Module - 3

Introduction To AI

SAP

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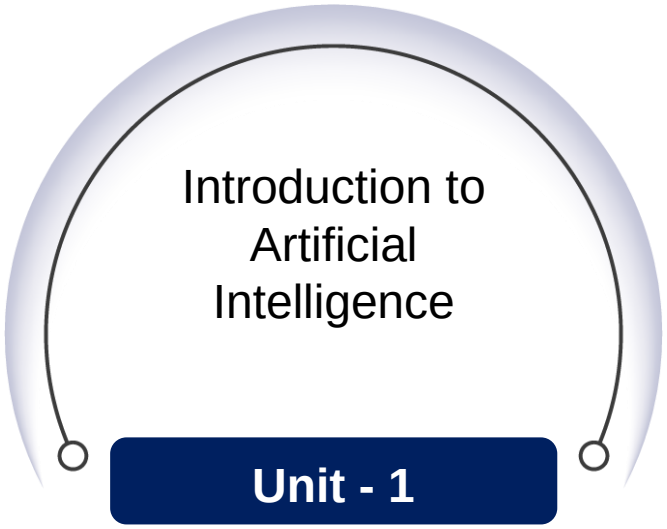
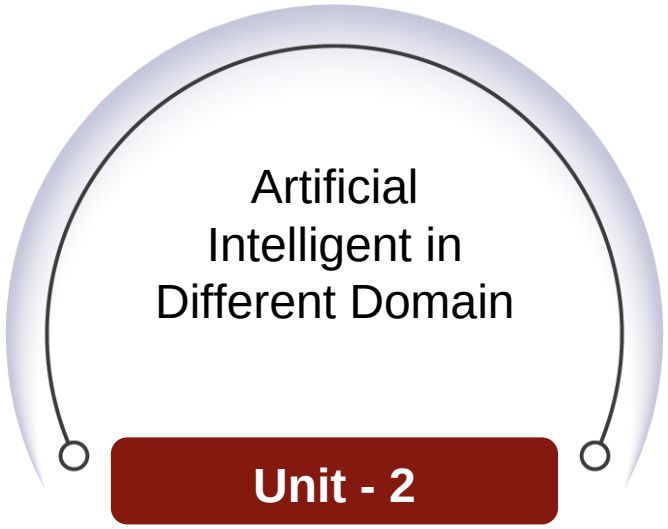
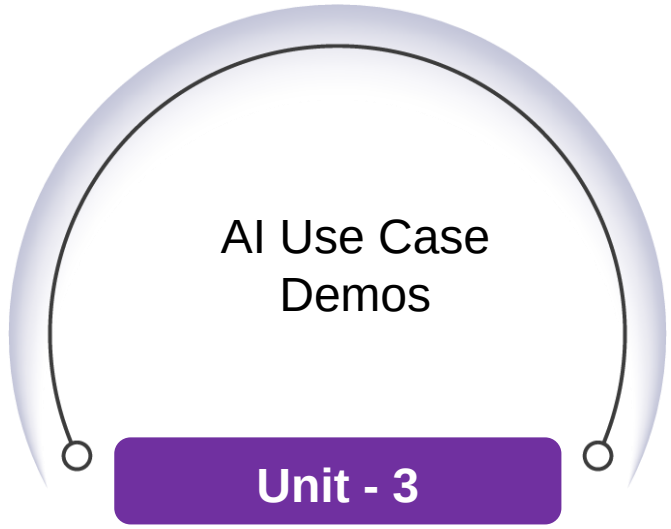
Units for Discussion







Unit - 1

Introduction to Artificial Intelligence

DISCLAIMER

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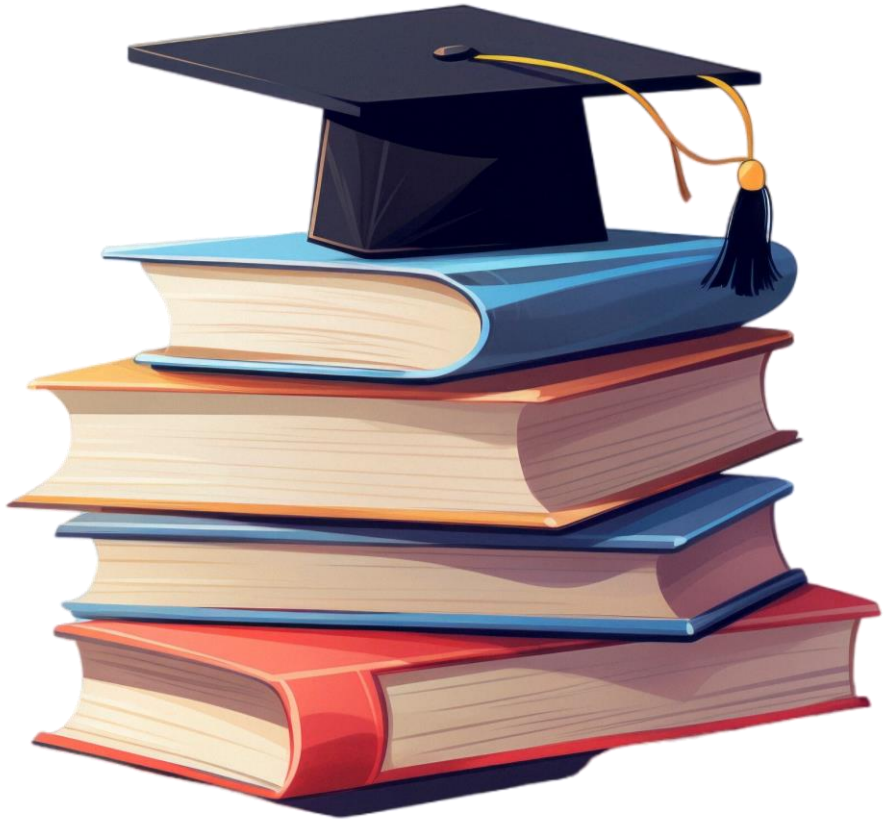
Learning Objectives

- Why Artificial Intelligence?
- What is Artificial Intelligence?
- Artificial Intelligence Umbrella
- The Turing Test
- Types of AI
- Where is AI?
- Introduction to Machine Learning
- Classifications in ML
- Deep Learning
- What AI can and cannot do (yet)?



