

Introduction to Machine Learning



What is Machine Learning

- Machine learning is an application of artificial intelligence that involves algorithms and data that automatically analyse and make decision by itself without human intervention.
- It describes how computer perform tasks on their own by previous experiences.
- Therefore we can say in machine language artificial intelligence is generated on the basis of experience.

Normal Computer vs ML

- The difference between normal computer software and machine learning is that a human developer hasn't given codes that instructs the system how to react to situation, instead it is being trained by a large number of data.

Machine Learning Uses:

- Traffic prediction
- Virtual Personal Assistant
- Speech recognition
- Email spam and malware filtering
- Bioinformatics
- Natural language processing

Real Time Examples for ML

- **TRAFFIC PREDICTION**
- **VIRTUAL PERSONAL ASSISTANT**
- **ONLINE TRANSPORTATION**
- **SOCIAL MEDIA SERVICES**
- **EMAIL SPAM FILTERING**
- **PRODUCT RECOMMENDATION**
- **ONLINE FRAUD DETECTION**

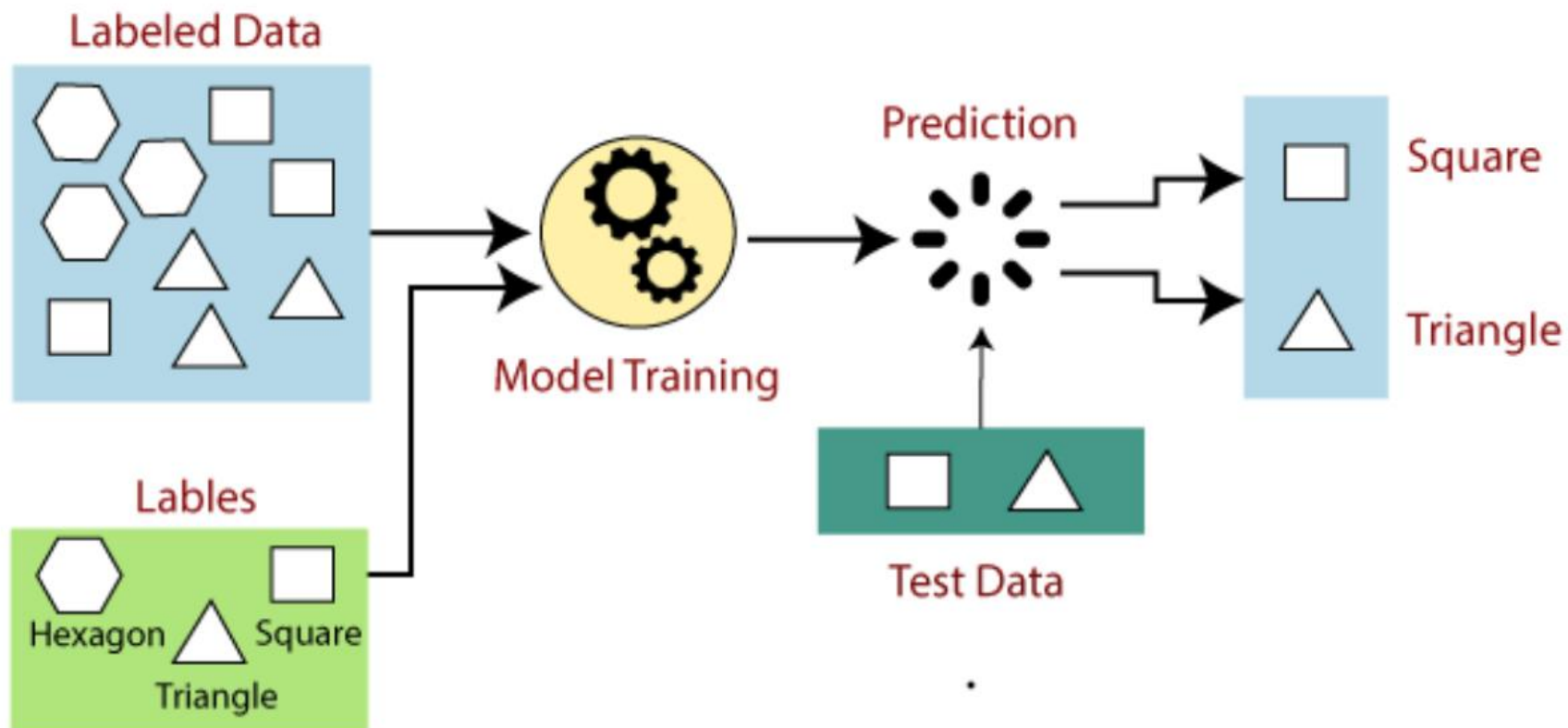
Types of Machine Learning

There are three types of machine learning

- Supervised learning
- Unsupervised learning
- Reinforcement learning

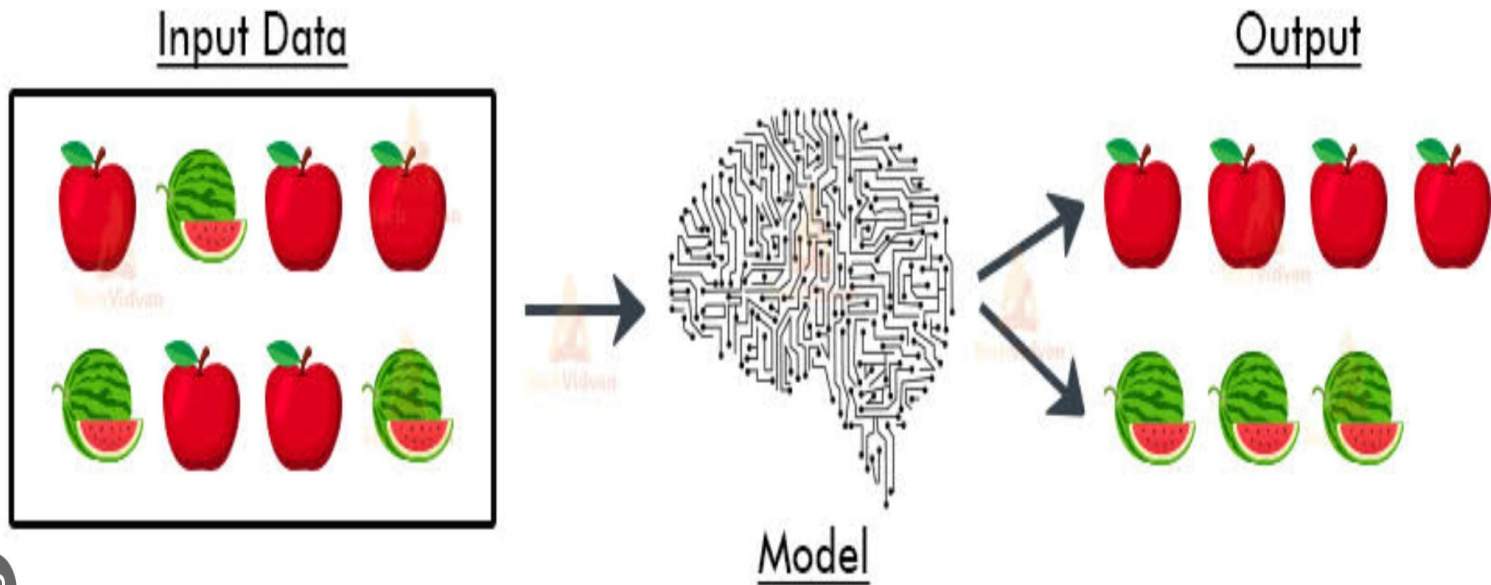
Supervised Machine Learning

In which machines are trained using well "labelled" training data, and on basis of that data, machines predict the output. The labelled data means some input data is already tagged with the correct output.

