

## Exam Questions DP-100

Designing and Implementing a Data Science Solution on Azure

<https://www.2passeasy.com/dumps/DP-100/>



### NEW QUESTION 1

- (Exam Topic 3)

You are determining if two sets of data are significantly different from one another by using Azure Machine Learning Studio.

Estimated values in one set of data may be more than or less than reference values in the other set of data. You must produce a distribution that has a constant Type I error as a function of the correlation.

You need to produce the distribution.

Which type of distribution should you produce?

- A. Paired t-test with a two-tail option
- B. Unpaired t-test with a two tail option
- C. Paired t-test with a one-tail option
- D. Unpaired t-test with a one-tail option

**Answer:** A

#### Explanation:

Choose a one-tail or two-tail test. The default is a two-tailed test. This is the most common type of test, in which the expected distribution is symmetric around zero.

Example: Type I error of unpaired and paired two-sample t-tests as a function of the correlation. The simulated random numbers originate from a bivariate normal distribution with a variance of 1.

Reference:

<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/test-hypothesis-using-t-test> [https://en.wikipedia.org/wiki/Student%27s\\_t-test](https://en.wikipedia.org/wiki/Student%27s_t-test)

### NEW QUESTION 2

- (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 3

- (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 4**

- (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: Calculate the column median value and use the median value as the replacement for any missing value in the column.

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 5**

- (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 6**

- (Exam Topic 3)

You are with a time series dataset in Azure Machine Learning Studio.

You need to split your dataset into training and testing subsets by using the Split Data module. Which splitting mode should you use?

- A. Regular Expression Split
- B. Split Rows with the Randomized split parameter set to true
- C. Relative Expression Split
- D. Recommender Split

**Answer:** B

**Explanation:**

Split Rows: Use this 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.

References:

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

**NEW QUESTION 7**

- (Exam Topic 3)

You are analyzing a dataset containing historical data from a local taxi company. You are developing 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 F1 score that is low.

**Answer:** DF

#### NEW QUESTION 8

- (Exam Topic 3)

You are a data scientist building a deep convolutional neural network (CNN) for image classification. The CNN model you built shows signs of overfitting.

You need to reduce overfitting and converge the model to an optimal fit.

Which two actions should you perform? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. Reduce the amount of training data.
- B. Add an additional dense layer with 64 input units
- C. Add L1/L2 regularization.
- D. Use training data augmentation
- E. Add an additional dense layer with 512 input units.

**Answer:** AC

#### Explanation:

References:

<https://machinelearningmastery.com/how-to-reduce-overfitting-in-deep-learning-with-weight-regularization/>

[https://en.wikipedia.org/wiki/Convolutional\\_neural\\_network](https://en.wikipedia.org/wiki/Convolutional_neural_network)

#### NEW QUESTION 9

- (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 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 10

- (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 13

- (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 15**

- (Exam Topic 2)

You need to correct the model fit issue.

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: Augment the data

Scenario: Columns in each dataset contain missing and null values. The datasets also contain many outliers.

Step 2: Add the Bayesian Linear Regression module.

Scenario: You produce a regression model to predict property prices by using the Linear Regression and Bayesian Linear Regression modules.

Step 3: Configure the regularization weight.

Regularization typically is used to avoid overfitting. For example, in L2 regularization weight, type the value to use as the weight for L2 regularization. We recommend that you use a non-zero value to avoid overfitting.

Scenario:

Model fit: The model shows signs of overfitting. You need to produce a more refined regression model that reduces the overfitting.

**NEW QUESTION 18**

- (Exam Topic 2)

You need to configure the Edit Metadata module so that the structure of the datasets match. Which configuration options 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:**

#### NEW QUESTION 21

- (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 24

- (Exam Topic 1)

You need to implement a feature engineering strategy for the crowd sentiment local models. What should you do?



- A. Apply an analysis of variance (ANOVA).
- B. Apply a Pearson correlation coefficient.
- C. Apply a Spearman correlation coefficient.
- D. Apply a linear discriminant analysis.

**Answer:** D

**Explanation:**

The linear discriminant analysis method works only on continuous variables, not categorical or ordinal variables.

Linear discriminant analysis is similar to analysis of variance (ANOVA) in that it works by comparing the means of the variables.

Scenario:

Data scientists must build notebooks in a local environment using automatic feature engineering and model building in machine learning pipelines.

