Day-10 Quiz-DataScience-Training

Welcome to the Python Programming Quiz! This quiz tests your knowledge of daily learnings. Please read the instructions carefully before starting the quiz.

Instructions and Rules

- **Time Limit:** You have 20 minutes to complete the quiz.
- **Number of Questions:** The quiz consists of 20 multiple-choice questions.
- **Scoring:** Each correct answer is worth 1 point. There is no negative marking for incorrect answers.
- **Single Attempt:** You are allowed only one attempt to complete the quiz.
- **Required Fields:** All questions are mandatory. You must answer each question to submit the quiz.
- **Resources:** This is a closed-book quiz. Do not use any external resources, including books, notes, or the internet.
- **Honesty:** Please answer the questions honestly and to the best of your ability. Cheating or dishonesty will result in disqualification.
- **Environment:** Ensure you are in a quiet environment where you can concentrate without interruptions.
- **Technical Issues:** In case of technical issues, please contact the quiz administrator immediately.
- **Retakes:** There are no retake opportunities for this quiz. Ensure you are prepared before starting.

Good luck, and do your best!

* Indicates required question

1. Email *

2. **1. What type of problem is logistic regression typically used for?** *

Mark only one oval.

- a) Regression
- b) Classification
- c) Clustering
- d) Dimensionality reduction

3. **2. Which function does logistic regression use to map predicted values to probabilities?** *

Mark only one oval.

- a) Linear
- b) Exponential
- c) Sigmoid
- d) Hyperbolic tangent

4. **3. What assumption does logistic regression make about the relationship between the features and the log odds of the outcome?** *

Mark only one oval.

- a) Linear
- b) Non-linear
- c) Polynomial
- d) Exponential

5. **4. Which of the following metrics is most appropriate for evaluating a logistic regression model?** *

Mark only one oval.

- a) R-squared
- b) Mean Squared Error
- c) Accuracy
- d) Explained Variance

6. **5. What is the purpose of splitting the dataset into training and testing sets?** *

Mark only one oval.

- a) To improve the model accuracy
- b) To evaluate the model on unseen data
- c) To reduce overfitting
- d) To normalize the data

7. **6. What is the role of the confusion matrix in evaluating logistic regression models?** *

Mark only one oval.

- a) It provides the accuracy of the model
- b) It displays the true positives, false positives, true negatives, and false negatives
- c) It visualizes the feature importance
- d) It calculates the R-squared value

8. **7. Which metric is NOT suitable for evaluating a logistic regression model?** *

Mark only one oval.

- a) Precision
- b) Recall
- c) Mean Absolute Error
- d) F1-score

9. **8. In the context of the Iris dataset, what is the target variable?** *

Mark only one oval.

- a) Sepal length
- b) Petal width
- c) Flower species
- d) Sepal width

10. **9. Which technique can be used to handle multi-collinearity in logistic regression?** *

Mark only one oval.

- a) Increasing the learning rate
- b) L2 regularization
- c) Reducing the number of iterations
- d) Using a non-linear model

11. **10. What is the main difference between logistic regression and linear regression?** *

Mark only one oval.

- a) Logistic regression uses a linear function, while linear regression uses a sigmoid function.
- b) Logistic regression predicts continuous values, while linear regression predicts categorical values.
- c) Logistic regression uses a sigmoid function, while linear regression uses a linear function.
- d) Logistic regression uses L1 regularization, while linear regression uses L2 regularization.

12. **11. What is the purpose of the learning rate in gradient descent?** *

Mark only one oval.

- a) To control the number of iterations
- b) To scale the feature values
- c) To determine the step size for updating weights
- d) To handle missing values

13. **12. What is the main purpose of using a decision tree in machine learning?** *

Mark only one oval.

- a) Clustering
- b) Classification and Regression
- c) Dimensionality reduction
- d) Data visualization

14. **13. What is overfitting in the context of decision trees?** *

Mark only one oval.

- a) When the model has high bias and low variance
- b) When the model performs well on training data but poorly on test data
- c) When the model is too simple
- d) When the model generalizes well to new data

15. 14. Which algorithm is commonly used to build decision trees? *

Mark only one oval.

- a) K-means
- b) CART
- c) SVM
- d) PCA

16. **15. In a decision tree, what is the leaf node?** *

Mark only one oval.

- a) The root of the tree
- b) A node that has no children
- c) A node with the highest information gain
- d) A node with the lowest Gini impurity

17. **16. What is the role of entropy in a decision tree?** *

Mark only one oval.

- a) To measure the distance between data points
- b) To measure the impurity or disorder in a dataset
- c) To calculate the accuracy of the model
- d) To normalize the data

18. **17. What does precision measure in classification?** *

Mark only one oval.

- a) The fraction of relevant instances among the retrieved instances
- b) The fraction of relevant instances that were retrieved
- c) The accuracy of the model
- d) The error rate of the model

19. **18. What does recall measure in classification?** *

Mark only one oval.

- a) The fraction of relevant instances among the retrieved instances
- b) The fraction of relevant instances that were retrieved
- c) The accuracy of the model
- d) The error rate of the model

20. **19. What is the formula for calculating precision?** *

Mark only one oval.

- a) TP / (TP + FN)
- b) TN / (TN + FP)
- c) TP / (TP + FP)
- d) TN / (TN + FN)

21. **20. What is the F1-score in classification?** *

Mark only one oval.

- a) The harmonic mean of precision and recall
- b) The arithmetic mean of precision and recall
- c) The geometric mean of precision and recall
- d) The average of precision and recall