

Machine Learning Using Python



Agenda for Today's Session

01 Get a brief understanding of what exactly is Python

03 Learn and implement various data types in python

05 Understand how to define and call a function in python

Python Libraries

Flow Control

Webscraping Basics

HTML Basics

Demo: Scraping a Website

02 Learn about Keywords, Identifiers, Literals and Operators

04 Understand the flow of execution of a program

Machine Learning around YOU!



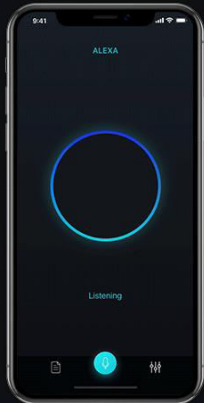
Machine Learning Around YOU!



Products Recommendation



Machine Learning Around YOU!



Amazon Alexa



Machine Learning Around YOU!

E L X

House of Cards

★★★★★ 2013 TV-MA 1 Season HD 5.1

Sharks gliding ominously beneath the surface of the water? They're a lot less menacing than this Congressman.



This winner of three Emmys, including Outstanding Directing for David Fincher, stars Kevin Spacey and Robin Wright.



Because you watched Orange Is the New Black



Because you watched Red Lights



Machine Learning Around YOU!



Google Traffic Prediction



Introduction to Machine Learning



Machine Learning Basics



What is Machine Learning?

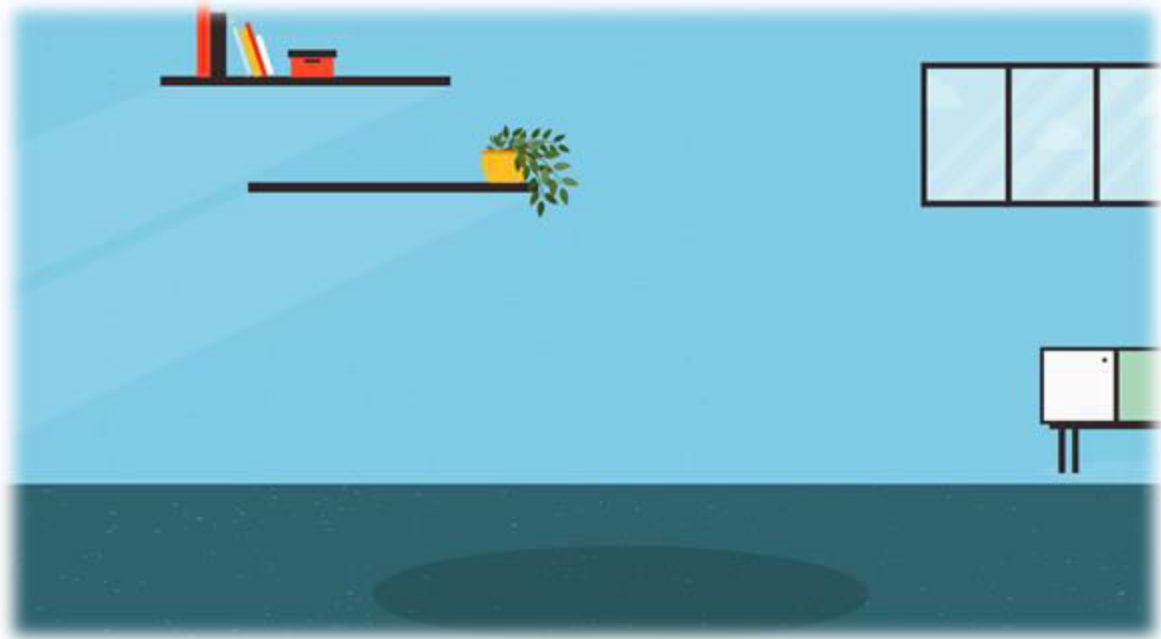
- Machine Learning is a subset of artificial intelligence which gives a machine the ability to learn without being explicitly programmed.
- Data is the key and the learning algorithm



Machine Learning Basics



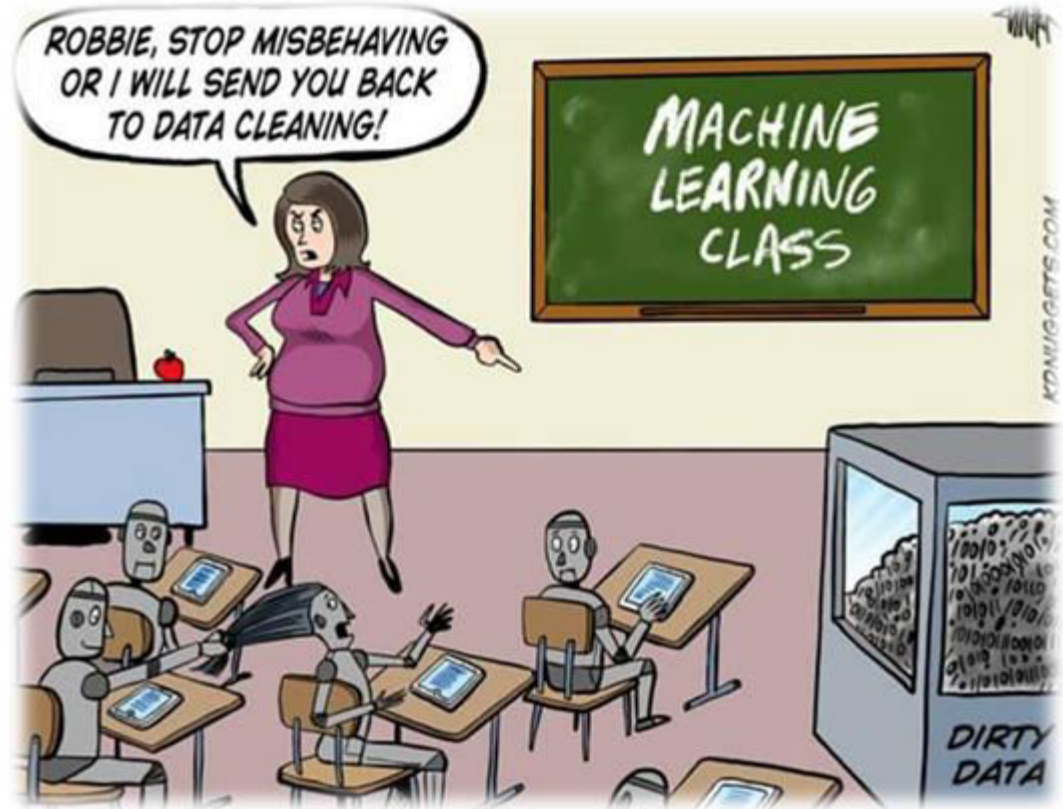
What is Machine Learning?



