ML Fundamental Assessment

TE MARKS (/PACKAGE-COST-DETAILS/REGENERATE-MARKS?STUDENTID=20453&ASSESSMENTID=216785)

Score Obtained: 47/50 (94%)

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What is Machine learning?

1/1 ATTEMPTED

- (selected) The autonomous acquisition of knowledge through the use of computer program
- The autonomous acquisition of knowledge through the use of manual programs
- The selective acquisition of knowledge through the use of computer programs
- The selective acquisition of knowledge through the use of manual programs

2.

_____ is the machine learning algorithms that can be used with labeled data.

1/1 ATTEMPTED

- (selected) Regression Algorithms
- Clustering Algorithms
- Association Algorithms
- None of these

3.

Machine learning is an application of _____

- Block Chain

1/1 ATTEMPTED

- Artificial Intelligence
- Both A and B
- None of these

4.

Which of the following are the Applications of Machine learning ?

1/1 ATTEMPTED

- Email Filtering
- Sentiment Analysis
- Face Recognition
- All of the above

5. The Father of Machine Learning is

1/1 ATTEMPTED

- Geoffrey Everest Hinton
- Geoffery Hill
- Geoffrey Chaucer
- None of the above

6. In which industry is machine learning commonly used for fraud detection and risk management?

1/1 ATTEMPTED

- Agriculture

- Finance
- Entertainment
- Education

7.

If mean is less than mode, the distribution will be?

1/1 ATTEMPTED

- Positively skewed
- Negatively skewed
- Symmetrical
- None of these

8.

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

1/1 ATTEMPTED

- Negative Skewed
- Symmetrical
- Circular
- Positive Skewed

9.

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
- Outlier
- Skew point

10. In EDA, which Measure of central tendency is typically represented by the height of a box in a Box Plot? 1/1 ATTEMPTED

- Mean
- Median
- Mode
- Variance

11. What does the term "Skewness" refer to in the context of data distribution analysis in EDA? 1/1 ATTEMPTED

- The symmetry of data distribution
- The kurtosis of data distribution
- The spread of data distribution
- The presence of outliers

12. 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

13. 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

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

1/1 ATTEMPTED

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15. 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()

16.

How many coefficients do you need to estimate in a simple linear regression model (One independent variable)?

1/1 ATTEMPTED

- 1
- 12
- 3
- 2

17.

Linear Regression is an example of?

1/1 ATTEMPTED

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

18.

Which of the following metrics can be used for evaluating regression models?

1/1 ATTEMPTED

- RMSE
- MSE
- MAE

- all of these

19.

_____loss is mostly used in SVM, this is used in the combination of the activation function in the last layer. We use this loss to classify whether an email is a spam or not.

1/1 ATTEMPTED

- Hinge loss
- entropy loss
- cross-entropy loss
- MAE loss

20.

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

21.

What happens when we introduce more variables to a linear regression model?

1/1 ATTEMPTED

- The r squared value may increase or remain constant, the adjusted r squared may increase or decrease

- The r squared may increase or decrease while the adjusted r squared always increases.
- Both r square and adjusted r square always increase on the introduction of new variables in the model.
- Both might increase or decrease depending on the variables introduced.

22.

_____is an analytical approach to Linear Regression with a Least Square Cost Function..

1/1 ATTEMPTED

- Slope Equation
- Variable equation
- Normal Equation
- none of these

23. 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

24. 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

25. 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

26.
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

27.
Ridge regression uses which norm?

1/1 ATTEMPTED

L1

- [x] L2
- [ ] Combination of L1 and L2
- [ ] None

28.

Which one is true?

1/1 ATTEMPTED

- [ ] Ridge and Lasso regression are techniques to reduce the model complexity and prevent over-fitting which may result from simple linear regression
- [ ] Ridge regression shrinks the coefficients and it helps to reduce the model complexity and multi-collinearity.
- [ ] Lasso regression not only helps in reducing over-fitting but it can help us in feature selection
- [x] All of the above

29.

Which of the following of the coefficients is added as the penalty term to the loss function in Lasso regression?

1/1 ATTEMPTED

- [x] Absolute value of magnitude
- [ ] Squared magnitude
- [ ] Number of non-zero entries
- [ ] None of the above

30.

What type of penalty is used on regression weights in Ridge regression?

1/1 ATTEMPTED

- [ ] L0

- L2
- L1
- None of the above

31.

In Ridge regression, A hyper parameter is used called '_____' that controls the weighting of the penalty to the loss function.

0/1 ATTEMPTED

- Gamma
- Alpha
- Lambda
- None of above

32.

In terms of the bias-variance trade-off, which of the following is substantially more harmful to the test error than the training error?

1/1 ATTEMPTED

- Bias
- Loss
- Variance
- Risk

33.

Which of the following is correct use of cross validation?

1/1 ATTEMPTED

- Selecting variables to include in a model

- Selecting parameters in prediction function
- Comparing predictors
- All of these

34.

Which of the following is a common error measure?

0/1 ATTEMPTED

- Median absolute deviation
- Sensitivity
- Specificity
- All of the mentioned

35.

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

36.

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

- [x] The loss function is as same as the ordinary least square loss function 1/1 ATTEMPTED
- [ ] Can be used to select important features of a dataset
- [ ] Shrinks the coefficients of less important features to exactly 0
- [ ] All of the above

37.
What's the penalty term for the Ridge regression?

1/1 ATTEMPTED

- [x] 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

38. With Lasso Regression the influence of the hyper parameter lambda, as lambda tends to zero the solution approaches to 1/1 ATTEMPTED

- [ ] Zero
- [ ] One
- [x] Linear Regression
- [ ] Infinity

39. Elastic Net uses which Norm? 1/1 ATTEMPTED

- [ ] L1

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

40. 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

41.
Which of the following methods do we use to best fit the data in Logistic Regression?

1/1 ATTEMPTED

- Maximum Likelihood
- Least Square Error
- Jaccard distance
- Both A and B

42.
Which of the following is used where the target variable is of categorical nature?

1/1 ATTEMPTED

- Logistic Regression

- Knime
- Keras
- Linear Regression

43.

What's the cost function of the logistic regression?

0/1 ATTEMPTED

- Sigmoid function
- Logistic Function
- both (A) and (B)
- none of these

44.

Function which performs the role of an activation function in machine learning which is used to add non-linearity in a machine learning model. Basically, the function determines which value to pass as output and what not to pass as output.

1/1 ATTEMPTED

- cost function
- signoidal function
- sigmoid function
- none of these

45.

Formula - TP / (TP + FN): Which of these is being represented by formula?

1/1 ATTEMPTED

Accuracy

- Recall
- harmonic mean
- Classification Rate

46. What is the primary purpose of logistic regression in machine learning? 1/1 ATTEMPTED

- To perform clustering
- To predict continuous values
- To model binary outcomes
- To reduce dimensionality

47. 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

48. 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

49. What is the purpose of the ROC curve in the context of logistic regression?

1/1 ATTEMPTED

- To measure feature importance
- To visualize the trade-off between sensitivity and specificity
- To determine the best-fit line
- To check for multicollinearity

50. Which of the following techniques is used to prevent overfitting?

1/1 ATTEMPTED

- Increasing the learning rate
- Cross-validation
- Reducing the training dataset size
- Using a linear model for complex data