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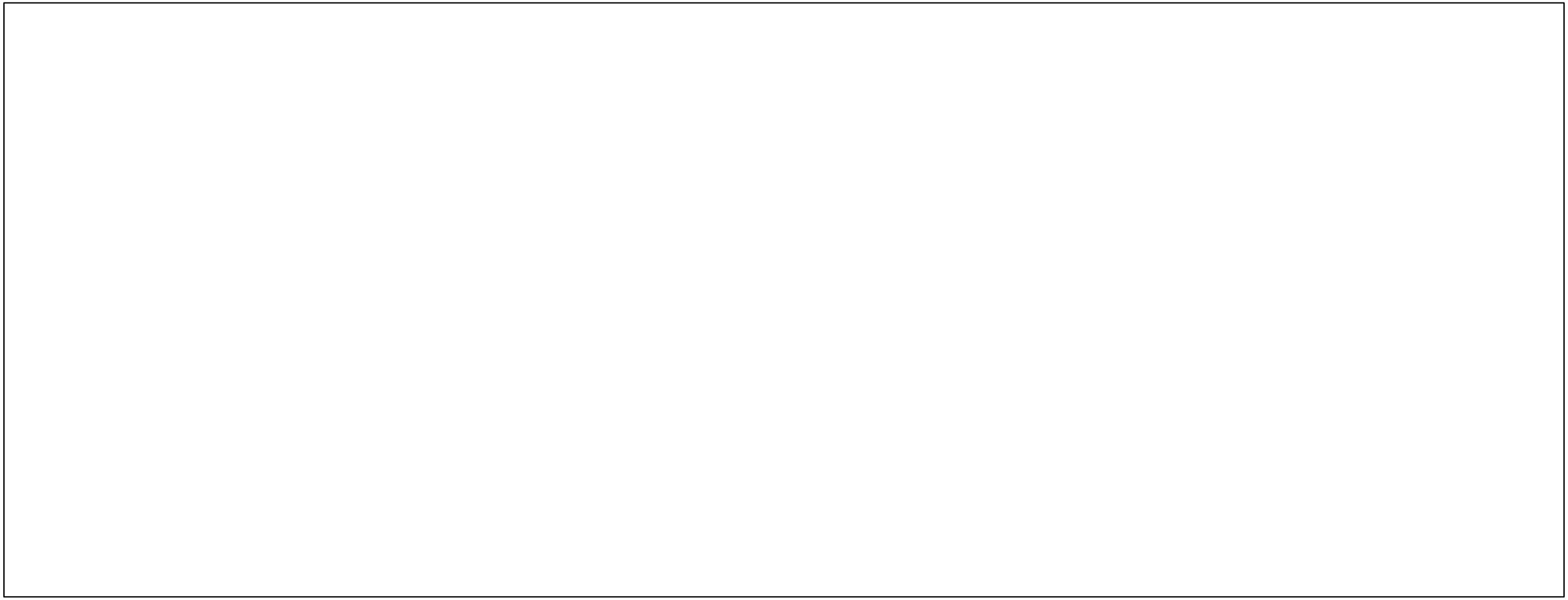
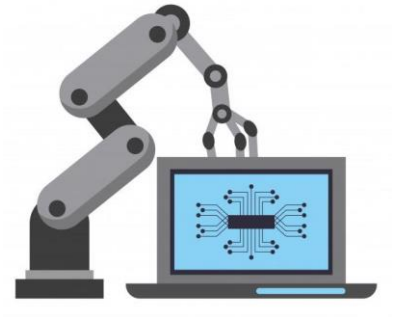
Play the Video



Why Artificial Intelligence?



Intelligent Automation

Adding to labor and capital

Collaborative Innovation

Boosting the Economy

New and exciting solutions

Uses in every sphere of life

What is Artificial Intelligence?

artificial

/ɑːtɪˈfɪʃ(ə)l/

adjective

1. made or produced by human beings rather than occurring naturally, especially as a copy of something natural.

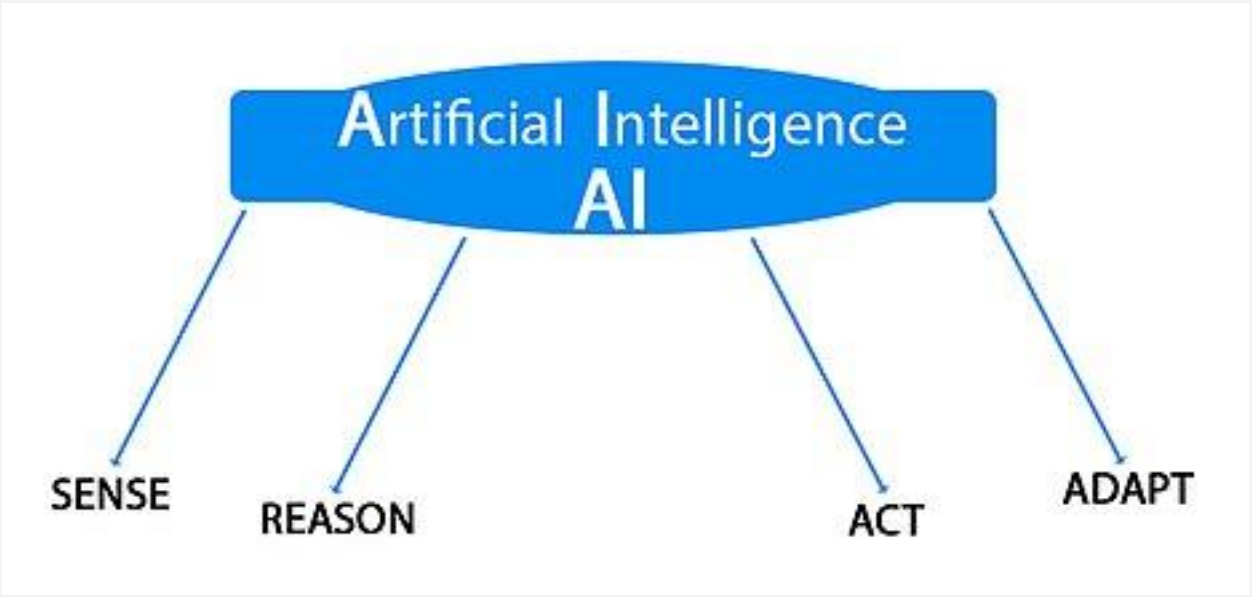
intelligence

/ɪnˈtɛlɪdʒ(ə)ns/

noun

1. the ability to acquire and apply knowledge and skills.

What is Artificial Intelligence?

