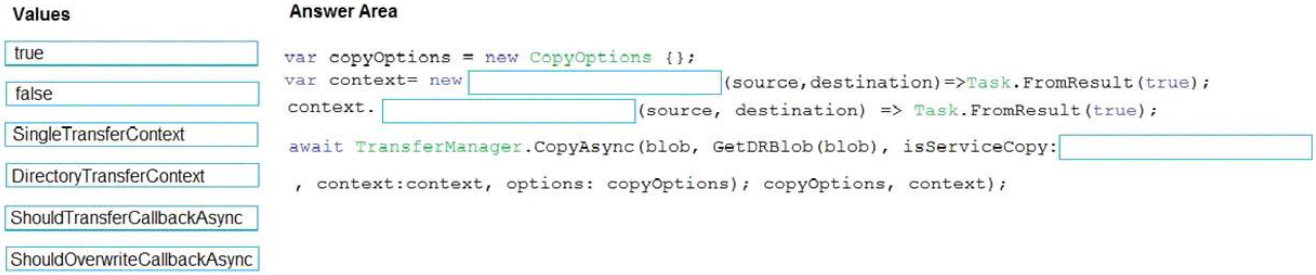
Exam : **AZ-203**

Title : Developing Solutions for Microsoft Azure

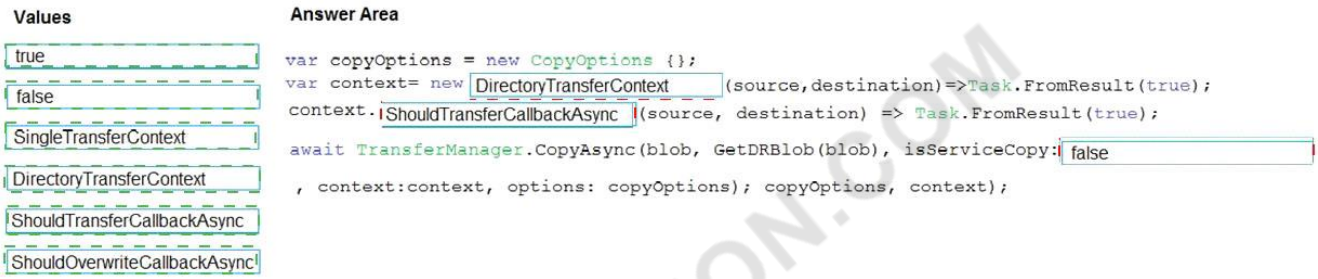
Vendor : Microsoft

Version : V13.25

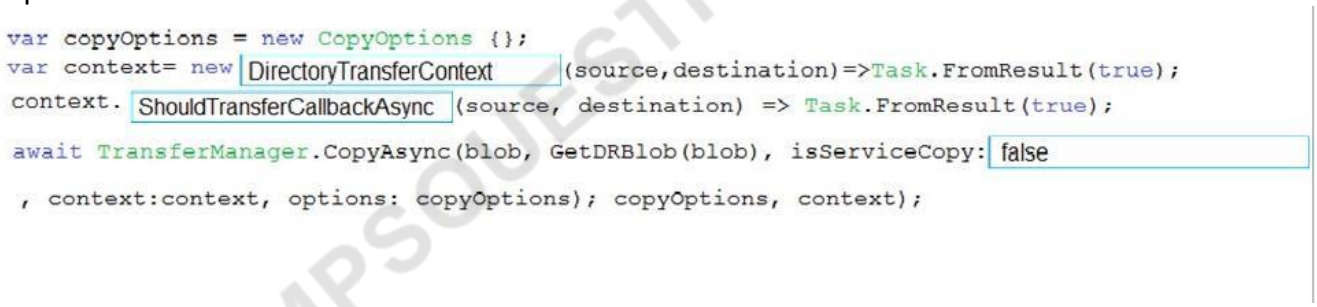
NO.1 You need to ensure disaster recovery requirements are met.
What code should you add at line PC16?
To answer, drag the appropriate code fragments to the correct locations.
Each code fragment may be used once, more than once, or not at all.
You may need to drag the split bar between panes or scroll to view content.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Scenario, Disaster recovery: Regional outage must not impact application availability.
All DR operations must not be dependent on application running and must ensure that data in the DR region is up to date.
Box 1: DirectoryTransferContext
We transfer all files in the directory.
Note: The TransferContext object comes in two forms: SingleTransferContext and DirectoryTransferContext.
The former is for transferring a single file and the latter is for transferring a directory of files.
Box 2: ShouldTransferCallbackAsync
The DirectoryTransferContext.ShouldTransferCallbackAsync delegate callback is invoked to tell whether a transfer should be done.
Box 3: False
If you want to use the retry policy in Copy, and want the copy can be resume if break in the middle, you can use SyncCopy (isServiceCopy = false).
Note that if you choose to use service side copy ('isServiceCopy' set to true), Azure (currently) doesn't provide SLA for that. Setting 'isServiceCopy' to false will download the source blob loca References:
https://docs.microsoft.com/en-us/azure/storage/common/storage-use-data-movement-library

https://docs.microsoft.com/en-us/dotnet/api/microsoft.windowsazure.storage.datamovement.directorytransfercon

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Topic 1, Litware Inc

Case Study:

Overview

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.

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To start the case study

To display the first question in this case study, dick the 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.

Overwiew

Background

You are a developer for Litware Inc., a SaaS company that provides a solution for managing employee expenses. The solution consists of an ASP.NET Core Web API project that is deployed as an Azure Web App.

Overall architecture

Employees upload receipts for the system to process. When processing is complete, the employee receives a summary report email that details the processing results. Employees then use a web application to manage their receipts and perform any additional tasks needed for reimbursement

Receipt processing Employees may upload receipts in two ways:

* Uploading using an Azure Files mounted folder
* Uploading using the web application

Data Storage

Receipt and employee information is stored in an Azure SQL database.

Documentation

Employees are provided with a getting started document when they first use the solution. The documentation includes details on supported operating systems for Azure File upload, and instructions on how to configure the mounted folder.

Solution details

Users table

Column	Description
UserId	unique identifier for and employee
ExpenseAccount	employees expense account number in the format 1234-123-1234
AllowedAmount	limit of allowed expenses before approval is needed
SupervisorId	unique identifier for employee's supervisor
SecurityPin	value used to validate user identity

Web Application

You enable MSI for the Web App and configure the Web App to use the security principal name, Processing Processing is performed by an Azure Function that uses version 2 of the Azure Function runtime. Once processing is completed, results are stored in Azure Blob. Storage and an Azure SQL database. Then, an email summary is sent to the user with a link to the processing report. The link to the report must remain valid if the email is forwarded to another user.

Requirements

Receipt processing

Concurrent processing of a receipt must be prevented.

Logging

Azure Application Insights is used for telemetry and logging in both the processor and the web application.

The processor also has Trace Writer logging enabled. Application Insights must always contain all log messages.

Disaster recovery

Regional outage must not impact application availability. All DR operations must not be dependent on application running and must ensure that data in the DR region is up to date.

Security

Users' SecurityPin must be stored in such a way that access to the database does not allow the viewing of SecurityPins. The web application is the only system that should have access to SecurityPins.

All certificates and secrets used to secure data must be stored in Azure Key Vault.

You must adhere to the Least Privilege Principal.

All access to Azure Storage and Azure SQL database must use the application's Managed Service Identity (MSI).

Receipt data must always be encrypted at rest.

All data must be protected in transit,

User's expense account number must be visible only to logged in users. All other views of the expense account number should include only the last segment, with the remaining parts obscured.

In the case of a security breach, access to all summary reports must be revoked without impacting other parts of the system.

Issues

Upload format issue

Employees occasionally report an issue with uploading a receipt using the web application. They report that when they upload a receipt using the Azure File Share, the receipt does not appear in their profile. When this occurs, they delete the file in the file share and use the web application, which returns a 500 Internal Server error page.

Capacity issue

During busy periods, employees report long delays between the time they upload the receipt and

when it appears in the web application.

Log capacity issue

Developers report that the number of log messages in the trace output for the processor is too high, resulting in lost log messages- Application code Processing.cs

Processing.cs

```
PC01 public static class Processing
PC02  {
PC03     public static class Function
PC04    {
PC05      [FunctionName ("IssueWork")]
PC06      public static async Task Run ([TimerTrigger("0 */5" *****")] TimerInfo timer, ILogger log)
PC07      {
PC08        var container = await GetCloudBlobContainer();
PC09        foreach (var fileItem in await ListFiles())
PC10        {
PC11          var file = new CloudFile (fileItem.StorageUri.PrimaryUri);
PC12          var ms = new MemoryStream();
PC13          await file.DownloadToStreamAsync(ms);
PC14          var blob = container.GetBlockBlobReference (fileItem.Uri.ToString());
PC15          await blob.UploadFromStreamAsync(ms);
PC16
PC17         }
PC18   }
PC19   private static CloudBlockBlob GetDRBlob (CloudBlockBlob sourceBlob)
PC20   {
PC21     . . .
PC22   }
PC23   private static async Task<CloudBlobContainer> GetCloudBlobContainer()
PC24   {
PC25     var cloudBlobClient = new CloudBlobClient (new Uri(" . . ."), await GetCredentials());
PC26
PC27    await cloudBlobClient.GetRootContainerReference().CreatIfNotExistAsync();
PC28    return cloudBlobClient.GetRootContainerReference();
PC29  }
PC30   private static async Task<StorageCredentials> GetCredentials()
PC31   {
PC32     . . .
PC33   }
PC34    private static async Task<List<IListFileItem>> ListFiles()
PC35   {
PC36     . . .
PC37   }
PC37   private KeyVaultClient _keyVaultClient = new KeyVaultClient(". . .");
PC38   }
PC39 }
```

Database.cs

```
DB01 public class Database
DB02 {
DB03   private string ConnectionString =
DB04
DB05  public async Task<object> LoadUserDetails(string userId)
DB06  {
DB07
DB08  return await policy.ExecuteAsync (async () =>
DB09  {
DB10    using (var connection = new SqlConnection (ConnectionString))
DB11    {
DB12      await connection.OpenAsync();
DB13      using (var command = new SqlCommand("_", connection))
DB14      using (var reader = command.ExecuteReader())
DB15       {
DB16            -
DB17       }
DB18    }
DB19   }};
DB20  }
DB21 }
```

ReceiptUploader.cs

```
RU01  public class ReceiptUploader
RU02  {
RU03    public async Task UploadFile(string file, byte[ ] binary)
RU04   {
RU05     var httpClient = new HttpClient();
RU06     var response = await httpClient.PutAsync( "…", new ByteArrayContent(binary));
RU07     while (ShouldRetry (response))
RU08     {
RU09       response = await httpClient.PutAsync ("…", new ByteArrayContent(binary));
RU10    }
RU11  }
RU12  private bool ShouldRetry(HttpResponseMessage response)
RU13  {
RU14
RU15   }
RU16 }
```

ConfigureSSE.ps1

```
CS01 $storageAccount = Get-AzureRmStorageAccount -ResourceGroupName "…" -AccountName "…"
CS02 $keyVault = Get-AzureRmKeyVault -VaultName "…"
CS03 $key = Get-AzureKeyVaultKey -VaultName $keyVault.VaultName -Name "…"
CS04   Set-AzureRmKeyVaultAccessPolicy'
CS05   -VaultName $keyVault.VaultName'
CS06  -ObjectId $storageAccount.Identity.PrincipalId'
CS07
CS08
CS09  Set-AzureRmStorageAccount"
CS10 -ResourceGroupName $storageAccount.ResourceGroupName'
CS11 -AccountName $storageAccount.StorageAccountName'
CS12 -EnableEncryptionService File '
CS13 -KeyvaultEncryption'
CS14 -KeyName $key.Name
CS15 -KeyVersion $key.Version'
CS16 -KeyVaultUri $keyVault.VaultUri
```

NO.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 need to ensure that the SecurityPin security requirements are met.
Solution: Enable Always Encrypted for the SecurityPin column using a certificate based on a trusted certificate authority. Update the Getting Started document with instructions to ensure that the certificate is installed on user machines.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation
Enable Always Encrypted is correct, but only the WebAppIdentity service principal should be given access to the certificate.
Scenario: Users' SecurityPin must be stored in such a way that access to the database does not allow the viewing of SecurityPins. The web application is the only system that should have access to SecurityPins.

NO.3 You need to resolve the log capacity issue.
What should you do?

A. Implement Application Insights Sampling.

B. Change the minimum log level in the host.json file for the function.

C. Create an Application Insights Telemetry Filter.

D. Set a LogCategoryFilter during startup.

Answer: A

Explanation
Scenario, the log capacity issue: Developers report that the number of log message in the trace

output for the processor is too high, resulting in lost log messages.
Sampling is a feature in Azure Application Insights. It is the recommended way to reduce telemetry traffic and storage, while preserving a statistically correct analysis of application data. The filter selects items that are related, so that you can navigate between items when you are doing diagnostic investigations. When metric counts are presented to you in the portal, they are renormalized to take account of the sampling, to minimize any effect on the statistics.
Sampling reduces traffic and data costs, and helps you avoid throttling.
References:
https://docs.microsoft.com/en-us/azure/azure-monitor/app/sampling

NO.4 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 need to ensure that the SecurityPin security requirements are met.
Solution: Enable Always Encrypted for the SecurityPin column using a certificate contained in Azure Key Vault and grant the WebAppIdentity service principal access to the certificate.
Does the solution meet the goal?

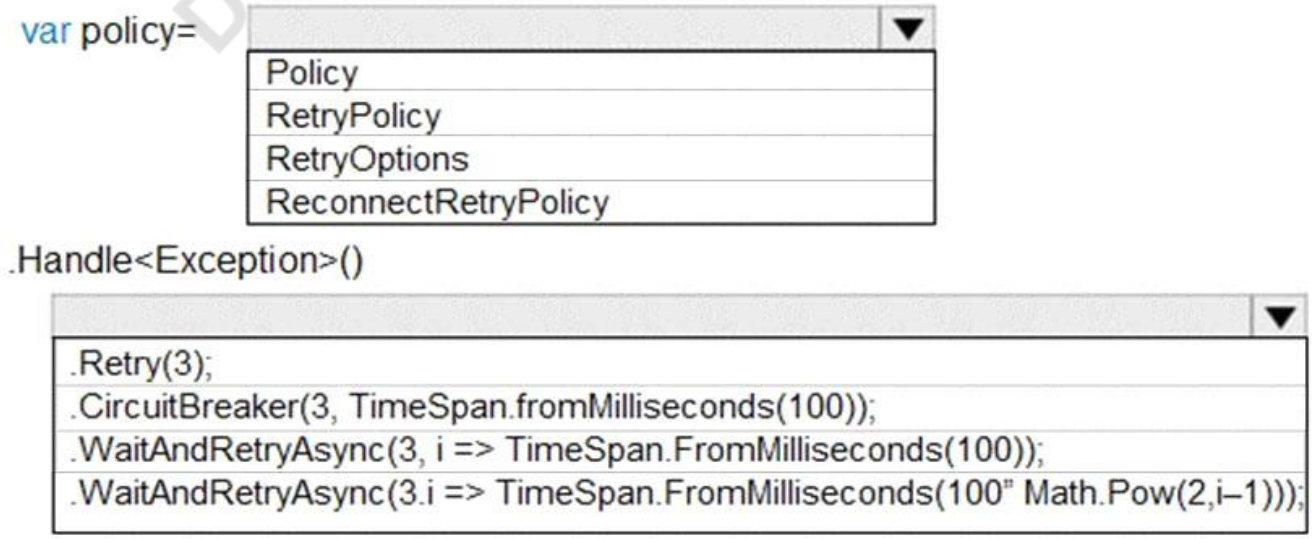
A. Yes

B. No

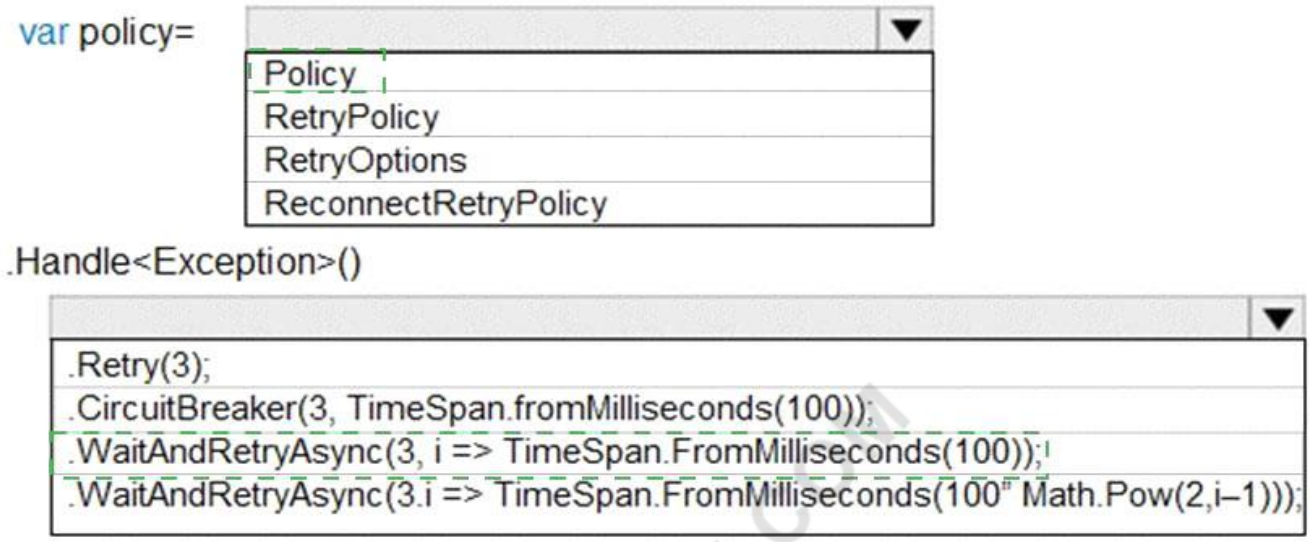
Answer: A

Explanation
Scenario: Users' SecurityPin must be stored in such a way that access to the database does not allow the viewing of SecurityPins. The web application is the only system that should have access to SecurityPins.

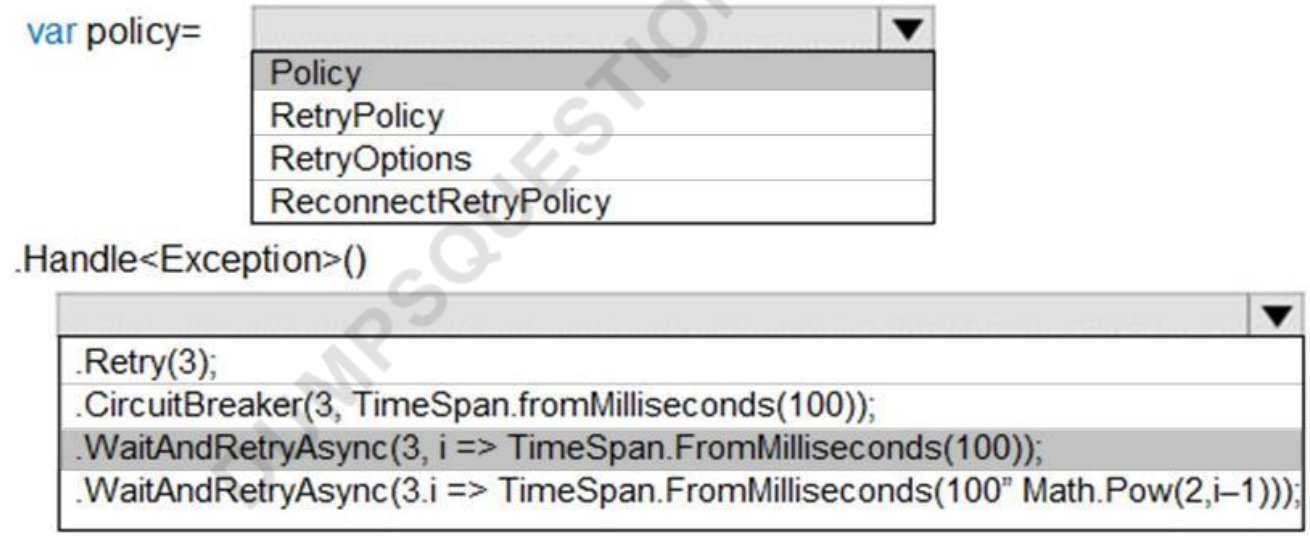
NO.5 You need to configure retries in the LoadUserDetails function in the Database class without impacting user experience.
What code should you insert on line DB07?
To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



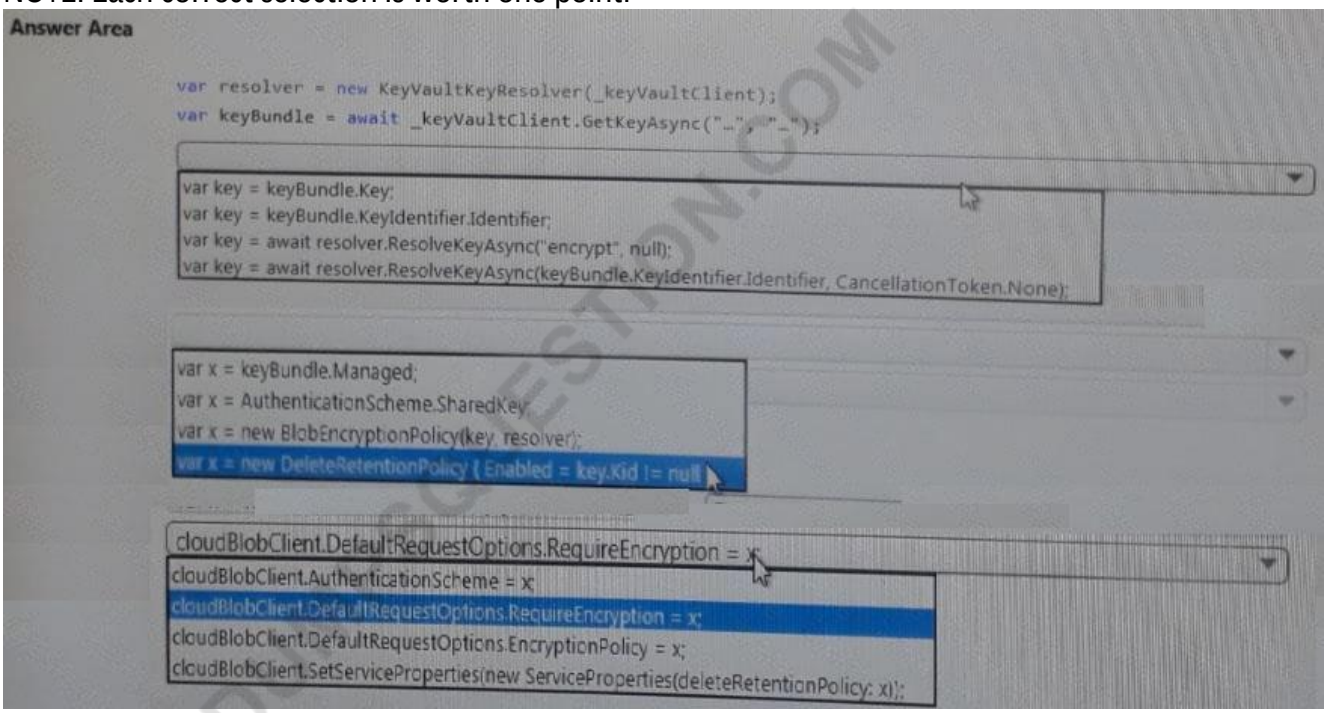
Explanation



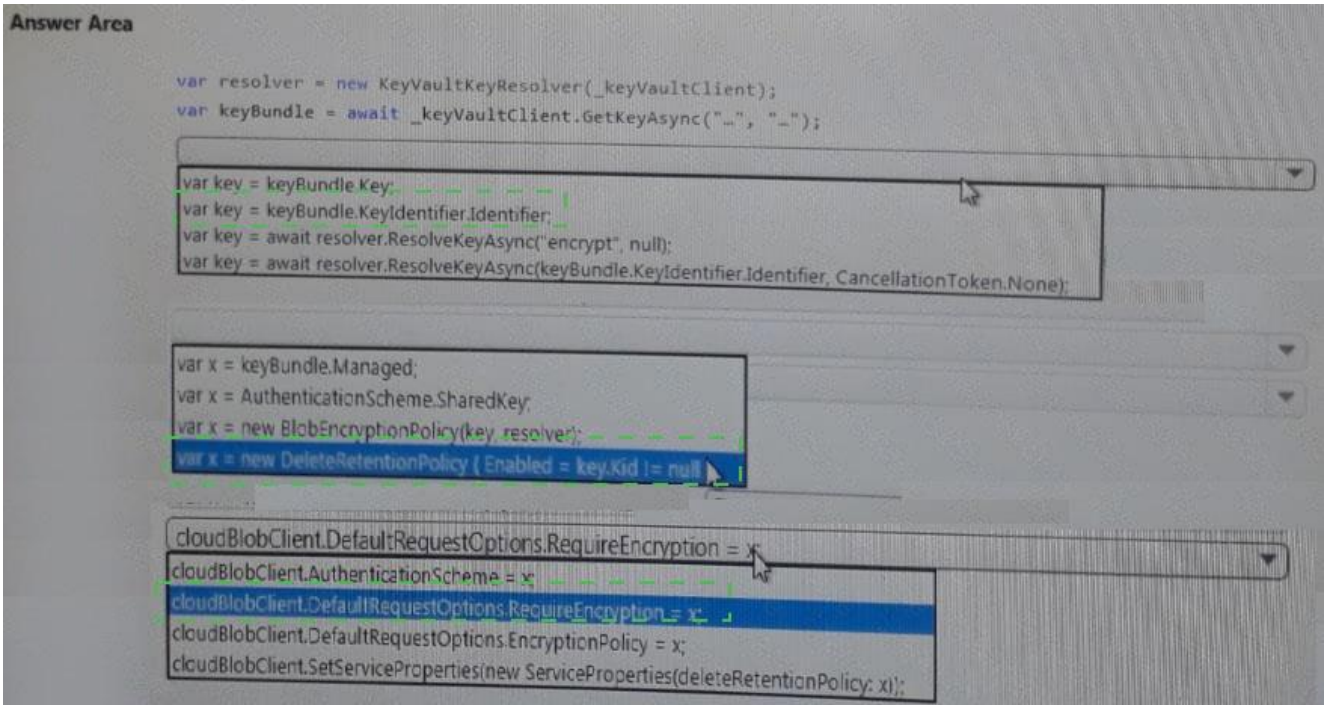
Box 1: Policy
RetryPolicy retry = Policy
Handle<HttpRequestException>()
Retry(3);
The above example will create a retry policy which will retry up to three times if an action fails with an exception handled by the Policy.
Box 2: WaitAndRetryAsync(3,i => TimeSpan.FromMilliseconds(100* Math.Pow(2,i-1))); A common retry strategy is exponential backoff: this allows for retries to be made initially quickly, but then at progressively longer intervals, to avoid hitting a subsystem with repeated frequent calls if the subsystem may be struggling.
Example:
Policy
Handle<SomeExceptionType>()
WaitAndRetry(3, retryAttempt =>
TimeSpan.FromSeconds(Math.Pow(2, retryAttempt))
);

References:
https://github.com/App-vNext/Polly/wiki/Retry

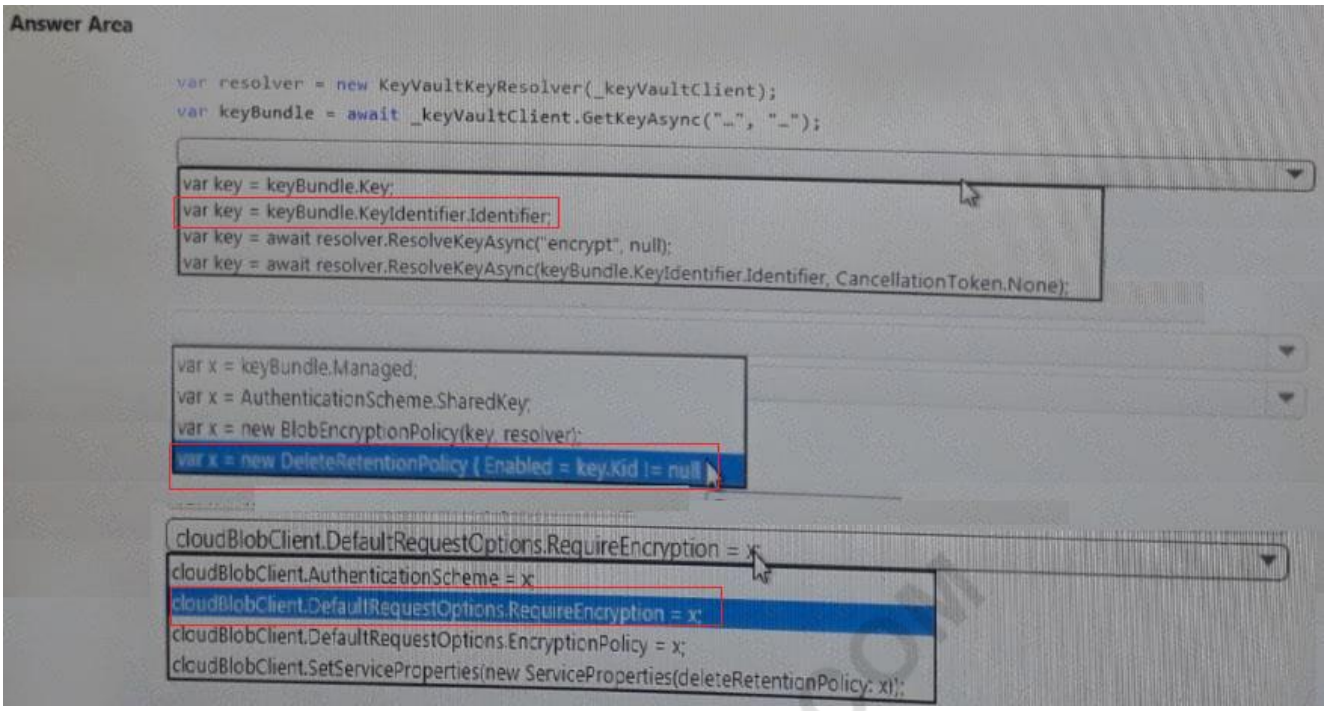
NO.6 You need to ensure that security policies are met.
What code should you add at Line PC26?
To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



NO.7 You need to construct the link to the summary report for the email that is sent to users. What should you do?

A. Create a SharedAccessBlobPolicy and add it to the containers SharedAccessPolicies. Call GetSharedAccessSignature on the blob and use the resulting link.

B. Create a SharedAccessBlobPolicy and set the expiry time to two weeks from today. Call GetSharedAccessSignature on the blob and use the resulting link.

C. Create a SharedAccessAccountPolicy and call GetsharedAccessSignature on storage account and use the resulting link.

D. Create a SharedAccessBlobPolicy and set the expiry time to two weeks from today. Call GetSharedAccessSignature on the container and use the resulting link.

Answer: D

Explanation

Scenario: Processing is performed by an Azure Function that uses version 2 of the Azure Function runtime.

Once processing is completed, results are stored in Azure Blob Storage and an Azure SQL database. Then, an email summary is sent to the user with a link to the processing report. The link to the report must remain valid if the email is forwarded to another user.

Create a stored access policy to manage signatures on a container's resources, and then generate the shared access signature on the container, setting the constraints directly on the signature.

Code example: Add a method that generates the shared access signature for the container and returns the signature URI.

```
static string GetContainerSasUri(CloudBlobContainer container)
{
//Set the expiry time and permissions for the container.
//In this case no start time is specified, so the shared access signature becomes valid immediately.
SharedAccessBlobPolicy sasConstraints = new SharedAccessBlobPolicy();
sasConstraints.SharedAccessExpiryTime = DateTimeOffset.UtcNow.AddHours(24);
```

```
sasConstraints.Permissions = SharedAccessBlobPermissions.List |
SharedAccessBlobPermissions.Write;
//Generate the shared access signature on the container, setting the constraints directly on the
signature.
string sasContainerToken = container.GetSharedAccessSignature(sasConstraints);
//Return the URI string for the container, including the SAS token.
return container.Uri + sasContainerToken;
}
```

References:
https://docs.microsoft.com/en-us/azure/storage/blobs/storage-dotnet-shared-access-signature-part-2

NO.8 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 need to ensure that the SecurityPin security requirements are met.
Solution: Using the Azure Portal, add Data Masking to the SecurityPin column, and exclude the dbo user. Add a SQL security policy with a filter predicate based on the user identity.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation
Instead of DataMasing, enable Always Encrypted for the SecurityPin column.
Scenario: Users' SecurityPin must be stored in such a way that access to the database does not allow the viewing of SecurityPins. The web application is the only system that should have access to SecurityPins.

NO.9 You need to ensure the security policies are met. What code do you add at line CS07?