Machine Learning Basics



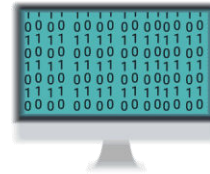
What is Machine Learning?



Machine Learning Basics



How does Machine Learn?



Machine Training & Testing



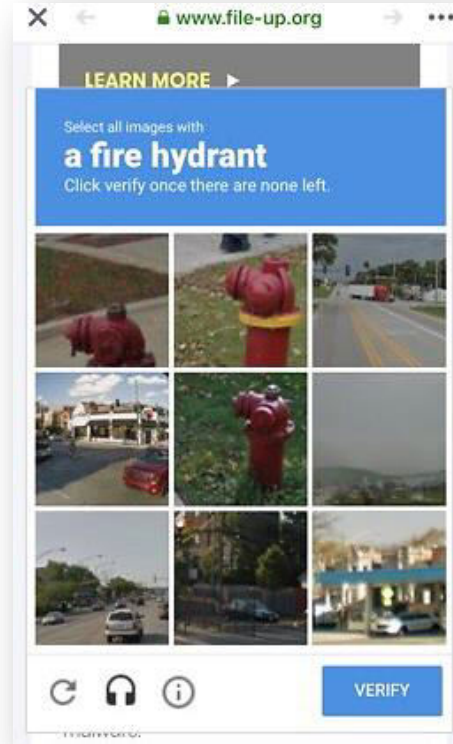
Machine works better with more data...



Machine Training & Testing



Who knows we are already training a machine...



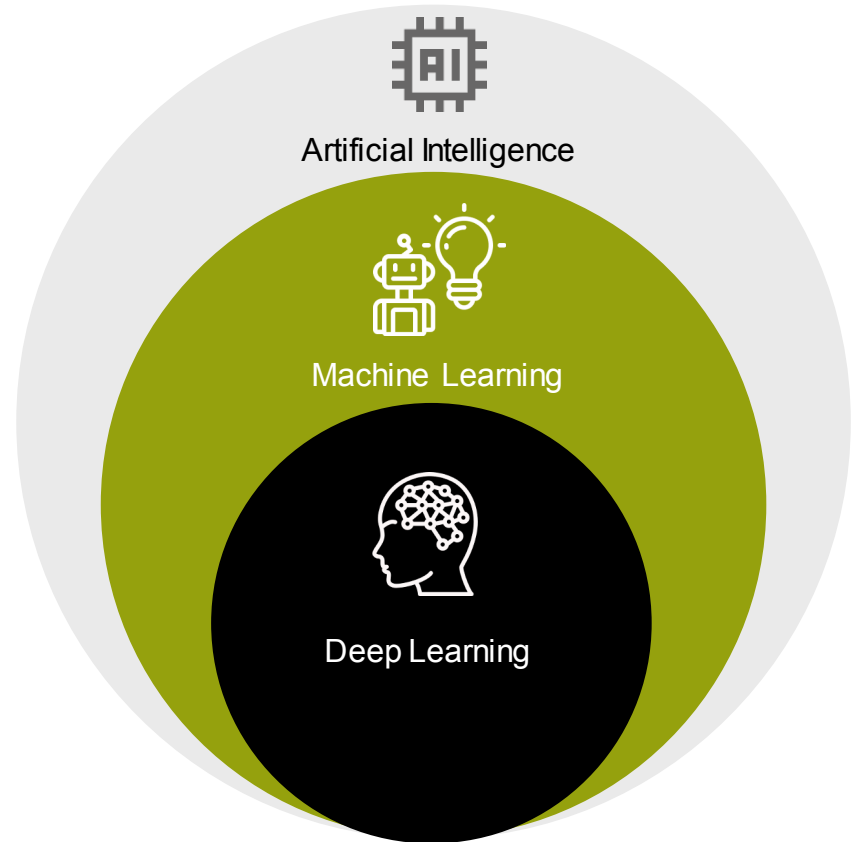
Machine Learning popular MYTH!



Machine Learning Myth 01



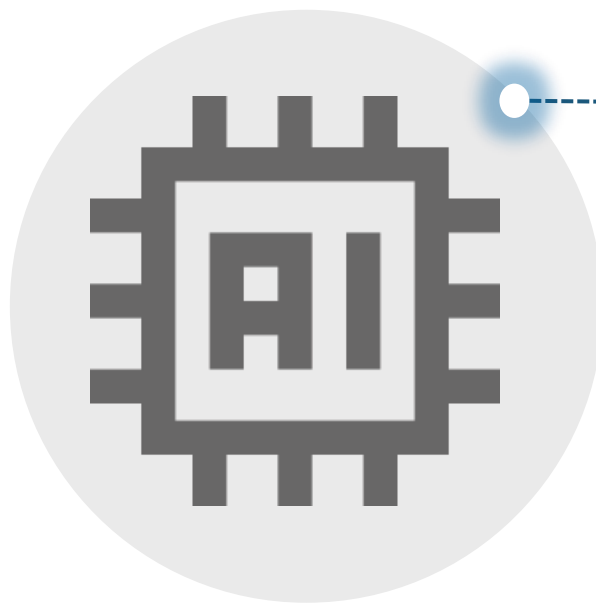
AI vs Machine Learning vs Deep Learning



Machine Learning Myth 01



AI vs Machine Learning vs Deep Learning



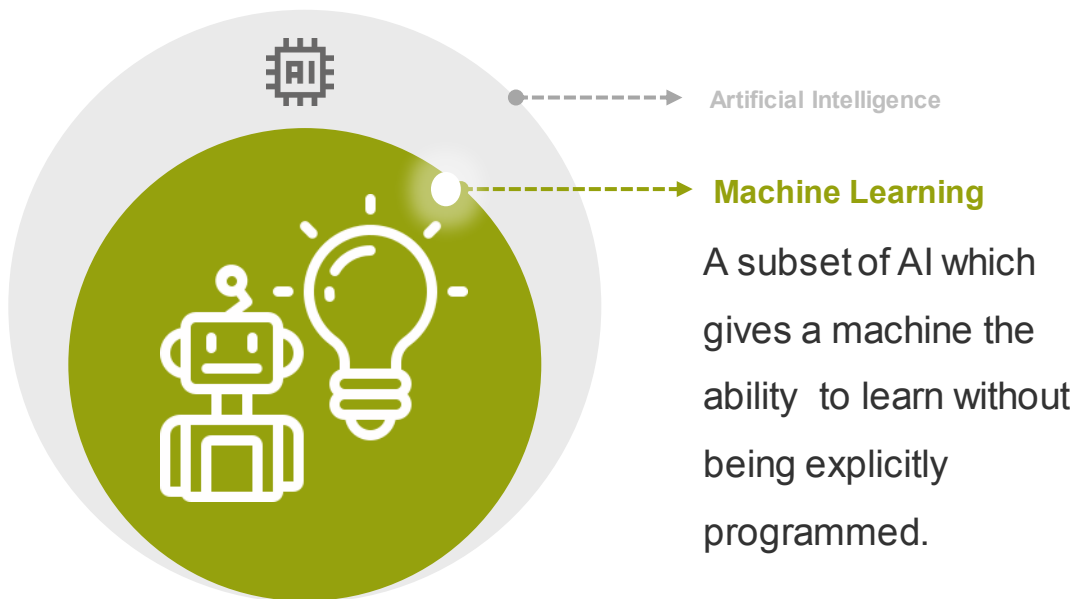
Artificial Intelligence

Area of computer science that emphasizes the creation of intelligent machines that work and react like humans

