**1.What is ML?**

Machine learning is a method where we train our machine using previous data so that it can make predictions on new data.

For example:

X Y

1. 10
2. 20
3. 30
4. 40
5. ?

Then the predicted value for x=5 is 50. It is predicted by using the previous data.

**2. What is Supervised Machine learning algorithm**?

Supervised Machine learning is a type of machine learning algorithm where the model is trained on a labelled dataset.

Labelled dataset means each input is mapped with the correct output.

Ex:

| **ID** | **Weather** | **Temperature** | **Windy** | **Play** |
| --- | --- | --- | --- | --- |
| 1 | Sunny | Hot | No | No |
| 2 | Sunny | Mild | No | Yes |
| 3 | Overcast | Cool | Yes | Yes |
| 4 | Rainy | Mild | No | Yes |
| 5 | Rainy | Cool | Yes | No |

Here, each input is mapped with the correct ouput

**Inputs (Features)**: Weather, Temperature, Windy

**Label (Target)**: Play — Yes or No

**3.What is Regression and Classification?**

Classification Algorithm is used when the output value is categorical.

Ex:

| **Income (USD)** | **Age (years)** | **Credit Score** | **Loan Approved?** |
| --- | --- | --- | --- |
| 4500 | 29 | 720 | Yes |
| 3500 | 35 | 650 | No |
| 5000 | 42 | 680 | Yes |
| 2500 | 22 | 600 | No |
| 5500 | 50 | 750 | Yes |
| 3000 | 28 | 620 | No |
| 7000 | 33 | 800 | Yes |
| 4000 | 30 | 670 | Yes |

Predict whether a loan application will be approved (Yes) or rejected (No) based on features such as income, age, and credit score. For this prediction, we use classification algorithm since the output contains categorical values.

**Regression:**

| **Years of Experience** | **Age (years)** | **Salary** |
| --- | --- | --- |
| 1 | 25 | 45,000 |
| 3 | 28 | 55,000 |
| 5 | 30 | 65,000 |
| 2 | 26 | 48,000 |
|  |  |  |

Here,

input -Years of Experience, age

Output- Salary

Regression Algorithm is used when the output value is continuous numerical value.