A. -PermissionsToKeys wrapkey, unwrapkey, get

B. -PermissionsToKeys create, encrypt, decrypt

C. -PermissionsToCertificates wrapkey, unwrapkey, get

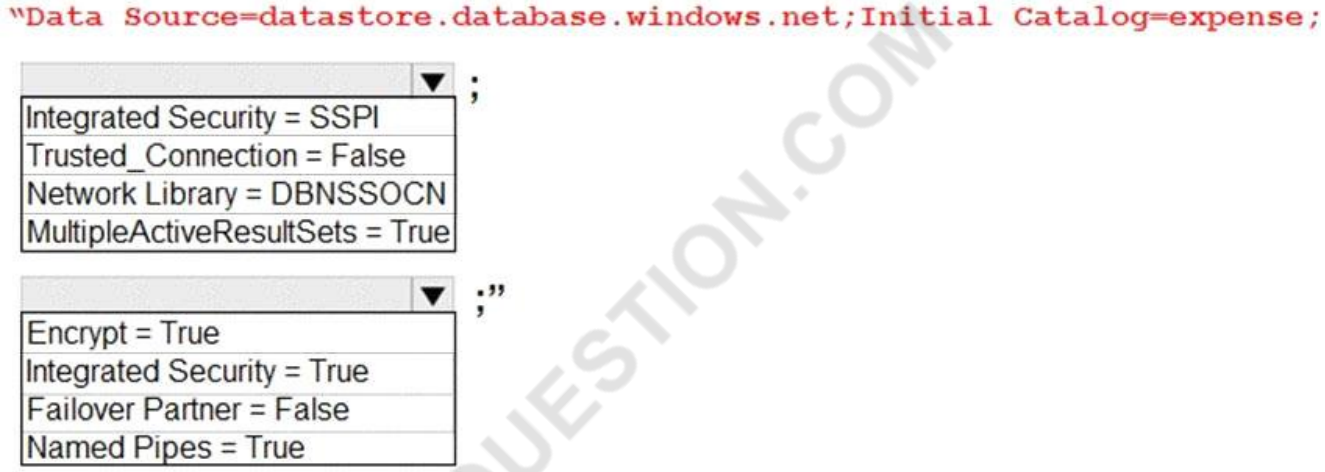
D. -PermissionsToCertificates create, encrypt, decrypt

Answer: D

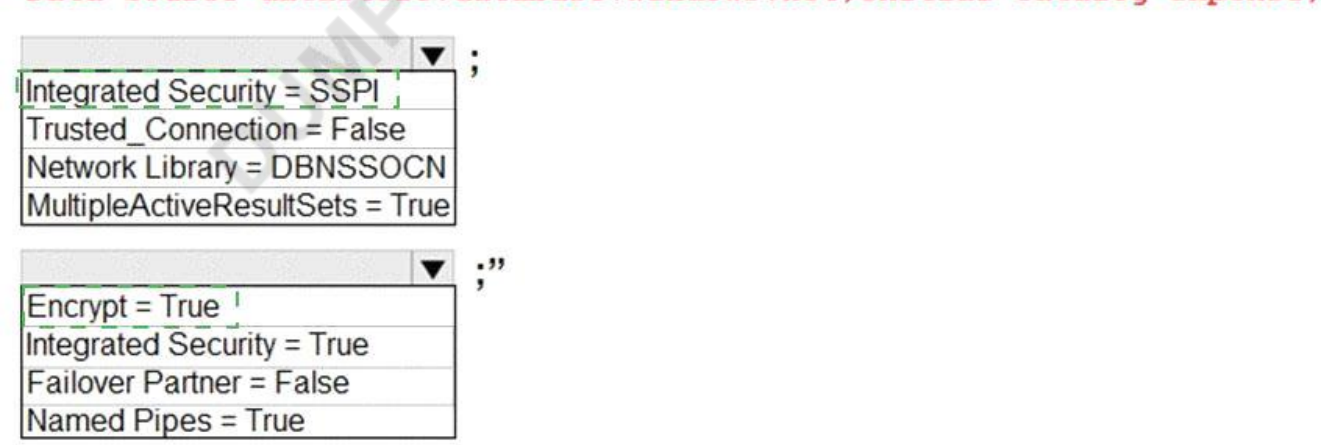
Explanation
Scenario: All certificates and secrets used to secure data must be stored in Azure Key Vault.
You must adhere to the principle of least privilege and provide privileges which are essential to perform the intended function.
The Set-AzureRmKeyValutAccessPolicy parameter -PermissionsToKeys specifies an array of key operation permissions to grant to a user or service principal. The acceptable values for this parameter: decrypt, encrypt, unwrapKey, wrapKey, verify, sign, get, list, update, create, import, delete, backup, restore, recover, purge References:
https://docs.microsoft.com/en-us/powershell/module/azurerm.keyvault/set-

azurermkeyvaultaccesspolicy

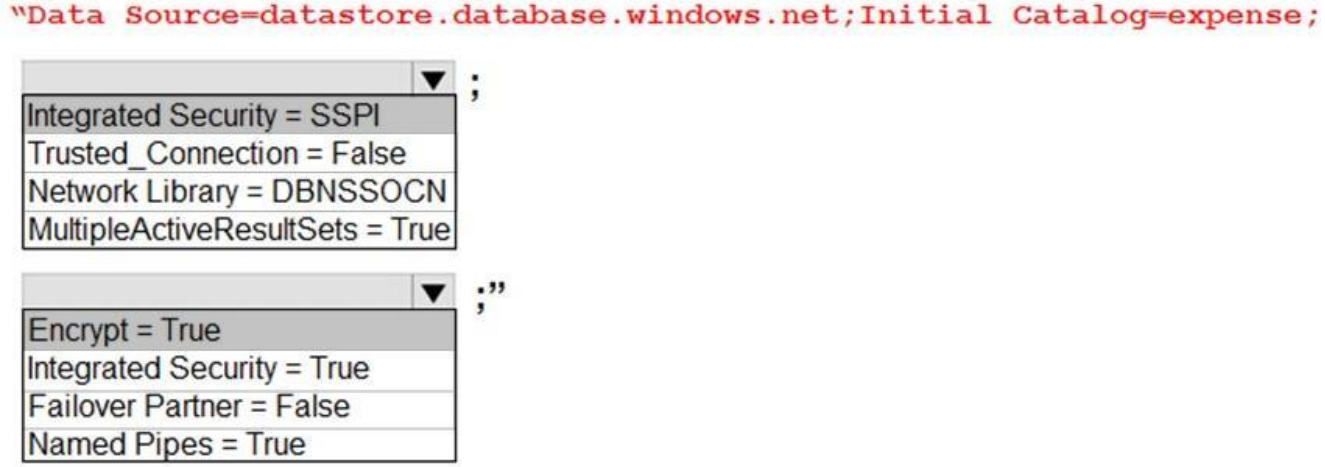
NO.10 You need to ensure that security requirements are met.
What value should be used for the ConnectionString field on line DB03 in the Database class? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Box 1: Integrated Security=SSPI

Integrated security: For all data source types, connect using the current user account.
For SqlClient you can use Integrated Security=true; or Integrated Security=SSPI; Scenario: All access to Azure Storage and Azure SQL database must use the application's Managed Service Identity (MSI) Box 2: Encrypt = True Scenario: All data must be protected in transit.
References:
https://docs.microsoft.com/en-us/dotnet/framework/data/adonet/connection-string-syntax

NO.11 You need to add code at line PC32 in Processing.es to implement the GetCredentials method in the Processing class.
How should you complete the code? To answer, drag the appropriate code segments to the correct locations.
Each code segment 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.
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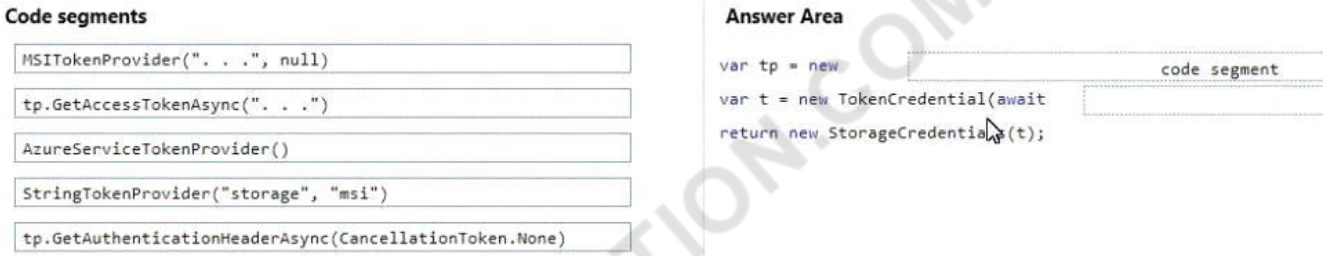
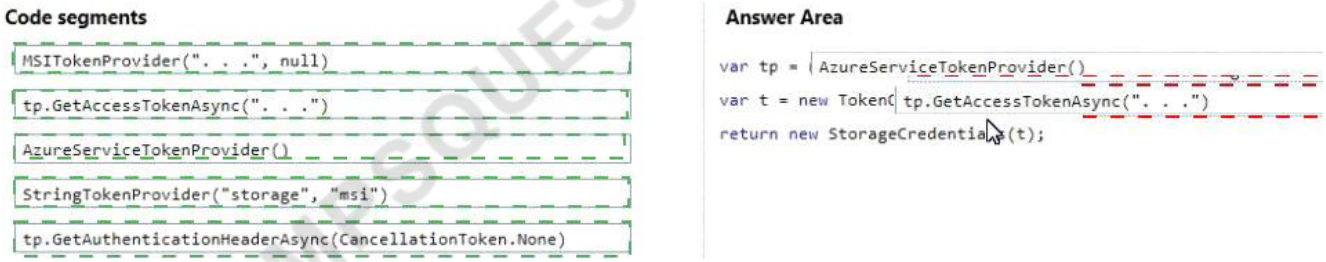
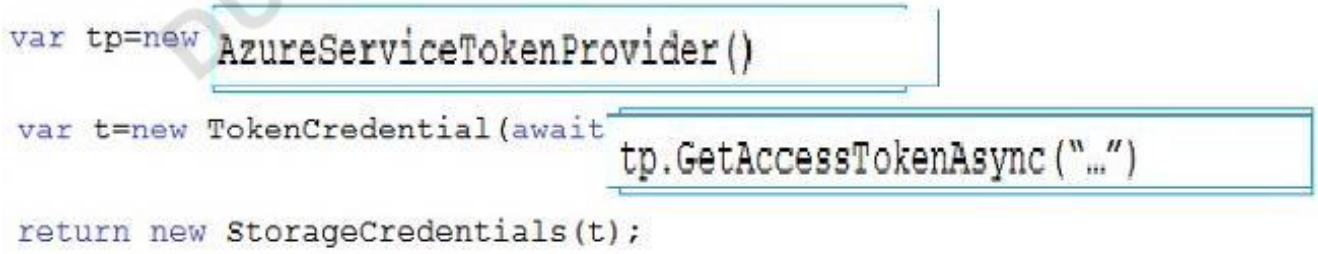


Answer:



Explanation



Acquiring an access token is then quite easy. Example code:
private async Task<string> GetAccessTokenAsync()
{
var tokenProvider = new AzureServiceTokenProvider();
return await tokenProvider.GetAccessTokenAsync("https://storage.azure.com/");
}
References:
https://joonasw.net/view/azure-ad-authentication-with-azure-storage-and-managed-service-identity
==========

Topic 2, Coho Winery
Case Study:
Overview
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LabelMaker app
Coho Winery produces, bottles, and distributes a variety of wines globally. You are a developer implementing highly scalable and resilient applications to support online order processing by using Azure solutions.
Coho Winery has a LabelMaker application that prints labels for wine bottles. The application sends data to several printers. The application consists of five modules that run independently on virtual machines (VMs).
Coho Winery plans to move the application to Azure and continue to support label creation.
External partners send data to the LabelMaker application to include artwork and text for custom label designs.
Requirements
Data
You identify the following requirements for data management and manipulation:
* Order data is stored as nonrelational JSON and must be queried using Structured Query Language (SQL).
* Changes to the Order data must reflect immediately across all partitions. All reads to the Order data must fetch the most recent writes.
Security
You have the following security requirements:
* Users of Coho Winery applications must be able to provide access to documents, resources, and applications to external partners.
* External partners must use their own credentials and authenticate with their organization's identity management solution.
* External partner logins must be audited monthly for application use by a user account administrator to maintain company compliance.

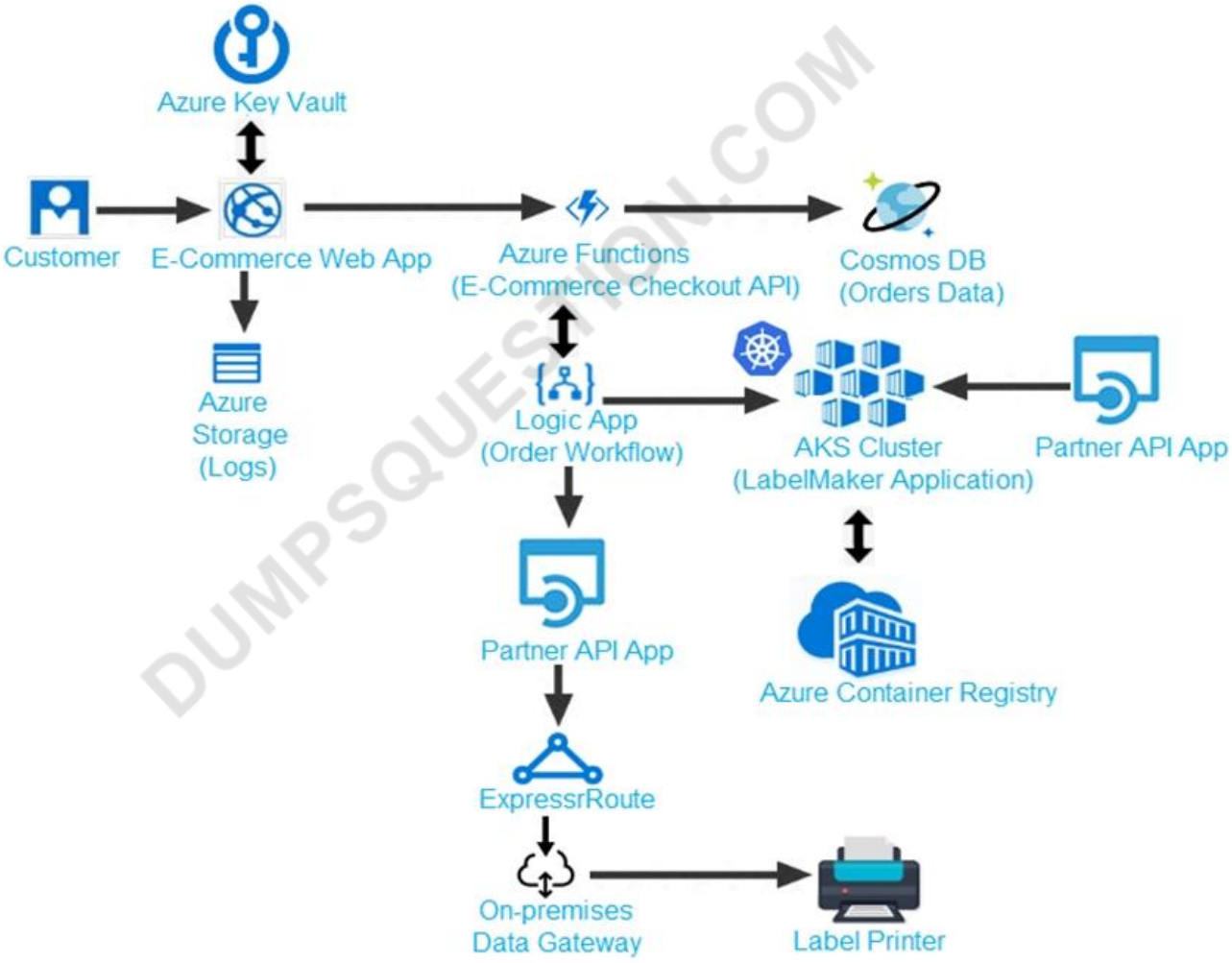
* Storage of e-commerce application settings must be maintained in Azure Key Vault.
* E-commerce application sign-ins must be secured by using Azure App Service authentication and Azure Active Directory (AAD).
* Conditional access policies must be applied at the application level to protect company content.
* The LabelMaker application must be secured by using an AAD account that has full access to all namespaces of the Azure Kubernetes Service (AKS) cluster.

LabelMaker app

Azure Monitor Container Health must be used to monitor the performance of workloads that are deployed to Kubernetes environments and hosted on Azure Kubernetes Service (AKS).

You must use Azure Container Registry to publish images that support the AKS deployment.

Architecture



Issues

Calls to the Printer API App fall periodically due to printer communication timeouts.

Printer communication timeouts occur after 10 seconds. The label printer must only receive up to 5 attempts within one minute The order workflow fails to run upon initial deployment to Azure.

Order.Json

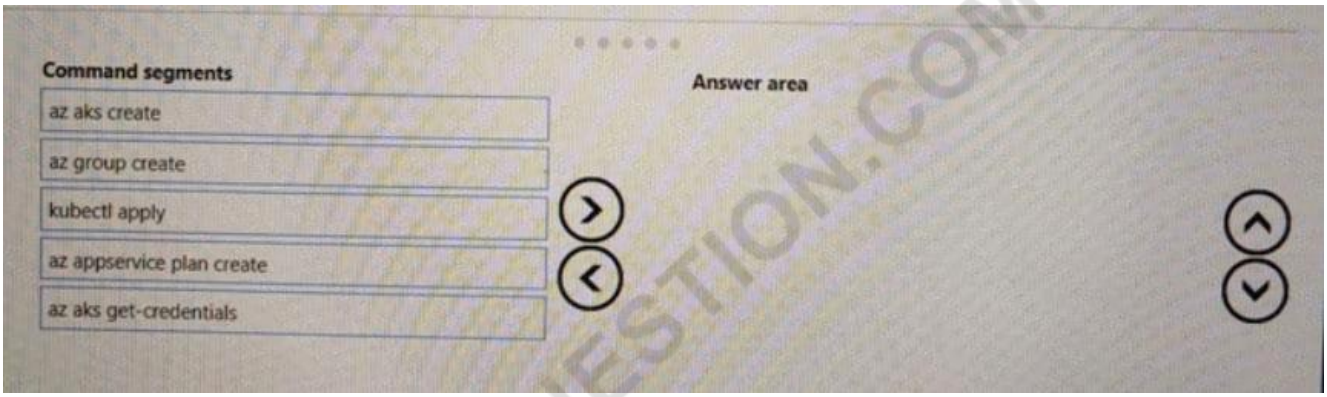
Relevant portions oi the app files are shown below. Line numbers are included for reference only.

The JSON file contains a representation of the data for an order that includes a single item.

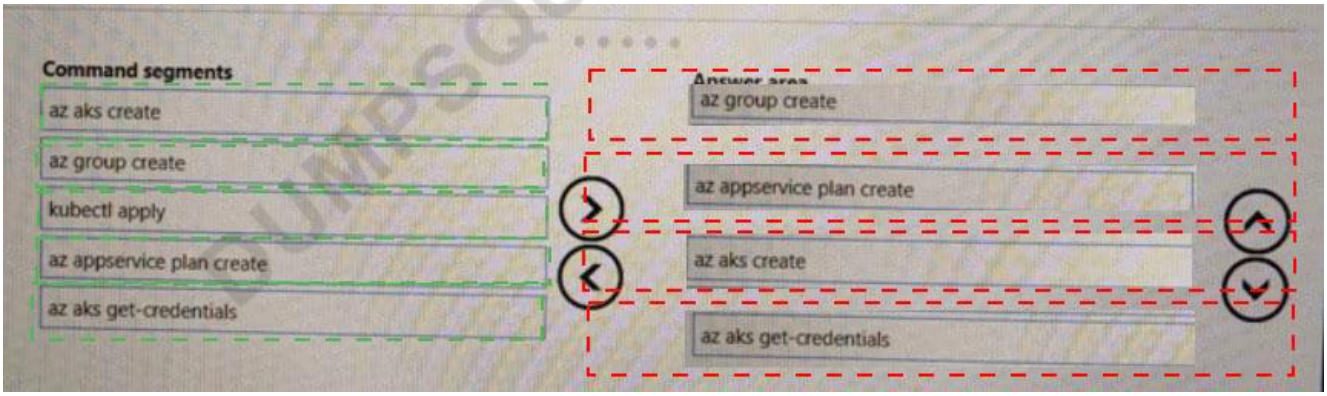
```
01 {
02  "id : 1,
03  "customers" : [
04  {
05    "familyName" : "Doe",
06    "givenName" :  "John",
07    "customerid" : 5
08  }
09  ],
10  "line"_items" : [
11 {
12   "fulfillable_quantity" : 1,
13  "id" : 6,
14  "price" : "199.99",
15  "product_id" : 7513594,
16  "quantity": 1,
17  "requires_shipping" : true,
18  "sku" : "SFC-342-N" ,
19 "title" : "Surface Go",
20  "vendor" : "Microsoft" ,
21  "name" : "Surface Go - 8GB",
22  "taxable" : true,
```

```
23  "tax"_lines" : [
24  {
25   "title" : "State Tax",
26  "price" : "3.98",
27  "rate" : 0.06
28  }
29 ],
30  "total_discount" : "5.00"
31  "discount_allocations" : [
32  {
33   "amount" : "5.00",
34   "discount_application_index" : 2
35     }
36    ]
37   }
38  ],
39 "address" : {
40 "state" : "NY",
41 "country" : "Manhattan",
42  "city" : "NY"
43    }
44   }
```

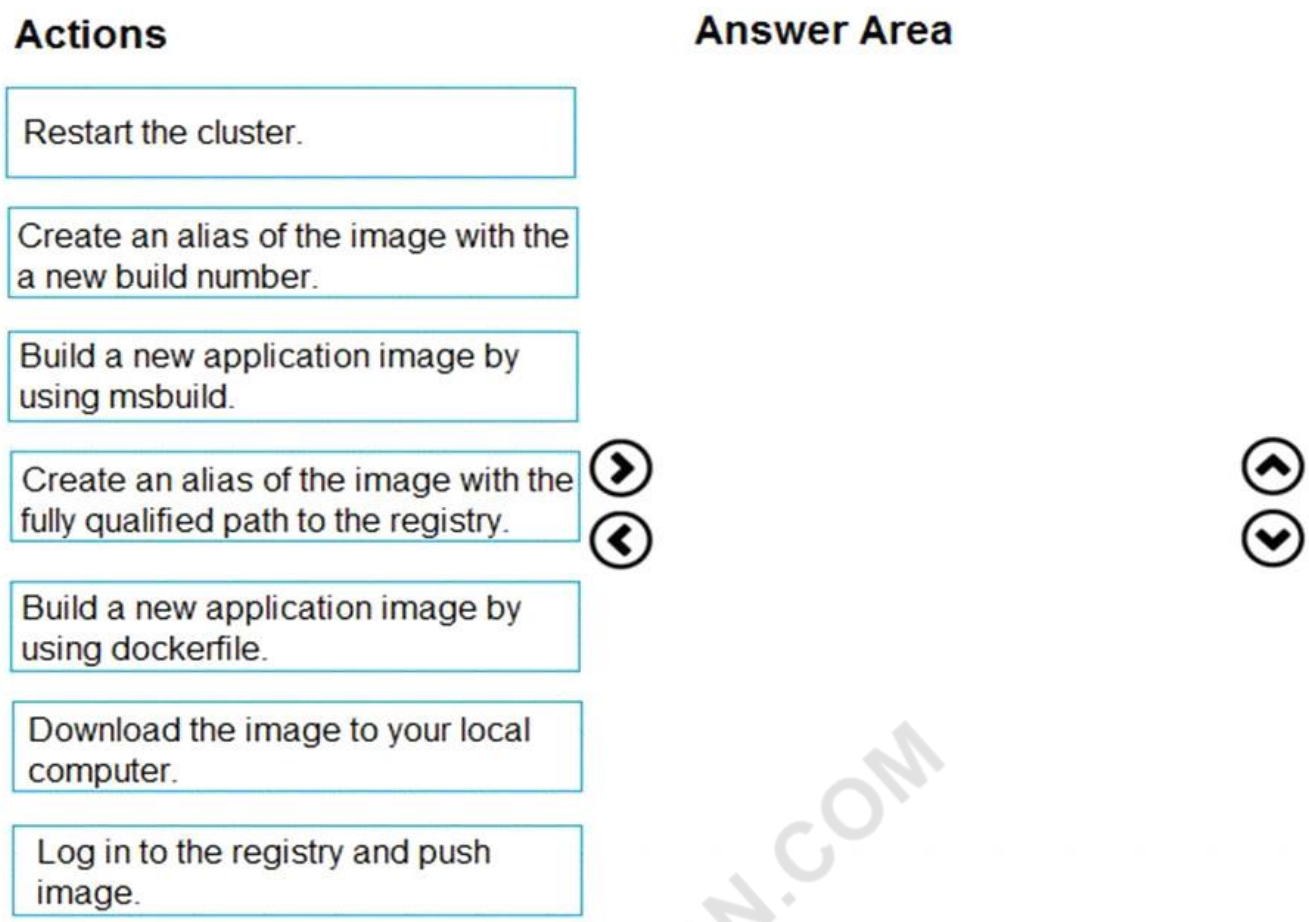
NO.12 You are deploying an Azure Kubernetes Services (AKS) cluster that will use multiple containers You need to create the cluster and verify that the services for the containers are configured correctly and available.
Which four commands should you use to develop the solution? To answer, move the appropriate command segments from the list of command segments to the answer area and arrange them in the correct order.



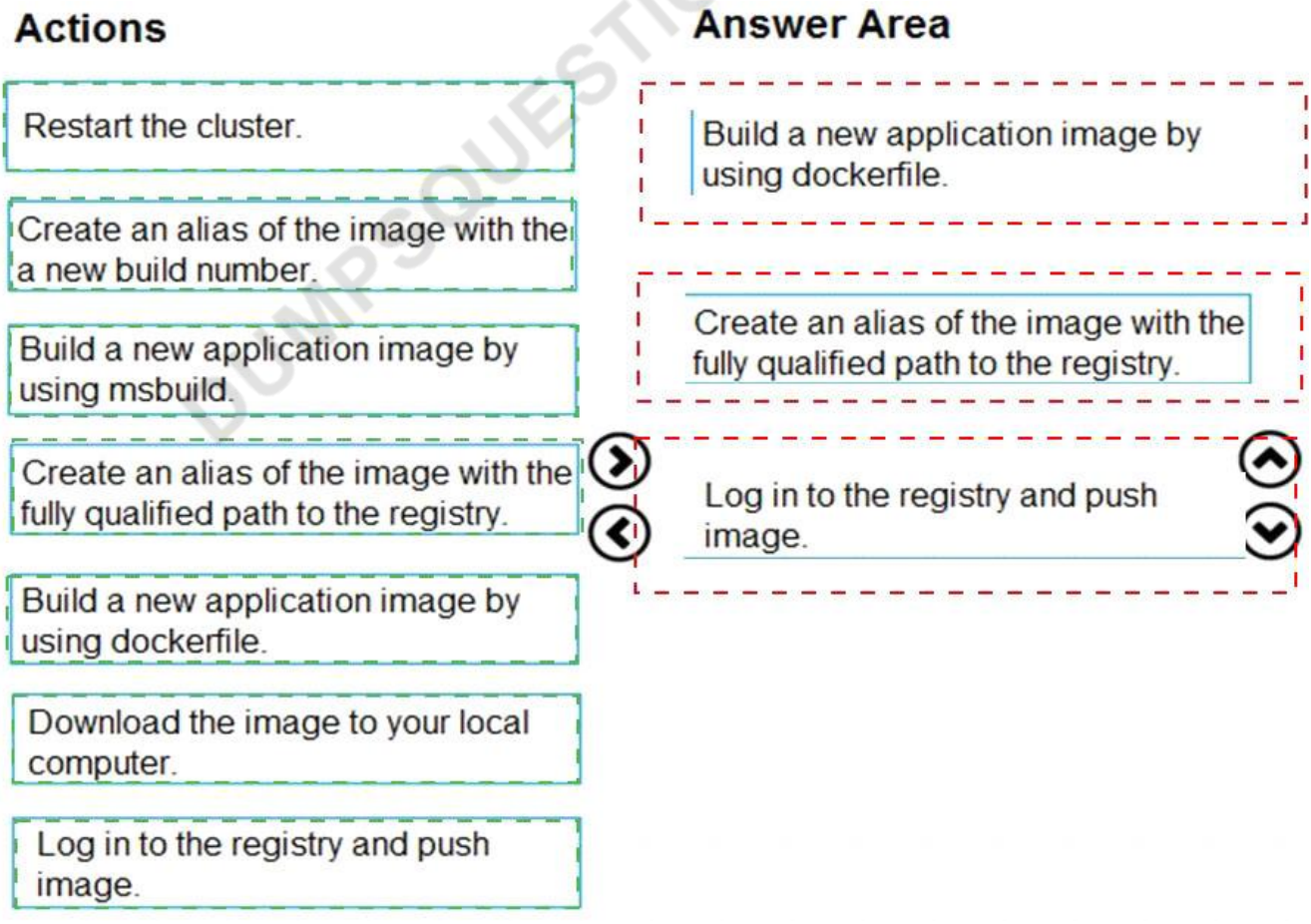
Answer:



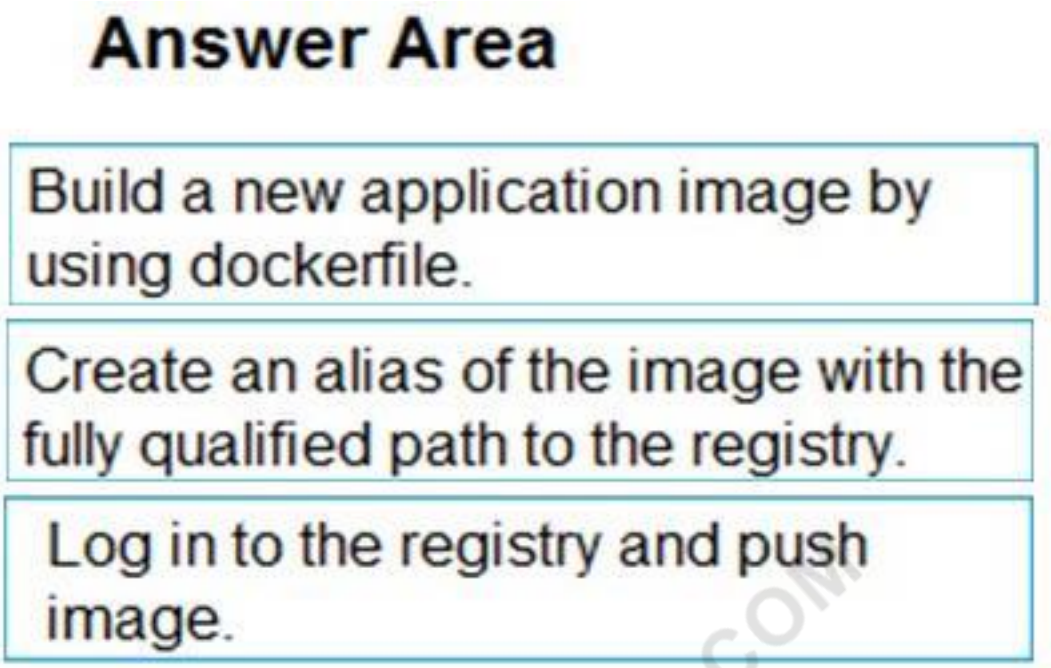
NO.13 You need to deploy a new version of the LabelMaker application.
Which three actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Step 1: Build a new application image by using dockerfile
Step 2: Create an alias if the image with the fully qualified path to the registry Before you can push the image to a private registry, you've to ensure a proper image name. This can be achieved using the docker tag command. For demonstration purpose, we'll use Docker's hello world image, rename it and push it to ACR.
# pulls hello-world from the public docker hub
$ docker pull hello-world
# tag the image in order to be able to push it to a private registry
$ docker tag hello-word <REGISTRY_NAME>/hello-world
# push the image
$ docker push <REGISTRY_NAME>/hello-world
Step 3: Log in to the registry and push image
In order to push images to the newly created ACR instance, you need to login to ACR form the Docker CLI.
Once logged in, you can push any existing docker image to your ACR instance.
Scenario:
Coho Winery plans to move the application to Azure and continue to support label creation.
LabelMaker app
Azure Monitor Container Health must be used to monitor the performance of workloads that are deployed to Kubernetes environments and hosted on Azure Kubernetes Service (AKS).
You must use Azure Container Registry to publish images that support the AKS deployment.
References:
https://thorsten-hans.com/how-to-use-a-private-azure-container-registry-with-kubernetes-9b86e67b93b6
https://docs.microsoft.com/en-us/azure/container-registry/container-registry-tutorial-quick-task

NO.14 You develop a website. You plan to host the website in Azure. You expect the website to experience high traffic volumes after it is published. You must ensure that the website remains

available and responsive while minimizing cost. You need to deploy the website. What should you do?

A. Deploy the website to an App Service that uses the Shared service tier. Configure the App Service plan to automatically scale when the CPU load is high.

B. Deploy the website to a virtual machine. Configure the virtual machine to automatically scale when the CPU load is high.

C. Deploy the website to an App Service that uses the Standard service tier. Configure the App Service plan to automatically scale when the CPU load is high.

D. Deploy the website to a virtual machine. Configure a Scale Set to increase the virtual machine instance count when the CPU load

Answer: C

Explanation

Windows Azure Web Sites (WAWS) offers 3 modes: Standard, Free, and Shared.

Standard mode carries an enterprise-grade SLA (Service Level Agreement) of 99.9% monthly, even for sites with just one instance.

Standard mode runs on dedicated instances, making it different from the other ways to buy Windows Azure Web Sites.

NO.15 You are implementing an order processing system. A point of sale application publishes orders to topics in an Azure Service Bus queue. The label property for the topic includes the following data:

Property	Description
ShipLocation	the country/region where the order will be shipped
CorrelationId	a priority value for the order
Quantity	a user-defined field that stores the quantity of items in an order
AuditedAt	a user-defined field that records the date an order is audited

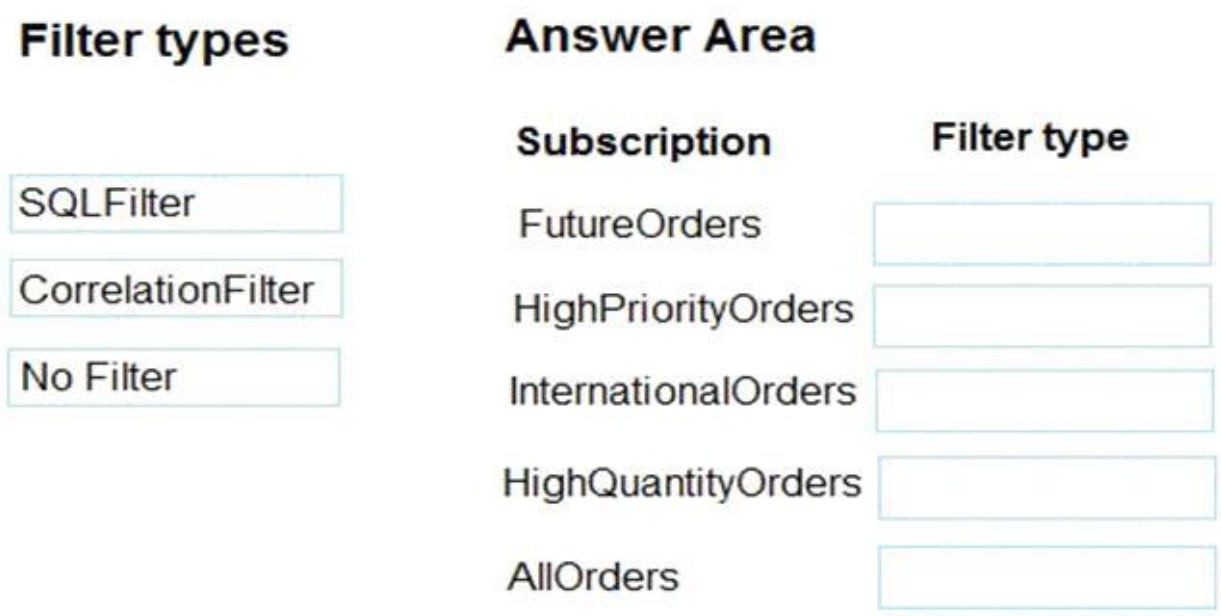
The system has the following requirements for subscriptions:

Subscription type	Comments
FutureOrders	This subscription is reserved for future use and must not receive any orders.
HighPriorityOrders	Handle all high priority orders and International orders.
InternationalOrders	Handle orders where the country/region is not United States.
HighQuantityOrders	Handle only orders with quantities greater than 100 units.
AllOrders	This subscription is used for auditing purposes. This subscription must receive every single order. AllOrders has an Action defined that updates the AuditedAt property to include the date and time it was received by the subscription.

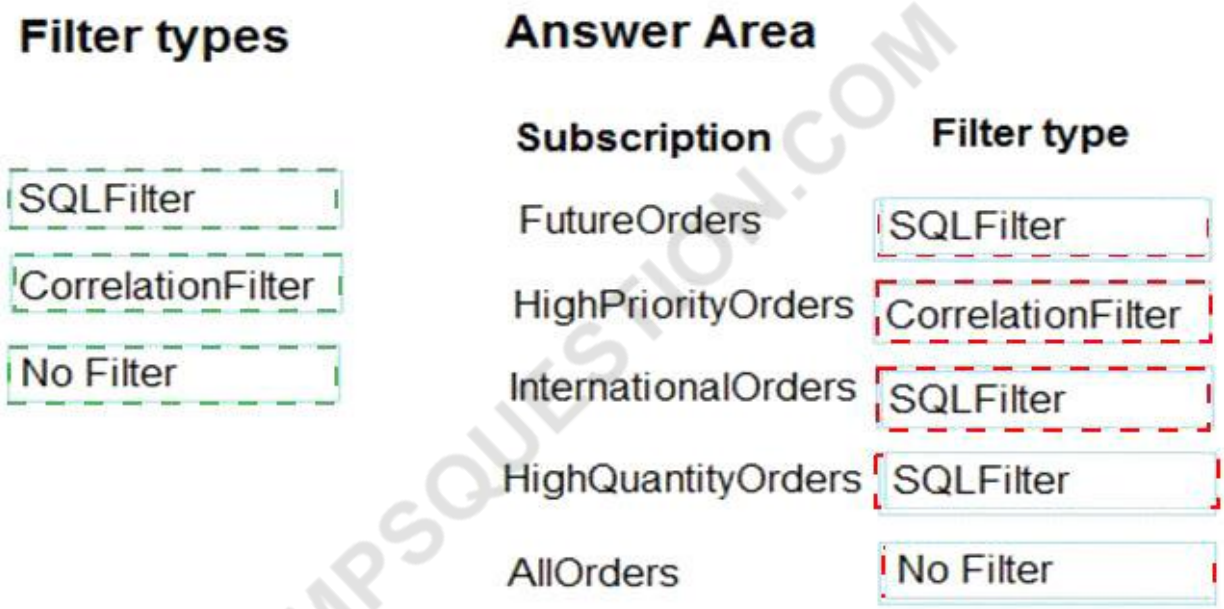
You need to implement filtering and maximize throughput while evaluating filters.

