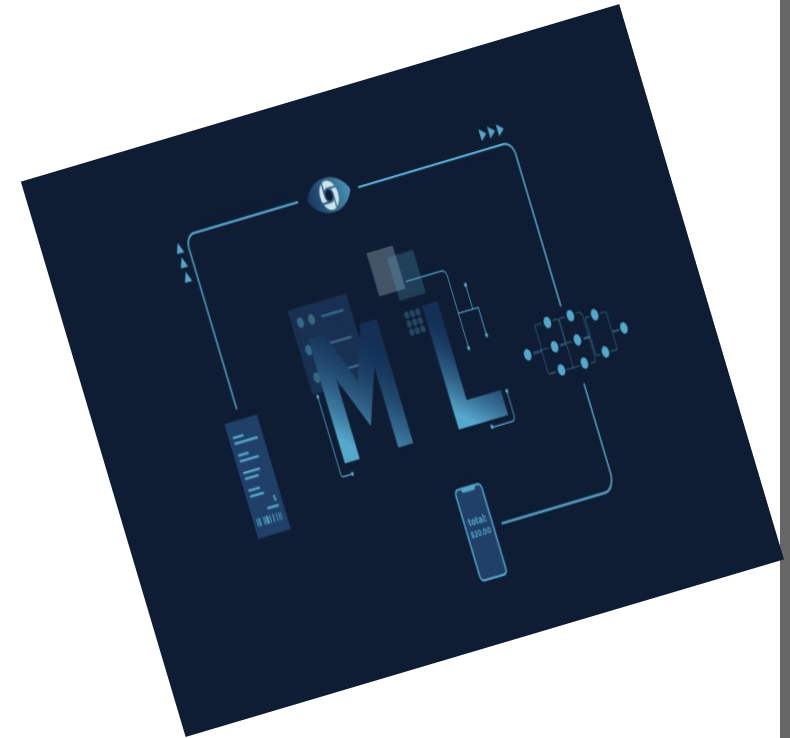


# Session details

- What is Machine Learning (ML) ?
- What does it (ML) do ?
- How does ML work ?
- Types of Machine Learning?
- Structure of a Biological Neuron



# What is Machine Learning?

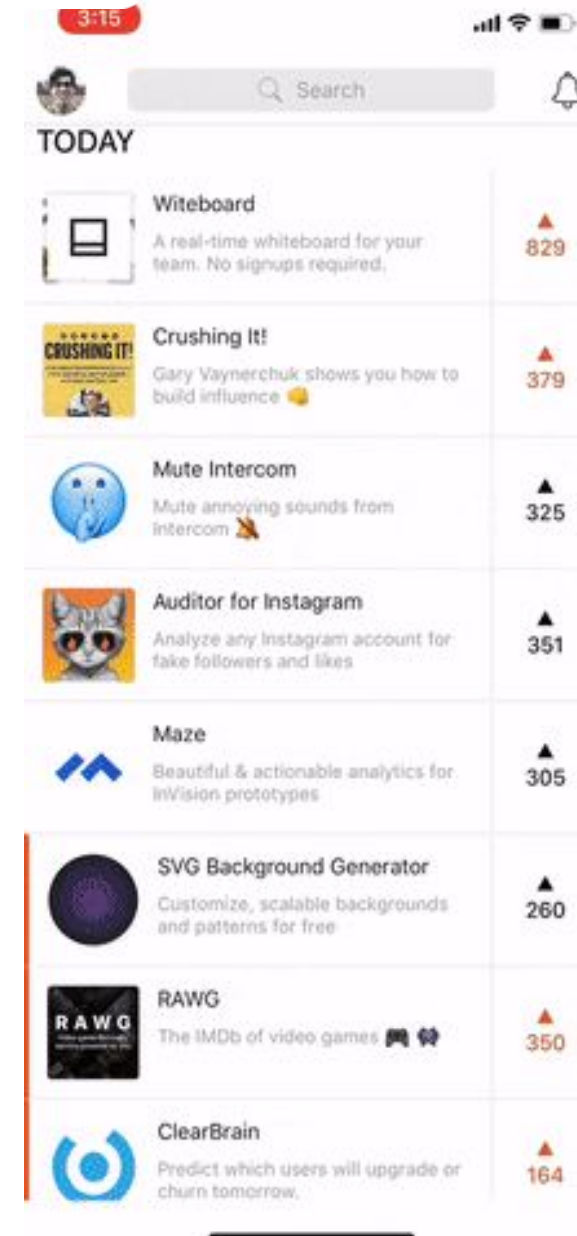
It is a Subset of Artificial Intelligence.









- Making machines to learn from the past data without being explicitly programmed.