Machine Learning Myth 01



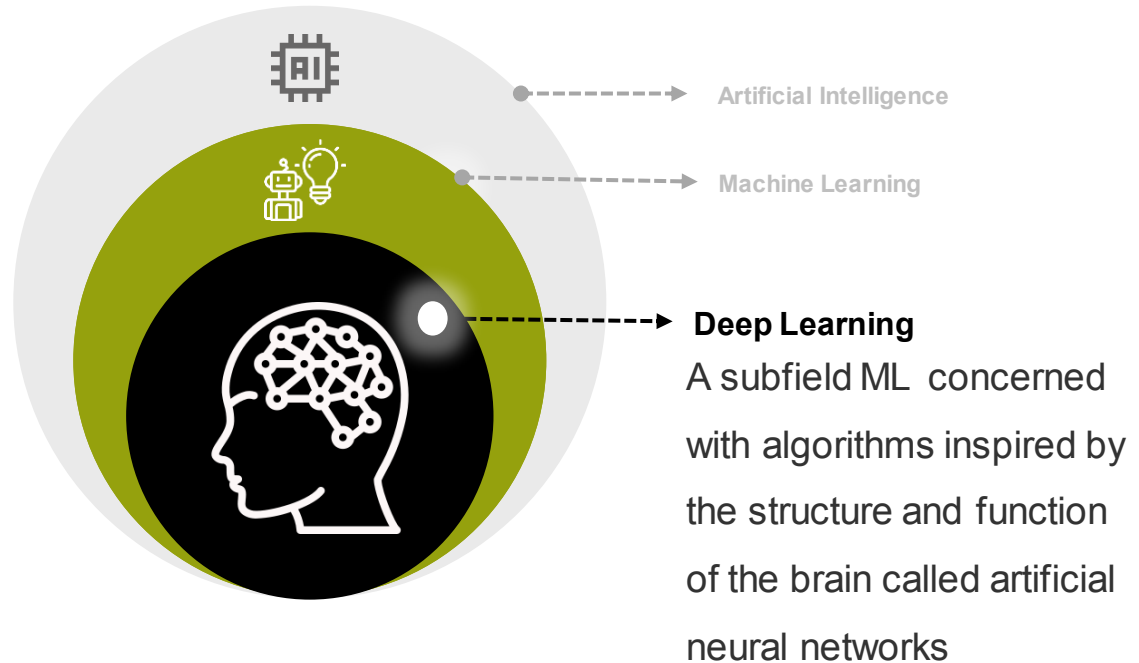
AI vs Machine Learning vs Deep Learning



Machine Learning Myth 01



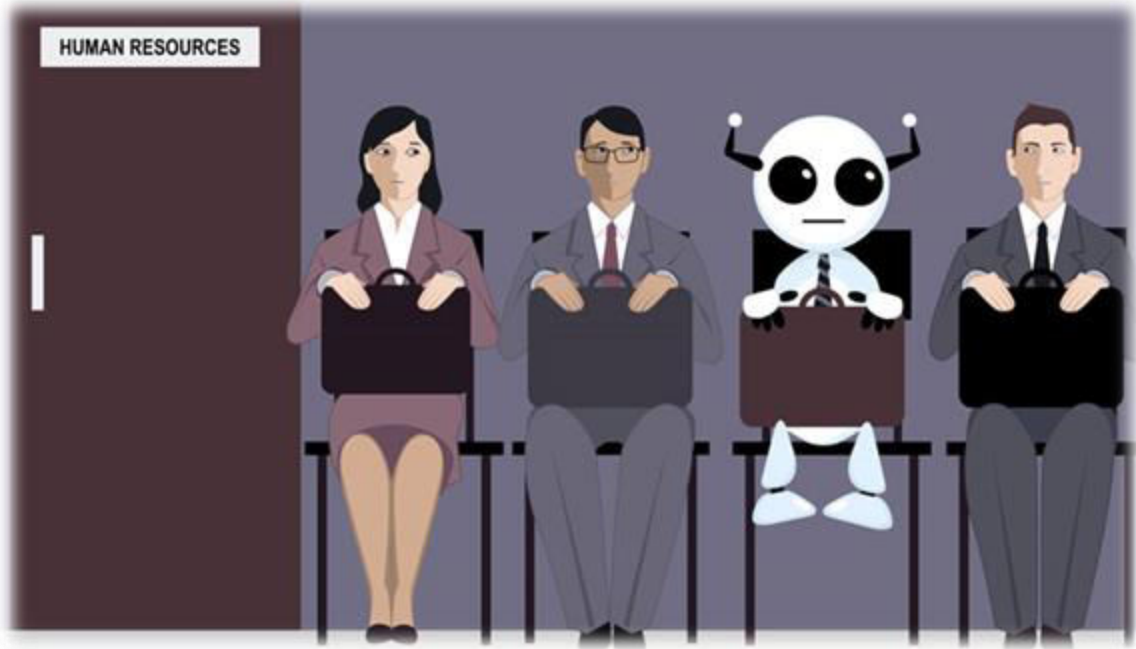
AI vs Machine Learning vs Deep Learning



Machine Learning Myth 02



Robots will take up our JOB!



