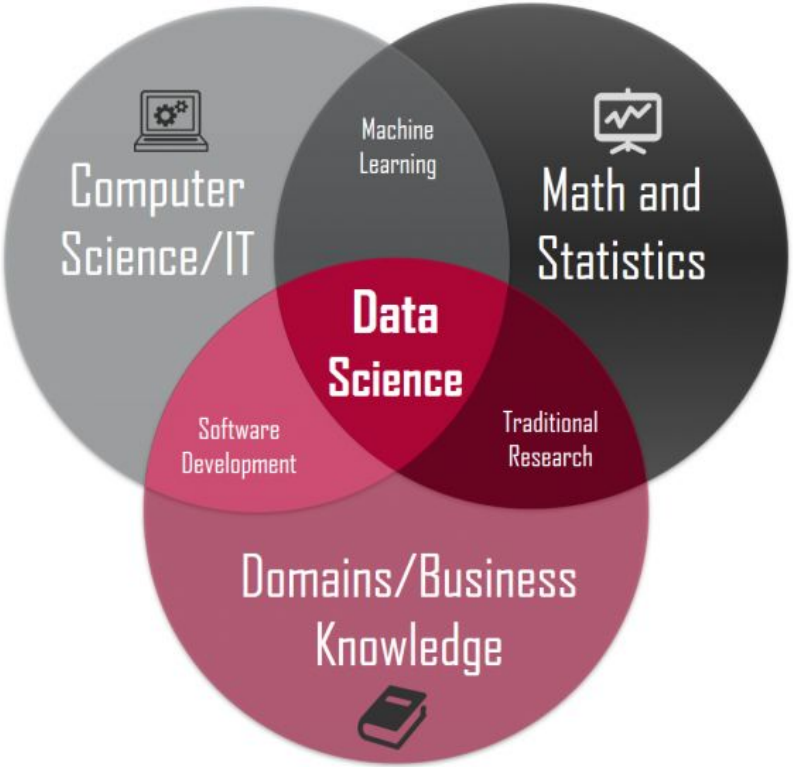
Class 12
Wrap-up
H Academy

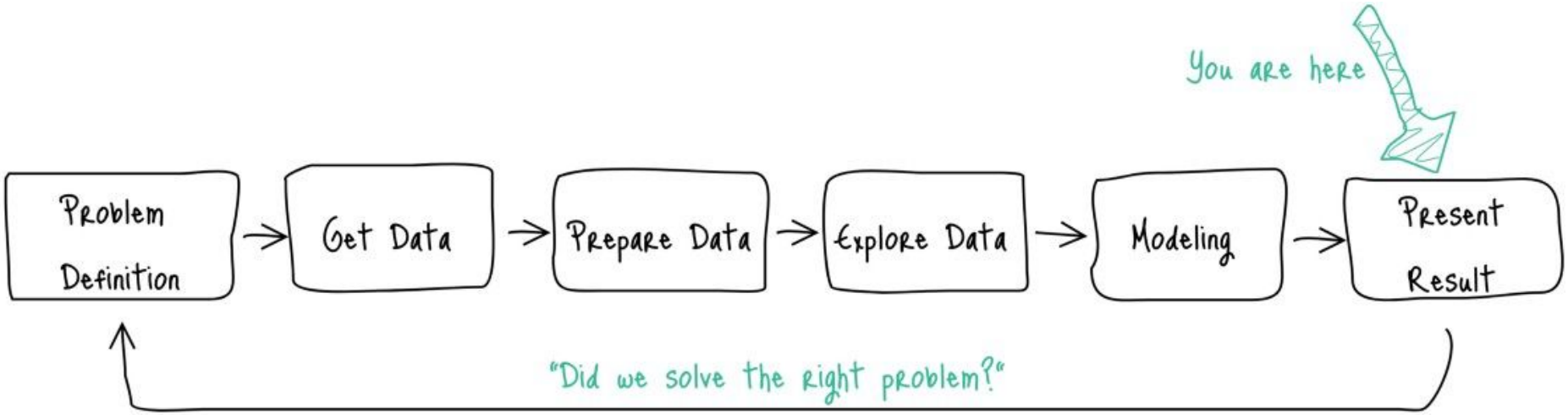
March 24th, 2021 - By Nathan Landman

Academy

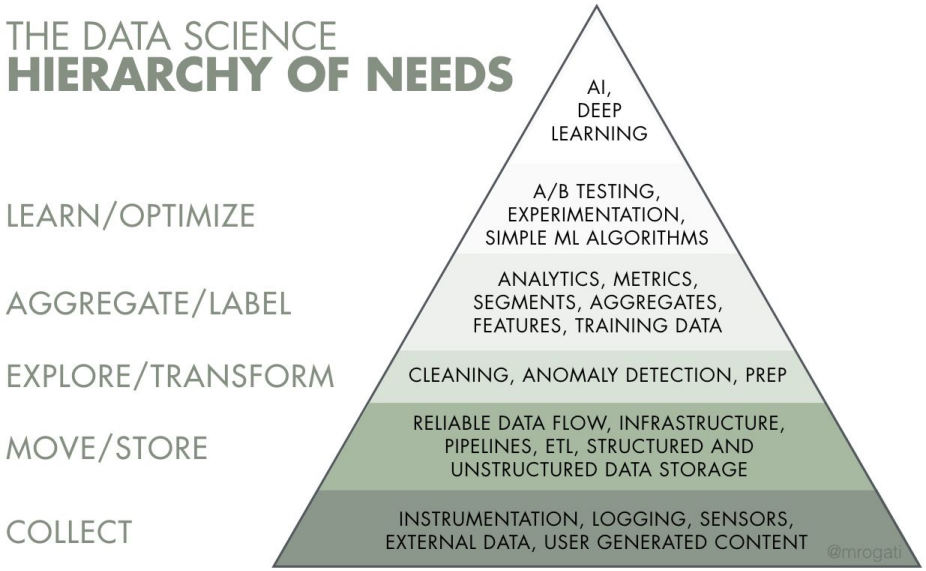
Class 1 - What is Data Science?