Experiments for local crowd sentiment models must combine local penalty detection data. All shared features for local models are continuous variables.

**NEW QUESTION 28**

- (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 33**

- (Exam Topic 1)

You need to modify the inputs for the global penalty event model to address the bias and variance issue.

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 35

- (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.

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You are creating a new experiment in Azure Learning learning Studio.

One class has a much smaller number of observations than the other classes in the training

You need to select an appropriate data sampling strategy to compensate for the class imbalance. Solution: You use the Synthetic Minority Oversampling Technique (SMOTE) sampling mode. Does the solution meet the goal?

A. Yes

B. No

**Answer:** A

#### **Explanation:**

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 37

- (Exam Topic 3)

You must store data in Azure Blob Storage to support Azure Machine Learning. You need to transfer the data into Azure Blob Storage.

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

NOTE: Each correct selection is worth one point.

A. Bulk Insert SQL Query

B. AzCopy

C. Python script

D. Azure Storage Explorer

E. Bulk Copy Program (BCP)

**Answer:** BCD

#### **Explanation:**

You can move data to and from Azure Blob storage using different technologies: Azure Storage-Explorer

AzCopy Python SSIS

References:

<https://docs.microsoft.com/en-us/azure/machine-learning/team-data-science-process/move-azure-blob>

### NEW QUESTION 42

- (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 43

- (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 46**

- (Exam Topic 3)

You are analyzing the asymmetry in a statistical distribution.

The following image contains two density curves that show the probability distribution of two datasets.

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: Positive skew

Positive skew values means the distribution is skewed to the right. Box 2: Negative skew

Negative skewness values mean the distribution is skewed to the left. References:

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

**NEW QUESTION 47**

- (Exam Topic 3)

You create a classification model with a dataset that contains 100 samples with Class A and 10,000 samples with Class B

The variation of Class B is very high. You need to resolve imbalances. Which method should you use?

- A. Partition and Sample
- B. Cluster Centroids
- C. Tomek links
- D. Synthetic Minority Oversampling Technique (SMOTE)

**Answer:** D

**NEW QUESTION 48**

- (Exam Topic 3)

You create a binary classification model using Azure Machine Learning Studio.

You must use a Receiver Operating Characteristic (ROC) curve and an F1 score to evaluate the model. You need to create the required business metrics.

How should you complete the experiment? 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:**

#### NEW QUESTION 49

- (Exam Topic 3)

You are using C-Support Vector classification to do a multi-class classification with an unbalanced training dataset. The C-Support Vector classification using Python code shown below:

You need to evaluate the C-Support Vector classification code.

Which evaluation statement 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:**

Box 1: Automatically adjust weights inversely proportional to class frequencies in the input data

The "balanced" mode uses the values of y to automatically adjust weights inversely proportional to class frequencies in the input data as  $n_{\text{samples}} / (n_{\text{classes}} * \text{np.bincount}(y))$ .

Box 2: Penalty parameter

Parameter: C : float, optional (default=1.0)

Penalty parameter C of the error term. References:

<https://scikit-learn.org/stable/modules/generated/sklearn.svm.SVC.html>

#### NEW QUESTION 52

- (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 56**

- (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 60**

- (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 model to predict the price of a student's artwork depending on the following variables: the student's length of education, degree type, and art form.  
You start by creating a linear regression model.  
You need to evaluate the linear regression model.  
Solution: Use the following metrics: Relative Squared Error, Coefficient of Determination, Accuracy, Precision, Recall, F1 score, and AUC.  
Does the solution meet the goal?

- A. Yes
- B. No

**Answer:** B

**Explanation:**

Relative Squared Error, Coefficient of Determination are good metrics to evaluate the linear regression model, but the others are metrics for classification models.  
References:  
<https://docs.microsoft.com/en-us/azure/machine-learning/studio-module-reference/evaluate-model>

**NEW QUESTION 61**

- (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 64**

- (Exam Topic 3)

You need to select a pre built development environment for a series of data science experiments. You must use the R language for the experiments.  
Which three environments can you use? Each correct answer presents a complete solution. NOTE: Each correct selection is worth one point.