Machine Learning Types

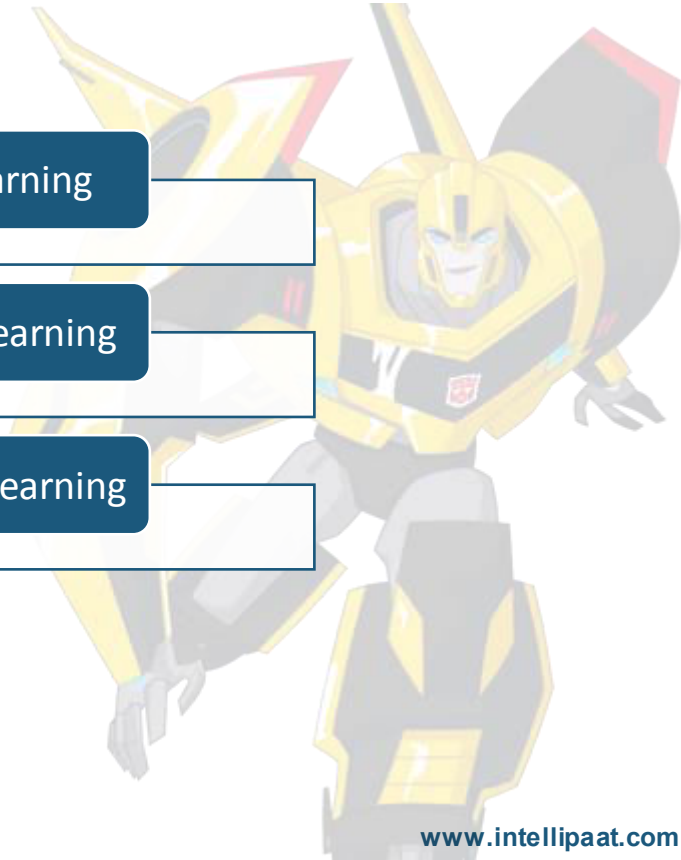


Types of Machine Learning

Supervised Learning

Unsupervised Learning

Reinforcement Learning



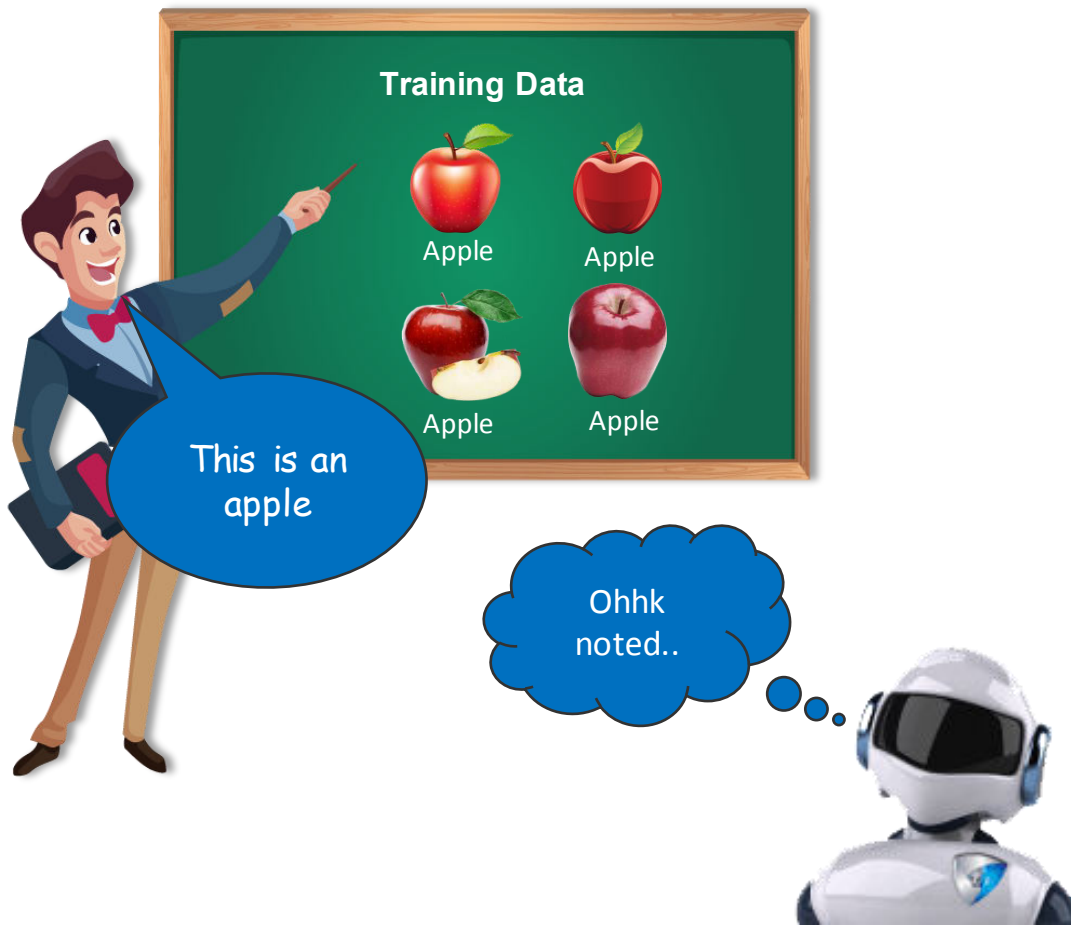
Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning

