Export Data The Export data to Hive option in the Export Data module in Azure Machine Learning Studio. This option is useful when you are working with very large datasets, and want to save your machine learning experiment data to a Hadoop cluster or HDInsight distributed storage. Box 2: Apache Hive Apache Hive is a data warehouse system for Apache Hadoop. Hive enables data summarization, querying, and analysis of data. Hive queries are written in HiveQL, which is a query language similar to SQL. Box 3: Azure Data Lake Default storage for the HDFS file system of HDInsight clusters can be associated with either an Azure Storage account or an Azure Data Lake Storage.

References: https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/export-to-hive-query https://docs.microsoft.com/en-us/azure/hdinsight/hadoop/hdinsight-use-hive