

Worksheet No. 3 Machine Learning
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1. In the linear regression equation $y = \theta_0 + \theta_1 x$, θ_0 is the:
C) y intercept
2. True or False: Linear Regression is a supervised learning algorithm.
A) True
3. In regression analysis, the variable that is being predicted is:
B) the dependent variable
4. Generally, which of the following method(s) is used for predicting continuous dependent variables?
B) Linear Regression
5. The coefficient of determination is:
C) the correlation coefficient squared
6. If the slope of the regression equation is positive, then:
B) y increases as x increases
7. Linear Regression works best for:
C) both linear and non-linear data
8. The coefficient of determination can be in the range of:
A) 0 to 1
9. Which of the following evaluation metrics can be used for linear regression?
B) RMSE
D) MAE
10. Which of the following is true for linear regression?
A) Linear regression is a supervised learning algorithm.
C) Shape of linear regression's cost function is convex.
11. Which of the following regularizations can be applied to linear regression?
A) Ridge
B) Lasso
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
- D) Normality

14. Explain Linear Regression?

Ans: Linear regression with the help of least square method finds out the relationship between independent variable to dependent variable & it also may be applied when we have many independent variables with one dependent variable.

Once the relationship is known then we can predict the dependent variable for other datapoints.

If data is linear and separable then it works exceptionally good but for non linear it is prone to overfitting and noise.

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

Ans: Simple regression is gives the relation between the one independent variable and one dependent variable, whereas multiple regression gives relationship between two or more independent variable and one dependent variable.