



Microsoft

Exam Questions DP-100

Designing and Implementing a Data Science Solution on Azure

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NEW QUESTION 1

- (Exam Topic 3)

You use the Two-Class Neural Network module in Azure Machine Learning Studio to build a binary classification model. You use the Tune Model Hyperparameters module to tune accuracy for the model.

You need to select the hyperparameters that should be tuned using the Tune Model Hyperparameters module. Which two hyperparameters should you use? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Number of hidden nodes
- B. Learning Rate
- C. The type of the normalizer
- D. Number of learning iterations
- E. Hidden layer specification

Answer: DE

Explanation:

D: For Number of learning iterations, specify the maximum number of times the algorithm should process the training cases.

E: For Hidden layer specification, select the type of network architecture to create.

Between the input and output layers you can insert multiple hidden layers. Most predictive tasks can be accomplished easily with only one or a few hidden layers.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/two-class-neural-network>

NEW QUESTION 2

- (Exam Topic 3)

You plan to deliver a hands-on workshop to several students. The workshop will focus on creating data visualizations using Python. Each student will use a device that has internet access.

Student devices are not configured for Python development. Students do not have administrator access to install software on their devices. Azure subscriptions are not available for students.

You need to ensure that students can run Python-based data visualization code. Which Azure tool should you use?

- A. Anaconda Data Science Platform
- B. Azure BatchAI
- C. Azure Notebooks
- D. Azure Machine Learning Service

Answer: C

Explanation:

References: <https://notebooks.azure.com/>

NEW QUESTION 3

- (Exam Topic 3)

You are using the Azure Machine Learning Service to automate hyperparameter exploration of your neural network classification model.

You must define the hyperparameter space to automatically tune hyperparameters using random sampling according to following requirements:

The learning rate must be selected from a normal distribution with a mean value of 10 and a standard deviation of 3.

Batch size must be 16, 32 and 64.

Keep probability must be a value selected from a uniform distribution between the range of 0.05 and 0.1.

You need to use the `param_sampling` method of the Python API for the Azure Machine Learning Service. 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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

In random sampling, hyperparameter values are randomly selected from the defined search space. Random sampling allows the search space to include both discrete and continuous hyperparameters.

Example:

```
from azureml.train.hyperdrive import RandomParameterSampling param_sampling = RandomParameterSampling( { "learning_rate": normal(10, 3),  
"keep_probability": uniform(0.05, 0.1),  
"batch_size": choice(16, 32, 64)  
}
```

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/service/how-to-tune-hyperparameters>

NEW QUESTION 4

- (Exam Topic 3)

You are moving a large dataset from Azure Machine Learning Studio to a Weka environment. You need to format the data for the Weka environment. Which module should you use?

- A. Convert to CSV
- B. Convert to Dataset
- C. Convert to ARFF
- D. Convert to SVMLight

Answer: C

Explanation:

Use the Convert to ARFF module in Azure Machine Learning Studio, to convert datasets and results in Azure Machine Learning to the attribute-relation file format used by the Weka toolset. This format is known as ARFF.

The ARFF data specification for Weka supports multiple machine learning tasks, including data preprocessing, classification, and feature selection. In this format, data is organized by entities and their attributes, and is contained in a single text file.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/convert-to-arff>

NEW QUESTION 5

- (Exam Topic 3)

You are tuning a hyperparameter for an algorithm. The following table shows a data set with different hyperparameter, training error, and validation errors.

Use the drop-down menus to select the answer choice that answers each question based on the information presented in the graphic.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: 4

Choose the one which has lower training and validation error and also the closest match. Minimize variance (difference between validation error and train error).

Box 2: 5

Minimize variance (difference between validation error and train error). Reference:
<https://medium.com/comet-ml/organizing-machine-learning-projects-project-management-guidelines-2d2b8565>

NEW QUESTION 6

- (Exam Topic 3)

You are analyzing a dataset by using Azure Machine Learning Studio.

YOU need to generate a statistical summary that contains the p value and the unique value count for each feature column.

Which two modules can you users? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Execute Python Script
- B. Export Count Table
- C. Convert to Indicator Values
- D. Summarize Data
- E. Compute linear Correlation

Answer: BE

Explanation:

The Export Count Table module is provided for backward compatibility with experiments that use the Build Count Table (deprecated) and Count Featurizer (deprecated) modules.

E: Summarize Data statistics are useful when you want to understand the characteristics of the complete dataset. For example, you might need to know:

How many missing values are there in each column? How many unique values are there in a feature column?

What is the mean and standard deviation for each column?