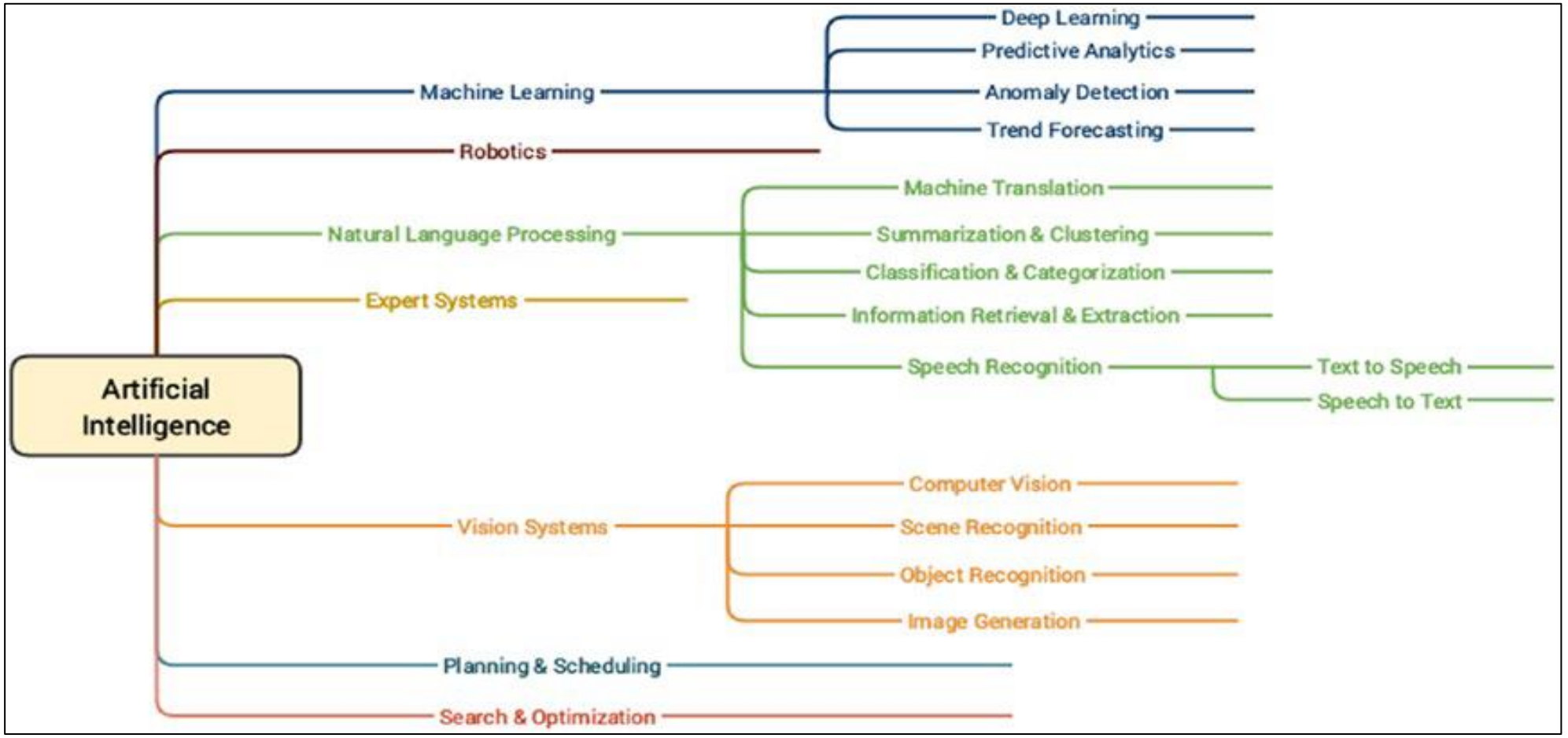


“A program that can sense, reason, act, and adapt.” (Intel).

Source:

Reference

Artificial Intelligence Umbrella



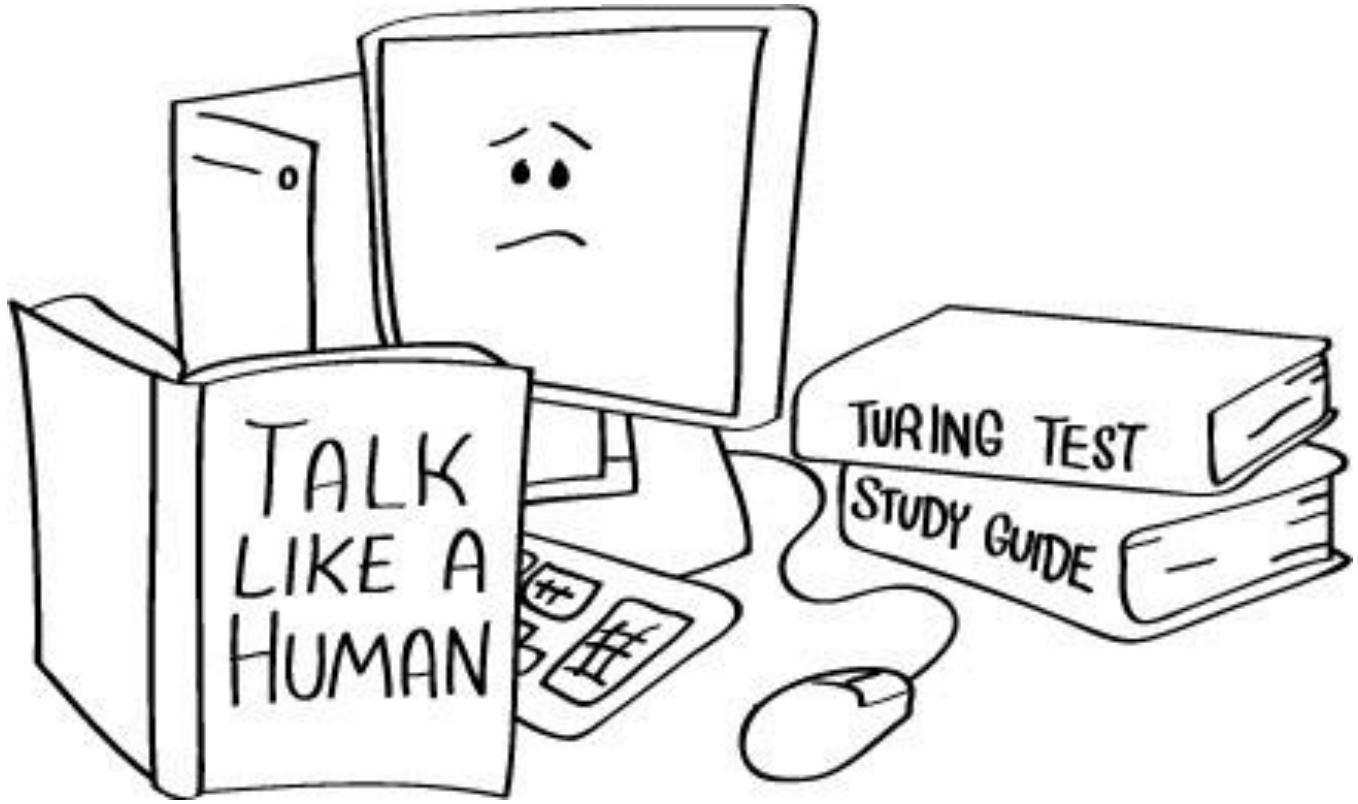
Practical Machine Learning With python Dipanjan Sarkar, Raghav Bali, Tushar Sharma

The Turing Test

- The Turing Test, proposed by Alan Turing in 1950, assesses a machine's ability to mimic human intelligence convincingly.

