Introduction To:
Machine Learning

05/12/2021

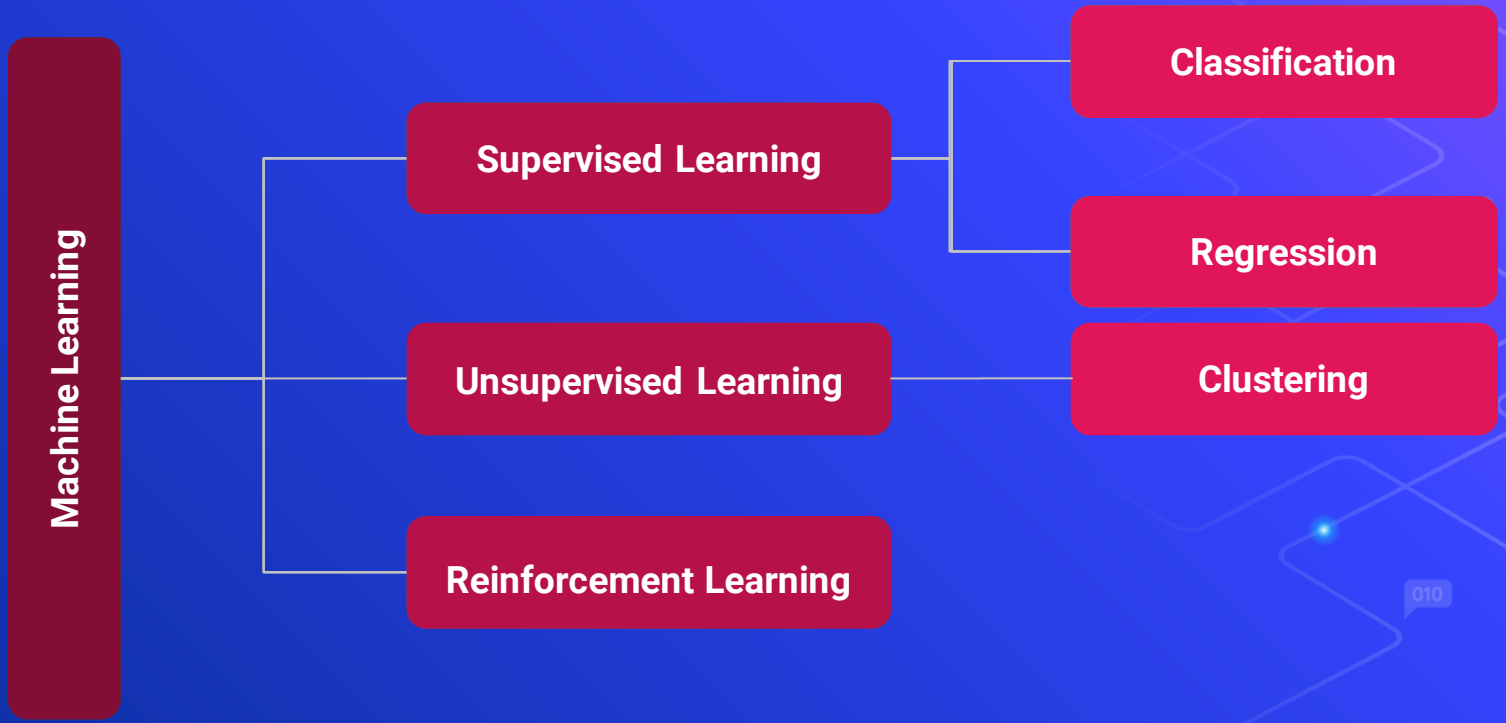
What is «Machine Learning»

« Machine learning is the field of study that gives computers the ability to learn without being explicitly programmed »

Arthur Samuel (1959)

➢ **Learn to make decisions from data using algorithms**

Types of Machine Learning



Supervised Learning

- Training data : a set of training examples where the desired output value is known.
- Learning algorithm : analyze the training data and infers a function that can map new inputs (unseen) to their relevant outputs.

Classification Algorithms:

- o Naive Bayes Classifier
- o Decision Tree Classifier
- o K-nearest Neighbours

Regression Algorithms:

- o Linear Regression
- o Logistic Regression

Unsupervised Learning

- Infer a function to describe/reveal hidden structure from unlabeled data.
- Unlike Supervised learning no supervision signal to evaluate a potential solution.