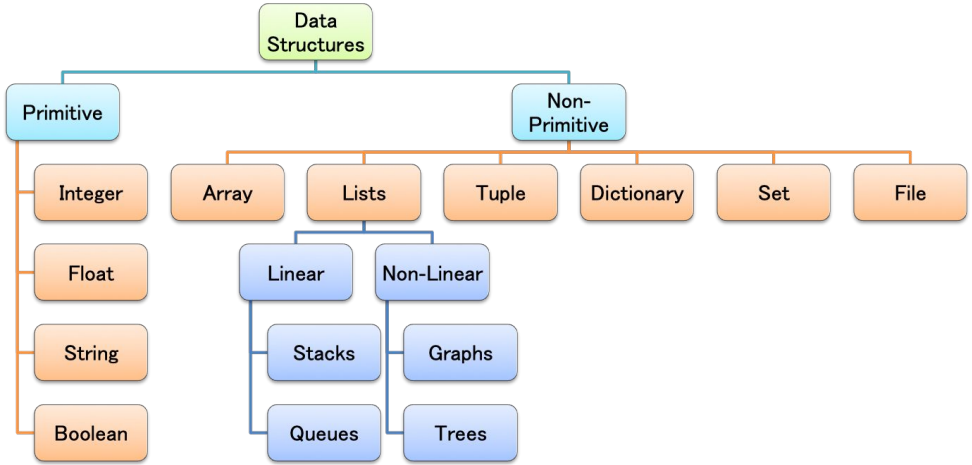
Class 1 - What is Data Science?



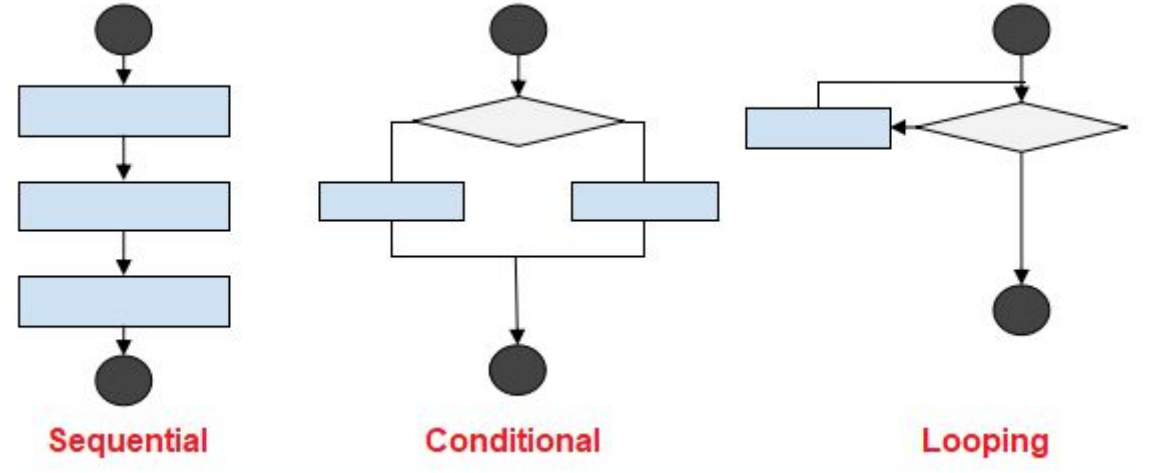
Class 1 - What is Data Science?



