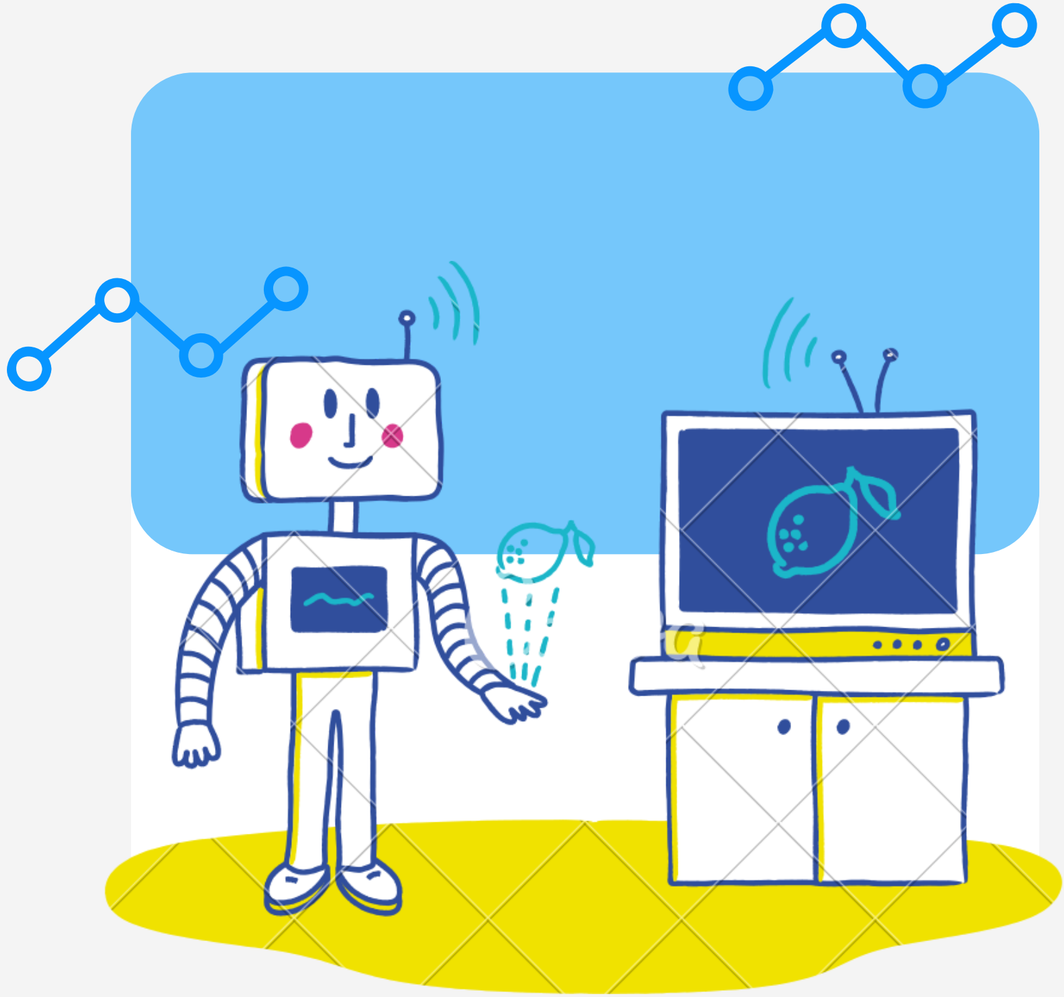
Intro to Artificial Intelligence



Plan :

- The Era of Data
- Types of Data
- What is Data Science ?
- What is AI ? AI Applications ?
- What is Machine Learning and it's Types ?
- What is Deep Learning ?
- Conclusion

The Era of Data

Data Collected

UserName : Jessica

Interest : Movies

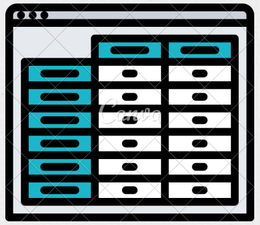
Favorite Movies : Harry Potter

The rise of the internet also gave a rise to digital data.

