**Supervised Machine Learning**

**Linear Regression**

1. What is linear regression?
2. Equation of LR?
3. What are the important assumptions of Linear regression?
4. What is heteroscedasticity?
5. How to find RMSE and MSE?
6. Standardization required?
7. How to optimize it?
8. How to check accuracy of model?
9. Loss function?

**Logistic Regression**

1. What is logistic regression?
2. Formula + cases?
3. Why it is called as Regression

**Naïve Baye’s classifier**

1. What is NBC?
2. Explain bayes thermos?
3. What is the basic assumption?
4. What is independent and dependent event? explain?
5. Advantages?
6. Feature Scaling required or not?

**KNN [K-Nearest Neighbor]**

1. What is KNN?
2. How it works for classification and regression?

**Decision Tree**

1. What is Decision Tree
2. Entropy[range], Information Gain, Gini Impurity[range]
3. Decision Tree Working For Categorical and Numerical Features
4. What are the scenarios where Decision Tree works well
5. Decision Tree Low Bias And High Variance- Overfitting
6. Hyperparameter Techniques
7. Variance Reduction

**Random Forest**

1. What is Random Forest?
2. How it works for classification and Regression?
3. How dataset is giving to a base model
4. advantages

**Support vector Machine**

1. Basic theory?

**AdaBoost**

1. What is AdaBoost?
2. How it works for classification and Regression?
3. advantages

**Gradient descent**

1. What is Gradient descent
2. How it works?
3. What is goal of gradian decent?
4. Chain Rule of Differentiation
5. Formula of Gradient descent
6. Difference between Slope and Derivation
7. What is Partial differentiation
8. Types of Gradient descent

Important topics

* What is ensemble learning and its types?
* When to use boosting and bagging?
* What is bias and variance?
* What is underfitting and overfitting?
* What is Precision, recall and F1 score?
* What is performance matrix
* Formula for accuracy score
* What is SSE?
* What is cross validation? How it works?
* What is Hyper parameter tunning? how it works?
* What is correlation and Multicollinearity
* What is learning rate?
* What is Parametric and non-parametric ML
* What is feature Scaling
* What is feature engineering and types
* What is curse of dimensionality
* Types of dimensionality reductions?
* What is Principal component analysis
* How PCA works?
* How to find optimal no. of PC?
* What is covariance matrix?
* VECTOR VS EIGN VECTOR
* STEPS OF PCA
* What is attribute contribution?