Class 2 - Python Basics - Data Structures



Class 2 - Python Basics - Control Flow



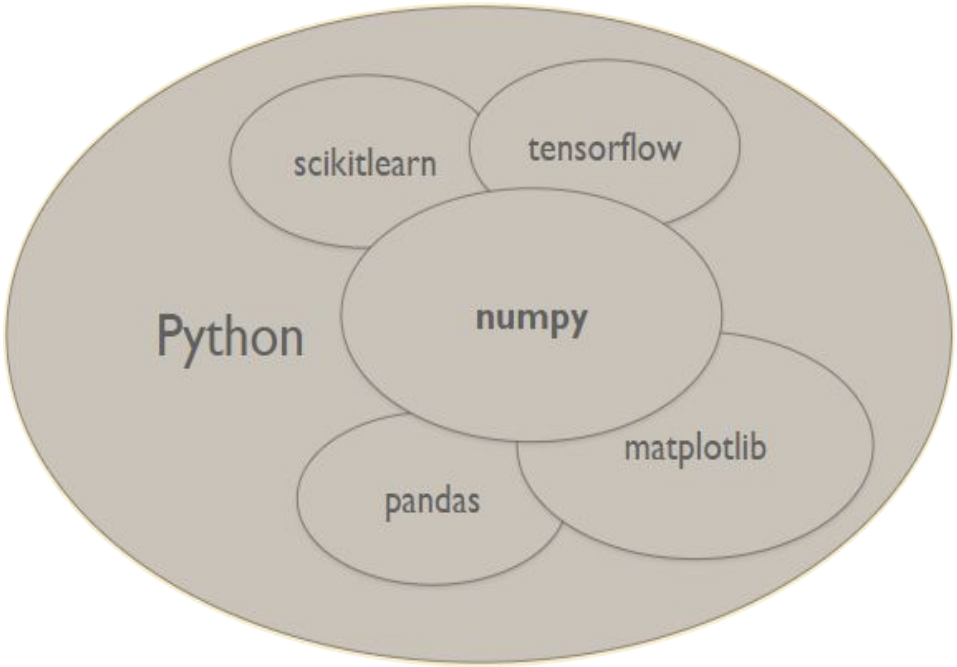
Lines of Code

If/Then

For Loop

While Loop

Class 3 - The Python Data Science Ecosystem



Class 4 - Pandas and Numpy

Series

	apples
0	3
1	2
2	0
3	1

+

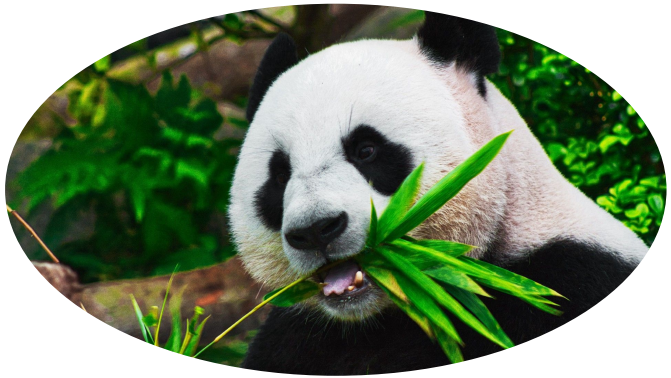
Series

	oranges
0	0
1	3
2	7
3	2

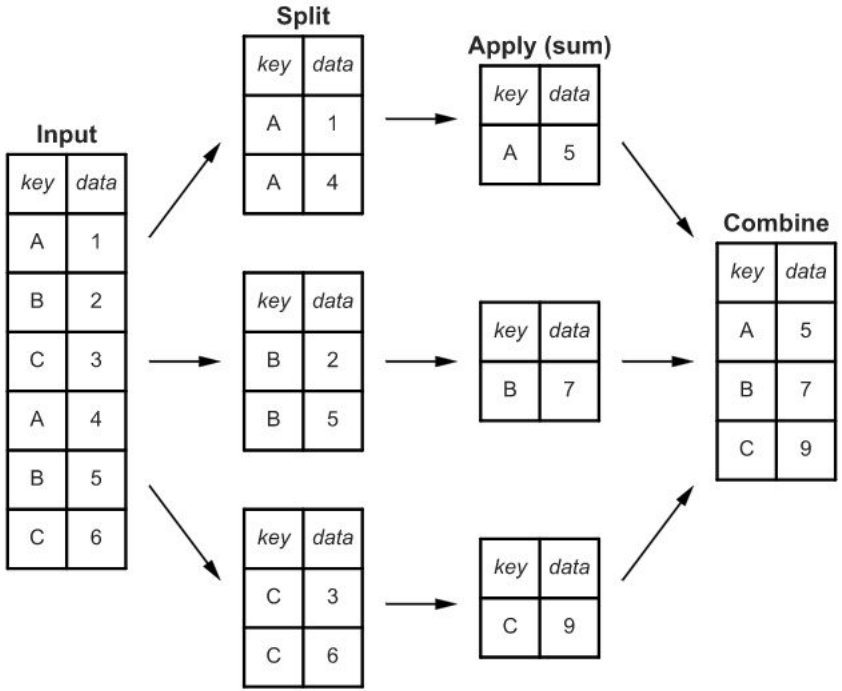
=

DataFrame

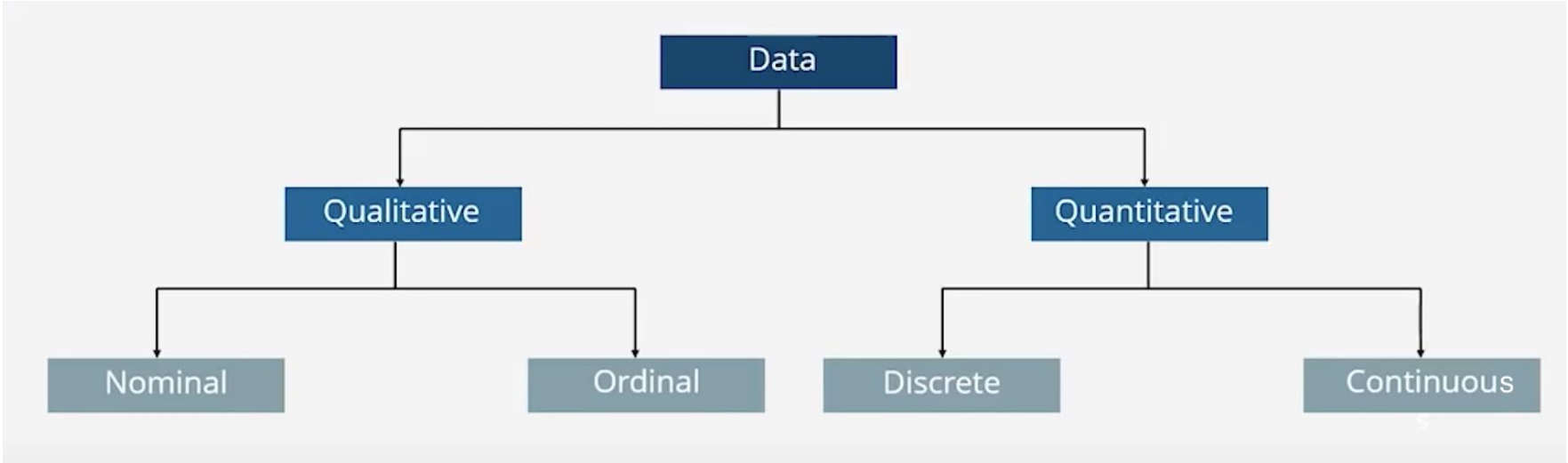
	apples	oranges
0	3	0
1	2	3
2	0	7
3	1	2



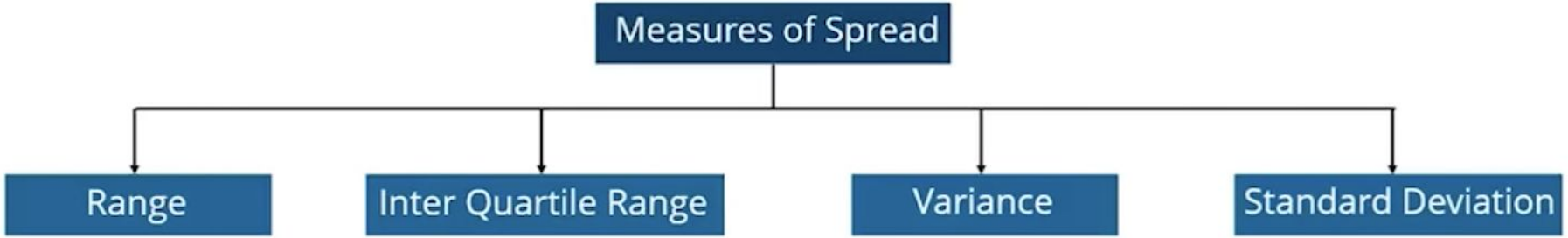
Class 4 - Pandas Split-Apply-Combine (groupby)



