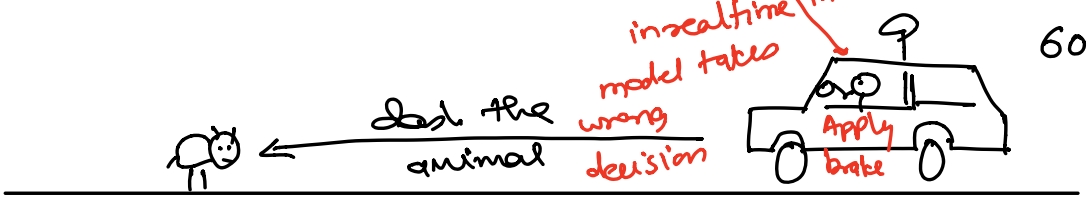
Self driving Car.

ride automatically

60 kmph



Highway

model → Static model

↑ once the logic is generated, it cannot be modified at realtime.

Machine Learning → model 1 ← Dataset

train

not aware of action to be performed when a cattle comes in road.

model → dynamic model

↑ the user can teach model an action in realtime scenario

Deep Learning → model 2 ← Dataset

Reward & Penalty.

Reinforcement Learning

Automated Learning

Machine Learning (approximation) (prediction)

Historical Data

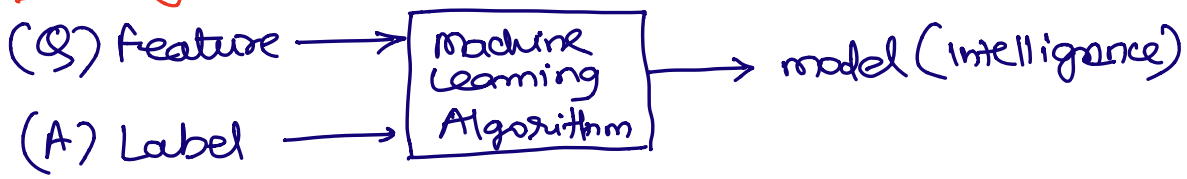
① Question / Input / Features (x, y)

② Answer / Output / Label (z)

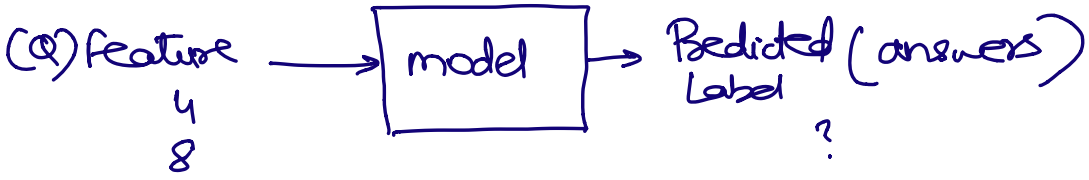
Dataset

x	y	z
2	2	4
3	2	5
7	7	14
8	1	9
7	1	8

Training phase



Implementation phase



Machine Learning (bigdata) → Implementation technique to extract intelligence out of the data using

The outcome of ML is always a STATIC MODEL.

INCREMENTAL LEARNING.

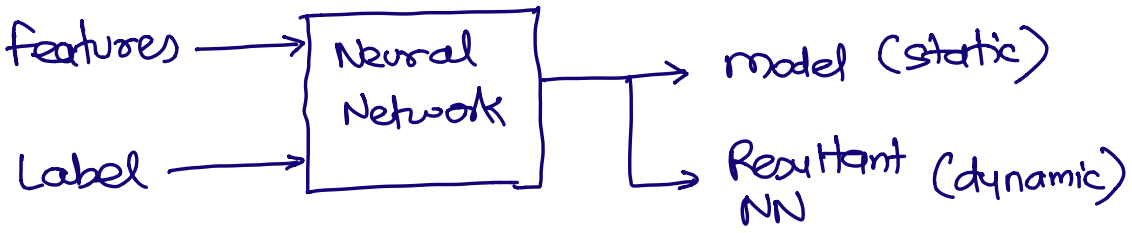
model v1. ←

model v2

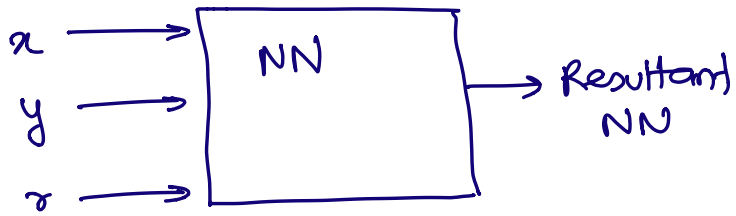
DEEP LEARNING : Implementation technique to extract intelligence out of the data using

① Neural Networks

② Statistical Formulae.

