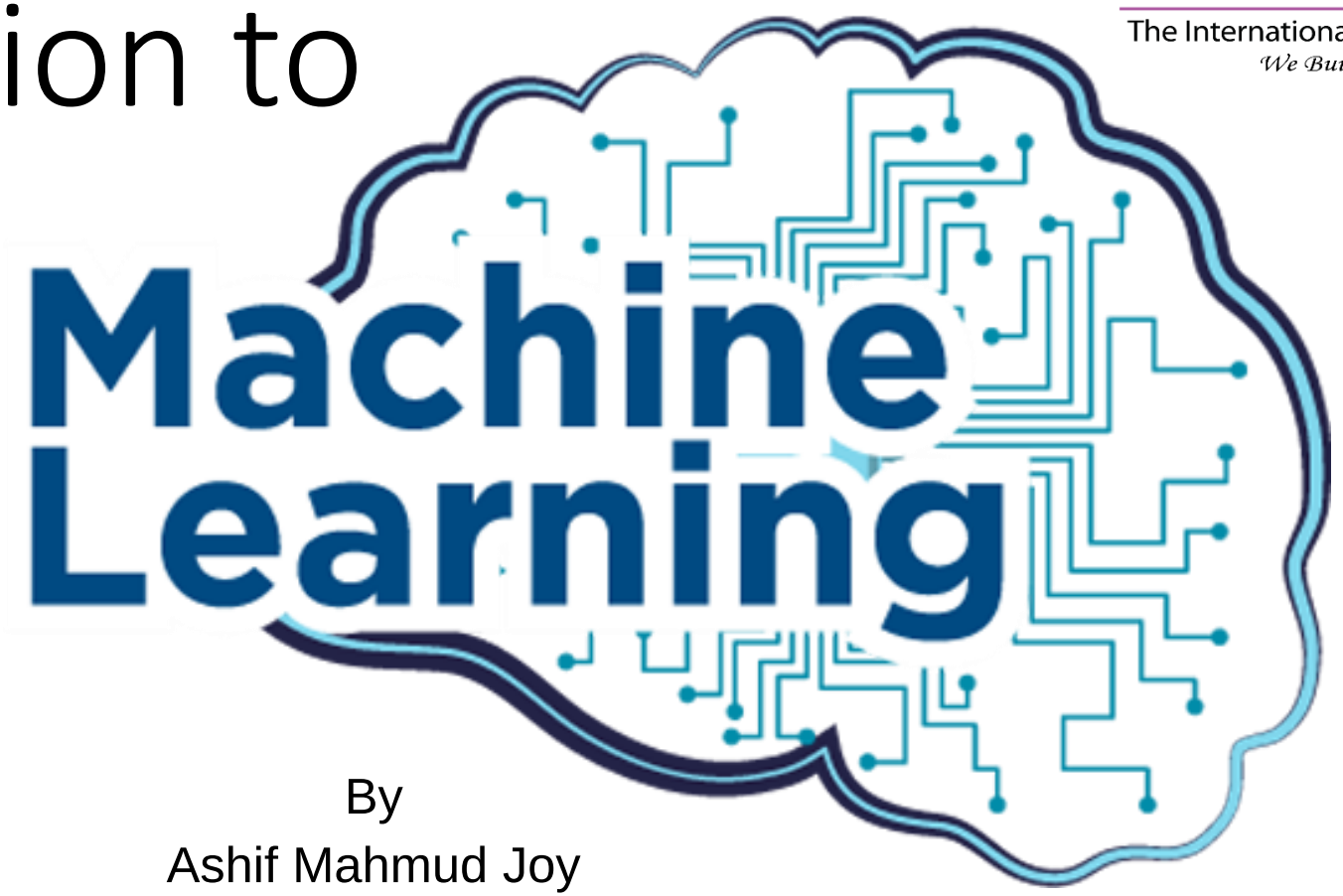
Introduction to



By
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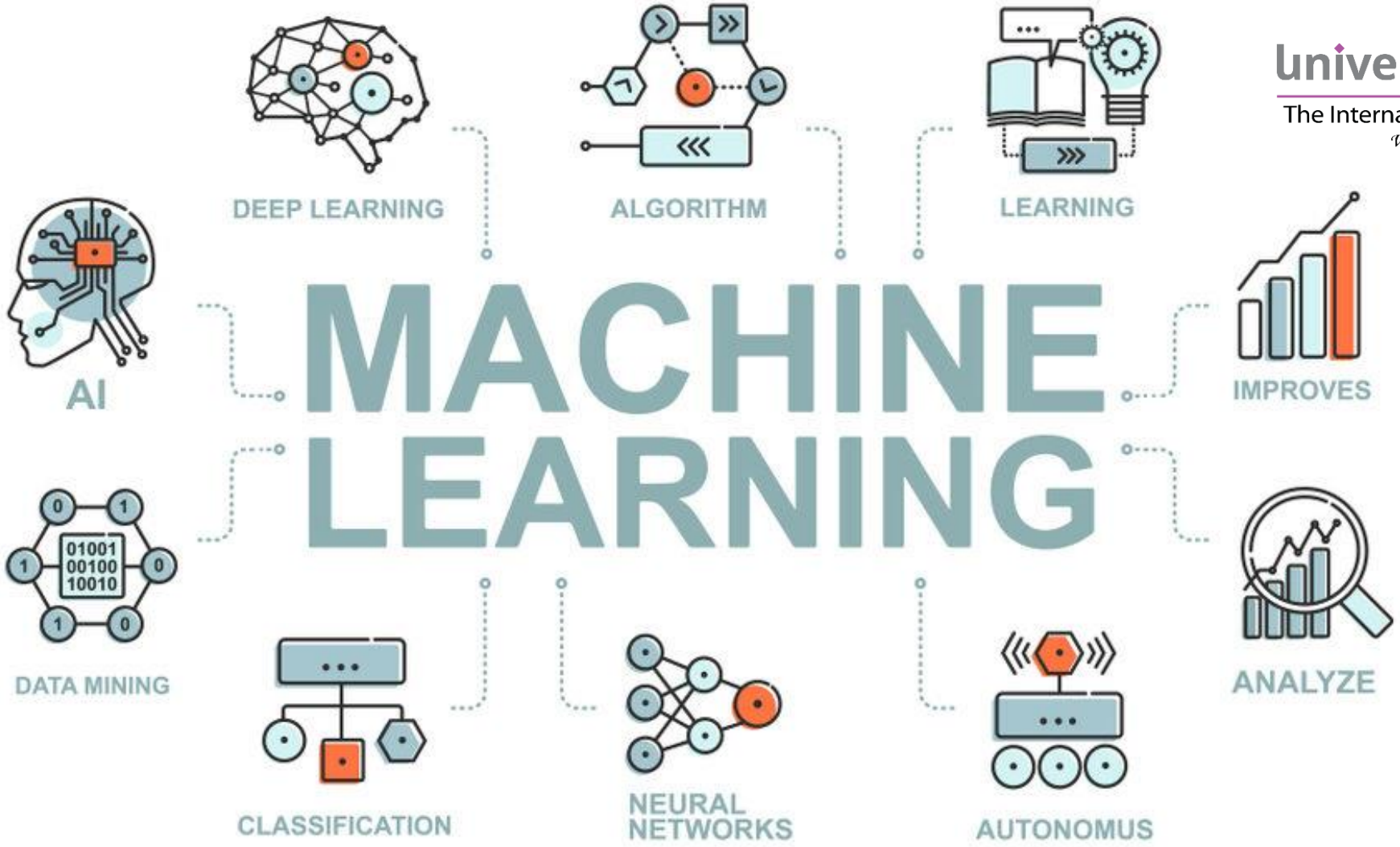

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What is Machine Learning?

???

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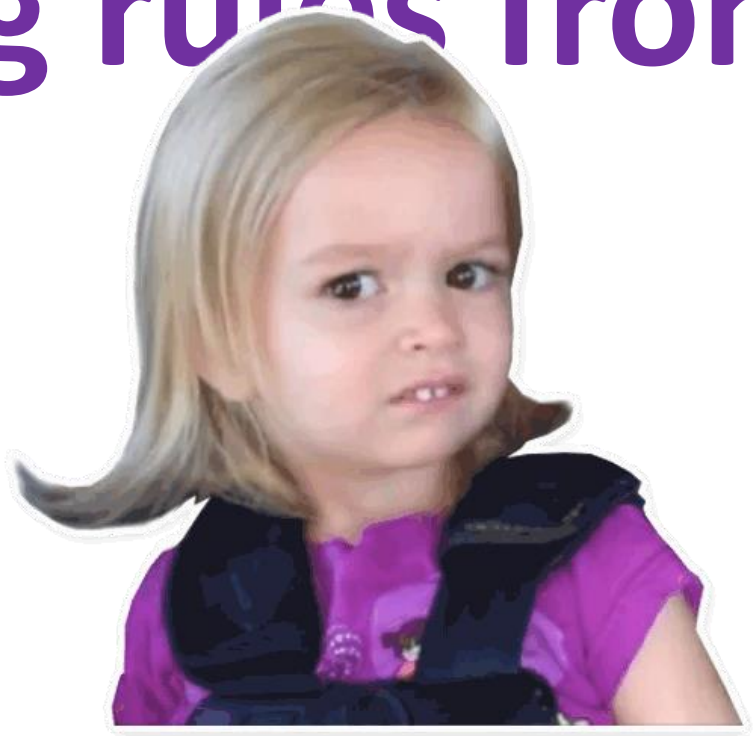
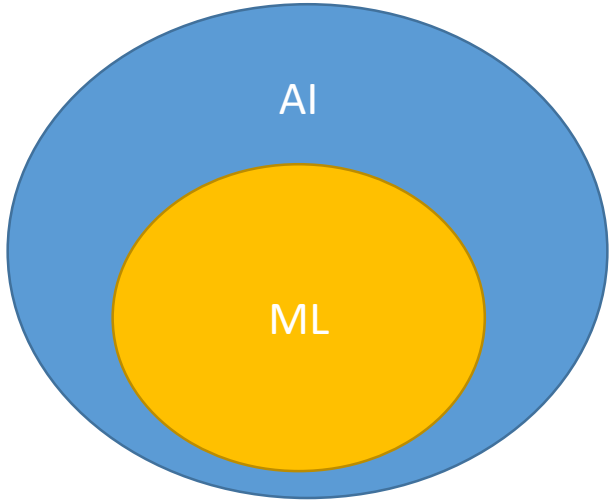
Extracting rules from big data





Machine learning is **a type of artificial intelligence that enables self-learning from data and then applies that learning without the need for human intervention**.

