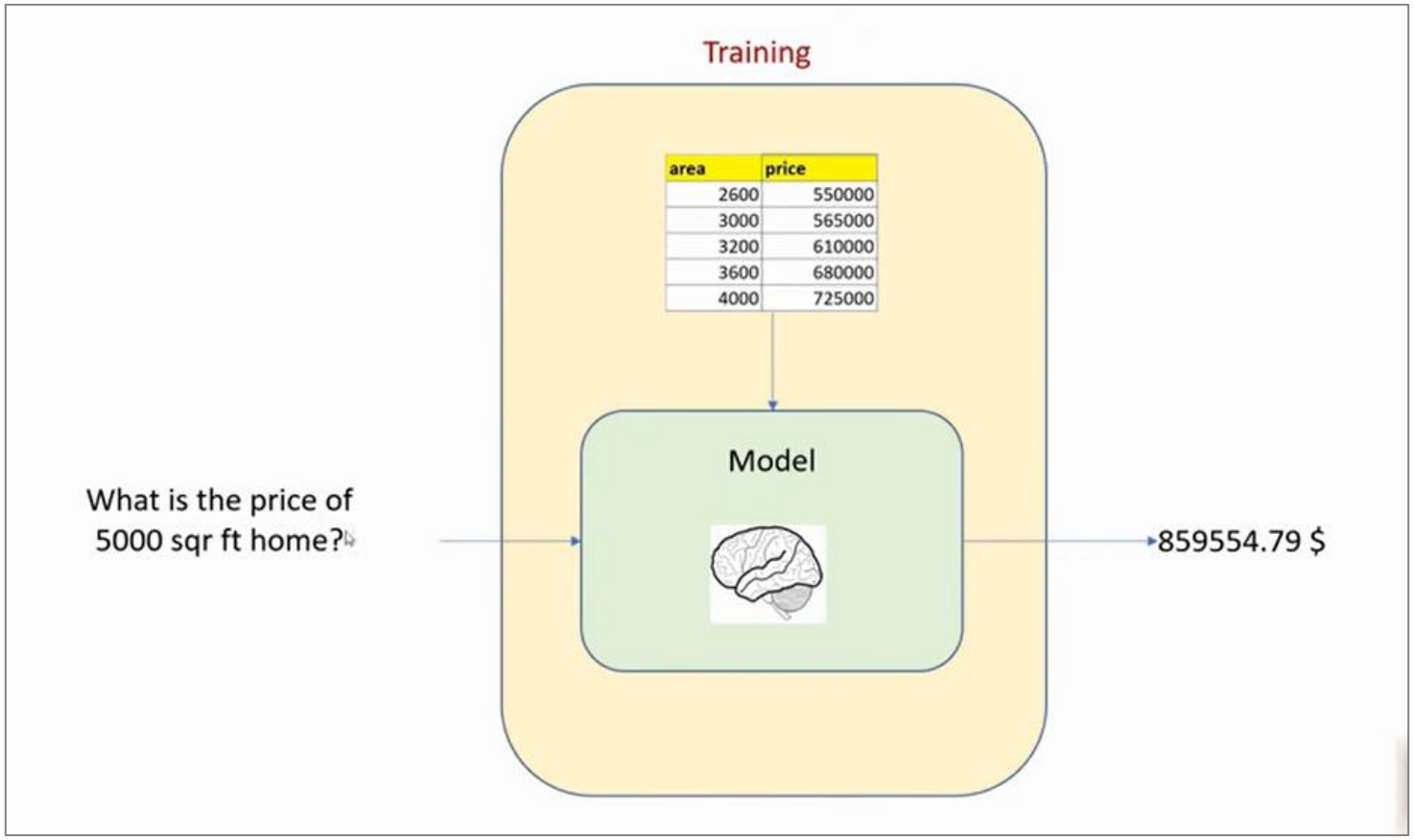
Machine learning:

Machine learning is a branch of Artificial Intelligence (AI) which accepts complex input pattern and output intelligent decisions.



