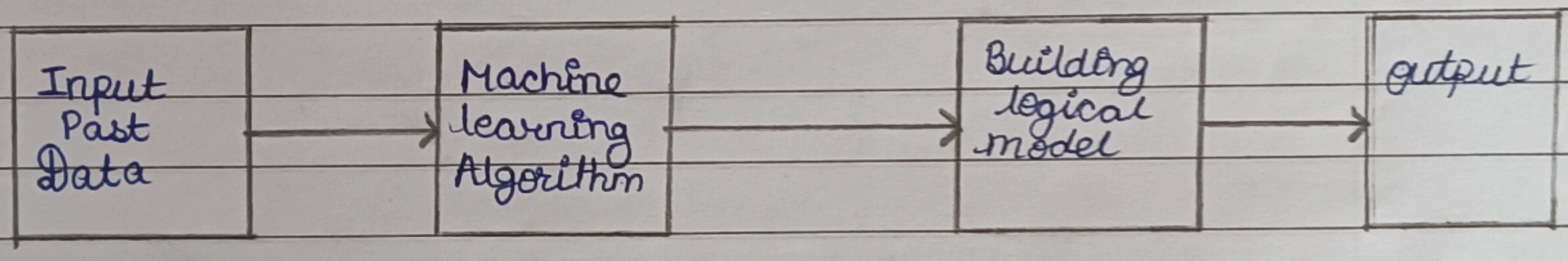
What is Machine learning ?

→ Machine learning is a field of Computer science that uses statistical techniques to give computer systems the ability to "learn" with data, without being explicitly programmed.
By the term 'explicit Programming', it means, that we don't have to always explicitly write code for your data to build logic everytime there is a change in data, instead Machine learning model can handle dynamic changes in data and build new logic associated to it.

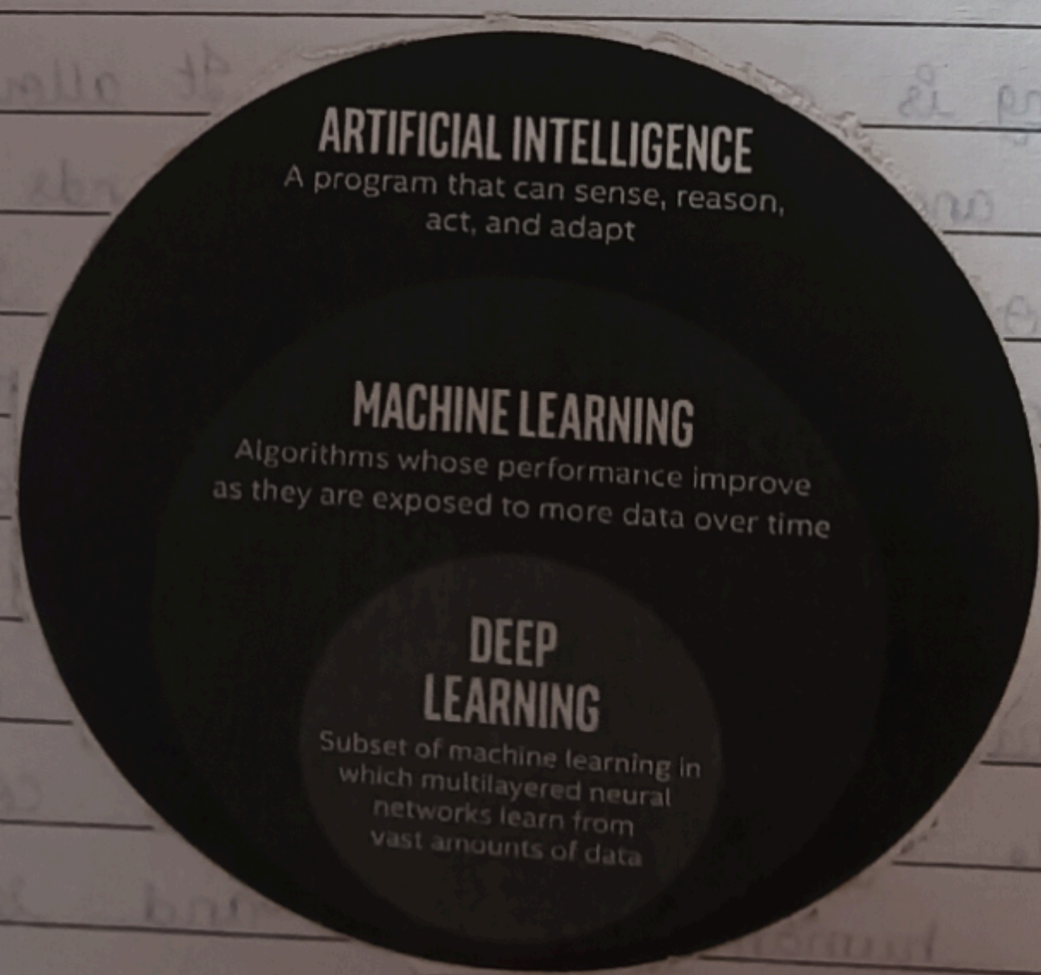


Machine learning V/S Artificial Intelligence V/S Deep learning

→ Machine learning is a subset of AI. It allows Computer System to learn and analyze pattern and trends from data and make predictions on new data based on it's analysis on past data. ML relies on Statistical algorithms and techniques to perform it's functioning and making prediction.

→ Artificial Intelligence is the area of computer science where the goal is to make computers and machines to perform human like task and stimulate human behaviour

→ Deep learning is a sub-field of Machine learning that focuses on developing and training artificial neural network. It is inspired by the structure and functionality of Human brain

more specifically, the smallest unit of neural network, preceptron is inspired by the neuron of the human brain.
Deep learning can efficiently handle large amounts of raw and unstructured data where ML algorithms may struggle also it can extract relevant features from raw data automatic unlike, ML where extensive feature Engineering is required.

Feature	AI	ML	DL	Generative AI
Definition	Machines mimicking human intelligence.	Algorithms learning patterns from data.	Neural networks simulating human brain processing.	Generative AI creating new content like text and images.
Focus Area	Automation and decision-making.	Pattern recognition and predictions.	Complex tasks like image/speech recognition.	Content creation and creative outputs.
Complexity	Broadest concept.	Subset of AI.	Subset of ML.	Specialised subset for content generation.
Examples	Alexa, self-driving cars.	Netflix recommendations, fraud detection.	Facial recognition, autonomous driving.	AI art tools, ChatGPT, DALL-E.