Introduction to ML/AI

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Welcome!

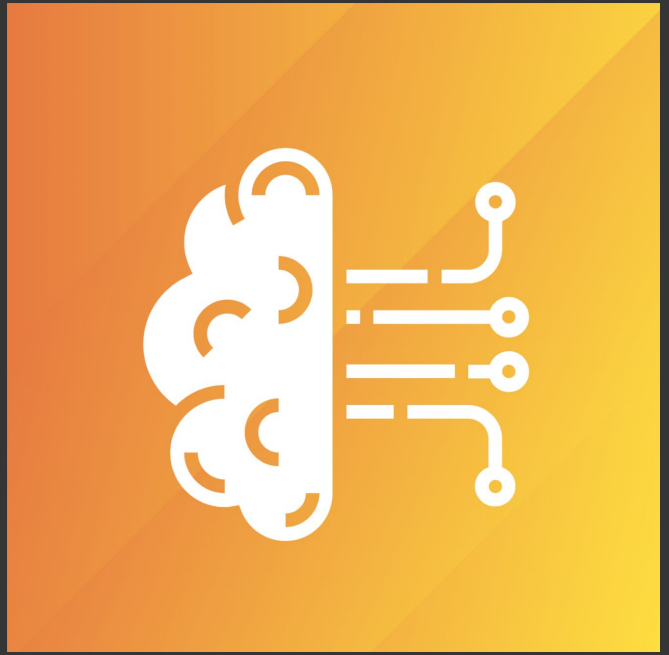
To the world of Machine Learning!

Topics we will cover today:

1. **Python Basics**
2. **Numpy**
3. **Matplotlib**
4. **Face Detection (OpenCV)**
5. **KNN Algorithm**

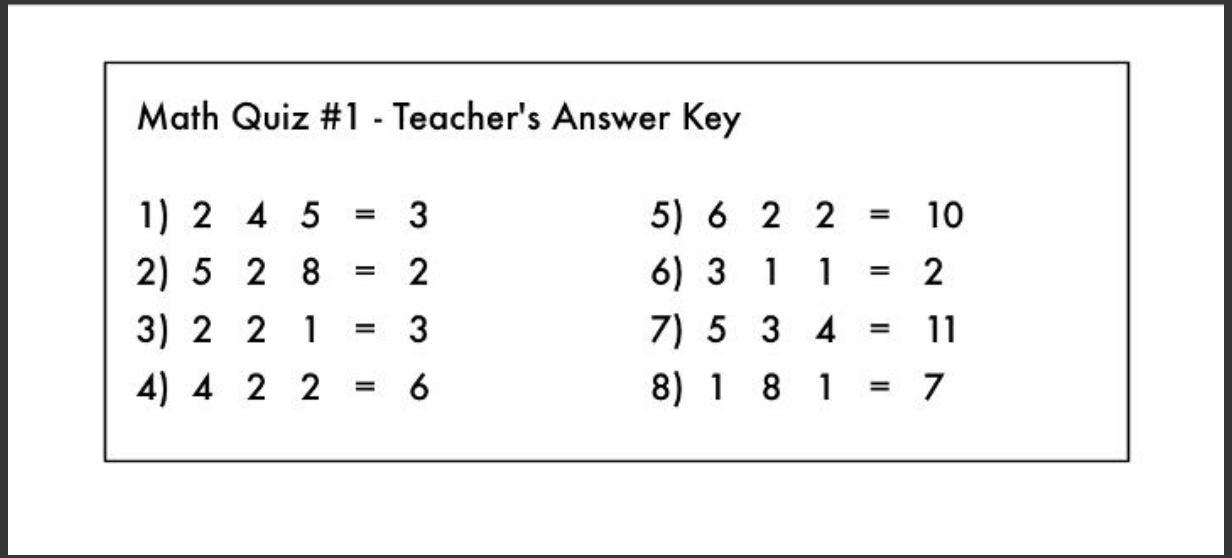
Machine Learning

Providing machines ability to learn & improve from experience!



But how?

Machine learn some functions that map input X to some desired output Y.



