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Exam : **AI-102**

Title : Designing and Implementing a Microsoft Azure AI Solution

Version : DEMO

1. Topic 1, Wide World Importers

Case study
This is a case study. Case studies are not timed separately. You can use as much exam time as you would like to complete each case. However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.

To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.

To start the case study
To display the first question in this case study, click the **Next** button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an **All Information** tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the **Question** button to return to the question.

Overview
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"

}
```

DRAG DROP

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.

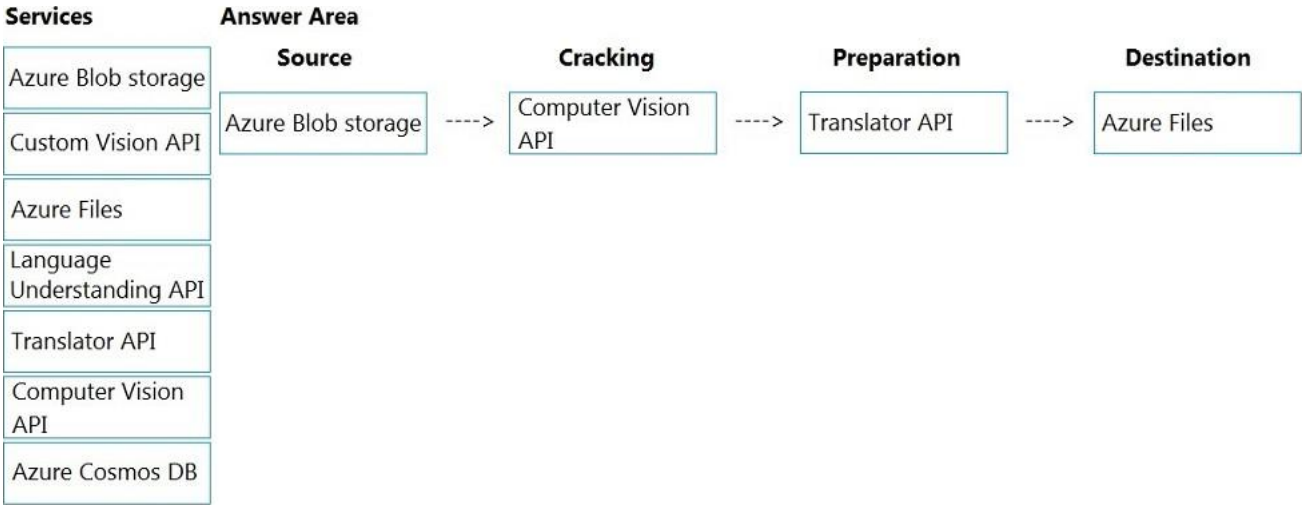
Services

- Azure Blob storage
- Custom Vision API
- Azure Files
- Language Understanding API
- Translator API
- Computer Vision API
- Azure Cosmos DB

Answer Area

Source	---->	Cracking	---->	Preparation	---->	Destination

Answer:



Explanation:

Box 1: Azure Blob storage

At the start of the pipeline, you have unstructured text or non-text content (such as images, scanned documents, or JPEG files). Data must exist in an Azure data storage service that can be accessed by an indexer.

Box 2: Computer Vision API

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

The Computer Vision Read API is Azure's latest OCR technology (learn what's new) that extracts printed text (in several languages), handwritten text (English only), digits, and currency symbols from images and multi-page PDF documents.

Box 3: Translator API

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

Box 4: Azure Files

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

Incorrect Answers:

The custom vision API from Microsoft Azure learns to recognize specific content in imagery and becomes smarter with training and time.

Reference:

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

2.DRAG DROP

You are planning the product creation project.

You need to recommend a process for analyzing videos.

Which four 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. (Choose four.)

Actions	Answer Area
Index the video by using the Video Indexer API.	
Upload the video to blob storage.	
Analyze the video by using the Computer Vision API.	