Class 5 and 6 - Exploring Datasets



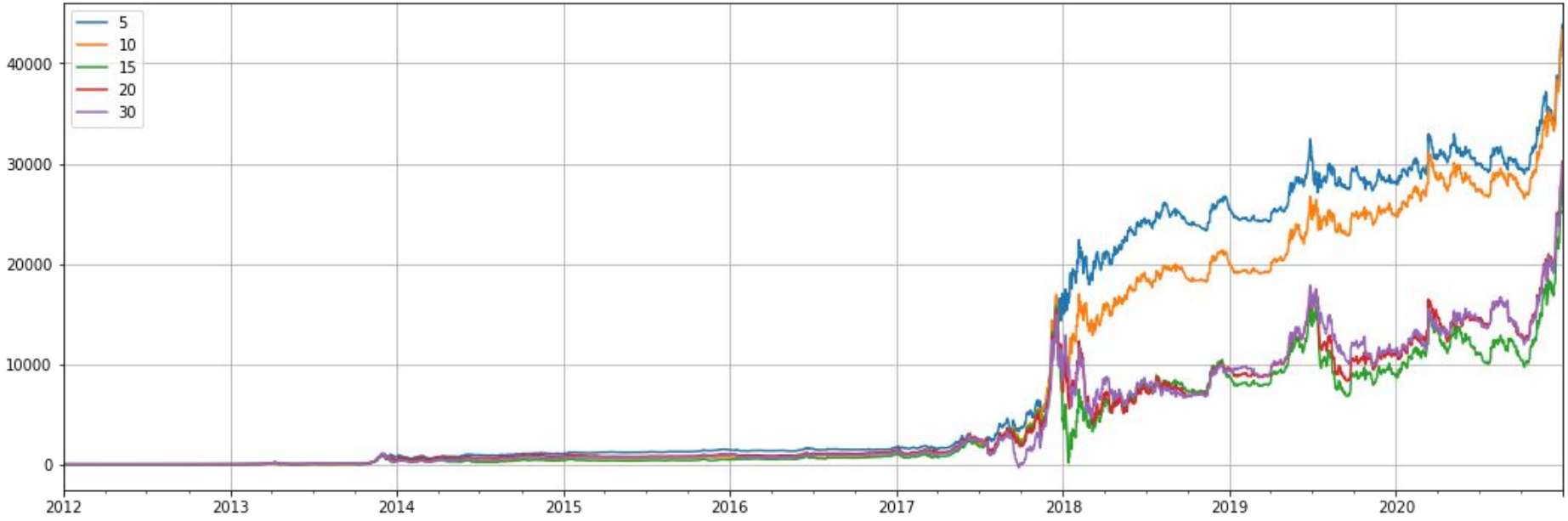
Class 5 and 6 - Exploring Datasets



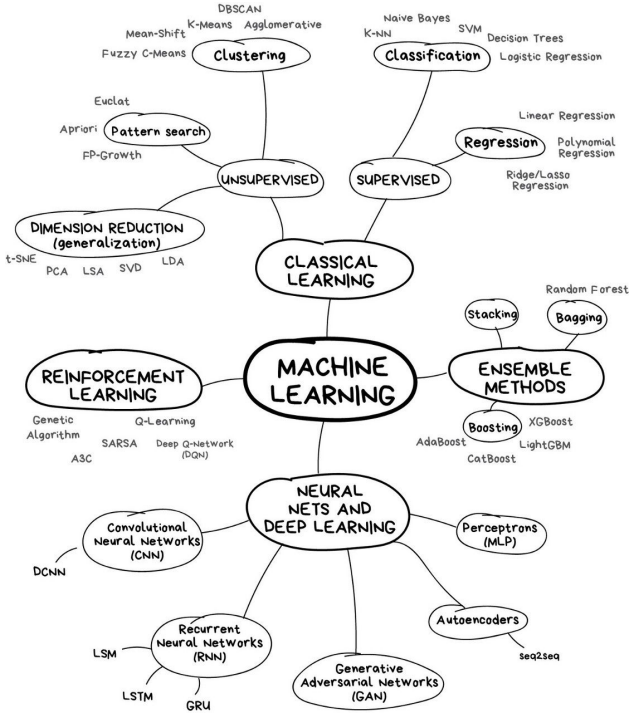
$$S^2 = \frac{\sum_1^{n=1}(x_i - \bar{x})^2}{n}$$

$$\sigma = \sqrt{S^2}$$

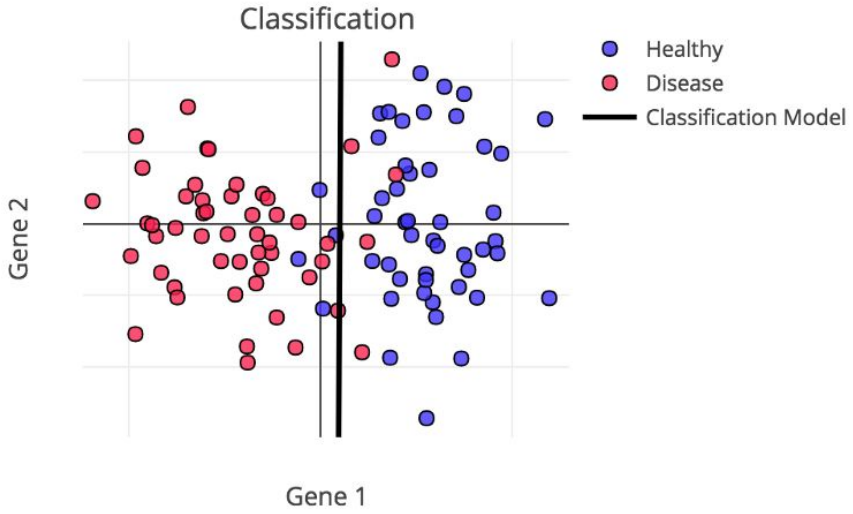
Class 7 - Time Series Analysis - Trading BTC