Which filter types should you implement? To answer, drag the appropriate filter types to the correct subscriptions. Each filter type 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.



Answer:



Explanation

Answer Area

FutureOrders: SQLFilter
HighPriortyOrders: CorrelationFilter
CorrelationID only
InternationalOrders: SQLFilter
Country NOT USA requires an SQL Filter
HighQuantityOrders: SQLFilter
Need to use relational operators so an SQL Filter is needed.
AllOrders: No Filter
SQL Filter: SQL Filters - A SqlFilter holds a SQL-like conditional expression that is evaluated in the broker against the arriving messages' user-defined properties and system properties. All system properties must be prefixed with sys. in the conditional expression. The SQL-language subset for filter conditions tests for the existence of properties (EXISTS), as well as for null-values (IS NULL), logical NOT/AND/OR, relational operators, simple numeric arithmetic, and simple text pattern matching with LIKE.
Correlation Filters - A CorrelationFilter holds a set of conditions that are matched against one or more of an arriving message's user and system properties. A common use is to match against the CorrelationId property, but the application can also choose to match against ContentType, Label, MessageId, ReplyTo, ReplyToSessionId, SessionId, To, and any user-defined properties. A match exists when an arriving message's value for a property is equal to the value specified in the correlation filter. For string expressions, the comparison is case-sensitive. When specifying multiple match properties, the filter combines them as a logical AND condition, meaning for the filter to match, all conditions must match.
Boolean filters - The TrueFilter and FalseFilter either cause all arriving messages (true) or none of the arriving messages (false) to be selected for the subscription.

References:
https://docs.microsoft.com/en-us/azure/service-bus-messaging/topic-filters

NO.16 You are developing a .NET Core model-view controller (MVC) application hosted on Azure for a health care system that allows providers access to their information.
You develop the following code:

```
services.AddAuthorization (options =>
{
  options.AddPolicy("ProviderPartner", policy =>
  {
    .policy.AddAuthenticationSchemes("Cookie, Bearer");
     policy.RequireAuthenticatedUser();
     policy.RequireRole("ProviderAdmin", "SysAdmin");
     policy.RequireClaim("editor", "partner");
 });
}
```

You define a role named SysAdmin.
You need to ensure that the application meets the following authorization requirements:
* Allow the ProviderAdmin and SysAdmin roles access to the Partner controller regardless of whether the user holds an editor claim of partner.
* Limit access to the Manage action of the controller to users with an editor claim of partner who are also members of the SysAdmin role.
How should you complete the code? To answer, drag the appropriate code segments to the correct locations.
Each code segment 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.

Code Segments

```
[Authorize (Policy = "ProviderEditor")]
[Authorize(Role = "SysAdmin")]
```

```
[Authorize(Role = "ProviderAdmin")]
[Authorize(Role = "SysAdmin")]
```

```
[Authorize(Role = "SysAdmin", "ProviderAdmin")]
```

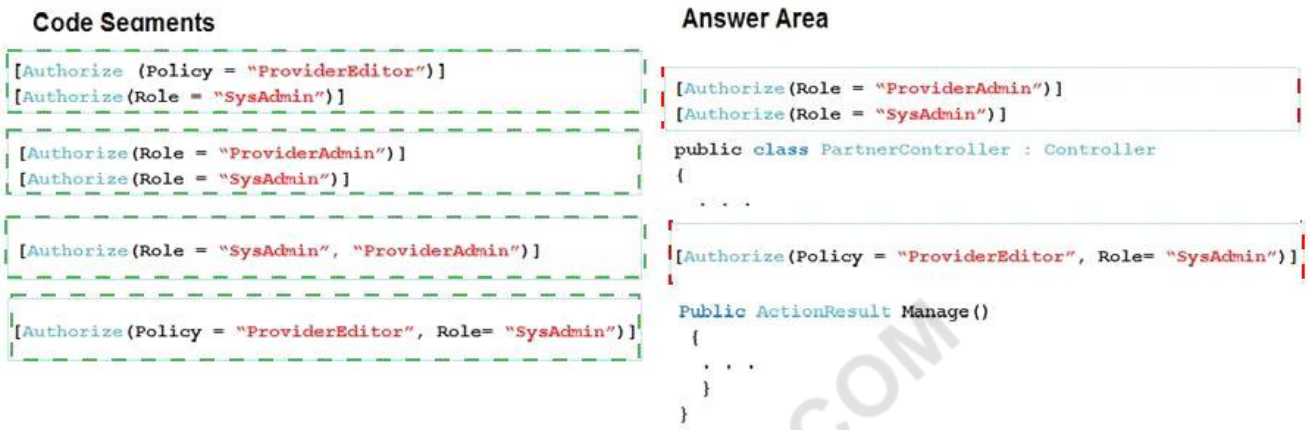
```
[Authorize(Policy = "ProviderEditor", Role= "SysAdmin")]
```

Answer Area

```
public class PartnerController : Controller
{
  . . .
```

```
Public ActionResult Manage()
 {
  . . .
  }
}
```

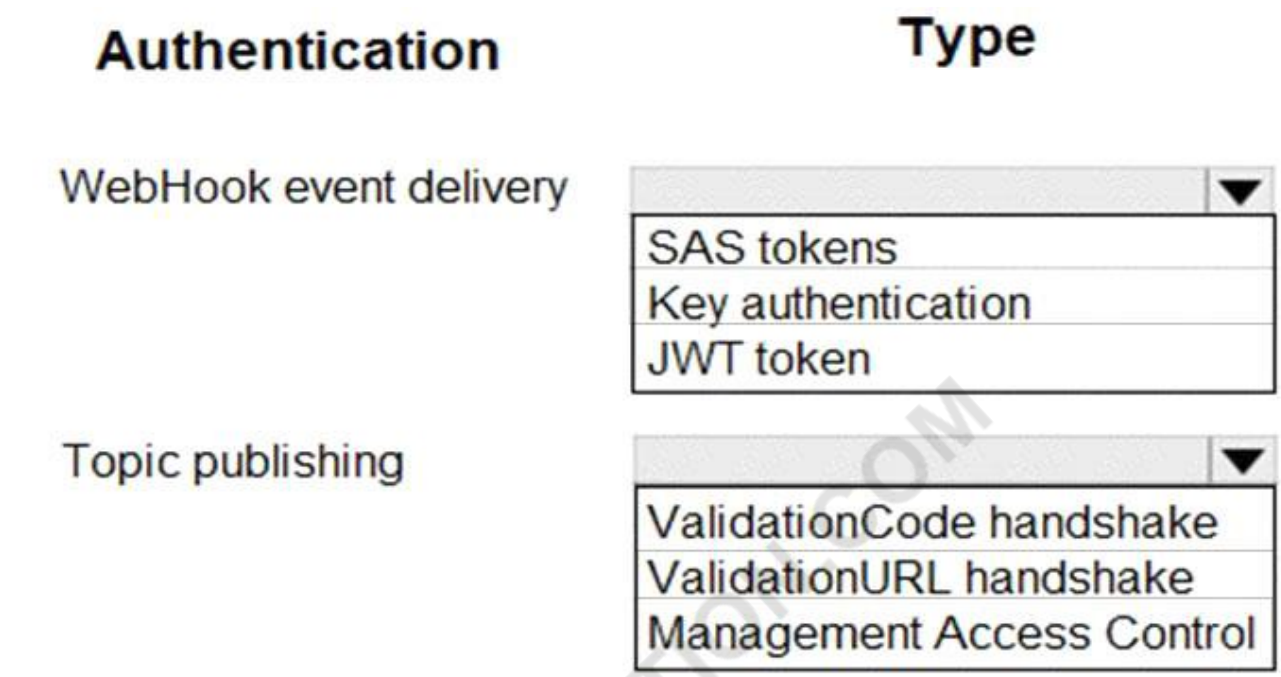
Answer:



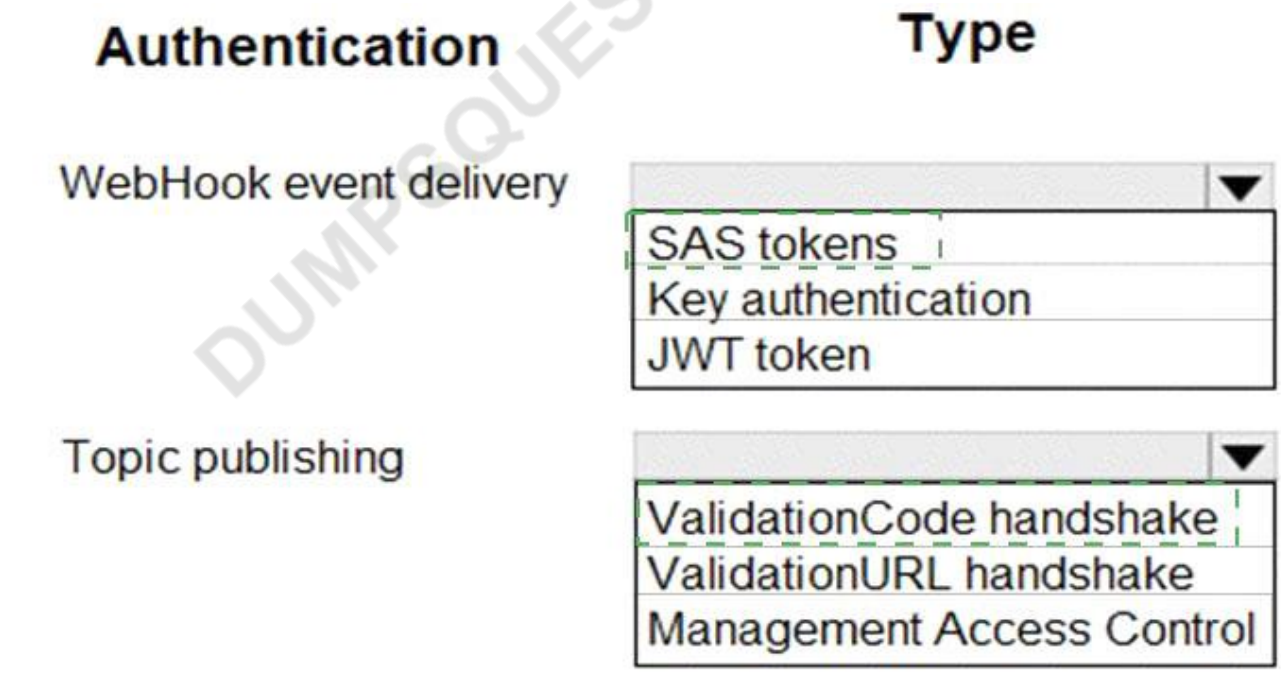
Explanation

Box 1:
Allow the ProviderAdmin and SysAdmin roles access to the Partner controller regardless of whether the user holds an editor claim of partner.
Box 2:
Limit access to the Manage action of the controller to users with an editor claim of partner who are also members of the SysAdmin role.

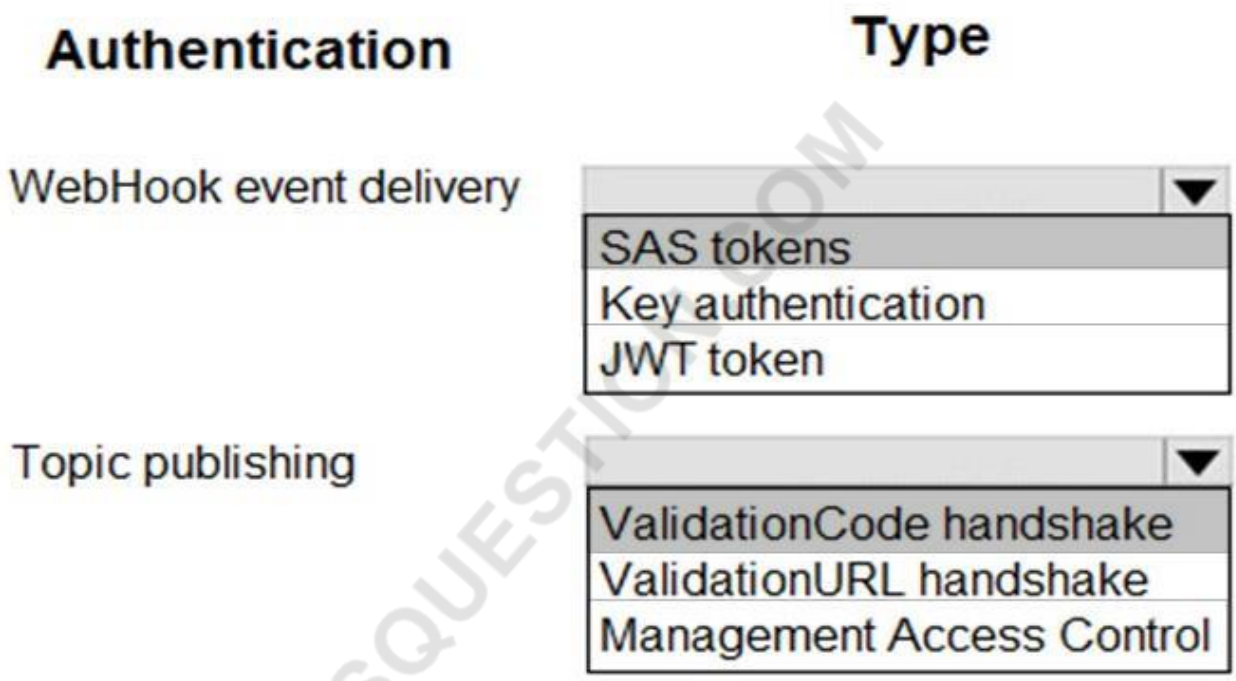
NO.17 You are creating an app that uses Event Grid to connect with other services. Your app's event data will be sent to a serverless function that checks compliance. This function is maintained by your company.
You write a new event subscription at the scope of your resource. The event must be invalidated after 3 specific period of time. You need to configure Event Grid to ensure security.
What should you implement? To answer, select the appropriate options in [he answer area.
NOTE: Each correct selection is worth one point



Answer:



Explanation



Box 1: SAS tokens
Custom topics use either Shared Access Signature (SAS) or key authentication. Microsoft recommends SAS, but key authentication provides simple programming, and is compatible with many existing webhook publishers.
In this case we need the expiration time provided by SAS tokens.
Box 2: ValidationCode handshake
Event Grid supports two ways of validating the subscription: ValidationCode handshake (programmatic) and ValidationURL handshake (manual).
If you control the source code for your endpoint, this method is recommended.

NO.18 You need to meet the LabelMaker security requirement. What should you do?
A. Create a conditional access policy and assign it to the Azure Kubernetes Service duster
B. Place the Azure Active Directory account into an Azure AD group. Create a ClusterRoleBinding and assign it to the group.
C. Create a Microsoft Azure Active Directory service principal and assign it to the Azure Kubernetes Service (AKS) duster.
D. Create a RoleBinding and assign it to the Azure AD account.
Answer: B
Explanation
Scenario: The LabelMaker applications must be secured by using an AAD account that has full access to all namespaces of the Azure Kubernetes Service (AKS) cluster.
Permissions can be granted within a namespace with a RoleBinding, or cluster-wide with a ClusterRoleBinding.
References:
https://kubernetes.io/docs/reference/access-authn-authz/rbac/

NO.19 You have an app that stores player scores for an online game. The app stores data in Azure tables using a class named PlayerScore as the table entity. The table is populated with 100,000

records.

You are reviewing the following section of code that is intended to retrieve 20 records where the player score exceeds 15,000. (Line numbers are included for reference only.)

```
1 public void GetScore(string.playerId, int score, string gameName)
2 {
3    Table Query<DynamicTableEntity> query - new TableQuery<DynamicTableEntity>().Select(new.string[.] { "Score" })
       .Where(TableQuery.GenerateFilterConditionForInt("Score", QueryComparisons.GretaerThanOrEqual, 15000)).Take
(20);
4    EntityResolver<KeyValuePair<string, int?>> resolver =
      (partitionKey, rowKey, ts, props, etag) => new KeyValuePair<string, int?>(rowKey, props["Score"].Int32Value);
5    foreach (var scoreItem in scoreTable.ExecuteQuery (query, resolver, null, null))
6    {
      Console.Writeline($"{scoreItem.Key} {scoreItem.Value}");
7    }
8   }

9  public class PlayerScore : TableEntity
10 {
11   public PlayerScore(string gameId, string playerId, int score, long timePlayed)
12   {
13     PartitionKey = gameId;
14     RowKey = playerId;
15     Score = score;
16     TimePlayed = timePlayed;
17   }
18   public int Score { get; set; }
19   public long TimePlayed { get; set; }
20   }
```

You have the following code. (Line numbers are included for reference only.) You store customer information in an Azure Cosmos database. The following data already exists in the database:

You develop the following code. (Line numbers are included for reference only.)

```
01   CloudTableClient tableClient = account.CreateCloudTableClient();
02   CloudTable table = tableClient.GetTableReference("people");
03   TableQuery<CustomerEntity> query = new TableQuery<CustomerEntity>()
04    .Where(TableQuery.CombineFilters(
05   TableQuery.Generate.And, TableQuery.GenerateFilterCondition(Email, QueryComparisons.Equal, "Smith")
06   TableOperstors.And, TableQuery.GenerateFilterCondition(Email, QueryComparisons.Equal,
"ssmith@contoso.com")
07   ));
08   await table.ExecuteQuerySegmentedAsync<CustomerEntity>(query, null);
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

NOTE: Each correct selection is worth one point.

	Yes	No
The code queries the Azure table and retrieves the TimePlayed property from the table	○	○
The code will display a maximum of twenty records.	○	○
All records will be sent to the client. The client will display records for scores greater than or equal to 15,000.	○	○
The scoreItem.Key property of the KeyValuePairs that ExecuteQuery returns will contain a value for PlayerID.	○	○

Answer:

	Yes	No
The code queries the Azure table and retrieves the TimePlayed property from the table	○	○
The code will display a maximum of twenty records.	○	○
All records will be sent to the client. The client will display records for scores greater than or equal to 15,000.	○	○
The scoreItem.Key property of the KeyValuePairs that ExecuteQuery returns will contain a value for PlayerID.	○	○

Explanation

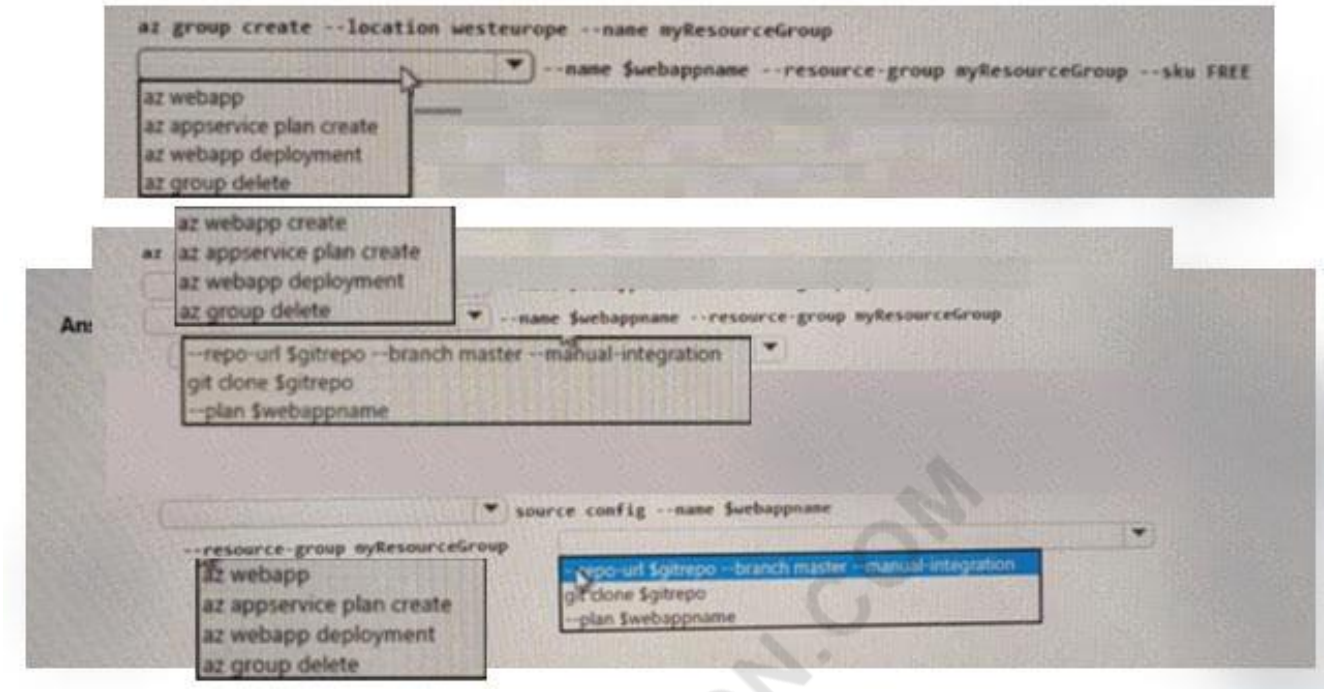
	Yes	No
The code queries the Azure table and retrieves the TimePlayed property from the table	○	○
The code will display a maximum of twenty records.	○	○
All records will be sent to the client. The client will display records for scores greater than or equal to 15,000.	○	○
The scoreItem.Key property of the KeyValuePairs that ExecuteQuery returns will contain a value for PlayerID.	○	○

Box 1: No
Box 2: Yes
The TableQuery.Take method defines the upper bound for the number of entities the query returns.
Example:
query.Take(10);
Box 3: Yes
Box 4: Yes
References:
https://www.vkinfotek.com/azureqa/how-do-i-query-azure-table-storage-using-tablequery-class.html

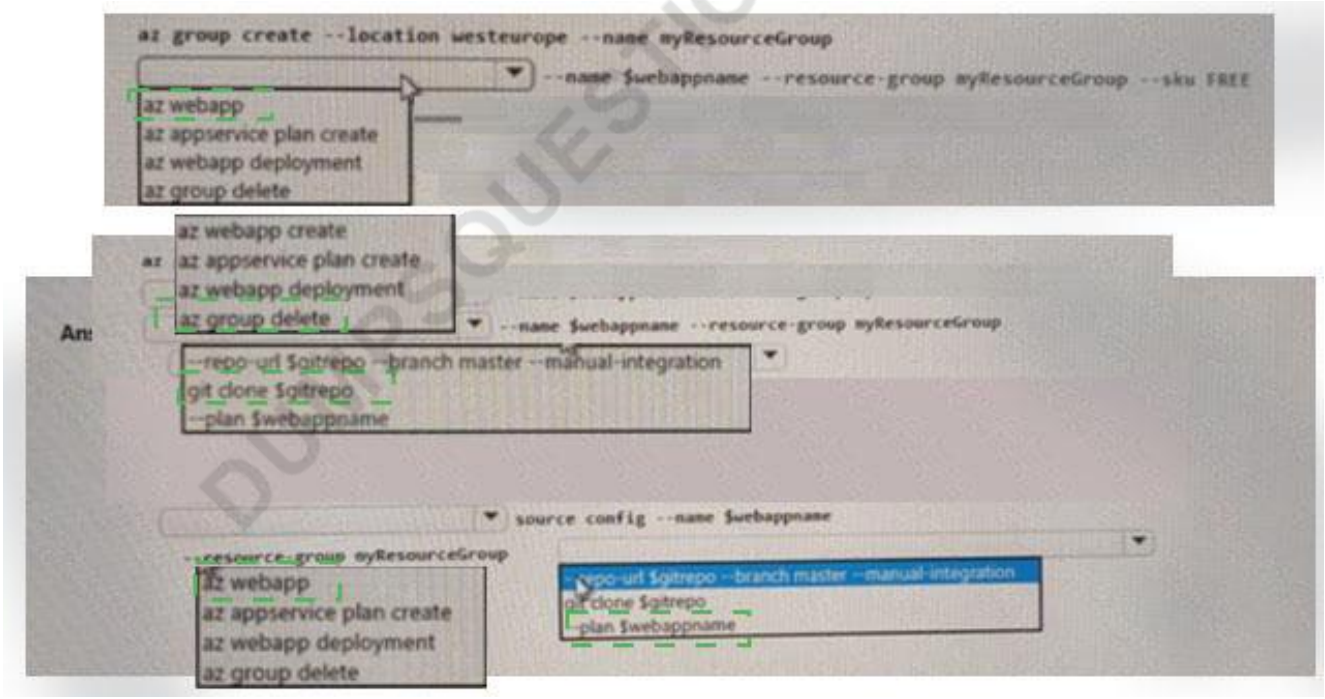
NO.20 You are creating a CU script that creates an Azure web app and related services m Azure App Service. The web app uses the following variables:

Variable name	Value
$gitrepo	https://github.com/Contos/webapp
$webappname	Webapp1103

You need to automatically deploy code from GitHub to the newly created web app.
How should you complete the script? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



NO.21 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You need to meet the LabelMaker application security requirement.

Solution: Create a Microsoft Azure Active Directory service principal and assign it to the Azure Kubernetes Service (AKS) cluster.

Does the solution meet the goal?

A. Yes

B. No

Answer: A

NO.22 You are creating a hazard notification system that has a single signaling server which triggers audio and visual alarms to start and stop.
You implement Azure Service Bus to publish alarms. Each alarm controller uses Azure Service Bus to receive alarm signals as part of a transaction. Alarm events must be recorded for audit purposes. Each transaction record must include information about the alarm type that was activated.
You need to implement a reply trail auditing solution.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Assign the value of the hazard message SessionID property to the SequenceNumber property.

B. Assign the value of the hazard message SequenceNumber property to the DeliveryCount property.

C.
Assign the value of the hazard message MessageId property to the DeliveryCount property.

C. Assign the value of the hazard message SessionID property to the ReplyToSessionId property.

D. Assign the value of the hazard message MessageId property to the SequenceNumber property.

E. Assign the value of the hazard message MessageId property to the CorrelationId property.

Answer: A B

NO.23 You have an Azure App Services Web App. Azure SQL Database instance. Azure Storage Account and an Azure Redis Cache instance in a resource group.
A developer must be able to publish code to the web app. You must grant the developer the Contribute role to the web app You need to grant the role.
What two commands can you use? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point.

A. New-AzureRmRoleAssignment

B. az role assignment create

C. az role definition create

D. New-AzureRmRoleDefinition

Answer: C

NO.24 You need to troubleshoot the order workflow.
What should you do? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Review the run history.

B. Review the trigger history.

C. Review the API connections.

D. Review the activity log.

Answer: B D
Explanation
Scenario: The order workflow fails to run upon initial deployment to Azure.
Deployment errors arise from conditions that occur during the deployment process. They appear in the activity log.
References:
https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-audit

NO.25 Note: In this section you will see one or more sets of questions with the same scenario and problem. Each question presents a unique solution to the problem, and you must determine whether the solution meets the stated goals. More than one solution might solve the problem. It is also possible that none of the solutions solve the problem.
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.
Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.
You need to meet the LabelMaker application security requirement.
Solution: Create a RoleBinding and assign it to the Azure AD account.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation
Scenario: The LabelMaker applications must be secured by using an AAD account that has full access to all namespaces of the Azure Kubernetes Service (AKS) cluster.
Permissions can be granted within a namespace with a RoleBinding, or cluster-wide with a ClusterRoleBinding.
References:
https://kubernetes.io/docs/reference/access-authn-authz/rbac/

NO.26 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.
Margie's Travel is an international travel and bookings management service. The company is expanding into restaurant bookings. You are tasked with implementing Azure Search for the restaurants listed in their solution You create the index in Azure Search.
You need to import the restaurant data into the Azure Search service by using the Azure Search NET SDK.
Solution:
1 Create a SearchIndexClient object to connect to the search index
2. Create an IndexBatch that contains the documents which must be added.
3. Call the Documents.Index method of the SearchIndexClient and pass the IndexBatch.
.
Does the solution meet the goal?

A. Yes

B. No

Answer: A

Explanation
1. The index needs to be populated. To do this, we will need a SearchIndexClient. There are two ways to obtain one: by constructing it, or by calling Indexes.GetClient on the SearchServiceClient. Here we will use the first method.

2. Create the indexBatch with the documents
Something like:

```
var hotels = new Hotel[];
{
new Hotel()
{
HotelId = "3",
BaseRate = 129.99,
Description = "Close to town hall and the river"
}
};
...
var batch = IndexBatch.Upload(hotels);
```

3. The next step is to populate the newly-created index
Example:

```
var batch = IndexBatch.Upload(hotels);
try
{
indexClient.Documents.Index(batch);
}
```

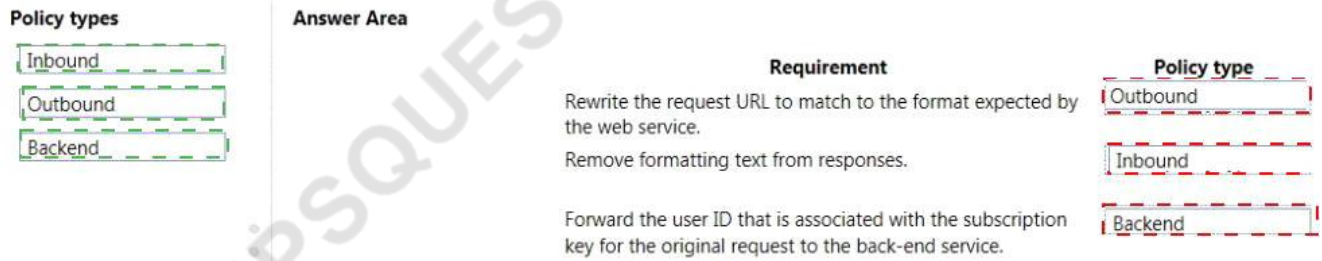
References:
https://docs.microsoft.com/en-us/azure/search/search-howto-dotnet-sdk

NO.27 You need to meet the security requirements for the E-Commerce Web App. Which two steps should you take?
Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.
A. Create an Azure AD service principal.
B. Enable Managed Service Identity (MSI) on the E-Commerce Web App.
C. Add a policy to the Azure Key Vault to grant access to the E-Commerce Wet) App.
D. Update the E-Commerce Web App with the service principal's client secret.
Answer: D

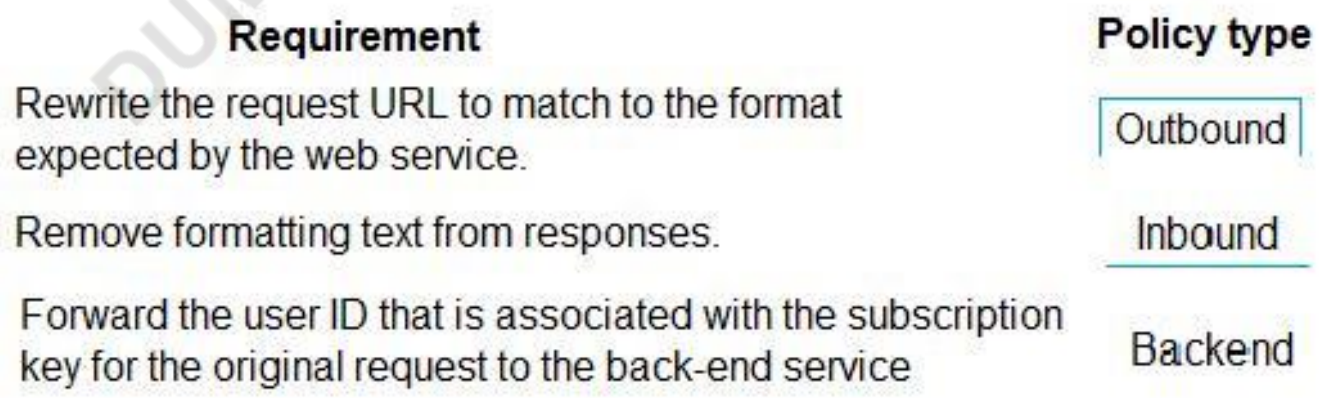
NO.28 You must implement Application Insights instrumentation capabilities utilizing the Azure Mobile Apps SDK to provide meaningful analysis of user interactions with a mobile app.
You need to capture the data required to implement the Usage Analytics feature of Application Insights.
Which three data values should you capture? Each correct answer presents part of the solution
NOTE: Each correct selection is worth one pant.
A. Session Id
B. Events
C. User Id
D. Exception
E. Trace
Answer: A B C

NO.29 You have an application that provides weather forecasting data to external partners. You use Azure API Management to publish APIs.
You must change the behavior of the API to meet the following requirements:
* Support alternative input parameters.
* Remove formatting text from responses.
* Provide additional context to back-end services.
Which types of policies should you implement? To answer, drag the policy types to the correct scenarios. Each policy type 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.

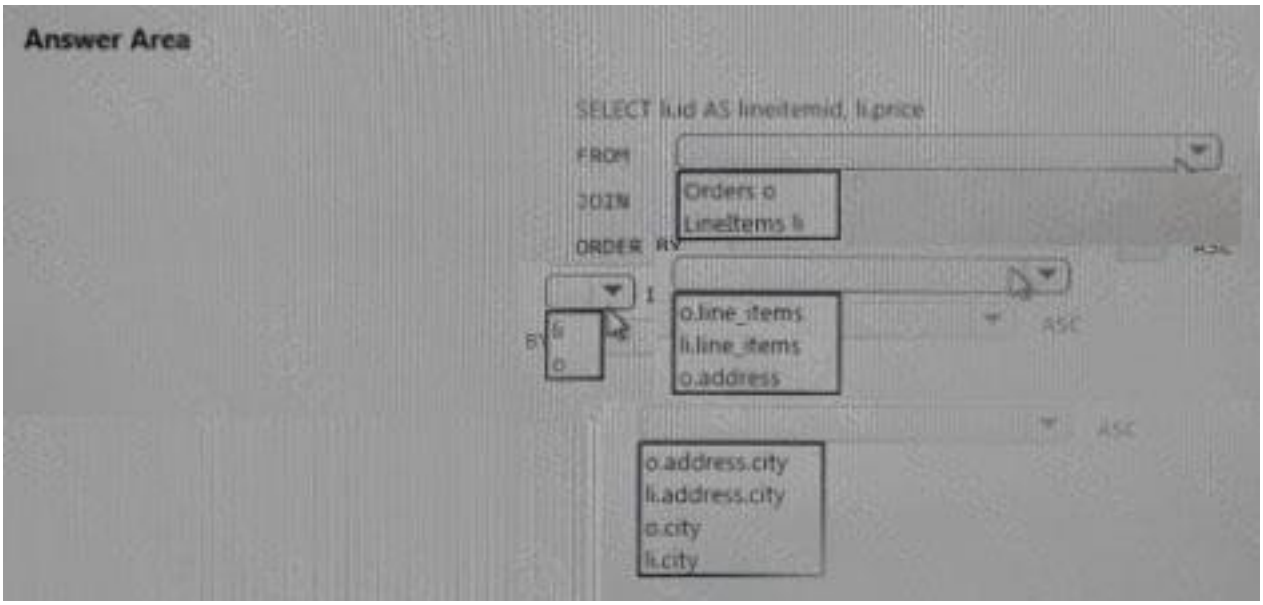
Answer:



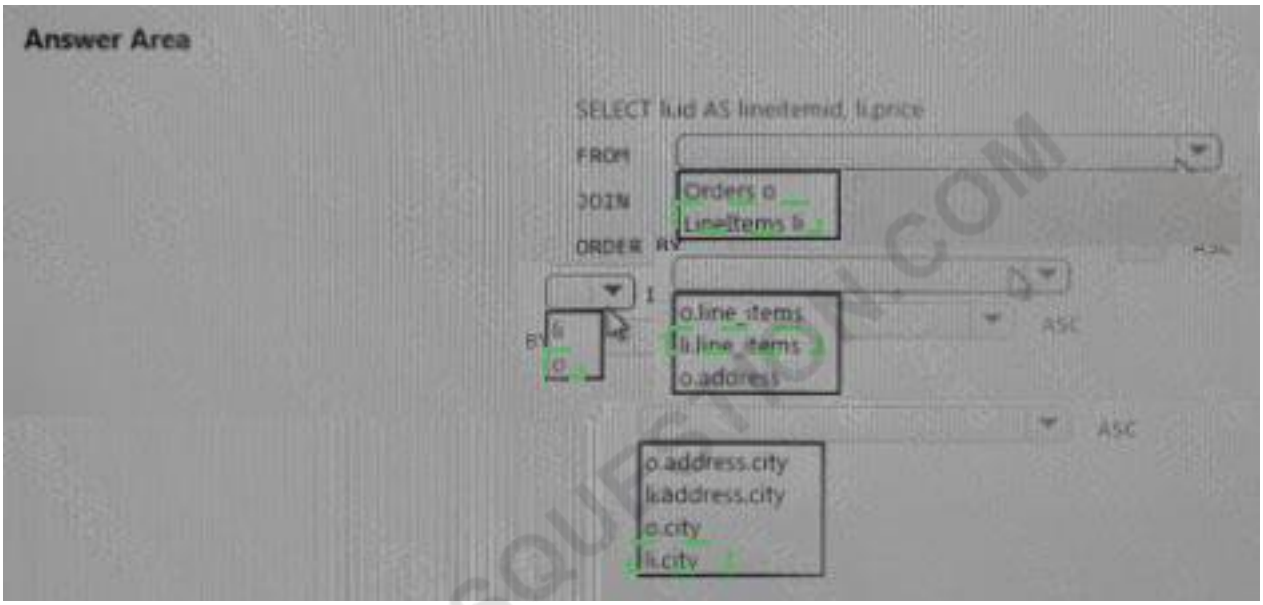
Explanation



NO.30 You need to retrieve all order line items sorted alphabetically by the city.
How should you complete the code? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



NO.31 You are developing a .NET Core MVC application for customers to research hotels. The application will use Azure Search. The application will search the index by using various criteria to locate documents related to hotels. The index will include search fields for rate, a list of amenities, and distance to the nearest airport.

The application must support the following scenarios for specifying search criteria and organizing results:

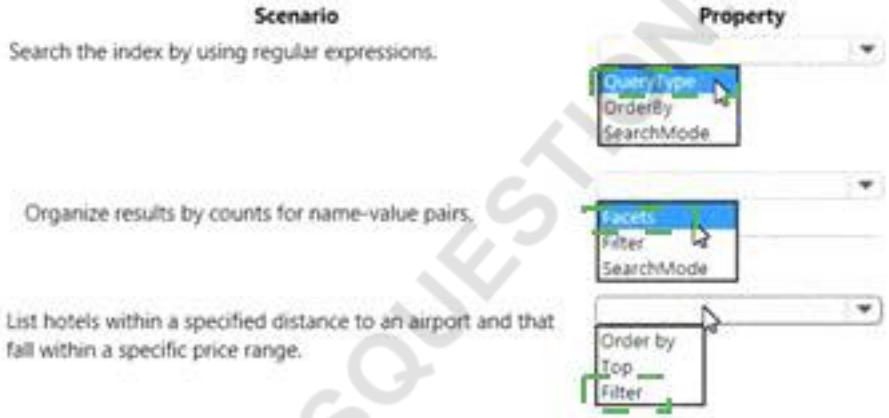
* Search the index by using regular expressions.
* Organize results by counts for name-value pairs.
* List hotels within a specified distance to an airport and that fall within a specific price range.

You need to configure the SearchParameters class.

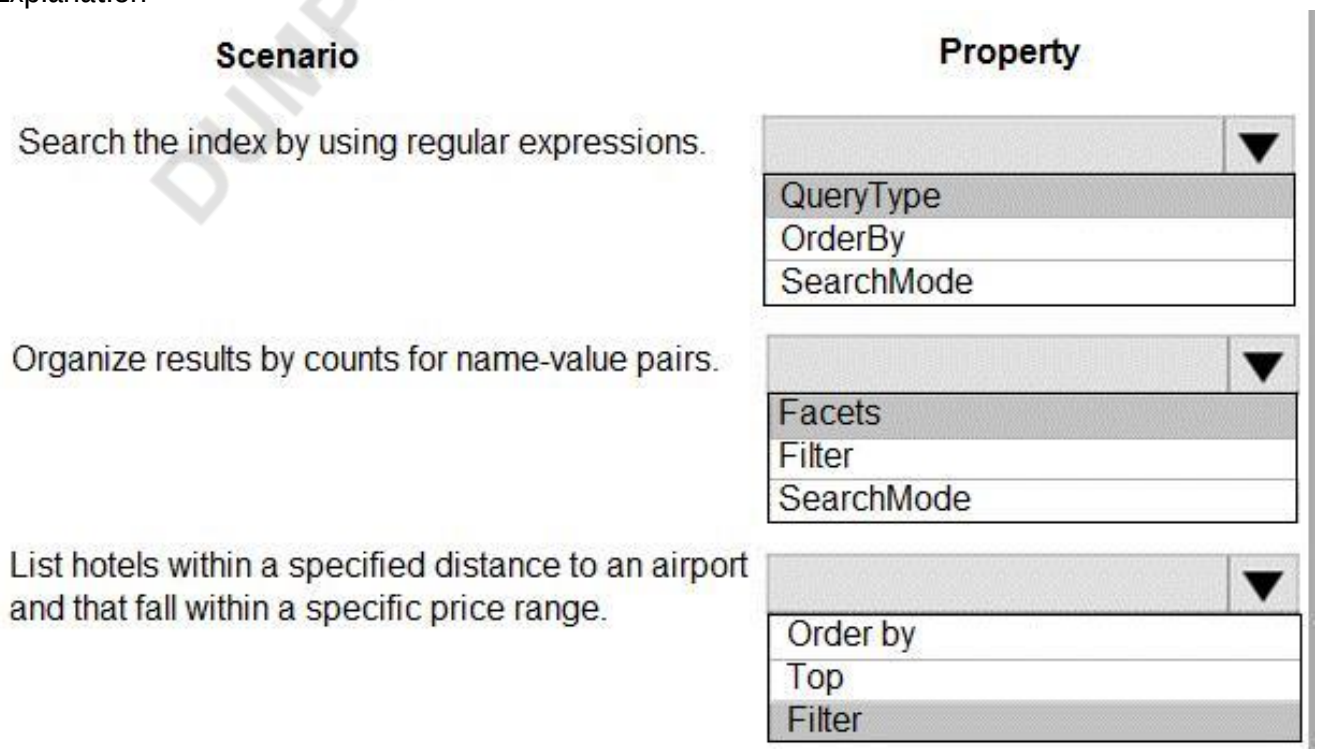
Which properties should you configure? To answer, select the appropriate options in the answer area.

NOTE Each correct selection is worth one point.

Answer:



Explanation



Box 1: QueryType

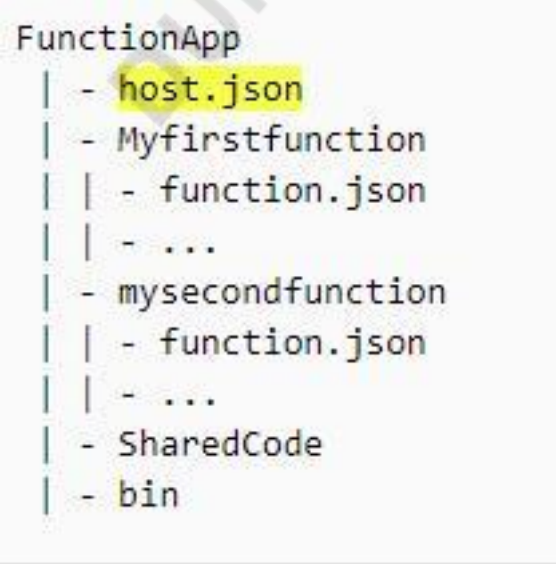
The SearchParameters.QueryType Property gets or sets a value that specifies the syntax of the search query.

The default is 'simple'. Use 'full' if your query uses the Lucene query syntax.

You can write queries against Azure Search based on the rich Lucene Query Parser syntax for

specialized query forms: wildcard, fuzzy search, proximity search, regular expressions are a few examples.
Box 2: Facets
The facets property gets or sets the list of facet expressions to apply to the search query. Each facet expression contains a field name, optionally followed by a comma-separated list of name:value pairs.
Box 3: Filter
The Filter property gets or sets the OData $filter expression to apply to the search query.
References:
https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.search.models.searchparameters
https://docs.microsoft.com/en-us/azure/search/query-lucene-syntax
https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.search.models.searchparameters.querytype

NO.32 You develop a serverless application using several Azure Functions. These functions connect to data from within the code.
You want to configure tracing for an Azure Function App project.
You need to change configuration settings in the hostjson file.
Which tool should you use?
A. Azure portal
B. Azure PowerShell
C. Azure Functions Core Tools (Azure CLI)
D. Visual Studio
Answer: A
Explanation
The function editor built into the Azure portal lets you update the function.json file and the code file for a function. The host.json file, which contains some runtime-specific configurations, is in the root folder of the function app.



References:
https://docs.microsoft.com/en-us/azure/azure-functions/functions-reference#fileupdate

NO.33 You are developing a project management service by using ASP.NET. The service hosts conversations, files, to-do lists, and a calendar that users can interact with at any time.

The application uses Azure Search for allowing users to search for keywords in the project data.
You need to implement code that creates the object which is used to create indexes in the Azure Search service.
Which two objects should you use? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. SearchService

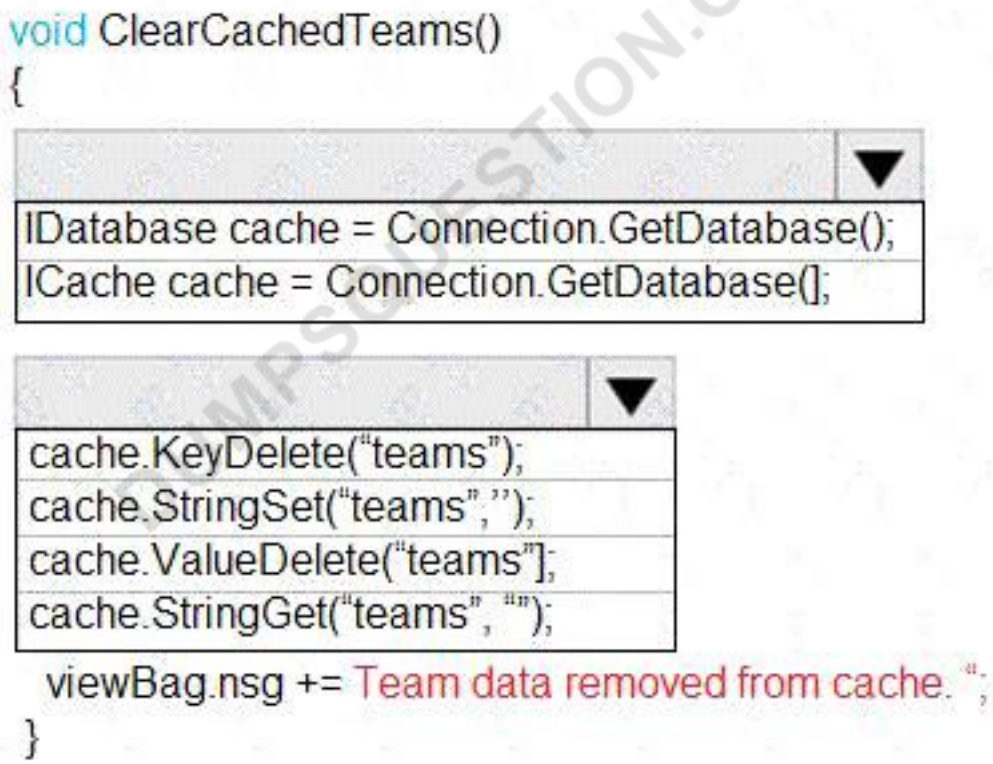
B. SearchIndexClient

C. SearchServiceClient

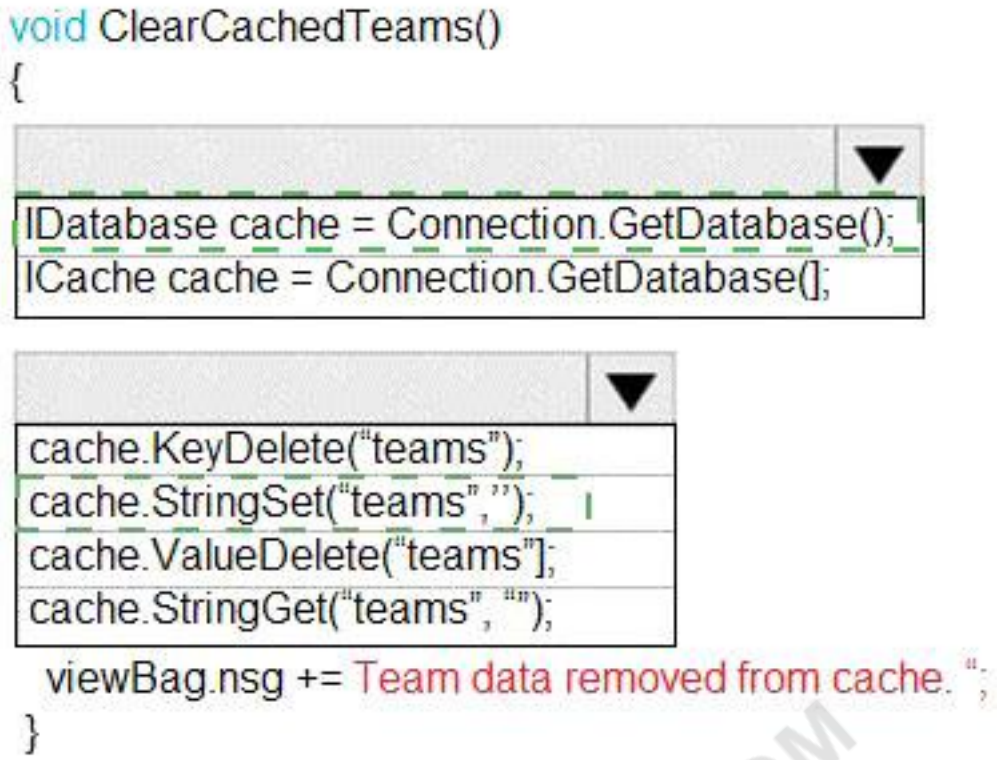
D. SearchCredentials

Answer: C D

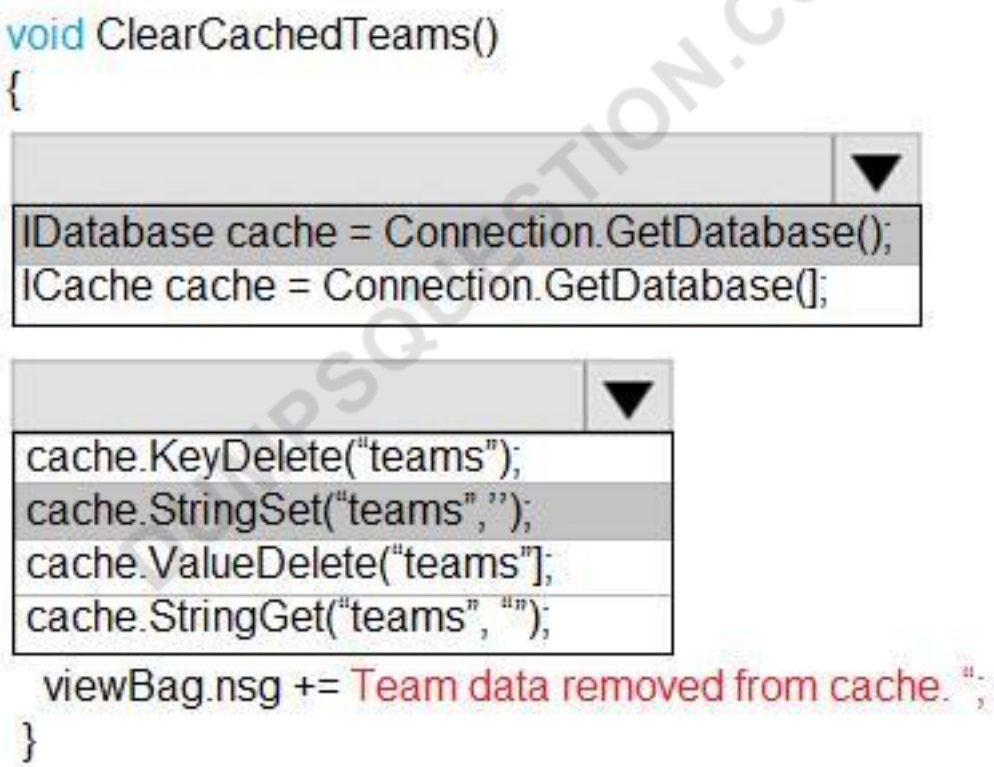
NO.34 A company is developing a gaming platform. Users can join teams to play online and see leaderboards that include player statistics. The solution includes an entity named Team.
You plan to implement an Azure Redis Cache instance to improve the efficiency of data operations for entities that rarely change.
You need to invalidate the cache when team data is changed.
How should you complete the code? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



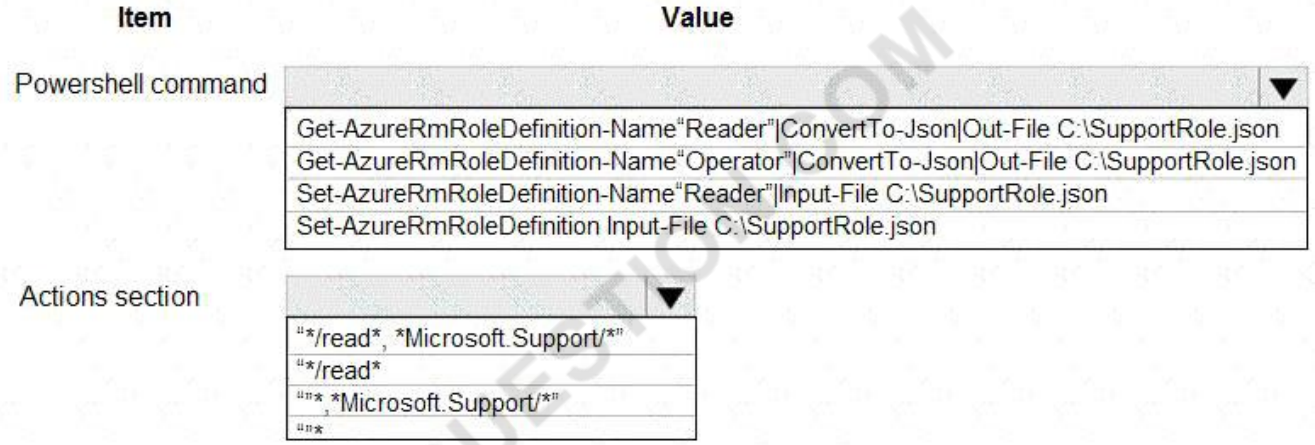
Explanation



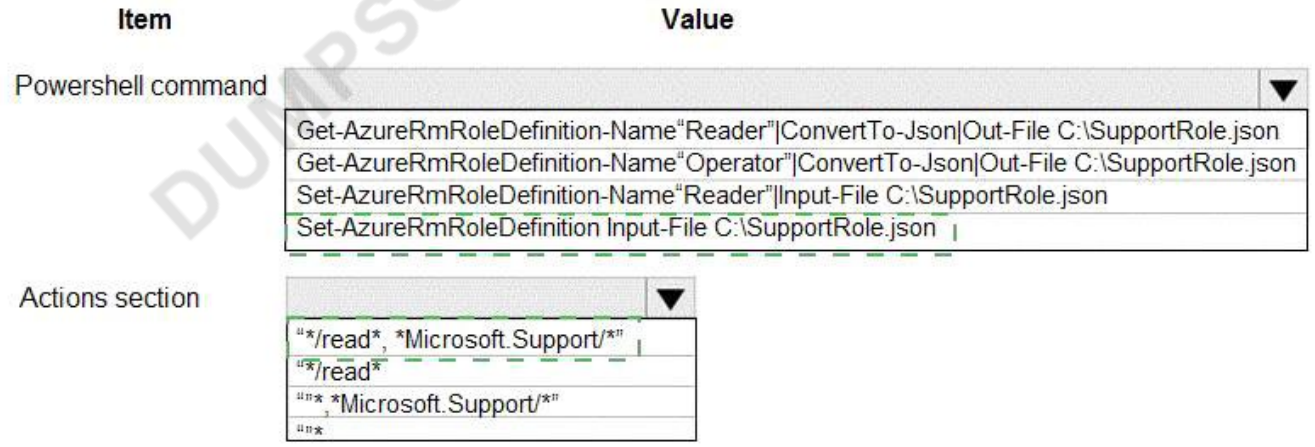
Box 1: IDatabase cache = connection.GetDatabase();
Connection refers to a previously configured ConnectionMultiplexer.
Box 2: cache.StringSet("teams","")
To specify the expiration of an item in the cache, use the TimeSpan parameter of StringSet.
cache.StringSet("key1", "value1", TimeSpan.FromMinutes(90));
References:

https://azure.microsoft.com/sv-se/blog/lap-around-azure-redis-cache-preview/

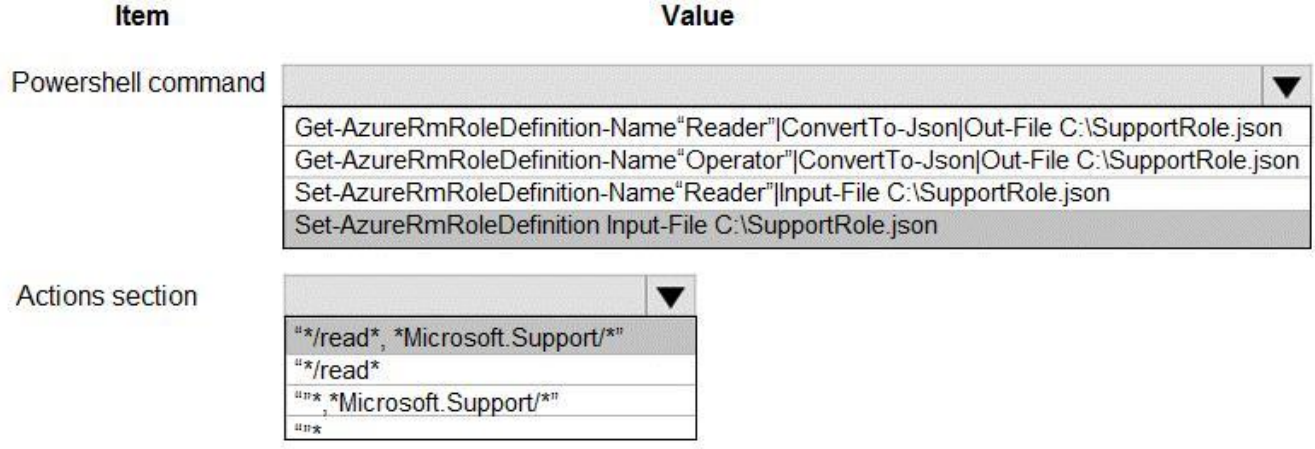
NO.35 Your company is migrating applications to Azure. The IT department must allow internal developers to communicate with Microsoft support.
The service agents of the IT department must only have view resources and create support ticket permissions to all subscriptions. A new custom role must be created by reusing a default role definition and changing the permissions.
You need to create the custom role.
To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Box 1: Set-AzureRmRoleDefinition Input-File C:\SupportRole.json

The Set-AzureRmRoleDefinition cmdlet updates an existing custom role in Azure Role-Based Access Control.
Provide the updated role definition as an input to the command as a JSON file or a PSRoleDefinition object.
The role definition for the updated custom role MUST contain the Id and all other required properties of the role even if they are not updated: DisplayName, Description, Actions, AssignableScope Box 2: "*/read*."* Microsoft.Support/*" Microsoft.Support/* Create and manage support tickets "Microsoft.Support" role definition azure

NO.36 You are developing a software solution for an autonomous transportation system. The solution uses large data sets and Azure Batch processing to simulate navigation sets for entire fleets of vehicles.
You need to create compute nodes for the solution on Azure Batch.
What should you do?

A. In Python, implement the class: TaskAddParameter

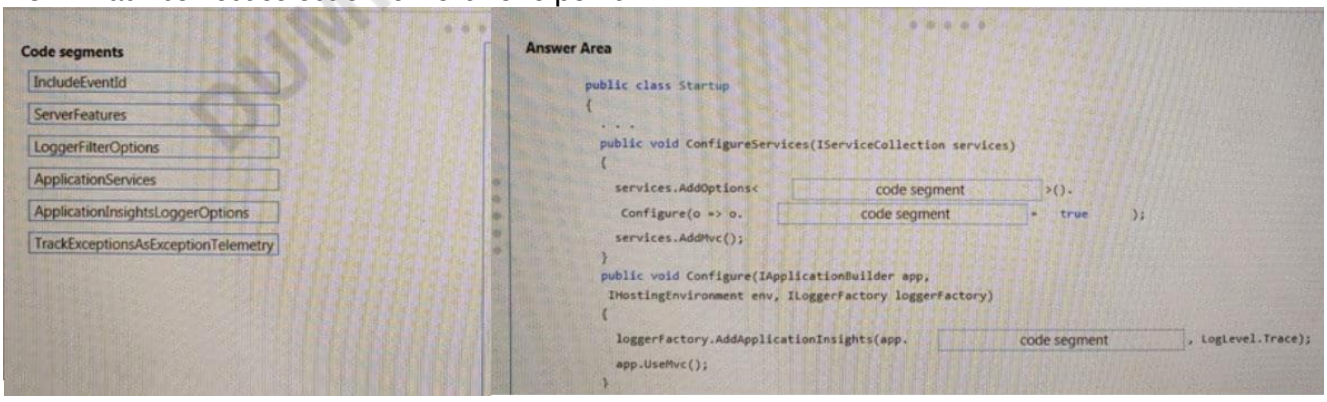
B. In Python, implement the class: JobAddParameter

C. In the Azure portal, create a Batch account

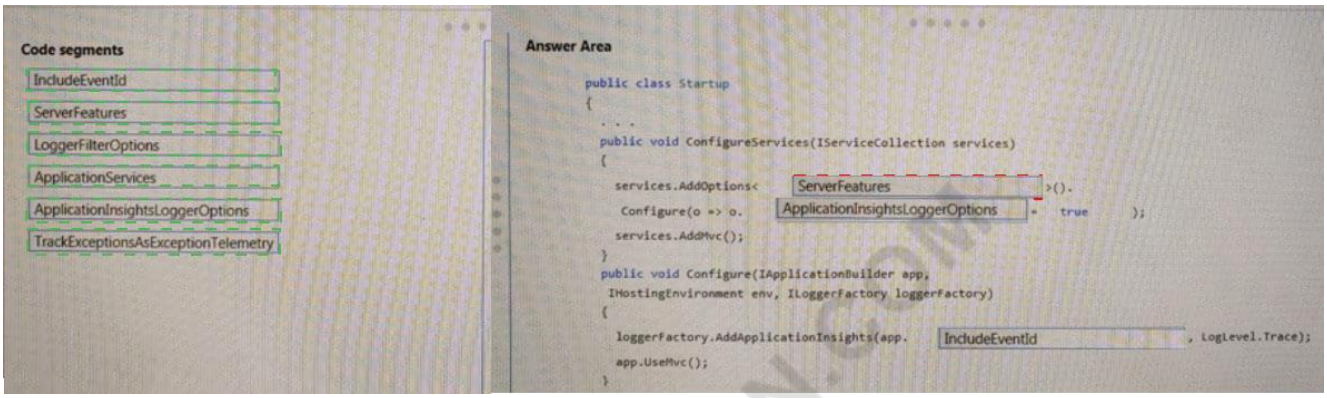
D. In a .NET method, call the method: batchClient.PoolOperations.CreatePool.

Answer: A

NO.37 You are developing an ASP.NET Core Web API web service that uses Azure Application Insights to monitor performance and trade events You need to enable logging and ensure that log messages can be correlated to events tracked by Application Insights.
How should you complete the code? To answer, drag the appropriate code segments to the correct locations.
Each code segment may be used once, more than once, or not at alt. You may need to drag the split bar between panes or scroll to view content.
NOTE: Each correct selection is worth one point.



Answer:



NO.38 You need to access user claims in the e-commerce web app* What should you do first?

A. Update the e-commerce web app to read the HTTP request header values.

B. Assign the Contributor RBAC role to the e-commerce web app by using the Resource Manager create role assignment API.

C. Write custom code to make a Microsoft Graph API call from the e-commerce web app.

D. Using the Azure CU enable Cross-origin resource sharing (CORS) from the e-commerce checkout API to the e-commerce web app

Answer: C

NO.39 You provide an Azure API Management managed web service lo clients. The back end web service implements HTTP Strict Transport Security (HSTS).
Every request to the backend service must include a valid HTTP authorization header.
You need to configure the Azure API Management instance with an authentication policy.
Which two policies can you uses? Each correct answer presents a complete solution NOTE: Each correct selection is worth one point.

A. Certificate Authentication

B. Basic Authentication

C. OAuth Client Credential Grant

D. Digest Authentication

Answer: A C

NO.40 You are developing an internal website for employees to view sensitive data. The website uses Azure Active Directory (AAD) for authentication. You need to implement multifactor authentication for the website.
What should you do? Each correct answer presents part of the solution.
NOTE; Each correct selection is worth one point.

A. In Azure AD, create a new conditional access policy.

B. In Azure AD, enable application proxy.

C. Configure the website to use Azure AD B2C.

D. In Azure AD conditional access, enable the baseline policy.

E. Upgrade to Azure AD Premium.

Answer: A E
Explanation
References:

https://docs.microsoft.com/en-us/azure/active-directory/authentication/howto-mfa-getstarted

NO.41 You develop a gateway solution for a public facing news API.
The news API back end is implemented as a RESTful sen/ice and hosted in an Azure App Service instance.
You need to configure back-end authentication for the API Management service instance.
Which target and gateway credential type should you use? To answer, drag the appropriate values to the correct parameters. 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.

Answer:

Explanation

Box 1: Azure Resource
Box 2: Client cert
API Management allows to secure access to the back-end service of an API using client certificates.
References:
https://docs.microsoft.com/en-us/rest/api/apimanagement/apimanagementrest/azure-api-management-rest-api-ba

NO.42 You have an Azure Batch project that processes and converts files and stores the files in Azure storage. You are developing a function to start the batch job.
You add the following parameters to the function.

Parameter name	Description
fileTasks	a list of tasks to be run
jobId	the identifier that must be assigned to the job
outputContainerSasUrl	a storage SAS URL to store successfully converted files
failedContainerSasUrl	a storage SAS URL to store copies of files that failed to convert.

You must ensure that converted files are placed in the container referenced by the outputContainerSasUrl parameter. Files which fail to convert are places in the container referenced by the failedContainerSasUrl parameter.
You need to ensure the files are correctly processed.
How should you complete the code segment? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Answer Area

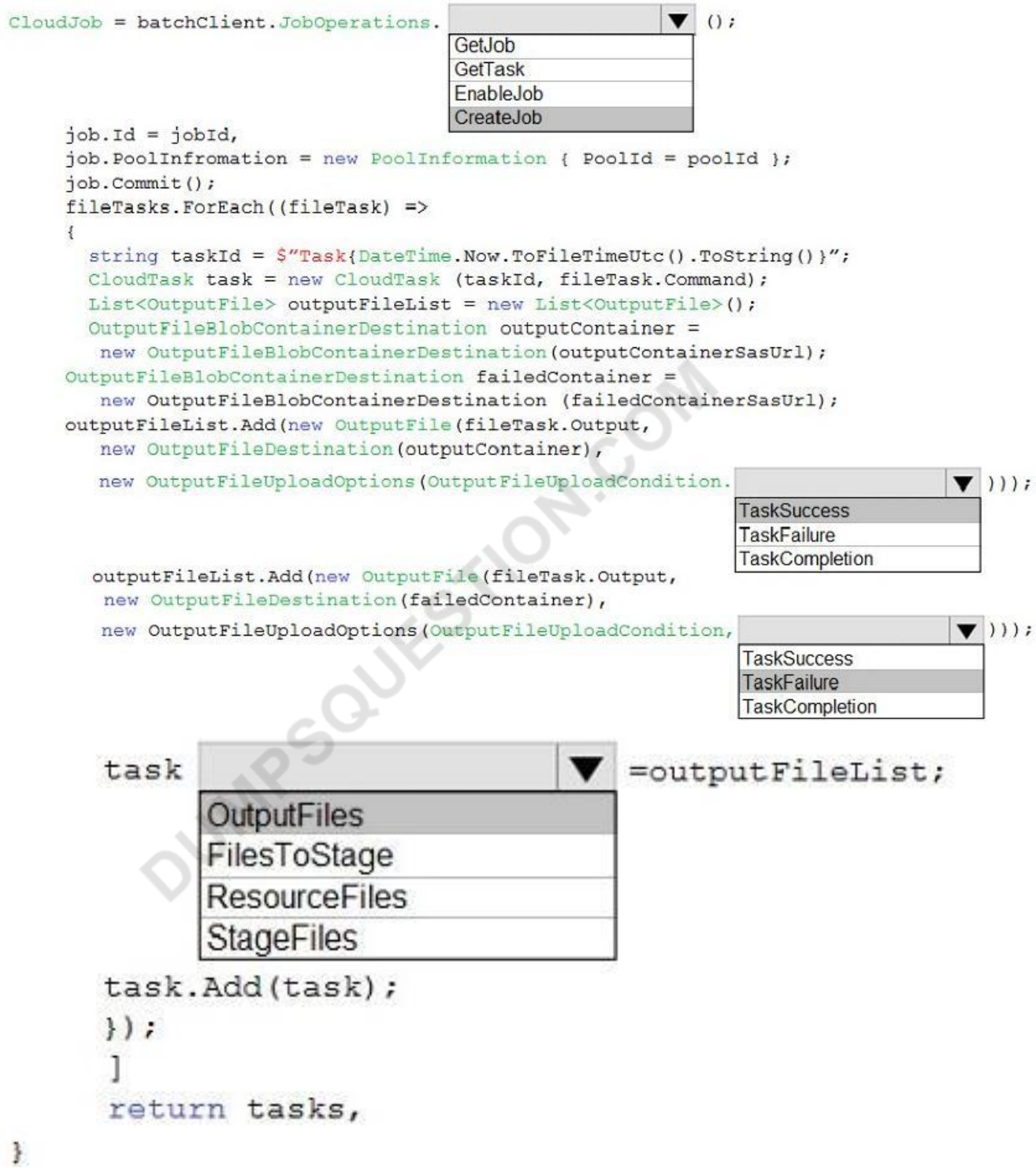
```
public list<CloudTasks> StartTasks(List<FileTask> fileTasks, string jobId,
 string outputContainerSasUrl, string failedContainerSasUrl)
{
  BatchSharedKeyCredentials sharedKeyCredentials =
   new BatchSharedKeyCredentials(batchAccountUrl, batchAccountName,
batchAccountKey);
 List<CloudTask> tasks = new List<CloudTask>();
 using (BatchClient batchClient = BatchClient.Open(sharedKeyCredentials))
{
   CloudJob = batchClient.JobOperations. [          ] ();
                                          GetJob
                                          GetTask
                                          EnableJob
                                          CreateJob
        job.Id = jobId,
        job.PoolInfromation = new PoolInformation { PoolId = poolId };
        job.Commit();
        fileTasks.ForEach((fileTask) =>
        {
          string taskId = $"Task{DateTime.Now.ToFileTimeUtc().ToString()}";
          CloudTask task = new CloudTask (taskId, fileTask.Command);
          List<OutputFile> outputFileList = new List<OutputFile>();
          OutputFileBlobContainerDestination outputContainer =
           new OutputFileBlobContainerDestination(outputContainerSasUrl);
       OutputFileBlobContainerDestination failedContainer =
    new OutputFileBlobContainerDestination (failedContainerSasUrl);
  outputFileList.Add(new OutputFile(fileTask.Output,
    new OutputFileDestination(outputContainer),
    new OutputFileUploadOptions(OutputFileUploadCondition. [          ] )));
                                                            TaskSuccess
                                                            TaskFailure
                                                            TaskCompletion
   outputFileList.Add(new OutputFile(fileTask.Output,
    new OutputFileDestination(failedContainer),
    new OutputFileUploadOptions(OutputFileUploadCondition, [          ] )));
                                                            TaskSuccess
                                                            TaskFailure
                                                            TaskCompletion
     task [          ] =outputFileList;
          OutputFiles
          FilesToStage
          ResourceFiles
          StageFiles
     task.Add(task);
     });
     ]
     return tasks,
}
```

Answer:

Answer Area

