AI-102

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AI-102

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Plan and Manage an Azure Cognitive Services Solution

Question Set 1

QUESTION 1
You have the following C# method for creating Azure Cognitive Services resources programmatically.

```
static void create_resource(CognitiveServicesManagementClient client, string
resource_name, string kind, string account_tier, string location)
{
  CognitiveServicesAccount parameters =
      new CognitiveServicesAccount(null, null, kind, location, resource_name,
new CognitiveServicesAccountProperties(), new Sku(account_tier));
  var result = client.Accounts.Create(resource_group_name, account_tier,
parameters);
}
```

You need to call the method to create a free Azure resource in the West US Azure region. The resource will be used to generate captions of images automatically.

Which code should you use?

A. `create_resource(client, "res1", "ComputerVision", "F0", "westus")`
B. `create_resource(client, "res1", "CustomVision.Prediction", "F0", "westus")`
C. `create_resource(client, "res1", "ComputerVision", "S0", "westus")`
D. `create_resource(client, "res1", "CustomVision.Prediction", "S0", "westus")`

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Many of the Cognitive Services have a free tier you can use to try the service. To use the free tier, use F0 as the SKU for your resource.
There are two tiers of keys for the Custom Vision service. You can sign up for a F0 (free) or S0 (standard) subscription through the Azure portal.

Incorrect Answers:
A: There is no free tier (F0) for ComputerVision.

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/cognitive-services-apis-create-account-client-library?pivots=programming-language-csharp

https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/limits-and-quotas

QUESTION 2
You successfully run the following HTTP request.

```
POST https://management.azure.com/subscriptions/18c51a87-3a69-47a8-aedc-a54745f708a1/resourceGroups/RG1/providers/
Microsoft.CognitiveServices/accounts/contosol/regenerateKey?api-version=2017-04-18
Body{"keyName": "Key2"}
```

What is the result of the request?

A. A key for Azure Cognitive Services was generated in Azure Key Vault.
B. A new query key was generated.
C. The primary subscription key and the secondary subscription key were rotated.
D. The secondary subscription key was reset.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Accounts - Regenerate Key regenerates the specified account key for the specified Cognitive Services account.

Syntax:
POST https://management.azure.com/subscriptions/{subscriptionId}/resourceGroups/{resourceGroupName}/providers/Microsoft.CognitiveServices/accounts/{accountName}/regenerateKey?api-version=2017-04-18

Reference:
https://docs.microsoft.com/en-us/rest/api/cognitiveservices/accountmanagement/accounts/regeneratekey

QUESTION 3
You build a custom Form Recognizer model.

You receive sample files to use for training the model as shown in the following table.

Name	Type	Size
File1	PDF	20 MB
File2	MP4	100 MB
File3	JPG	20 MB
File4	PDF	100 MB
File5	GIF	1 MB
File6	JPG	40 MB

Which three files can you use to train the model? Each correct answer presents a complete solution. (Choose three.)

NOTE: Each correct selection is worth one point.

A. File1
B. File2
C. File3
D. File4
E. File5
F. File6

Correct Answer: ACF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Input requirements
Form Recognizer works on input documents that meet these requirements:

Format must be JPG, PNG, PDF (text or scanned), or TIFF. Text-embedded PDFs are best because there's no possibility of error in character extraction and location.
File size must be less than 50 MB.

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

Implement Computer Vision Solutions

Question Set 1

QUESTION 1
You are developing a method that uses the Computer Vision client library. The method will perform optical character recognition (OCR) in images. The method has the following code.

```
public static async Task ReadFileUrl(ComputerVisionClient client, string urlFile)
{
        const int numberOfCharsInOperationId = 36;

        var txtHeaders = await client.ReadAsync(urlFile, language: "en");

        string opLocation = textHeaders.OperationLocation;
        string operationId = opLocation.Substring(opLocation.Length -
numberOfCharsInOperationId);

        ReadOperationResult results;

        results = await client.GetReadResultAsync(Guid.Parse(operationId));

        var textUrlFileResults = results.AnalyzeResult.ReadResults;
        foreach (ReadResult page in textUrlFileResults)
        {
                foreach (Line line in page.Lines)
                {
                        Console.WriteLine(line.Text);
                }
        }
}
```

During testing, you discover that the call to the `GetReadResultAsync` method occurs before the read operation is complete.