1. Supervised Learning



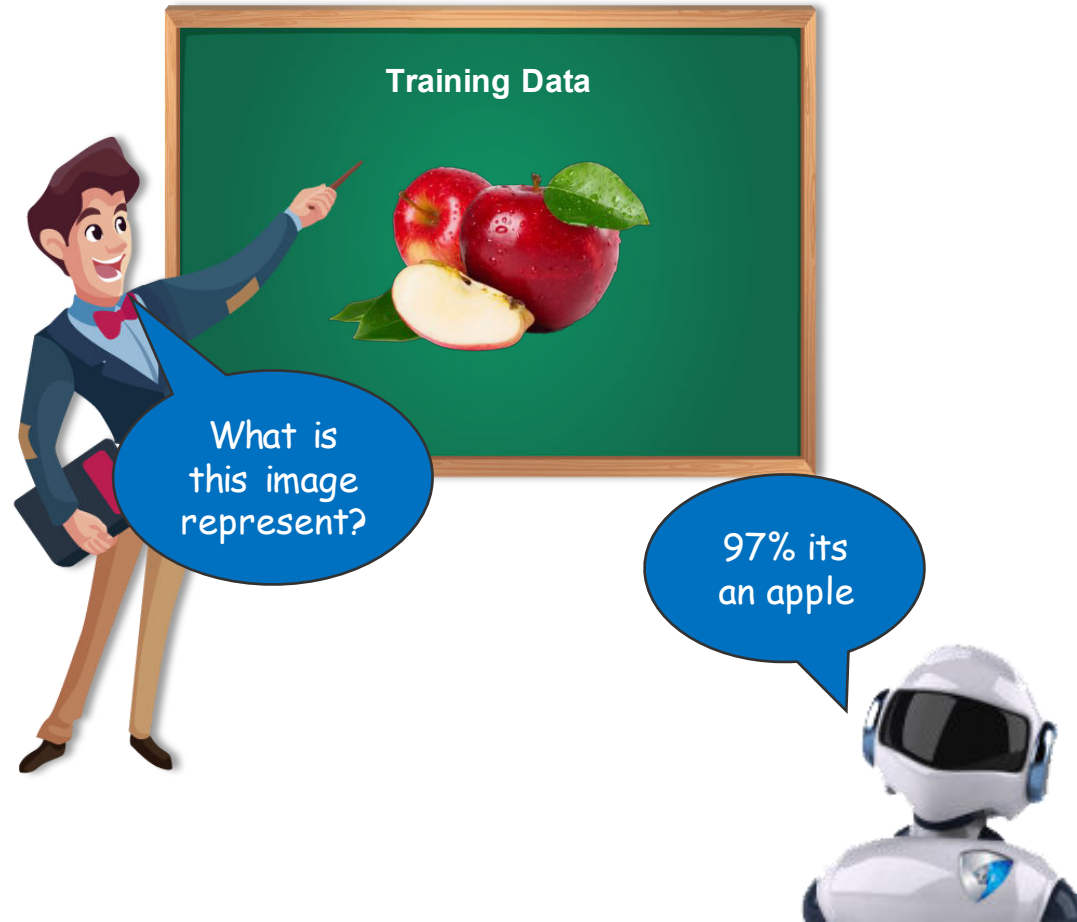
Machine Learning Types

Supervised Learning

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Reinforcement Learning

1. Supervised Learning

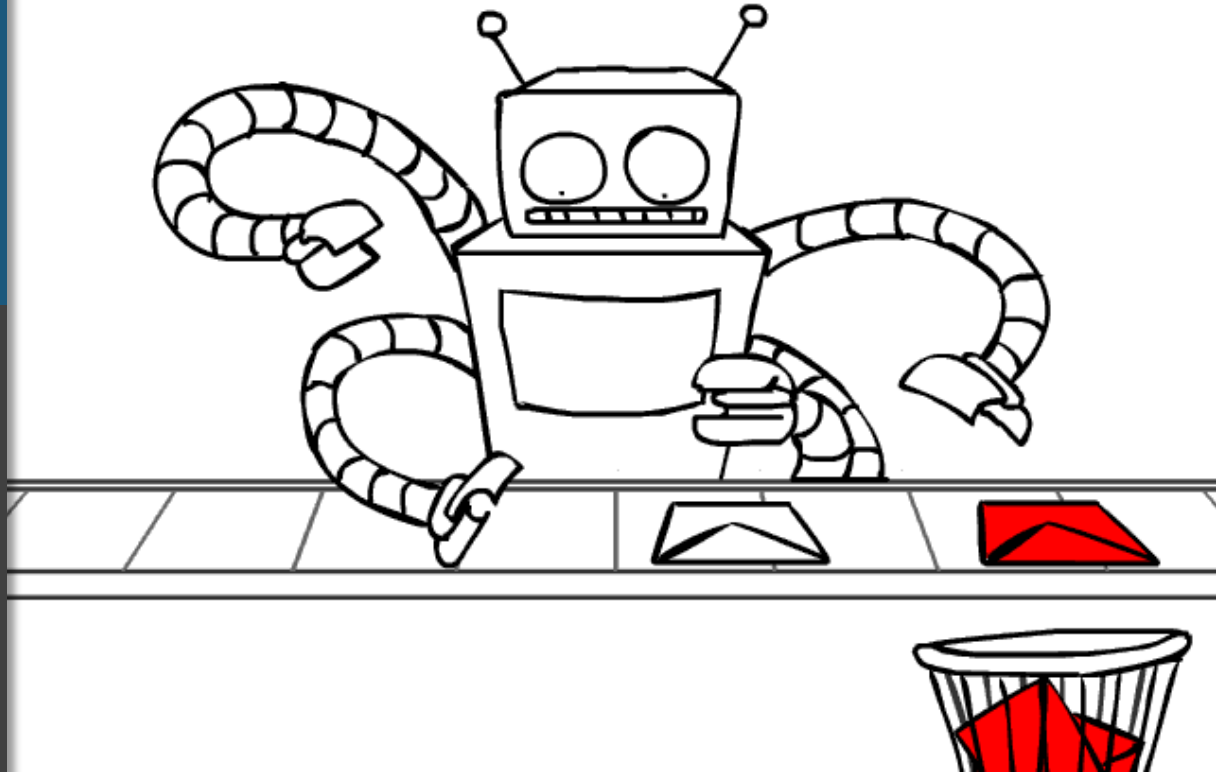


Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning



Use Case: Finger Print Analysis

Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning



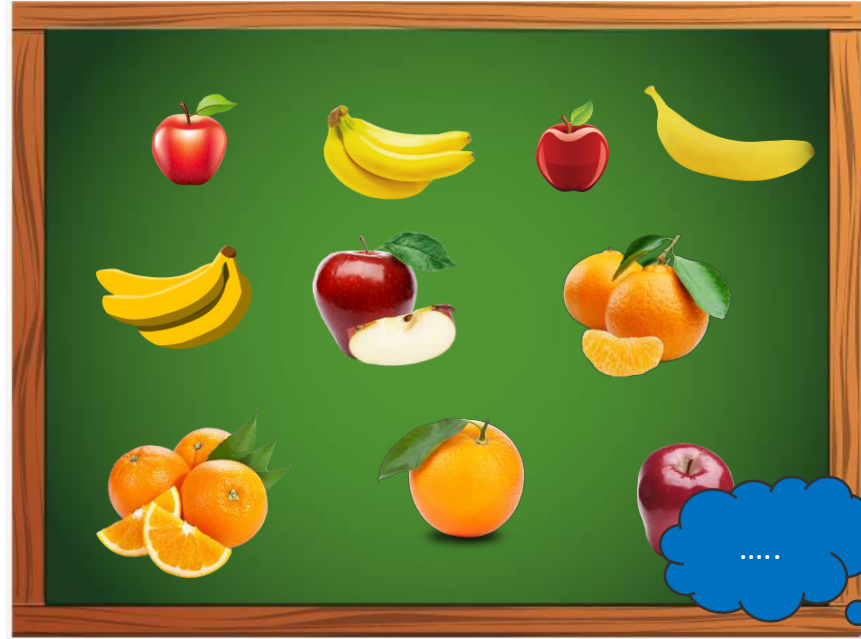
Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning

