MACHINE LEARNING

ASSIGNMENT - 10

In Q1 to Q8, only one option is correct, Choose the correct option:

1. In the linear regression equation y = θ0 + θ1x, θ0 is the:

A) Slope of the line B) Independent variable

C) y intercept D) Coefficient of determination

2. True or False: Linear Regression is a supervised learning algorithm.

A) True B) False

3. In regression analysis, the variable that is being predicted is:

A) the independent variable B) the dependent variable

C) usually denoted by x D) usually denoted by r

4. Generally, which of the following method(s) is used for predicting continuous dependent variables?

A) Logistic Regression B) Linear Regression

C) Both D) None of the above

5. The coefficient of determination is:

A) the square root of the correlation coefficient B) usually less than zero

C) the correlation coefficient squared D) equal to zero

6. If the slope of the regression equation is positive, then:

A) y decreases as x increases B) y increases as x increases

C) y decreases as x decreases D) None of these

7. Linear Regression works best for:

A) linear data B) non-linear data

C) both linear and non-linear data D) None of the above

8. The coefficient of determination can be in the range of:

A) 0 to 1 B) -1 to 1

C) -1 to 0 D) 0 to infinity

In Q9 to Q13, more than one options are correct, Choose all the correct options:

9. Which of the following evaluation metrics can be used for linear regression?

A) Classification Report B) RMSE

C) ROC curve D) MAE

10. Which of the following is true for linear regression?

A) Linear regression is a supervised learning algorithm.

B) Linear regression supports multi-collinearity.

C) Shape of linear regression's cost function is convex.

D) Linear regression is used to predict discrete dependent variable.

11. Which of the following regularizations can be applied to linear regression?

A) Ridge B) Lasso

C) Pruning D) Elastic Net

12. Linear regression performs better for:

A) Large amount of training samples with small number of features.

B) Same number of features and training samples

C) Large number of features

D) The variables which are drawn independently, identically distributed

13. Which of the following assumptions are true for linear regression?

A) Linearity B) Homoscedasticity

C) Non-Independent D) Normality

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Q14 and Q15 are subjective answer type questions, Answer them briefly.

14. Explain Linear Regression?

Linear Regression is a machine learning algorithm based on supervised learning. It performs a regression task. Regression models a target prediction value based on independent variables. It is mostly used for finding out the relationship between variables and forecasting. Different regression models differ based on – the kind of relationship between dependent and independent variables

15. What is difference between simple linear and multiple linear regression?

Simple linear regression has only one x and one y variable. Multiple linear regression has one y and two or more x variables. For instance, when we predict rent based on square feet alone that is simple linear regression.