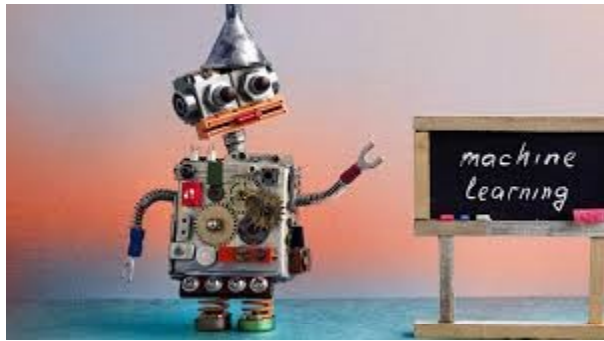


Introduction To Machine Learning



Machine Learning

What?



- Machine learning is a procedure.
- Using which you can make a machine as like as a human being.

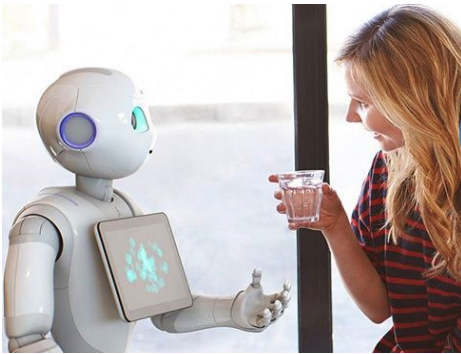
- It can learn
- It can think
- Actually it can do each
And everything just like us.



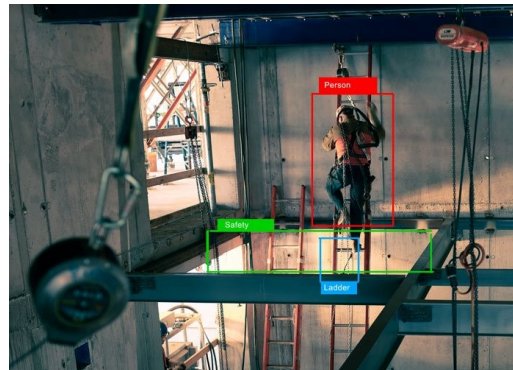
Machine Learning

Where?

Health Care



Surveillance

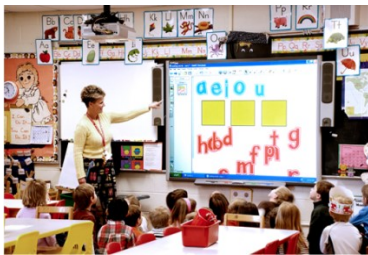
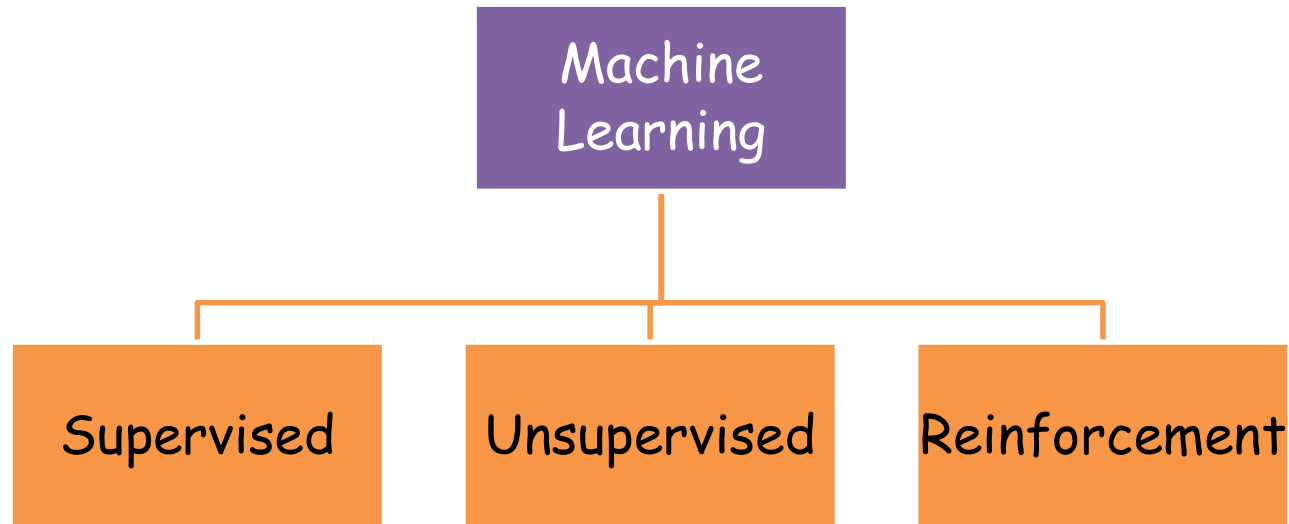


