**Link :- https://www.youtube.com/watch?v=MS\_D-gRbfRY**

**What is Overfitting?**

Overfitting occurs when a machine learning model performs well on the training data but poorly on new, unseen data. It indicates that the model capture the noise and details in the training data instead of the actual patterns.

**What is under fitting?**

Under fitting occurs when a machine learning model is too simple to capture the underlying patterns in the data. It performs poorly on both the training data and new data.

**What is Confusion Matrix?**

A confusion matrix is a table used to evaluate the performance of a classification model. It summarizes the number of correct and incorrect predictions made by the model, categorized by each class.

**What is ROC curve?**

A ROC (Receiver Operating Characteristic) curve is a graphical representation of a classifier’s performance across different thresholds. It plots the True Positive Rate against the False Positive Rate.

**What is Precision and Recall?**

Precision is the ratio of correctly predicted positive observations to the total predicted positive.

Precision = TP / (TP + FP)

Recall is the ratio of correctly predicted positive observations to all actual positive.

Recall = TP / (TP + FN)

**What is F1 Score?**

The F1 Score is the harmonic mean of Precision and recall. It provides a balance between the two metrics and is useful when you need to balance precision and recall.

F1 Score = 2 \* (Precision \* Recall) / (Precision + Recall)

**What is Regularization?**

Regularization is a technique used to prevent overfitting by adding a penalty to the model’s complexity. Common types of regularization include L1 (Lasso) and L2 (Ridge) Regularization.

**What is Feature Engineering?**

Feature engineering is the process of creating new features or modifying existing ones to improve the performance of a machine learning model. It involves techniques like normalization, encoding categorical variables, and creating interaction terms.

**What is Gradient Descent?**

Gradient Descent is an optimization algorithm used to minimize the cost function in machine learning models. It iteratively adjusts the model parameters in the direction of the steepest descent of the cost functions.

**What is the difference between Bagging and Boosting?**

Bagging (Bootstrap Aggregating) involves training multiple models on different subset of the data and averaging their predictions.

Boosting involves training models sequentially, with each new models focusing on correcting the errors of the previous ones.