ML Final Assessment

TE MARKS (/PACKAGE-COST-DETAILS/REGENERATE-MARKS?STUDENTID=21950&ASSESSMENTID=227250)

Score Obtained: 46/50 (92%)

RETAKE (/PACKAGE-COST-DETAILS/#) VIEW REPORT

1. The Father of Machine Learning is

1/1 ATTEMPTED

- [x] Geoffrey Everest Hinton
- [ ] Geoffery Hill
- [ ] Geoffrey Chaucer
- [ ] None of the above

2. What is the main objective of Machine Learning?

1/1 ATTEMPTED

- [ ] Creating intelligent machines with emotions
- [ ] Writing programs to perform specific tasks.
- [x] Teaching computers to learn from data and improve performance
- [ ] Designing hardware for computational tasks.

3.
If mean, median, and mode are all equal then distribution will be?

1/1 ATTEMPTED

- [ ] Negative Skewed

- [x] Symmetrical
- [ ] Circular
- [ ] Positive Skewed

4.

An observation that lies an abnormal distance from other values in a random sample from a population is refer to as?

1/1 ATTEMPTED

- [ ] Syrical point
- [ ] External point
- [x] Outlier
- [ ] Skew point

5. What is the primary purpose of EDA in Data Science?

1/1 ATTEMPTED

- [ ] To make data more complex
- [ ] To simplify complex data
- [x] To discover insights & patterns in data
- [ ] To visualize data

6. Which of the following information is not given by Five Number Summary?

0/1 ATTEMPTED

- [x] Mean
- [ ]

Median

Mode

All of the above

7. The term "Correlation" in EDA refers to ?

1/1 ATTEMPTED

Measure of central tendency

Measure of spread of data

Measure of relationship between variables

Measure of data distribution

8. How can outliers in a numerical dataset be treated?

1/1 ATTEMPTED

Ignoring them during analysis

Replacing them with the median value

Removing them or transforming them

Assigning them a weight of 0

9. What is the purpose of encoding categorical data in machine learning?

1/1 ATTEMPTED

To increase the size of the dataset

To reduce the number of categories

To make the data human-readable

- To represent categorical data in a format suitable for machine learning algorithms

10. Which method in pandas provides a concise summary of a DataFrame, including the number of non-null values in each column? 1/1 ATTEMPTED

- df.describe()
- df.info()
- df.head()
- df.shape()

11.
Linear Regression is an example of? 1/1 ATTEMPTED

- Supervised Learning
- Unsupervised Learning
- Semi-Supervised Learning
- Reinforcement Learning

12.
What is the name of a regression model in which more than one independent variable is utilized to predict the dependent variable? 1/1 ATTEMPTED

- a simple linear regression model
- a multiple regression model
- an independent model

- none of the above

13. Which of the following is a commonly used metric for evaluating the performance of a Linear Regression model?

1/1 ATTEMPTED

- Accuracy Score
- F1 Score
- Mean Squared Error (MSE)
- Confusion Matrix

14. What is a key assumption of Linear Regression?

1/1 ATTEMPTED

- The data must have a normal distribution
- The relationship between variables is linear
- Outliers have no impact on the model
- The number of features should be equal to the number of observations

15. What is the primary purpose of a Loss Function in Linear Regression?

1/1 ATTEMPTED

- To maximize the accuracy of predictions
- To minimize the difference between predicted and actual values
- To calculate the mean of the target variable
- To identify outliers in the data

16.

Ridge and Lasso regression are simple techniques to _____ the complexity of the model and prevent over-fitting which may result from simple linear regression.

1/1 ATTEMPTED

- Increase
- Eliminate
- Decrease
- None of the above

17.

For Ridge Regression, if the regularization parameter = 0, what does it mean?

1/1 ATTEMPTED

- Large coefficients are not penalized
- Overfitting problems are not accounted for
- The loss function is as same as the ordinary least square loss function
- All of the above

18.

What's the penalty term for the Ridge regression?

1/1 ATTEMPTED

- the square of the magnitude of the coefficients
- the square root of the magnitude of the coefficients
- the absolute sum of the coefficients
- the sum of the coefficients

19. Elastic Net uses which Norm?

1/1 ATTEMPTED

- L1
- L2
- Both L1 & L2
- None of the above

20. What is the main purpose of cross-validation in machine learning?

1/1 ATTEMPTED

- To increase the training time of the mode
- To assess how well the model will generalize to an independent dataset
- To maximize the number of features in the model
- To ensure the model perfectly fits the training data

21.
Decision Tree is a display of an algorithm?

1/1 ATTEMPTED

- True
- False
- -
- -

22.

Decision tree classifier is achieved by _____ splitting criteria.

1/1 ATTEMPTED

- Entropy
- Information Gain
- Gini Index
- All of the above

23.

In Decision tree pruning methods include?

0/1 ATTEMPTED

- Prunning
- Boosting
- Bagging
- All of the above

24.

Adaboost selects a training subset randomly?

1/1 ATTEMPTED

- FALSE
- TRUE
- -
- -

25.

The boosting algorithm combines a number of weak learners to form a strong learner?

1/1 ATTEMPTED

- [x] TRUE
- [ ] FALSE
- [ ] Depends on number of samples
- [ ] Unpredictable

26.