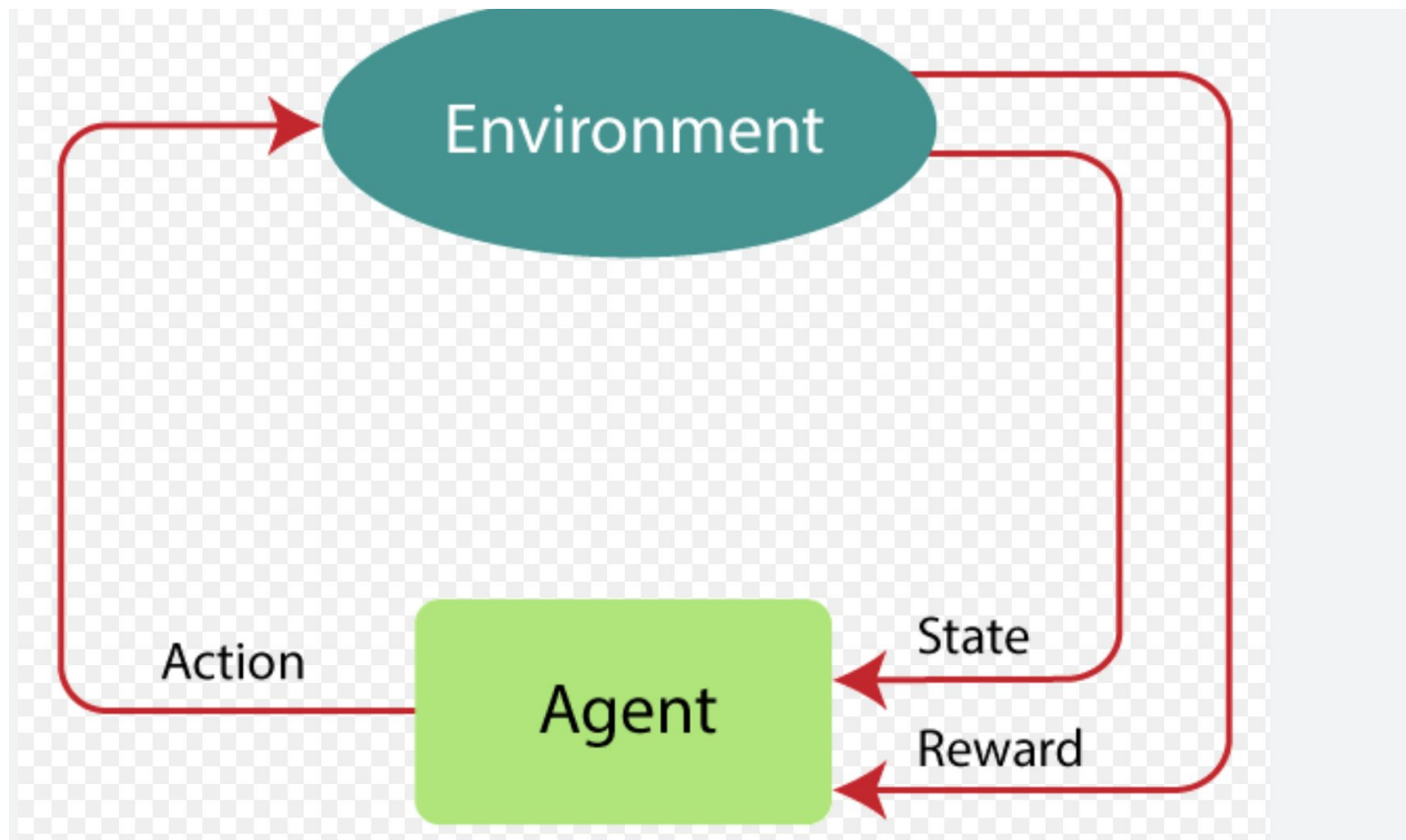


Unsupervised learning is a machine learning technique in which models are not supervised using training dataset. Instead, models itself find the hidden patterns and insights from the given data. It can be compared to learning which takes place in the human brain while learning new things.

Unsupervised Learning in ML



In Reinforcement Learning, machines learn automatically using feedbacks without any labeled data. In simple terms it learn from mistakes.



Advantages of Machine Learning

- Fast, Accurate, Efficient.
- Automation of most applications.
- Wide range of real life applications.
- Enhanced cyber security and spam detection.
- [No human Intervention](#) is needed.
- Handling multi dimensional data.

Disadvantages of Machine Learning

- It is very difficult to identify and rectify the errors.
- Data Acquisition.
- Interpretation of results Requires more time and space.