The module calculates the important scores for each column, and returns a row of summary statistics for each variable (data column) provided as input.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/export-count-table> <https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/summarize-data>

NEW QUESTION 7

- (Exam Topic 3)

You are creating an experiment by using Azure Machine Learning Studio.

You must divide the data into four subsets for evaluation. There is a high degree of missing values in the data. You must prepare the data for analysis.

You need to select appropriate methods for producing the experiment.

Which three modules should you run 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: More than one order of answer choices is correct. You will receive credit for any of the correct orders you select.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

The Clean Missing Data module in Azure Machine Learning Studio, to remove, replace, or infer missing values.

NEW QUESTION 8

- (Exam Topic 3)

You are analyzing a dataset containing historical data from a local taxi company. You are developing a regression a regression model.

You must predict the fare of a taxi trip.

You need to select performance metrics to correctly evaluate the- regression model. Which two metrics can you use? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. an F1 score that is high
- B. an R Squared value close to 1
- C. an R-Squared value close to 0

- D. a Root Mean Square Error value that is high
- E. a Root Mean Square Error value that is low
- F. an F 1 score that is low.

Answer: DF

NEW QUESTION 9

- (Exam Topic 3)

You are creating a machine learning model. You have a dataset that contains null rows.

You need to use the Clean Missing Data module in Azure Machine Learning Studio to identify and resolve the null and missing data in the dataset. Which parameter should you use?

- A. Replace with mean
- B. Remove entire column
- C. Remove entire row
- D. Hot Deck

Answer: B

Explanation:

Remove entire row: Completely removes any row in the dataset that has one or more missing values. This is useful if the missing value can be considered randomly missing.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/clean-missing-data>

NEW QUESTION 10

- (Exam Topic 3)

You are performing feature engineering on a dataset.

You must add a feature named CityName and populate the column value with the text London.

You need to add the new feature to the dataset.

Which Azure Machine Learning Studio module should you use?

- A. Edit Metadata
- B. Preprocess Text
- C. Execute Python Script
- D. Latent Dirichlet Allocation

Answer: A

Explanation:

Typical metadata changes might include marking columns as features. References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/edit-metadata>

NEW QUESTION 10

- (Exam Topic 3)

You are building a regression model to estimate the number of calls during an event.

You need to determine whether the feature values achieve the conditions to build a Poisson regression model. Which two conditions must the feature set contain?

Each correct answer presents part of the solution. NOTE:

Each correct selection is worth one point.

- A. The label data must be a negative value.
- B. The label data can be positive or negative.
- C. The label data must be a positive value
- D. The label data must be non discrete.
- E. The data must be whole numbers.

Answer: CE

Explanation:

Poisson regression is intended for use in regression models that are used to predict numeric values, typically counts. Therefore, you should use this module to create your regression model only if the values you are trying to predict fit the following conditions:

The response variable has a Poisson distribution.

Counts cannot be negative. The method will fail outright if you attempt to use it with negative labels.

A Poisson distribution is a discrete distribution; therefore, it is not meaningful to use this method with non-whole numbers.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/poisson-regression>

NEW QUESTION 14

- (Exam Topic 2)

You need to select a feature extraction method. Which method should you use?

- A. Mutual information
- B. Mood's median test
- C. Kendall correlation
- D. Permutation Feature Importance

Answer: C

Explanation:

In statistics, the Kendall rank correlation coefficient, commonly referred to as Kendall's tau coefficient (after the Greek letter τ), is a statistic used to measure the ordinal association between two measured quantities.

It is a supported method of the Azure Machine Learning Feature selection.

Scenario: When you train a Linear Regression module using a property dataset that shows data for property prices for a large city, you need to determine the best features to use in a model. You can choose standard metrics provided to measure performance before and after the feature importance process completes. You must ensure that the distribution of the features across multiple training models is consistent.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/feature-selection-modules>

NEW QUESTION 18

- (Exam Topic 2)

You need to visually identify whether outliers exist in the Age column and quantify the outliers before the outliers are removed.

Which three Azure Machine Learning Studio modules should you use in sequence? To answer, move the appropriate modules from the list of modules to the answer area and arrange them in the correct order.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Create Scatterplot Summarize Data Clip Values

You can use the Clip Values module in Azure Machine Learning Studio, to identify and optionally replace data values that are above or below a specified threshold. This is useful when you want to remove outliers or replace them with a mean, a constant, or other substitute value.