There two main Types of Data :

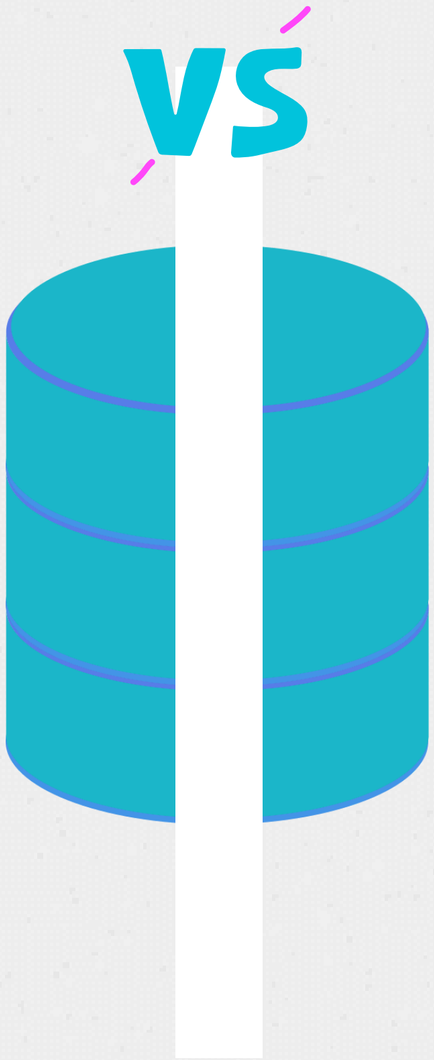
Structred Data :

Can be displayed in rows , spreadsheet , Relational Database.



Highly organized data that is easy to analyse.

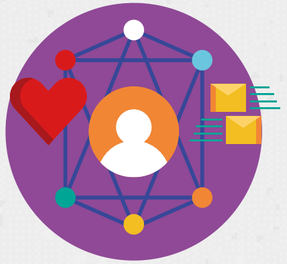
Examples : customer's phone numbers , names,zip codes.



Unstructred Data :

Cannot be displayed in rows , Relational Database.

Not organized data that is hard to collect and analyse.