```
public list<CloudTasks> StartTasks(List<FileTask> fileTasks, string jobId,
 string outputContainerSasUrl, string failedContainerSasUrl)
{
  BatchSharedKeyCredentials sharedKeyCredentials =
   new BatchSharedKeyCredentials(batchAccountUrl, batchAccountName,
batchAccountKey);
 List<CloudTask> tasks = new List<CloudTask>();
 using (BatchClient batchClient = BatchClient.Open(sharedKeyCredentials))
{
   CloudJob = batchClient.JobOperations.                    ();
                                        GetJob
                                        GetTask
                                        EnableJob
                                        CreateJob
        job.Id = jobId,
        job.PoolInfromation = new PoolInformation { PoolId = poolId };
        job.Commit();
        fileTasks.ForEach((fileTask) =>
        {
          string taskId = $"Task{DateTime.Now.ToFileTimeUtc().ToString()}";
          CloudTask task = new CloudTask (taskId, fileTask.Command);
          List<OutputFile> outputFileList = new List<OutputFile>();
          OutputFileBlobContainerDestination outputContainer =
           new OutputFileBlobContainerDestination(outputContainerSasUrl);
        OutputFileBlobContainerDestination failedContainer =
    new OutputFileBlobContainerDestination (failedContainerSasUrl);
  outputFileList.Add(new OutputFile(fileTask.Output,
    new OutputFileDestination(outputContainer),
    new OutputFileUploadOptions(OutputFileUploadCondition.                    )));
                                                          TaskSuccess
                                                          TaskFailure
                                                          TaskCompletion
   outputFileList.Add(new OutputFile(fileTask.Output,
    new OutputFileDestination(failedContainer),
    new OutputFileUploadOptions(OutputFileUploadCondition,                    )));
                                                          TaskSuccess
                                                          TaskFailure
                                                          TaskCompletion
     task                    =outputFileList;
          OutputFiles
          FilesToStage
          ResourceFiles
          StageFiles
     task.Add(task);
     });
     ]
     return tasks,
}
```

Explanation



Box 1: CreateJob

Box 2: TaskSuccess

TaskSuccess: Upload the file(s) only after the task process exits with an exit code of 0.

Incorrect: TaskCompletion: Upload the file(s) after the task process exits, no matter what the exit code was.

Box 3: TaskFailure

TaskFailure:Upload the file(s) only after the task process exits with a nonzero exit code.

Box 4: OutputFiles

To specify output files for a task, create a collection of OutputFile objects and assign it to the CloudTask.OutputFiles property when you create the task.

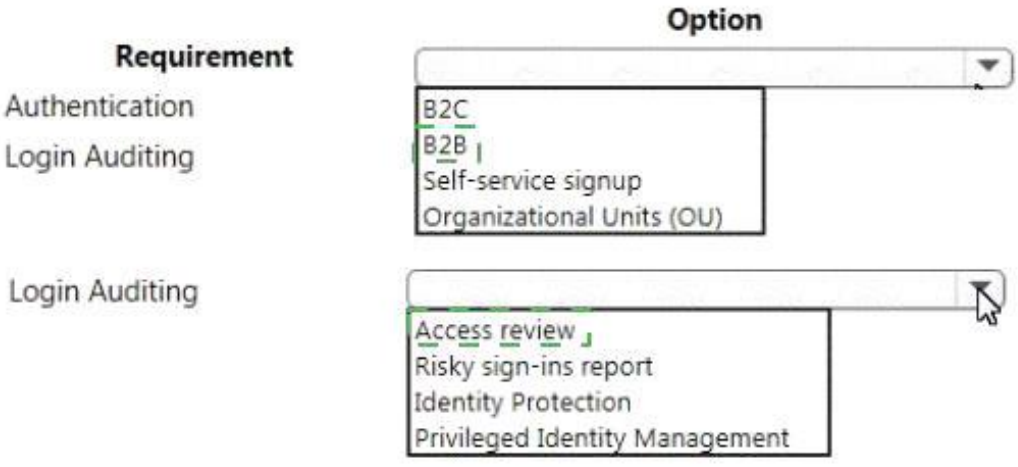
References:
https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.batch.protocol.models.outputfileuploadcondition
https://docs.microsoft.com/en-us/azure/batch/batch-task-output-files

NO.43 You need to meet the security requirements for external partners.
Which Azure Active Directory features should you use?
To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

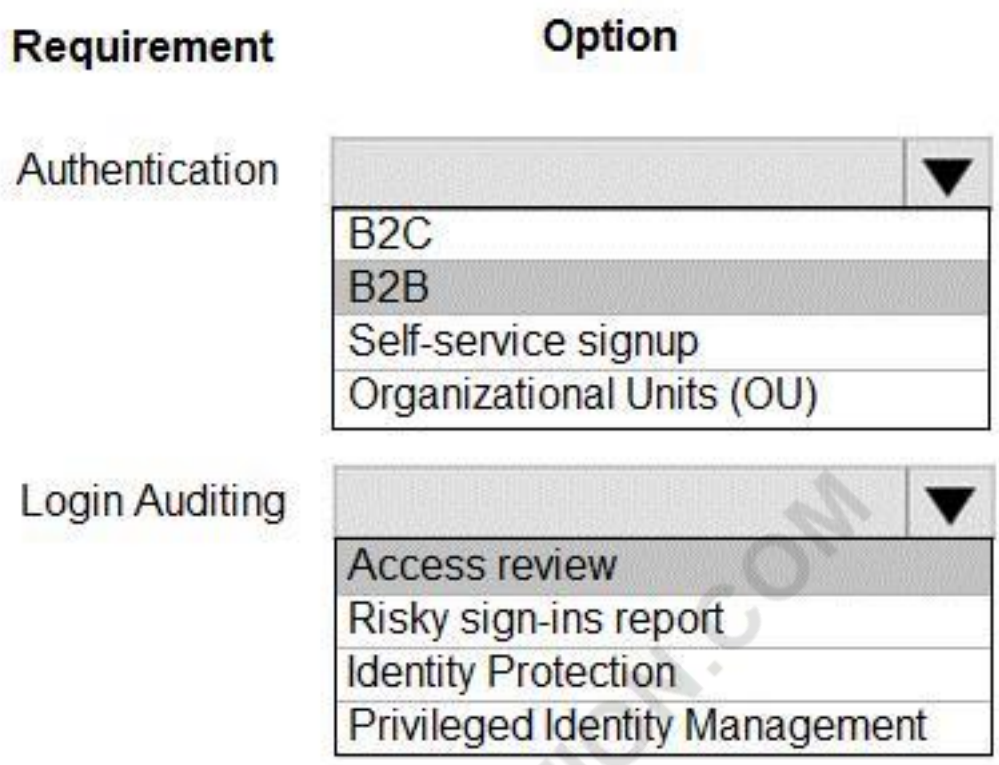
Answer Area

Answer:

Answer Area



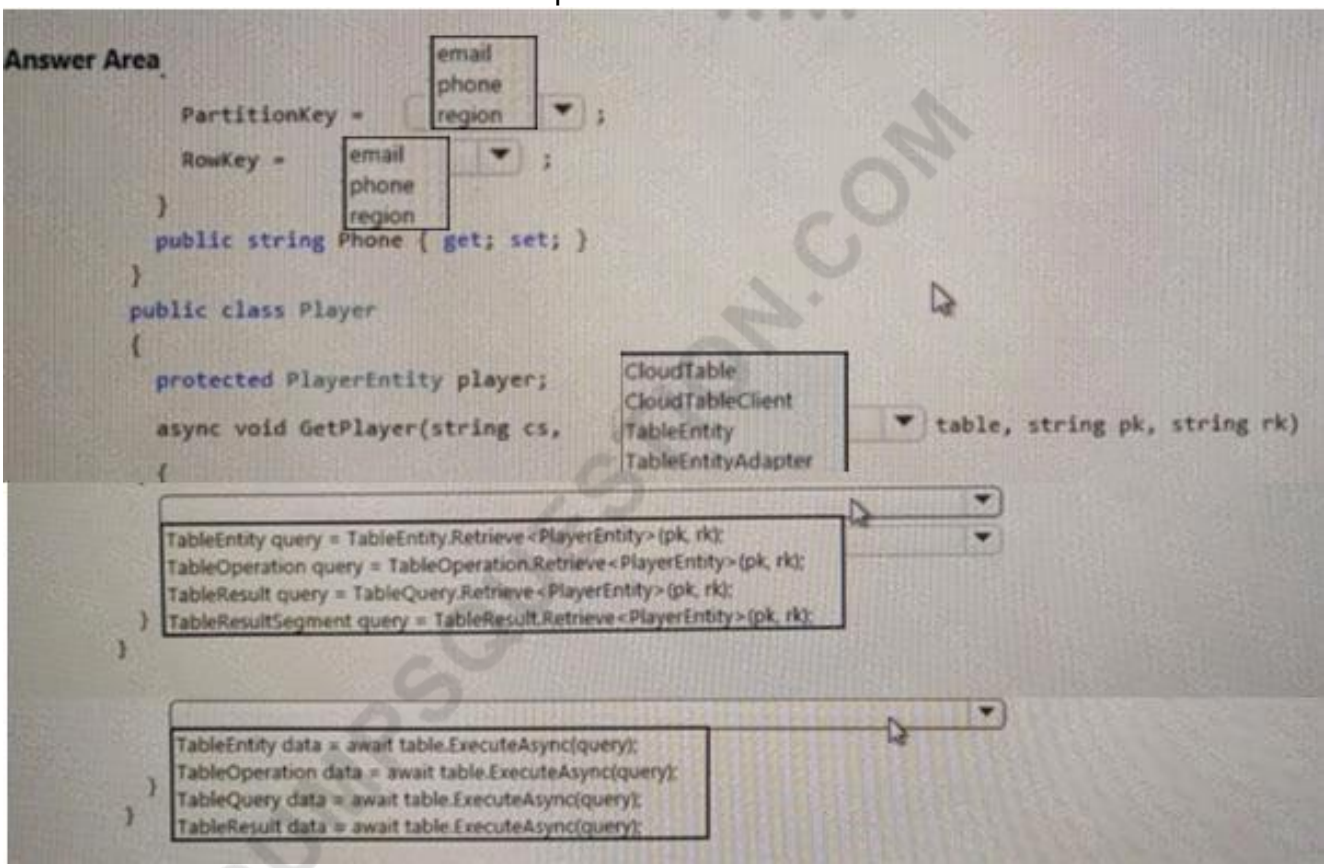
Explanation



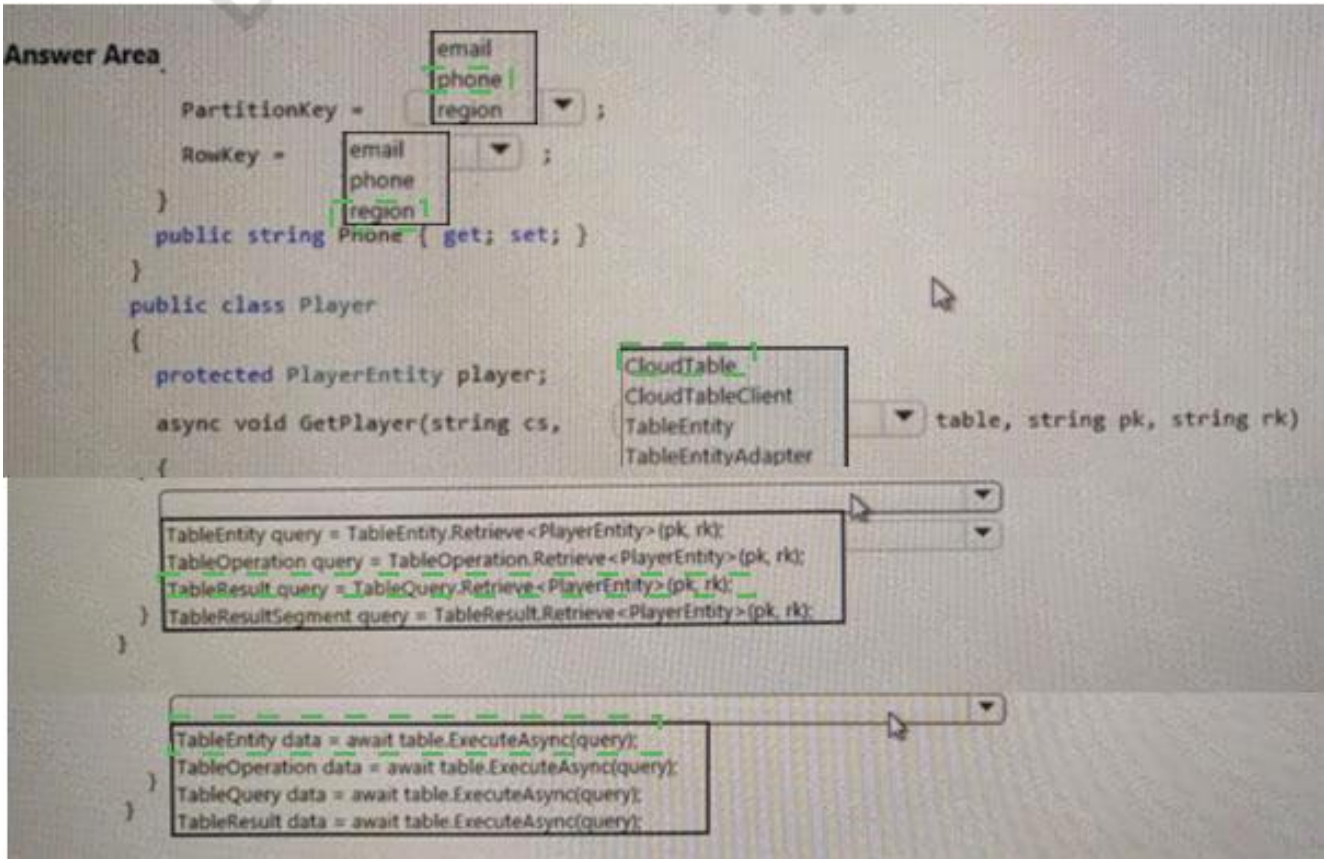
Box 1: B2B
Scenario: External partners must use their own credentials and authenticate with their organization's identity management solution.
Azure Active Directory (Azure AD) business-to-business (B2B) collaboration lets you securely share your company's applications and services with guest users from any other organization, while maintaining control over your own corporate data. Work safely and securely with external partners, large or small, even if they don't have Azure AD or an IT department. A simple invitation and redemption process lets partners use their own credentials to access your company's resources. Developers can use Azure AD business-to-business APIs to customize the invitation process or write applications like self-service sign-up portals.
Box 2: Access Review
Scenario: External partner logins must be audited monthly for application use by a user account administrator to maintain company compliance.
Azure Active Directory (Azure AD) Access Reviews enable organizations to efficiently manage group memberships, access to enterprise applications, and role assignments.
Administrators can use Azure Active Directory (Azure AD) to create an access review for group members or users assigned to an application. Azure AD automatically sends reviewers an email that prompts them to review access.
References:
https://docs.microsoft.com/en-us/azure/active-directory/b2b/what-is-b2b

NO.44 You are developing an app that manages users for a video game. You plan to store the region, email address, and phone number for the player. Some players may not have a phone number. The player's region will be used to load-balance data.
Data foe the app must be stored in Azure Table Storage.
You need to develop code to retrieve data for an individual player.
How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.



Answer:



NO.45 You need to implement the e-commerce checkout API.

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

A. In the Azure Function App, enable Manger Service Identity (MSI).

B. Set the function template's Mode property to Webhook and the Webhook type property to Generic JSON

C. Set the function template's Mode property to Webhook and the Webhook type property to GitHub.

D. Create an Azure Function using the HTTP POST function template.

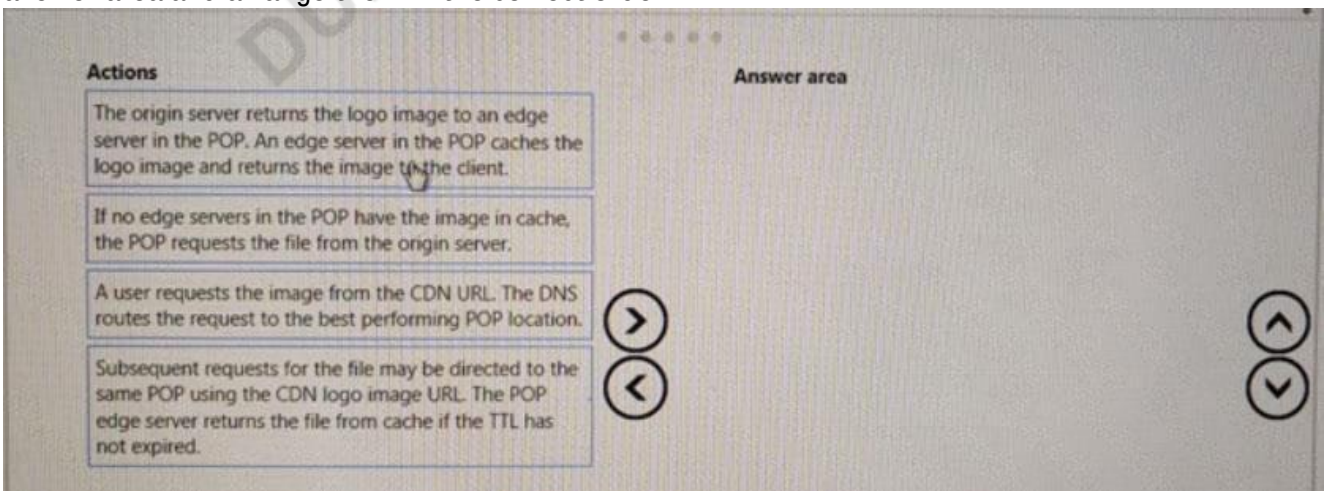
E. In the Azure Function App, enable Cross-Origin Resource Sharing (CORS) with all origins permitted.

F. Create an Azure Function using the Generic webhook function template.

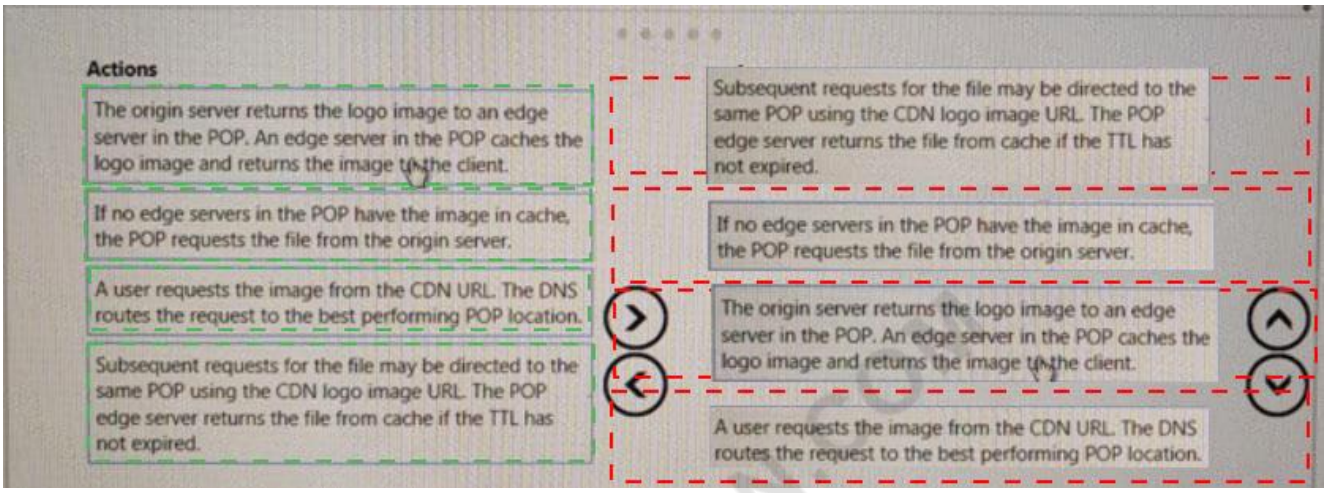
Answer: A B D

Explanation
Scenario: E-commerce application sign-ins must be secured by using Azure App Service authentication and Azure Active Directory (AAD).
References:
https://docs.microsoft.com/en-us/azure/app-service/overview-managed-identity

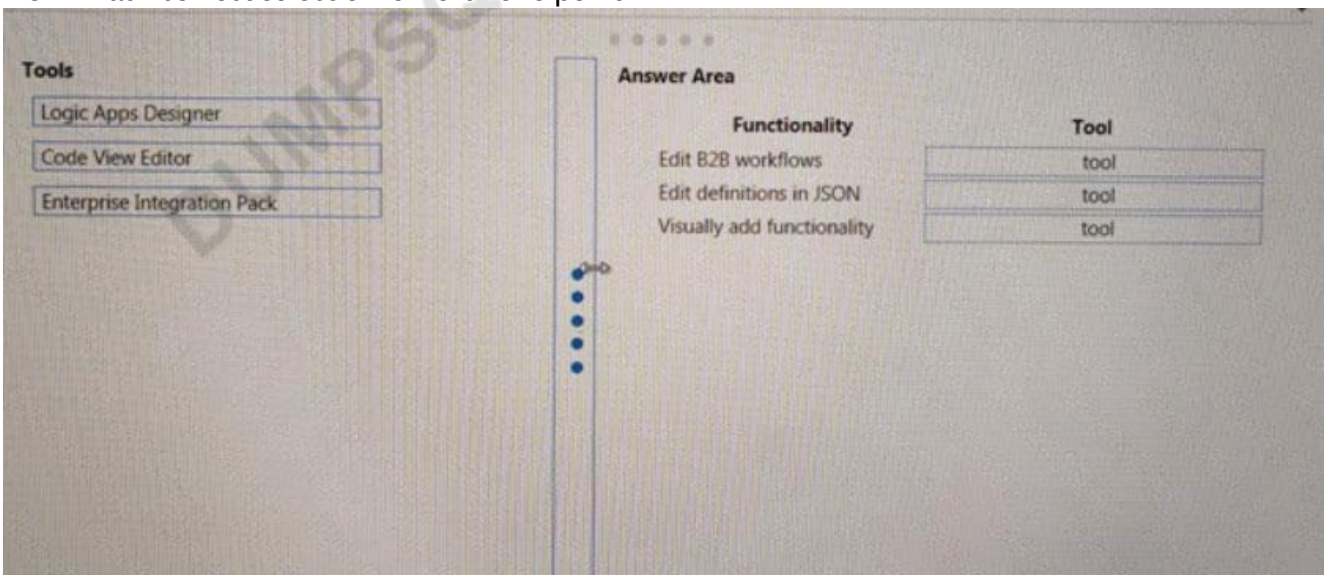
NO.46 Your company has several websites that use a company logo image. You use Azure Content Delivery Network (CDN) to store the static image.
You need to determine the correct process of how the CDN and the Point of Presence (POP) server will distribute the image and list the items in the correct order.
In which order do the actions occur? To answer, move all actions from the list of actions to the answer area and arrange them in the correct order.



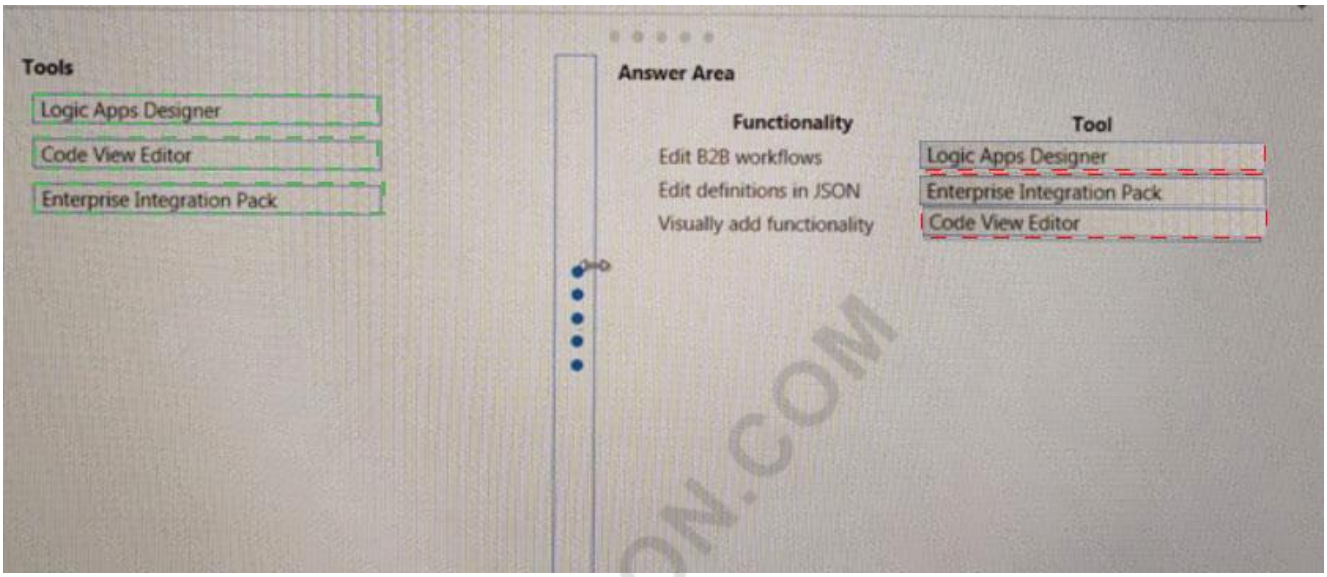
Answer:



NO.47 You manage several existing Logic Apps.
You need to change definitions, add new logic and optimize these apps on a regular basis.
What should you use? To answer, drag the appropriate tools to the coned functionalities. Each tool 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.



Answer:



NO.48 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.
You need to meet the LabelMaker application security requirement.
Solution: Place the Azure Active Directory account into an Azure AD group. Create a ClusterRoleBinding and assign it to the group.
Does the solution meet the goal?
A. Yes
B. No
Answer: A
Explanation
Scenario: The LabelMaker applications must be secured by using an AAD account that has full access to all namespaces of the Azure Kubernetes Service (AKS) cluster.
Permissions can be granted within a namespace with a RoleBinding, or cluster-wide with a ClusterRoleBinding.
References:
https://kubernetes.io/docs/reference/access-authn-authz/rbac/

NO.49 A company is implementing a publish-subscribe (Pub/Sub) messaging component by using Azure Service Bus. You are developing the first subscription application.
In the Azure portal you see that messages are being sent to the subscription for each topic. You create and initialize a subscription client object by supplying the correct details, but the subscription application is still not consuming the messages.
You need to complete the source code of the subscription client
What should you do?
A. await subscriptionClient.CloseAsync();
B. await subscriptionClient.AddRuleAsync(new RuleDescription(RuleDescription.DefaultRuleName, new TrueFilter()));
C. subscriptionClient.RegisterMessageHandler(ProcessMessagesAsync, messageHandlerOptions);
D. subscriptionClient = new SubscriptionClient(ServiceBusConnectionString, TopicName,

SubscriptionName);

Answer: C

Explanation

Using topic client, call RegisterMessageHandler which is used to receive messages continuously from the entity. It registers a message handler and begins a new thread to receive messages. This handler is waited on every time a new message is received by the receiver.

subscriptionClient.RegisterMessageHandler(ReceiveMessagesAsync, messageHandlerOptions);

References:

https://www.c-sharpcorner.com/article/azure-service-bus-topic-and-subscription-pub-sub/

NO.50 Contoso, Ltd. provides an API to customers by using Azure API Management (APIM). The API authorizes users with a JWT token.

You must implement response caching for the APIM gateway. The caching mechanism must detect the user ID of the client that accesses data for a given location and cache the response for that user ID.

You need to add the following policies to the policies file:

* a set-variable policy to store the detected user identity
* a cache-lookup-value policy
* a cache-store-value policy
* a find-and-replace policy to update the response body with the user profile information To which policy section should you add the policies? To answer, drag the appropriate sections to the correct policies. Each section 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

Answer:

Explanation

Policy	Policy section
Set-variable	Inbound
Cache-lookup-value	Inbound
Cache-store-value	Outbound
Find-and-replace	Outbound

NO.51 You are working for a company that designs mobile applications. They maintain a server where player records are assigned to their different games. The tracking system is new and in development.
The application uses Entity Framework to connect to an Azure Database. The database holds a Player table and Game table.
When adding a player, the code should insert a new player record, and add a relationship between an existing game record and the new player record.
The application will call CreatePlayerWithGame with the correct gameIdand the playerId to start the process.
(Line numbers are included for reference only.)

```
01. namespace ContosoCradt
02. {
03.    public class PlayerDbContext : DbContext
04.    {
05.  public PlayerDbContext() : base ("name-dBConnString") { ]
06.  public DbSet<Player> Players { get ; set ; }
07.  public DbSet<Game> Games { get ; set ]
08.  protected override void DmModelCreating{DBModelBuilder modelBuilder}
09.  {
10.   modelBuilder.Entity<Player>().MesMany(x => x.Games). WithMany (x => x Players);
11.  }
12.  }
13.   internal series class dbConfiguration : DbMigrationConfiguration<PlayerDbContext>
14.  {
15.  public dbConfiguration[] . {AutomaticMigrationsEnabled = true ; }
16.  {
17.    public class mp
18.    {
19.  public void CreatePlayerWithGame(int playerId, int gameId) => AddPlayer(playerId, GetGame[gameId]);
20.  public game GetGame(int gameId)
21.  {
22.    using (var db = new PlayerDbContext())
23.  {
24.    return db.Games.FirstOrDefault(x => x.GameId == gameId);
25.  }
26.   }
27.   public Player AddPlayer (int playerId, Game game)
28.   {
29.  using (var db = new PlayerDbContext())
30.  {
31.    var player = new Player
32.     {
33.      PlayerId = playerId,
34.      Games = new List <Game> {game },
35.  };
36.  db.Players.Add(player);
37.  db.SaveChanges();
38.  return player;
39.    }
40. }
41. public class Player
42. {
43.  public int PlayerId { get ; set; }
44.  public string PlayerName { get ; set; }
45.  public virtual List<Game> Games { get ; set; }
46.  }
47.  public class Game
48.  {
49.  public int GameIs { get ; set }
50.  public string Title { get ; set; }
51.  public string Platform { get ; set; ]
52.  public virtual List<Player> Players { get ; set; }
53.     }
54.  }
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.
NOTE: Each correct selection is worth one point.

	Yes	No
The code will successfully insert a player record.	○	○
The code has a bug and will insert an additional copy of the Game record with a new Id.	○	○
The code has a bug and will insert the wrong gameId value.	○	○
There is a valid many-to-many relationship between Players and Games.	○	○

Answer:

	Yes	No
The code will successfully insert a player record.	○	○
The code has a bug and will insert an additional copy of the Game record with a new Id.	○	○
The code has a bug and will insert the wrong gameId value.	○	○
There is a valid many-to-many relationship between Players and Games.	○	○

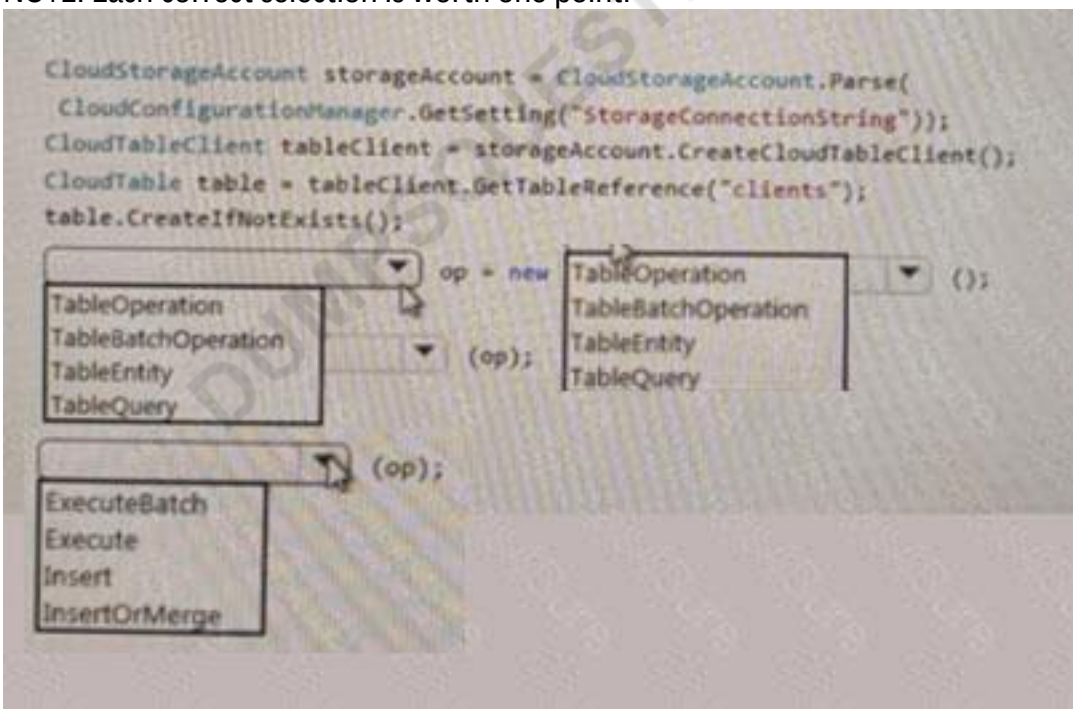
Explanation

	Yes	No
The code will successfully insert a player record.	○	○
The code has a bug and will insert an additional copy of the Game record with a new Id.	○	○
The code has a bug and will insert the wrong gameId value.	○	○
There is a valid many-to-many relationship between Players and Games.	○	○

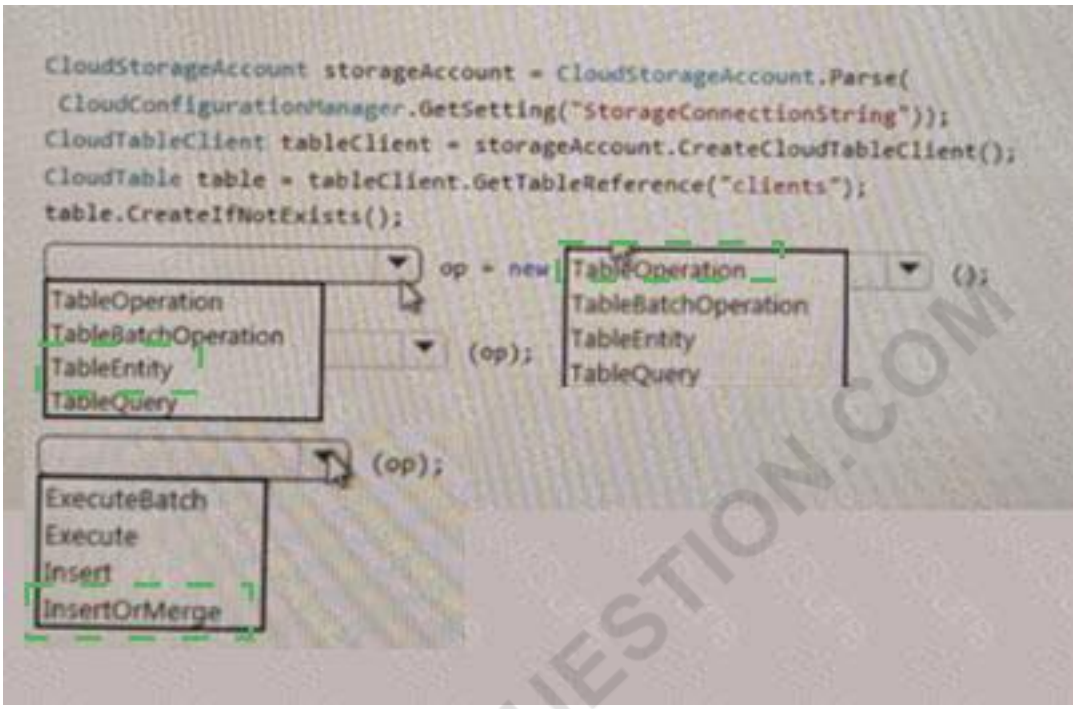
Many-to-many relationships without an entity class to represent the join table are not yet supported. However, you can represent a many-to-many relationship by including an entity class for the join table and mapping two separate one-to-many relationships.

```
protected override void OnModelCreating(ModelBuilder modelBuilder)
{
modelBuilder.Entity<PostTag>()
HasKey(t => new { t.PostId, t.TagId });
modelBuilder.Entity<PostTag>()
HasOne(pt => pt.Post)
WithMany(p => p.PostTags)
HasForeignKey(pt => pt.PostId);
modelBuilder.Entity<PostTag>()
HasOne(pt => pt.Tag)
WithMany(t => t.PostTags)
HasForeignKey(pt => pt.TagId);
}
}
```

NO.52 You are developing a data storage solution for a social networking app.
The solution requires a mobile app that stores user information using Azure Table Storage.
You need to develop code that can insert multiple sets of user information.
How should you complete the code? To answer, select the appropriate options m the answer area.
NOTE: Each correct selection is worth one point.



