# Training Report – Day 2

**Types of Machine Learning**

Today, I learned about the **three main types of Machine Learning**, which are categorized based on how the machine learns from data:

#### ****1. Supervised Learning****

* In this type, the model is trained using **labeled data** (input and correct output).
* The algorithm learns the relationship between input and output to make future predictions.
* **Goal:** To predict or classify new data.
* **Examples:**
  + Email spam detection
  + House price prediction
  + Disease diagnosis

#### ****2. Unsupervised Learning****

* The model is trained using **unlabeled data** (only inputs, no outputs).
* It finds **hidden patterns or structures** in the data.
* **Goal:** To group or organize data meaningfully.
* **Examples:**
  + Customer segmentation
  + Market basket analysis
  + Anomaly detection

#### ****3. Reinforcement Learning****

* The model learns by interacting with the environment and receiving **rewards or penalties**.
* It uses **trial and error** to learn the best actions.
* **Goal:** To make a series of decisions that maximize reward.
* **Examples:**
  + Game-playing AI (like chess or Atari)
  + Self-driving cars
  + Robotics path planning

### ****Key Learnings****

* I understood the difference between **Supervised, Unsupervised, and Reinforcement Learning**.
* Learned how **data labeling** affects the learning method.
* Realized how different ML types are applied to solve **specific real-world problems**.
* Learned that **Supervised Learning** is widely used for prediction and classification tasks.
* Understood how **Unsupervised Learning** helps find hidden patterns in data.
* Learned how **Reinforcement Learning** is useful in decision-making systems like robots and game AIs.

### ****Activities / Assignments Completed****

* Participated in a class discussion on the difference between **Supervised** and **Unsupervised Learning**.
* Identified **real-life examples** for each type of Machine Learning.
* Completed a **worksheet** to match ML problems with the correct learning type.
* Watched a short video demonstrating how **Reinforcement Learning** works in games.
* Took a **short quiz** to test understanding of all three ML types.
* Group activity: Categorized given datasets into appropriate learning types (Supervised or Unsupervised).

### ****Reflection****

Today’s session gave me a clear understanding of the **three main types of Machine Learning**. I was especially interested in how **Supervised Learning** is used in real-life situations like spam detection and medical diagnosis. I also found it interesting how **Unsupervised Learning** helps in organizing data and discovering patterns.

The concept of **Reinforcement Learning** was new to me, but the video examples helped me understand how machines can learn through rewards and actions. I feel more confident about the basics of Machine Learning and I’m excited to learn about real algorithms in upcoming sessions.