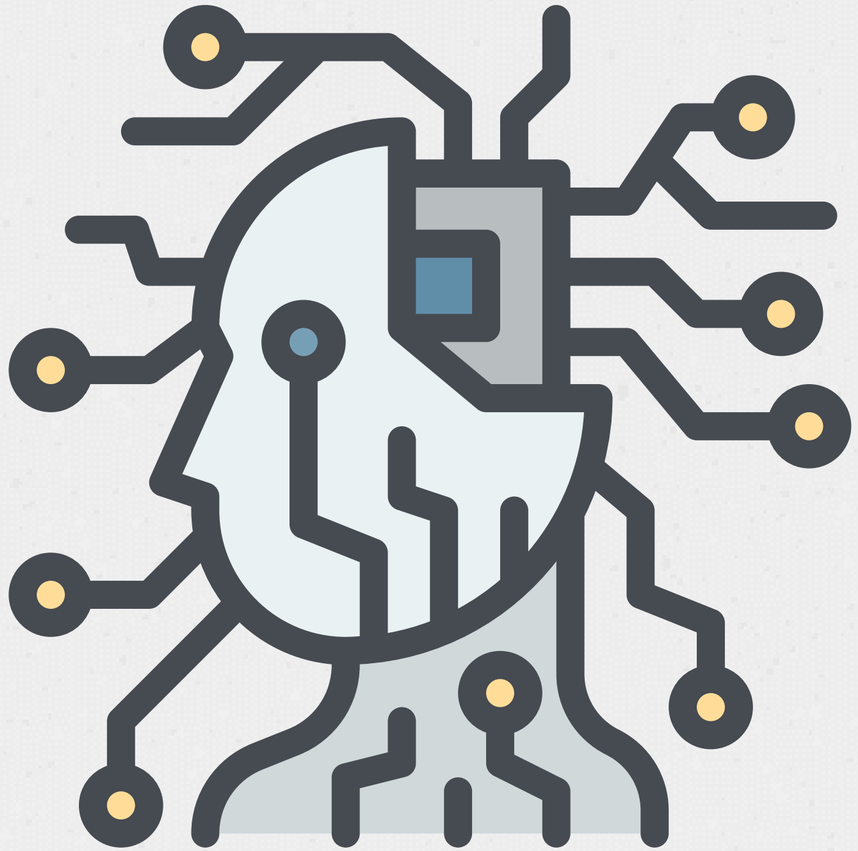


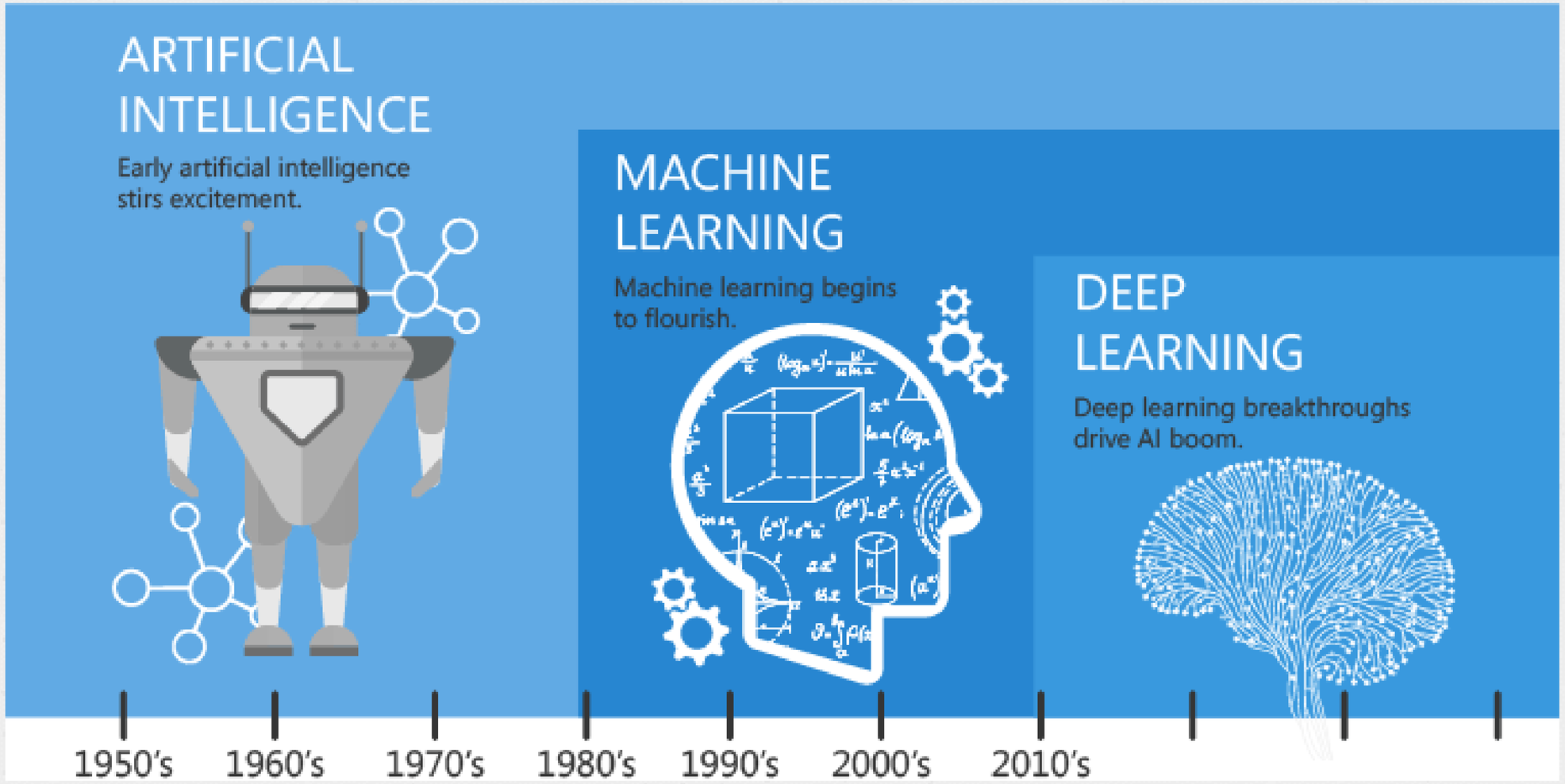
Examples : Emails , video files , images.

