Day-6 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 does OLS stand for in linear regression? ***

Mark only one oval.

○ a) Optimal Linear System

○ b) Ordinary Least Squares

○ c) Ordinary Linear System

○ d) Optimal Least Squares

3. **2. Which of the following is minimized in the OLS method? ***

Mark only one oval.

○ a) Sum of squared errors

○ b) Sum of absolute errors

○ c) Mean absolute error

○ d) Mean squared error

4. **3. Which of the following is the equation of a simple linear regression model?** *

Mark only one oval.

- a) $y = \beta 0 + \beta 1x + \varepsilon$
- b) $y = \alpha + \beta x^2 + \varepsilon$
- c) $y = \beta 0x + \beta 1 + \varepsilon$
- d) $y = \alpha + \beta x + \gamma x^2 + \varepsilon$

5. **4. What is the primary goal of linear regression?** *

Mark only one oval.

- a) To classify data points
- b) To predict a continuous outcome variable
- c) To cluster data points
- d) To reduce the dimensionality of the data

6. **5. What distinguishes multiple linear regression from simple linear regression?** *

Mark only one oval.

- a) The number of predictors
- b) The type of response variable
- c) The method of estimation
- d) The presence of interaction terms

7. **6. How is the goodness of fit of an OLS model commonly assessed?** *

Mark only one oval.

- a) By examining the p-values
- b) By checking the residuals
- c) By calculating the R-squared value
- d) By using the F-test

8. **7. What are the components of total variability in a regression model?** *

Mark only one oval.

○ a) Mean and median variability

○ b) Sum and product variability

○ c) Linear and non-linear variability

○ d) Explained and unexplained variability

9. **8. What does the term SST refer to in linear regression?** *

Mark only one oval.

○ a) Sum of Squared Total

○ b) Sum of Squared Terms

○ c) Total Sum of Squares

○ d) Total Sum of Terms

10.   **9. Which metric can indicate whether a regression model has overfitted the data?** *

Mark only one oval.

- a) Mean Absolute Error
- b) R-squared
- c) Adjusted R-squared
- d) Mean Squared Error

11.   **10. Which feature scaling technique scales features to have a mean of 0 and a standard deviation of 1?** *

Mark only one oval.

- a) Min-Max Scaling
- b) Standardization
- c) Normalization
- d) Binarization

12. **11. What is the purpose of feature scaling in linear regression?** *

Mark only one oval.

- a) To increase the range of the features
- b) To reduce the number of features
- c) To ensure that all features contribute equally to the model
- d) To improve the interpretability of the coefficients

13. **12. What is the purpose of regularization in linear regression?** *

Mark only one oval.

- a) To improve the model's performance on the training data
- b) To reduce the complexity of the model and prevent overfitting
- c) To increase the number of predictors in the model
- d) To transform non-linear relationships into linear ones

14. **13. In linear regression, what does multicollinearity refer to?** *

Mark only one oval.

- a) High correlation between the dependent variable and an independent variable
- b) High correlation among the independent variables
- c) Non-linearity in the relationship between dependent and independent variables
- d) High variance in the error terms

15. **14. What is the main difference between Ridge Regression and Lasso Regression?** *

Mark only one oval.

- a) Ridge Regression adds an L2 penalty, while Lasso Regression adds an L1 penalty
- b) Ridge Regression is used for classification, while Lasso Regression is used for regression
- c) Ridge Regression adds an L1 penalty, while Lasso Regression adds an L2 penalty
- d) Ridge Regression reduces model complexity, while Lasso Regression increases model complexity

16. **15. Which type of linear regression would you use if you suspect that your data suffers from multicollinearity? ***

Mark only one oval.

- a) Simple Linear Regression
- b) Ridge Regression
- c) Lasso Regression
- d) Polynomial Regression

17. **16. What is the correct way to import the LinearRegression class from sklearn.linear_model? ***

Mark only one oval.

- a) import linear_model.LinearRegression from sklearn
- b) from sklearn.linear_model import LinearRegression
- c) import sklearn.linear_model.LinearRegression
- d) import LinearRegression from sklearn.linear_model

18. **17. Which of the following is the correct way to import the StandardScaler from sklearn?** *

Mark only one oval.

- a) from sklearn.scale import StandardScaler
- b) import StandardScaler from sklearn
- c) from sklearn.preprocessing import StandardScaler
- d) import sklearn.preprocessing.StandardScaler

19. **18. How do you import the r2_score function from sklearn?** *

Mark only one oval.

- a) from sklearn.metrics import r2_score
- b) import r2_score from sklearn.metrics
- c) from sklearn.metric import r2_score
- d) import sklearn.metrics.r2_score

20. **19. Which of the following is used to import the make_regression function from sklearn?** *

Mark only one oval.

◯ a) from sklearn.make import make_regression

◯ b) import make_regression from sklearn.datasets

◯ c) from sklearn.datasets import make_regression

◯ d) import sklearn.datasets.make_regression

21. **20. What is the correct way to import the mean_squared_error (mse) from sklearn?** *

Mark only one oval.

◯ a) import mean_squared_error from sklearn.metrics

◯ b) import sklearn.metrics.mean_squared_error

◯ c) from sklearn.metric import mse

◯ d) from sklearn.metrics import mean_squared_error

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