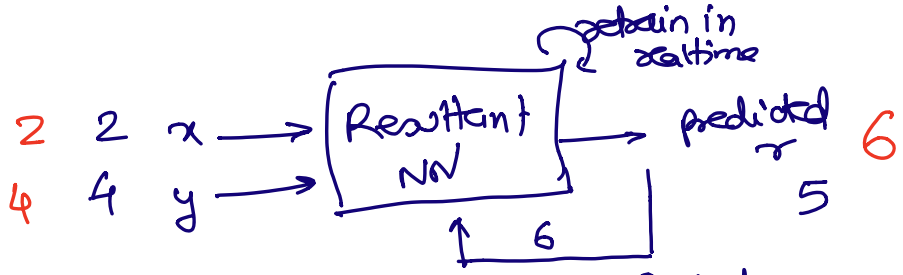


eg:

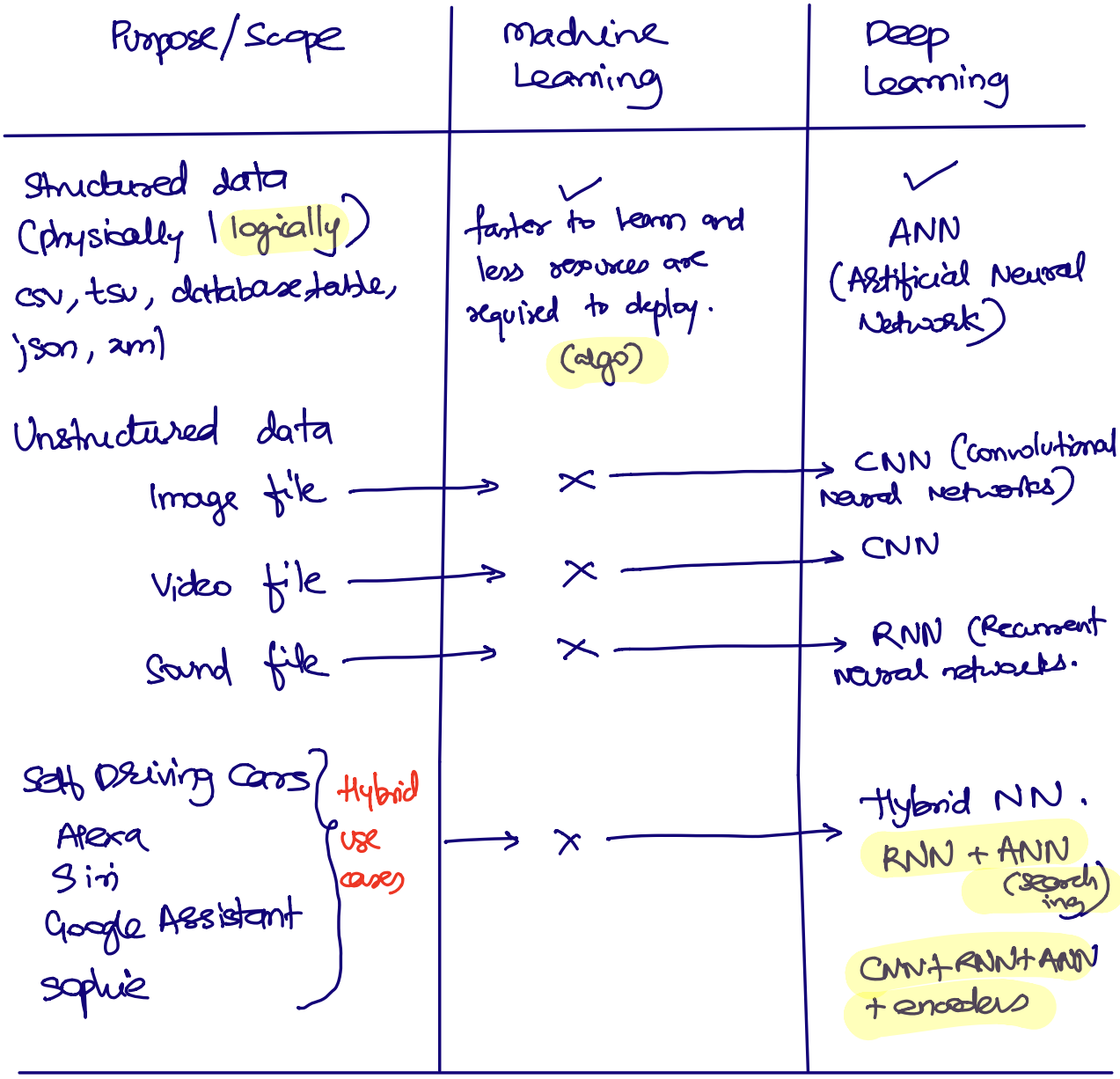


Dataset

x	y	r
2	2	4
3	2	5
7	7	14
6	1	9
7	1	8



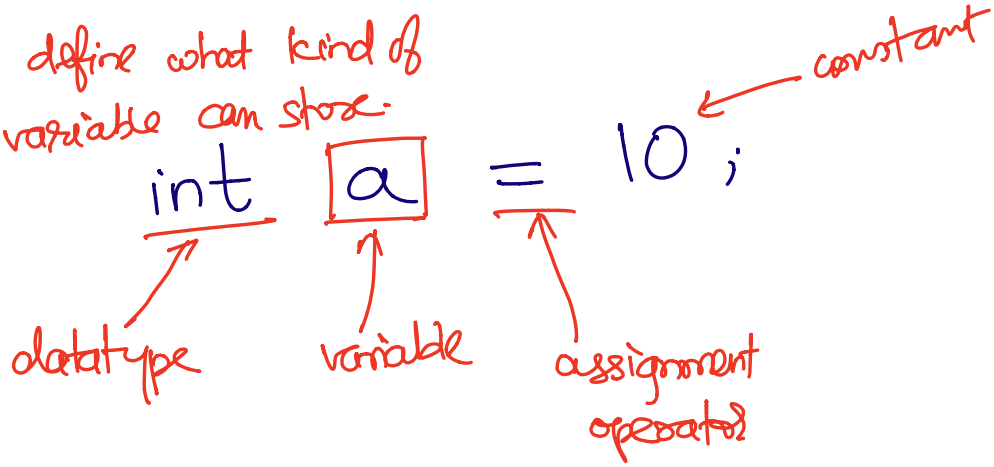
feedback			
Reward	Yes	Correct	NULL
Penalty	NO	Wrong	BIAS UPDATE

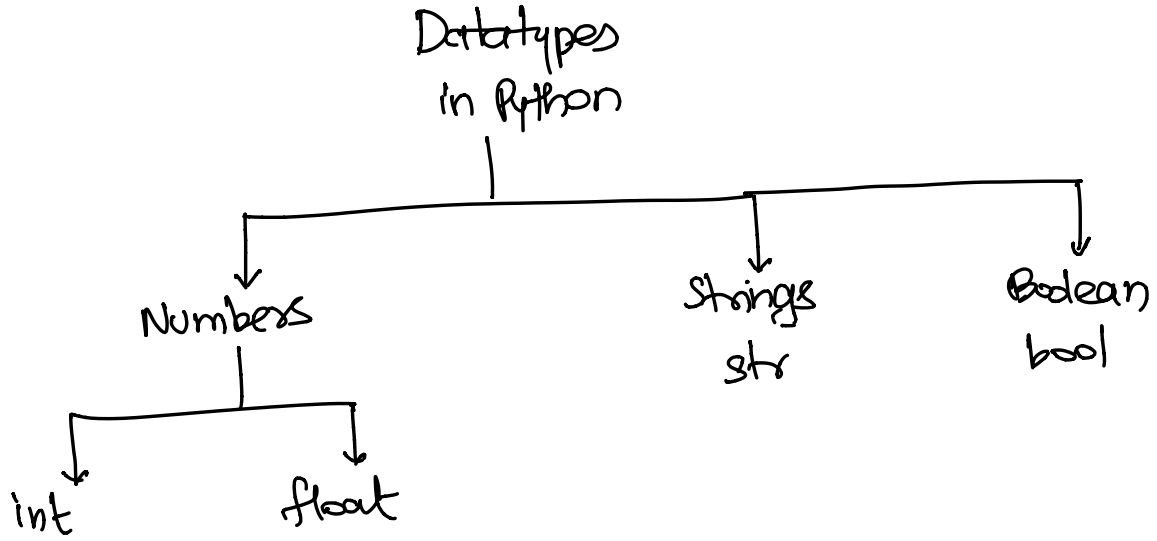

Purpose/Scope
Machine Learning
Deep Learning
Structured data
(physically | logically)
csv, tsv, database table, json, xml)
✓
faster to learn and less resources are required to deploy.
(algo)
✓
ANN
(Artificial Neural Network)
Unstructured data
Image file → X → CNN (Convolutional Neural networks)
Video file → X → CNN
Sound file → X → RNN (Recurrent Neural networks.
Self Driving Cars
Alexa
Siri
Google Assistant
Sophie
Hybrid use cases
→ X → Hybrid NN.
RNN + ANN (Searching)
CNN + RNN + ANN + encoders

Difference between R & Python

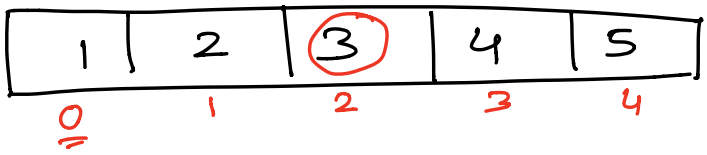
R	Python
(opensource) great community support ml, stats, DL, EDA, wrangling etc.	(opensource) great community support ml, stats, DL, EDA, wrangling etc.
Business market R is expensive (resource) Less support to Bigdata SparkR, RHadoop, RHIPE → not enterprise ready! small data is any data that you can store in a single m/c. 8TB disk ← 512GB RAM	Python resource is cheaper Python supports Bigdata. Pyspark Pyhadoop. enterprise app ready solution. Distributed env

datatype define what kind of data a variable can store.





List



list1 [2] = 3