Extract the transcript from Microsoft Stream.	
Send the transcript to the Language Understanding API as an utterance.	
Extract the transcript from the Video Indexer API.	
Translate the transcript by using the Translator API.	
Upload the video to file storage.	

Answer:

Actions	Answer Area
Index the video by using the Video Indexer API.	Upload the video to blob storage.
Upload the video to blob storage.	Index the video by using the Video Indexer API.
Analyze the video by using the Computer Vision API.	Extract the transcript from the Video Indexer API.
Extract the transcript from Microsoft Stream.	Translate the transcript by using the Translator API.
Send the transcript to the Language Understanding API as an utterance.	
Extract the transcript from the Video Indexer API.	
Translate the transcript by using the Translator API.	
Upload the video to file storage.	

Explanation:

Scenario: 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.

Step 1: Upload the video to blob storage

Given a video or audio file, the file is first dropped into a Blob Storage.

Step 2: Index the video by using the Video Indexer API.

When a video is indexed, Video Indexer produces the JSON content that contains details of the specified video insights. The insights include: transcripts, OCRs, faces, topics, blocks, etc.

Step 3: Extract the transcript from the Video Indexer API.

Step 4: Translate the transcript by using the Translator API.

Reference:

https://azure.microsoft.com/en-us/blog/get-video-insights-in-even-more-languages/

https://docs.microsoft.com/en-us/azure/media-services/video-indexer/video-indexer-output-json-v2

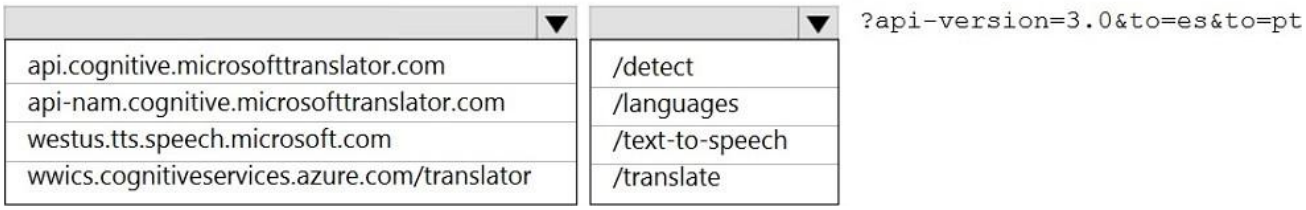
3.HOTSPOT

You are planning the product creation project.

You need to build the REST endpoint to create the multilingual product descriptions.

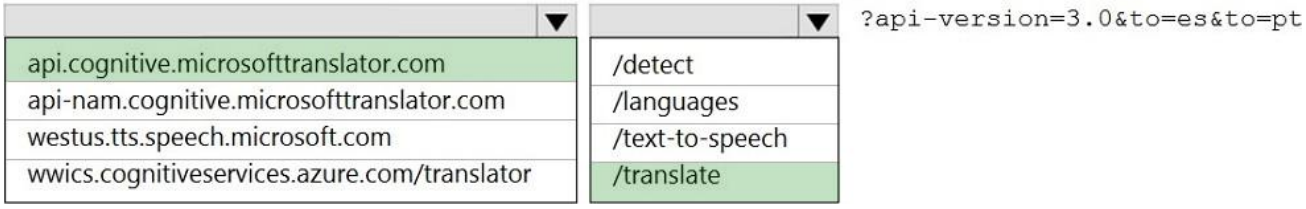
How should you complete the URI? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Answer Area



Answer:

Answer Area



Explanation:

Box 1: api-nam.cognitive.microsofttranslator.com https://docs.microsoft.com/en-us/azure/cognitive-services/translator/reference/v3-0-reference

Box 2: /translate

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

4.You are developing the smart e-commerce project.

You need to implement autocompletion as part of the Cognitive Search solution.

Which three actions should you perform? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point. (Choose three.)

