WEEK 1

1. What is ML? (Machine Learning)

Machine Learning is a branch of artificial intelligence that enables computers to learn from data and make decisions or predictions without being explicitly programmed.

In simple terms:

Machine Learning is about teaching computers to learn patterns from past data and use those patterns to make predictions or take actions

Example:

If you show a machine learning model a lot of images of cats and dogs, it can learn to recognize the difference. Later, if you give it a new image, it can guess whether it’s a cat or a dog.

2. What is Supervised Machine Learning Algorithm?

Supervised Machine Learning Algorithm is a type of machine learning where the model is trained using labeled data—that means the input data is already paired with the correct output.

Definition:

A supervised ML algorithm learns a function that maps inputs (X) to outputs (Y) by analyzing many examples of input-output pairs. It tries to predict the output for new, unseen inputs accurately.

Example:

Suppose you have data about houses — like size, number of rooms, and location — along with their actual prices. This labeled data is used to train the model. Once trained, it can predict the price of a new house based on its details.

3.What is Regression?

Regression is a type of supervised learning where the goal is to predict a continuous numerical value based on input data.

In Simple Words:

Regression is used when the output you want to predict is a number, not a category.

Example:

You want to predict the price of a house based on its size, number of rooms, and location.

* Input: House details
* Output: Price (a number like ₹5,00,000)

4.What is Classification?

Classification is a type of supervised learning where the goal is to predict a category or class label for given input data.

In Simple Words:

Classification is used when the output you want to predict is a label or category, not a number.

Example:

You want to build a system to check if an email is Spam or Not Spam.

* Input: The content of the email
* Output: "Spam" or "Not Spam" → these are classes