You need to prevent the `GetReadResultAsync` method from proceeding until the read operation is complete.

Which two actions should you perform? Each correct answer presents part of the solution. (Choose two.)

NOTE: Each correct selection is worth one point.

A. Remove the `Guid.Parse(operationId)` parameter.
B. Add code to verify the `results.Status` value.
C. Add code to verify the status of the `txtHeaders.Status` value.
D. Wrap the call to `GetReadResultAsync` within a loop that contains a delay.

Correct Answer: BD
Section: (none)

Explanation

Explanation/Reference:
Explanation:
Example code :

```
do
        {
            results = await client.GetReadResultAsync(Guid.Parse(operationId));
        }
        while ((results.Status == OperationStatusCodes.Running ||
            results.Status == OperationStatusCodes.NotStarted));
```

Reference:
https://github.com/Azure-Samples/cognitive-services-quickstart-code/blob/master/dotnet/ComputerVision/ComputerVisionQuickstart.cs

Implement Natural Language Processing Solutions

Question Set 1

QUESTION 1
You are building a Language Understanding model for an e-commerce platform.

You need to construct an entity to capture billing addresses.

Which entity type should you use for the billing address?

A. machine learned
B. Regex
C. geographyV2
D. Pattern.any
E. list

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A regular expression entity extracts an entity based on a regular expression pattern you provide. It ignores case and ignores cultural variant. Regular expression is best for structured text or a predefined sequence of alphanumeric values that are expected in a certain format. For example:

Entity	Regular expression	Example
Flight Number	flight [A-Z]{2} [0-9]{4}	flight AS 1234
Credit Card Number	[0-9]{16}	5478789865437632

Incorrect Answers:
C: The prebuilt geographyV2 entity detects places. Because this entity is already trained, you do not need to add example utterances containing GeographyV2 to the application intents. GeographyV2 entity is supported in English culture.

The geographical locations have subtypes:

Subtype	Purpose
`poi`	point of interest
`city`	name of city
`countryRegion`	name of country or region
`continent`	name of continent
`state`	name of state or province

D: Pattern.any is a variable-length placeholder used only in a pattern's template utterance to mark where the entity begins and ends.

E: A list entity represents a fixed, closed set of related words along with their synonyms. You can use list entities to recognize multiple synonyms or variations and extract a normalized output for them. Use the recommend option to see suggestions for new words based on the current list.

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

QUESTION 2
You need to upload speech samples to a Speech Studio project.

How should you upload the samples?

A. Combine the speech samples into a single audio file in the .wma format and upload the file.
B. Upload a .zip file that contains a collection of audio files in the .wav format and a corresponding text transcript file.
C. Upload individual audio files in the FLAC format and manually upload a corresponding transcript in Microsoft Word format.
D. Upload individual audio files in the .wma format.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

To upload your data, navigate to the Speech Studio . From the portal, click Upload data to launch the wizard and create your first dataset. You'll be asked to select a speech data type for your dataset, before allowing you to upload your data.
The default audio streaming format is WAV

Use this table to ensure that your audio files are formatted correctly for use with Custom Speech:

Property	Value
File format	RIFF (WAV)
Sample rate	8,000 Hz or 16,000 Hz
Channels	1 (mono)
Maximum length per audio	2 hours
Sample format	PCM, 16-bit
Archive format	.zip
Maximum archive size	2 GB

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/how-to-custom-speech-test-and-train

QUESTION 3
You are developing a method for an application that uses the Translator API.

The method will receive the content of a webpage, and then translate the content into Greek (el). The result will also contain a transliteration that uses the Roman alphabet.

You need to create the URI for the call to the Translator API.

You have the following URI.

```
https://api.cognitive.microsofttranslator.com/translate?api-version=3.0
```

Which three additional query parameters should you include in the URI? Each correct answer presents part of the solution. (Choose three.)

NOTE: Each correct selection is worth one point.