- In the test, a human evaluator engages in text-based conversations with both a machine and a human, trying to determine which is which.

- If the evaluator can't reliably distinguish, the machine is considered to have passed.



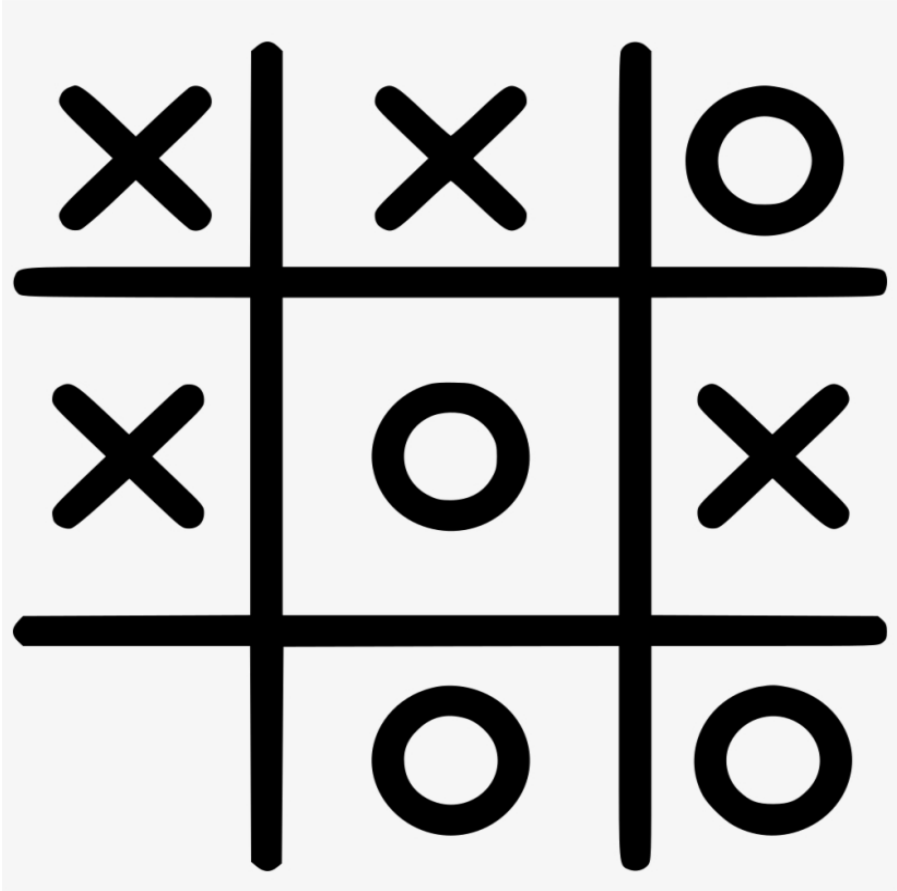
Lab- 1

The Intelligent Paper Activity

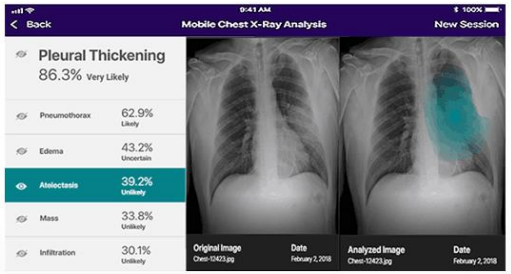
The Intelligent Paper

Can you win a Tic Tac Toe game to a Intelligent Piece of Paper ????

Tic Tac Toe



Types of AI

General Purpose Intelligence Operating Autonomously	Narrow Purpose Intelligence Operating Semi-Autonomously	Narrow Purpose Intelligence Assisting with Targeted Tasks
		
"Strong" AI	"Weak" AI	"Assistive" AI

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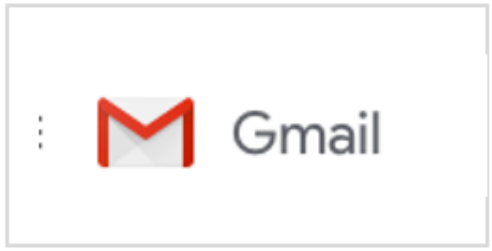
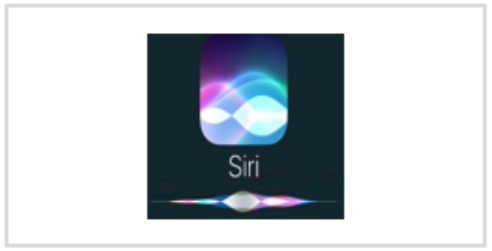
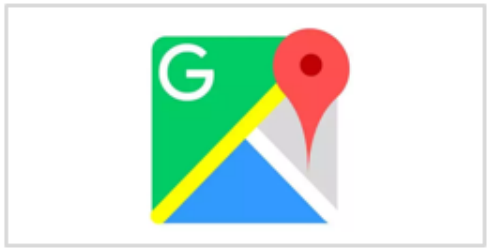
Where is AI


