MACHINE LEARNING – ASSIGNMENT – 39

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Batch No: - 1836

SOLUTIONS

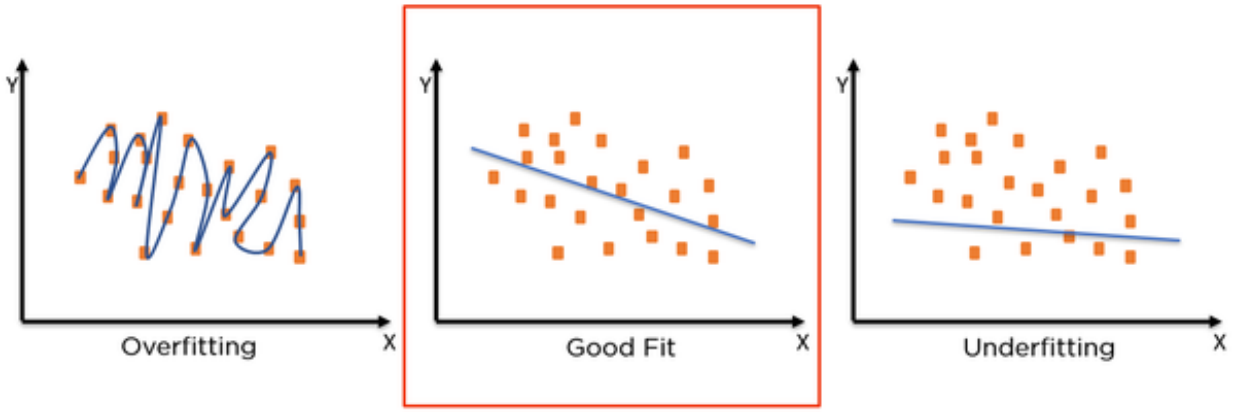
1.) Ans.:- (a)- Least Square Error
2.) Ans.:- (a) - Linear regression is sensitive to outliers
3.) Ans.:- (b) - Negative
4.) Ans.:- (b) - Correlation
5.) Ans.:- (c) - Low bias and high variance
6.) Ans.:- (b) - Predictive modal
7.) Ans.:- (d) – Regularization
8.) Ans.:- (c) – Kernel
9.) Ans.:- (a) – TPR and FPR
10.) Ans.:- (a) - True
11.) Ans.:- (a, b and c)
12.) Ans.:- (a and b)

13.) Explain the term regularization?

Ans.:- Sometimes while training a model, overfitting and underfitting of data occur. This leads to the inaccuracy of the training model.

Regularization is the technique used to reduce the error by fitting a function appropriately on the given training set and avoid overfitting and underfitting.

Regularization technique is used to calibrate the linear regression models in order to minimize the adjusted loss function and prevent overfitting or underfitting.



14.) Which particular algorithms are used for regularization?

Ans.:- Techniques of Regularization:-

Mainly, there are two types of regularization techniques, which are given below:

- Ridge Regression
- Lasso Regression

Ridge Regression

Ridge regression is one of the types of linear regression in which we introduce a small amount of bias, known as Ridge regression penalty so that we can get better long-term predictions.

In Statistics, it is known as the **L-2 norm**.

Lasso Regression

Lasso regression is another variant of the regularization technique used to reduce the complexity of the model. It stands for Least Absolute and Selection Operator.

In statistics, it is known as the **L-1 norm**.

It is similar to the Ridge Regression except that the penalty term includes the absolute weights instead of a square of weights.

15.) Explain the term error present in linear regression equation?

Ans.:- In almost all the data mining techniques, we try to find out the closer estimates of a variable we want to predict. In regression models, we assume that the relation between the response variable and predictors to be linear and we find out a straight line that fits the relation well.

The error term in regression is a catch-all for what we miss out with this model, because in reality

-The true relation may not be linear

-There may be other variables not included in the model that cause variation in response variable

-There may be measurement errors in the observations

The error is calculated as the difference between actual and estimated value of the response.