But How can Businesses derive something useful from these massive data sets ?

The rise of Artificial Intelligence

Artificial intelligence (AI) is the ability of a computer program or a machine to think and learn.



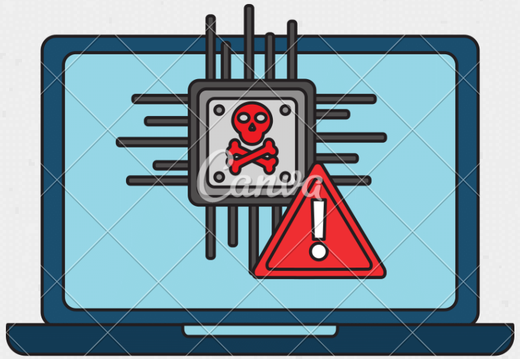

ARTIFICIAL INTELLIGENCE
Early artificial intelligence stirs excitement.
MACHINE LEARNING
Machine learning begins to flourish.
DEEP LEARNING
Deep learning breakthroughs drive AI boom.
1950's
1960's
1970's
1980's
1990's
2000's
2010's

There are different applications where we use AI

The finance industry:
Implementing automation, chatbots, trading with AI etc..

Healthcare industry :
Usage of AI to detect tumors , drug discovery ect..

Agriculture:
Applying AI as agriculture robotics, crop monitoring and predictive analysis.



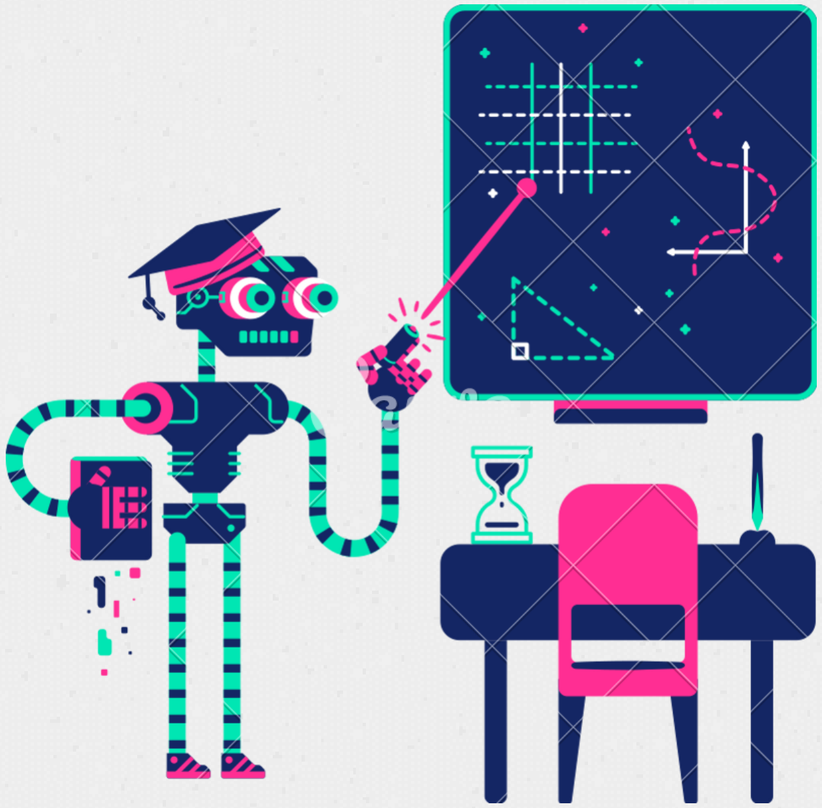
Cyber-security:
AI can be used to make your data more safe by detecting several cyber-attacks.