Student Marks Prediction

You are given some input like

assignment submitted

hours of study

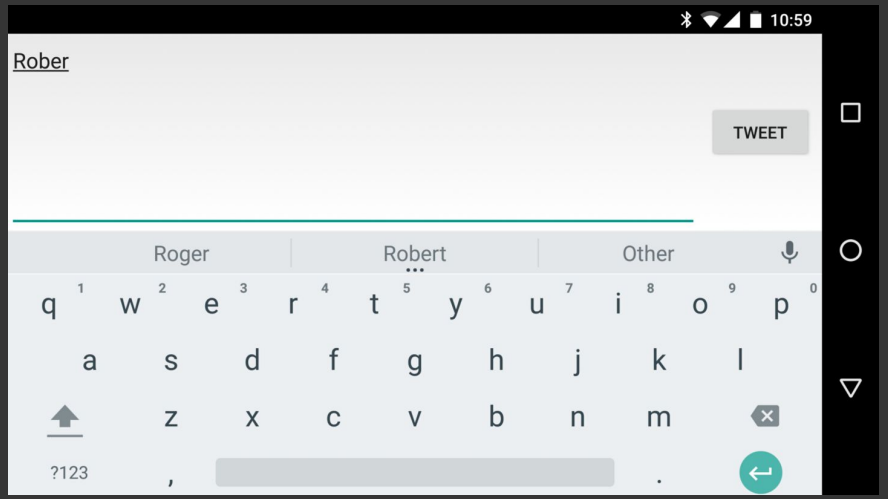
bunked lectures

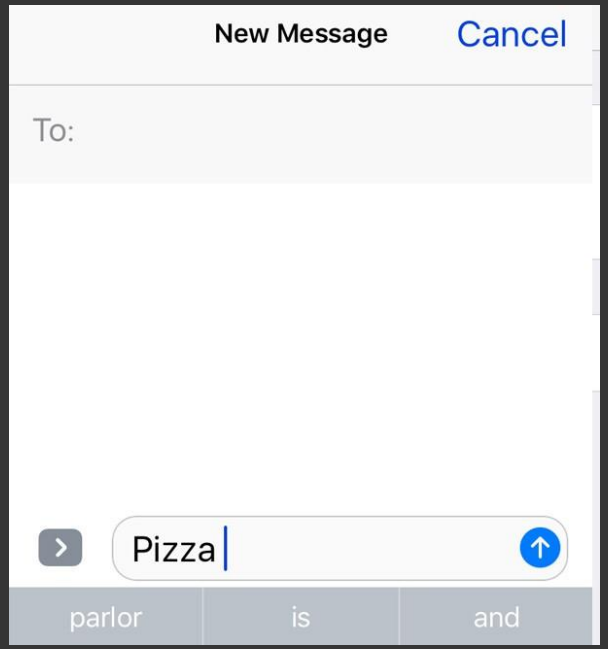
MARKS = ASSIGNMENTS*HOURS STUDY - BUNKED LECTURES

This list of inputs in Machine Learning are called **features**.

Language Generator!

(Using Markov Chains)





Emoji Predictor

Using Deep Learning

I want to have pizza. 

Thanks for this awesome gift! 

Autonomous Vehicles | Self Driven Cars

Input - ?

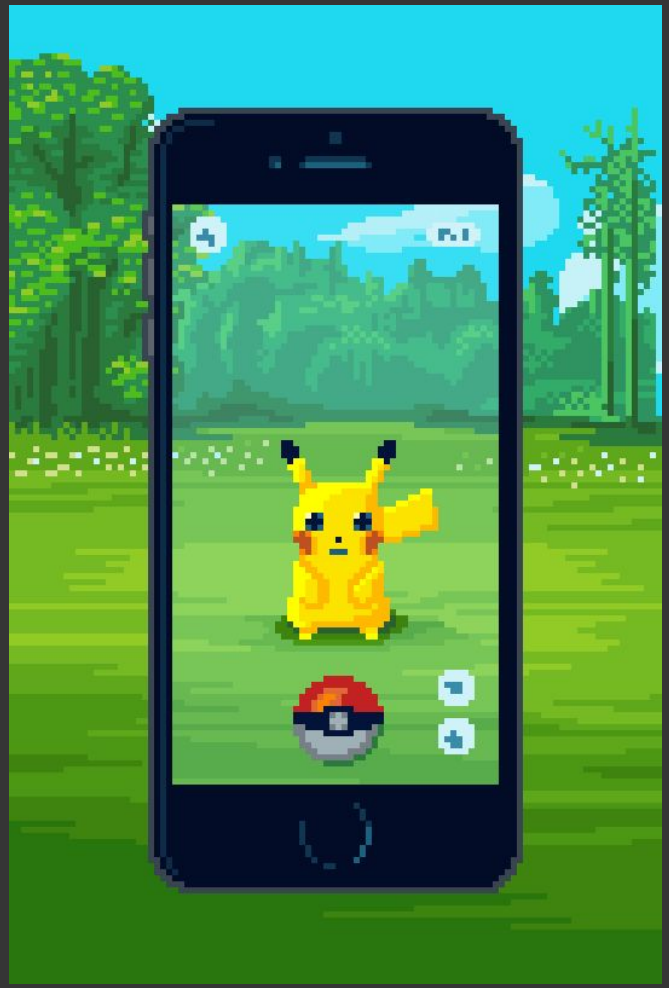
Output - ?