Why do we need Machine Learning to solve problems?

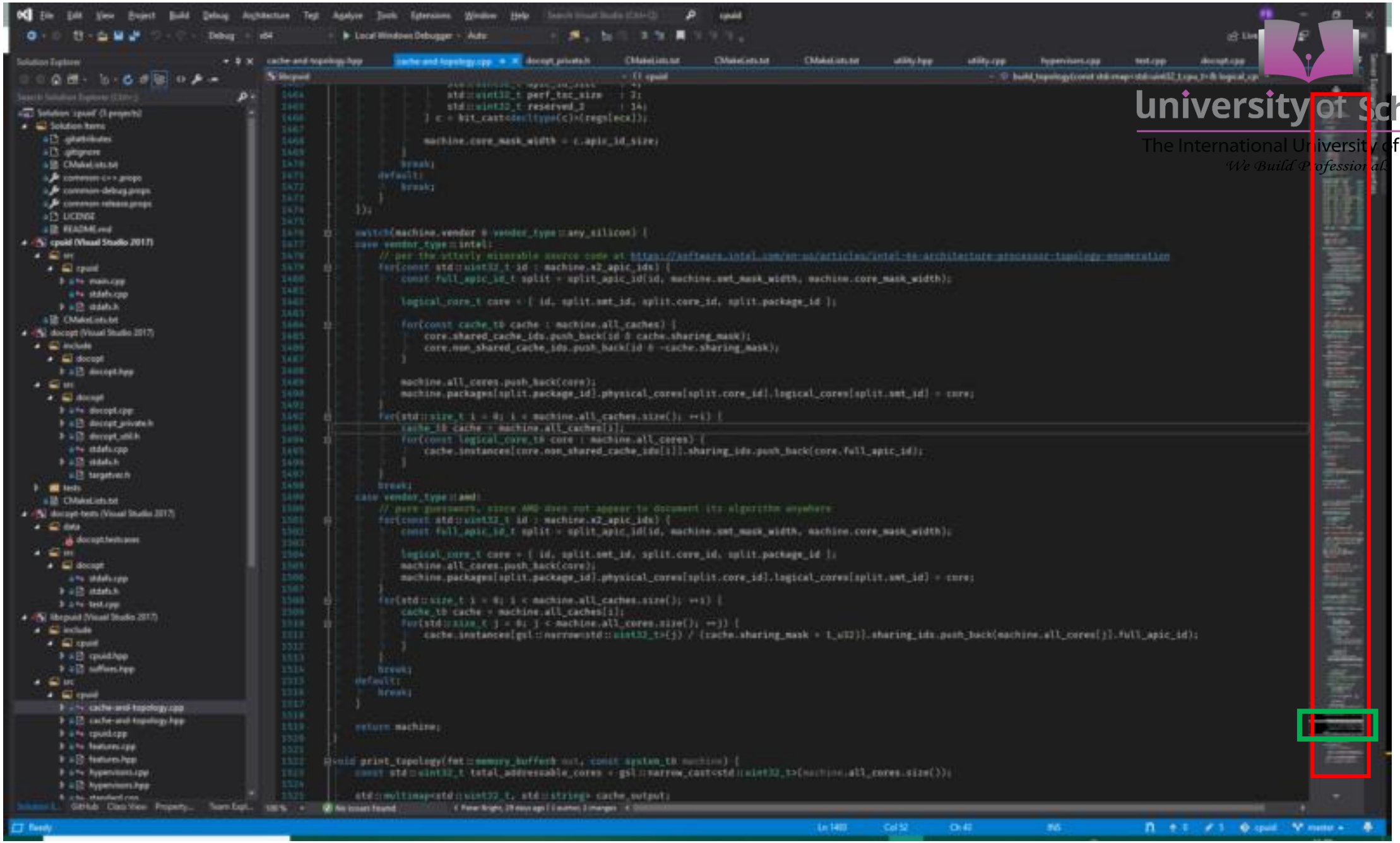
We can solve problems just by Coding in conventional way!

Let's see an example!

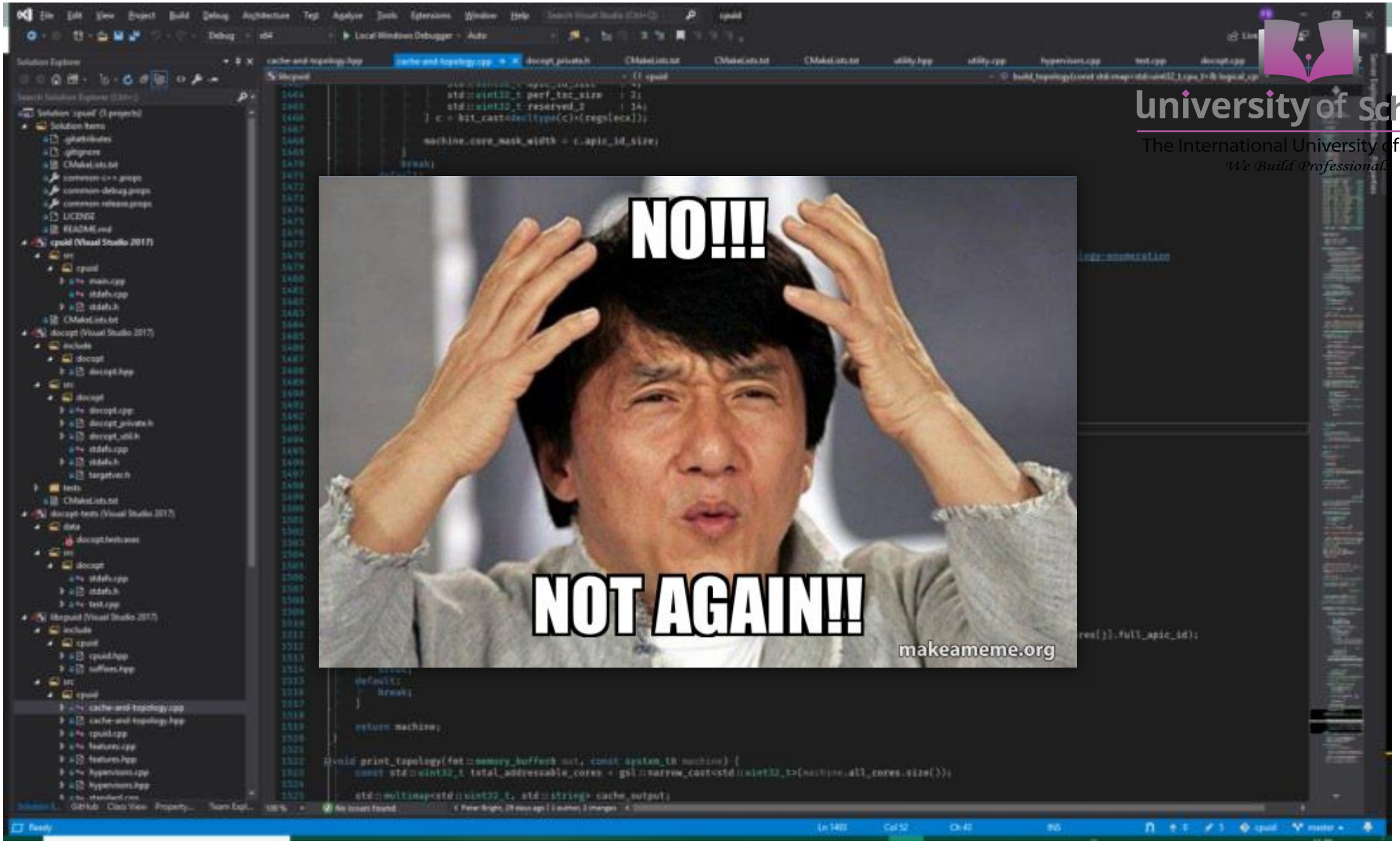
Suppose we want to build a car model prediction system

Let’s see an example!

- Height
- Width
- Color
- Photo angle
- Object angle
- Pixel position



What if I change the car?



