DP-100^{Q&As}

Designing and Implementing a Data Science Solution on Azure

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QUESTION 1

You have a Python data frame named salesData in the following format:

	shop	2017	2018
0	Shop X	34	25
1	Shop Y	65	76
2	Shop Z	48	55

The data frame must be unpivoted to a long data format as follows:

	shop	year	value
0	Shop X	2017	34
1	Shop Y	2017	65
2	Shop Z	2017	48
3	Shop X	2018	25
4	Shop Y	2018	76
5	Shop Z	2018	55

You need to use the pandas.melt() function in Python to perform the transformation.

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.

Hot Area:

Answer Area

```
import pandas as pd
salesData = pd.melt(          ▼ ,id_vars='          ▼ ',value_vars=          ▼ )
                    dataFrame             shop                     'shop'
                    pandas                year                     'year'
                    salesData             value                    ['year']
                    year                  Shop X, Shop Y, Shop      ['2017', '2018']
                                          Z
```

Correct Answer:

Answer Area

```
import pandas as pd
salesData = pd.melt(  [ ▼ ]  ,id_vars='[ ▼ ]',value_vars=[ ▼ ])
```

dataFrame	shop	'shop'
pandas	year	'year'
salesData	value	['year']
year	Shop X, Shop Y, Shop Z	['2017', '2018']

Box 1: dataFrame

Syntax: pandas.melt(frame, id_vars=None, value_vars=None, var_name=None, value_name=\\'value\\', col_level=None)[source]

Where frame is a DataFrame

Box 2: shop

Paramter id_vars id_vars : tuple, list, or ndarray, optional

Column(s) to use as identifier variables.

Box 3: [\\'2017\\',\\'2018\\']

value_vars : tuple, list, or ndarray, optional

Column(s) to unpivot. If not specified, uses all columns that are not set as id_vars.

Example:

df = pd.DataFrame({\\'A\\': {0: \\'a\\', 1: \\'b\\', 2: \\'c\\'},

... \\'B\\': {0: 1, 1: 3, 2: 5},

... \\'C\\': {0: 2, 1: 4, 2: 6}})

pd.melt(df, id_vars=[\\'A\\'], value_vars=[\\'B\\', \\'C\\']) A variable value

References: https://pandas.pydata.org/pandas-docs/stable/reference/api/pandas.melt.html

QUESTION 2

You create a binary classification model.

You need to evaluate the model performance.

Which two metrics can you use? Each correct answer presents a complete solution.

NOTE: Each correct selection is worth one point.

A. relative absolute error

B. precision

C. accuracy

D. mean absolute error

E. coefficient of determination

Correct Answer: BC

The evaluation metrics available for binary classification models are: Accuracy, Precision, Recall, F1 Score, and AUC.

Note: A very natural question is: `Out of the individuals whom the model, how many were classified correctly (TP)?\\'

This question can be answered by looking at the Precision of the model, which is the proportion of positives that are classified correctly.

Reference:

https://docs.microsoft.com/en-us/azure/machine-learning/studio/evaluate-model-performance

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QUESTION 3

You create a new Azure subscription. No resources are provisioned in the subscription.

You need to create an Azure Machine Learning workspace.

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

NOTE: Each correct selection is worth one point.

A. Run Python code that uses the Azure ML SDK library and calls the Workspace.create method with name, subscription_id, resource_group, and location parameters.

B. Use an Azure Resource Management template that includes a Microsoft.MachineLearningServices/ workspaces resource and its dependencies.

C. Use the Azure Command Line Interface (CLI) with the Azure Machine Learning extension to call the az group create function with --name and --location parameters, and then the az ml workspace create function, specifying ? and ? parameters for the workspace name and resource group.

D. Navigate to Azure Machine Learning studio and create a workspace.

E. Run Python code that uses the Azure ML SDK library and calls the Workspace.get method with name, subscription_id, and resource_group parameters.

Correct Answer: BCD

B: You can use an Azure Resource Manager template to create a workspace for Azure Machine Learning.

Example:

{"type": "Microsoft.MachineLearningServices/workspaces", ...

C: You can create a workspace for Azure Machine Learning with Azure CLI Install the machine learning extension.

Create a resource group: az group create --name --location

To create a new workspace where the services are automatically created, use the following command: az ml workspace create -w -g

D: You can create and manage Azure Machine Learning workspaces in the Azure portal.

1. Sign in to the Azure portal by using the credentials for your Azure subscription.

2. In the upper-left corner of Azure portal, select + Create a resource.

3. Use the search bar to find Machine Learning.

4. Select Machine Learning.

5. In the Machine Learning pane, select Create to begin.

Reference: https://docs.microsoft.com/en-us/azure/machine-learning/how-to-create-workspace-template
https://docs.microsoft.com/en-us/azure/machine-learning/how-to-manage-workspace-cli https://docs.microsoft.com/en-us/azure/machine-learning/how-to-manage-workspace

QUESTION 4

HOTSPOT

You have an Azure Machine Learning workspace named workspace1 that is accessible from a public endpoint. The workspace contains an Azure Blob storage datastore named store1 that represents a blob container in an Azure storage

account named account1. You configure workspace1 and account1 to be accessible by using private endpoints in the same virtual network.