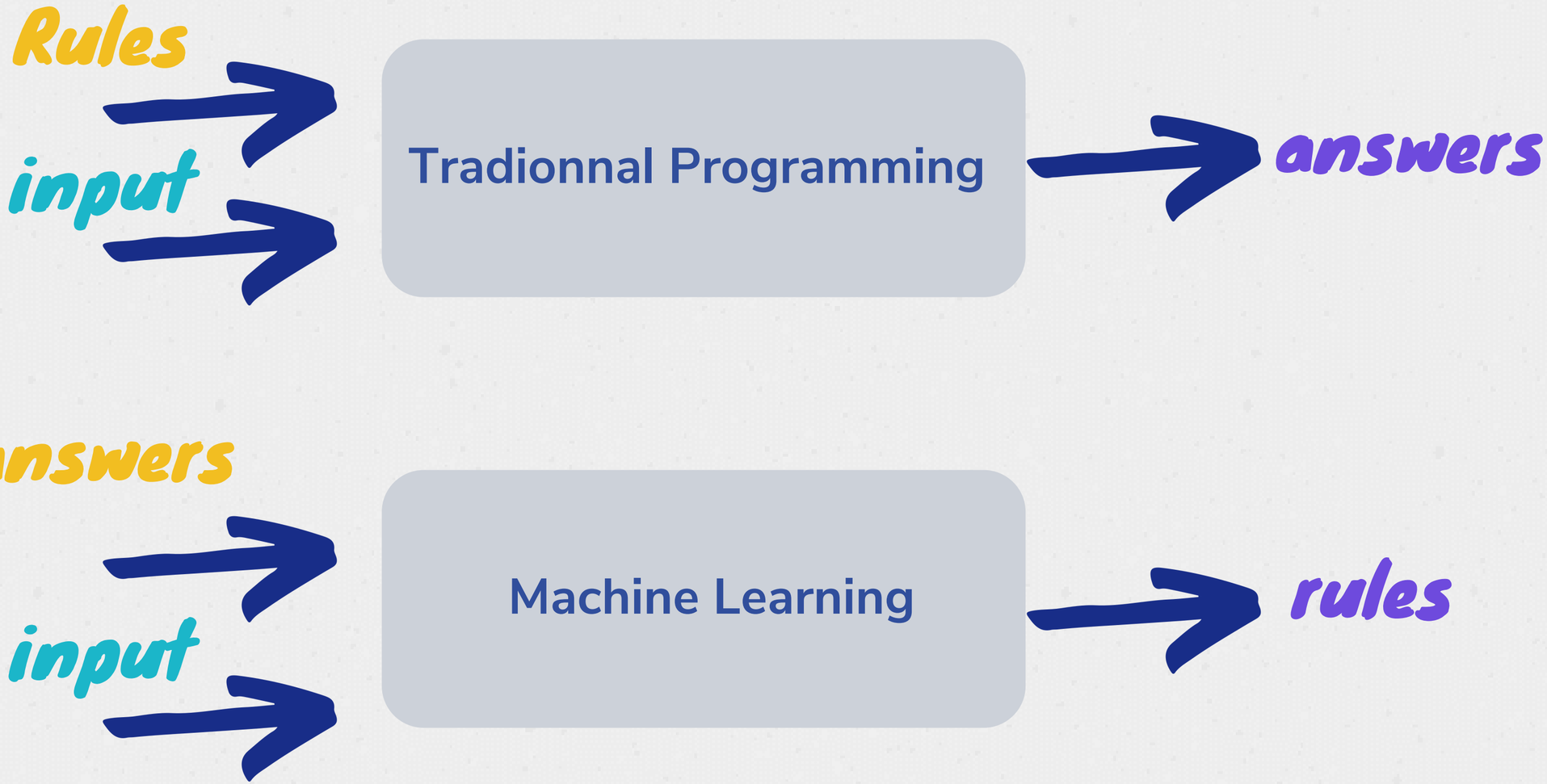
Travel related works:
From making travel arrangement to suggesting the hotels, flights, and best routes to the customers.