References:

<https://blogs.msdn.microsoft.com/azuredev/2017/05/27/data-cleansing-tools-in-azure-machine-learning/> <https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/clip-values>

NEW QUESTION 20

- (Exam Topic 2)

You need to identify the methods for dividing the data according to the testing requirements. Which properties should you select? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Scenario: Testing

You must produce multiple partitions of a dataset based on sampling using the Partition and Sample module in Azure Machine Learning Studio.

Box 1: Assign to folds

Use Assign to folds option when you want to divide the dataset into subsets of the data. This option is also useful when you want to create a custom number of folds for cross-validation, or to split rows into several groups.

Not Head: Use Head mode to get only the first n rows. This option is useful if you want to test a pipeline on a small number of rows, and don't need the data to be balanced or sampled in any way.

Not Sampling: The Sampling option supports simple random sampling or stratified random sampling. This is useful if you want to create a smaller representative sample dataset for testing.

Box 2: Partition evenly

Specify the partitioner method: Indicate how you want data to be apportioned to each partition, using these options:

Partition evenly: Use this option to place an equal number of rows in each partition. To specify the number of output partitions, type a whole number in the Specify number of folds to split evenly into text box.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/algorithm-module-reference/partition-and-sample>

NEW QUESTION 23

- (Exam Topic 3)

You configure a Deep Learning Virtual Machine for Windows.

You need to recommend tools and frameworks to perform the following: Build deep neural network (DNN) models.

Perform interactive data exploration and visualization.

Which tools and frameworks should you recommend? To answer, drag the appropriate tools to the correct tasks. 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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 28

- (Exam Topic 3)

You use Azure Machine Learning Studio to build a machine learning experiment.

You need to divide data into two distinct datasets. Which module should you use?

- A. Partition and Sample
- B. Assign Data to Clusters
- C. Group Data into Bins
- D. Test Hypothesis Using t-Test

Answer: A

Explanation:

Partition and Sample with the Stratified split option outputs multiple datasets, partitioned using the rules you specified.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/partition-and-sample>

NEW QUESTION 31

- (Exam Topic 3)

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 are a data scientist using Azure Machine Learning Studio.

You need to normalize values to produce an output column into bins to predict a target column. Solution: Apply an Equal Width with Custom Start and Stop binning mode.

Does the solution meet the goal?

- A. Yes
- B. No

Answer: B

Explanation:

Use the Entropy MDL binning mode which has a target column.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/group-data-into-bins>

NEW QUESTION 33

- (Exam Topic 2)

You need to set up the Permutation Feature Importance module according to the model training requirements.

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

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: Accuracy

Scenario: You want to configure hyperparameters in the model learning process to speed the learning phase by using hyperparameters. In addition, this configuration should cancel the lowest performing runs at each evaluation interval, thereby directing effort and resources towards models that are more likely to be successful.

Box 2: R-Squared

NEW QUESTION 37

- (Exam Topic 2)

You need to produce a visualization for the diagnostic test evaluation according to the data visualization requirements.

Which three modules should you recommend be used in sequence? To answer, move the appropriate modules from the list of modules to the answer area and arrange them in the correct order.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Step 1: Sweep Clustering

Start by using the "Tune Model Hyperparameters" module to select the best sets of parameters for each of the models we're considering.

One of the interesting things about the "Tune Model Hyperparameters" module is that it not only outputs the results from the Tuning, it also outputs the Trained Model.

Step 2: Train Model Step 3: Evaluate Model

Scenario: You need to provide the test results to the Fabrikam Residences team. You create data visualizations to aid in presenting the results.

You must produce a Receiver Operating Characteristic (ROC) curve to conduct a diagnostic test evaluation of the model. You need to select appropriate methods for producing the ROC curve in Azure Machine Learning Studio to compare the Two-Class Decision Forest and the Two-Class Decision Jungle modules with one another.

References:

<http://breaking-bi.blogspot.com/2017/01/azure-machine-learning-model-evaluation.html>

NEW QUESTION 39

- (Exam Topic 2)

You need to configure the Permutation Feature Importance module for the model training requirements. What should you do? To answer, select the appropriate options in the dialog box in the answer area. NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: 500

For Random seed, type a value to use as seed for randomization. If you specify 0 (the default), a number is generated based on the system clock.

A seed value is optional, but you should provide a value if you want reproducibility across runs of the same experiment.

Here we must replicate the findings. Box 2: Mean Absolute Error

Scenario: Given a trained model and a test dataset, you must compute the Permutation Feature Importance scores of feature variables. You need to set up the Permutation Feature Importance module to select the correct metric to investigate the model's accuracy and replicate the findings.