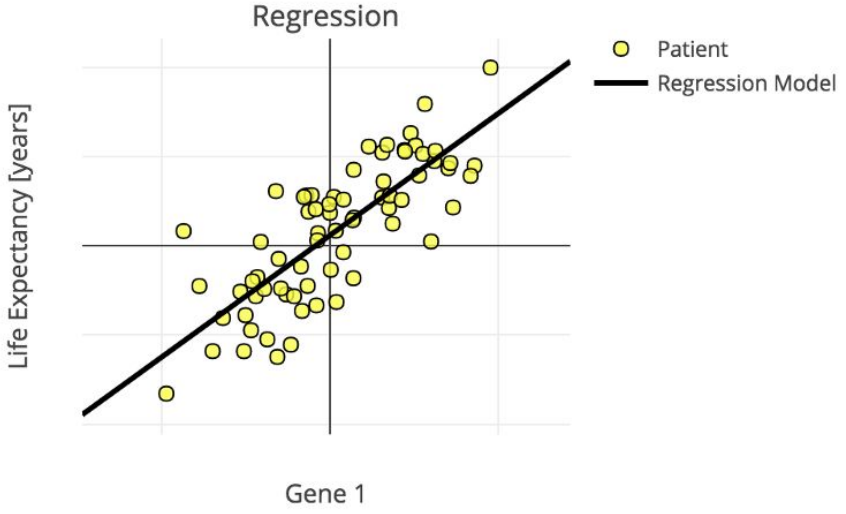
Class 7 - A Machine Learning Engineer's Toolbox