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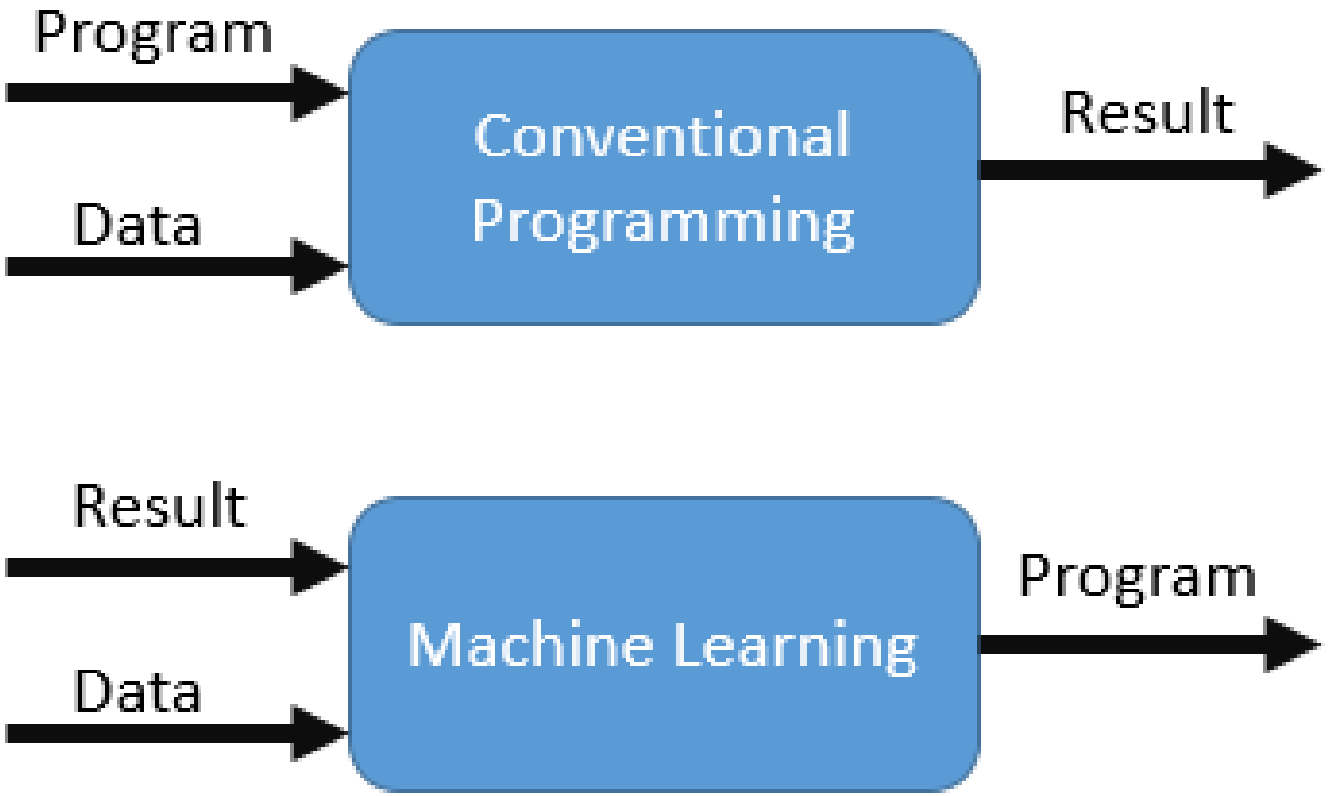
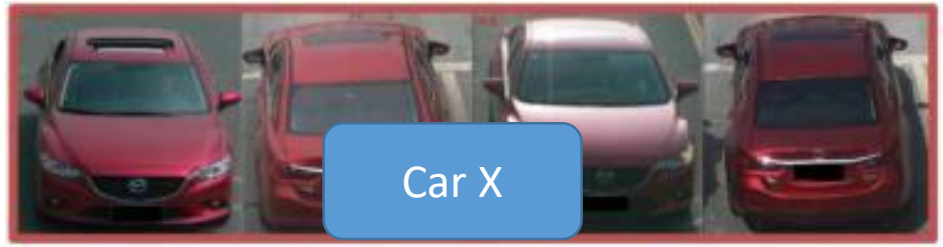
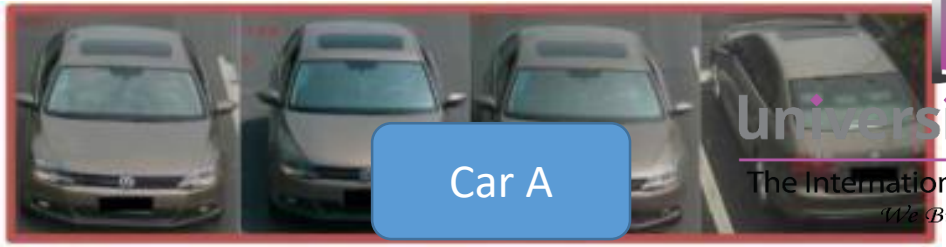
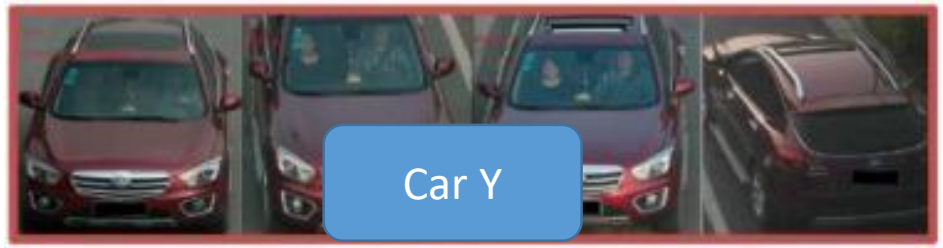
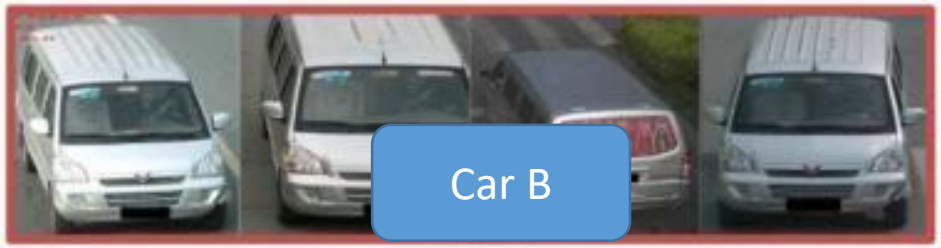
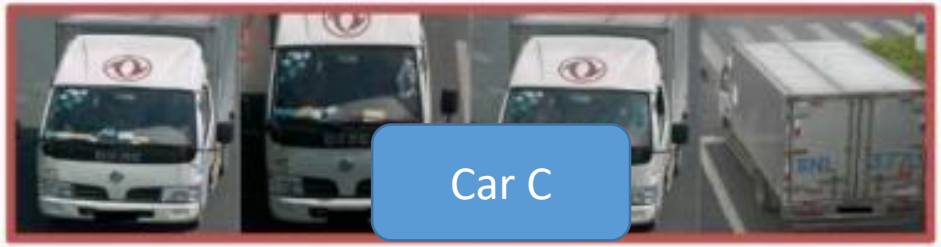


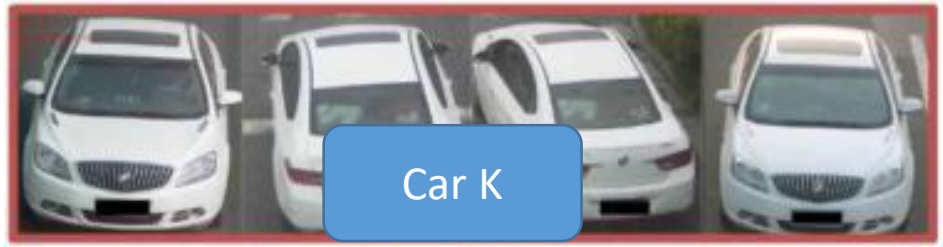


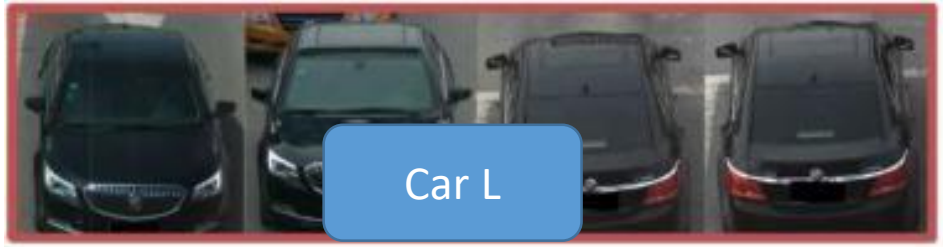


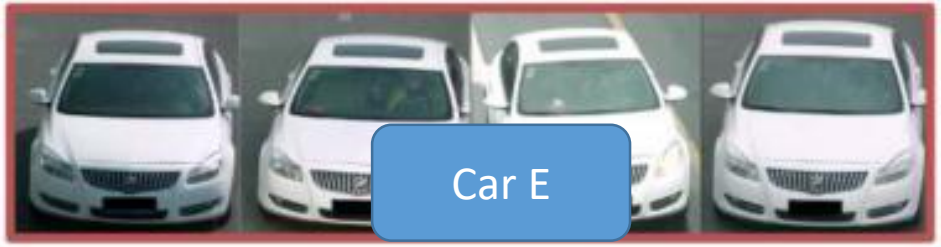












Machine Learning Model

Program

Program

Lamborghini Aventador

Ferrari LaFerrari

Why machine learning?

- More efficient
- Feasible
- Relatable to Human Learning

Supervised Learning

- Data
- Label

Supervised Learning

Data x

Label y

Traffic	Weather	Play Cricket
Heavy	Sunny	Yes
Medium	Rainy	No
Light	Overcast	Yes
Light	Rainy	No
Medium	Sunny	Yes

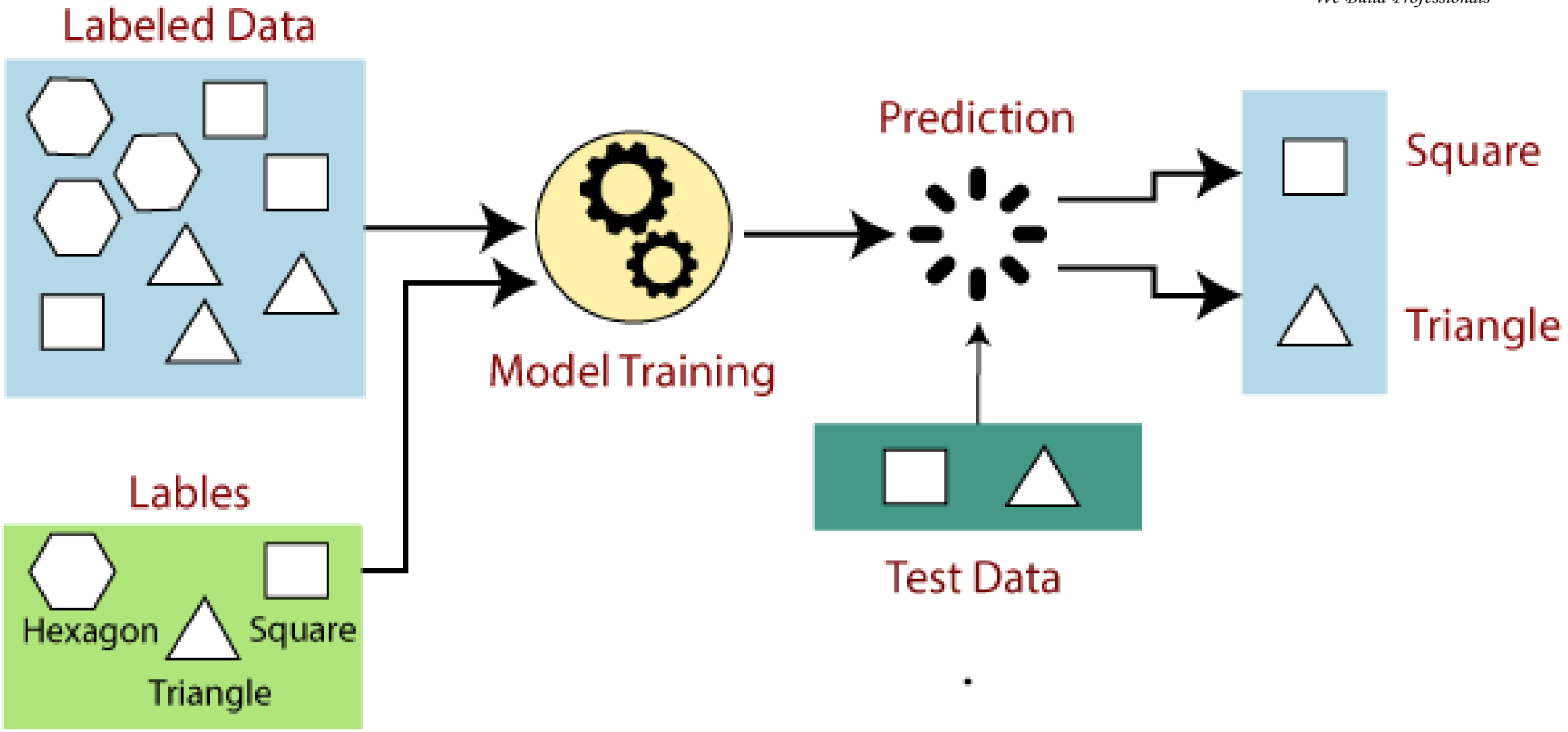
Supervised Learning

Traffic	Weather	Play Cricket
Heavy	Sunny	Yes
Medium	Rainy	No
Light	Overcast	Yes
Light	Rainy	No
Medium	Sunny	Yes
Medium	Rainy	??
Light	Sunny	??