# What does it (ML) do ?

Helps in making data driven decisions rather  
than being explicitly programmed.



| TODAY   |  |       |
|---|--|-------|
|    | <b>Witeboard</b><br>A real-time whiteboard for your team. No signups required.             | ▲ 829 |
|    | <b>Crushing It!</b><br>Gary Vaynerchuk shows you how to build influence 🍌                  | ▲ 379 |
|    | <b>Mute Intercom</b><br>Mute annoying sounds from Intercom 🗑️                              | ▲ 325 |
|    | <b>Auditor for Instagram</b><br>Analyze any Instagram account for fake followers and likes | ▲ 351 |
|    | <b>Maze</b><br>Beautiful & actionable analytics for InVision prototypes                    | ▲ 305 |
|   | <b>SVG Background Generator</b><br>Customize, scalable backgrounds and patterns for free   | ▲ 260 |
|  | <b>RAWG</b><br>The IMDb of video games 🎮 🏆   | ▲ 350 |
|  | <b>ClearBrain</b><br>Predict which users will upgrade or churn tomorrow.                   | ▲ 164 |



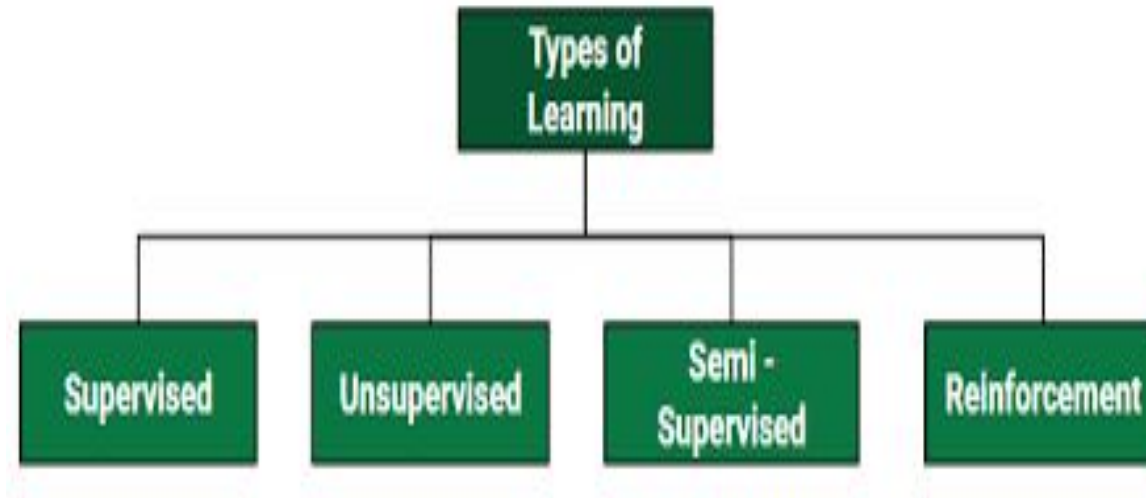
# How does ML works?



- A Machine Learning algorithm is trained using a trained data set to create a Model.
- When new input data is introduced into ML algorithm, it makes a prediction on the basis of the model.



# Types of Machine Learning



# Supervised Machine Learning

- The Algorithm consist of a target / outcome variable (dependent variable), which is to be predicted from a given set of predictors (independent variables).
- Examples: Decision Trees, Random forest, Logistic regression



# Unsupervised Learning








- In this algorithm, target / outcome variable is not used.
- It is used to cluster the datapoints based on its general properties.

Example : K-means , Apriori ALgorithm





# Supervised / Unsupervised




**Supervised Learning**



| Input   | Output Label |
|---|--------------|
|    | Dog          |
|    | Dog          |
|    | Cat          |
|    | Dog          |
|   | Cat          |
|  | Cat          |
|  | Dog          |