Automotive industries
Use AI to provide virtual assistant. Such as Tesla has introduced TeslaBot, an intelligent virtual assistant , self driving cars etc..

What is Machine Learning and it's types ?

The study and construction of programs that are not explicitly programmed, but learn patterns as they are exposed to more data over time.




Rules
input
Tradionnal Programming
answers
answers
input
Machine Learning
rules

Format of Data : Features and Target ?

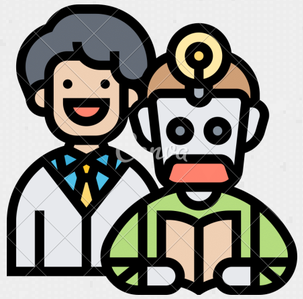
ID	Heart beat	Sex	Blood Pressure	Chest pain	Heart disease?
4328	79	M	120/80	4	Yes
5681	63	F	130/90	1	NO
7911	59	M	130/80	0	NO

ID column

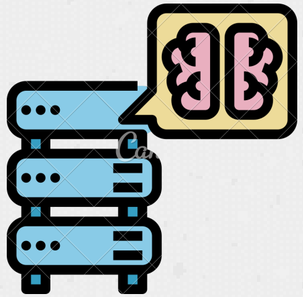
Feature variables

Target variables

Types of Machine Learning :

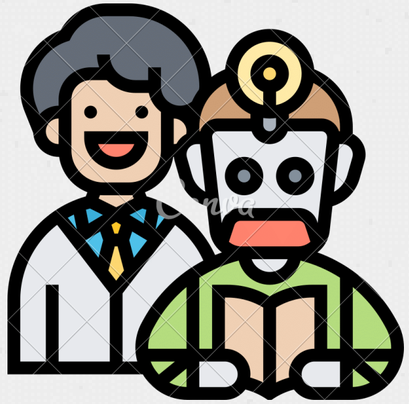


Supervised Learning



Unsupervised Learning

Reinforcement Learning

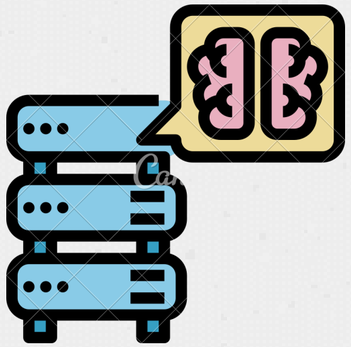


Supervised Learning :

Learn through examples of which we know the desired output.

Classification :
output is a discrete variable (spam/not spam ect..)

Regression :
output is a continuous variable (price , temperature ect..)

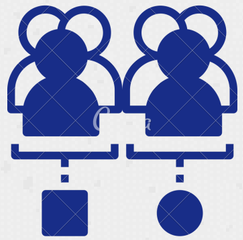


Unsupervised Learning :

There is no desired output we want to learn something about the data.

Clustering :

I have 30 customers and i want to put them into groups.