Regression. Choose one of the following: Precision, Recall, Mean Absolute Error, Root Mean Squared Error, Relative Absolute Error, Relative Squared Error, Coefficient of Determination

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/permutation-feature-importan>

NEW QUESTION 42

- (Exam Topic 2)

You need to implement early stopping criteria as suited in the model training requirements.

Which three code segments should you use to develop the solution? To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.

NOTE: More than one order of answer choices is correct. You will receive credit for any of the correct orders you select.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

You need to implement an early stopping criterion on models that provides savings without terminating promising jobs.

Truncation selection cancels a given percentage of lowest performing runs at each evaluation interval. Runs are compared based on their performance on the primary metric and the lowest X% are terminated.

Example:

```
from azureml.train.hyperdrive import TruncationSelectionPolicy
early_termination_policy = TruncationSelectionPolicy(evaluation_interval=1, truncation_percentage=20, delay_evaluation=5)
```

NEW QUESTION 46

- (Exam Topic 1)

You need to implement a scaling strategy for the local penalty detection data. Which normalization type should you use?

- A. Streaming
- B. Weight
- C. Batch
- D. Cosine

Answer: C

Explanation:

Post batch normalization statistics (PBN) is the Microsoft Cognitive Toolkit (CNTK) version of how to evaluate the population mean and variance of Batch Normalization which could be used in inference Original Paper.

In CNTK, custom networks are defined using the BrainScriptNetworkBuilder and described in the CNTK network description language "BrainScript."

Scenario:

Local penalty detection models must be written by using BrainScript. References:

<https://docs.microsoft.com/en-us/cognitive-toolkit/post-batch-normalization-statistics>

NEW QUESTION 50

- (Exam Topic 1)

You need to implement a model development strategy to determine a user's tendency to respond to an ad. Which technique should you use?

- A. Use a Relative Expression Split module to partition the data based on centroid distance.
- B. Use a Relative Expression Split module to partition the data based on distance travelled to the event.
- C. Use a Split Rows module to partition the data based on distance travelled to the event.
- D. Use a Split Rows module to partition the data based on centroid distance.

Answer: A

Explanation:

Split Data partitions the rows of a dataset into two distinct sets.

The Relative Expression Split option in the Split Data module of Azure Machine Learning Studio is helpful when you need to divide a dataset into training and testing datasets using a numerical expression.

Relative Expression Split: Use this option whenever you want to apply a condition to a number column. The number could be a date/time field, a column containing age or dollar amounts, or even a percentage. For example, you might want to divide your data set depending on the cost of the items, group people by age ranges, or separate data by a calendar date.

Scenario:

Local market segmentation models will be applied before determining a user's propensity to respond to an advertisement. The distribution of features across training and production data are not consistent References:
<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data>

NEW QUESTION 55

- (Exam Topic 1)

You need to define a process for penalty event detection.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 57

- (Exam Topic 1)

You need to define a modeling strategy for ad response.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Step 1: Implement a K-Means Clustering model

Step 2: Use the cluster as a feature in a Decision jungle model.

Decision jungles are non-parametric models, which can represent non-linear decision boundaries. Step 3: Use the raw score as a feature in a Score Matchbox Recommender model

The goal of creating a recommendation system is to recommend one or more "items" to "users" of the system. Examples of an item could be a movie, restaurant, book, or song. A user could be a person, group of persons, or other entity with item preferences.

Scenario:

Ad response rated declined.

Ad response models must be trained at the beginning of each event and applied during the sporting event. Market segmentation models must optimize for similar ad response history.

Ad response models must support non-linear boundaries of features. References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/multiclass-decision-jungle> <https://docs.microsoft.com/en-us/azure/machine->

learning/studio-module-reference/score-matchbox-recommende

NEW QUESTION 59

- (Exam Topic 1)

You need to build a feature extraction strategy for the local models.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 61

- (Exam Topic 1)

You need to define an evaluation strategy for the crowd sentiment models.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Step 1: Define a cross-entropy function activation

When using a neural network to perform classification and prediction, it is usually better to use cross-entropy error than classification error, and somewhat better to use cross-entropy error than mean squared error to evaluate the quality of the neural network.

Step 2: Add cost functions for each target state. Step 3: Evaluated the distance error metric. References:

<https://www.analyticsvidhya.com/blog/2018/04/fundamentals-deep-learning-regularization-techniques/>

NEW QUESTION 64

- (Exam Topic 1)

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.

Answer: A

Explanation:

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%.

NEW QUESTION 65

- (Exam Topic 1)

You need to define a process for penalty event detection.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 70

- (Exam Topic 3)

You are developing a hands-on workshop to introduce Docker for Windows to attendees. You need to ensure that workshop attendees can install Docker on their devices.