**Unsupervised Learning**

Input Data

© machinelearningknowledge.ai





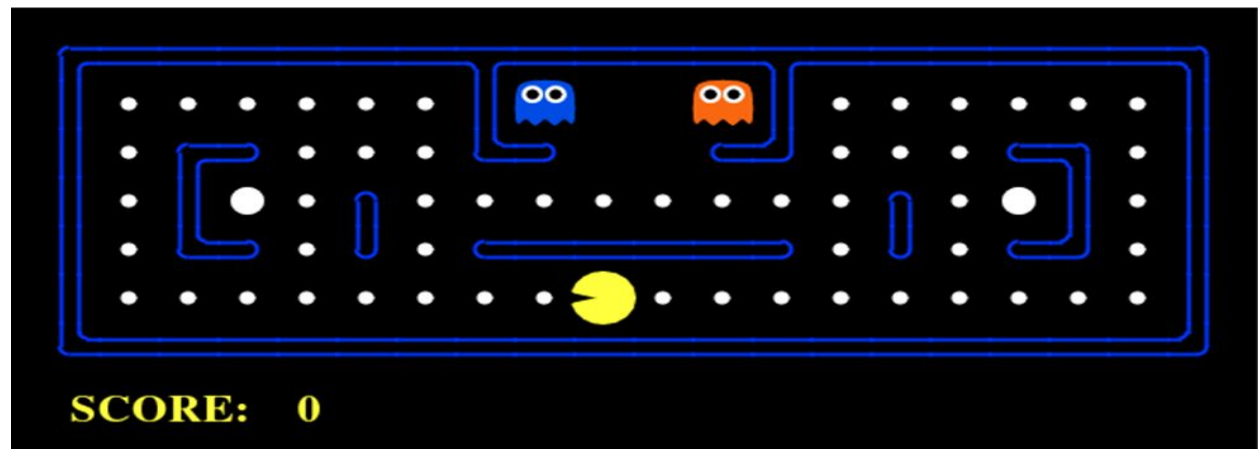
# Semi-supervised

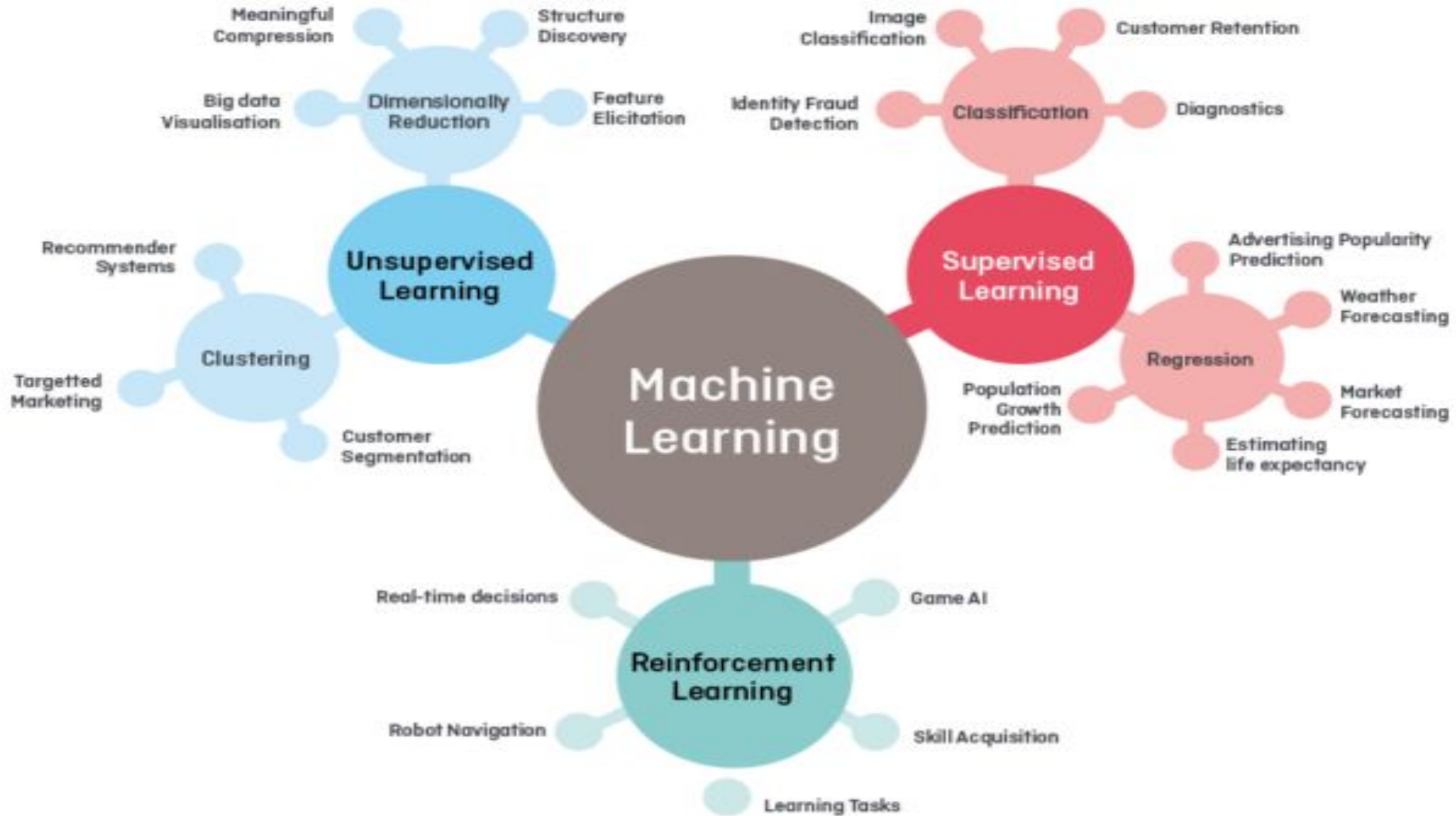
- Algorithm – Inputs ( Less labeled data, More Unlabeled data)
- Applications:
  - (i) Speech Analysis
  - (ii) Internet Content Classification



# Reinforcement Learning

In Reinforcement learning process, the Machine is exposed to a Learning environment where it trains itself continuously using trial and error.





