

The graphic features a central white rectangular box with rounded corners and a black border, containing the text 'ONLINE NOTEBOOK'. The box is set against a light blue background with darker blue wavy patterns. In the top-left corner, there is a small orange rectangular object. In the top-right corner, a portion of a document with horizontal lines is visible. In the bottom-right corner, a blue pen is shown diagonally. In the bottom-left corner, a yellow object is partially visible.

ONLINE NOTEBOOK

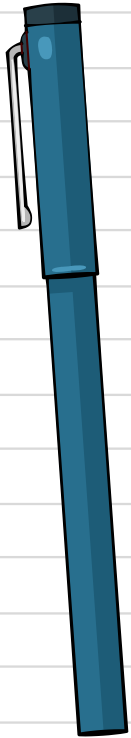


01

Introductin to machine learning



Introduction



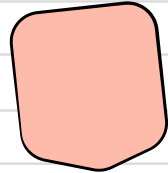
what is machine learning?

It is an sub domain of computer science which focus on algorithms which help a computer learn from data without explicit programming.

01

what is deep learning?

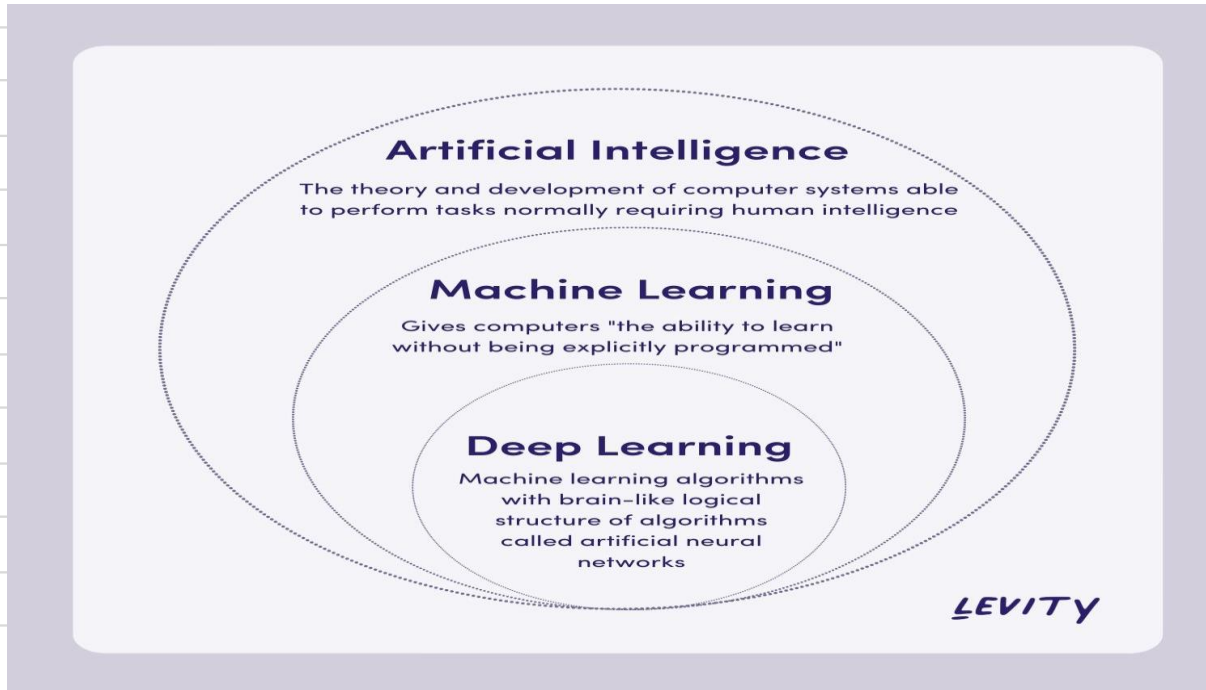
Deep learning is **a method in artificial intelligence (AI) that teaches computers to process data in a way that is inspired by the human brain.** Deep learning models can recognize complex patterns in pictures, text, sounds, and other data to produce accurate insights and predictions.





What is Artificial intelligence?

Artificial Intelligence is basically the mechanism to incorporate human intelligence into machines through a set of rules (algorithm)





02

Getting started with Machine learning.



Types of machine learning



Supervised ML:

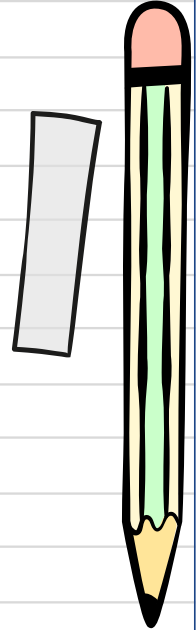
Uses labeled inputs (meaning the input has a corresponding output label) to train models and learn outputs.