Clustering Algorithms:

o K-Means

o Agglomerative Hierarchical

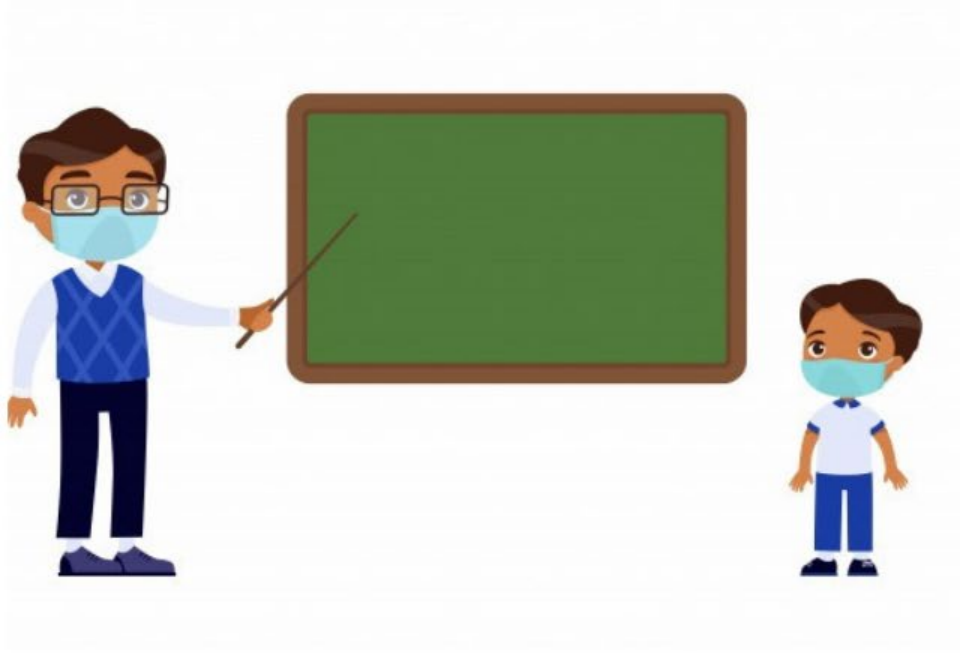
Reinforcement Learning

The paradigm of learning by trial-and-error, solely from rewards or punishments.

Exemple:

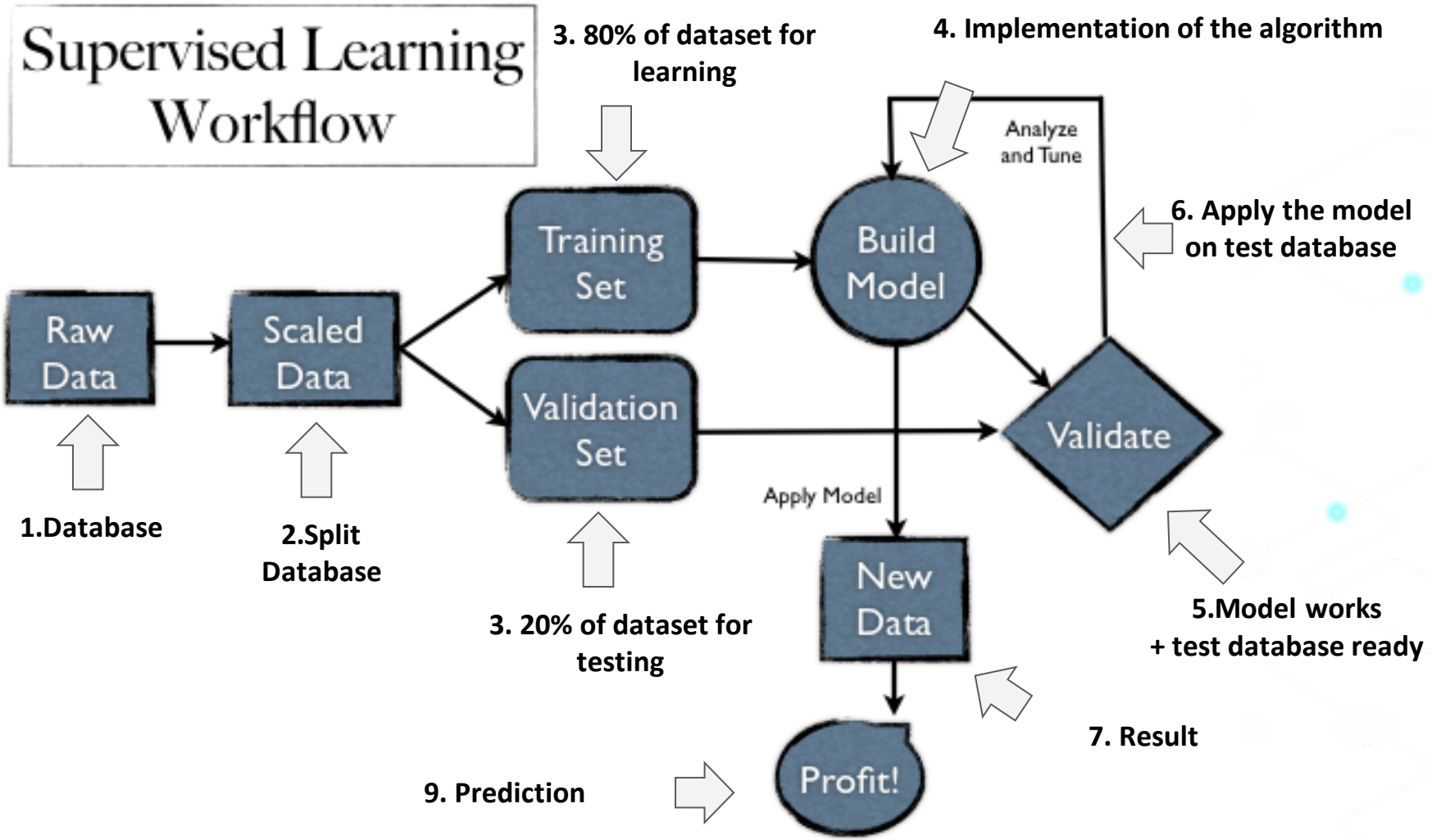
- Gaming
- Robots Navigation
- Manufacturing