# Building Blocks of a Neural Networks

## Neurons



# Structure of a Biological Neuron

- **The dendrites :**

It is a tree like structure that receives messages from other neurons.

- **The cell body :**

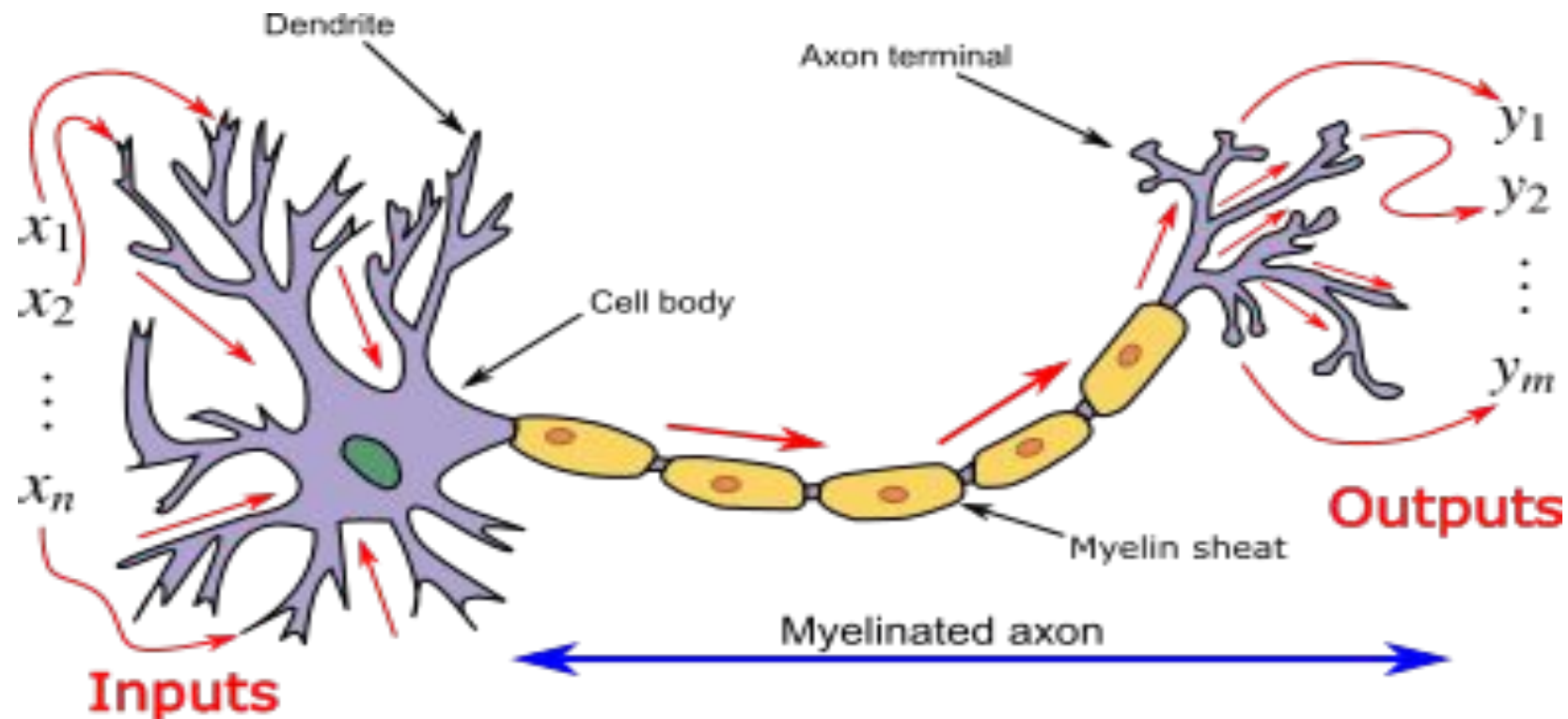
It is known as neuron's core. The cell body contains genetic Information which maintains neuron's structure and provides energy to drive activities.

- **The axon :**

A long slender projection that conducts electrical impulses away from the cell body.



# Structure of a Biological Neuron



Mathematical Modeling Contd...



**THANK YOU**

