WEEK 1

1. WHAT IS ML? (Machine Learning)

Machine Learning is like training an assistant. At first, you have to show them how to do a task by giving examples—like organizing files by name or predicting stock levels based on sales. Over time, the assistant learns patterns and can start doing similar tasks on their own without your help. In ML, the assistant is the algorithm, and examples are your data.

**Real-world example:**  
When Google Maps learns the fastest route based on past traffic data, it's using machine learning to predict future traffic patterns.

2. WHAT IS SUPERVISED ML ALGORITHM?

Supervised learning is like teaching someone with flashcards. On each card, there’s a question (input) and an answer (output). After going through enough cards, the person learns how to answer similar new questions. In ML, this means giving the algorithm labeled data to train it to predict correct outputs.

**Real-world example:**  
A bank uses supervised ML to approve loans by training on past applications labeled as "approved" or "rejected" based on credit score, income, etc.

3.What is Regression?

Regression is like predicting someone’s electricity bill based on the number of hours they run their appliances. The final answer is a number that can go up or down depending on the inputs. It’s used when you want to **predict quantities**.

**Real-world example:**  
Estimating your monthly mobile bill based on your call duration and internet usage.

What is Classification?

Classification is also part of supervised ML but used when the output is a **category or label**. Classification is like sorting incoming resumes into “Shortlisted” and “Rejected.” The answer isn’t a number, but a label. It’s used when you want to **categorize items** into predefined groups.

**Real-world example:**  
An email app automatically labeling emails as "Important", "Social", or "Promotions".