WEEK 1

1. WHAT IS ML? (Machine Learning)

ML is like training your computer to act like a smart human without straight-up telling it every step. You feed it tons of data, it learns the pattern like a silent observer , and then boom it starts predicting or doing stuff on its own.

Kinda like teaching a dog tricks with snacks 🦴 — but here, **data** is the snack, and the computer becomes the smarty pants that starts acting right after enough snacks (data)!

2. WHAT IS SUPERVISED ML ALGORITHM?

Supervised learning is like being in school and having a strict teacher 👨‍🏫.  
You give the computer both the **questions (inputs)** and the **answers (outputs)**. It studies like a good boy, connects the dots, and next time when you give just the question, it guesses the answer like a pro

Supervised ML is where the data has both input features and correct outputs (labels). We feed this labeled data to the model, and it learns the connection between input and output. After learning, when we give new input, it gives us the predicted output. This is like teaching a child with questions and answers, so they remember and solve new questions. It’s used in situations like predicting marks based on study hours or predicting house prices

3.What is Regression?

Regression is a part of supervised ML where we predict **continuous/numerical** values. If the output is a number like price, temperature, salary, etc., then it's a regression task. It draws a line or curve through the data points to find a pattern. Based on that, it gives output for new inputs. Linear Regression is the most basic type – it fits a straight line. Others like Polynomial Regression handle complex curves. Use regression whenever you want a number as the final output.

What is Classification?

Classification is also part of supervised ML but used when the output is a **category or label**. Here, we don’t predict numbers, we predict class names like "yes or no", "spam or not", or

It splits the data into groups or classes and checks where new data fits. Example – if marks < 35 → fail, else → pass. Types include binary (2 classes), multiclass (3+ classes), and multilabel (multiple outputs). It’s used in email filters, medical tests, and more. Bottom line – if output is a label, go for classification.