2. Unsupervised Learning



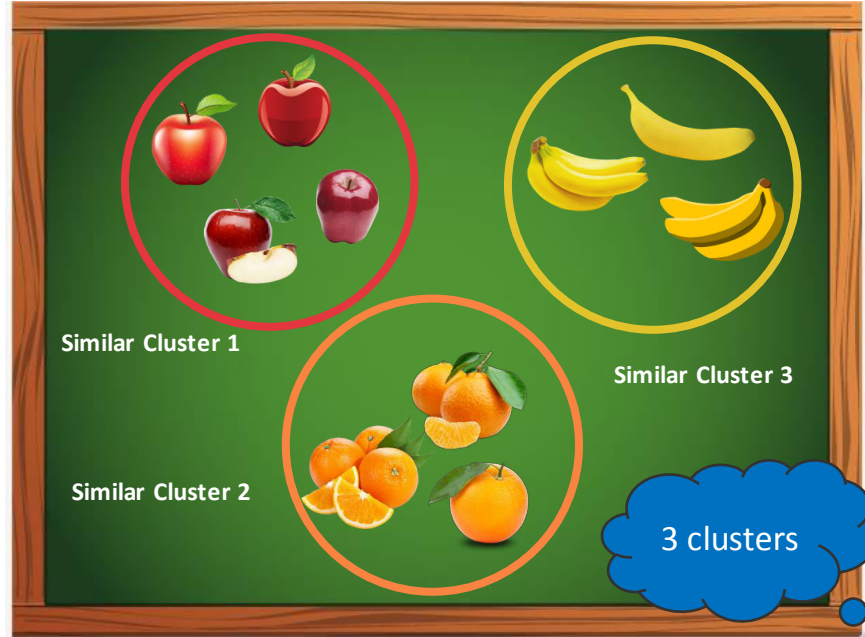
Machine Learning Types

Supervised Learning

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2. Unsupervised Learning



Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning

Use Case: Voice Based Personal Assistant

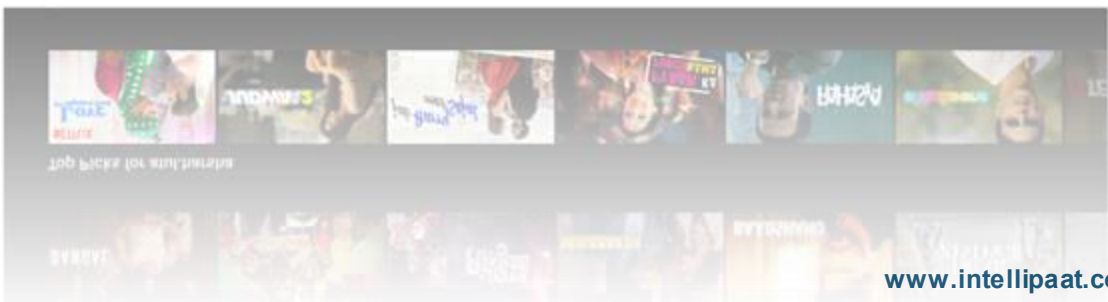
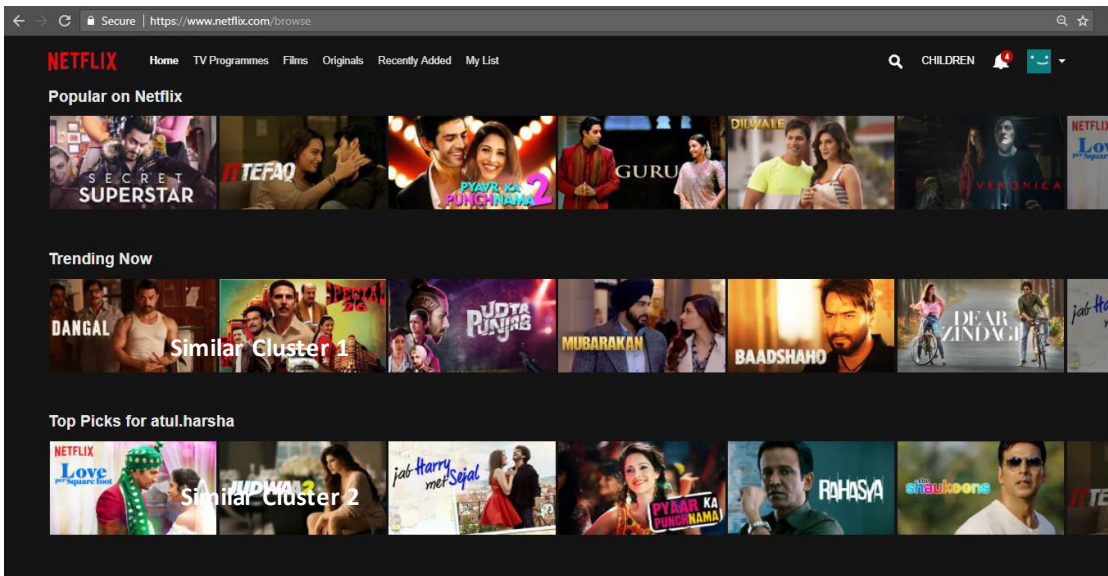
Machine Learning Types