Gmail


Pinterest


Siri




make my trip


IBM Watson


Uber


amazon


ICICI Bank


saavn

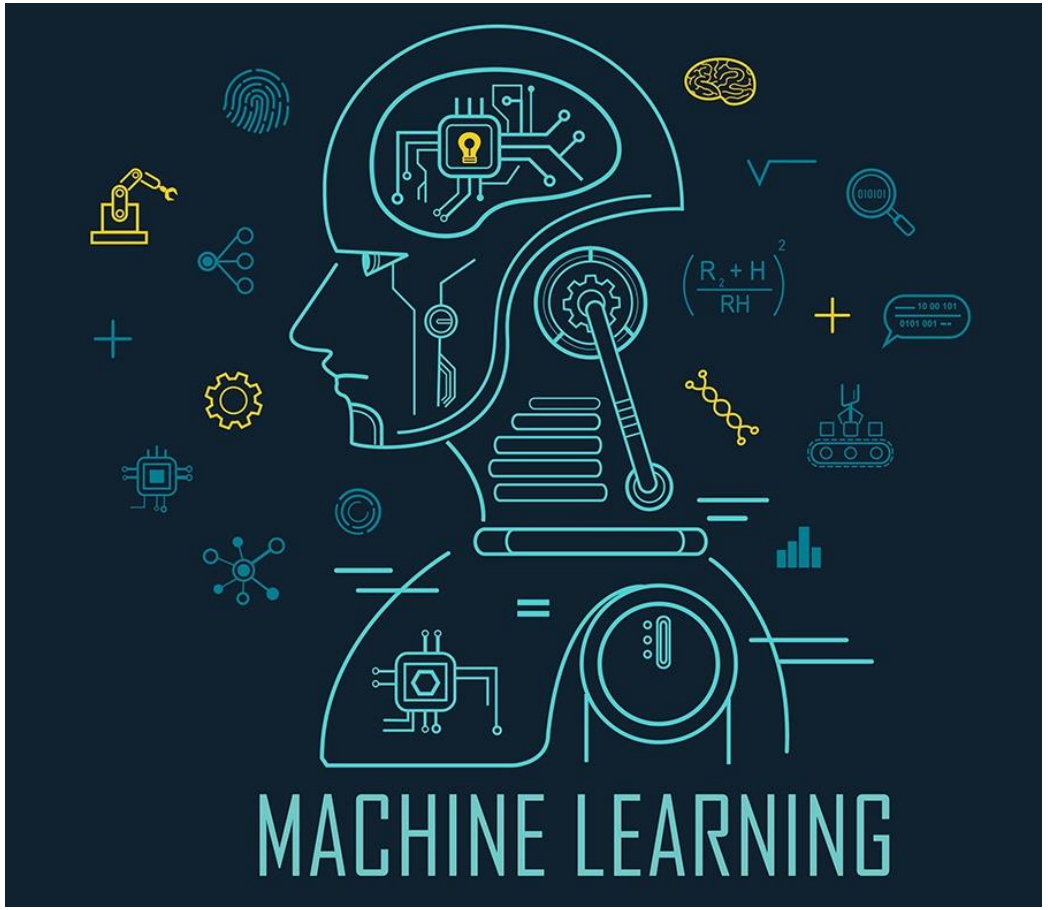

TESLA


Google


hotstar

Introduction to Machine Learning

- The name Machine Learning was first coined by Arthur Lee Samuel in 1959.
- Samuel defined it as a “field of study that gives computers the ability to learn without being explicitly programmed”.
- It is a branch of artificial intelligence, which is concerned with the design and development of algorithms that allow computers to evolve behaviors based on empirical data.



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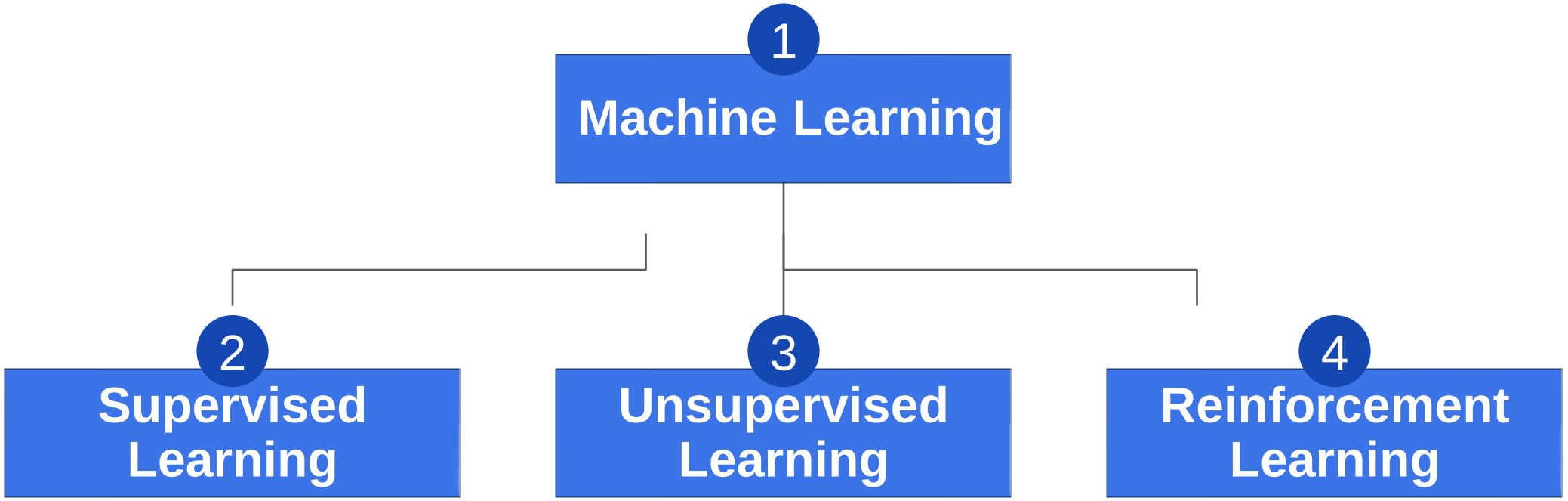
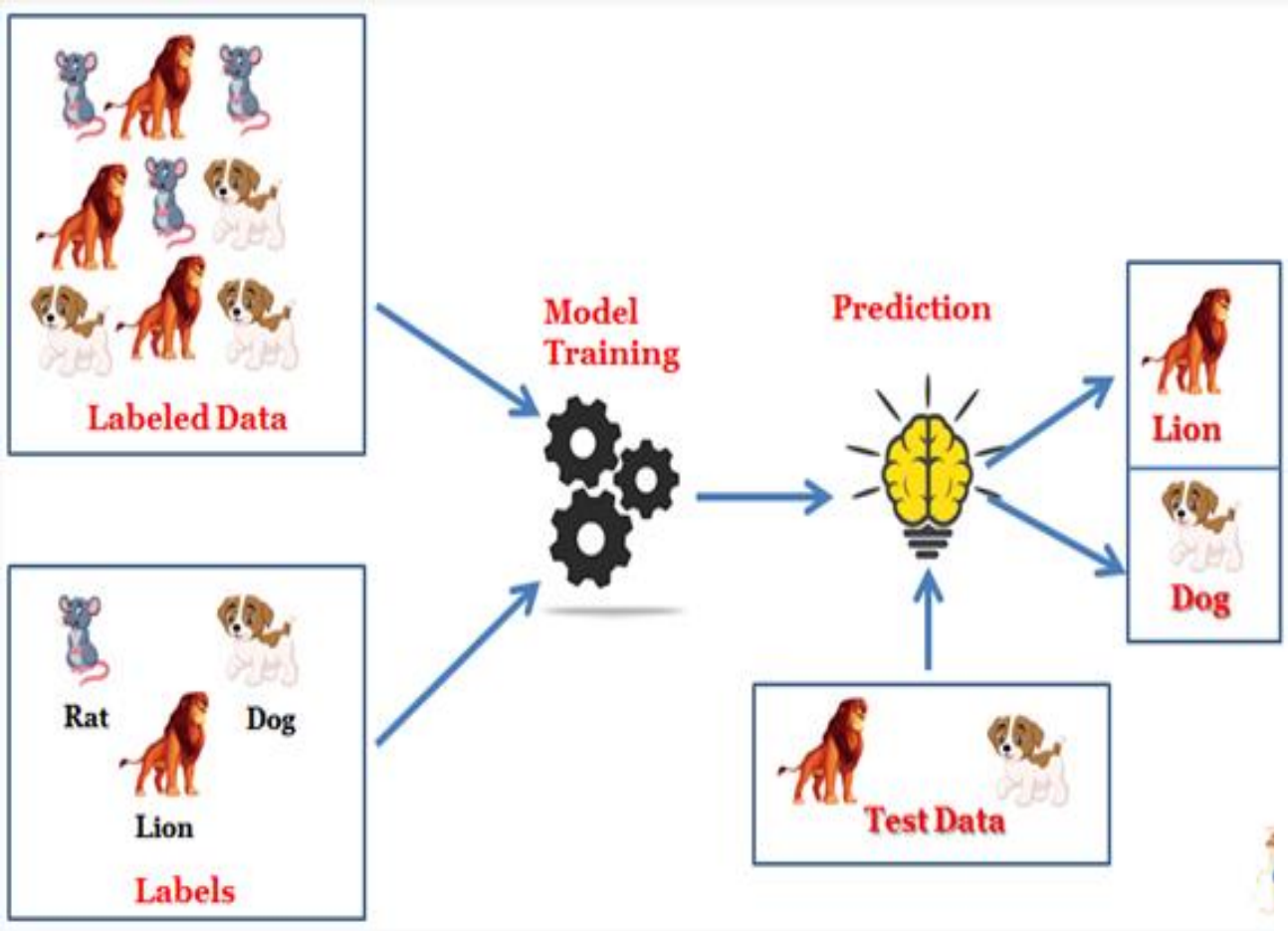
Classifications of Machine Learning