Supervised

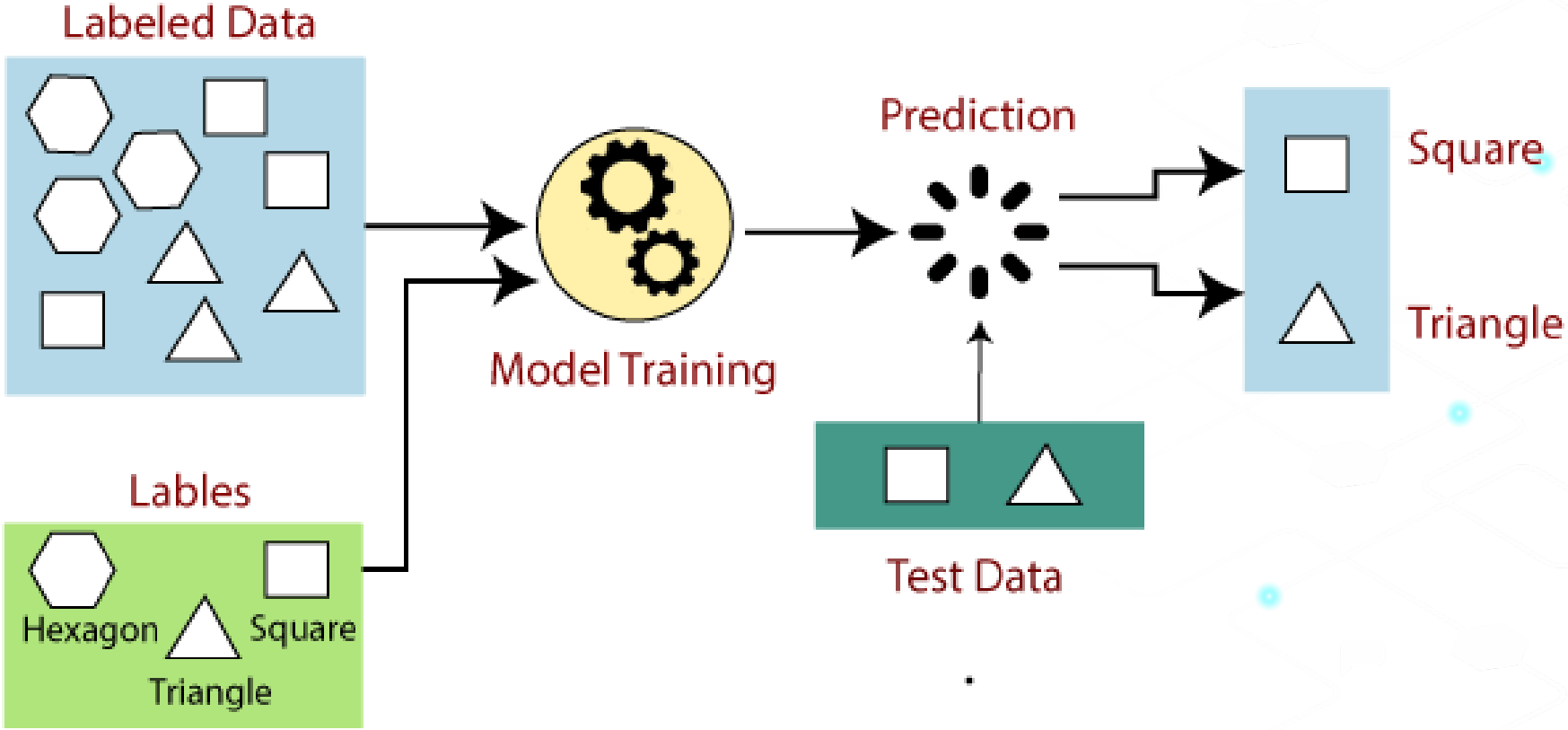


Unsupervised

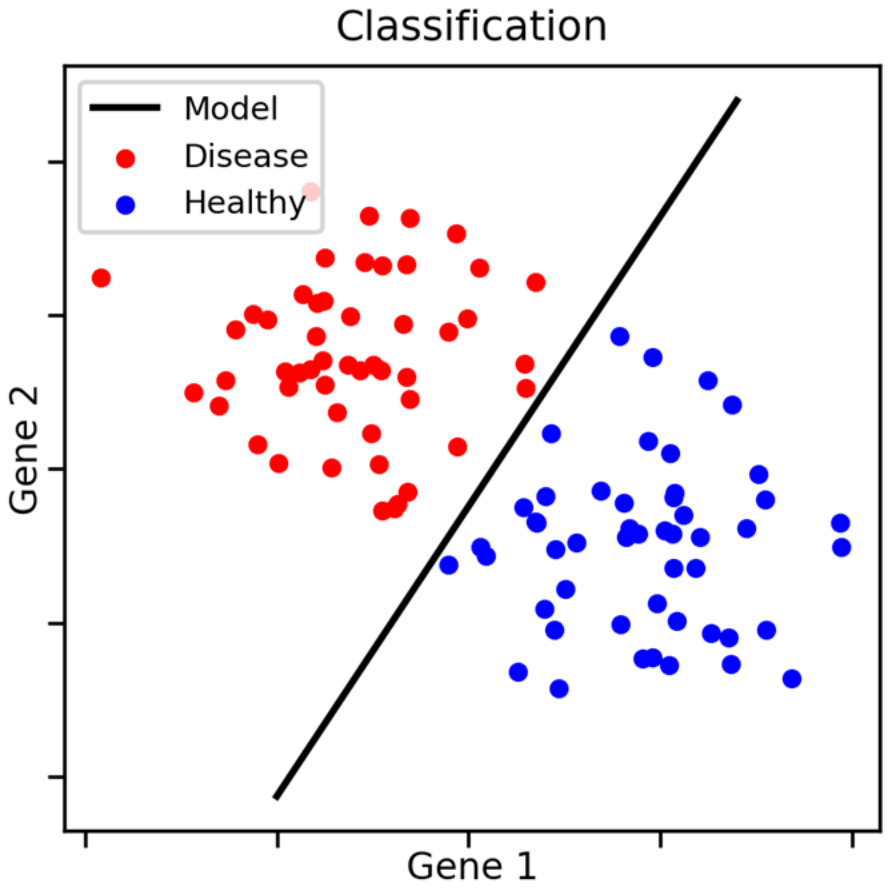