Supervised Learning

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Reinforcement Learning

Use Case: Netflix Recommendation



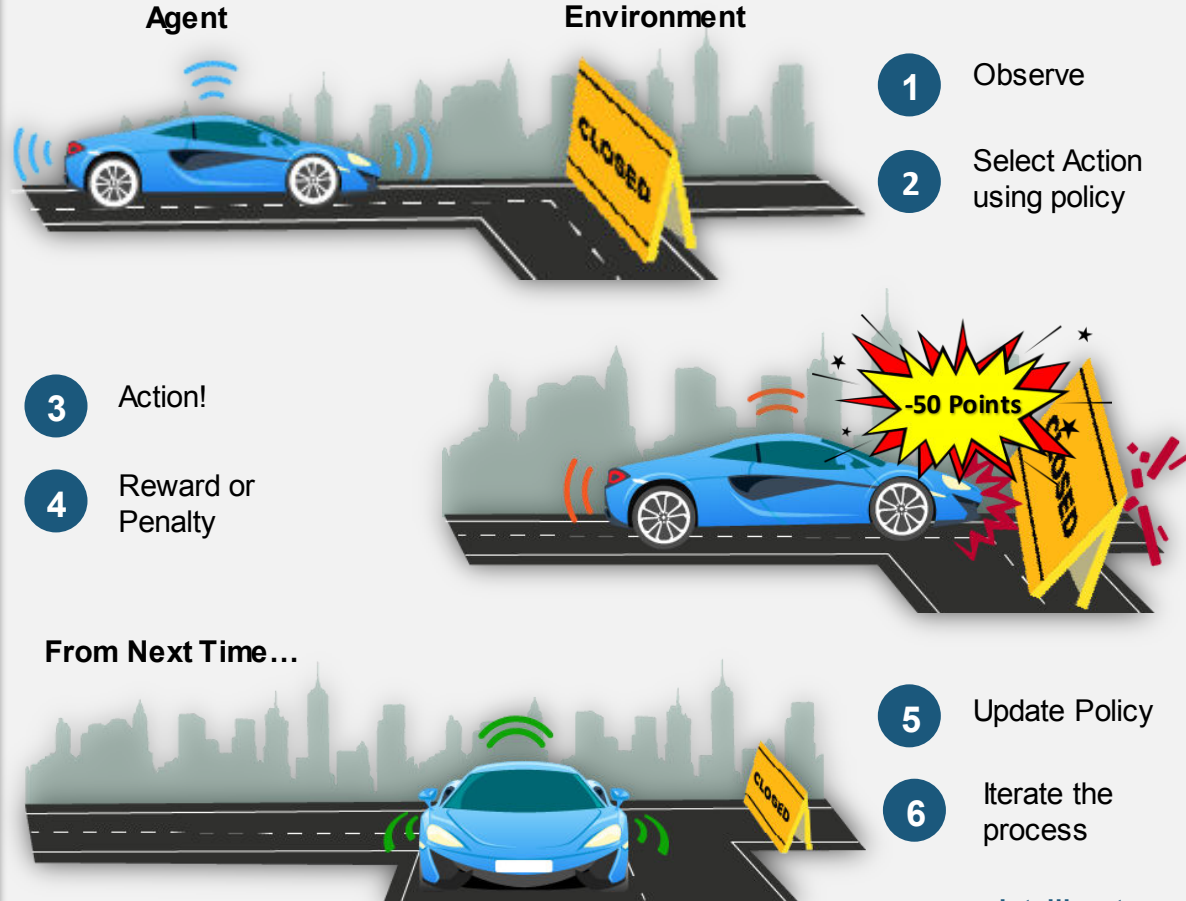
Machine Learning Types

Supervised Learning

Unsupervised Learning

Reinforcement Learning

3. Reinforcement Learning



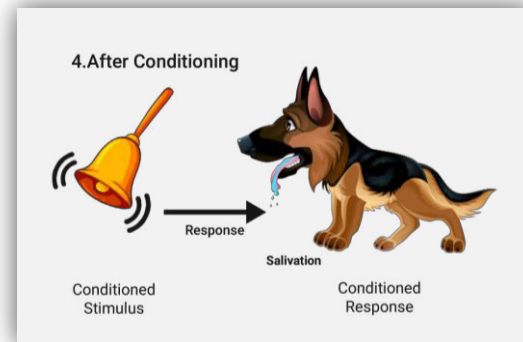
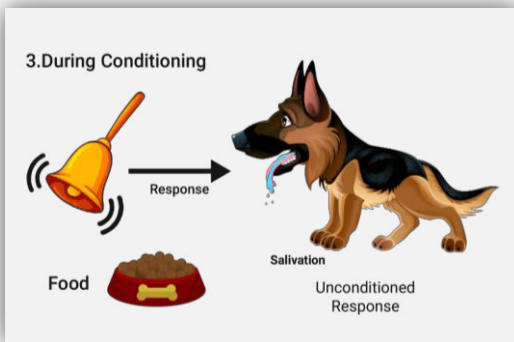
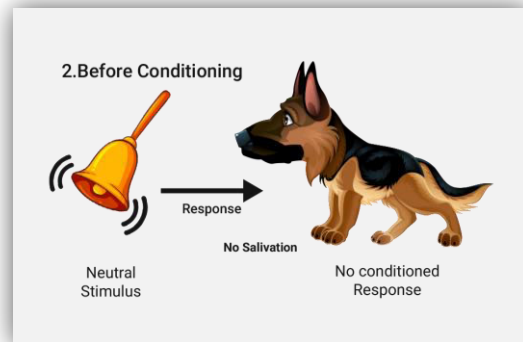
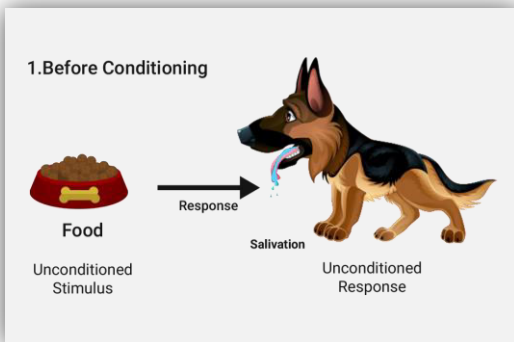
Machine Learning Types

Supervised Learning

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Reinforcement Learning

How Pavlov Trained his dog using Reinforcement Learning?



