Day-8 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 *

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2. **1. What is the primary goal of supervised learning?** *

Mark only one oval.

○ a) To find patterns in data without labels

○ b) To make decisions based on rewards and punishments

○ c) To predict outcomes based on labeled input-output pairs

○ d) To reduce the dimensionality of data

3. **2. Which of the following is NOT a machine learning algorithm?** *

Mark only one oval.

○ a) Decision Trees

○ b) Neural Networks

○ c) Support Vector Machines

○ d) SQL

4. **3. Which of the following is a parametric algorithm?** *

Mark only one oval.

○ a) K-Nearest Neighbors (KNN)

○ b) Linear Regression

○ c) Decision Trees

○ d) Random Forests

5. **4. Which of the following is true about non-parametric algorithms?** *

Mark only one oval.

○ a) They assume a fixed number of parameters.

○ b) They can model complex functions without a predefined form.

○ c) They are always more efficient than parametric algorithms.

○ d) They cannot handle large datasets.

6. **5. Which of the following is true about the bias-variance tradeoff?** *

Mark only one oval.

○ a) High bias leads to overfitting.

○ b) High variance leads to underfitting.

○ c) Increasing model complexity increases variance.

○ d) Decreasing model complexity increases variance.

7. **6. What is the goal of the bias-variance tradeoff?** *

Mark only one oval.

○ a) To minimize the bias only

○ b) To minimize the variance only

○ c) To find a balance between bias and variance

○ d) To maximize both bias and variance

8. **7. Which of the following is a common data inconsistency?** *

Mark only one oval.

- ⬭ a) Duplicate entries
- ⬭ b) Missing values
- ⬭ c) Outliers
- ⬭ d) All of the above

9. **8. What is the goal of optimization in machine learning?** *

Mark only one oval.

- ⬭ a) To maximize the training time
- ⬭ b) To minimize the loss function
- ⬭ c) To maximize the number of features
- ⬭ d) To minimize the number of samples

10. **9. What does the learning rate in gradient descent control? ***

Mark only one oval.

○ a) The number of features

○ b) The speed of convergence

○ c) The number of iterations

○ d) The size of the dataset

11. **10. In gradient descent, what happens if the learning rate is too high? ***

Mark only one oval.

○ a) The model may converge too slowly.

○ b) The model may oscillate and never converge.

○ c) The model will underfit the data.

○ d) The model will overfit the data.

12.   **11. What is the primary benefit of the Adagrad algorithm?** *

Mark only one oval.

- ( ) a) It has a fixed learning rate.
- ( ) b) It adapts the learning rate based on parameter updates.
- ( ) c) It requires less data for training.
- ( ) d) It ensures convergence in fewer iterations.

13.   **12.   What does Adam stand for?** *

Mark only one oval.

- ( ) a) Adaptive Momentum Estimation
- ( ) b) Accelerated Momentum
- ( ) c) Advanced Model
- ( ) d) Adaptive Model

14. **13. What is the purpose of feature scaling?** *

Mark only one oval.

- ○ a) To reduce the number of features
- ○ b) To improve model performance
- ○ c) To increase the complexity of the model
- ○ d) To remove irrelevant features

15. **14. What does a high variance in a model indicate?** *

Mark only one oval.

- ○ a) The model is too simple
- ○ b) The model is likely to overfit the training data
- ○ c) The model will generalize well to new data
- ○ d) The model has a high bias

16. **15. Which technique is used to handle missing values in a dataset?** *

Mark only one oval.

- ○ a) Standardization
- ○ b) Normalization
- ○ c) Imputation
- ○ d) Clustering

17. **16. What is the main objective of optimization in machine learning?** *

Mark only one oval.

- ○ a) To reduce the number of features
- ○ b) To find the global minimum of the loss function
- ○ c) To increase the size of the dataset
- ○ d) To simplify the model

18. **17. What is the role of the gradient in gradient descent optimization?** *

Mark only one oval.

- a) It determines the number of iterations
- b) It indicates the direction of the steepest ascent
- c) It indicates the direction of the steepest descent
- d) It sets the learning rate

19. **18. What is a key feature of the Adagrad algorithm?** *

Mark only one oval.

- a) It maintains a constant learning rate
- b) It adapts the learning rate for each parameter
- c) It uses momentum to speed up convergence
- d) It only works with convex functions

20. **19. What is the main advantage of using the Adam optimizer?** *

Mark only one oval.

○ a) It always finds the global minimum

○ b) It has a simple implementation

○ c) It works well with sparse gradients and noisy problems

○ d) It requires no hyperparameter tuning

21. **20. Which of the following scenarios indicates that your learning rate is too high?** *

Mark only one oval.

○ a) The cost function decreases slowly

○ b) The cost function oscillates or diverges

○ c) The cost function decreases steadily

○ d) The cost function reaches a local minimum