Unsupervised ML:

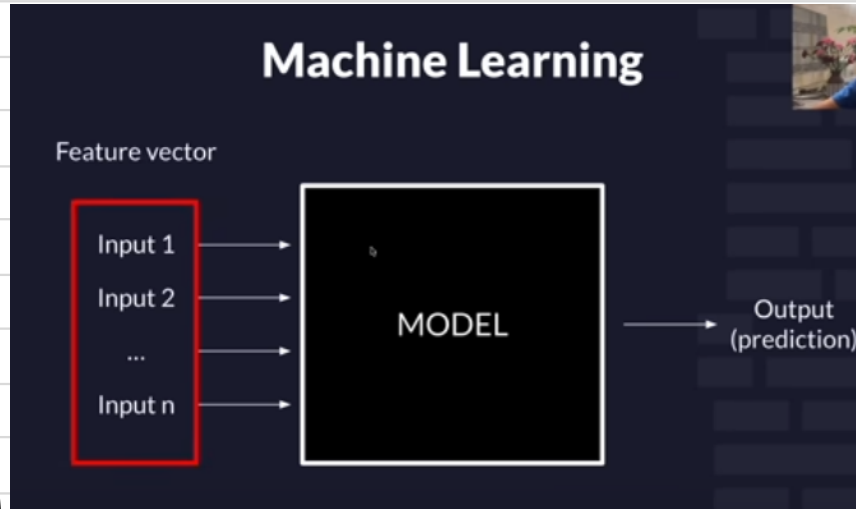
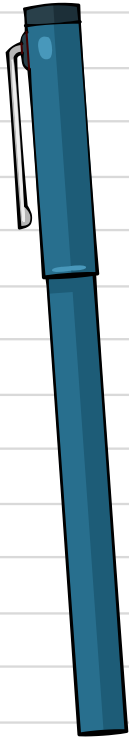
Uses unlabeled data to find pattern in data.

Reinforcement Learning:

Agent learning in interactive environment based on rewards and penalties.



Machine Learning:



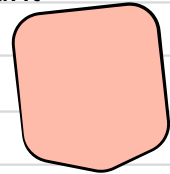
Features:

Qualitative: categorical data (finite no. of categories or group)

Can be Nominal: no inherent order.
e.g a person belonging to a country.

Or Ordinal Data: inherent order
e.g rating or age distribution data

Quantitative : numerical valued data; eg. Length, count



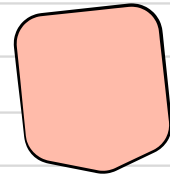
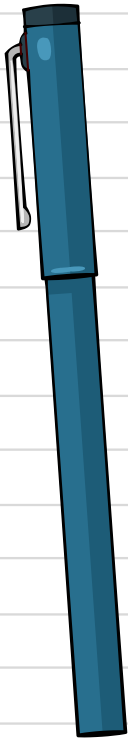
Supervised ML:

.Classification: predict discrete classes

Binary Classification	Multiclass classification
Positive/negative	Cat/dog/lizard/dolphin
Cat/dog	Orange/apple/pear
spam/not spam	Plant species

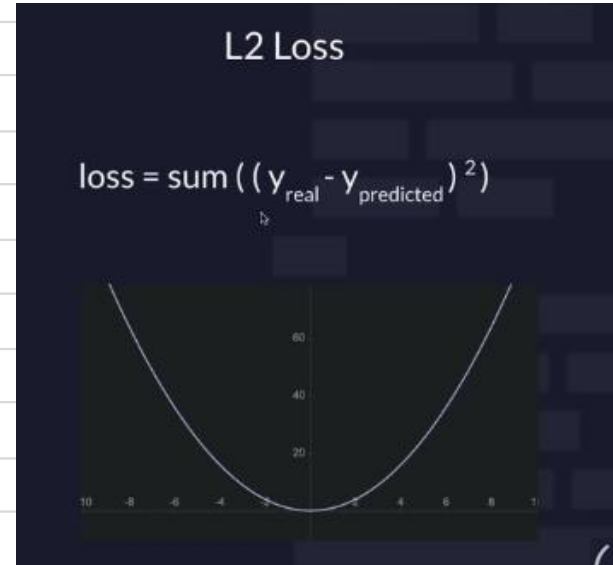
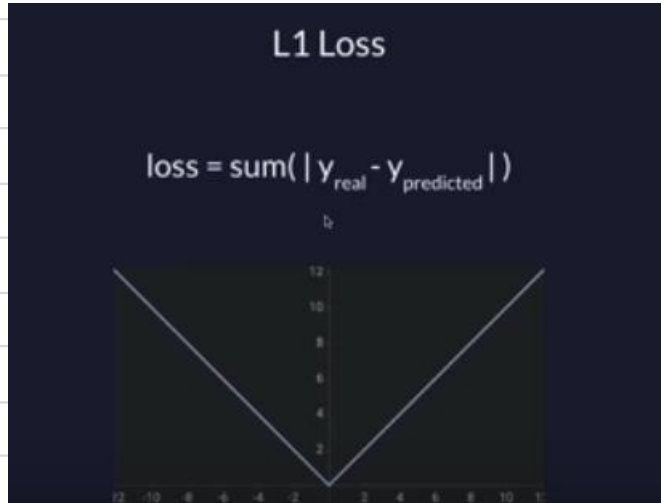
.Regression : predict continuous values

Example: weather report
stock prices



Measuring model performance:

Loss function:



Loss decreases as performance gets better.

Measuring model performance:

Accuracy: can be measured in percentage.



	Predictions	Actual
	Apple	Apple
	Orange	Orange
	Orange	Apple
	Apple	Apple

Accuracy of this model is $\frac{3}{4}$, or 75%!

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