A. `toScript=Cyrl`
B. `from=el`
C. `textType=html`
D. `to=el`
E. `textType=plain`
F. `toScript=Latn`

Correct Answer: CDF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
C: textType is an optional parameter. It defines whether the text being translated is plain text or HTML text (used for web pages).

D: to is a required parameter. It specifies the language of the output text. The target language must be one of the supported languages included in the translation scope.

F: toScript is an optional parameter. It specifies the script of the translated text.
We use Latin (Roman alphabet) script.

Reference:
https://docs.microsoft.com/en-us/azure/cognitive-services/translator/reference/v3-0-translate

QUESTION 4
You need to measure the public perception of your brand on social media messages.

Which Azure Cognitive Services service should you use?

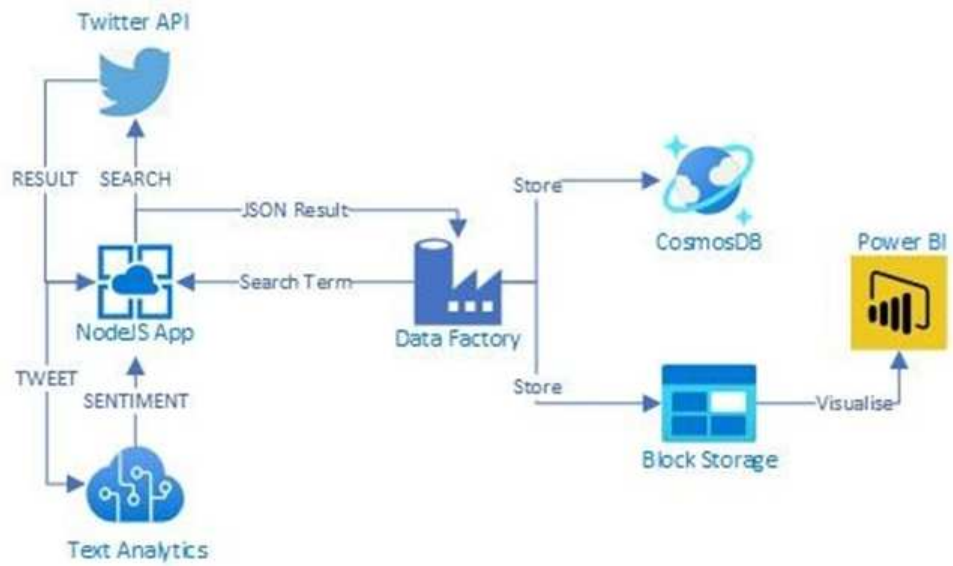
A. Text Analytics
B. Content Moderator
C. Computer Vision
D. Form Recognizer

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Text Analytics Cognitive Service could be used to quickly determine the public perception for a specific topic, event or brand.

Example: A NodeJS app which pulls Tweets from Twitter using the Twitter API based on a specified search term. Then pass these onto Text Analytics for sentiment scoring before storing the data and building a visualisation in PowerBI. The Architecture looked something like this:



Reference:
https://www.linkedin.com/pulse/measuring-public-perception-azure-cognitive-services-steve-dalai

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

You build a language model by using a Language Understanding service. The language model is used to search for information on a contact list by using an intent named `FindContact`.

A conversational expert provides you with the following list of phrases to use for training.

- Find contacts in London.
- Who do I know in Seattle?
- Search for contacts in Ukraine.

You need to implement the phrase list in Language Understanding.

Solution: You create a new intent for location.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
An intent represents a task or action the user wants to perform. It is a purpose or goal expressed in a user's utterance.

Define a set of intents that corresponds to actions users want to take in your application.

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

QUESTION 6
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 in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You build a language model by using a Language Understanding service. The language model is used to search for information on a contact list by using an intent named `FindContact`.

A conversational expert provides you with the following list of phrases to use for training.

- Find contacts in London.
- Who do I know in Seattle?

- Search for contacts in Ukraine.

You need to implement the phrase list in Language Understanding.

Solution: You create a new pattern in the `FindContact` intent.

Does this meet the goal?

A. Yes
B. No

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Instead use a new intent for location.