Landmark Detection

Snapchat

Machine Learning is everywhere!

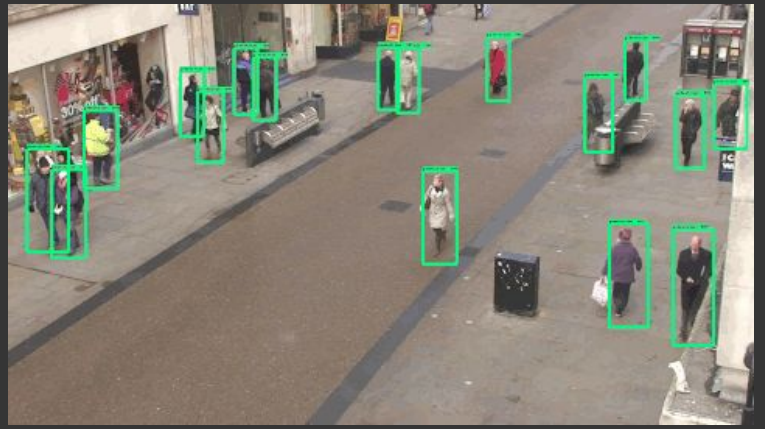
- Email Filtering
- Amazon Recommendations
- Search Engines
- Fraud Detection
- Generating Art
- Story Generation
- Disease Diagnosis



Machine Learning is everywhere!

Computer Vision

- Autonomous Systems
- Videos Surveillance for Crimes
- Smart Cameras



Natural Language Processing

- Personal Assistants like Google Allo
- Text Generation/Autocomplete
- Smart Speakers like Google Home