You must be able to access the contents of store1 by using the Azure Machine Learning SDK for Python. You must be able to preview the contents of store1 by using Azure Machine Learning studio.

You need to configure store1.

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

NOTE: Each correct selection is worth one point.

Hot Area:

Answer Area

Requirement	Action
Access the contents of store1 by using the Azure Machine Learning SDK for Python.	⌄
	Set store1 as the default datastore.
	Disable data validation for store1.
	Update authentication for store1.
	Regenerate the keys of account1.
Preview the contents of store1 by using Azure Machine Learning studio.	⌄
	Set store1 as the default datastore.
	Disable data validation for store1.
	Update authentication for store1.
	Regenerate the keys of account1.

Correct Answer:

Answer Area

Requirement	Action
Access the contents of store1 by using the Azure Machine Learning SDK for Python.	Set store1 as the default datastore. / Disable data validation for store1. / Update authentication for store1. / **Regenerate the keys of account1.**
Preview the contents of store1 by using Azure Machine Learning studio.	Set store1 as the default datastore. / Disable data validation for store1. / **Update authentication for store1.** / Regenerate the keys of account1.

Box 1: Regenerate the keys of account1.

Azure Blob Storage support authentication through Account key or SAS token.

To authenticate your access to the underlying storage service, you can provide either your account key, shared access signatures (SAS) tokens, or service principal

Box 2: Update the authentication for store1.

For Azure Machine Learning studio users, several features rely on the ability to read data from a dataset; such as dataset previews, profiles and automated machine learning. For these features to work with storage behind virtual networks,

use a workspace managed identity in the studio to allow Azure Machine Learning to access the storage account from outside the virtual network.

Note: Some of the studio\'s features are disabled by default in a virtual network. To re-enable these features, you must enable managed identity for storage accounts you intend to use in the studio.

The following operations are disabled by default in a virtual network:

Preview data in the studio.

Reference:

https://docs.microsoft.com/en-us/azure/machine-learning/how-to-access-data

QUESTION 5

You need to implement a new cost factor scenario for the ad response models as illustrated in the performance curve exhibit. Which technique should you use?

A. Set the threshold to 0.5 and retrain if weighted Kappa deviates +/- 5% from 0.45.

B. Set the threshold to 0.05 and retrain if weighted Kappa deviates +/- 5% from 0.5.

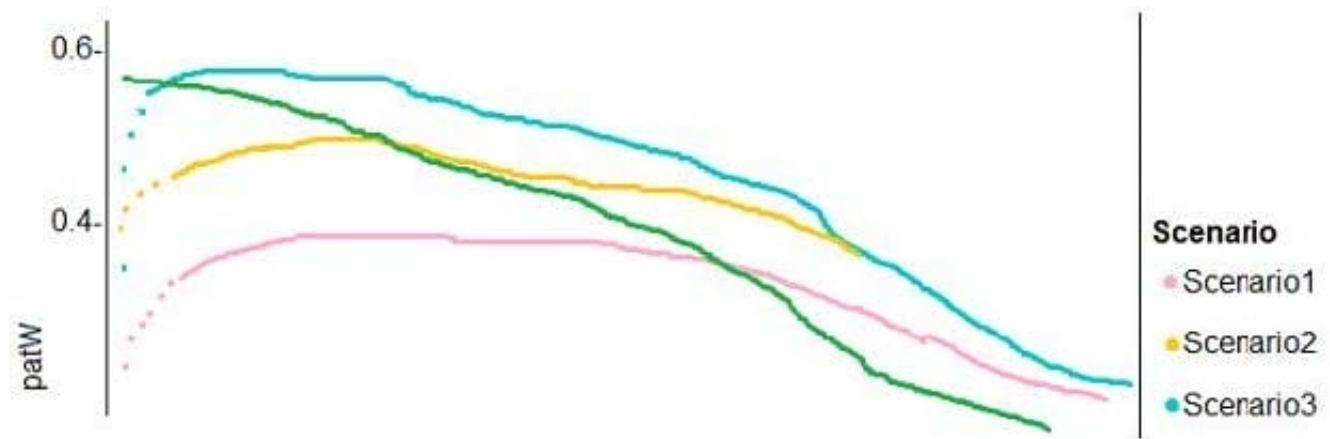C. Set the threshold to 0.2 and retrain if weighted Kappa deviates +/- 5% from 0.6.

D. Set the threshold to 0.75 and retrain if weighted Kappa deviates +/- 5% from 0.15.

Correct Answer: A

Scenario:

Performance curves of current and proposed cost factor scenarios are shown in the following diagram:

The ad propensity model uses a cut threshold is 0.45 and retrains occur if weighted Kappa deviated from 0.1 +/- 5%.

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