Social Media



Machine Learning

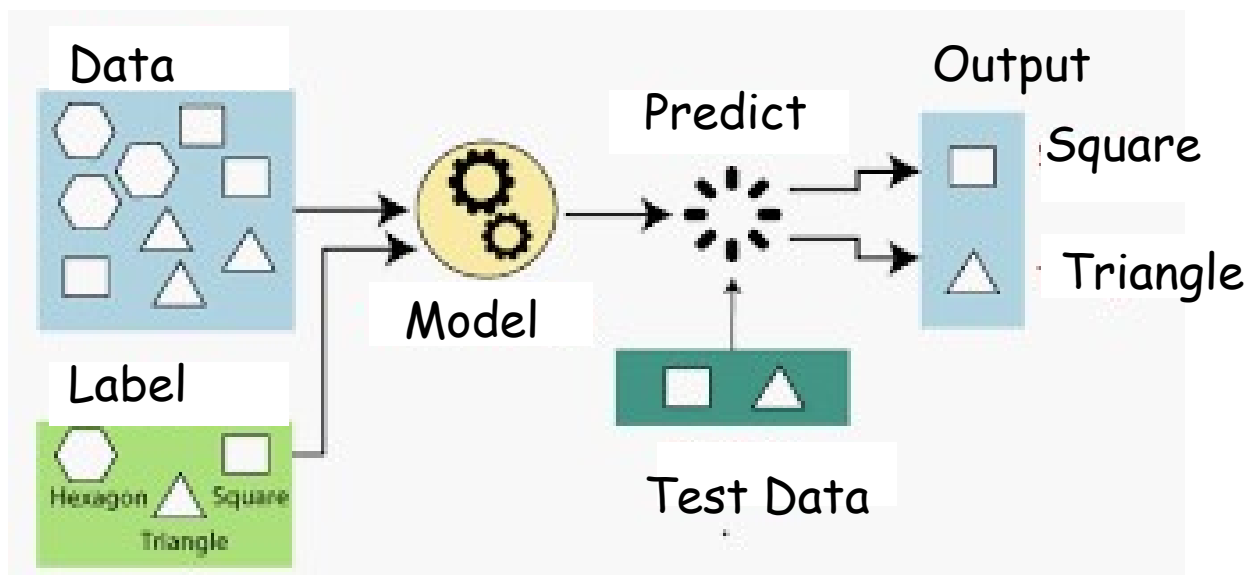
Type



Machine Learning

Type-Supervised algorithm

- In this type the machine is first trained.
- For the training purpose some known data and their response is used.
- A simple example will make it clear.





Machine Learning

Type-Supervised algorithm-Continued

Our Aim: Pattern Recognition

- In this project we want to make a model which will automatically recognize the pattern of the input image, Like whether it is square/triangle etc.

How: We have to train the model using some data and their responses.

Now this whole process can be imagined as like as your real life exam



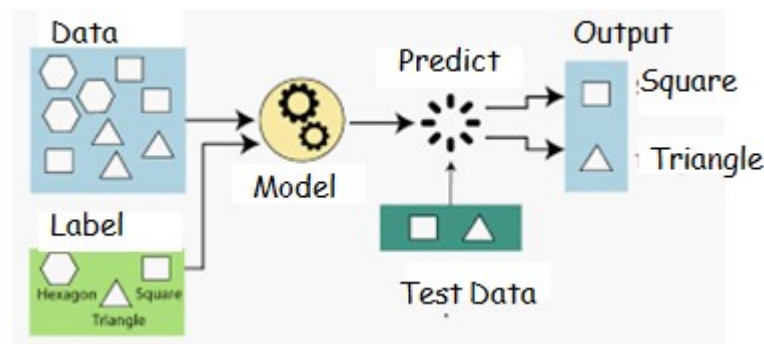
Machine Learning

Type-Supervised algorithm-Continued

- Suppose your teacher may give you 100 important questions before exam
- He/she provides the solution also.
- Now in your exam 10 questions from your suggestions are asked.
- If you prepare properly you should answer correctly.