Answer:



NO.53 You are developing a mobile instant messaging app for a company.
The mobile app must meet the following requirements:
* Support offline data sync.
* Update the latest messages during normal sync cycles.
You need to implement Offline Data Sync.
Which two actions should you perform? Each conn I answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Retrieve records from Offline Data Sync on every call to the PullAsync method.

B. Retrieve records from Offline Data Sync using an Incremental Sync.

C. Push records to Offline Data Sync using an Incremental Sync.

D. Return the updatedAt column from the Mobile Service Backend and implement sorting by using the column.

E. Return the updatedAt column from the Mobile Service Backend and implement sorting by the message id.

Answer: B E

Explanation

B: Incremental Sync: the first parameter to the pull operation is a query name that is used only on the client. If you use a non-null query name, the Azure Mobile SDK performs an incremental sync. Each time a pull operation returns a set of results, the latest updatedAt timestamp from that result set is stored in the SDK local system tables. Subsequent pull operations retrieve only records after that timestamp.

E (not D): To use incremental sync, your server must return meaningful updatedAt values and must also support sorting by this field. However, since the SDK adds its own sort on the updatedAt field, you cannot use a pull query that has its own orderBy clause.

References:

https://docs.microsoft.com/en-us/azure/app-service-mobile/app-service-mobile-offline-data-sync

NO.54 You are writing code to create and run an Azure Batch job.
You have created a pool of compute nodes.
You need to choose the right class and its method to submit a batch job to the Batch service.
Which method should you use?

A. JobOperations.CreateJobO

B. CloudJob.Enable(IEnumerable<BatchClientBehavior>)

C. CloudJob.CommitAsync(IEnumerable<BatchClientBehavior>, CancellationToken)

D. JobOperations.EnableJob(String, IEnumerable<BatchClientBehavior>)

E. JobOperations.EnableJobAsync(String. IEnumerable<BatchClientBehavior>. CancellationToken)

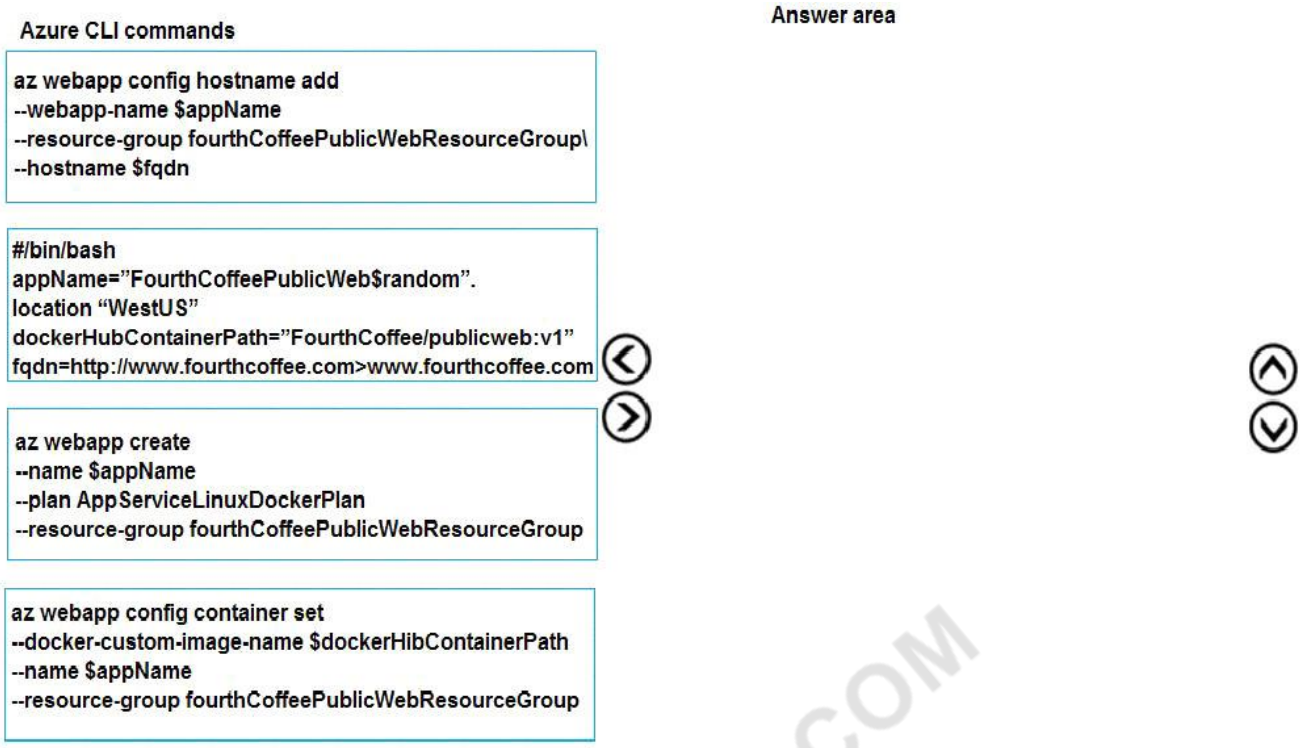
Answer: C

Explanation
A Batch job is a logical grouping of one or more tasks. A job includes settings common to the tasks, such as priority and the pool to run tasks on. The app uses the BatchClient.JobOperations.CreateJob method to create a job on your pool.
The Commit method submits the job to the Batch service. Initially the job has no tasks.

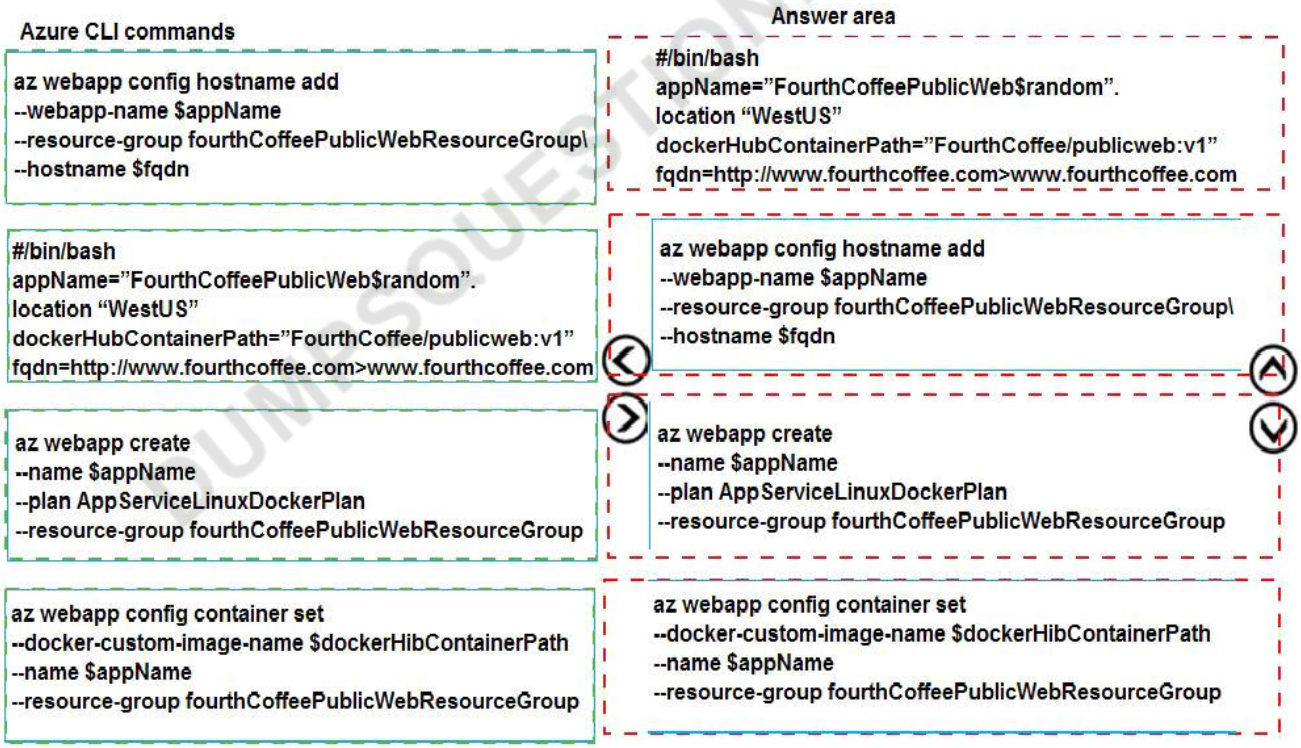
```
{
CloudJob job = batchClient.JobOperations.CreateJob();
job.Id = JobId;
job.PoolInformation = new PoolInformation { PoolId = PoolId };
job.Commit();
}
```

References:
https://docs.microsoft.com/en-us/azure/batch/quick-run-dotnet

NO.55 Fourth Coffee has an ASP.NET Core web app that runs in Docker. The app is mapped to the www.fourthcoffee.com domain.
Fourth Coffee is migrating this application to Azure.
You need to provision an App Service Web App to host this docker image and map the custom domain to the App Service web app.
A resource group named FourthCoffeePublicWebResourceGroup has been created in the WestUS region that contains an App Service Plan named AppServiceLinuxDockerPlan.
Which order should the CLI commands be used to develop the solution? To answer, move all of the Azure CLI command from the list of commands to the answer area and arrange them in the correct order.



Answer:



Explanation

```
#/bin/bash
appName="FourthCoffeePublicWeb$random".
location "WestUS"
dockerHubContainerPath="FourthCoffee/publicweb:v1"
fqdn=http://www.fourthcoffee.com>www.fourthcoffee.com
```

```
az webapp config hostname add
--webapp-name $appName
--resource-group fourthCoffeePublicWebResourceGroup\
--hostname $fqdn
```

```
az webapp create
--name $appName
--plan AppServiceLinuxDockerPlan
--resource-group fourthCoffeePublicWebResourceGroup
```

```
az webapp config container set
--docker-custom-image-name $dockerHibContainerPath
--name $appName
--resource-group fourthCoffeePublicWebResourceGroup
```


Step 1: #bin/bash
The appName is used when the webapp-name is created in step 2.
Step 2: az webapp config hostname add
The webapp-name is used when the webapp is created in step 3.
Step 3: az webapp create
Create a web app. In the Cloud Shell, create a web app in the myAppServicePlan App Service plan with the az webapp create command.
Step : az webapp confing container set
In Create a web app, you specified an image on Docker Hub in the az webapp create command. This is good enough for a public image. To use a private image, you need to configure your Docker account ID and password in your Azure web app.

In the Cloud Shell, follow the az webapp create command with az webapp config container set.
References:
https://docs.microsoft.com/en-us/azure/app-service/containers/tutorial-custom-docker-image

NO.56 You are developing an ASP.NET Core Web API web service. The web service uses Azure Application Insights for all telemetry and dependency tracking. The web service reads and writes data to a database other than Microsoft SQL Server.
You need to ensure that dependency tracking works for calls to the third-party database.
Which two Dependency Telemetry properties should you store in the database? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Telemetry.Context.Operation.Id

B. Tetemetry.Context.Cloud.RoleInstance

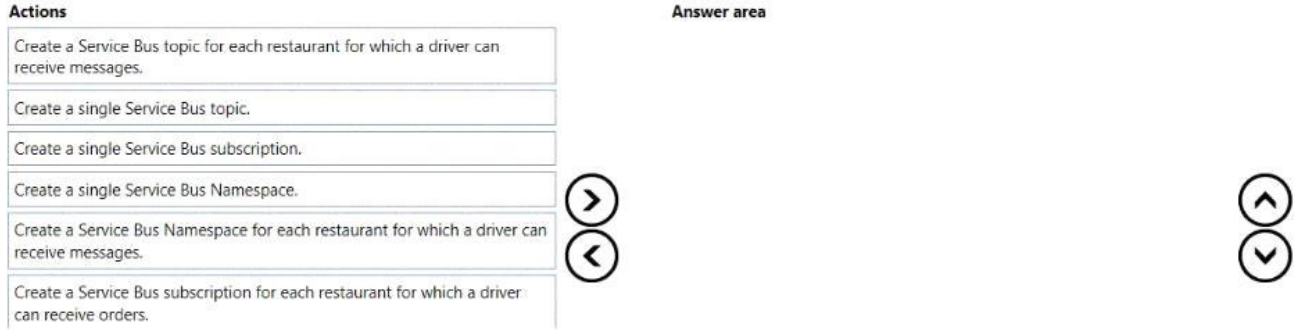
C. Telemetry.Id

D. Telemetry.ContextSession.Id

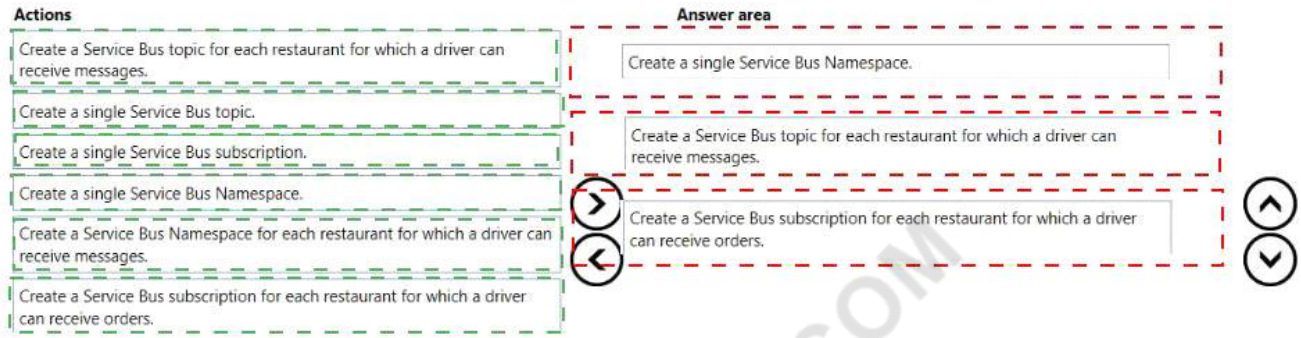
E. Telemetry.Name

Answer: A C
Explanation
References:
https://docs.microsoft.com/en-us/azure/azure-monitor/app/custom-operations-tracking

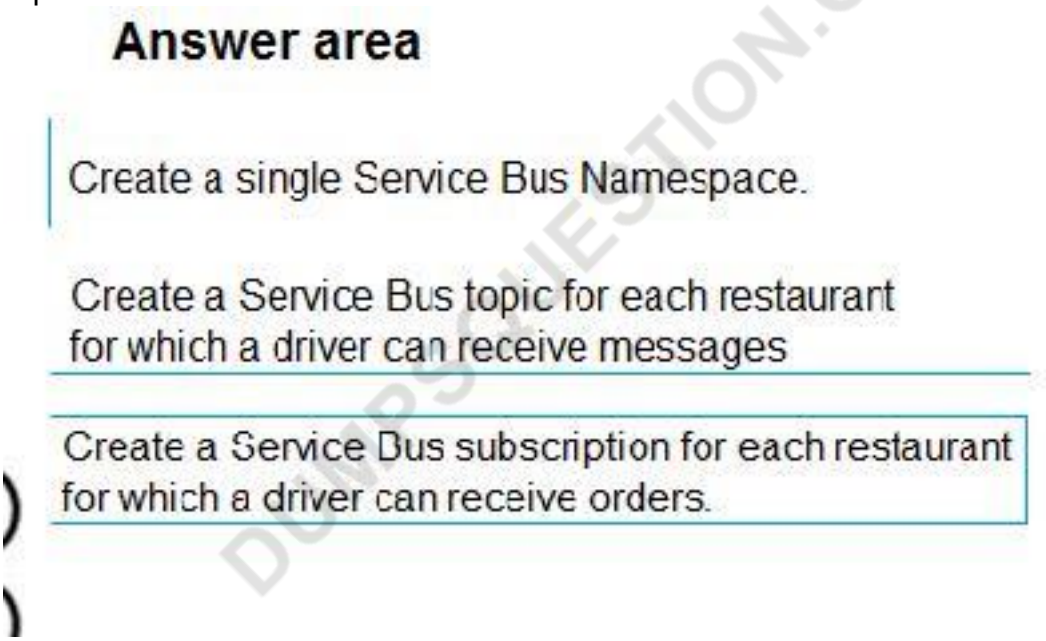
NO.57 You develop software solutions for a mobile delivery service. You are developing a mobile app that users can use to order from a restaurant in their area. The app uses the following workflow:
1. A driver selects the restaurants for which they will deliver orders.
2. Orders are sent to all available drivers in an area.
3. Only orders for the selected restaurants will appear for the driver.
4. The first driver to accept an order removes it from the list of available orders.
You need to implement an Azure Service Bus solution.
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.



Answer:



Explanation

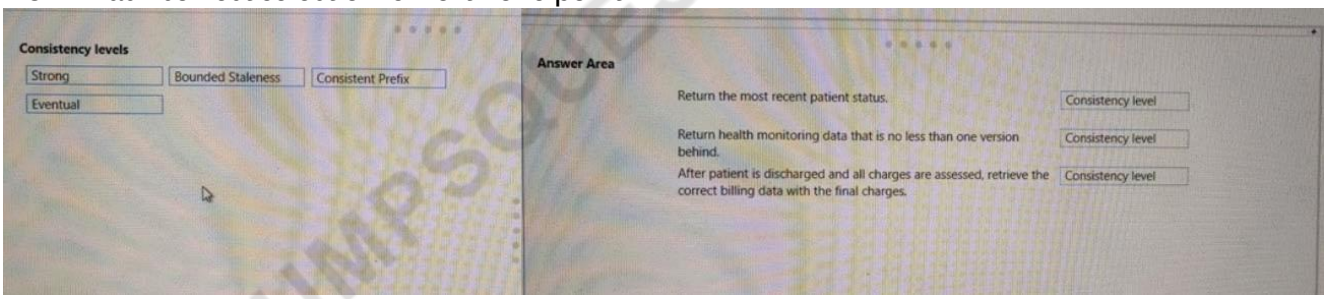


Box 1: Create a single Service Bus Namespace
To begin using Service Bus messaging entities in Azure, you must first create a namespace with a name that is unique across Azure. A namespace provides a scoping container for addressing Service Bus resources within your application.
Box 2: Create a Service Bus Topic for each restaurant for which a driver can receive messages.
Create topics.
Box 3: Create a Service Bus subscription for each restaurant for which a driver can receive orders.
Topics can have multiple, independent subscriptions.
References:
https://docs.microsoft.com/en-us/azure/service-bus-messaging/service-bus-messaging-overview

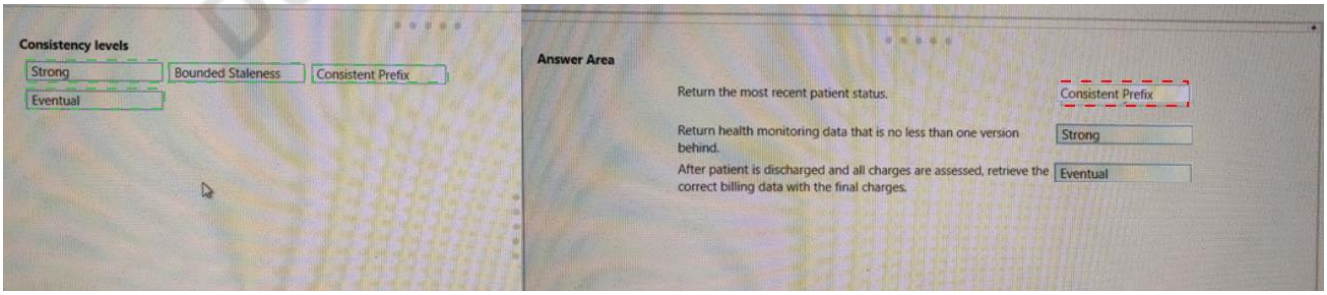
NO.58 You need to provision and deploy the order workflow.
Which three components should you include? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point

A. Workflow definition
B. Connections
C. Resources
D. Functions
E. On-premises Data Gateway
Answer: C D E

NO.59 You are developing a solution for a hospital to support the following use cases:
*The most recent patient status details must be retrieved even if multiple users in different locations have updated the patient record
*Patient health monitoring data retrieved must be the current version or the prior version.
*After a patient is discharged and all charges have been assessed, the patient billing record contains the final charges.
You provision a Cosmos D6 NoSQL database and set the default consistency level for the database account to Strong. You set the value for Indexing Mode to Consistent You must minimize latency and any impact to the availability of the solution. You must override the default consistency level at the query level to meet the required consistency guarantees for the scenarios.
You need to configure the consistency levels to support each scenario.
Which consistency levels should you implement? To answer, drag the appropriate consistency levels to the correct requirements. Each consistency level 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.



Answer:



NO.60 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution.
Determine whether the solution meets the stated goals.
You need to meet the LabelMaket application
Solution; Create a conditional access policy and assign it to the Azure Kubernetes service cluster.
Does the solution meet the goal?
A. Yes
B. No
Answer: B
Explanation
Scenario: The LabelMaker applications must be secured by using an AAD account that has full access to all namespaces of the Azure Kubernetes Service (AKS) cluster.
Before an Azure Active Directory account can be used with the AKS cluster, a role binding or cluster role binding needs to be created.
References:

https://docs.microsoft.com/en-us/azure/aks/aad-integration

NO.61 Note: This question is part of a series of questions that present the same scenario. Each question in the scries 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.
Margie's Travel is an international travel and bookings management service. The company is expanding into restaurant bookings. You are tasked with implementing Azure Search for the restaurants listed in their solution.
You create the index in Azure Search.
You need to import the restaurant data into the Azure Search service by using the Azure Search .NET SDK.
Solution:
1. Create a SearchIndexClient object to connect to the search index.
2. Create a DataContainer that contains the documents which must be added.
3. Create a DataSource instance and set its Container property to the DataContamer
4 Call the Documents.Suggest method of the SearchIndexClient and pass the DataSource.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

NO.62 You develop a news and blog content delivery app for Windows devices.
A notification must arrive on a user's device when there is a new article available for them to view.
You need to implement push notifications.
How should you complete the code segment? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Answer Area

```
string notificationHubName = "contoso_hub";
string notificationHubConnection = "connection_string";
[ ▼ ] hub=
[ ▼ ] . [ ▼ ]
(notificationHubConnection, notificationHubName);
string windowsToastPayload =
@"<toast><visual><binding template=""ToastText01""><text id=""1"">"+
@"New item to view" + @"</text></binding></visual></toast>";
try
{
var result=
  await hub. [ ▼ ] (windowsToastPayload);
. . .
}
catch (System.Exception ex)
{
  . . .
}
  . . .
```

- NotificationHubClient
- NotificationHubClientSettings
- NotificationHubJob
- NotificationDetails

- NotificationHubClient
- NotificationHubClientSettings
- NotificationHubJob
- NotificationDetails

- GetInstallation
- CreateClientFromConnectionString
- CreateOrUpdateInstallation
- PatchInstallation

- SendWindowsNativeNotificationAsync
- SubmitNotificationHubJobAsync
- ScheduleNotificationAsync
- SendAppleNativeNotificationAsync

Answer:

Answer Area

```
string notificationHubName = "contoso_hub";
string notificationHubConnection = "connection_string";
[ ▼ ] hub=
[ ▼ ] . [ ▼ ]
(notificationHubConnection, notificationHubName);
string windowsToastPayload =
@"<toast><visual><binding template=""ToastText01""><text id=""1"">"+
@"New item to view" + @"</text></binding></visual></toast>";
try
{
var result=
  await hub. [ ▼ ] (windowsToastPayload);
. . .
}
catch (System.Exception ex)
{
  . . .
}
  . . .
```

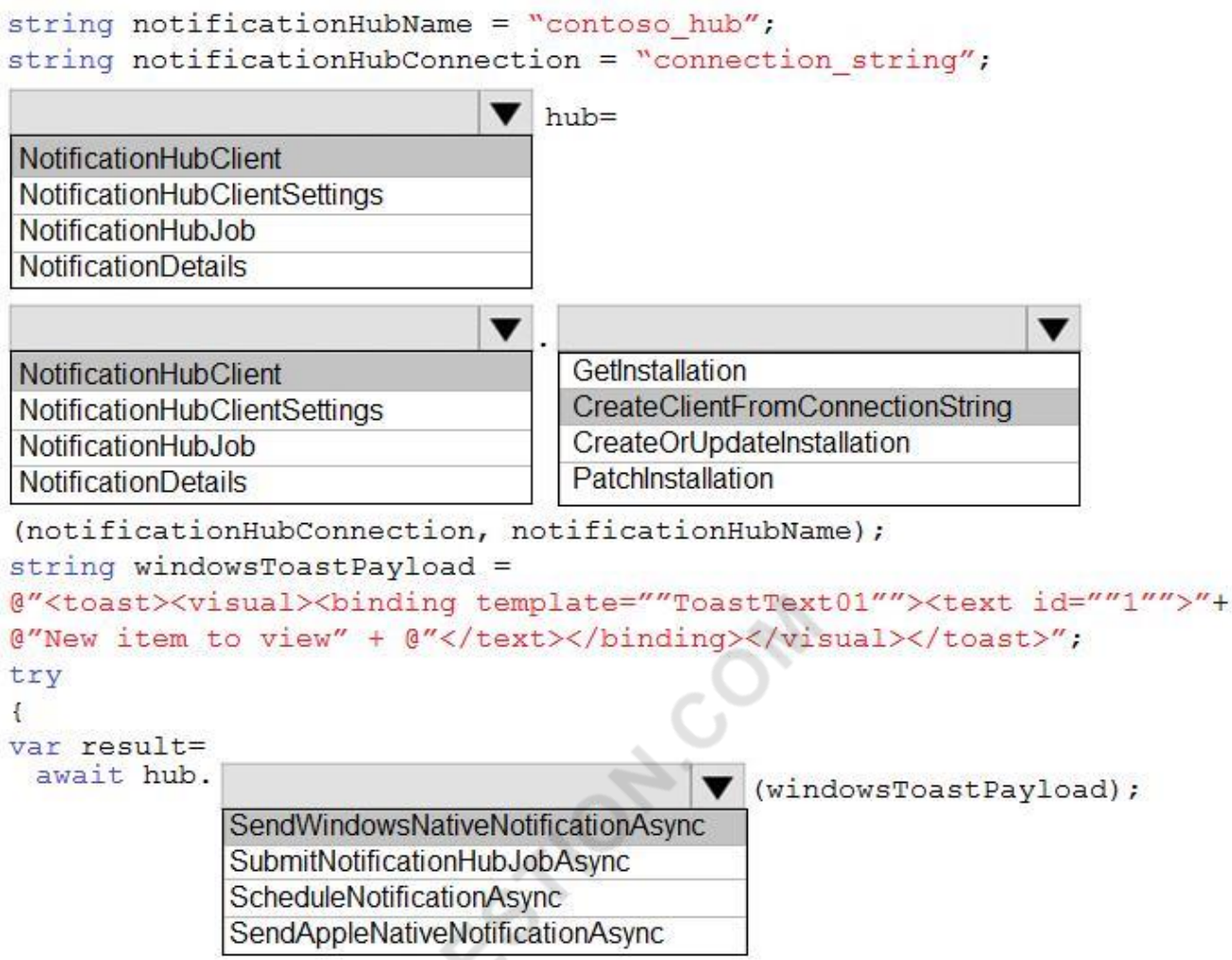
NotificationHubClient	
NotificationHubClientSettings	
NotificationHubJob	
NotificationDetails	

NotificationHubClient	
NotificationHubClientSettings	
NotificationHubJob	
NotificationDetails	

GetInstallation	
CreateClientFromConnectionString	
CreateOrUpdateInstallation	
PatchInstallation	

SendWindowsNativeNotificationAsync	
SubmitNotificationHubJobAsync	
ScheduleNotificationAsync	
SendAppleNativeNotificationAsync	

Explanation



Box 1: NotificationHubClient
Box 2: NotificationHubClient
Box 3: CreateClientFromConnectionString
// Initialize the Notification Hub
NotificationHubClient hub =
NotificationHubClient.CreateClientFromConnectionString(listenConnString, hubName); Box 4: SendWindowsNativeNotificationAsync Send the push notification.
var result = await hub.SendWindowsNativeNotificationAsync(windowsToastPayload); References:
https://docs.microsoft.com/en-us/azure/notification-hubs/notification-hubs-push-notification-registration-manage
https://github.com/MicrosoftDocs/azure-docs/blob/master/articles/app-service-mobile/app-service-mobile-windo

NO.63 You use Azure Table storage to store customer information for an application. The data contains customer details and is partitioned by last name. You need to create a query that returns all customers with the last name Smith. Which code segment should you use?

A. TableQuery.GenerateFilterCondition("PartitionKey", Equals, "Smith")

B. TableQuery.GenerateFilterCondition("LastName", Equals, "Smith")

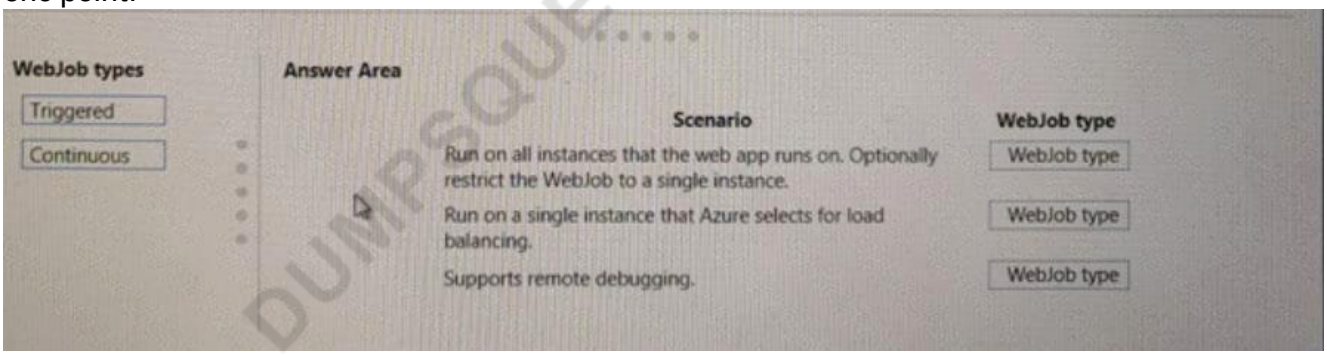
C. TableQuery.GenerateFilterCondition("PartitionKey", QueryComparisons.Equal, "Smith")

D. TableQuery.GenerateFilterCondition("LastName", QueryComparisons.Equal, "Smith")

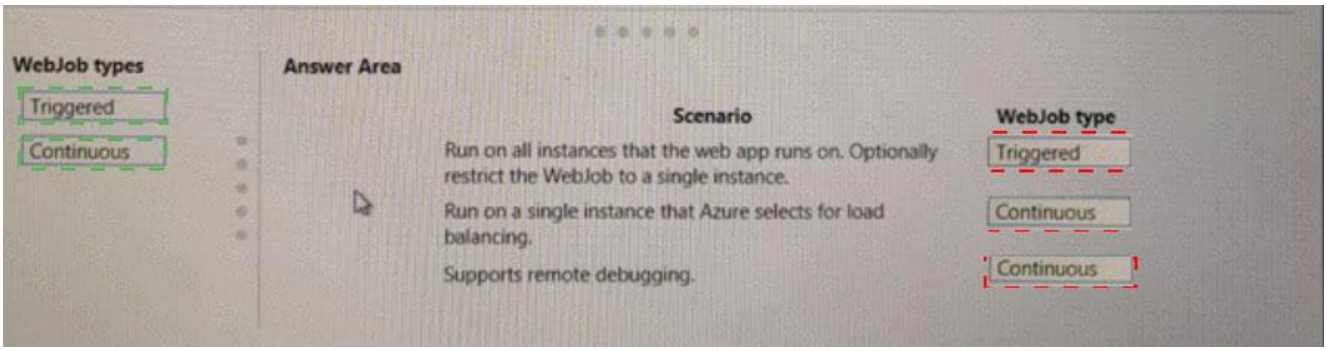
Answer: C

Explanation
Retrieve all entities in a partition. The following code example specifies a filter for entities where 'Smith' is the partition key. This example prints the fields of each entity in the query results to the console.
Construct the query operation for all customer entities where PartitionKey="Smith".
TableQuery<CustomerEntity> query = new TableQuery<CustomerEntity>().Where(TableQuery.GenerateFilterCondition("PartitionKey", QueryComparisons.Equal, "Smith")); References:
https://docs.microsoft.com/en-us/azure/cosmos-db/table-storage-how-to-use-dotnet

NO.64 You are developing Azure WebJobs.
You need to recommend a WebJob type for each scenario.
Which WebJob type should you recommend? To answer, drag the appropriate WebJob types to the correct scenarios. Each WebJob type 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 s worth one point.