Some useful Libraries

Numpy

Pandas

OpenCV

Matplotlib

Scikit-learn

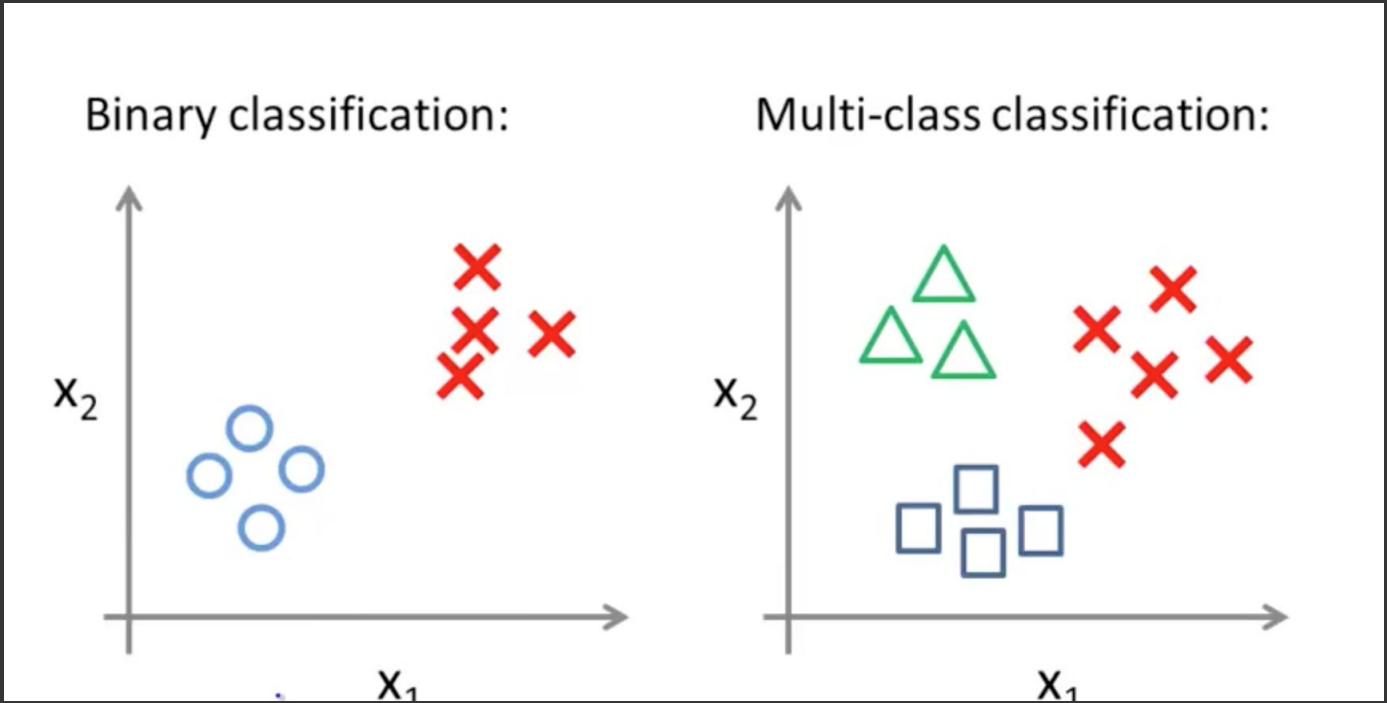
Types of Machine Learning

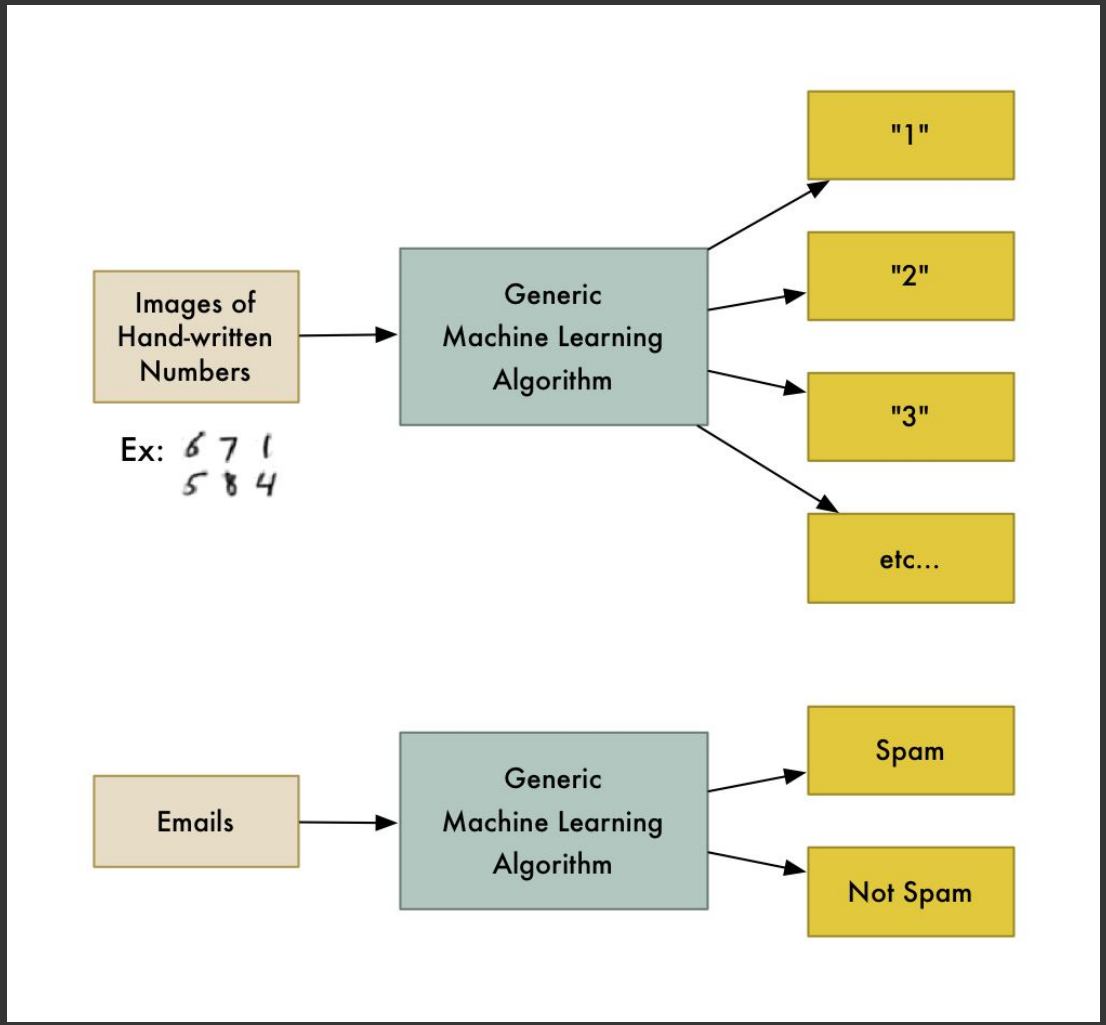
1. Supervised Learning
    a. Regression
    b. Classification
2. Unsupervised Learning
3. Reinforcement Learning

Regression Technique

Bedrooms	Sq. feet	Neighborhood	Sale price
3	2000	Normaltown	$250,000
2	800	Hipsterton	$300,000
2	850	Normaltown	$150,000
1	550	Normaltown	$78,000
4	2000	Skid Row	$150,000

Classification Algorithm




Images of Hand-written Numbers
Ex: 6 7 1
5 8 4
Generic Machine Learning Algorithm
"1"
"2"
"3"
etc...
Emails
Generic Machine Learning Algorithm
Spam
Not Spam

Let’s Build Some Projects!

Thank You..!!