Which two prerequisite components should attendees install on the devices? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

- A. Microsoft Hardware-Assisted Virtualization Detection Tool
- B. Kitematic
- C. BIOS-enabled virtualization
- D. VirtualBox
- E. Windows 10 64-bit Professional

Answer: E

Explanation:

C: Make sure your Windows system supports Hardware Virtualization Technology and that virtualization is enabled. Ensure that hardware virtualization support is turned on in the BIOS settings. For example:

E: To run Docker, your machine must have a 64-bit operating system running Windows 7 or higher. References:
https://docs.docker.com/toolbox/toolbox_install_windows/ <https://blogs.technet.microsoft.com/canitpro/2015/09/08/step-by-step-enabling-hyper-v-for-use-on-windows-10/>

NEW QUESTION 73

- (Exam Topic 3)

You plan to use a Data Science Virtual Machine (DSVM) with the open source deep learning frameworks Caffe2 and Theano. You need to select a pre configured DSVM to support the framework.

What should you create?

- A. Data Science Virtual Machine for Linux (CentOS)
- B. Data Science Virtual Machine for Windows 2012
- C. Data Science Virtual Machine for Windows 2016
- D. Geo AI Data Science Virtual Machine with ArcGIS
- E. Data Science Virtual Machine for Linux (Ubuntu)

Answer: E

NEW QUESTION 78

- (Exam Topic 3)

You are performing sentiment analysis using a CSV file that includes 12,000 customer reviews written in a short sentence format. You add the CSV file to Azure Machine Learning Studio and configure it as the starting point dataset of an experiment. You add the Extract N-Gram Features from Text module to the experiment to extract key phrases from the customer review column in the dataset.

You must create a new n-gram dictionary from the customer review text and set the maximum n-gram size to trigrams.

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

NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Vocabulary mode: Create

For Vocabulary mode, select Create to indicate that you are creating a new list of n-gram features. N-Grams size: 3

For N-Grams size, type a number that indicates the maximum size of the n-grams to extract and store. For example, if you type 3, unigrams, bigrams, and trigrams

will be created.

Weighting function: Leave blank

The option, Weighting function, is required only if you merge or update vocabularies. It specifies how terms in the two vocabularies and their scores should be weighted against each other.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/extract-n-gram-features-from>

NEW QUESTION 82

- (Exam Topic 3)

You use Data Science Virtual Machines (DSVMs) for Windows and Linux in Azure. You need to access the DSVMs.

Which utilities should you use? To answer, select the appropriate options in the answer area. NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 84

- (Exam Topic 3)

You plan to build a team data science environment. Data for training models in machine learning pipelines will be over 20 GB in size.

You have the following requirements:

Models must be built using Caffe2 or Chainer frameworks.

Data scientists must be able to use a data science environment to build the machine learning pipelines and train models on their personal devices in both connected and disconnected network environments.

Personal devices must support updating machine learning pipelines when connected to a network. You need to select a data science environment.

Which environment should you use?

- A. Azure Machine Learning Service
- B. Azure Machine Learning Studio
- C. Azure Databricks
- D. Azure Kubernetes Service (AKS)

Answer: A

Explanation:

The Data Science Virtual Machine (DSVM) is a customized VM image on Microsoft's Azure cloud built specifically for doing data science. Caffe2 and Chainer are supported by DSVM.

DSVM integrates with Azure Machine Learning.

NEW QUESTION 87

- (Exam Topic 3)

You are performing a classification task in Azure Machine Learning Studio.

You must prepare balanced testing and training samples based on a provided data set. You need to split the data with a 0.75:0.25 ratio.

Which value should you use for each parameter? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: Split rows

Use the Split Rows option if you just want to divide the data into two parts. You can specify the percentage of data to put in each split, but by default, the data is divided 50-50.

You can also randomize the selection of rows in each group, and use stratified sampling. In stratified sampling, you must select a single column of data for which you want values to be apportioned equally among the two result datasets.

Box 2: 0.75

If you specify a number as a percentage, or if you use a string that contains the "%" character, the value is interpreted as a percentage. All percentage values must be within the range (0, 100), not including the values 0 and 100.

Box 3: Yes

To ensure splits are balanced. Box 4: No

If you use the option for a stratified split, the output datasets can be further divided by subgroups, by selecting a strata column.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/split-data>

NEW QUESTION 91

- (Exam Topic 3)

Your team is building a data engineering and data science development environment. The environment must support the following requirements:
support Python and Scala

compose data storage, movement, and processing services into automated data pipelines

the same tool should be used for the orchestration of both data engineering and data science

support workload isolation and interactive workloads

enable scaling across a cluster of machines You need to create the environment.