A. Make API queries to the autocomplete endpoint and include suggesterName in the body.

B. Add a suggester that has the three product name fields as source fields.

C. Make API queries to the search endpoint and include the product name fields in the searchFields query parameter.

D. Add a suggester for each of the three product name fields.

E. Set the searchAnalyzer property for the three product name variants.

F. Set the analyzer property for the three product name variants.

Answer: ABF

Explanation:

Scenario: Support autocompletion and autosuggestion based on all product name variants.

A: Call a suggester-enabled query, in the form of a Suggestion request or Autocomplete request, using an API. API usage is illustrated in the following call to the Autocomplete

REST API.

POST /indexes/myxboxgames/docs/autocomplete?search&api-version=2020-06-30

{

"search": "minecraf",

"suggesterName": "sg"

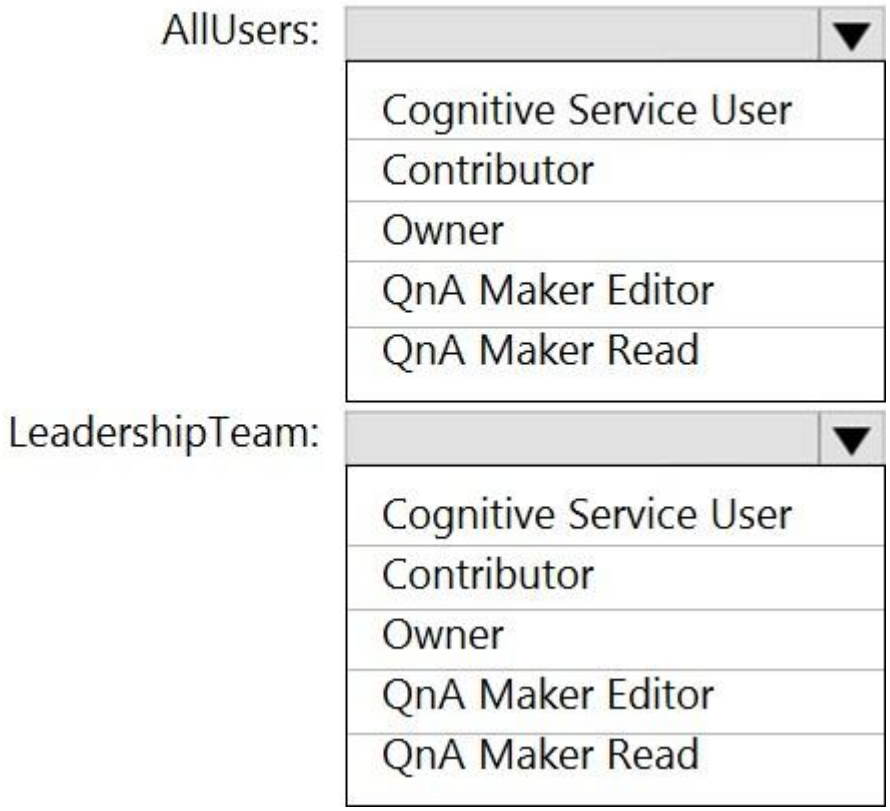
}

B: In Azure Cognitive Search, typeahead or "search-as-you-type" is enabled through a suggester. A

suggester provides a list of fields that undergo additional tokenization, generating prefix sequences to support matches on partial terms. For example, a suggester that includes a City field with a value for "Seattle" will have prefix combinations of "sea", "seat", "seatt", and "seattl" to support typeahead.
F. Use the default standard Lucene analyzer ("analyzer": null) or a language analyzer (for example, "analyzer": "en.Microsoft") on the field.
Reference: https://docs.microsoft.com/en-us/azure/search/index-add-suggesters

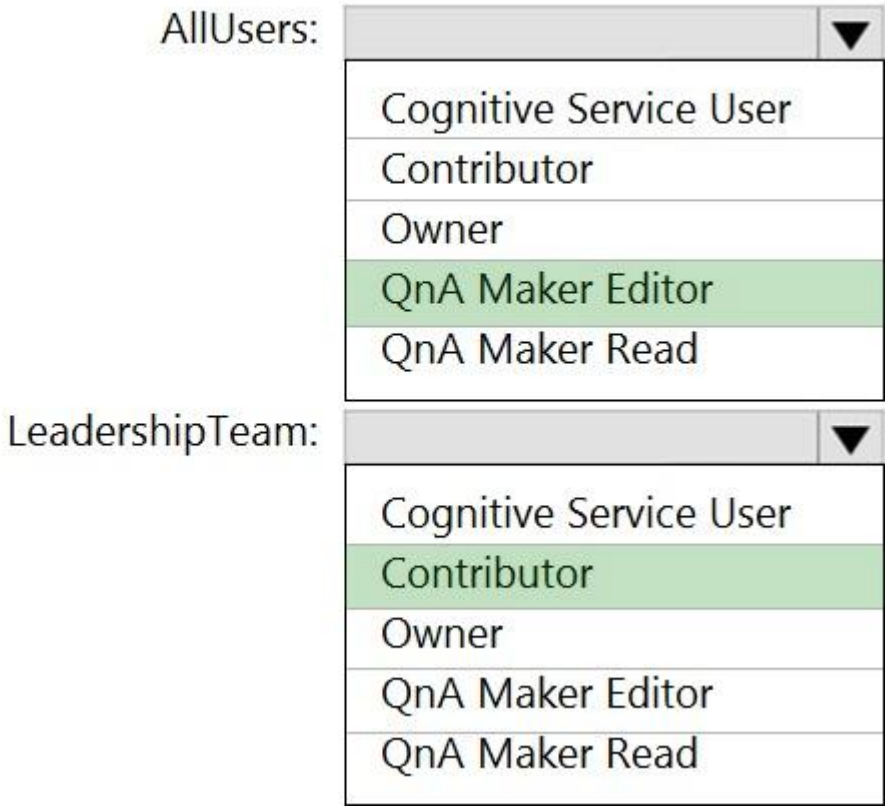
5.HOTSPOT
You are developing the shopping on-the-go project.
You are configuring access to the QnA Maker resources.
Which role should you assign to AllUsers and LeadershipTeam? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

Answer Area



Answer:

Answer Area



Explanation:
Box 1: QnA Maker Editor
Scenario: Provide all employees with the ability to edit Q&As.
The QnA Maker Editor (read/write) has the following permissions:
Create KB API
Update KB API
Replace KB API
Replace Alterations
"Train API" [in
new service model v5]
Box 2: Contributor
Scenario: Only senior managers must be able to publish updates.
Contributor permission: All except ability to add new members to roles
Reference: https://docs.microsoft.com/en-us/azure/cognitive-services/qnamaker/reference-role-based-access-control