Use Case: Self Driving Cars

Machine Learning Types

Supervised Learning

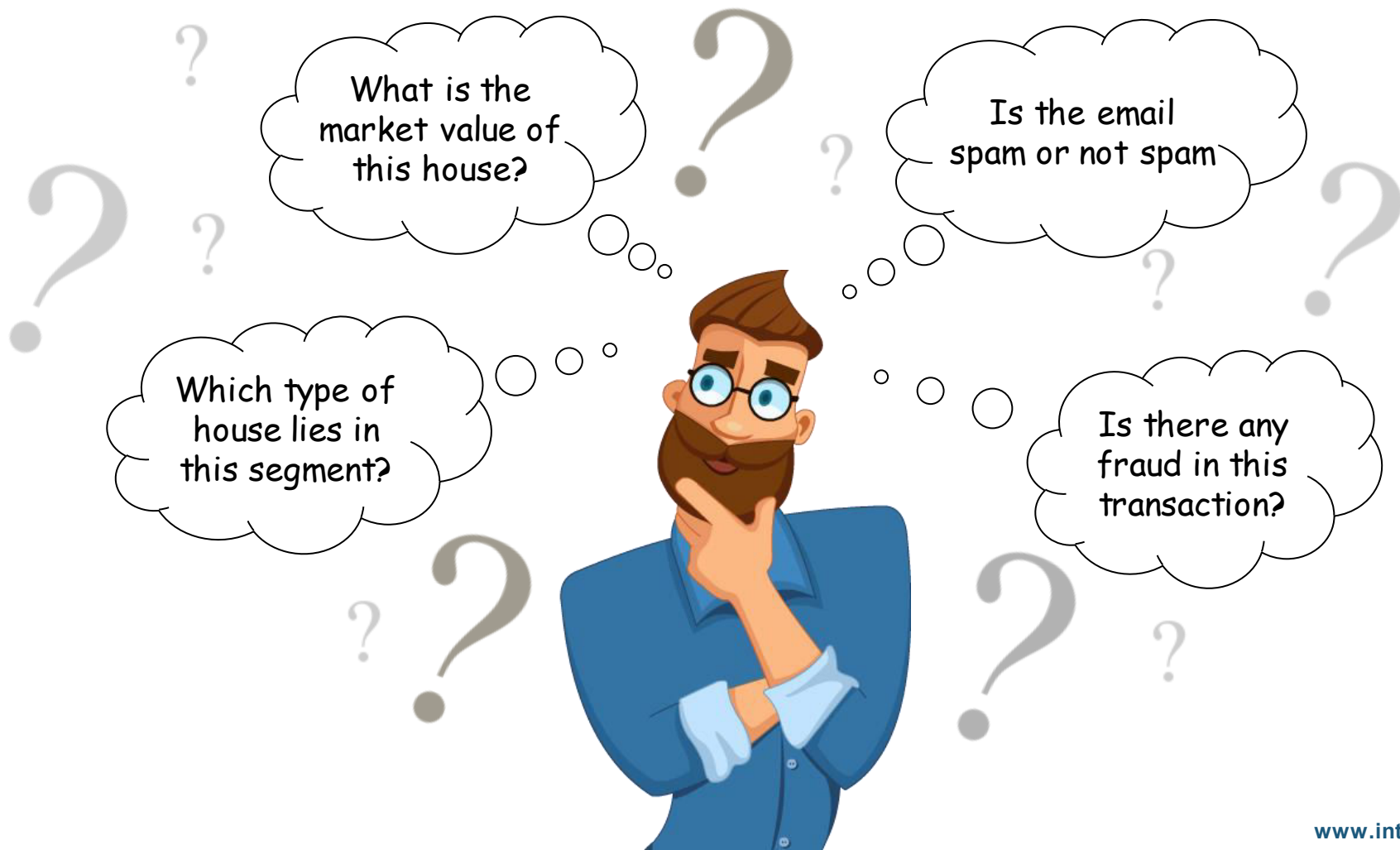
Unsupervised Learning

Reinforcement Learning



What you can do with Machine Learning?





What is the market value of this house?

Is the email spam or not spam

Which type of house lies in this segment?

Is there any fraud in this transaction?

Classification Algorithm

Category is predicted using
the data

- Is the person a male or a female?
- Is the mail spam or non-spam?

Anomaly Detection Algorithm

Identify unusual data points

- Is there any fraud in this transaction?
- Is someone trying to hack our network?

Clustering Algorithm

Groups data based on some
condition

- Which type of house lies in this segment?
- What type of customer buys this product?

Regression Algorithm

Groups data based on some
condition

- What is the market value of this house?
- Is it going to rain tomorrow?

Machine Learning For YOU



Cool Machine Learning Projects YOU can use!!

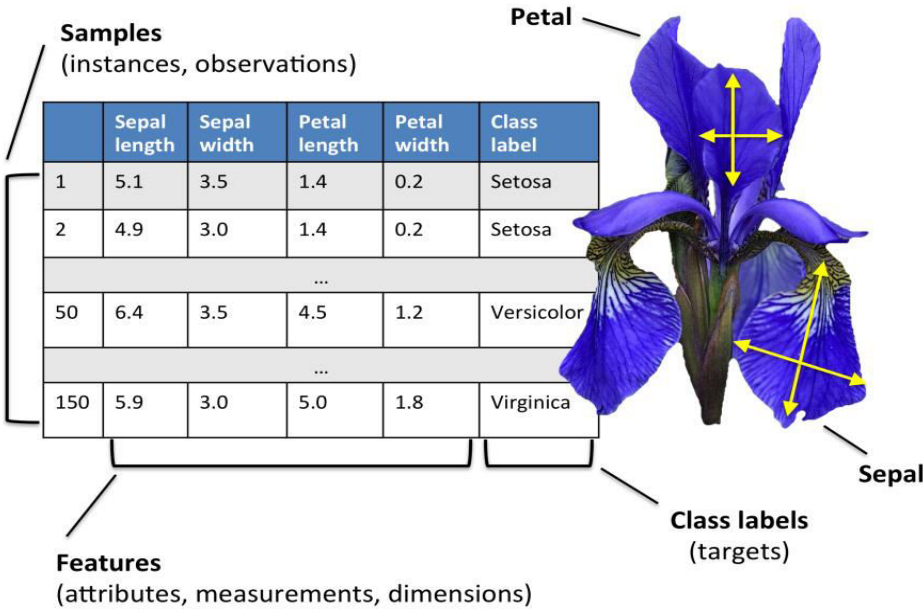
- <https://www.autodraw.com/>
- <https://quickdraw.withgoogle.com/>
- <https://opensource.google.com/projects/explore/machine-learning>
- <https://experiments.withgoogle.com/collection/ai>
- <https://toolbox.google.com/datasetsearch>

DEMO: ML using Python



IRIS Flower Dataset

DEMO: ML using Python



QUIZ

Quiz 1

Which of the following regression is best suited for dealing with categorical dependent variable?

A

Linear Regression

B

Multiple Linear Regression

C

Logistic Regression

D

Quantile Regression



Answer 1

Which of the following regression is best suited for dealing with categorical dependent variable?

A

Linear Regression

B

Multiple Linear Regression

C

Logistic Regression

D

Quantile Regression



Quiz 2

Which of the following methods do we use to find the best fit line for data in Linear Regression?

A

Least Square Error

B

Maximum Likelihood

C

Logarithmic Loss

D

Both a and b



Answer 2

Which of the following methods do we use to find the best fit line for data in Linear Regression?

A

Least Square Error

B

Maximum Likelihood

C

Logarithmic Loss

D

Both a and b



Quiz 3

Which of the following methods do we use to best fit the data in Logistic Regression?

A

Least Square Error

B

Maximum Likelihood

C

Jaccard distance

D

Both a and b



Answer 3

Which of the following methods do we use to best fit the data in Logistic Regression?

A

Least Square Error

B

Maximum Likelihood

C

Jaccard distance

D

Both a and b



Quiz 4

Which of the following is true?

A

Probability and odds are same.

B

Odds and odds ratio are not same.

C

Probability and odds are not same.

D

Both b and c



Answer 4

Which of the following is true?

A

Probability and odds are same.

B

Odds and odds ratio are not same.

C

Probability and odds are not same.

D

Both b and c



Quiz 5

Amazon Product Recommendation uses which of the following machine learning technique?

A

Supervised Machine Learning

B

Unsupervised Machine Learning

C

None



Answer 5

Amazon Product Recommendation uses which of the following machine learning technique?

A

Supervised Machine Learning

B

Unsupervised Machine Learning

C

None



Thank
You



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