Supervised Learning

- Supervised machine learning learns patterns and relationships between input and output data.
- It is defined by its use of labeled data.



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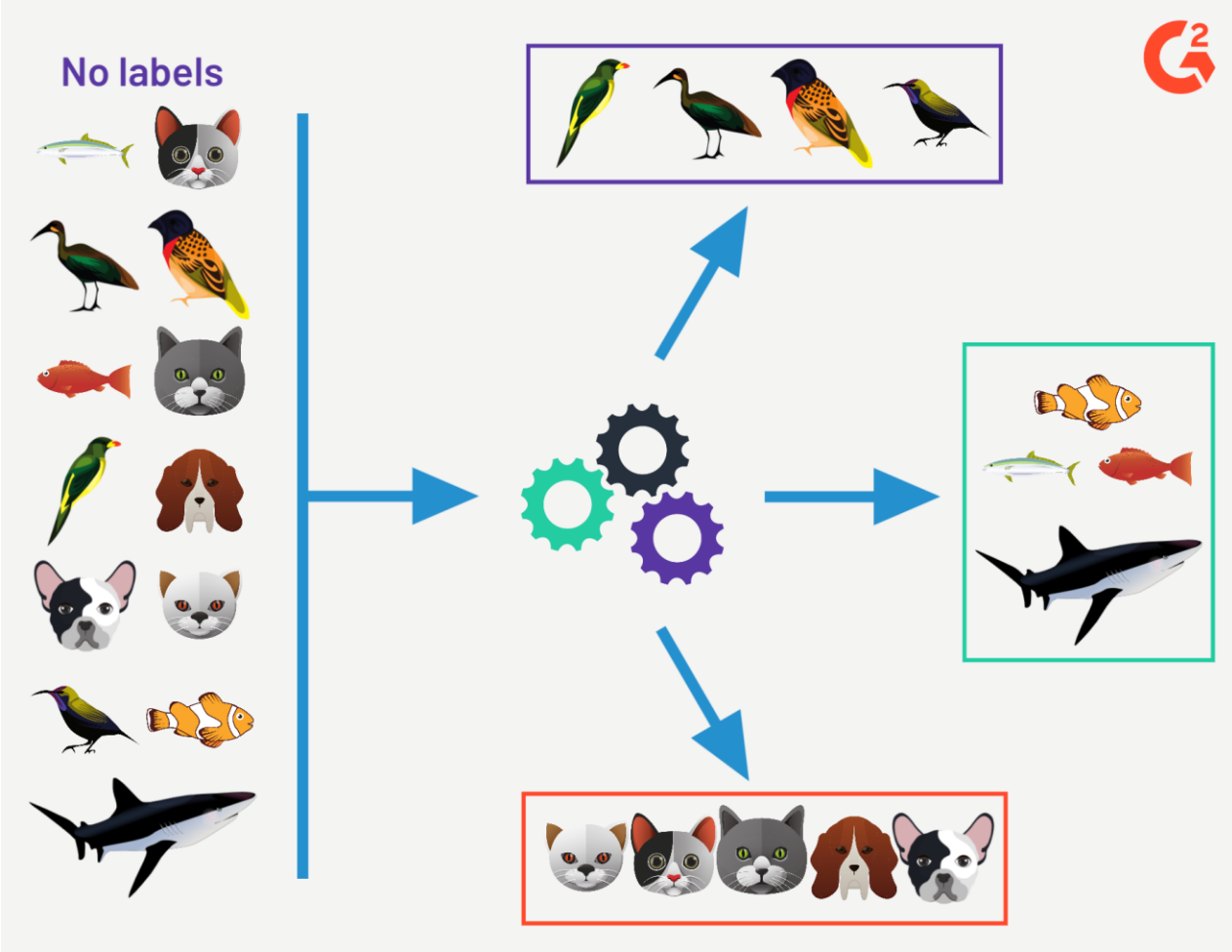
Unsupervised Learning

- Requires input data with no particular output.
- The goal of unsupervised learning is to reorganize the input data into a group of objects with similar patterns.



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Reinforcement Learning

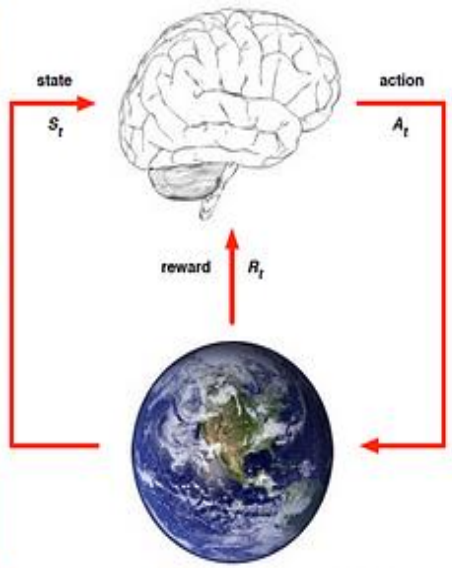
What is Reinforcement learning?