What should you do?

- A. Build the environment in Apache Hive for HDInsight and use Azure Data Factory for orchestration.
- B. Build the environment in Azure Databricks and use Azure Data Factory for orchestration.
- C. Build the environment in Apache Spark for HDInsight and use Azure Container Instances for orchestration.
- D. Build the environment in Azure Databricks and use Azure Container Instances for orchestration.

Answer: B

Explanation:

In Azure Databricks, we can create two different types of clusters.

Standard, these are the default clusters and can be used with Python, R, Scala and SQL

High-concurrency

Azure Databricks is fully integrated with Azure Data Factory.

NEW QUESTION 94

- (Exam Topic 3)

You are creating a machine learning model. You need to identify outliers in the data.

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

NOTE: Each correct selection is worth one point. NOTE: Each correct selection is worth one point.

- A. box plot
- B. scatter
- C. random forest diagram
- D. Venn diagram
- E. ROC curve

Answer: AB

Explanation:

The box-plot algorithm can be used to display outliers.

One other way to quickly identify Outliers visually is to create scatter plots. References:

<https://blogs.msdn.microsoft.com/azuredev/2017/05/27/data-cleansing-tools-in-azure-machine-learning/>

NEW QUESTION 95

- (Exam Topic 3)

You are conducting feature engineering to prepuce data for further analysis. The data includes seasonal patterns on inventory requirements.

You need to select the appropriate method to conduct feature engineering on the data. Which method should you use?

- A. Exponential Smoothing (ETS) function.
- B. One Class Support Vector Machine module
- C. Time Series Anomaly Detection module
- D. Finite Impulse Response (FIR) Filter module.

Answer: D

NEW QUESTION 96

- (Exam Topic 3)

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 are creating a new experiment in Azure Machine Learning Studio.

One class has a much smaller number of observations than the other classes in the training set. You need to select an appropriate data sampling strategy to compensate for the class imbalance. Solution: You use the Principal Components Analysis (PCA) sampling mode.

Does the solution meet the goal?

- A. Yes
- B. No

Answer: B

NEW QUESTION 98

- (Exam Topic 3)

You are building a recurrent neural network to perform a binary classification. You review the training loss, validation loss, training accuracy, and validation accuracy for each training epoch.

You need to analyze model performance.

Which observation indicates that the classification model is over fitted?

- A. The training loss stays constant and the validation loss stays on a constant value and close to the training loss value when training the model.
- B. The training loss increases while the validation loss decreases when training the model.
- C. The training loss decreases while the validation loss increases when training the model.
- D. The training loss stays constant and the validation loss decreases when training the model.

Answer: B

NEW QUESTION 99

- (Exam Topic 3)

You are a data scientist creating a linear regression model.

You need to determine how closely the data fits the regression line. Which metric should you review?

- A. Coefficient of determination
- B. Recall
- C. Precision
- D. Mean absolute error
- E. Root Mean Square Error

Answer: A

Explanation:

Coefficient of determination, often referred to as R^2 , represents the predictive power of the model as a value between 0 and 1. Zero means the model is random (explains nothing); 1 means there is a perfect fit. However, caution should be used in interpreting R^2 values, as low values can be entirely normal and high values can be suspect.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/evaluate-model>

NEW QUESTION 101

- (Exam Topic 3)

You are developing a machine learning experiment by using Azure. The following images show the input and output of a machine learning experiment:

Use the drop-down menus to select the answer choice that answers each question based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

NEW QUESTION 104

- (Exam Topic 3)

You are analyzing a raw dataset that requires cleaning.

You must perform transformations and manipulations by using Azure Machine Learning Studio. You need to identify the correct modules to perform the transformations.

Which modules should you choose? To answer, drag the appropriate modules to the correct scenarios. Each module 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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: Clean Missing Data

Box 2: SMOTE

Use the SMOTE module in Azure Machine Learning Studio to increase the number of underrepresented cases in a dataset used for machine learning. SMOTE is a better way of increasing the number of rare cases than simply duplicating existing cases.

Box 3: Convert to Indicator Values

Use the Convert to Indicator Values module in Azure Machine Learning Studio. The purpose of this module is to convert columns that contain categorical values into a series of binary indicator columns that can more easily be used as features in a machine learning model.

Box 4: Remove Duplicate Rows References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/smote> <https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/convert-to-indicator-values>

NEW QUESTION 108

- (Exam Topic 3) You are solving a classification task. The dataset is imbalanced.