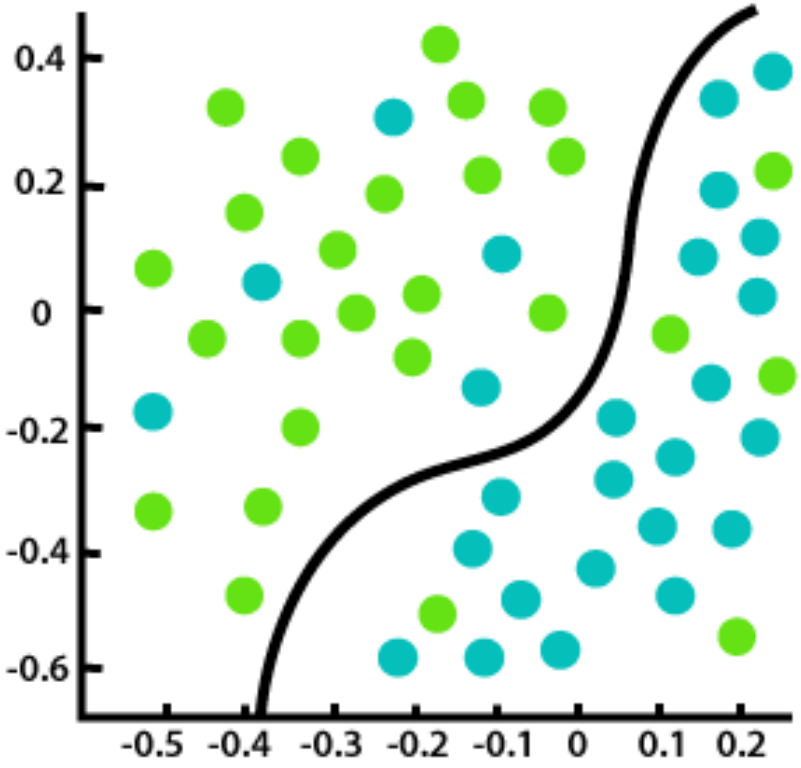
Supervised Learning

Traffic	Weather	Play Cricket
Heavy	Sunny	Yes
Medium	Rainy	No
Light	Overcast	Yes
Light	Rainy	No
Medium	Sunny	Yes
Medium	Rainy	NO!
Light	Sunny	YES!