1

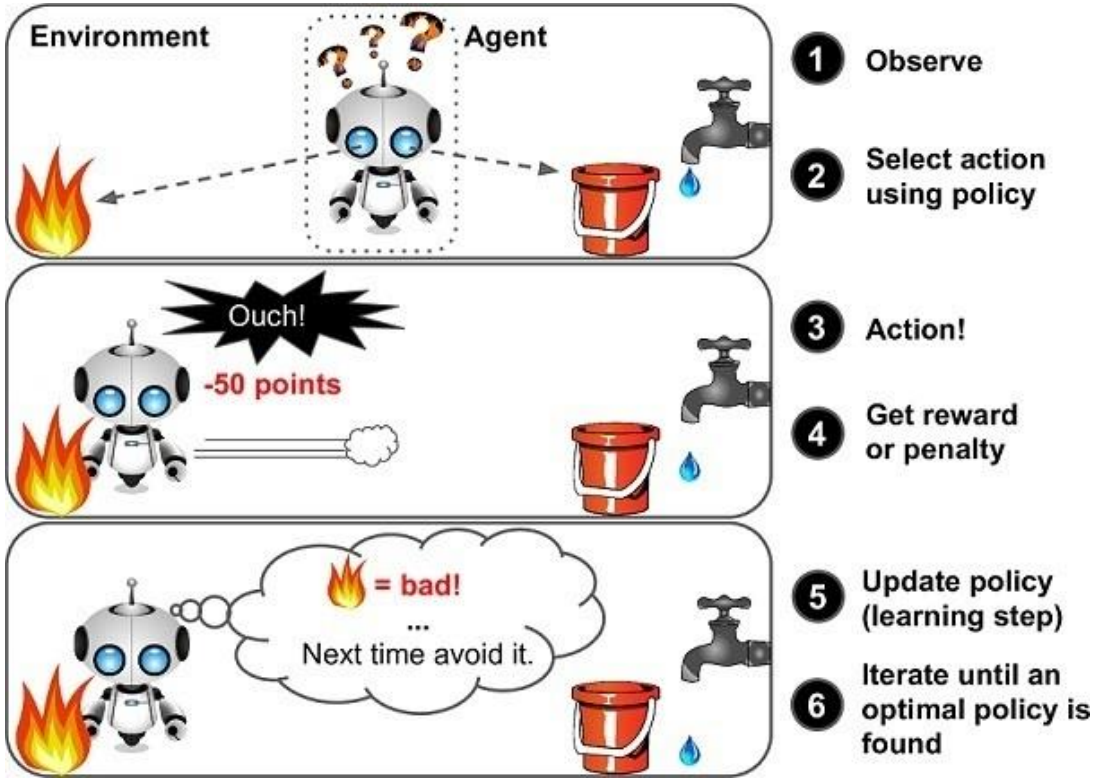
"Reinforcement learning is learning what to do, how to map situations to actions so as to maximize a reward signal."

2

"Reinforcement learning is a machine learning technique that involves an agent acting in an environment by choosing predefined actions with the goal of maximizing a numerical reward."



ML Type | Agent | Environment | States | Actions | Rewards | Policy



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Deep Learning

- Deep learning is a subset of machine learning, which is essentially a neural network with three or more layers. These neural networks attempt to simulate the behaviour of the human brain. And allowing it to “learn” from large amounts of data.

Source:

Reference

What AI can and can not do?

- Decide if a bulb is working or not by looking at it
- Sympathise with humans
- Differentiate between drawings of circles and rectangles
- Manage a workshop with various different machines
- Compare output value of electronic system to a target value
- Get a job in a multinational company
- Identify compatibility with a familiar machine among various parts
- Identify defective products coming out of an assembly line
- Run a social media account of its own

Some examples of things AI can not do:

Some examples of things AI can do:

Conclusion

We have completed this section and now we have understood about:

- Artificial Intelligence and it’s applications
- AI, ML, and DL
- Types of data in AI

- Artificial Intelligence, powered by Machine Learning and Deep Learning, is transforming the world as we know it. Its potential for revolutionizing industries, enhancing decision-making, and improving efficiency is immense.

Source :

www.freepik.com/

References

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Q&A
Let's Start

Quiz

1. What does the term "Machine Learning" refer to in the context of AI?

a) Machines that can think and reason like humans.
b) The ability of machines to understand natural language.
c) Algorithms and techniques that enable machines to learn from data.
d) The field of robotics and automation.