- A. ML.NET Library on a local environment
- B. Azure Machine Learning Studio
- C. Data Science Virtual Machine (OSVM)
- D. Azure Data bricks
- E. Azure Cognitive Services

**Answer:** ABD

**NEW QUESTION 68**

- (Exam Topic 3)

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

- A. scatter plot
- B. coefficient of determination
- C. Receiver Operating Characteristic CROC) curve
- D. Gradient descent

**Answer:** C

**NEW QUESTION 71**

- (Exam Topic 3)

You are developing deep learning models to analyze semi-structured, unstructured, and structured data types. You have the following data available for model building:

Video recordings of sporting events  
Transcripts of radio commentary about events  
Logs from related social media feeds captured during sporting events  
You need to select an environment for creating the model.  
Which environment should you use?

- A. Azure Cognitive Services
- B. Azure Data Lake Analytics
- C. Azure HDInsight with Spark MLlib
- D. Azure Machine Learning Studio

**Answer:** A

**Explanation:**

Azure Cognitive Services expand on Microsoft's evolving portfolio of machine learning APIs and enable developers to easily add cognitive features – such as emotion and video detection; facial, speech, and vision recognition; and speech and language understanding – into their applications. The goal of Azure Cognitive Services is to help developers create applications that can see, hear, speak, understand, and even begin to reason. The catalog of services within Azure Cognitive Services can be categorized into five main pillars - Vision, Speech, Language, Search, and Knowledge.





D. 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.

**Answer:** B

**Explanation:**

An overfit model is one where performance on the train set is good and continues to improve, whereas performance on the validation set improves to a point and then begins to degrade.

References:

<https://machinelearningmastery.com/diagnose-overfitting-underfitting-lstm-models/>

**NEW QUESTION 81**

- (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: Replace each missing value using the Multiple Imputation by Chained Equations (MICE) method. Does the solution meet the goal?

A. Yes

B. NO

**Answer:** A

**Explanation:**

Replace using MICE: For each missing value, this option assigns a new value, which is calculated by using a method described in the statistical literature as "Multivariate Imputation using Chained Equations" or "Multiple Imputation by Chained Equations". With a multiple imputation method, each variable with missing data is modeled conditionally using the other variables in the data before filling in the missing values.

Note: Multivariate imputation by chained equations (MICE), sometimes called "fully conditional specification" or "sequential regression multiple imputation" has emerged in the statistical literature as one principled method of addressing missing data. Creating multiple imputations, as opposed to single imputations, accounts for the statistical uncertainty in the imputations. In addition, the chained equations approach is very flexible and can handle variables of varying types (e.g., continuous or binary) as well as complexities such as bounds or survey skip patterns.

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 84**

- (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 88**

- (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 89**

- (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 92**

- (Exam Topic 3)

You are training a deep learning model to identify cats and dogs. You have 25,000 color images.

You must meet the following requirements:

- Reduce the number of training epochs.
- Reduce the size of the neural network.
- Reduce over-fitting of the neural network.

You need to select the image modification values.

Which value 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 95

- (Exam Topic 3)

You are evaluating a Python NumPy array that contains six data points defined as follows: data = [10, 20, 30, 40, 50, 60]

You must generate the following output by using the k-fold algorithm implantation in the Python Scikit-learn machine learning library:

train: [10 40 50 60], test: [20 30]

train: [20 30 40 60], test: [10 50]

train: [10 20 30 50], test: [40 60]

You need to implement a cross-validation to generate the output.

How should you complete the code segment? To answer, select the appropriate code segment 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: k-fold

Box 2: 3

K-F olds cross-validator provides train/test indices to split data in train/test sets. Split dataset into k consecutive folds (without shuffling by default).

The parameter n\_splits ( int, default=3) is the number of folds. Must be at least 2. Box 3: data

Example: Example:

```
>>>
>>> from sklearn.model_selection import KFold
>>> X = np.array([[1, 2], [3, 4], [1, 2], [3, 4]])
>>> y = np.array([1, 2, 3, 4])
>>> kf = KFold(n_splits=2)
>>> kf.get_n_splits(X) 2
>>> print(kf)
KFold(n_splits=2, random_state=None, shuffle=False)
>>> for train_index, test_index in kf.split(X): print("TRAIN:", train_index, "TEST:", test_index) X_train, X_test = X[train_index], X[test_index] y_train, y_test =
y[train_index], y[test_index] TRAIN: [2 3] TEST: [0 1]
TRAIN: [0 1] TEST: [2 3]
```

References:

[https://scikit-learn.org/stable/modules/generated/sklearn.model\\_selection.KFold.html](https://scikit-learn.org/stable/modules/generated/sklearn.model_selection.KFold.html)

### NEW QUESTION 97

- (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 102

- (Exam Topic 3)

You create a binary classification model by using Azure Machine Learning Studio.