Supervised Learning Workflow

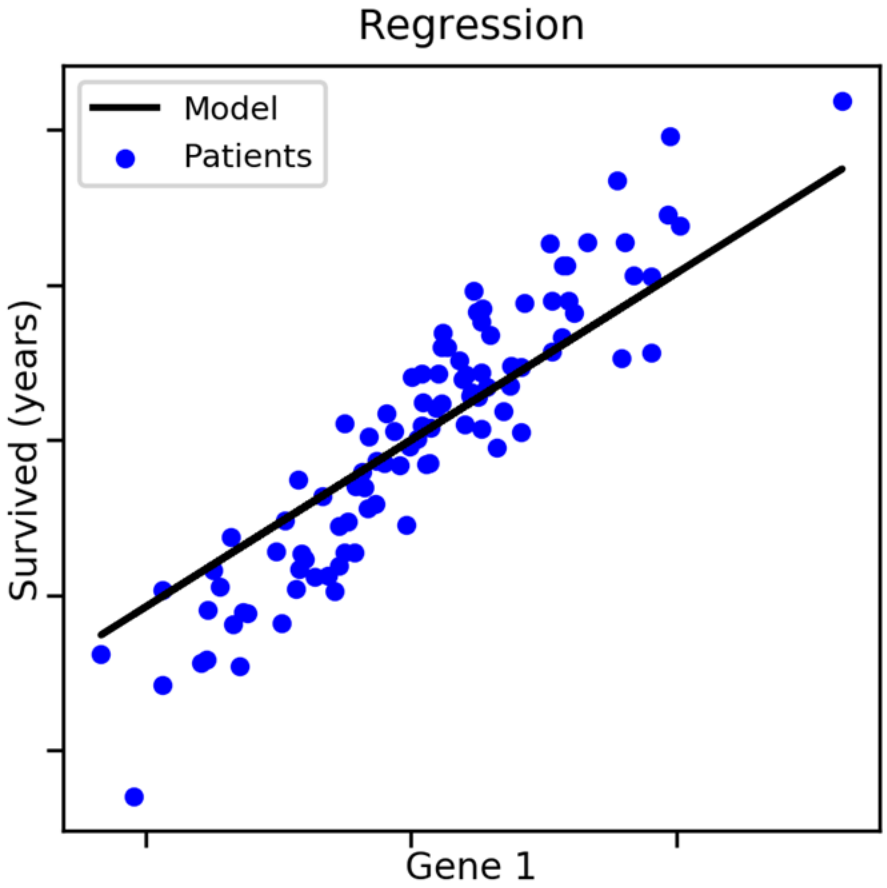


Supervised Learning Workflow

