

Microsoft

AI-102

Designing and Implementing a Microsoft Azure AI Solution
QUESTION & ANSWERS

QUESTION 1

Case Study: 1

Wide World Importers

Existing Environment

A company named Wide World Importers is developing an e-commerce platform.

You are working with a solutions architect to design and implement the features of the e-commerce platform. The platform will use microservices and a serverless environment built on Azure.

Wide World Importers has a customer base that includes English, Spanish, and Portuguese speakers.

Applications

Wide World Importers has an App Service plan that contains the web apps shown in the following table.

Name	Description
Product Management	An app used by employees to create and manage products. The app and the expected inputs from the employees are in English.
Inventory Tracking	An app used by employees to manage inventory when dispatching orders, receiving refunds, and receiving consignments from suppliers.

Azure Resources

You have the following resources:

An Azure Active Directory (Azure AD) tenant

The tenant supports internal authentication.

All employees belong to a group named AllUsers.

Senior managers belong to a group named LeadershipTeam.

An Azure Functions resource

A function app posts to Azure Event Grid when stock levels of a product change between OK, Low Stock, and Out of Stock. The function app uses the Azure Cosmos DB change feed.

An Azure Cosmos DB account

The account uses the Core (SQL) API.

The account stores data for the Product Management app and the Inventory Tracking app.

An Azure Storage account

The account contains blob containers for assets related to products.

The assets include images, videos, and PDFs.

An Azure Cognitive Services resource named wwics

A Video Indexer resource named wwivi

Requirements

Business Goals

Wide World Importers wants to leverage AI technologies to differentiate itself from its competitors.

Planned Changes

Wide World Importers plans to start the following projects:

A product creation project: Help employees create accessible and multilingual product entries, while expediting product entry creation.

A smart e-commerce project: Implement an Azure Cognitive Search solution to display products for customers to browse.

A shopping on-the-go project: Build a chatbot that can be integrated into smart speakers to support customers.

Business Requirements

Wide World Importers identifies the following business requirements for all the projects:

Provide a multilingual customer experience that supports English, Spanish, and Portuguese.

Whenever possible, scale based on transaction volumes to ensure consistent performance.

Minimize costs.

Governance and Security Requirements

Wide World Importers identifies the following governance and security requirements:

Data storage and processing must occur in datacenters located in the United States.

Azure Cognitive Services must be inaccessible directly from the internet.

Accessibility Requirements

Wide World Importers identifies the following accessibility requirements:

All images must have relevant alt text.

All videos must have transcripts that are associated to the video and included in product descriptions.

Product descriptions, transcripts, and all text must be available in English, Spanish, and Portuguese.

Product Creation Requirements

Wide World Importers identifies the following requirements for improving the Product Management app:

Minimize how long it takes for employees to create products and add assets.

Remove the need for manual translations.

Smart E-Commerce Requirements

Wide World Importers identifies the following requirements for the smart e-commerce project:

Ensure that the Cognitive Search solution meets a Service Level Agreement (SLA) of 99.9% availability for searches and index writes.

Provide users with the ability to search insight gained from the images, manuals, and videos associated with the products.

Support autocompletion and autosuggestion based on all product name variants.

Store all raw insight data that was generated, so the data can be processed later.

Update the stock level field in the product index immediately upon changes.

Update the product index hourly.

Shopping On-the-Go Requirements

Wide World Importers identifies the following requirements for the shopping on-the-go chatbot:

Answer common questions.

Support interactions in English, Spanish, and Portuguese.

Replace an existing FAQ process so that all Q&A is managed from a central location.

Provide all employees with the ability to edit Q&As. Only senior managers must be able to publish updates.

Support purchases by providing information about relevant products to customers. Product displays must include images and warnings when stock levels are low or out of stock.

Product JSON Sample

You have the following JSON sample for a product.

```
{
  "sku": "b1",
  "name": {
    "en": "Bicycle",
    "es": "Bicicleta",
    "pt": "Bicicleta"
  },
  "stocklevel": "Out of Stock",
  "description": {
    "en": "Bicycle",
    "es": "Bicicleta",
    "pt": "Bicicleta"
  },
  "image": {
    "uri": "https://upload.worldwideimporters.org/bicycle.jpg",
    "alttext": {
      "en": "Bicycle",
      "es": "Bicicleta",
      "pt": "Bicicleta"
    }
  },
  "createdUtc": "2020-02-14T06:08:39Z",
  "language": "en"
}
```

Question No. 1

You are developing the smart e-commerce project.

You need to design the skillset to include the contents of PDFs in searches.

How should you complete the skillset design diagram? To answer, drag the appropriate services to the correct stages. Each service may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Services	Answer Area			
	Source	Cracking	Preparation	Destination
Azure Blob storage				
Custom Vision API				
Azure Files				
Language Understanding API				
Translator API				
Computer Vision API				
Azure Cosmos DB				

Correct Answer:

Services	Answer Area			
	Source	Cracking	Preparation	Destination
Azure Blob storage	Azure Blob storage			
Custom Vision API		Custom Vision API		
Azure Files				Azure Files
Language Understanding API				
Translator API			Translator API	
Computer Vision API				
Azure Cosmos DB				

Explanation/Reference:

Explanation:

<https://docs.microsoft.com/en-us/azure/search/cognitive-search-concept-intro>

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

QUESTION 2

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

Explanation/Reference:

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 3

You are developing a photo application that will find photos of a person based on a sample image by using the Face API.

You need to create a POST request to find the photos.