You must tune hyperparameters by performing a parameter sweep of the model. The parameter sweep must meet the following requirements:

iterate all possible combinations of hyperparameters  
minimize computing resources required to perform the sweep  
You need to perform a parameter sweep of the model.  
Which parameter sweep mode should you use?

- A. Random sweep
- B. Sweep clustering
- C. Entire grid
- D. Random grid
- E. Random seed

**Answer:** D

#### Explanation:

Maximum number of runs on random grid: This option also controls the number of iterations over a random sampling of parameter values, but the values are not generated randomly from the specified range; instead, a matrix is created of all possible combinations of parameter values and a random sampling is taken over the matrix. This method is more efficient and less prone to regional oversampling or undersampling.

If you are training a model that supports an integrated parameter sweep, you can also set a range of seed values to use and iterate over the random seeds as well. This is optional, but can be useful for avoiding bias introduced by seed selection.

#### NEW QUESTION 107

- (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 112**

- (Exam Topic 3)

You are building a machine learning model for translating English language textual content into French language textual content.

You need to build and train the machine learning model to learn the sequence of the textual content. Which type of neural network should you use?

- A. Multilayer Perceptions (MLPs)
- B. Convolutional Neural Networks (CNNs)
- C. Recurrent Neural Networks (RNNs)
- D. Generative Adversarial Networks (GANs)

**Answer:** C

**Explanation:**

To translate a corpus of English text to French, we need to build a recurrent neural network (RNN).

Note: RNNs are designed to take sequences of text as inputs or return sequences of text as outputs, or both. They're called recurrent because the network's hidden layers have a loop in which the output and cell state from each time step become inputs at the next time step. This recurrence serves as a form of memory. It allows contextual information to flow through the network so that relevant outputs from previous time steps can be applied to network operations at the current time step.

References:

<https://towardsdatascience.com/language-translation-with-rnns-d84d43b40571>

**NEW QUESTION 116**

- (Exam Topic 3)

You plan to use a Deep Learning Virtual Machine (DLVM) to train deep learning models using Compute Unified Device Architecture (CUDA) computations.

You need to configure the DLVM to support CUDA. What should you implement?

- A. Intel Software Guard Extensions (Intel SGX) technology
- B. Solid State Drives (SSD)
- C. Graphic Processing Unit (GPU)
- D. Computer Processing Unit (CPU) speed increase by using overclocking
- E. High Random Access Memory (RAM) configuration

**Answer:** C

**Explanation:**

A Deep Learning Virtual Machine is a pre-configured environment for deep learning using GPU instances. References:

<https://azuremarketplace.microsoft.com/en-au/marketplace/apps/microsoft-ads.dsvm-deep-learning>

**NEW QUESTION 120**

- (Exam Topic 3)

You are producing a multiple linear regression model in Azure Machine learning Studio. Several independent variables are highly correlated.

You need to select appropriate methods for conducting elective feature engineering on all the data.

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 121

- (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 first 1,000 rows represent class 1 (10 percent).

The training set is unbalanced between two Classes. You must increase the number of training examples for class 1 to 4,000 by using 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:**

#### NEW QUESTION 125

- (Exam Topic 3)

You create a binary classification model to predict whether a person has a disease. You need to detect possible classification errors.

Which error type should you choose for each description? 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: True Positive

A true positive is an outcome where the model correctly predicts the positive class Box 2: True Negative

A true negative is an outcome where the model correctly predicts the negative class. Box 3: False Positive

A false positive is an outcome where the model incorrectly predicts the positive class. Box 4: False Negative

A false negative is an outcome where the model incorrectly predicts the negative class. Note: Let's make the following definitions:

"Wolf" is a positive class. "No wolf" is a negative class.

We can summarize our "wolf-prediction" model using a 2x2 confusion matrix that depicts all four possible outcomes:

Reference:

<https://developers.google.com/machine-learning/crash-course/classification/true-false-positive-negative>

#### NEW QUESTION 129

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