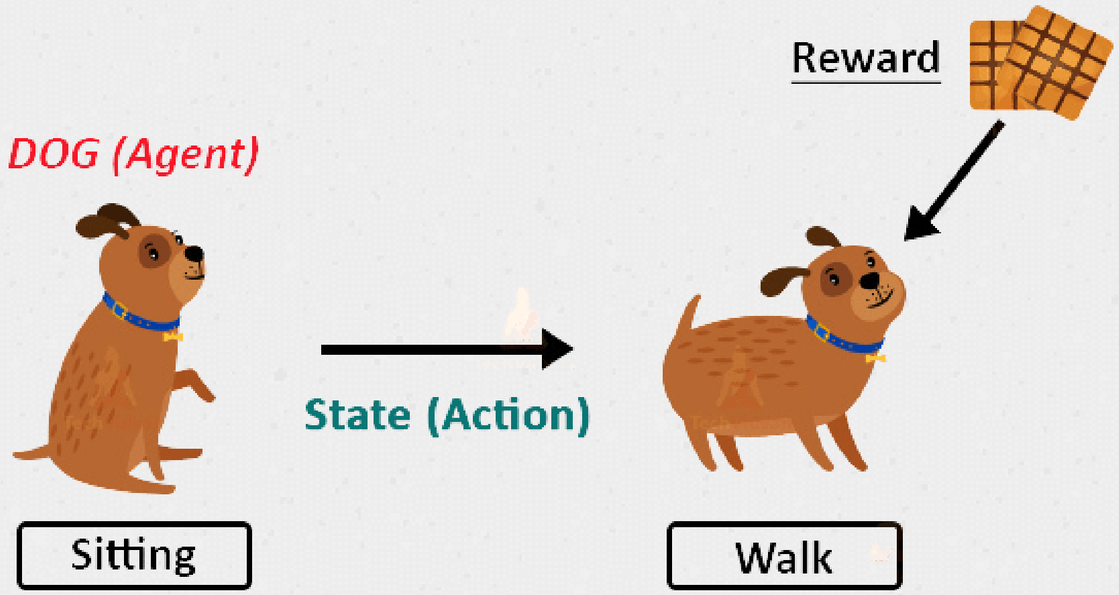


Reduce dimensionality :

Dimensionality reduction refers to techniques for reducing the number of features in data

Reinforcement Learning :

An agent interacts with an environment and watches the result of the interaction.
Environment gives feedback via a positive or negative reward signal.



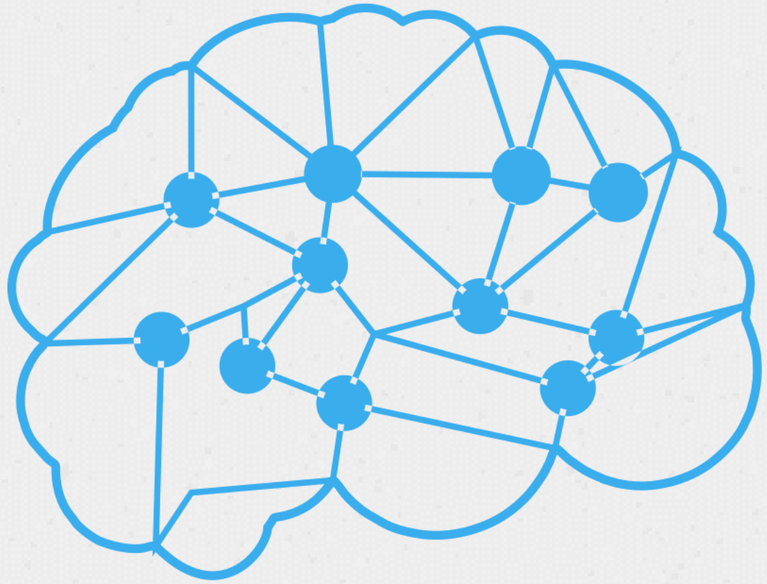
Machine Learning Limitation :

- Suppose you wanted to determine if an image is of a cat or a dog.
- What features would you use?