You need to select an Azure Machine Learning Studio module to improve the classification accuracy. Which module should you use?

- A. Fisher Linear Discriminant Analysis.
- B. Filter Based Feature Selection
- C. Synthetic Minority Oversampling Technique (SMOTE)
- D. Permutation Feature Importance

Answer: C

Explanation:

Use the SMOTE module in Azure Machine Learning Studio (classic) to increase the number of underrepresented cases in a dataset used for machine learning. SMOTE is a better way of increasing the number of rare cases than simply duplicating existing cases.

You connect the SMOTE module to a dataset that is imbalanced. There are many reasons why a dataset might be imbalanced: the category you are targeting might be very rare in the population, or the data might simply be difficult to collect. Typically, you use SMOTE when the class you want to analyze is under-represented.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/smote>

NEW QUESTION 111

- (Exam Topic 3)

You are using a decision tree algorithm. You have trained a model that generalizes well at a tree depth equal to 10.

You need to select the bias and variance properties of the model with varying tree depth values.

Which properties should you select for each tree depth? To answer, select the appropriate options in the answer area.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

In decision trees, the depth of the tree determines the variance. A complicated decision tree (e.g. deep) has low bias and high variance.

Note: In statistics and machine learning, the bias–variance tradeoff is the property of a set of predictive models whereby models with a lower bias in parameter estimation have a higher variance of the parameter estimates across samples, and vice versa. Increasing the bias will decrease the variance. Increasing the variance will decrease the bias.

References:

<https://machinelearningmastery.com/gentle-introduction-to-the-bias-variance-trade-off-in-machine-learning/>

NEW QUESTION 113

- (Exam Topic 3)

You create an experiment in Azure Machine Learning Studio. You add a training dataset that contains 10,000 rows. The first 9,000 rows represent class 0 (90 percent).

The remaining 1,000 rows represent class 1 (10 percent).

The training set is imbalanced between two classes. You must increase the number of training examples for class 1 to 4,000 by using 5 data rows. You add the Synthetic Minority Oversampling Technique (SMOTE) module to the experiment.

You need to configure the module.

Which values should you use? To answer, select the appropriate options in the dialog box in the answer area. NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: 300

You type 300 (%), the module triples the percentage of minority cases (3000) compared to the original dataset (1000).

Box 2: 5

We should use 5 data rows.

Use the Number of nearest neighbors option to determine the size of the feature space that the SMOTE algorithm uses when in building new cases. A nearest neighbor is a row of data (a case) that is very similar to some target case. The distance between any two cases is measured by combining the weighted vectors of all features.

By increasing the number of nearest neighbors, you get features from more cases.

By keeping the number of nearest neighbors low, you use features that are more like those in the original sample.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/smote>

NEW QUESTION 118

- (Exam Topic 3)

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 are using Azure Machine Learning Studio to perform feature engineering on a dataset. You need to normalize values to produce a feature column grouped into bins.

Solution: Apply an Entropy Minimum Description Length (MDL) binning mode.

Does the solution meet the goal?

- A. Yes
- B. No

Answer: A

Explanation:

Entropy MDL binning mode: This method requires that you select the column you want to predict and the column or columns that you want to group into bins. It then makes a pass over the data and attempts to determine the number of bins that minimizes the entropy. In other words, it chooses a number of bins that allows the data column to best predict the target column. It then returns the bin number associated with each row of your data in a column named <colname>quantized.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/group-data-into-bins>

NEW QUESTION 121

- (Exam Topic 3)

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 are a data scientist using Azure Machine Learning Studio.

You need to normalize values to produce an output column into bins to predict a target column. Solution: Apply a Quantiles binning mode with a PQuantile normalization.

Does the solution meet the goal?

- A. Yes
- B. No

Answer: B

Explanation:

Use the Entropy MDL binning mode which has a target column. References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/group-data-into-bins>

NEW QUESTION 125

- (Exam Topic 3)

You are solving a classification task.

You must evaluate your model on a limited data sample by using k-fold cross validation. You start by configuring a k parameter as the number of splits.

You need to configure the k parameter for the cross-validation. Which value should you use?

- A. k=0.5
- B. k=0
- C. k=5
- D. k=1

Answer: C

Explanation:

Leave One Out (LOO) cross-validation

Setting $K = n$ (the number of observations) yields n-fold and is called leave-one out cross-validation (LOO), a special case of the K-fold approach.

LOO CV is sometimes useful but typically doesn't shake up the data enough. The estimates from each fold are highly correlated and hence their average can have high variance.

This is why the usual choice is $K=5$ or 10 . It provides a good compromise for the bias-variance tradeoff.