Class 7 - A Machine Learning Engineer's Toolbox



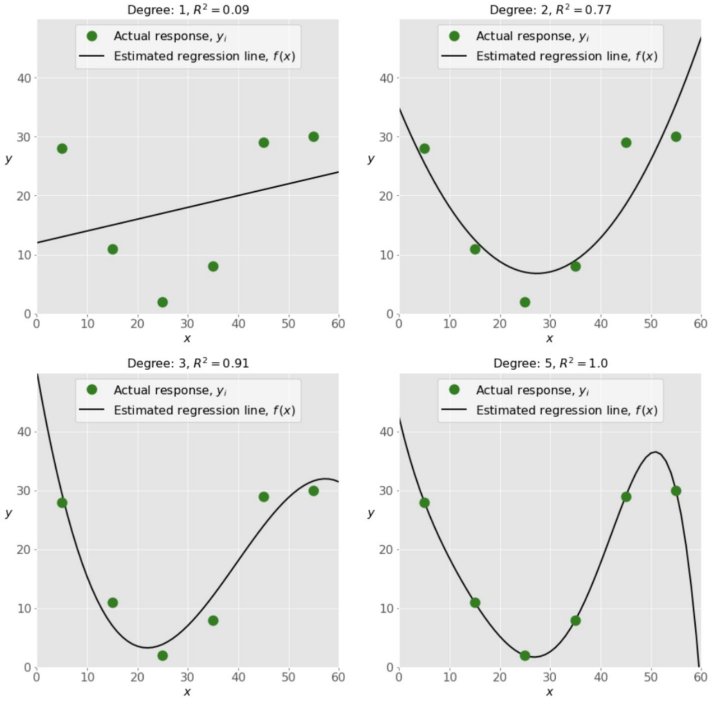
Logistic Regression



Linear Regression

Class 7 - A Machine Learning Engineer's Toolbox

Bias vs.
Variance

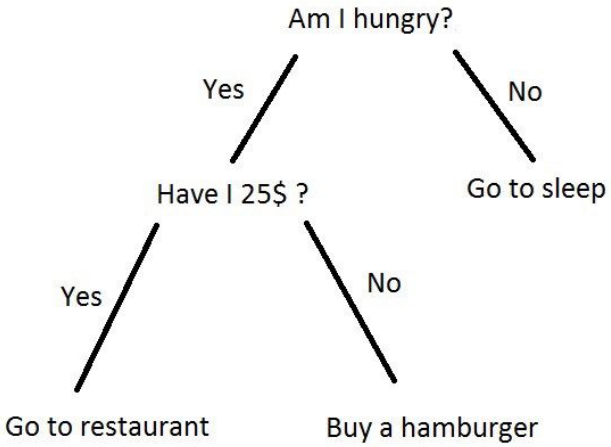


Example of underfitted, well-fitted and overfitted models

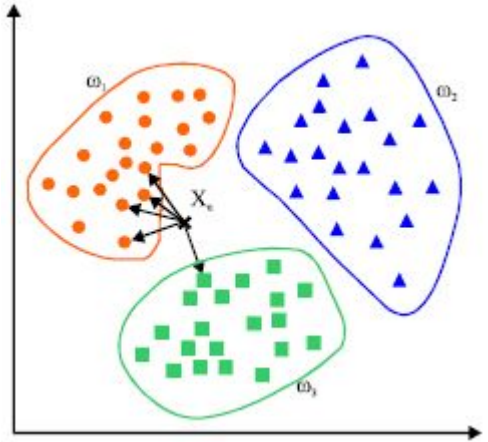
Overfit vs.
Underfit

Class 8 - A Machine Learning Engineer's Toolbox

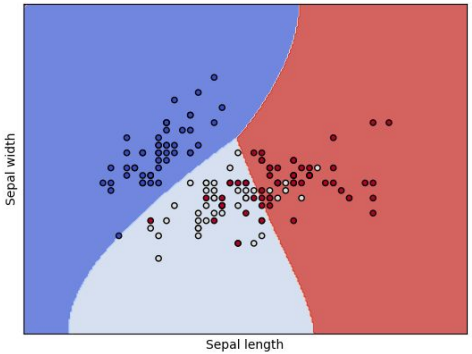
Decision Trees



kNN



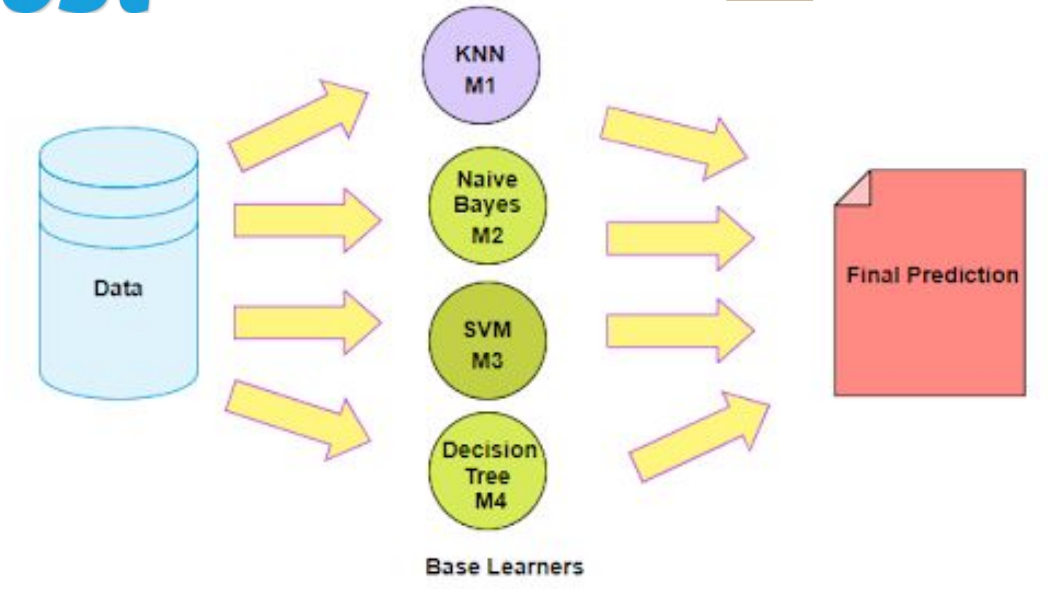
SVMs



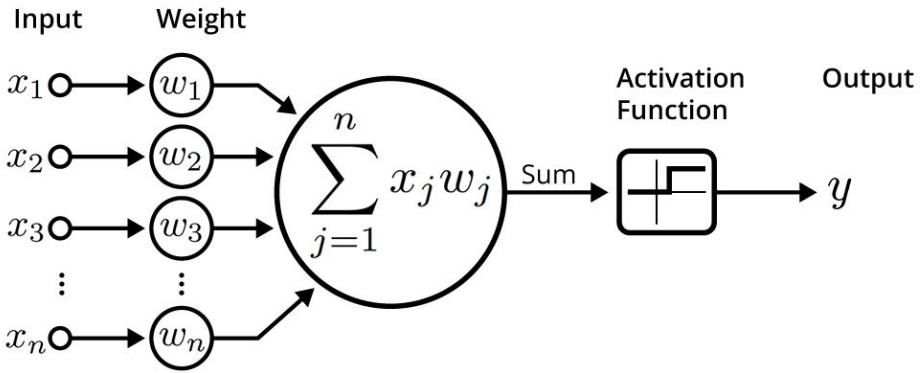
Class 9 - A Machine Learning Engineer's Toolbox

dmlc XGBoost

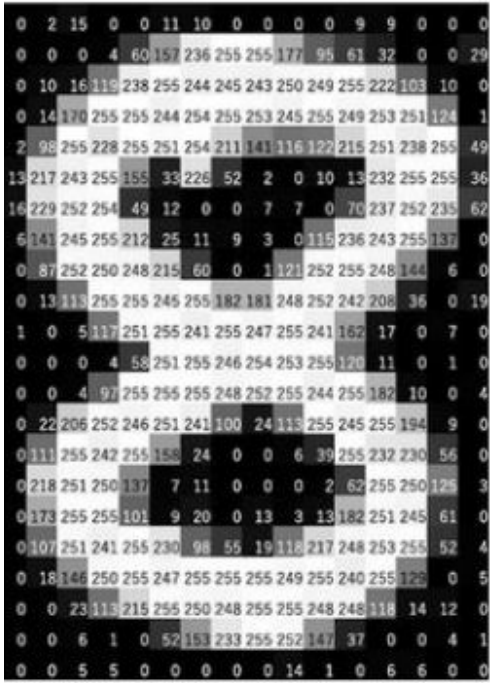
LightGBM



Class 10 - Deep Learning in Machine Vision



An illustration of an artificial neuron. Source: Becoming Human.



Class 10 - Deep Learning Concepts

Training in Batches

Epoch :

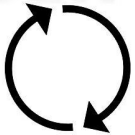
An Epoch represent one iteration over the entire dataset.

Batch :

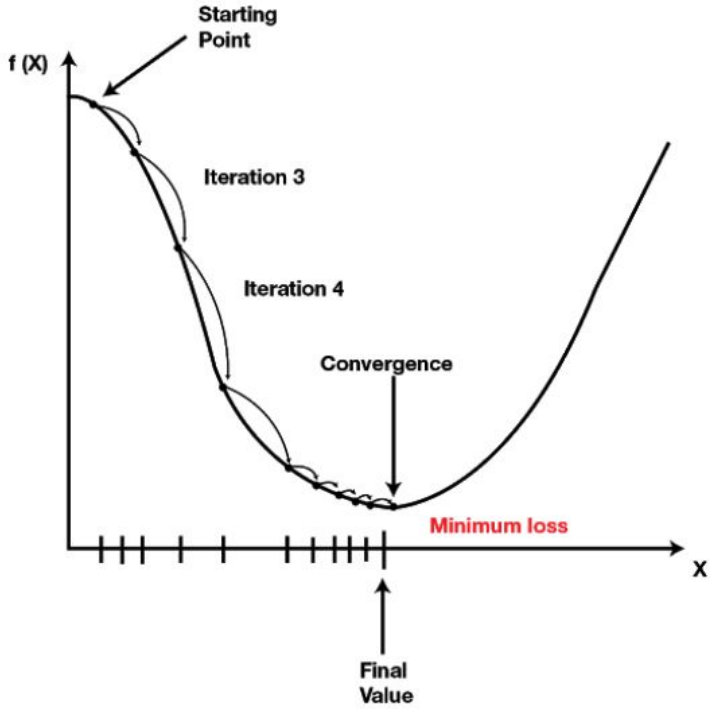
We cannot pass the entire dataset into the Neural Network at once. So, we divide the dataset into number of batches.

Iteration :

If we have 1000 images as Data ane a batch size of 20, then an Epoch should run 1000/20 = 50 iteration.



