**What is Machine Learning?**

**Machine learning is a branch of artificial intelligence that allows computers to learn from data and make decisions or predictions without being explicitly programmed.** It improves automatically as it gets more data over time.

Example: Like how YouTube recommends videos based on what you've watched before.

**What is Supervised Machine Learning algorithms?**

**Supervised Machine Learning algorithms** are types of algorithms that learn from labeled data — meaning the input comes with the correct output.

–The algorithm is “supervised” by showing it both the **question and the correct answer** during training.

### **Example:**

You give it data like:

* Input: "2 hours of study" → Output: "Pass"
* Input: "0 hours of study" → Output: "Fail"

Then, when you give it a new input (like "1 hour of study"), it tries to predict the output (maybe "Pass").

### **What is regression and classification?**

### **Regression**

Regression is used **when you want to predict a continuous value** — like a number.

**Example:** Predicting the **price of a house** based on size, location, etc.  
 Output: ₹5,00,000, ₹7,80,000 — (continuous values)

### **Classification**

Classification is used **when you want to predict categories or labels.**

**Example:**Predicting if an email is **Spam or Not Spam**, or if a student will **Pass or Fail**Output: Spam / Not Spam — (discrete categories)