

What is ML?

Machine Learning (ML) is a technique where computers use **previous data** to find **patterns and relationships**, and then use that knowledge to make **predictions** on new data. For example, by analyzing old data of electricity usage, a machine can learn how energy consumption changes over time and **predict** future usage. Instead of writing rules, we just give the machine a lot of examples, and it learns how to respond on its own.

What is a Supervised ML Algorithm?

Supervised learning is a type of machine learning where the model is trained on **labeled data**, meaning the inputs and the correct outputs are given. The model learns the **relation** between them so it can **predict** the output when new input is given. For instance, if we have data of how many hours Virat Kohli practiced and how many runs he scored, we can train a model to **predict** his future scores.

What is Regression and Classification?

These are two main types of supervised learning:

Regression:

Used when we want to **predict a continuous number** (something that can increase or decrease).

Examples:

1. Predicting **energy consumption (in kilowatts)** in the Mumbai area based on past usage.
2. Predicting **how many runs Virat Kohli might score** in his next match.

These are all about **numbers and quantities** — that's why they're regression problems.

Classification:

Used when we want to **predict categories or labels** (yes/no, type A/type B, etc.)

Examples:

1. Predicting **whether Virat Kohli will play in the next season or not** (Yes or No).
2. Deciding **which grass/crop is suitable** for a particular area based on soil and climate (e.g., Rice, Wheat, Bajra, etc.).

These involve choosing from set **classes or options**, so they're classification problems.