NEW QUESTION 126

- (Exam Topic 3)

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 are analyzing a numerical dataset which contains missing values in several columns.

You must clean the missing values using an appropriate operation without affecting the dimensionality of the feature set.

You need to analyze a full dataset to include all values.

Solution: Remove the entire column that contains the missing data point. Does the solution meet the goal?

- A. Yes
- B. No

Answer: B

Explanation:

Use the Multiple Imputation by Chained Equations (MICE) method. References: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074241/>
<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/clean-missing-data>

NEW QUESTION 128

- (Exam Topic 3)

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 are creating a new experiment in Azure Machine Learning Studio.

One class has a much smaller number of observations than the other classes in the training set. You need to select an appropriate data sampling strategy to compensate for the class imbalance. Solution: You use the Scale and Reduce sampling mode.

Does the solution meet the goal?

- A. Yes
- B. No

Answer: B

Explanation:

Instead use the Synthetic Minority Oversampling Technique (SMOTE) sampling mode.

Note: SMOTE is used to increase the number of underrepresented cases in a dataset used for machine learning. SMOTE is a better way of increasing the number of rare cases than simply duplicating existing cases.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/smote>

NEW QUESTION 130

- (Exam Topic 3)

You have a dataset created for multiclass classification tasks that contains a normalized numerical feature set with 10,000 data points and 150 features.

You use 75 percent of the data points for training and 25 percent for testing. You are using the scikit-learn machine learning library in Python. You use X to denote the feature set and Y to denote class labels.

You create the following Python data frames:

You need to apply the Principal Component Analysis (PCA) method to reduce the dimensionality of the feature set to 10 features in both training and testing sets.

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.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: `PCA(n_components = 10)`

Need to reduce the dimensionality of the feature set to 10 features in both training and testing sets. Example:

from sklearn.decomposition import PCA
pca = PCA(n_components=2) ;2 dimensions principalComponents = pca.fit_transform(x)

Box 2: `pca`

`fit_transform(X[, y])` fits the model with X and apply the dimensionality reduction on X. Box 3: `transform(x_test)`

`transform(X)` applies dimensionality reduction to X. References:

<https://scikit-learn.org/stable/modules/generated/sklearn.decomposition.PCA.html>

NEW QUESTION 132

- (Exam Topic 3)

You are creating a new experiment in Azure Machine Learning Studio. You have a small dataset that has missing values in many columns. The data does not require the application of predictors for each column. You plan to use the Clean Missing Data module to handle the missing data.

You need to select a data cleaning method. Which method should you use?

- A. Synthetic Minority Oversampling Technique (SMOTE)
- B. Replace using MICE
- C. Replace using; Probabilistic PCA
- D. Normalization

Answer: A

NEW QUESTION 135

- (Exam Topic 3)

You are retrieving data from a large datastore by using Azure Machine Learning Studio.

You must create a subset of the data for testing purposes using a random sampling seed based on the system clock.

You add the Partition and Sample module to your experiment. You need to select the properties for the module.

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

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: Sampling Create a sample of data

This option supports simple random sampling or stratified random sampling. This is useful if you want to create a smaller representative sample dataset for testing.

1. Add the Partition and Sample module to your experiment in Studio, and connect the dataset.

2. Partition or sample mode: Set this to Sampling.

3. Rate of sampling. See box 2 below. Box 2: 0

3. Rate of sampling. Random seed for sampling: Optionally, type an integer to use as a seed value.

This option is important if you want the rows to be divided the same way every time. The default value is 0, meaning that a starting seed is generated based on the system clock. This can lead to slightly different results each time you run the experiment.

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/partition-and-sample>

NEW QUESTION 139

- (Exam Topic 3)

You have a feature set containing the following numerical features: X, Y, and Z.

The Poisson correlation coefficient (r-value) of X, Y, and Z features is shown in the following image:

Use the drop-down menus to select the answer choice that answers each question based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Box 1: 0.859122

Box 2: a positively linear relationship

+1 indicates a strong positive linear relationship

-1 indicates a strong negative linear correlation

0 denotes no linear relationship between the two variables. References:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/compute-linear-correlation>

NEW QUESTION 144

- (Exam Topic 3)

You are evaluating a completed binary classification machine learning model. You need to use the precision as the valuation metric. Which visualization should you use?

- A. Binary classification confusion matrix
- B. box plot
- C. Gradient descent
- D. coefficient of determination

Answer: A

Explanation:

References:

<https://machinelearningknowledge.ai/confusion-matrix-and-performance-metrics-machine-learning/>

NEW QUESTION 145

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