How should you complete the request? To answer, drag the appropriate values to the correct targets. Each value may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

NOTE: Each correct selection is worth one point.

Values

- detect
- findsimilars
- group
- identify
- matchFace
- matchPerson
- verify

Answer Area

```
POST {Endpoint}/face/v1.0/   
Request Body  
  
{  
  "faceId": "c5c24a82-6845-4031-9d5d-978df9175426",  
  "largeFaceListId": "sample_list",  
  "largeFaceListId": "sample_list",  
  "maxNumOfCandidatesReturned": 10,  
  "mode": ""  
}
```

Correct Answer:

Answer:

Values

detect
findsimilars
group
identify
matchFace
matchPerson
verify

Answer Area

```
POST {Endpoint}/face/v1.0/ detect
Request Body
{
  "faceId": "c5c24a82-6845-4031-9d5d-978df9175426",
  "largeFaceListId": "sample_list",
  "largeFaceListId": "sample_list",
  "maxNumOfCandidatesReturned": 10,
  "mode": " matchPerson "
```

Explanation/Reference:

Explanation:

<https://docs.microsoft.com/en-us/rest/api/faceapi/face/detectwithurl>

<https://docs.microsoft.com/en-us/rest/api/faceapi/face/findsimilar>

QUESTION 4

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
- 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.

Correct Answer: A,C,F

Explanation/Reference:

Explanation:

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

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 create a web app named app1 that runs on an Azure virtual machine named vm1. Vm1 is on an Azure virtual network named vnet1.

You plan to create a new Azure Cognitive Search service named service1.

You need to ensure that app1 can connect directly to service1 without routing traffic over the public internet.

Solution: You deploy service1 and a public endpoint, and you configure an IP firewall rule.

Does this meet the goal?

- A. Yes
- B. No

Correct Answer: B

Explanation/Reference:

Explanation:

<https://docs.microsoft.com/en-us/azure/private-link/private-link-overview>

QUESTION 6

You need to create a new resource that will be used to perform sentiment analysis and optical character recognition (OCR). The solution must meet the following requirements:

Use a single key and endpoint to access multiple services.

Consolidate billing for future services that you might use.

Support the use of Computer Vision in the future.

How should you complete the HTTP request to create the new resource? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

Answer Area

	▼	https://management.azure.com/subscriptions/xxxxxxxx-xxxx-
PATCH		
POST		
PUT		

xxxx-xxxx-
xxxxxxxxxxxxx/resourceGroups/RG1/providers/Microsoft.CognitiveServices/
accounts/CS1?api-version=2017-04-18

```
{  
  "location": "West US",  
  "kind": " 

|                   |   |
|-------------------|---|
|                   | ▼ |
| CognitiveServices |   |
| ComputerVision    |   |
| TextAnalytics     |   |

 ",  
  "sku": {  
    "name": "S0"  
  },  
  "properties": {},  
  "identity": {  
    "type": "SystemAssigned"  
  }  
}
```

Correct Answer:

Answer Area

https://management.azure.com/subscriptions/xxxxxxx-xxxx-
PATCH
POST
PUT

xxxx-xxxx-
xxxxxxxxxxxxx/resourceGroups/RG1/providers/Microsoft.CognitiveServices/
accounts/CS1?api-version=2017-04-18

```
{  
  "location": "West US",  
  "kind": "CognitiveServices",  
  "sku": {  
    "name": "S0"  
  },  
  "properties": {},  
  "identity": {  
    "type": "SystemAssigned"  
  }  
}
```

Explanation/Reference:

Explanation:

<https://docs.microsoft.com/en-us/rest/api/deviceupdate/resourcemanager/accounts/create>

<https://www.analyticsvidhya.com/blog/2020/12/microsoft-azure-cognitive-services-api-for-ai-development/>

QUESTION 7

You are developing a streaming Speech to Text solution that will use the Speech SDK and MP3 encoding.

You need to develop a method to convert speech to text for streaming MP3 data.

How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

```
var audioFormat =  (AudioStreamContainerFormat.MP3);  
AudioConfig.SetProperty  
AudioStreamFormat.GetCompressedFormat  
AudioStreamFormat.GetWaveFormatPCM  
PullAudioInputStream  
var speechConfig = SpeechConfig.FromSubscription("18c51a87-3a69-47a8-aedc-a54745f708a1", "westus");  
var audioConfig = AudioConfig.FromStreamInput(pushStream, audioFormat);  
using (var recognizer = new  (speechConfig, audioConfig))  
KeywordRecognizer  
SpeakerRecognizer  
SpeechRecognizer  
SpeechSynthesizer  
{  
    var result = await recognizer.RecognizeOnceAsync();  
    var text = result.Text;  
}
```

Correct Answer:

```
var audioFormat =  (AudioStreamContainerFormat.MP3);
AudioConfig.SetProperty
AudioStreamFormat.GetCompressedFormat
AudioStreamFormat.GetWaveFormatPCM
PullAudioInputStream

var speechConfig = SpeechConfig.FromSubscription("18c51a87-3a69-47a8-aedc-a54745f708a1", "westus");
var audioConfig = AudioConfig.FromStreamInput(pushStream, audioFormat);
using (var recognizer = new  (speechConfig, audioConfig))
{
    KeywordRecognizer
    SpeakerRecognizer
    SpeechRecognizer
    SpeechSynthesizer

    {
        var result = await recognizer.RecognizeOnceAsync();
        var text = result.Text;
    }
}
```

Explanation/Reference:

Explanation:

<https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/how-to-use-codec-compressed-audio-input-streams?tabs=debian&pivots=programming-language-csharp>