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C1000-144

IBM Machine Learning Data Scientist v1

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Question: 1

Which of the following metrics is commonly used to monitor model performance in production?

A. Mean Absolute Error (MAE)
B. Precision-Recall curve
C. R-squared (R2) score
D. Area Under the ROC Curve (AUC-ROC)

Answer: D

Explanation: The Area Under the ROC Curve (AUC-ROC) is a commonly used metric for monitoring model performance in production. It provides a measure of the model's ability to discriminate between positive and negative instances, making it suitable for binary classification problems.

Question: 2

When refining a machine learning model, which of the following techniques can be used for regularization?

A. L1 regularization (Lasso)
B. Gradient boosting
C. Dropout regularization
D. Ensemble learning

Answer: A

Explanation: L1 regularization, also known as Lasso regularization, adds a penalty term to the model's loss function to encourage sparsity in the feature weights. It helps in selecting the most relevant features and prevents overfitting.

Question: 3

When evaluating a business problem for machine learning implementation, which of the following ethical implications should be considered?

A. Privacy concerns and data protection
B. Market competition and intellectual property rights
C. Social biases and fairness in decision-making
D. Environmental sustainability and resource consumption

Answer: A

Explanation: When evaluating a business problem for machine learning implementation, it is crucial to consider ethical implications. Privacy concerns and data protection should be addressed to ensure that personal and sensitive information is handled securely and in compliance with relevant regulations.

Question: 4

When monitoring models in production, which of the following techniques can be used for detecting data drift?

A. Principal Component Analysis (PCA)
B. K-means clustering
C. Statistical hypothesis testing
D. Ensemble learning

Answer: C

Explanation: Statistical hypothesis testing can be used to detect data drift by comparing the statistical properties of the new data with the reference data. It helps in identifying changes in the data distribution and triggers appropriate

actions for model adaptation or retraining.

Question: 5

What is an important consideration when monitoring machine learning models in production?

A. Tracking model accuracy on the training data
B. Continuously evaluating model fairness and bias
C. Rebuilding the model periodically with new data
D. Reducing the number of model performance metrics

Answer: B

Explanation: When monitoring machine learning models in production, it is essential to continuously evaluate and mitigate any biases or unfairness in the model's predictions. This helps in ensuring ethical and unbiased decision-making.

Question: 6

Which of the following methods can be used for model explainability?

A. Partial dependence plots
B. Backpropagation algorithm
C. Support Vector Machines (SVM)
D. Random Forest feature importance

Answer: A

Explanation: Partial dependence plots are a technique used for model explainability. They show how the model's predictions change as a particular feature varies while holding other features constant. By visualizing the

relationship between individual features and the predicted outcome, partial dependence plotsprovide insights into the model's behavior and help in understanding its decision-making process.

Question: 7

To implement the proper model, which of the following techniques can be used for feature selection?

A. Recursive Feature Elimination (RFE)
B. Grid search for hyperparameter tuning
C. K-means clustering for feature grouping
D. Cross-validation for model evaluation

Answer: A

Explanation: Recursive Feature Elimination (RFE) is a technique used for feature selection, which recursively removes features and builds models using the remaining features. It ranks the features based on their importance and selects the optimal subset of features for the model.

Question: 8

Which of the following activities is part of the model deployment process?

A. Training the model on the entire dataset
B. Evaluating the model's performance on a validation set
C. Applying the model to new, unseen data
D. Conducting exploratory data analysis

Answer: C

Explanation: Model deployment involves applying the trained model to new,

unseen data for making predictions or generating insights. This step is crucial to assess the model's performance in real-world scenarios.

Question: 9

During exploratory data analysis, which of the following techniques can be used for data preparation?

A. Feature scaling and normalization
B. Principal Component Analysis (PCA)
C. Feature extraction and dimensionality reduction
D. Outlier detection and removal

Answer: C

Explanation: During exploratory data analysis, feature extraction and dimensionality reduction techniques can be employed to identify meaningful features and reduce the dimensionality of the dataset. This helps in improving the model's performance and reducing computational complexity.

SAMPLE QUESTIONS

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