Answer:



NO.65 A company runs an international travel and bookings management service. The company plans to begin offering restaurant bookings. You must develop a solution that uses Azure Search and meets the following requirements:
* Users must be able to search for restaurants by name, description, location, and cuisine.
* Users must be able to narrow the results further by location, cuisine, rating, and family-friendliness.
* All words in descriptions must be included in searches.
You need to add annotations to the restaurant class.
How should you complete the code segment? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

```
[SerializePropertyNameAsCamelCase]
public class Restaurant
{
  [Key, IsFilterable]
  public int RestaurantId { get; set; }
  [IsSearchable, IsFilterable, IsSortable]
  public string Name { get; set; }
```

- [IsSearchable.IsFilterable.IsSortable, IsFacetable]
- [IsFilterable.IsFacetable,Required]
- [IsSearchable]
- [IsSearchable, Required]

```
  public string location { get; set; }
  public string Phone { get; set; }
```

- [Required]
- [IsSearchable]
- [IsFilterable, IsFacetable, Required]
- [IsFilterable, IsFacetable, IsSortable]

```
  public string Description { get; set; }
```

- [IsFiltrable, IsSortable, IsSearchable]
- [IsFilterable, IsSortable, IsFacetable]
- [IsFiltrable, IsSortable, Key]
- [IsFilteranle, IsSortable, IsSearchable, Required]

```
  public double Rating { get; set; }
```

- [IsSearchable, IsFilterable, IsFacetable]
- [IsFilterbale, IsSortable, Key]
- [IsFilterable, IsSortable, IsSearchable]
- [IsFilterable, IsSortable, Key, Required]

```
  public List<string> Cuisines { get; set; }
```

- [IsFilterable, IsSortable, Key, Required]
- [IsSearchable, IsSortable, IsFacetable]
- [IsFilterable, IsSortable, Key, IsSearchable]
- [IsFilterable, IsFacetable]

```
  public bool FamilyFriendly { get; set; }
```

Answer:

```
[SerializePropertyNameAsCamelCase]
public class Restaurant
{
 [Key, IsFilterable]
 public int RestaurantId { get; set; }
 [IsSearchable, IsFilterable, IsSortable]
 public string Name { get; set; }
```

- [IsSearchable,IsFilterable,IsSortable, IsFacetable]
- [IsFilterable.IsFacetable,Required]
- [IsSearchable]
- [IsSearchable, Required]

```
 public string location { get; set; }
 public string Phone { get; set; }
```

- [Required]
- [IsSearchable]
- [IsFilterable, IsFacetable, Required]
- [IsFilterable, IsFacetable, IsSortable]

```
public string Description { get; set; }
```

- [IsFiltrable, IsSortable, IsSearchable]
- [IsFilterable, IsSortable, IsFacetable]
- [IsFiltrable, IsSortable, Key]
- [IsFilteranle, IsSortable, IsSearchable, Required]

```
public double Rating { get; set; }
```

- [IsSearchable, IsFilterable, IsFacetable]
- [IsFilterbale, IsSortable, Key]
- [IsFilterable, IsSortable, IsSearchable]
- [IsFilterable, IsSortable, Key, Required]

```
public List<string> Cuisines { get; set; }
```

- [IsFilterable, IsSortable, Key, Required]
- [IsSearchable, IsSortable, IsFacetable]
- [IsFilterable, IsSortable, Key, IsSearchable]
- [IsFilterable, IsFacetable]

```
public bool FamilyFriendly { get; set; }
```

Explanation

Answer Area

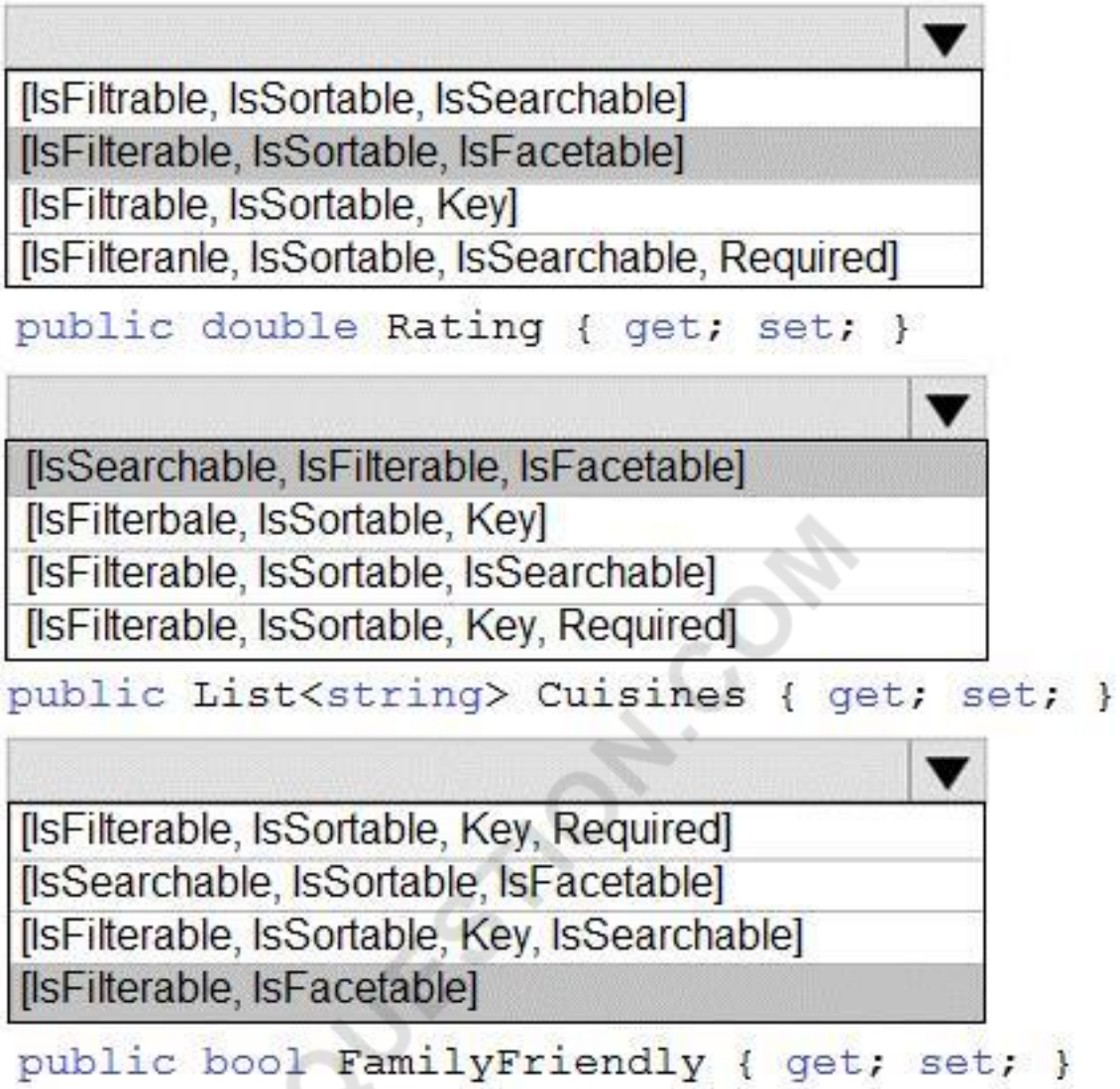
```
[SerializePropertyNameAsCamelCase]
public class Restaurant
{
 [Key, IsFilterable]
 public int RestaurantId { get; set; }
 [IsSearchable, IsFilterable, IsSortable]
 public string Name { get; set; }
```

[IsSearchable.IsFilterable.IsSortable, IsFacetable]
[IsFilterable.IsFacetable,Required]
[IsSearchable]
[IsSearchable, Required]

```
 public string location { get; set; }
 public string Phone { get; set; }
```

[Required]
[IsSearchable]
[IsFilterable, IsFacetable, Required]
[IsFilterable, IsFacetable, IsSortable]

```
public string Description { get; set; }
```



Box 1: [IsSearchable.IsFilterable.IsSortable,IsFacetable]
Location
Users must be able to search for restaurants by name, description, location, and cuisine.
Users must be able to narrow the results further by location, cuisine, rating, and family-friendliness.
Box 2: [IsSearchable.IsFilterable.IsSortable,Required]
Description
Users must be able to search for restaurants by name, description, location, and cuisine.
All words in descriptions must be included in searches.
Box 3: [IsFilterable,IsSortable,IsFaceTable]
Rating
Users must be able to narrow the results further by location, cuisine, rating, and family-friendliness.
Box 4: [IsSearchable.IsFilterable,IsFacetable]
Cuisines
Users must be able to search for restaurants by name, description, location, and cuisine.
Users must be able to narrow the results further by location, cuisine, rating, and family-friendliness.
Box 5: [IsFilterable,IsFacetable]
FamilyFriendly
Users must be able to narrow the results further by location, cuisine, rating, and family-friendliness.
References:

https://www.henkboelman.com/azure-search-the-basics/

NO.66 A company develops a series of mobile games. All games use a single leaderboard service. You have the following requirements:
* Code should be scalable and allow for growth.
* Each record must consist of a playedId, gameId, score, and time played.
* When users reach a new high score, the system will save the new score using the SaveScore function below.
* Each game is assigned and Id based on the series title.
You have the following code. (Line numbers are included for reference only.) You store customer information in an Azure Cosmos database. The following data already exists in the database:
You develop the following code. (Line numbers are included for reference only.)

```
01   CloudTableClient tableClient = account.CreateCloudTableClient();
02   CloudTable table = tableClient.GetTableReference("people");
03   TableQuery<CustomerEntity> query = new TableQuery<CustomerEntity>()
04    .Where(TableQuery.CombineFilters(
05   TableQuery.Generate.And, TableQuery.GenerateFilterCondition(Email, QueryComparisons.Equal, "Smith")
06   TableOperstors.And, TableQuery.GenerateFilterCondition(Email, QueryComparisons.Equal,
"ssmith@contoso.com")
07   ));
08   await table.ExecuteQuerySegmentedAsync<CustomerEntity>(query, null);
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.
NOTE: Each correct selection is worth one point.

	Yes	No
The code will work with Cosmos DB.	○	○
The save score function will update and replace a record if one already exists with the same playerId and gameId.	○	○
The data for the game will be automatically partitioned.	○	○
This code will store the values for the gameId and playerId parameters in the database.	○	○

Answer:

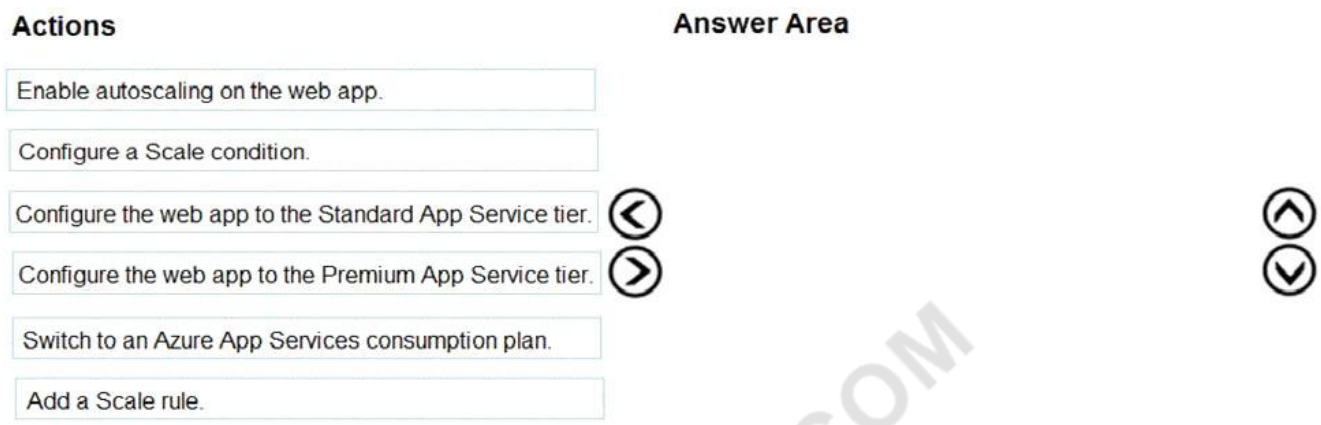
	Yes	No
The code will work with Cosmos DB.	○	○
The save score function will update and replace a record if one already exists with the same playerId and gameId.	○	○
The data for the game will be automatically partitioned.	○	○
This code will store the values for the gameId and playerId parameters in the database.	○	○

Explanation

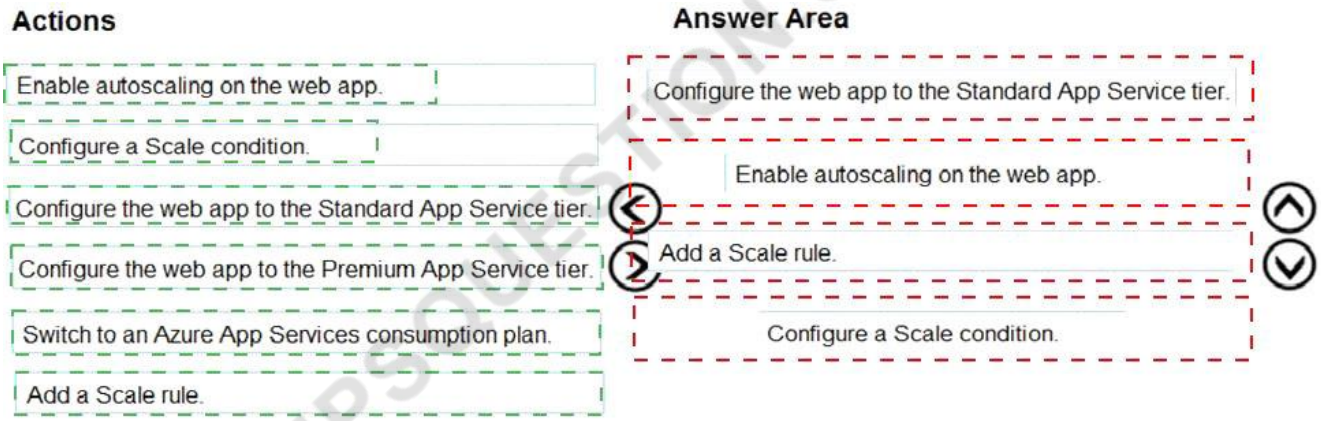
	Yes	No
The code will work with Cosmos DB.	○	○
The save score function will update and replace a record if one already exists with the same playerId and gameId.	○	○
The data for the game will be automatically partitioned.	○	○
This code will store the values for the gameId and playerId parameters in the database.	○	○

Box 1: Yes
Code for CosmosDB, example:
// Parse the connection string and return a reference to the storage account.
CloudStorageAccount storageAccount = CloudStorageAccount.Parse(
CloudConfigurationManager.GetSetting("StorageConnectionString"));
// Create the table client.
CloudTableClient tableClient = storageAccount.CreateCloudTableClient();
// Retrieve a reference to the table.
CloudTable table = tableClient.GetTableReference("people");
// Create the TableOperation object that inserts the customer entity.
TableOperation insertOperation = TableOperation.Insert(customer1);
Box 2: No
A new record will always be added as TableOperation.Insert is used, instead of TableOperation.InsertOrReplace.
Box 3: No
No partition key is used.
Box 4: Yes
References:
https://docs.microsoft.com/en-us/azure/cosmos-db/table-storage-how-to-use-dotnet

NO.67 You develop a web app that uses the tier D1 app service plan by using the Web Apps feature of Microsoft Azure App Service.
Spikes in traffic have caused increases in page load times.
You need to ensure that the web app automatically scales when CPU load is about 85 percent and minimize costs.
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.



Answer:



Explanation

Step 1: Configure the web app to the Standard App Service Tier
The Standard tier supports auto-scaling, and we should minimize the cost.
Step 2: Enable autoscaling on the web app
First enable autoscale
Step 3: Add a scale rule
Step 4: Add a Scale condidation
References:
https://docs.microsoft.com/en-us/azure/monitoring-and-diagnostics/monitoring-autoscale-get-started
https://azure.microsoft.com/en-us/pricing/details/app-service/plans/

NO.68 You develop an Azure web app. You monitor performance of the web app by using Application Insights. You need to ensure the cost for Application Insights does not exceed a preset

budget. What should you do?

A. Implement ingestion sampling using the Azure portal.

B. Set a daily cap for the Application Insights instance.

C. Implement adaptive sampling using the Azure portal.

D. Implement adaptive sampling using the Application Insights SDK.

E. Implement ingestion sampling using the Application Insights SDK.

Answer: D

Explanation

Sampling is an effective way to reduce charges and stay within your monthly quota.

You can set sampling manually, either in the portal on the Usage and estimated costs page; or in the ASP.NET SDK in the .config file; or in the Java SDK in the ApplicationInsights.xml file, to also reduce the network traffic.

Adaptive sampling is the default for the ASP.NET SDK. Adaptive sampling automatically adjusts to the volume of telemetry that your app sends. It operates automatically in the SDK in your web app so that telemetry traffic on the network is reduced.

References:

https://docs.microsoft.com/en-us/azure/azure-monitor/app/sampling

NO.69 You develop a gateway solution for a public facing news API. The news API back end is implemented as a RESTful service and uses an OpenAPI specification. You need to ensure that you can access the news API by using an Azure API Management service instance.

Which Azure PowerShell command should you run?

A)

```
Import-AzureRmApiManagementApi -Context $ApiMgmtContext -SpecificationFormat "Swagger"
 -SpecificationPath $SwaggerPath -Path $Path
```

B)

```
New-AzureRmApiManagementBackend -Context $ApiMgmtContext -Url $Url -Protocol http
```

C)

```
New-AzureRmApiManagement -ResourceGroupName $ResourceGroup -Name $Name -Location $Location
 -Organization $Org -AdminEmail $AdminEmail
```

D)

```
New-AzureRmApiManagementBackendProxy -Url $ApiUrl
```

A. Option A

B. Option B

C. Option C

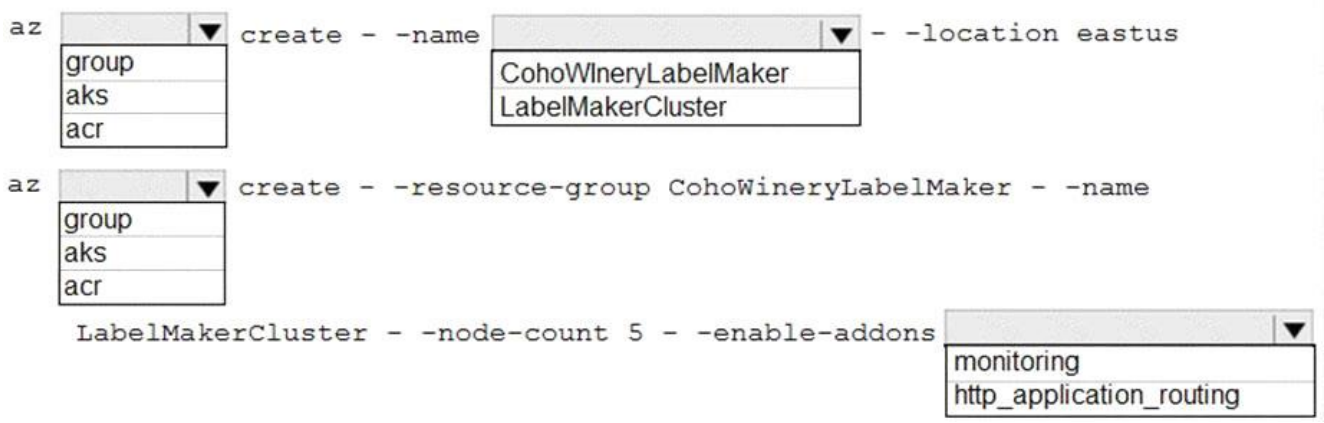
D. Option D

Answer: D

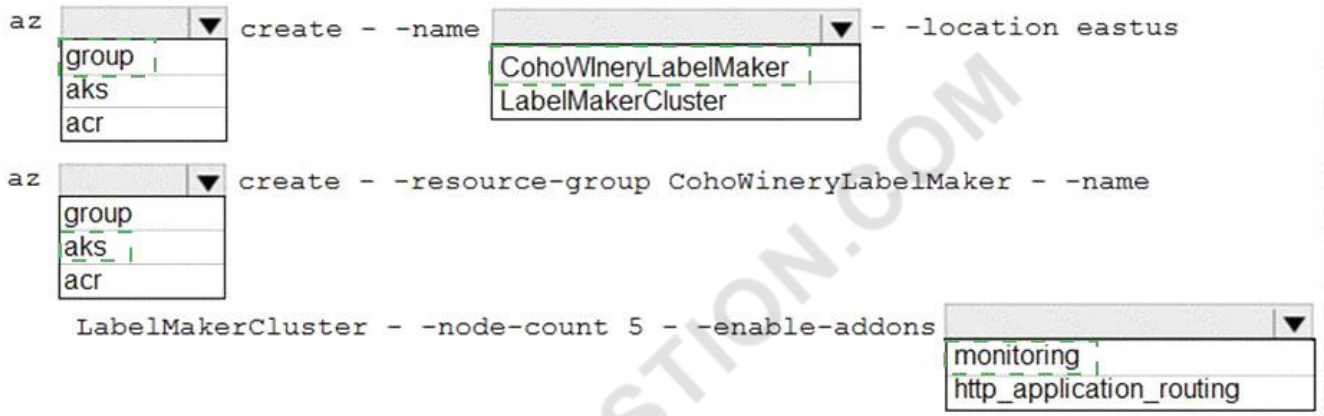
NO.70 You need to ensure that you can deploy the LabelMaker application.

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

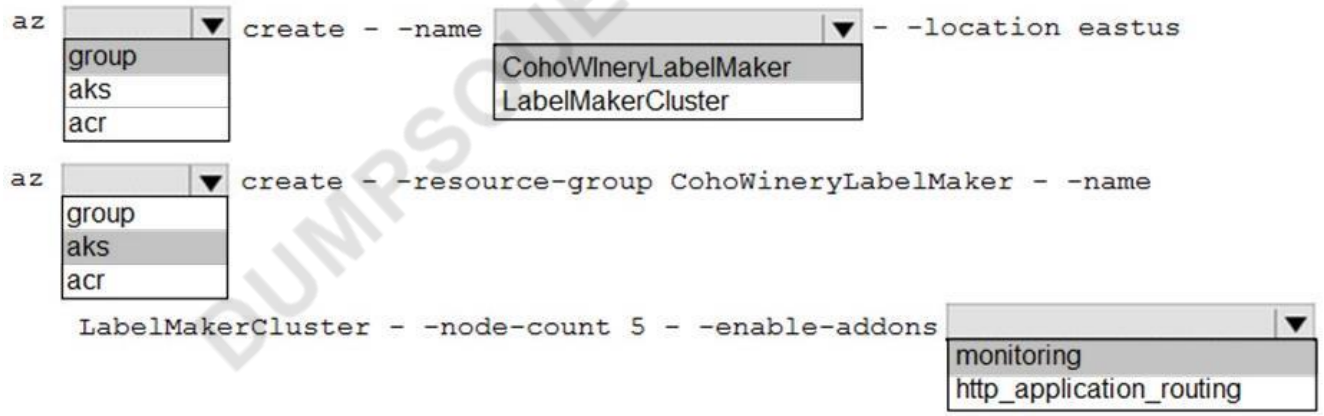
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Box 1: group

Create a resource group with the az group create command. An Azure resource group is a logical group in which Azure resources are deployed and managed.

The following example creates a resource group named myResourceGroup in the westeurope location.

az group create --name myResourceGroup --location westeurope

Box 2: CohoWinterLabelMaker

Use the resource group named, which is used in the second command.

Box 3: aks

The command az aks create, is used to create a new managed Kubernetes cluster.

Box 4: monitoring

Scenario: LabelMaker app

Azure Monitor Container Health must be used to monitor the performance of workloads that are

deployed to Kubernetes environments and hosted on Azure Kubernetes Service (AKS).
You must use Azure Container Registry to publish images that support the AKS deployment.

NO.71 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.
Margie's Travel is an international travel and bookings management service. The company is expanding into restaurant bookings. You are tasked with implementing Azure Search tor the restaurants listed in their solution.
You create the index in Azure Search.
You need to import the restaurant data into the Azure Search service by using the Azure Search NET SDK.
Solution:
1. Create a SearchServiceClient object to connect to the search index.
2. Create a DataContainer that contains the documents which must be added.
3. Create a DataSource instance and set its Container property to the DataContainer.
4. Set the DataSource property of the SearchServiceClient
Does the solution meet the goal?

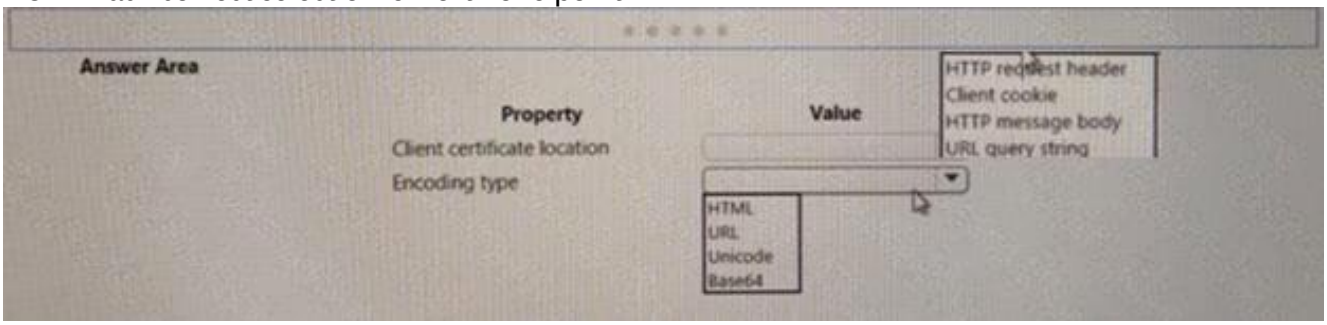
A. Yes

B. No

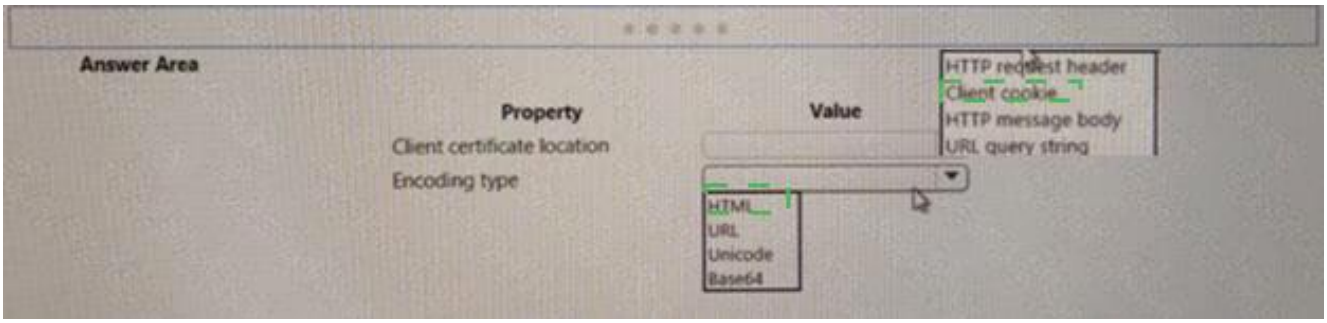
Answer: B

Explanation
Use the following method:
* Create a SearchIndexClient object to connect to the search index
* Create an IndexBatch that contains the documents which must be added.
* Call the Documents.Index method of the SearchIndexClient and pass the IndexBatch.
References:
https://docs.microsoft.com/en-us/azure/search/search-howto-dotnet-sdk

NO.72 You are developing an Azure Web App. You configure TLS mutual authentication tor the web app.
You need to validate the client certificate in the web app. To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



==========

Topic 3, Proseware, Inc

Background

You are a developer for Proseware, Inc. You are developing an application that applies a set of governance policies for Proseware's internal services, external services, and applications. The application will also provide a shared library for common functionality.

Requirements

Policy service

You develop and deploy a stateful ASP.NET Core 2.1 web application named Policy service to an Azure App Service Web App. The application reacts to events from Azure Event Grid and performs policy actions based on those events.

The application must include the Event Grid Event ID field in all Application Insights telemetry.

Policy service must use Application Insights to automatically scale with the number of policy actions that it is performing.

Policies

Log policy

All Azure App Service Web Apps must write logs to Azure Blob storage. All log files should be saved to a container named logdrop. Logs must remain in the container for 15 days.

Authentication events

Authentication events are used to monitor users signing in and signing out. All authentication events must be processed by Policy service. Sign outs must be processed as quickly as possible.

Policylib

You have a shared library named PolicyLib that contains functionality common to all ASP.NET Core web services and applications. The Policy Lib library must

* Exclude non-user actions from Application Insights telemetry.
* Provide methods that allow a web service to scale itself.
* Ensure that scaling actions do not disrupt application usage.

Other

Anomaly detection service

You have an anomaly detection service that analyzes log information for anomalies. It is implemented as an Azure as a web service.

If an anomaly is detected, an Azure Function that emails administrators is called by using an HTTP WebHook.

Health monitoring

All web applications and services have health monitoring at the /health service endpoint.

Issues

Policy loss

When you deploy Policy service, policies may not be applied if they were in the process of being applied during the deployment.

Performance issue
When under heavy load, the anomaly detection service undergoes slowdowns and rejects connections.
Notification latency
Users report that anomaly detection emails can sometimes arrive several minutes after an anomaly is detected.
App code
EnventGridController.cs
Relevant portions of the app files are shown below. Line numbers are included for reference only and include a two-character prefix that denotes the specific file to which they belong.

```
EventGridController.cs
EG01  public class EventGridController : Controller
EG02  {
EG03    public static AsyncLocal<string> EventId = new AsyncLocal<string>();
EG04    public IActionResult Process([FromBody]) string eventsJson
EG05   {
EG06     var events = JArray.Parse(eventsJson);
EG07
EG08     foreach (var @event in events)
EG09     {
EG10       EventId.Value = @event ["id"].ToString();
EG11       if (@event["topic"].ToString().Contains("providers/Microsoft.Storage"))
EG12       {
EG13         SendToAnomalyDetectionService(@event["data"]["url"].ToString());
EG14        }
EG15
EG16        {
EG17          EnsureLogging(@event["subject"].ToString());
EG18         }
EG19       }
EG20        return null;
EG21   }
EG22   private void EnsureLogging(string resource)
EG23   {
EG24     . . .
EG25   }
EG26   private async Task SendToAnomalyDetectionService(string uri)
EG27   {
EG28     var content = GetLogData(uri);
EG29     var scoreRequest = new
EG30     {
EG31       Inputs = new Dictionary<string, List<Dictionary<string, string>>>()
EG32       {
EG33          {
EG34            "input1",
```

```
EG35            new List<Dictionary<string, string>>()
EG36            {
EG37               new Dictionary<string, string>()
EG38               {
EG39             {
EG40               "logcontent", content
EG41             }
EG42            }
EG43          }
EG44        },
EG45      },
EG46      GlobalParameters = new Dictionary<string, string>() { }
EG47     };
EG48     var result = await (new HttpClient()).PostAsJsonAsync(". . .", scoreRequest);
EG49     var rawModelResult = await result.Content.ReadAsStringAsync();
EG50     var modelResult = JObject.Parse(rawModelResult);
EG51     if (modelResult["notify"].HasValues)
EG52     {
EG53       . . .
EG54      }
EG55   }
EG56   private (string name, string resourceGroup) ParseResourceId(string
resourceId)
EG57   {
EG58     . . .
EG59    }
EG60    private string GetLogData(string uri)
EG61   {
EG62     . . .
EG63   }
EG64   static string BlobStoreAccountSAS(string containerName)
EG65   {
EG66     . . .
EG67    ]
EG68 }
```

LoginEvents.cs

Relevant portions of the app files are shown below. Line numbers are included for reference only and include a two-character prefix that denotes the specific file to which they belong.

LoginEvent.cs