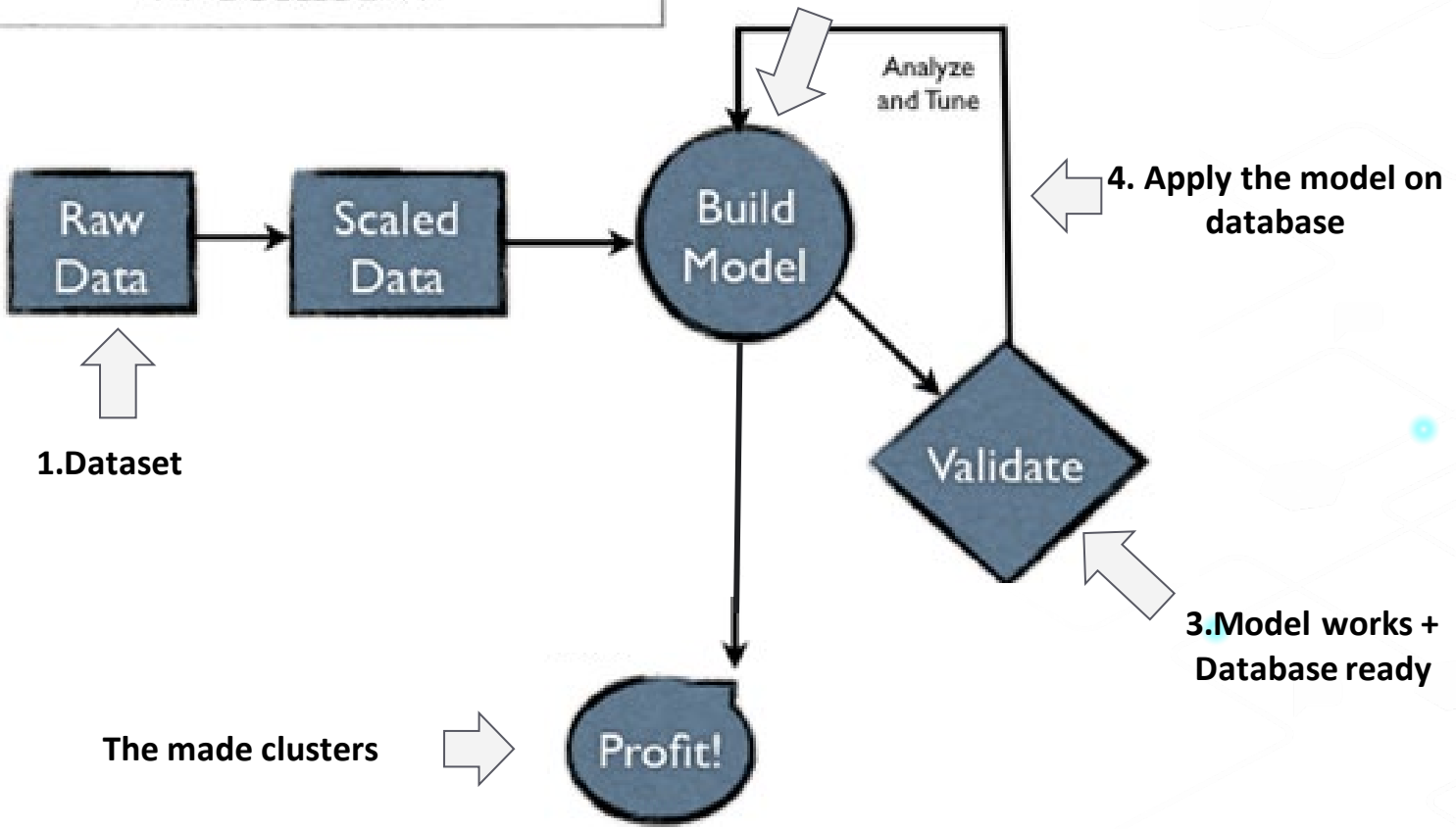


Supervised Learning





Unsupervised Learning Workflow



