

WORKSHEET - I

MACHINE LEARNING

Answer 1:- A) Least square method is used to find the best fit line in linear regression

Answer 2:- A) Linear regression is sensitive to outliers

Answer 3:- B) Negative

Answer 4:- B) Correlation

Answer 5:- C) Low bias and high variance

Answer 6:- B) predictive model

Answer 7:- D) regularization

Answer 8:- D) SMOTE

Answer 9:- A) TPR and FPR

Answer 10:- B) False

Answer 11:- A) Construction bag of words from a email

Answer 12:- A) we don't have to choose the learning rate

B) it becomes slow when number of feature is very large

D) it does not make use of dependent variables

Answer 13:-

In machine learning ,regularization is technique is used to prevent overfitting and improve the generalization performance of a model, Overfitting occurs when a model is too complex and fits the training data too closely ,leading to poor performance on new ,unseen data.

Regularization works by adding a penalty term to the loss function of a model ,which encourages the model to learn simpler and smoother decision boundaries, the penalty term is typically a function of the model's weights or coefficient , and it tell the model to assign too much importance to any single feature or from overfitting noise in training data.

Answer 14:- Two commom types of regularization model are used

1. L1 regularization(LASSO regularization) and
2. L2 (Ridge regularization).

In L1 regularization adds a penalty term which is directly related to absolute value of the weights,(in simple term it drive some of the features to zero or give no importance)

While L2 regularization adds a penalty term that is proportional to the square of the weights (in simple term it gives importance to features but in negligible form)

Answer 15:-

In linear regression term “error” described as difference between the actual observed value of the dependent variables and the predicted values obtained from regression model.

Linear regression model tries to find the best fit line that best fit the observed data points. This line is represented by an equation in the form of $Y = b_0 + b_1 * X$, where Y is dependent variable, X is the independent variable, b_0 and b_1 are the coefficient that minimize the sum of squared errors between the predicted and actual value.