Learning Rate



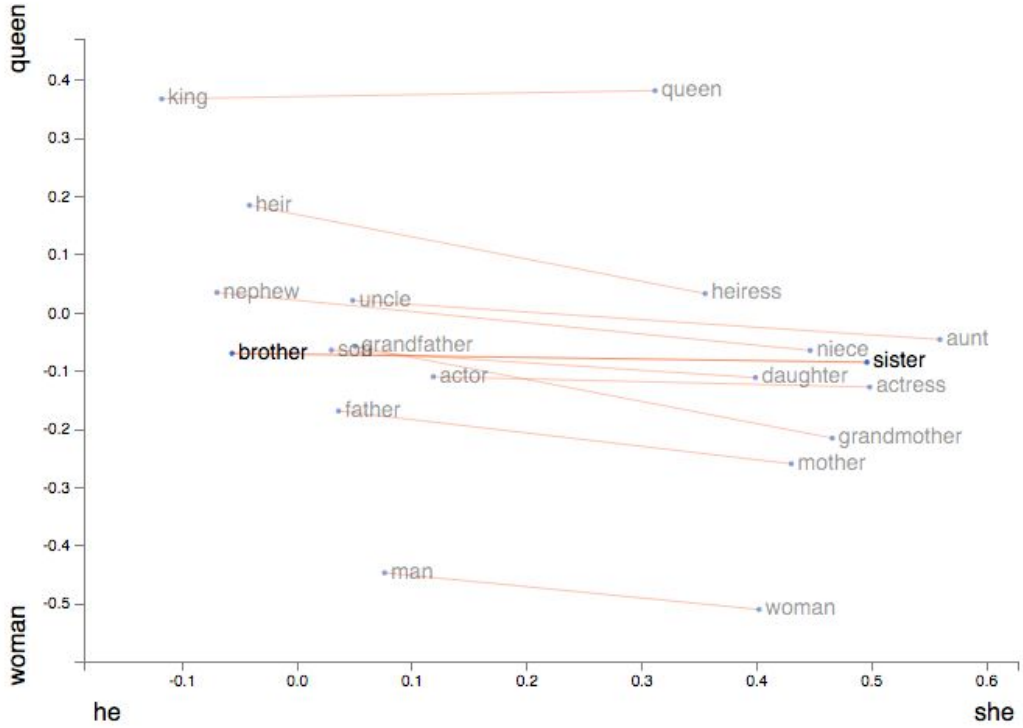
Class 11 - Advances in NLP - Training

Text: Second Law of Robotics: A robot must obey the orders given it by human beings

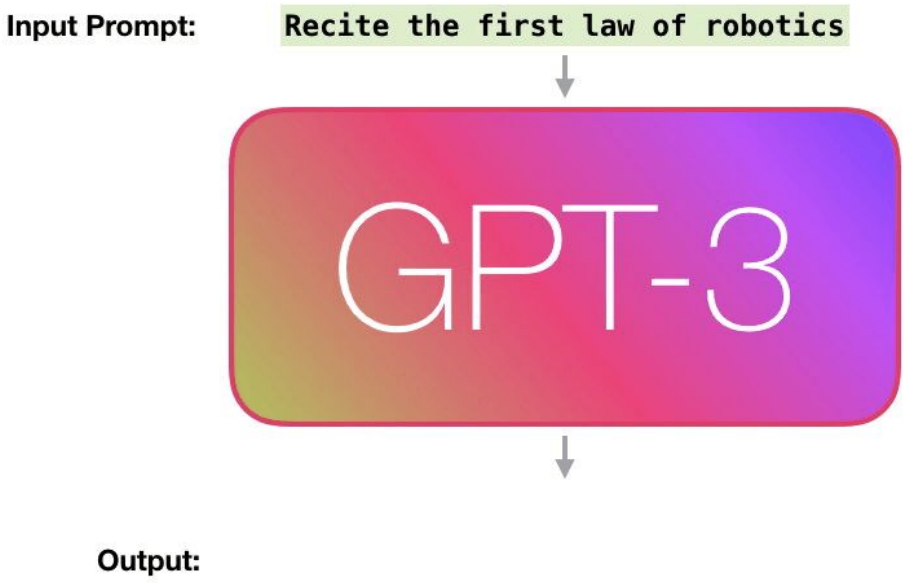
Generated training examples

Example #	Input (features)	Correct output (labels)
1	Second law of robotics :	a
2	Second law of robotics : a	robot
3	Second law of robotics : a robot	must
...		

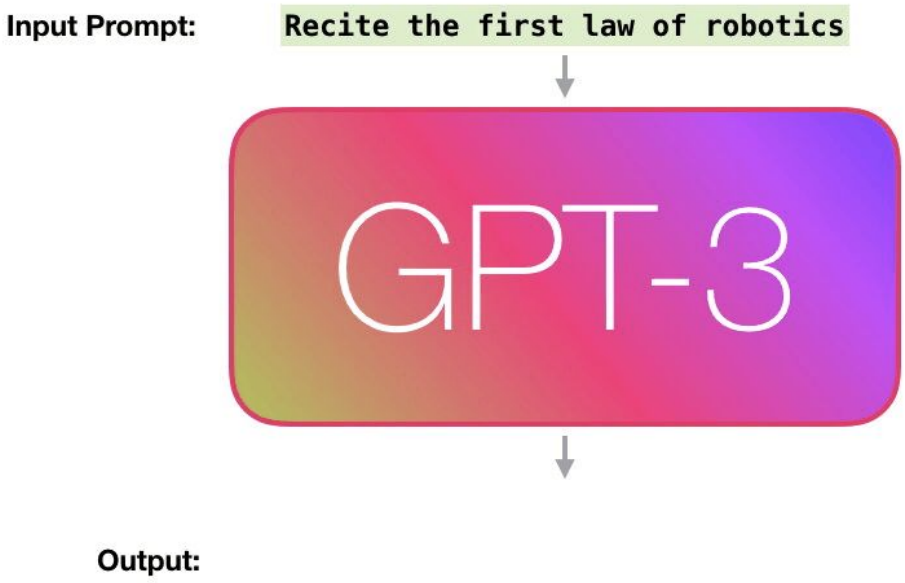
Class 11 - Advances in NLP - Embeddings



Class 11 - Advances in NLP - Modern Models

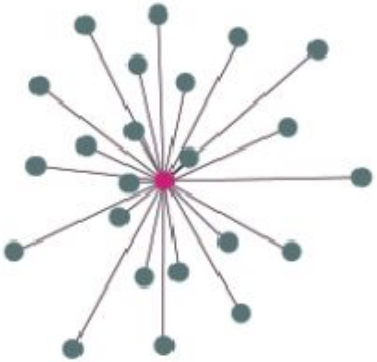


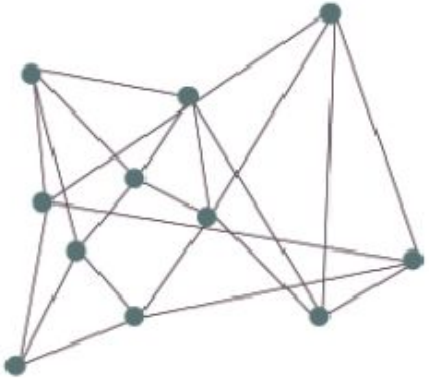
Class 11 - Advances in NLP - Modern Models