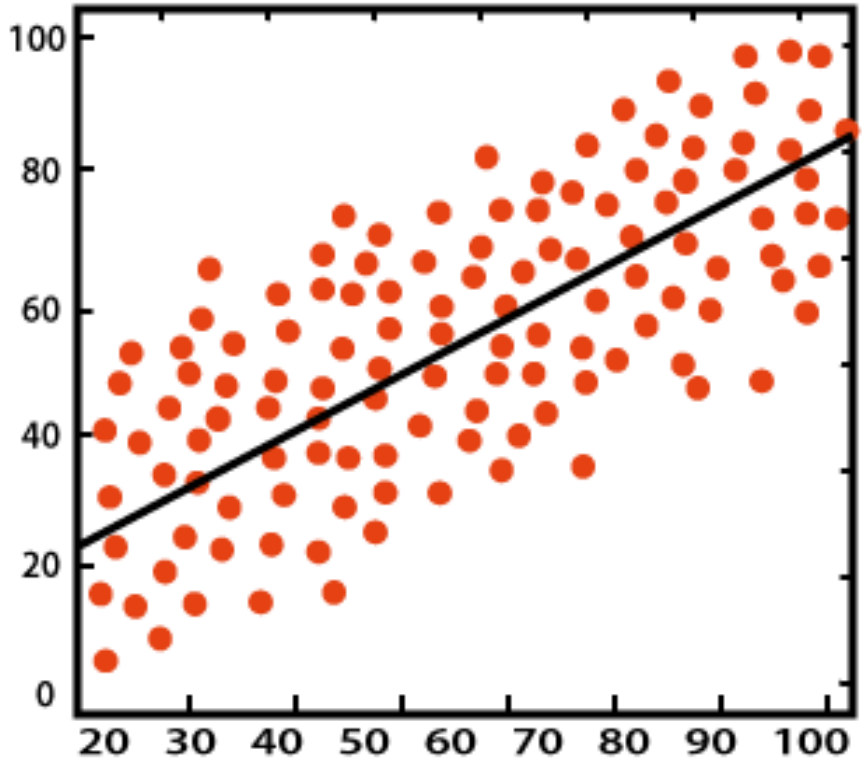
Supervised Learning Process…



Supervised Learning Algorithm



Classification

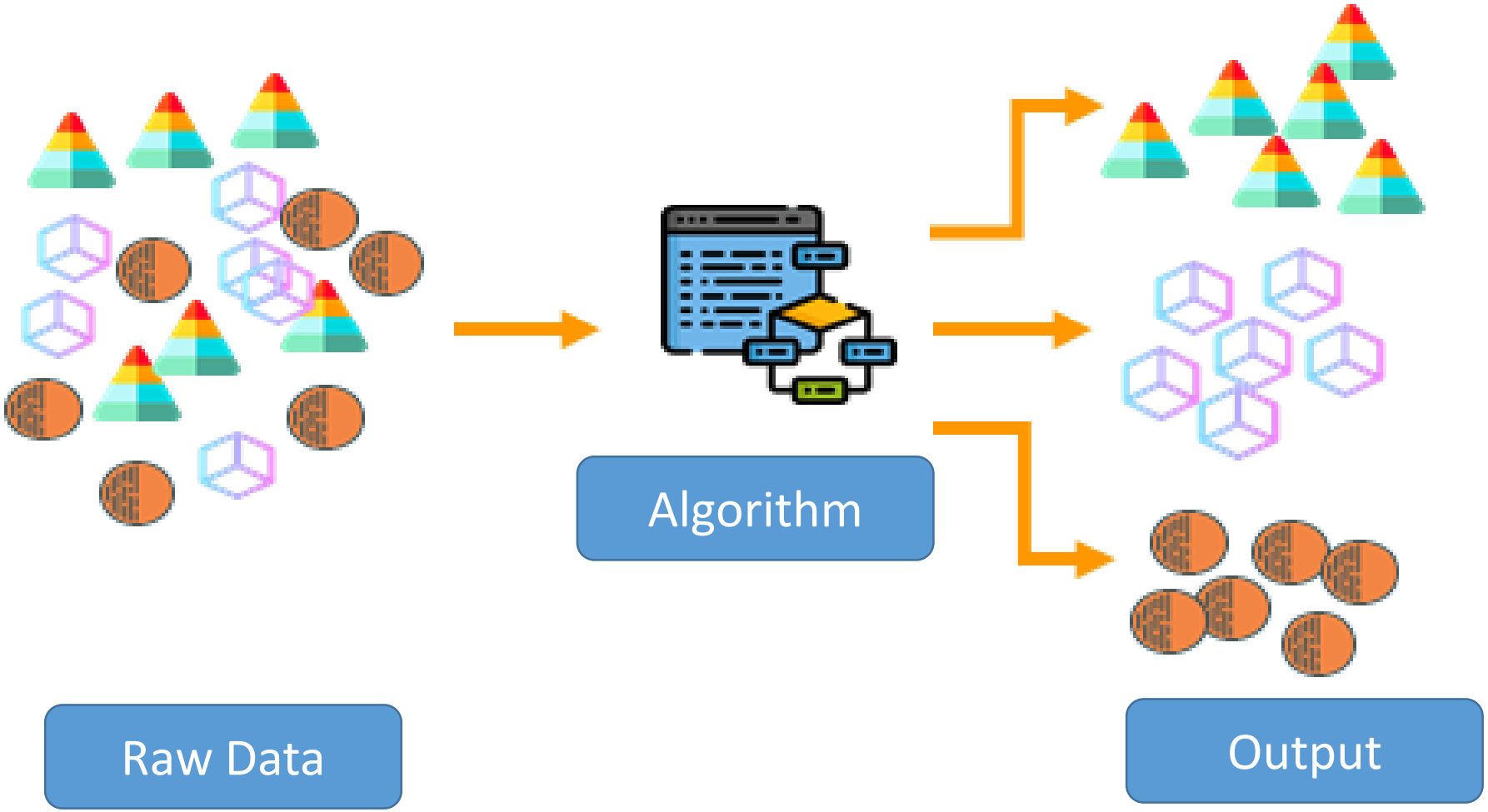


Regression

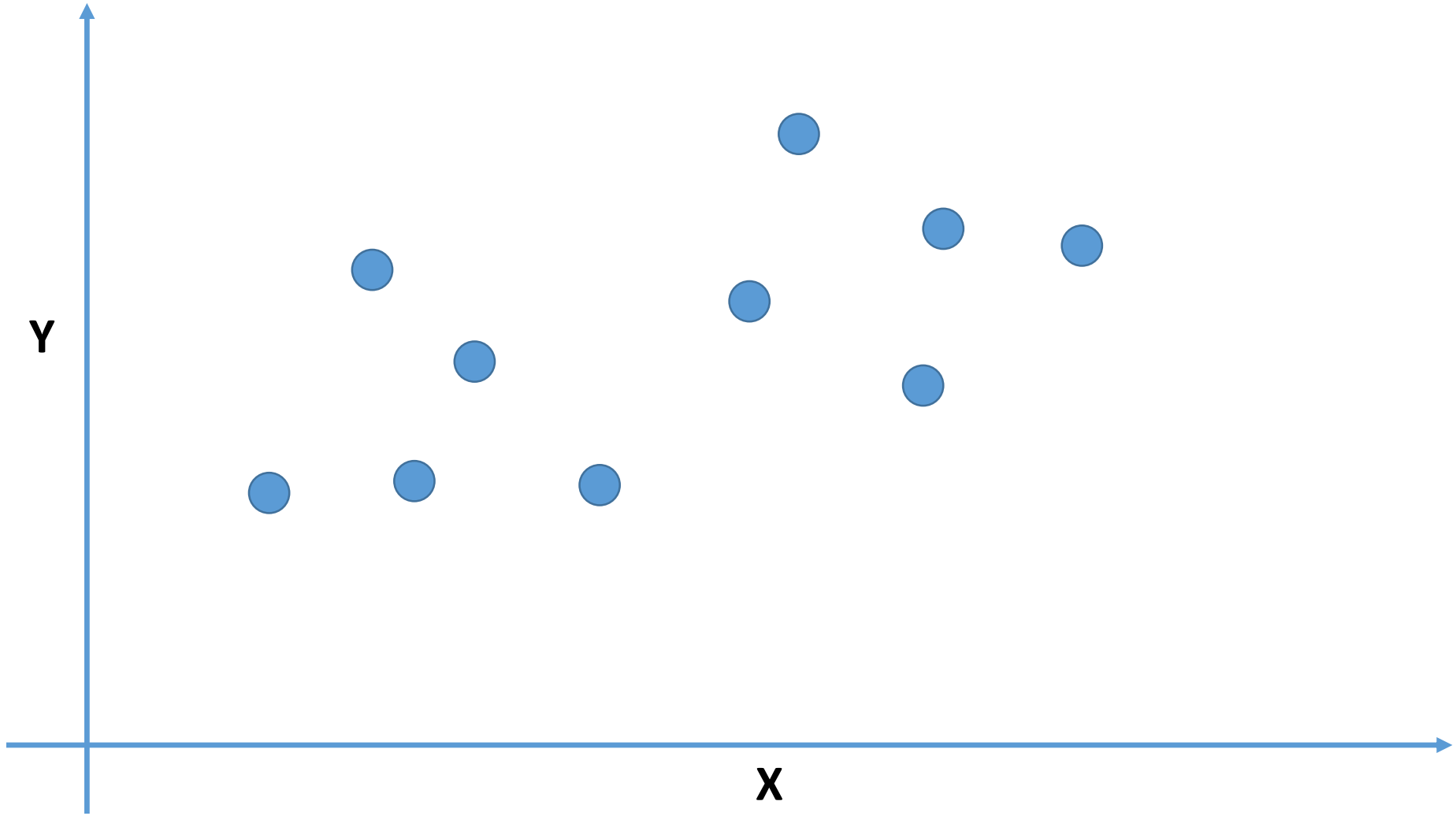
Unsupervised Learning

- Only Data
- No Label

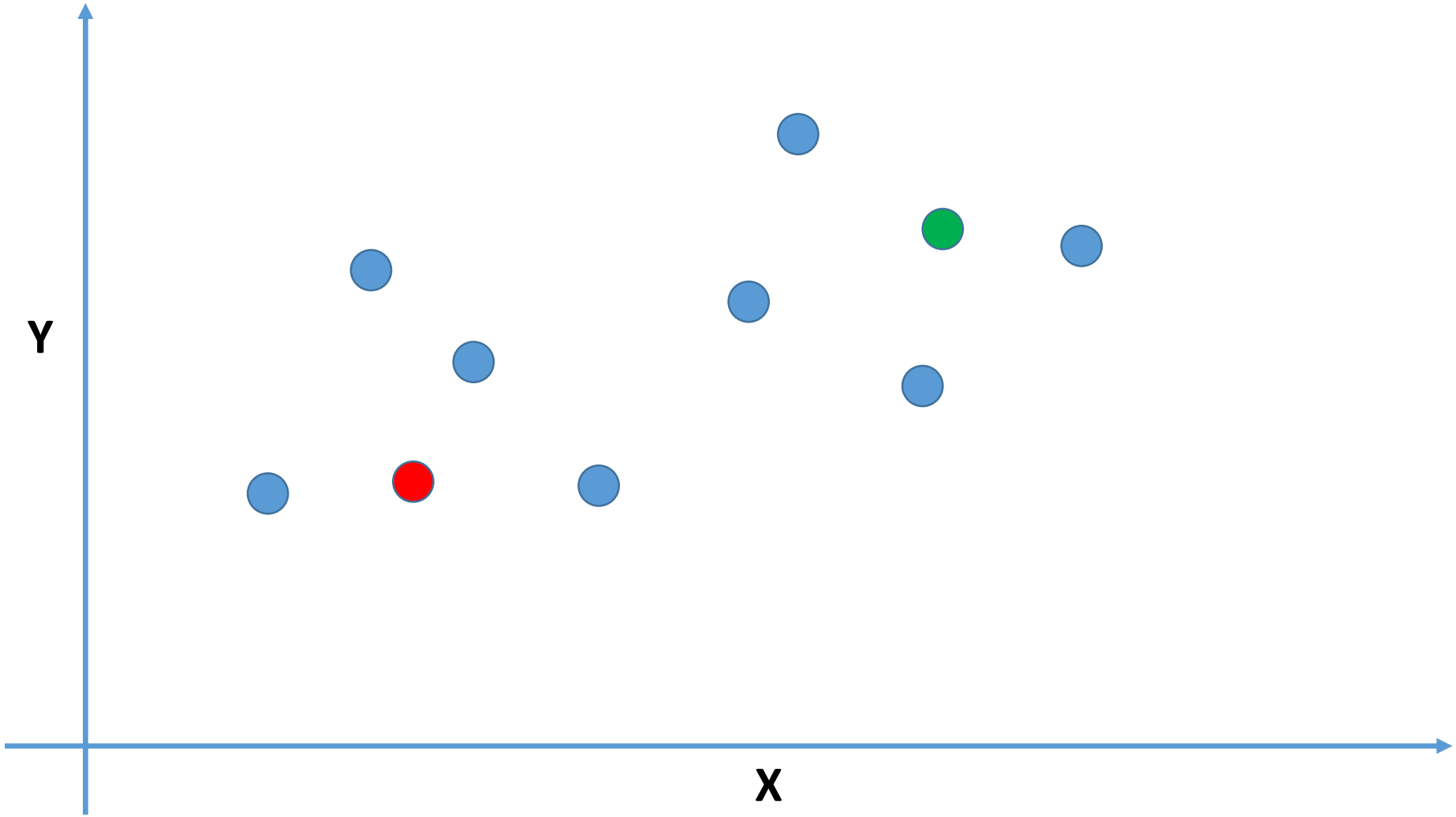
Unsupervised Learning



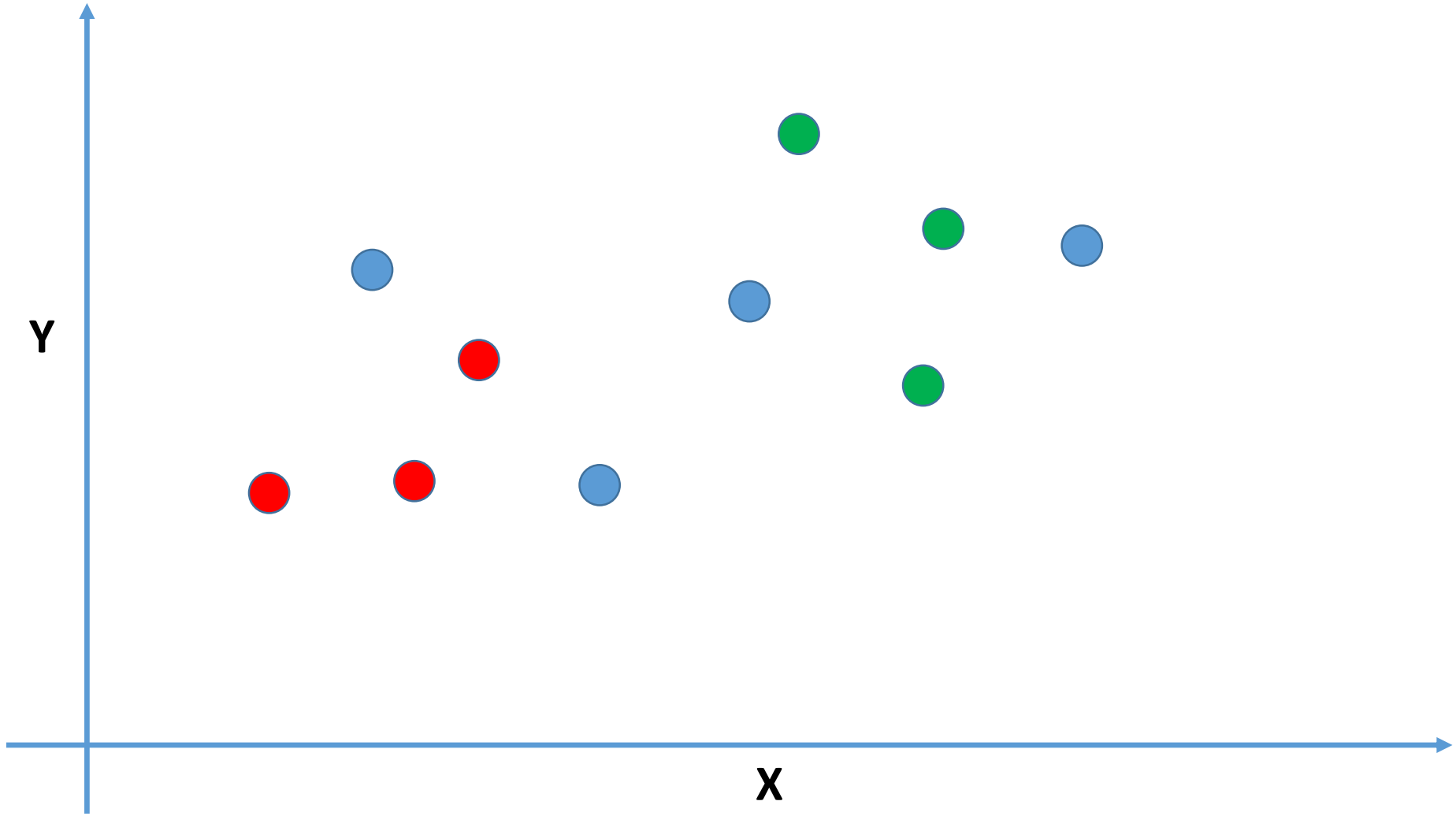