Machine Learning

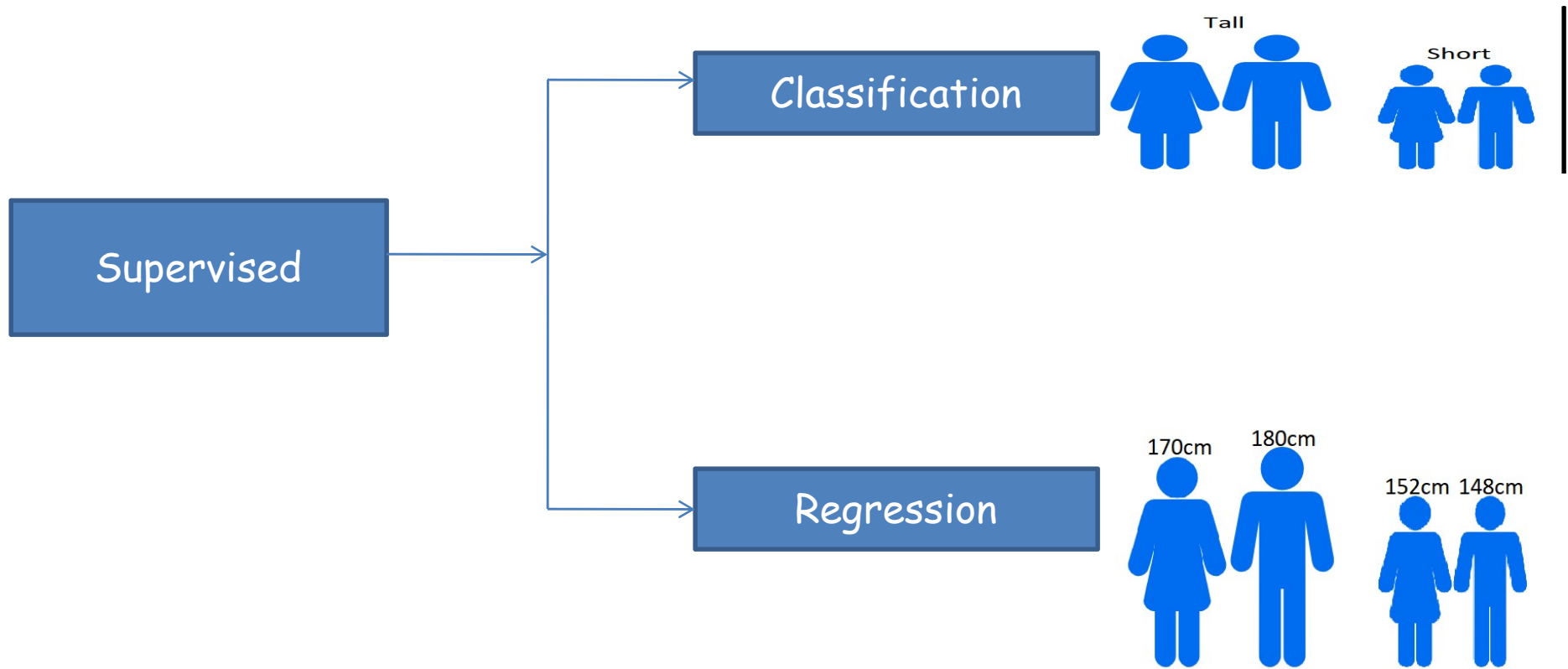
Type-Supervised algorithm-Continued



- Data: 100 Important Questions
- Labels: Solution Of the important questions.
- Model : Your Training
- Prediction: Exam
- Test Data: Questions asked you
- Output: Your Answer