```
LE01  public class LoginEvent
LE02  {
LE03
LE04  public string subject { get; set; }
LE05  public DateTime eventTime { get; set; }
LE06  public Dictionary<string, string> data { get; set; }
LE07  public string Serialize()
LE08  {
LE09    return JsonConvert.SerializeObject(this);
LE10   }
LE11 }
```

NO.73 You need to resolve the Policy Loss issue.

What are two possible ways to achieve the goal? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. Add an Azure Event Hub. Send the policy to the event hub. Configure the Policy service to read actions from the event hub.

B. Add an Azure Service Bus queue. Send the policy to the queue. Configure the Policy service to read actions from the queue.

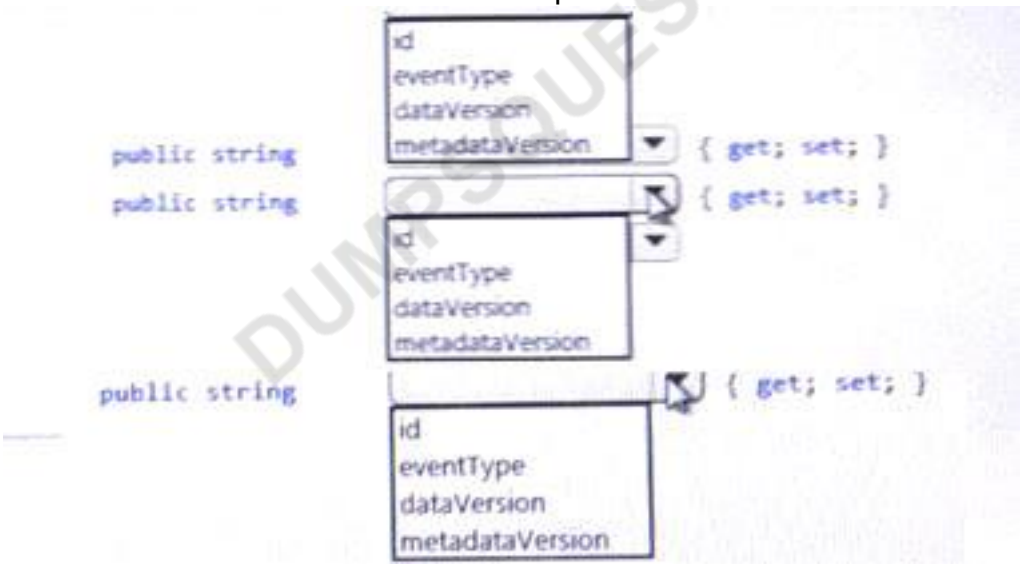
C. Add an Azure Queue storage queue. Send the policy to the queue. Configure the Policy service to read actions from the queue.

D. Add an Azure Service Bus topic. Send the policy to the topic. Configure the Policy service to read actions from the topic.

Answer: B D

NO.74 You need to tool code at line LE03 of Login Event to ensure that all authentication events are processed correctly. How should you complete the code? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.



Answer:

NO.75 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 need to ensure that authentication events are triggered and processed according to the policy.
Solution: Create separate Azure Event Grid topics and subscriptions for sign-in and sign-out events.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation
Instead ensure that signout events have a subject prefix. Create an Azure Event Grid subscription that uses the subjectBeginsWith filter.
Scenario: Authentication events are used to monitor users signing in and signing out. All authentication events must be processed by Policy service. Sign outs must be processed as quickly as possible.

NO.76 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 need to ensure that authentication events are triggered and processed according to the policy.
Solution: Ensure that signout events have a subject prefix. Create an Azure Event Grid subscription that uses the subjectBeginsWith filter.

A. Yes

B. No

Answer: B

NO.77 You need to resolve a notification latency issue.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point

A. Ensure that the Azure Function is using an App Service plan.

B. Set Always On to false

C. Ensure that the Azure Function is set to use a consumption plan.

D. Set Always On to true.

Answer: A D

Explanation
Azure Functions can run on either a Consumption Plan or a dedicated App Service Plan. If you run in a dedicated mode, you need to turn on the Always On setting for your Function App to run properly. The Function runtime will go idle after a few minutes of inactivity, so only HTTP triggers will actually "wake up" your functions. This is similar to how WebJobs must have Always On enabled.
Scenario: Notification latency: Users report that anomaly detection emails can sometimes arrive several minutes after an anomaly is detected.
Anomaly detection service: You have an anomaly detection service that analyzes log information for

anomalies. It is implemented as an Azure Machine Learning model. The model is deployed as a web service.
If an anomaly is detected, an Azure Function that emails administrators is called by using an HTTP WebHook.
References:
https://github.com/Azure/Azure-Functions/wiki/Enable-Always-On-when-running-on-dedicated-App-Service-PI

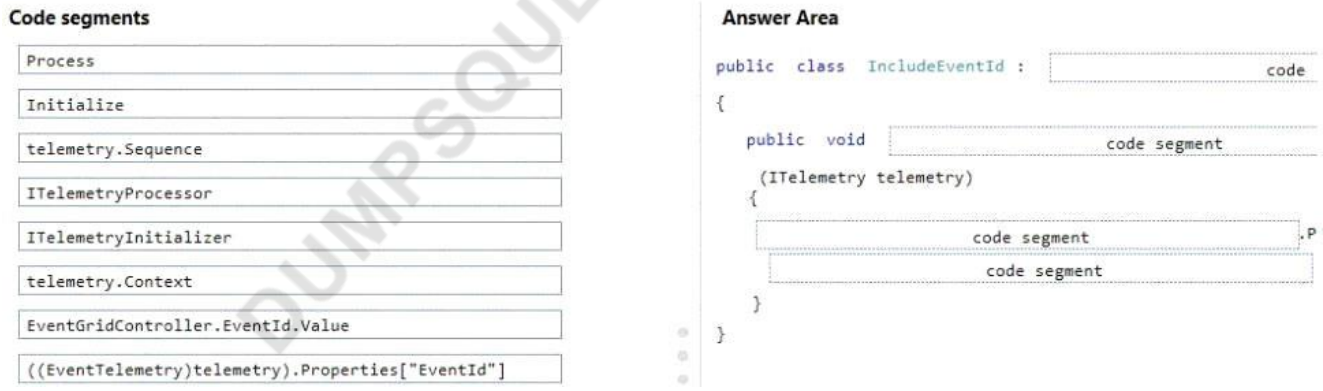
NO.78 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer 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 need to ensure that authentication events are triggered and processed according to the policy.
Solution: Create a new Azure Event Grid subscription for all authentication that delivers messages to an Azure Event Hub. Use the subscription to process signout events.
Does the solution meet the goal?

A. Yes

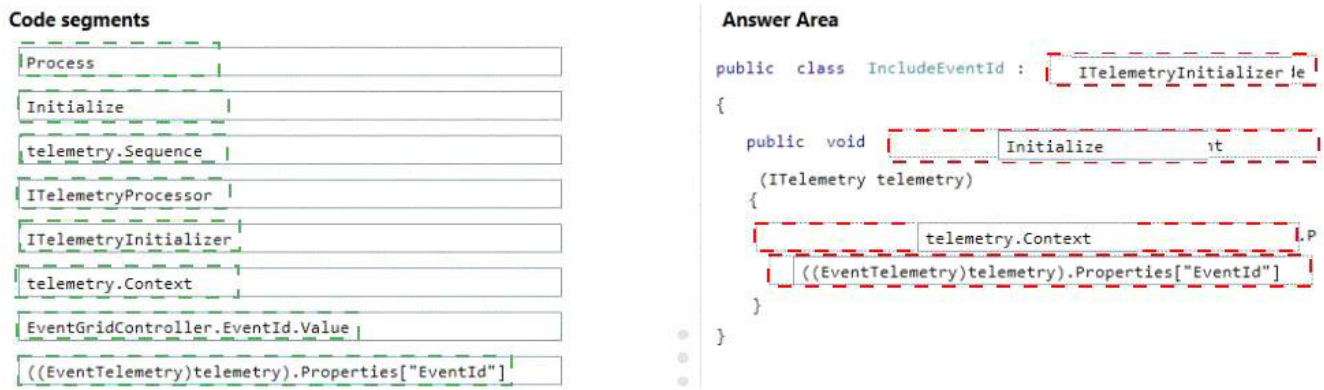
B. No

Answer: B

NO.79 You need to ensure that PolicyLib requirements are met.
How should you complete the code segment? To answer, drag the appropriate code segments to the correct locations. Each code segment 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.



Answer:



Explanation

Answer Area

```
public class IncludeEventId: ITelemetryInitializer
{
public void Initialize
 (ITelemetry telemetry)
{
 Telemetry.Context .Properties["EventId"] =
 [(EventTelemetry)telemetry.Properties["EventId"]
 }
}
```


NO.80 You need to add code at line EG15 in EventGridController.cs to ensure that the Log policy applies to all services.
How should you complete the code? To answer, drag the appropriate code segments to the correct locations.
Each code segment 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.

Code segments

topic
status
eventType
Succeeded
operationName
resourceProvider

Answer Area

```
if (
 @event[ "data" ] [ "          "].ToString() = ="          "
 &&
 @event[ "data" ] [ "          "].ToString() = = "Microsoft.Web/sites/write"
 )
```

Answer:

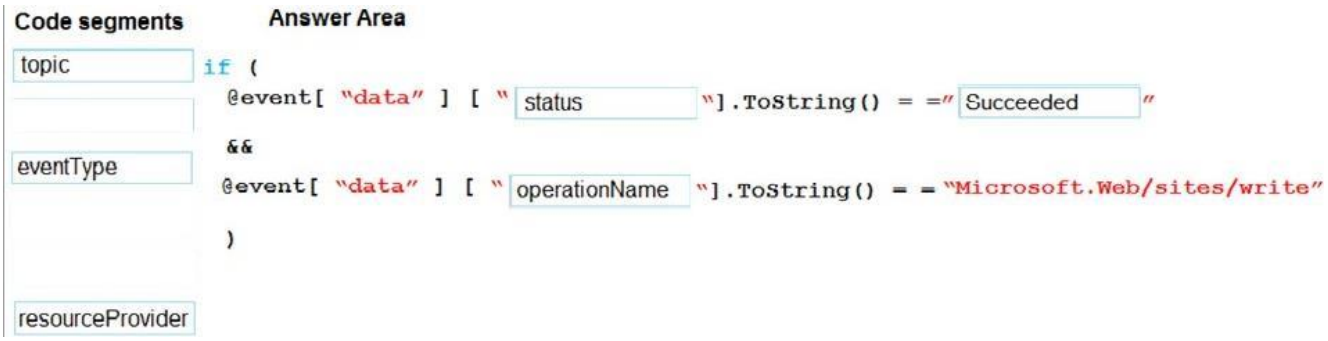
Code segments

topic
status
eventType
Succeeded
operationName
resourceProvider

Answer Area

```
if (
 @event[ "data" ] [ "status    "].ToString() = ="Succeeded   "
 &&
 @event[ "data" ] [ "operationName "].ToString() = = "Microsoft.Web/sites/write"
 )
```

Explanation



Box 1: Status
Box 2: Succeded
Box 3: operationName
Scenario: Policy service
You develop and deploy a stateful ASP.NET Core 2.1 web application named Policy service to an Azure App Service Web App. The application reacts to events from Azure Event Grid and performs policy actions based on those events.
The application must include the Event Grid Event ID field in all Application Insights telemetry.

NO.81 You need to ensure that the solution can meet the scaling requirements for Policy Service.
Which Azure Application Insights data model should you use?

A. an Application Insights metric
B. an Application Insights dependency
C. an Application Insights trace
D. an Application Insights event

Answer: D

NO.82 You need to implement telemetry for non-user actions.
How should you complete the Filter class? To answer, drag the appropriate code segments to the correct locations. Each code segment 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.

Code segments

- /health
- /status
- RequestTelemetry
- PageViewTelemetry
- ITelemetryProcessor
- ITelemetryInitializer

Answer Area

```
public class Filter : [code segment]
{
    private readonly [code segment] _next;
    public Filter( [code segment] next)
    {
      _next = next;
    }
    public void Process(ITelemetry item)
    {
      var x = item as [code segment];
      if (x?.Url.AbsolutePath == " [code segment] " )
      {
        return;
      }
      _next.Process(item);
    }
}
```

Answer:

Code segments

- /health
- /status
- RequestTelemetry
- PageViewTelemetry
- ITelemetryProcessor
- ITelemetryInitializer

Answer Area

```
public class Filter : ITelemetryProcessor
{
    private readonly ITelemetryProcessor _next;
    public Filter( ITelemetryProcessor next)
    {
      _next = next;
    }
    public void Process(ITelemetry item)
    {
      var x = item as RequestTelemetry;
      if (x?.Url.AbsolutePath == " /health " )
      {
        return;
      }
      _next.Process(item);
    }
}
```


Explanation

```
public class filter : ITelemetryProcessor
{
   private readonly ITelemetryProcessor _next;
   public filter(ITelemetryProcessor next)
   {
     _next = next;
   }
   public void Process(ITelemetry item)
        {
          var x = item as RequestTelemetry;
          if (x?.Url.AbsolutePath == " /health ")

          {
            return;
          }
          _next.Process(item);
        }
       }
```

Scenario: Exclude non-user actions from Application Insights telemetry.
Box 1: ITelemetryProcessor
To create a filter, implement ITelemetryProcessor. This technique gives you more direct control over what is included or excluded from the telemetry stream.
Box 2: ITelemetryProcessor
Box 3: ITelemetryProcessor
Box 4: RequestTelemetry
Box 5: /health
To filter out an item, just terminate the chain.
References:
https://docs.microsoft.com/en-us/azure/azure-monitor/app/api-filtering-sampling

NO.83 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 need to ensure that authentication events are triggered and processed according to the policy.
Solution: Create a new Azure Event Grid topic and add a subscription for the events.
Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation
Use a separate Azure Event Grid topics and subscriptions for sign-in and sign-out events.

Scenario: Authentication events are used to monitor users signing in and signing out. All authentication events must be processed by Policy service. Sign outs must be processed as quickly as possible.

NO.84 You need to meet the scaling requirement for Policy Service.
What should you store in Azure Redis Cache?
A. HttpContext.Items
B. ViewState
C. Session state
D. TempData
Answer: C
Explanation
Azure Cache for Redis provides a session state provider that you can use to store your session state in-memory with Azure Cache for Redis instead of a SQL Server database.
Scenario: You have a shared library named PolicyLib that contains functionality common to all ASP.NET Core web services and applications. The PolicyLib library must:
Ensure that scaling actions do not disrupt application usage.
References:
https://docs.microsoft.com/en-us/azure/azure-cache-for-redis/cache-aspnet-session-state-provider
==========
Topic 4, Chatbot
Background
Best for You Organics Company is a global restaurant franchise that has multiple locations. The company wants to enhance user experiences and vendor integrations. The company plans to implement automated mobile ordering and delivery services.
Best For You Organics hosts an Azure web app at the URL https://www.bestforyouorganics.com. Users can use the web app to browse restaurant locations, menu items, nutritional, information, and company information. The company developed and deployed a cross-platform mobile app.
Requirements
You must develop a chartbot by using the Bot Builder SDK and Language Understanding Intelligence Service (LUIS). The chatbot must allow users to order food for pickup or delivery.
The chatbot must meet the following requirements:
* Ensure that chatbot endpoint can be accessed only by the Bot Framework connector.
* Use natural language processing and speech recognition so that users can interact with the chatbot by using text and voice. Processing must be server-based.
* Alert users about promotions at local restaurants.
* Enable users to place an order for delivery or pickup by using their voice.
* Greet the user upon sigh-in by displaying a graphical interface that contains action buttons.
* The chatbot greeting interface must match the formatting of the following example:

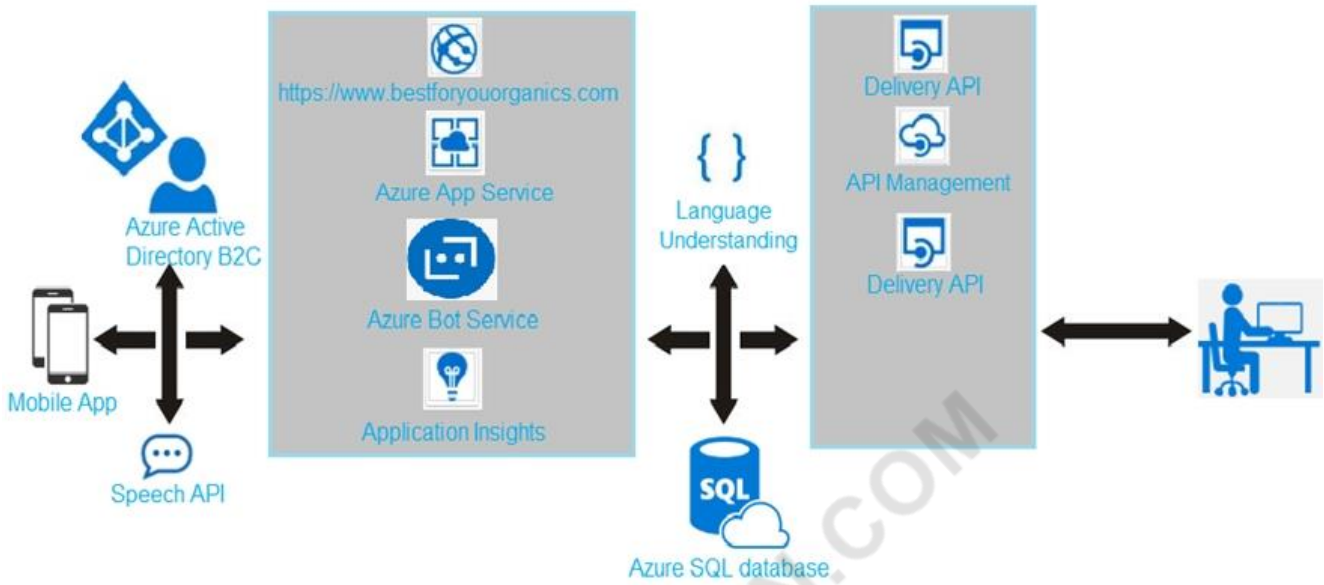
Vendor API

Vendors receive and provide updates for the restaurant inventory and delivery services by using Azure API Management hosted APIs. Each vendor uses their own subscription to access each of the APIs.

APIs must meet the following conditions:

* API usage must not exceed 5,000 calls and 50,000 kilobytes of bandwidth per hour per vendor.
* If a vendor is nearing the number of calls or bandwidth limit, the API must trigger email notifications to the vendor.
* APIs must prevent API usage spikes on a per-subscription basis by limiting the call rate to 100 calls per minute.
* The Inventory API must be written by using ASP.NET Core and Node.js.
* The API must be updated to provide an interface to Azure SQL Database. Database objects must be managed by using code.
* The Delivery API must be protected by using the OAuth 2.0 protocol with Azure Active Directory (Azure AD) when called from the Azure web app. You register the Delivery API and web app in Azure AD. You enable OAuth 2.0 in the web app.
* The delivery API must update the Products table, the Vendor transactions table, and the Billing table in a single transaction.

The Best For You Organics Company architecture team has created the following diagram depicting the expected deployments into Azure:



Delivery API

The Delivery API intermittently throws the following exception:

```
"System.Data.Entity.Core.EntityCommandExecutionException: An error occurred while executing the
command definition. See the inner exception for details. --->System.Data.SqlClient.SqlException:
A transport-level error has occurred when receiving results from the server. (provider: Session
Provider, error: 19 - Physical connection is not usable)"
```

Chatbot greeting

The chatbot's greeting does not show the user's name. You need to debug the chatbot locally.

Language processing

Users report that the bot fails to understand when a customer attempts to order dishes that use Italian names.

Relevant portions of the app files are shown below. Line numbers are included for reference only and include a two-character prefix that denotes the specific file to which they belong.

Startup.cs

```
SU01   namespace DeliveryApi
SU02   {
SU03    public class Startup
SU04   {
SU05     public Startup (Iconfiguration configuration)
SU06    {
SU07     Configuration = configuration ;
SU08    }
SU09    public Iconfiguration Configuration {get ;}
SU10    public void ConfigureServices(IserviceCollection services)
SU11  {
SU12   services.AddDbContext<RestaurantsContext> (opt =>
SU13     opt.UseSqlServer (Configuration.GetSection ("ConnectionStrings") ["RestaurantsDatabase"],
SU14      sqlServerOptionsAction: sqlOptions =>
SU15      {
SU16       . . .
SU17  })))  ;
SU18  services.AddMvc()
SU19  .SetCompatibilityVersion(CompatibilityVersion.Version_2_1) ;
SU20  }
SU21  public void Configure (IapplicationBuilder app)
SU22    {
SU23    app.UseMvc() ;
SU24    }
SU25  }
SU26 }
```

NO.85 You need to implement the purchase requirement.
What should you do?

A. Use the Bot FrameworkREST API attachment operations to send the user's voice and the Speech Service API to recognize intents.

B. Use the Direct line REST API to send the user's voice and the Speech Service API to recognize intents.

C. Use the Speech Service API to send the user's voice and the Bot Framework REST API conversation operations to recognize intents.

D. Use the Bot Framework REST API conversation operations to send the user's voice and the Speech Service API to recognize intents.

Answer: D

Explanation

Scenario: Enable users to place an order for delivery or pickup by using their voice.

You must develop a chatbot by using the Bot Builder SDK and Language Understanding Intelligence Service (LUIS). The chatbot must allow users to order food for pickup or delivery.

The Bot Framework REST APIs enable you to build bots that exchange messages with channels configured in the Bot Framework Portal, store and retrieve state data, and connect your own client applications to your bots.

All Bot Framework services use industry-standard REST and JSON over HTTPS.

The Speech Service API is used to recognize intents.

References:

https://docs.microsoft.com/en-us/azure/bot-service/rest-api/bot-framework-rest-connector-concepts?view=azure-

https://docs.microsoft.com/en-us/azure/cognitive-services/speech-service/how-to-recognize-intents-from-speech-

NO.86 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution Determine whether the solution meets the stated goals.
You need to meet the vendor notification requirement.
Solution: Configure notifications in the Azure API Management instance.
Does the solution meet the goal?
A. Yes
B. No
Answer: B
Explanation
Use a custom outbound Azure API Management policy.
Scenario:
If a vendor is nearing the number of calls or bandwidth limit, the API must trigger email notifications to the vendor.
(API usage must not exceed 5,000 calls and 50,000 kilobytes of bandwidth per hour per vendor.)
References:
https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-policies

NO.87 You need to provision and deploy the order workflow.
Which three components should you include? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point
A. Connections
B. On-premises Data Gateway
C. Resources
D. Workflow definition
E. Functions
Answer: B,C,E

NO.88 You need to debug the user greeting issue. What should you use?
A. Bot Framework Channel Inspector
B. Bot Connector service
C. Azure Compute Emulator
D. Azure Application Insights
E. Bot Framework Emulator
Answer: E
Explanation
Scenario: The chatbot's greeting does not show the user's name. You need to debug the chatbot locally.
Debug your bot using an integrated development environment (IDE) such as Visual Studio or Visual Studio Code and the Bot Framework Emulator. You can use these methods to debug any bot locally.
References:
https://docs.microsoft.com/en-us/azure/bot-service/bot-service-debug-bot?view=azure-bot-service-4.0

NO.89 You need to resolve the delivery API error. What should you do?

A. Implement simple retry by using the EnableRetryOnFailure feature of Entity Framework.

B. Implement exponential backoff by using the EnableRetryOnFailure feature of Entity Framework.

C. Implement the Circuit Breaker pattern by using the EnableRetryOnFailure feature of Entity Framework.

D. Invoke accustom execution strategy in Entity Framework.

Answer: A

Explanation

Scenario: The Delivery API intermittently throws the following exception:

```
"System.Data.Entity.Core.EntityCommandExecutionException: An error occurred while executing the
command definition. See the inner exception for details. --->System.Data.SqlClient.SqlException:
A transport-level error has occurred when receiving results from the server. (provider: Session
Provider, error: 19 - Physical connection is not usable)"
```

A useful method to get rid of this error is to use RETRY LOGIC of Entity Framework 1.1.0

```
services.AddDbContext<DbContext>(options => options.UseSqlServer('yourconnectionstring',
...sqlServerOptionsAction: sqlOptions =>
...{
.....sqlOptions.EnableRetryOnFailure(
.........maxRetryCount: 5,
.........maxRetryDelay: TimeSpan.FromSeconds(30),
.........errorNumbersToAdd: new List<int>() { 19 });
...}));
```

In Retry logic, error 19 is not included. So you have to pass the error code 19 to set retry logic for error code

19.

References:

https://stackoverflow.com/questions/47558062/error-19-physical-connection-error/47559967

NO.90 Note: In this section you will see one or more sets of questions with the same scenario and problem. Each question presents a unique solution to the problem, and you must determine whether the solution meets the stated goals. More than one solution might solve the problem. It is also possible that none of the solutions solve the problem.

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.

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You need to meet the vendor notification requirement.

Solution: Update the Delivery API to send emails by using a Microsoft Office 365 SMTP server.

Does the solution meet the goal?

A. Yes

B. No

Answer: B

Explanation

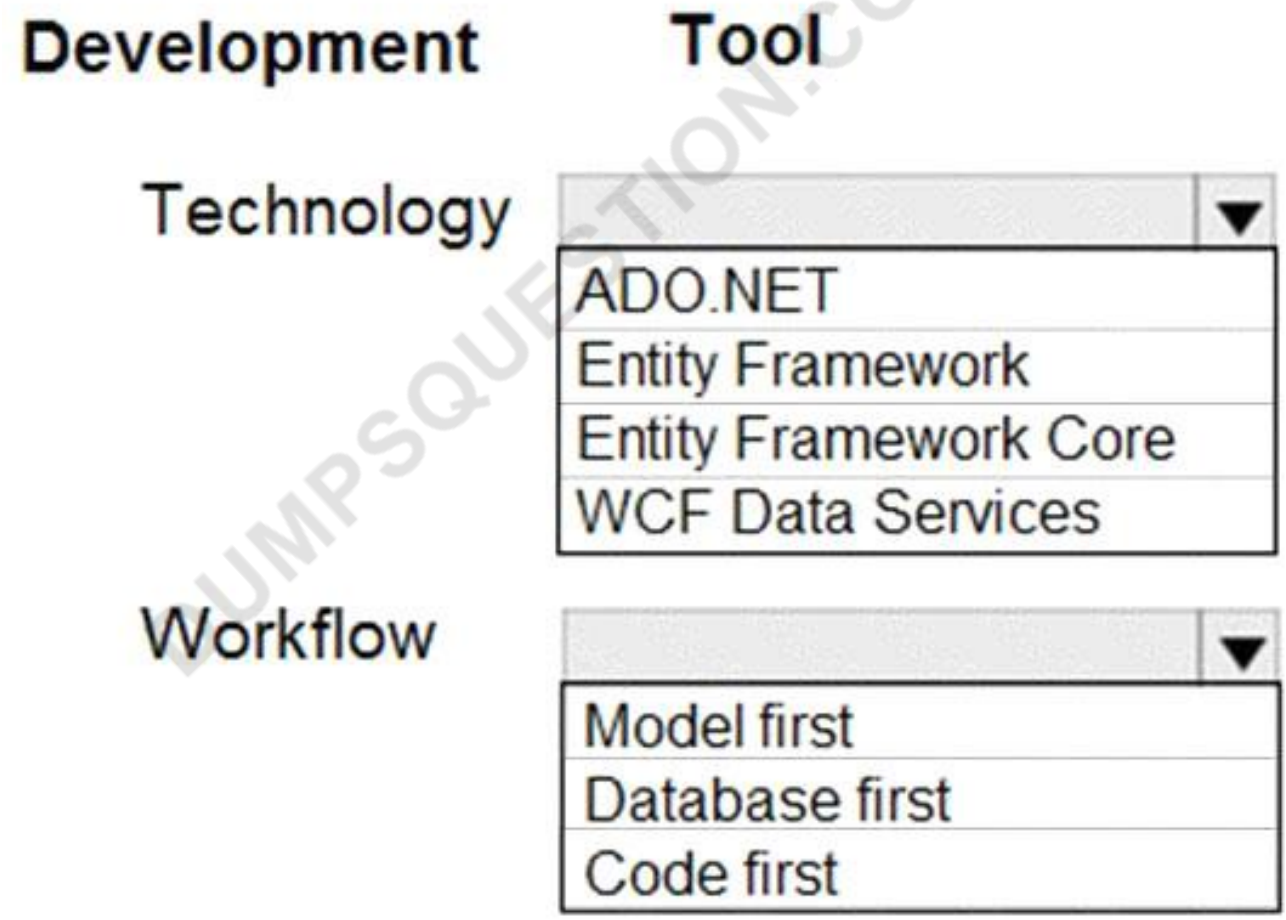
Use a custom outbound Azure API Management policy.

Scenario:

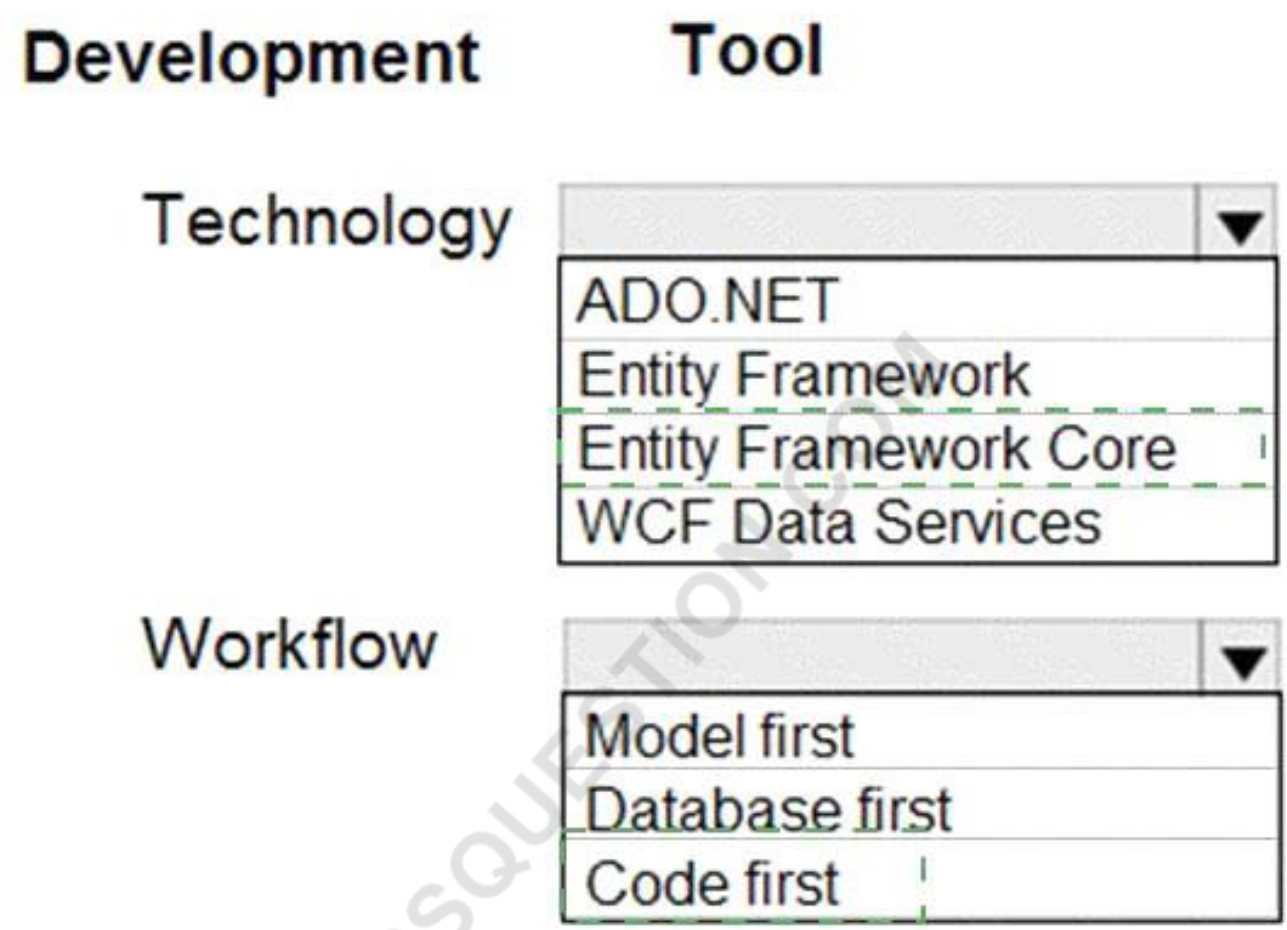
If a vendor is nearing the number of calls or bandwidth limit, the API must trigger email notifications

to the vendor.
(API usage must not exceed 5,000 calls and 50,000 kilobytes of bandwidth per hour per vendor.)
References:
https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-policies

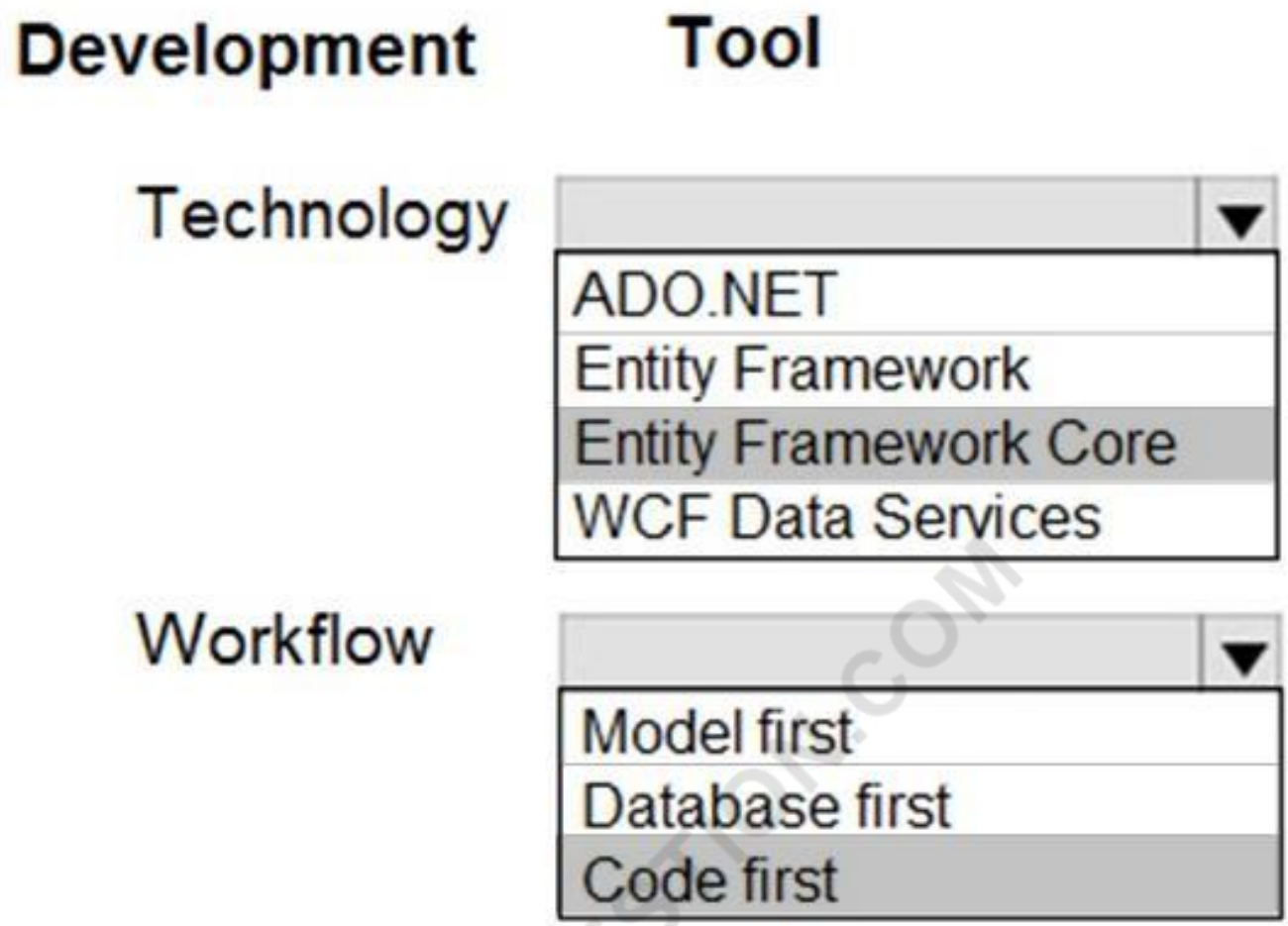
NO.91 You need to update the Inventory API.
Which development tools should you use? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Explanation



Scenario: The Inventory API must be written by using ASP.NET Core and Node.js.
Box 1: Entity Framework Core
Box 2: Code first
References:
https://docs.microsoft.com/en-us/aspnet/mvc/overview/getting-started/getting-started-with-ef-using-mvc/creating

NO.92 You are developing a project management service by using ASP.NET. The service hosts conversations, files, to-do lists, and a calendar that users can interact with at any time.
The application uses Azure Search for allowing users to search for keywords in the project data.
You need to implement code that creates the object which is used to create indexes in the Azure Search service.
Which two objects should you use? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. SearchIndexClient

B. SearchCredentials

C. SearchServiceClient

D. SearchService

Answer: B,C

NO.93 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution.

Determine whether the solution meets the stated goals.
You need to meet the vendor notification requirement.
Solution: Create and apply a custom outbound Azure API Management policy.
Does the solution meet the goal?

A. Yes

B. No

Answer: A

Explanation
Scenario:
If a vendor is nearing the number of calls or bandwidth limit, the API must trigger email notifications to the vendor.
(API usage must not exceed 5,000 calls and 50,000 kilobytes of bandwidth per hour per vendor.) In Azure API Management (APIM), policies are a powerful capability of the system that allow the publisher to change the behavior of the API through configuration. Policies are a collection of Statements that are executed sequentially on the request or response of an API. Popular Statements include format conversion from XML to JSON and call rate limiting to restrict the amount of incoming calls from a developer. Many more policies are available out of the box.
References:
https://docs.microsoft.com/en-us/azure/api-management/api-management-howto-policies

NO.94 You need to update the chatbot to greet the user when they sign in.
Which two rich card formats can you use? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point

A. Thumbnail

B. Adaptive

C. Sign-in

D. Hero

E. Animation

Answer: A C

Explanation
Scenario: The chatbot greeting interface must match the formatting of the following example:

A message exchange between user and bot can contain one or more rich cards rendered as a list or carousel.
The Attachments property of the Activity object contains an array of Attachment objects that represent the rich cards and media attachments within the message.
The Bot Framework currently supports eight types of rich cards:
* Thumbnail Card. A card that typically contains a single thumbnail image, one or more buttons, and text.
* SignIn Card. A card that enables a bot to request that a user sign-in. It typically contains text and one or more buttons that the user can click to initiate the sign-in process.

NO.95 Note: This question is part of a series of questions that present the same scenario.
Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.
You need to meet the vendor notification requirement.
Solution: Update the Delivery API to send emails by using a cloud -based email service.
Does the solution meet the goal?

A. Yes

B. No

Answer: B