AI vs ML vs DL vs DS

AI → Smart applications that can perform its without any human intervention.

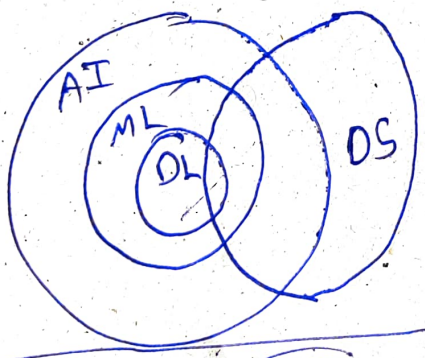
eg → self-driving cars, robots.

ML → subset of AI which provides ~~stats~~ tools to learn, analyze, visualize & develop predictive models from data.

eg → amazon, netfix.
(recommendation systems).

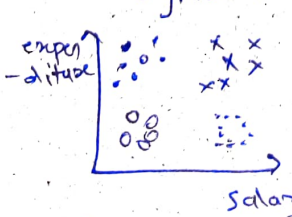
DL → mimic human brain
• multi-layered neural network.

eg → object detection, image recognition, chatbot, chatgpt.



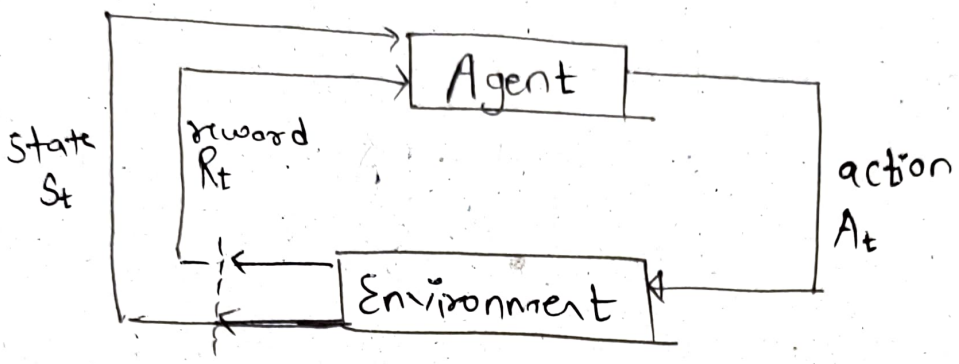
Maths
1. Linear algebra
2. statistics
3. probability
4. calculus.

ML
- supervised
  eg. →
  • pass/fail
  • house price
- unsupervised
  eg → customer segmentation
- semi-supervised
- reinforcement



semi-supervised → supervised + semi-supervised

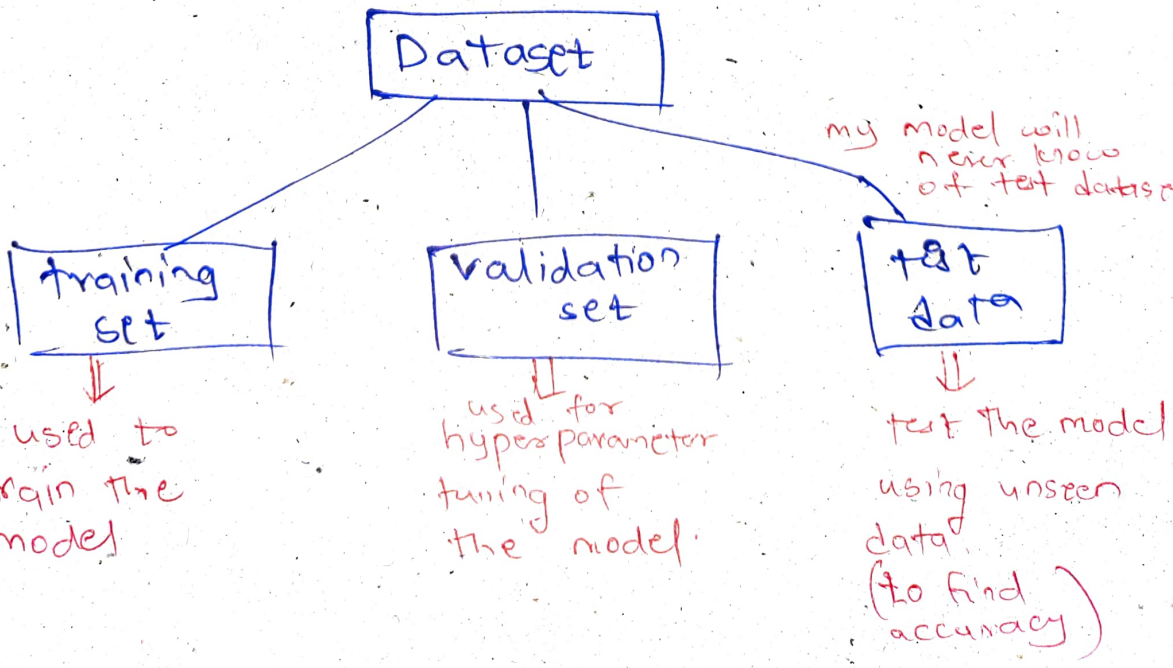
Reinforcement Learning :



Reinforcement learning is an area of ML concerned with how intelligent agents ought to take actions in an environment in order to maximize the notion of cumulative reward.

~~It is one of the three basic machine learning paradigms.~~

Train, test & validation.



Overfitting & Underfitting.

Dataset ---> overfitting Low Bias, High var

TRAIN → model is trained → Accuracy (95)

TEST → model is tested → Accuracy (65)

NOTE: Training accuracy high } → low bias
test accuracy low }

underfitting high bias, low variance

Train accuracy → 55% } → underfitting
test accuracy → 50% }

Generalized model → Train & test accuracy should be good.

(Low Bias, low var)