Supervised Learning:

Supervised learning is a type of machine learning. It is basically a synonym of classification. The supervision in the learning comes from the labeled instances in the training data.

For Example

Weather	Humidity	Wind	Play
Sunny	High	Week	No
Sunny	Normal	Week	No
Sunny	Normal	Strong	No
Cloudy	High	Week	No
Cloudy	High	Strong	No
Cloudy	Normal	Strong	Yes
Cloudy	Normal	Week	Yes
Rainy	High	Week	Yes
Rainy	Normal	Strong	Yes
Rainy	Normal	Week	Yes

Sunny	High	Strong	???

Unsupervised Learning:

Unsupervised learning is a type of machine learning. It is essentially a synonym of clustering. The learning process is unsupervised since the input instances are not class labeled.

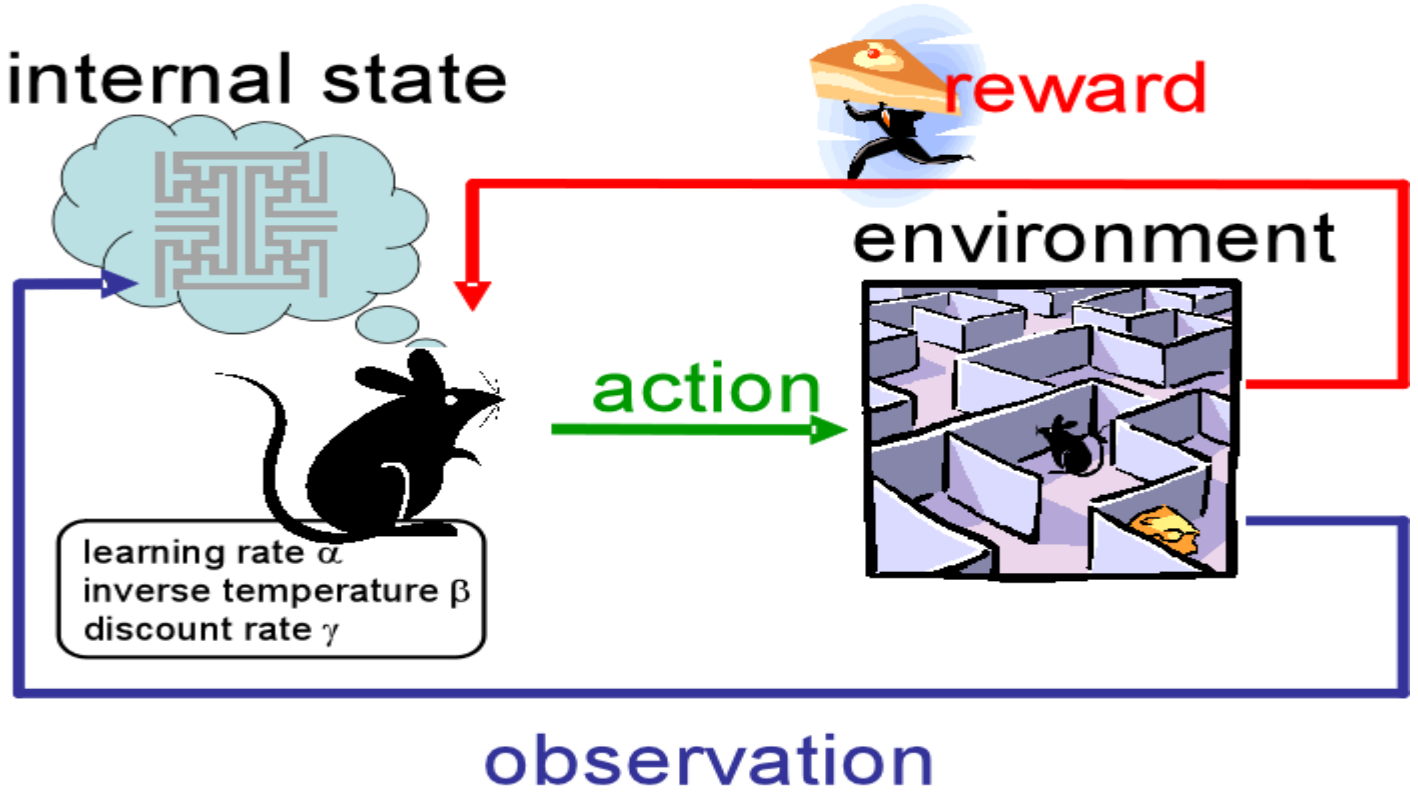
Example

Runs	Wickets
10345	1
1768	2
8000	15
4567	12
5478	32
6876	2
1000	32
800	23
900	33
566	19
10872	0
7864	0
678	18
2345	2

How many player are batsman, baller and al rounder?

Reinforcement Learning

It is neither based on supervised learning nor unsupervised learning. Moreover, here the algorithms learn to react to an environment on their own. It is rapidly growing and moreover producing a variety of learning algorithms. These algorithms are useful in the field of Robotics, Gaming etc.



SUPERVISED LEARNING

UNSUPERVISED LEARNING

REINFORCEMENT LEARNING