Popular algorithm: Clustering



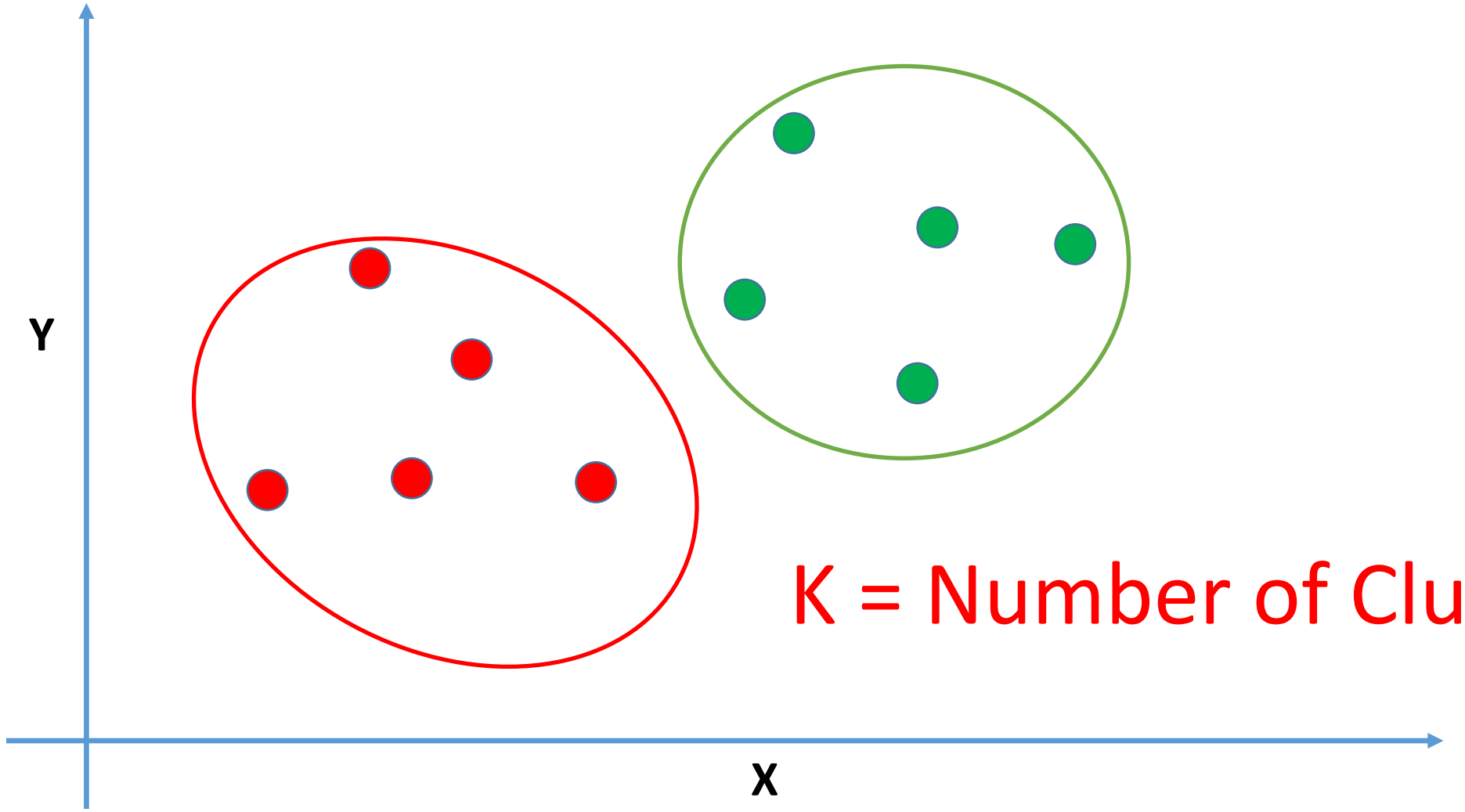
Popular algorithm: Clustering



Popular algorithm: Clustering



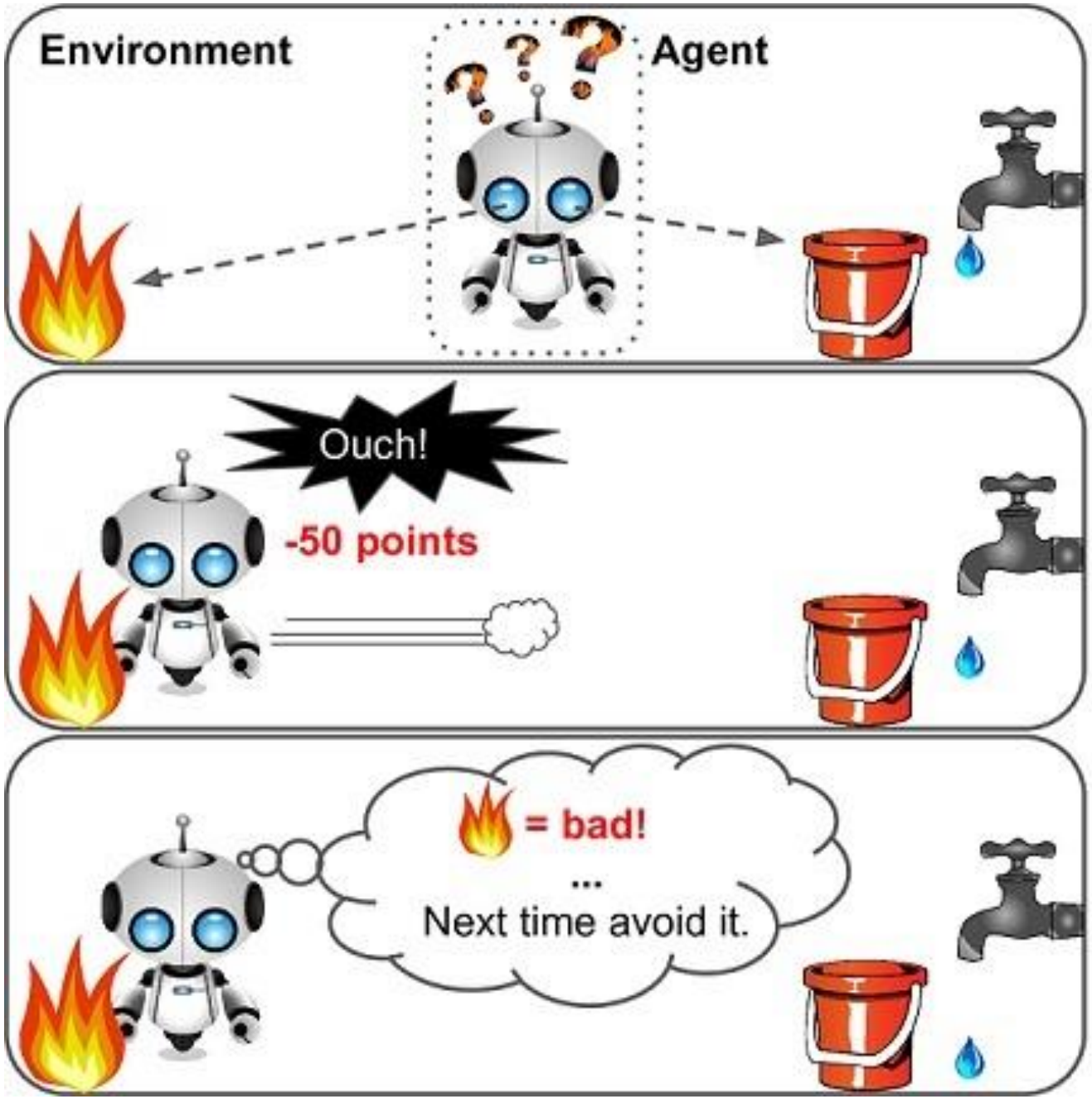
Popular algorithm: K means Clustering



K = Number of Clusters

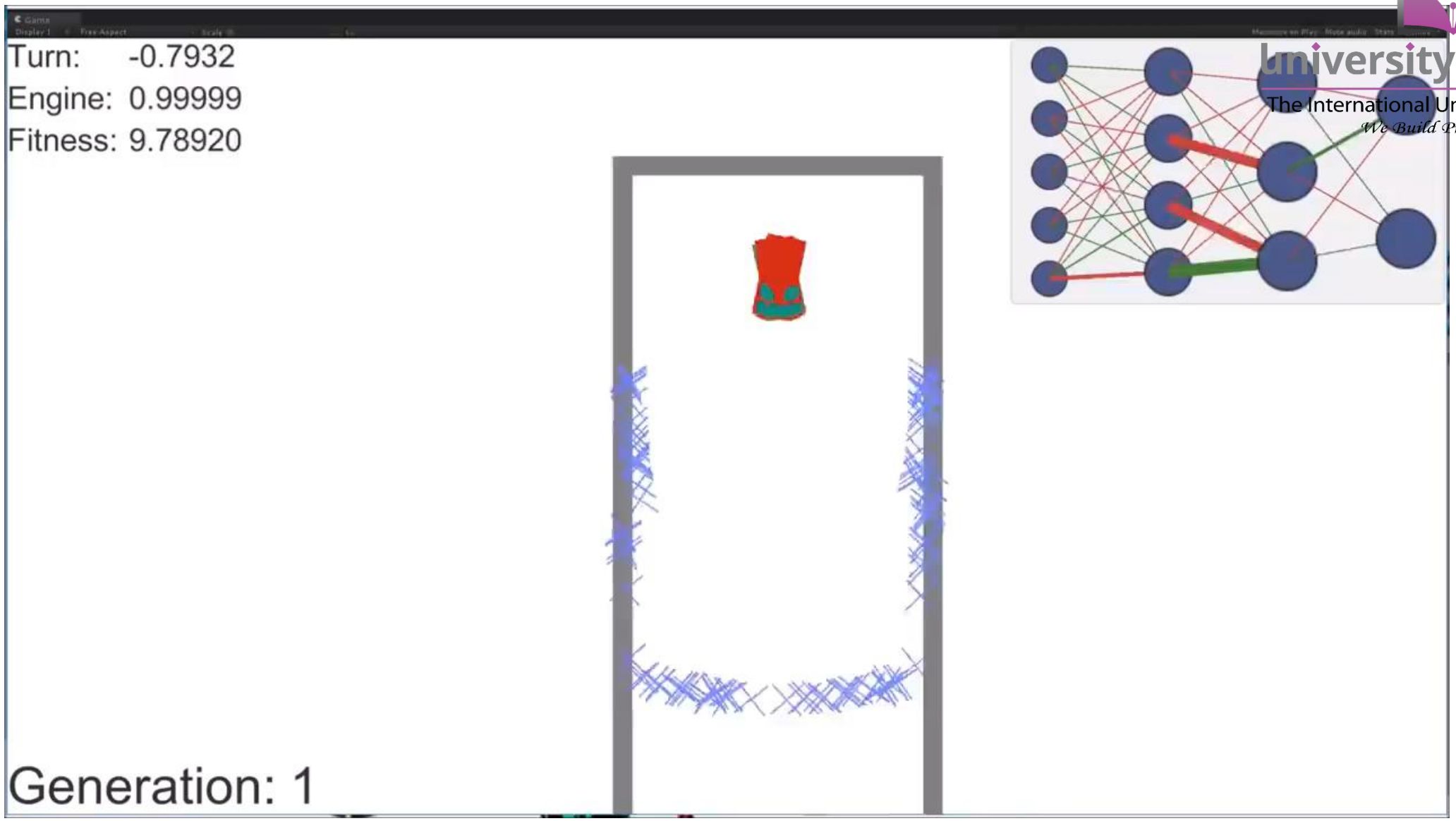
Reinforcement Learning

- Environment
- Agent
- Reward or Penalty

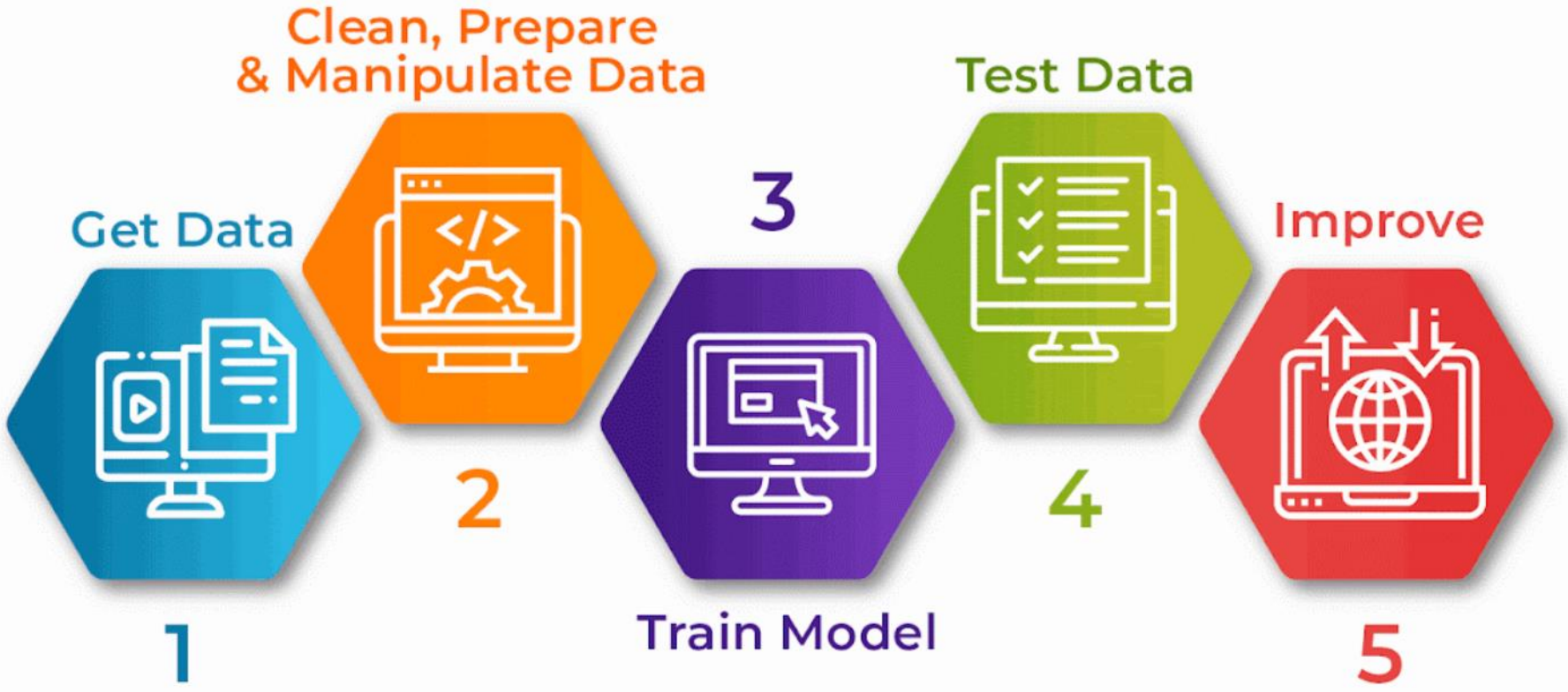