Web3.0

Centralized vs Decentralized



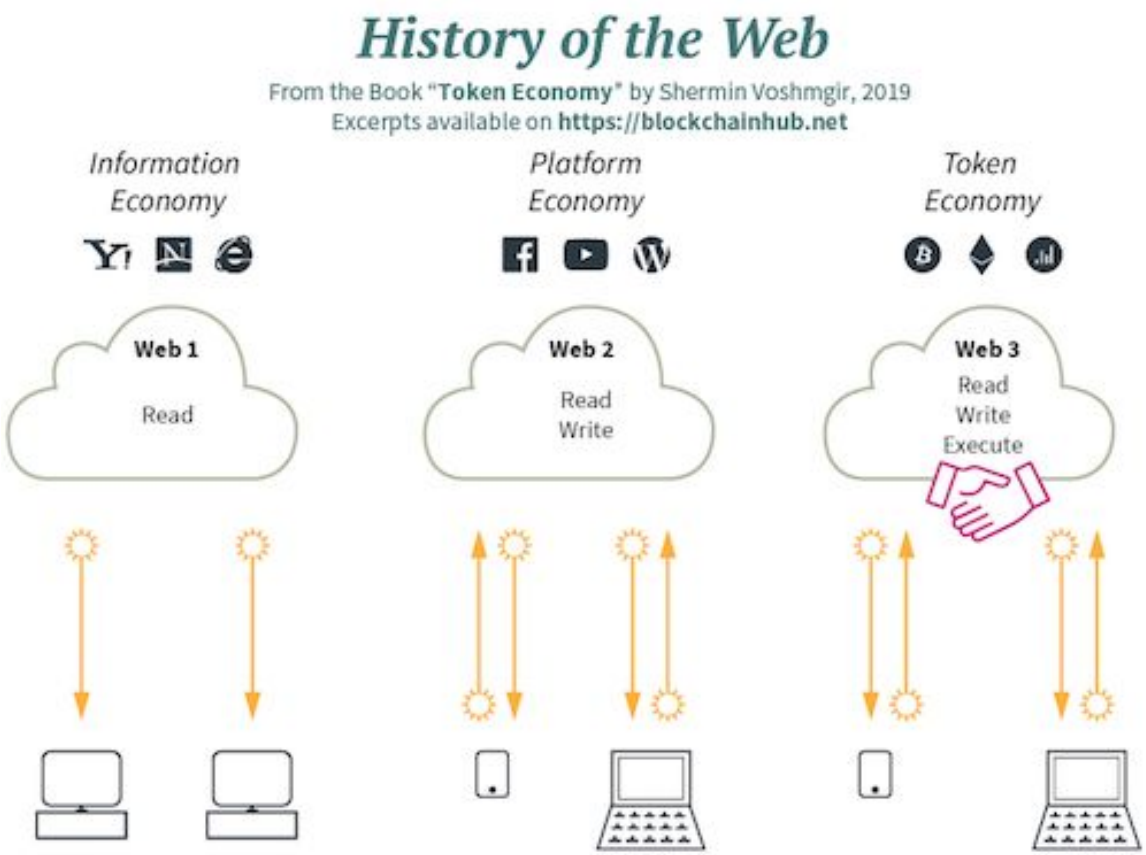


Unique Point of Failure

No unique Point of Failure > more secure

From the Book "**Token Economy**" by Shermin Voshmgir, 2019
Excerpts available on **https://blockchainhub.net**

Web3.0


History of the Web
From the Book "Token Economy" by Shermin Voshmgir, 2019
Excerpts available on https://blockchainhub.net
Information Economy
Platform Economy
Token Economy
Web 1
Read
Web 2
Read
Write
Web 3
Read
Write
Execute

Where to go Next

Refresher - https://flatironschool.com/free-courses/data-science-bootcamp-prep

Computer Vision - https://cs231n.github.io/

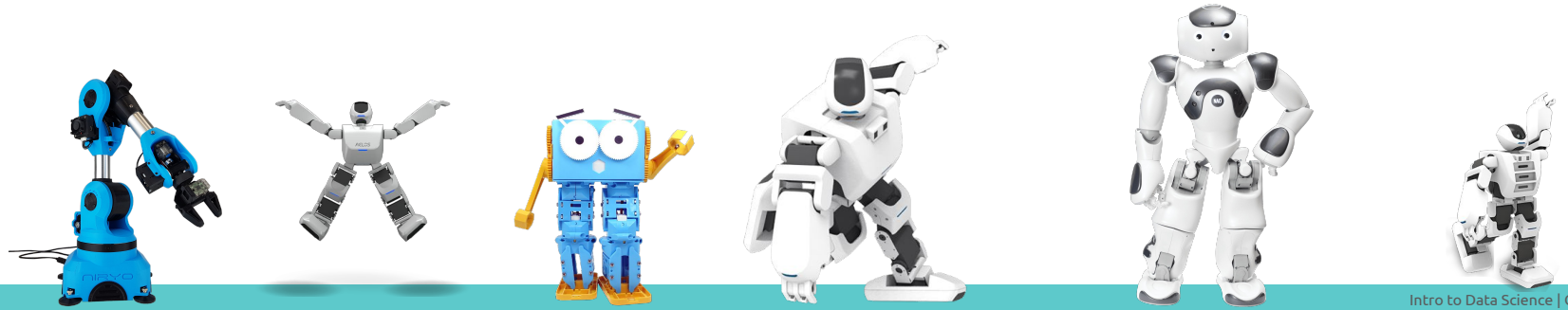
NLP - http://web.stanford.edu/class/cs224n/

Statistics - https://www.coursera.org/learn/statistics-for-data-science-python

Algorithms - https://www.coursera.org/browse/computer-science/algorithms

Reinforcement Learning - https://www.coursera.org/courses?query=reinforcement%20learning

General Computer Science - https://www.edx.org/course/subject/computer-science/



Thank you, and I hope you enjoyed the course!

Academy