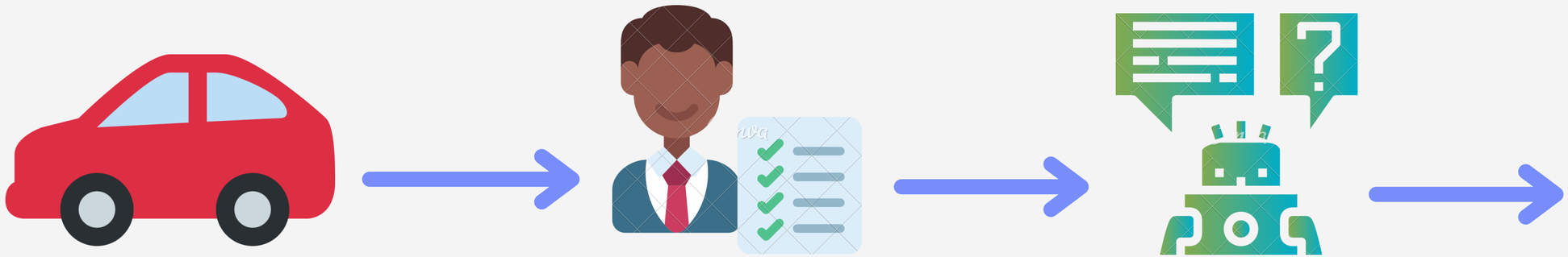
This is where **Deep Learning** can come in

What is Deep Learning ?

Deep Learning is a subfield of machine learning concerned with algorithms inspired by the structure and function of the brain called artificial neural networks.

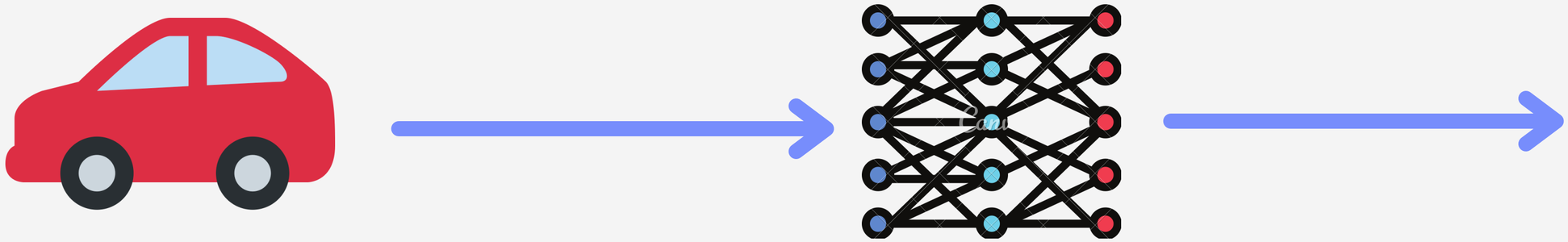


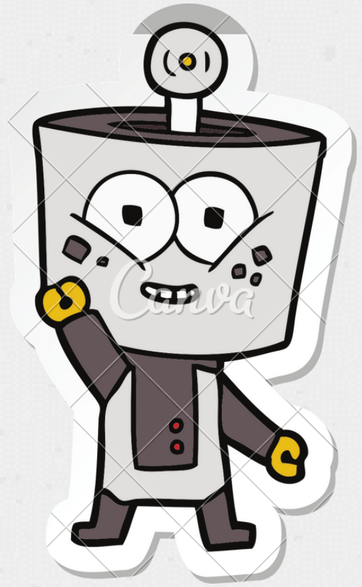
Machine Learning :



Input Features extraction Classification

Deep Learning :



Input Features extraction + classification

Thank you For Your Attention.