1. Observe
2. Select action using policy
3. Action!
4. Get reward or penalty
5. Update policy (learning step)
6. Iterate until an optimal policy is found

Let’s see it in action!



MACHINE LEARNING PROCESS



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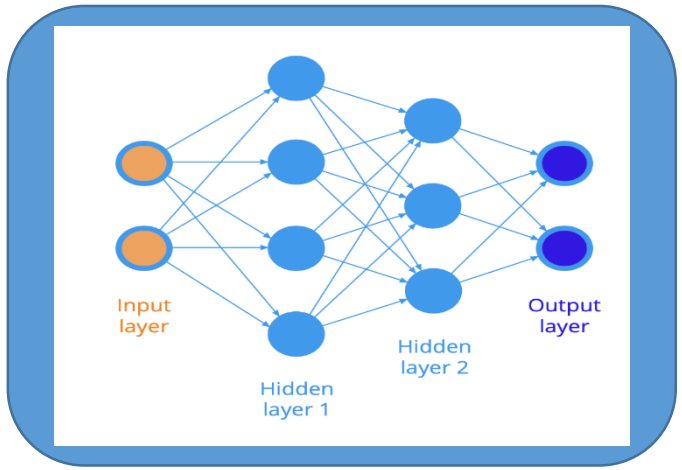
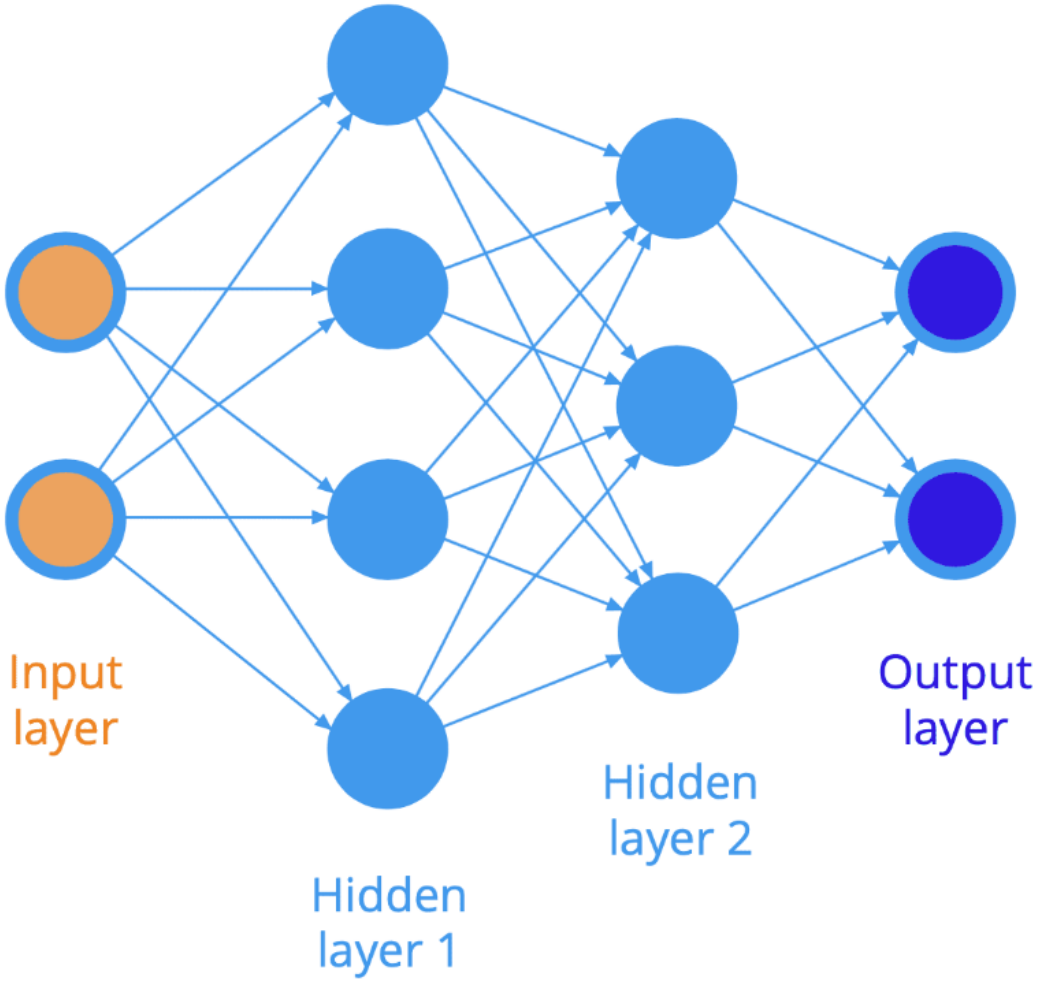
Deep Learning