Unsupervised Learning

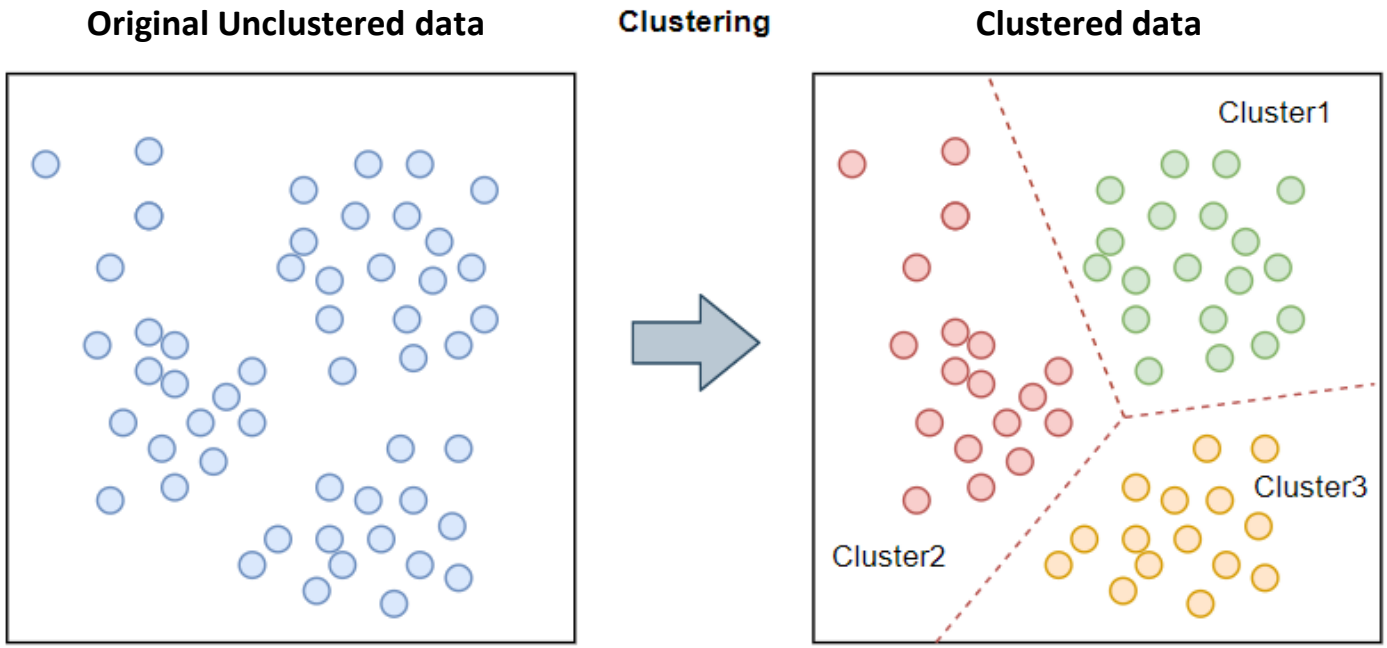
Cluster 2

Size

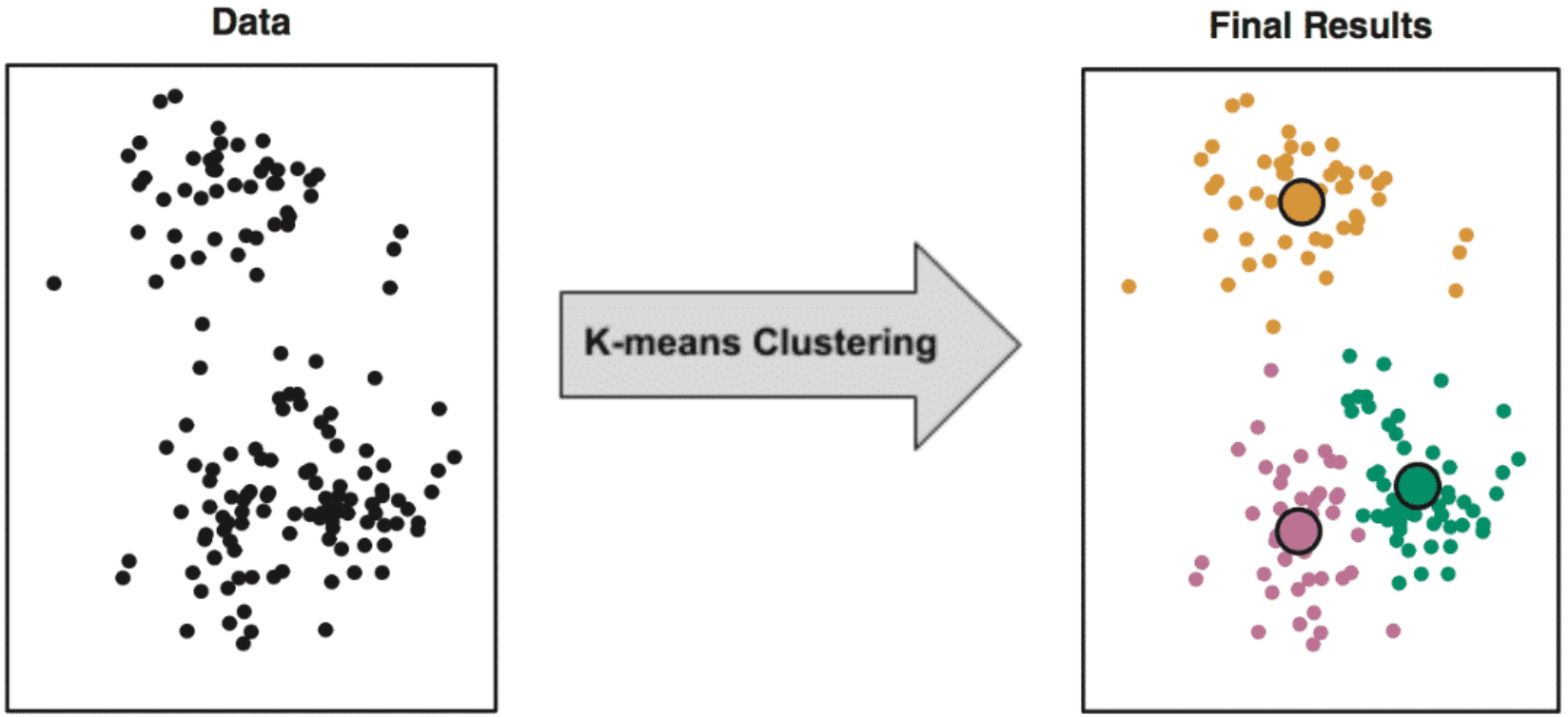
Cluster 1

Cluster 3

Unsupervised Learning



Unsupervised Learning



THANKS FOR WATCHING