Note: An intent represents a task or action the user wants to perform. It is a purpose or goal expressed in a user's utterance.

Define a set of intents that corresponds to actions users want to take in your application.

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

QUESTION 7
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 in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You develop an application to identify species of flowers by training a Custom Vision model.

You receive images of new flower species.

You need to add the new images to the classifier.

Solution: You add the new images and labels to the existing model. You retrain the model, and then publish the model.

Does this meet the goal?

A. Yes
B. No

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The model needs to be extended and retrained.

Implement Knowledge Mining Solutions

Question Set 1

QUESTION 1
You have an existing Azure Cognitive Search service.

You have an Azure Blob storage account that contains millions of scanned documents stored as images and PDFs.

You need to make the scanned documents available to search as quickly as possible.

What should you do?

A. Split the data into multiple blob containers. Create a Cognitive Search service for each container. Within each indexer definition, schedule the same runtime execution pattern.
B. Split the data into multiple blob containers. Create an indexer for each container. Increase the search units. Within each indexer definition, schedule a sequential execution pattern.
C. Create a Cognitive Search service for each type of document.
D. Split the data into multiple virtual folders. Create an indexer for each folder. Increase the search units. Within each indexer definition, schedule the same runtime execution pattern.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Incorrect Answers:
A: Need more search units to process the data in parallel.
B: Run them in parallel, not sequentially.
C: Need a blob indexer.

Note: A blob indexer is used for ingesting content from Azure Blob storage into a Cognitive Search index.

Index large datasets

Indexing blobs can be a time-consuming process. In cases where you have millions of blobs to index, you can speed up indexing by partitioning your data and using multiple indexers to process the data in parallel. Here's how you can set this up:

- Partition your data into multiple blob containers or virtual folders
- Set up several data sources, one per container or folder.
- Create a corresponding indexer for each data source. All of the indexers should point to the same target search index.
- One search unit in your service can run one indexer at any given time. Creating multiple indexers as described above is only useful if they actually run in parallel.

Reference:
https://docs.microsoft.com/en-us/azure/search/search-howto-indexing-azure-blob-storage

QUESTION 2
You need to implement a table projection to generate a physical expression of an Azure Cognitive Search index.

Which three properties should you specify in the skillset definition JSON configuration table node? Each correct answer presents part of the solution. (Choose three.)

NOTE: Each correct selection is worth one point.

A. `tableName`
B. `generatedKeyName`
C. `dataSource`
D. `dataSourceConnection`
E. `source`

Correct Answer: ABE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Defining a table projection.
Each table requires three properties:
- tableName: The name of the table in Azure Storage.
- generatedKeyName: The column name for the key that uniquely identifies this row.
- source: The node from the enrichment tree you are sourcing your enrichments from. This node is usually the output of a shaper, but could be the output of any of the skills.

Reference:
https://docs.microsoft.com/en-us/azure/search/knowledge-store-projection-overview

QUESTION 3
You have the following data sources:

- Finance: On-premises Microsoft SQL Server database
- Sales: Azure Cosmos DB using the Core (SQL) API
- Logs: Azure Table storage
- HR: Azure SQL database

You need to ensure that you can search all the data by using the Azure Cognitive Search REST API.

What should you do?

A. Configure multiple read replicas for the data in Sales.
B. Mirror Finance to an Azure SQL database.
C. Migrate the data in Sales to the MongoDB API.
D. Ingest the data in Logs into Azure Sentinel.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
On-premises Microsoft SQL Server database cannot be used as an index data source.

Note: Indexer in Azure Cognitive Search: : Automate aspects of an indexing operation by configuring a data source and an indexer that you can schedule or run on demand. This feature is supported for a limited number of data source types on Azure.

Indexers crawl data stores on Azure.
- Azure Blob Storage
- Azure Data Lake Storage Gen2 (in preview)
- Azure Table Storage
- Azure Cosmos DB
- Azure SQL Database
- SQL Managed Instance
- SQL Server on Azure Virtual Machines

Reference:
https://docs.microsoft.com/en-us/azure/search/search-indexer-overview#supported-data-sources