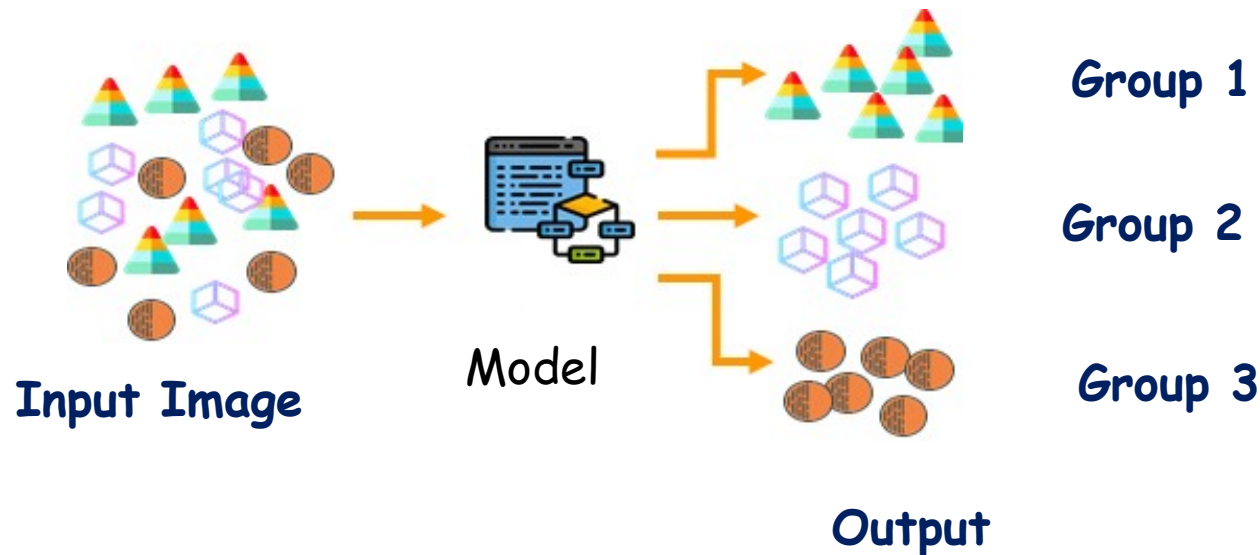
Type - Supervised



Machine Learning

Type-Unsupervised

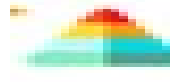
- Suppose you are given a list of images(as shown in the Input Image).
- As you can notice this input image is mainly consists of 3 different types of images.



Machine Learning

Type-Unsupervised Learning Continued

- Now what you have to do?
- You require to make 3 distinct group.(Group1 ,2 and 3)
- Each group should consist of only one type of images.
- Now the problem is
- You have not seen these images before and don't have any idea of these images.



- Now what can you do?
- You can separate them just by watching their getup.

Machine Learning

Type-Unsupervised Learning Continued

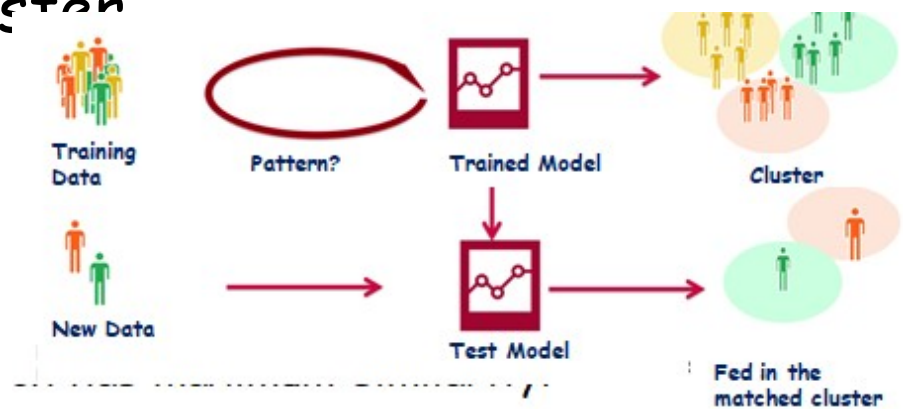
- Now this is the unsupervised learning concept .
- Where the model is trained using some data.
- But the model is not given any information about the trained data.
- By itself it is required to find some unique characteristics of the given data.
- And depending upon the characteristics it separates them into different group.
- Where each group will contain only one type of data.