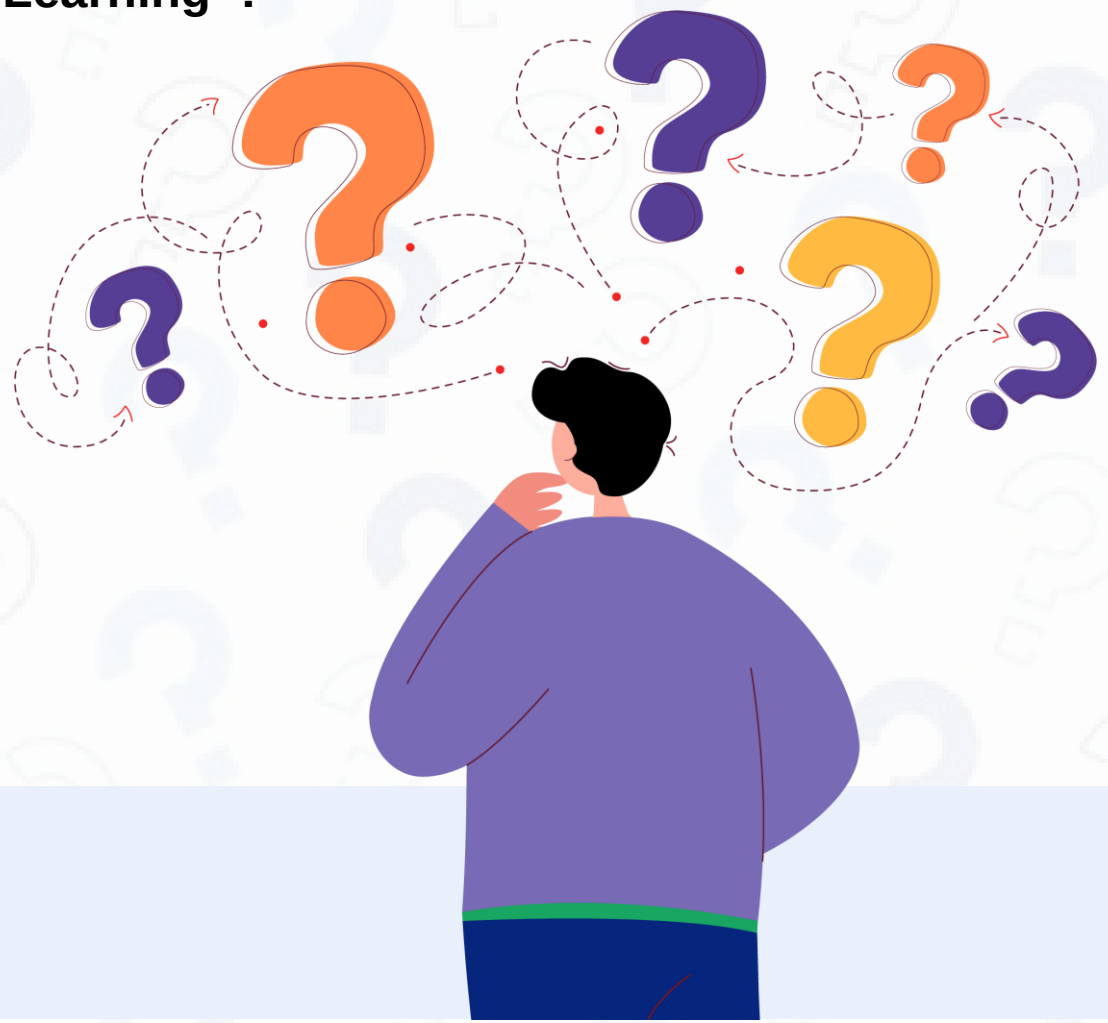
Answer: C

Algorithms and techniques that enable machines to learn from data

Quiz

2. Which of the following is an example of "Unsupervised Learning"?

a) Image classification.
b) Speech recognition.
c) Clustering similar customer profiles.
d) Playing a chess game.



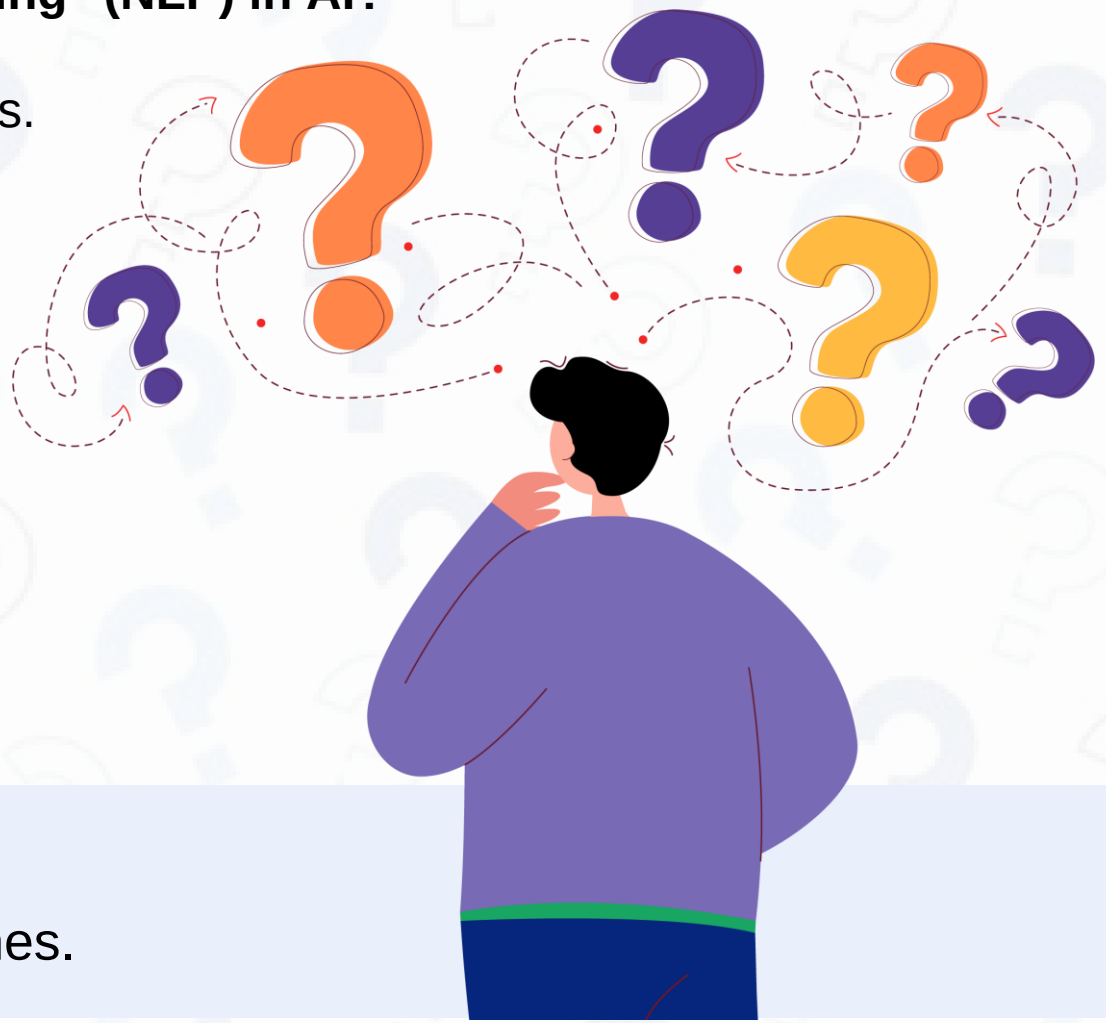
Answer: C

Clustering similar customer profiles.

Quiz

3. What is the primary goal of "Natural Language Processing" (NLP) in AI?

a) To understand and interpret human language by machines.
b) To create artificial languages for communication.
c) To perform complex mathematical calculations.
d) To develop chatbots for customer service.



Answer: A

To understand and interpret human language by machines.

Quiz

4. Which AI technique is often used for optimizing decision-making in complex, dynamic environments?

a) Supervised Learning
b) Reinforcement Learning
c) Unsupervised Learning
d) Deep Learning

Answer: B

Reinforcement Learning

Quiz

5. What does "AI Ethics" focus on?

a) Developing ethical robots.
b) Ensuring AI systems follow laws and regulations.
c) The moral and social implications of AI.
d) Enhancing AI's speed and accuracy.

Answer: C

The moral and social implications of AI.

Thank You