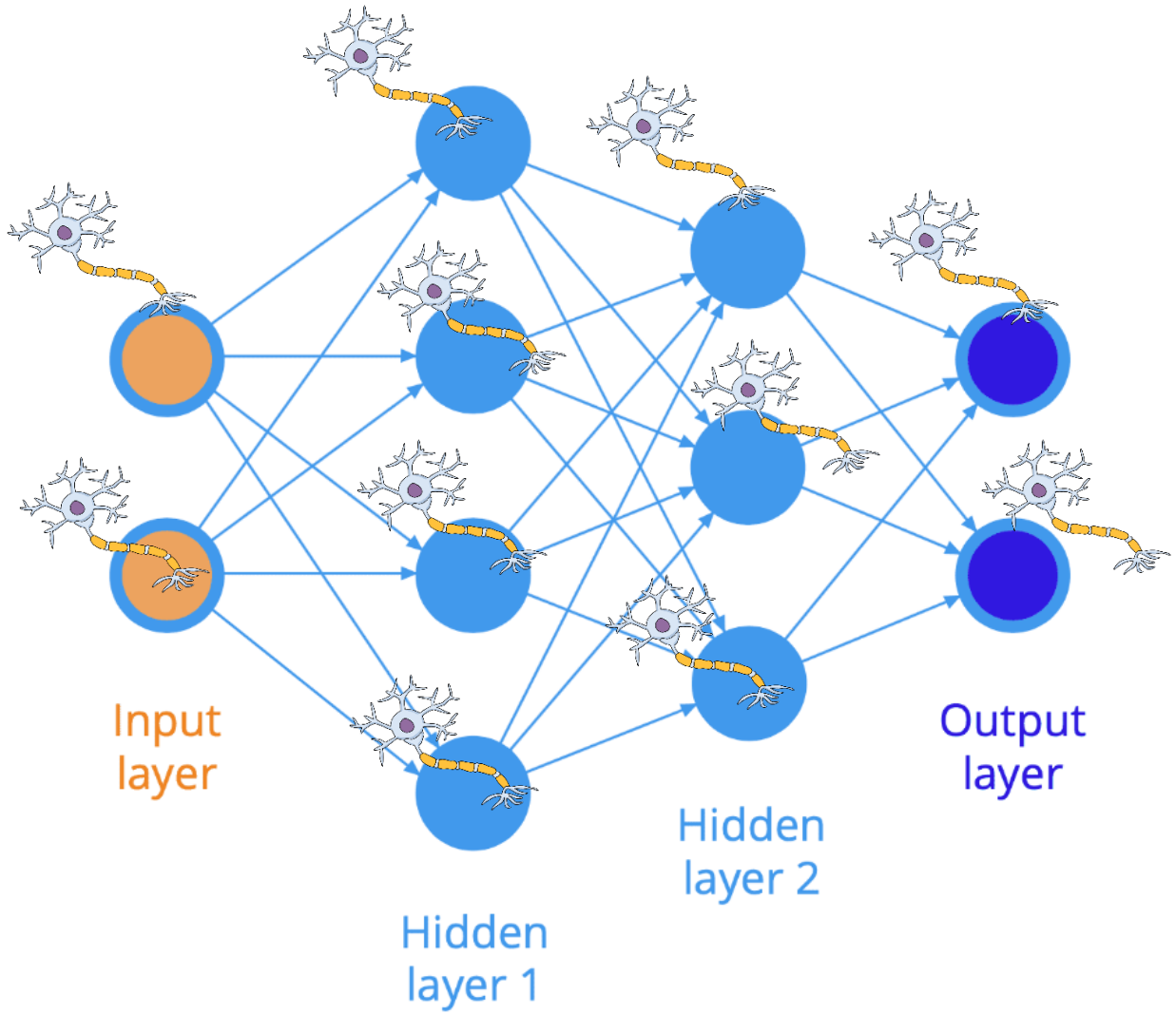


Program

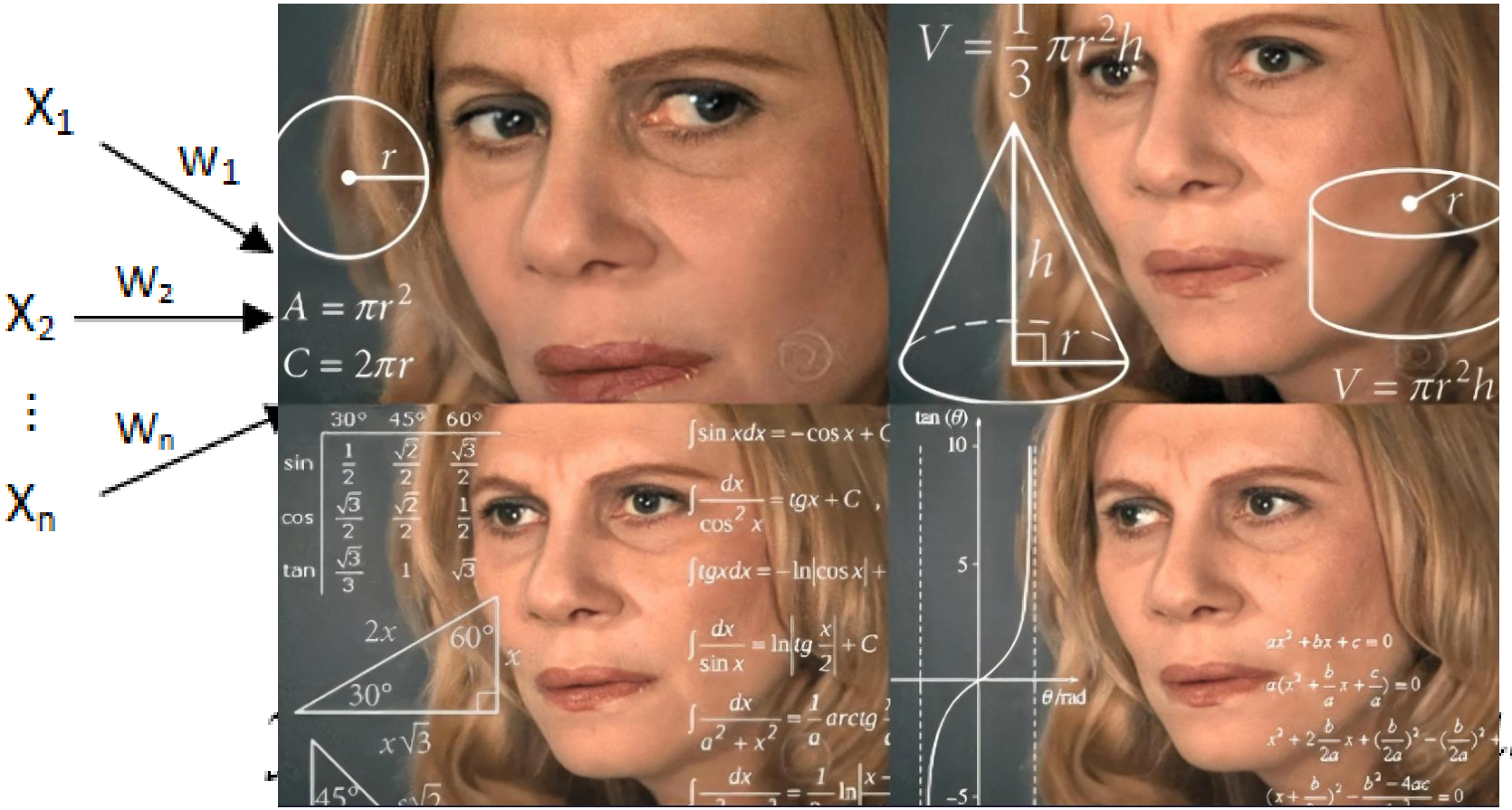
Artificial Neural Network



Artificial Neural Network



Artificial Neural Network



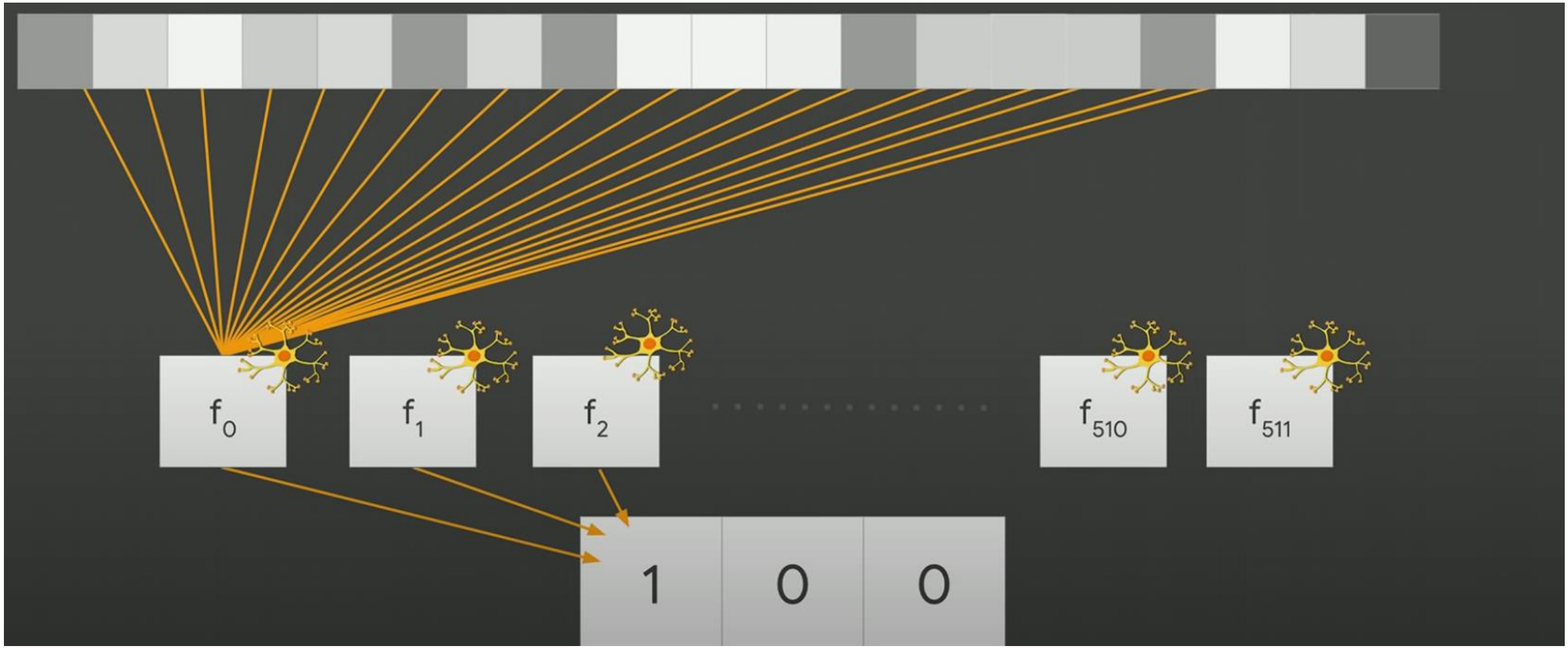
X = input

W = weight

b = bias term

y = output

Artificial Neural Network



Let’s see some machine learning in action!


AliExpress
salesforce
IBM


That's all Folks!
Thank you!