Machine Learning

Type-Unsupervised Learning Continued

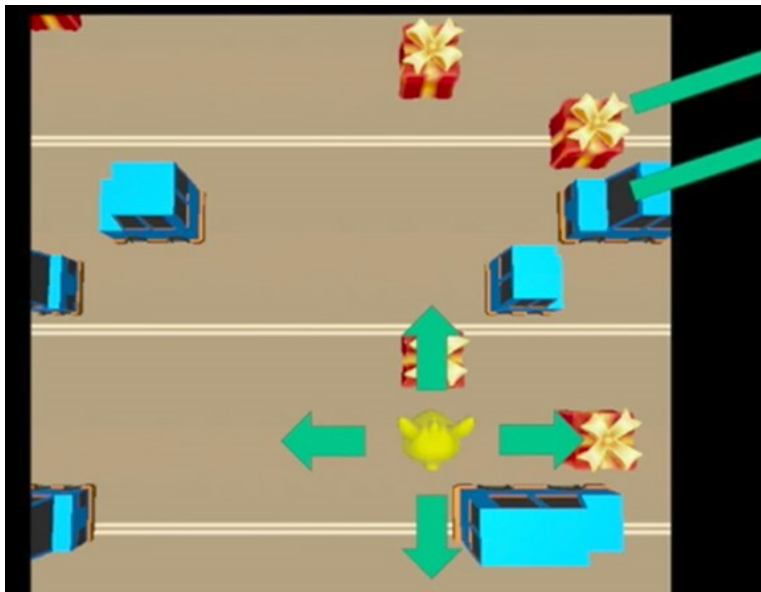
- This type of grouping is known as clustering.
- And each group is called cluster.
- Now a new image is fed for testing purpose
- The model will check the similarity of the test image with each of the made cluster.
- And the image is placed in that cluster which has maximum similarity.



Machine learning

Type-Reinforcement

- Like unsupervised learning it also don't has any response of the input data while training.
- But after getting the output it has an procedure of crosschecking.



Reward: +1 For Gift

Penalty: -1 For Obstacle

- Here an agent (Yellow color object) is required to collect all the gifts.
- It can select any one of the 4 moves.
- The agent is trained using RML .
- It can automatically collect all the gifts using reward ,penalty process.



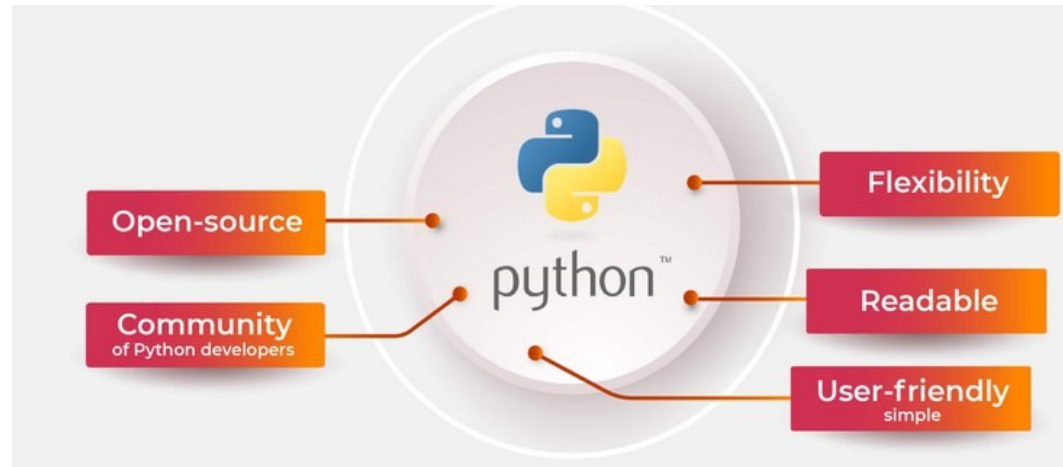
Machine Learning

How?





Why Python?





Machine Learning

Picture Courtesy

Google Image