Criteria	Supervised ML	Unsupervised ML	Reinforcement ML
Definition	Learns by using labelled data	Trained using unlabelled data without any guidance.	Works on interacting with the environment
Type of data	Labelled data	Unlabelled data	No – predefined data
Type of problems	Regression and classification	Association and Clustering	Exploitation or Exploration
Supervision	Extra supervision	No supervision	No supervision
Algorithms	Linear Regression, Logistic Regression, SVM, KNN etc.	K – Means, C – Means, Apriori	Q – Learning, SARSA
Aim	Calculate outcomes	Discover underlying patterns	Learn a series of action
Application	Risk Evaluation, Forecast Sales	Recommendation System, Anomaly Detection	Self Driving Cars, Gaming, Healthcare

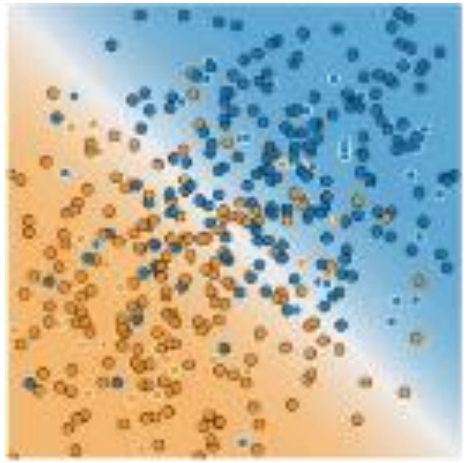
Training data:
This type of data builds up the machine learning algorithm. The data scientist feeds the algorithm input data, which corresponds to an expected output.

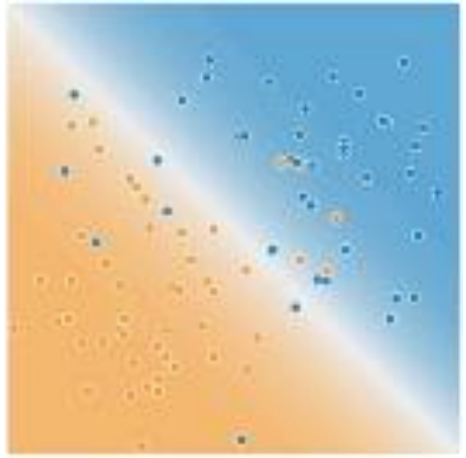
Test data:
After the model is built, testing data once again validates that it can make accurate predictions.

Splitting Data

It is called Train/Test because you split the data set into two sets: a training set and a testing set.

May be, 80% for training, and 20% for testing.


Training Data


Test Data