What do you mean by a hard margin?

0/1 ATTEMPTED

- [ ] The SVM allows very low error in classification
- [ ] The SVM allows high amount of error in classification
- [x] The SVM allows no error in classification
- [ ] none of these

27.

which approach breaks down the multiclass problem into multiple binary classification problems?

1/1 ATTEMPTED

- [ ] Two-to-One approach
- [x] One-to-One approach
- [ ] One-to-Many approach

- One-to- two approach

28.

In its most simple type, SVM doesn't support multiclass classification natively.

1/1 ATTEMPTED

- TRUE
- FALSE
- -
- -

29. What assumption does bootstrap sampling make about the original dataset?

0/1 ATTEMPTED

- It assumes the data is normally distributed.
- It assumes that the sample is a representative sample of the population.
- It assumes that the observations are independent and identically distributed (i.i.d.).
- It assumes the sample size must be large.

30. What does "bagging" stand for in machine learning?

1/1 ATTEMPTED

- Boosting Aggregation
- Bootstrap Aggregating
- Bayesian Aggregating
-

Binary Aggregating

31. What is the effect of increasing the number of trees in a Random Forest model?

1/1 ATTEMPTED

- It always leads to lower accuracy.
- It increases model complexity without any benefit.
- It generally improves performance but with diminishing returns.
- It makes the model interpretability easier.

32. What is the primary purpose of the k-NN algorithm?

1/1 ATTEMPTED

- Clustering data points
- Predicting continuous values
- Classifying data points based on similarity
- Reducing dimensionality

33. What is the primary assumption made by the Naive Bayes algorithm?

1/1 ATTEMPTED

- Features are correlated.
- All features are independent given the class label.
- The data follows a normal distribution.
- All features have the same weight.

34. In which scenario would you use Gaussian Naive Bayes? 1/1 ATTEMPTED

- When features are categorical.
- When features are binary.
- When features are continuous and normally distributed.
- When all features are independent.

35. What does the proportion of variance explained by each principal component indicate? 1/1 ATTEMPTED

- The importance of the feature in the original dataset
- The contribution of that component to the overall variance in the data
- The degree of correlation between features
- The potential for overfitting

36. Which of the following is a common method for dimensionality reduction? 1/1 ATTEMPTED

- Decision Trees
- Support Vector Machines
- Principal Component Analysis (PCA)
- k-Nearest Neighbors

37. What role do eigenvectors play in PCA? 1/1 ATTEMPTED

- They define the scale of the data.
- They determine the importance of features.
- They represent the directions of maximum variance in the data.
- They normalize the data.

38. What is the primary goal of K-means clustering?

1/1 ATTEMPTED

- To classify data points into pre-defined categories
- To minimize the sum of squared distances between data points and their assigned cluster centers
- To maximize the distance between different clusters
- To identify outliers in the dataset

39. What happens if you increase the value of K in K-means clustering?

1/1 ATTEMPTED

- The model becomes more generalized
- The within-cluster variance decreases
- The computational cost decreases
- The clusters become more distant from each other

40. In the Elbow Method, what does the "elbow" point indicate?

ATTEMPTED

1/1

- The best K value with the lowest WCSS
- The point where increasing K does not significantly reduce WCSS

- The maximum number of clusters
- The first point in the WCSS plot

41. Which distance measure would be more suitable when dealing with high-dimensional sparse data, such as text data represented by TF-IDF vectors? 1/1 ATTEMPTED

- Euclidean Distance
- Manhattan Distance
- Cosine Similarity
- Jaccard Distance

42. Which distance measure would be most appropriate for categorical data? 1/1 ATTEMPTED

- Euclidean Distance
- Hamming Distance
- Manhattan Distance
- Minkowski Distance

43. In divisive hierarchical clustering, what is the initial step? 1/1 ATTEMPTED

- Merging the closest clusters
- Creating a distance matrix

- Starting with a single cluster containing all data points
- Assigning data points to clusters

44. What does "single linkage" refer to in hierarchical clustering?

ATTEMPTED

1/1

- The distance between the farthest points of two clusters.
- The distance between the closest points of two clusters.
- The average distance between all points in two clusters.
- The variance within a cluster.

45. Which algorithm is commonly used to construct decision trees?

1/1 ATTEMPTED

- K-means
- ID3
- PCA
- Gradient Descent

46. Which function does logistic regression use to model the probability of the target class?

1/1 ATTEMPTED

- Linear function
- Step function
- Sigmoid function

Polynomial function

47. What does the coefficient of a feature in logistic regression represent?

1/1 ATTEMPTED

- The variance explained by that feature
- The change in log odds for a one-unit increase in the feature
- The probability of the target class
- The correlation between the feature and the target

48. What is the logistic loss function also known as?

1/1 ATTEMPTED

- Mean Squared Error
- Hinge Loss
- Cross-Entropy Loss
- Euclidean Loss

49. What method is commonly used to estimate the coefficients in logistic regression?

1/1 ATTEMPTED

- Least Squares
- Maximum Likelihood Estimation (MLE)
- k-means clustering
- Ridge Regression

50. What is the primary goal of supervised learning?

1/1 ATTEMPTED

- To discover patterns in unlabeled data
- To predict outcomes based on labeled input data
- To reduce the dimensionality of the data
- To cluster similar data points