

# Machine Learning

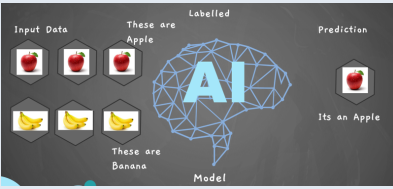
1

What ?

Definition — Learn from Data & Solves Problem

Types

1



Supervised Learning

Classification

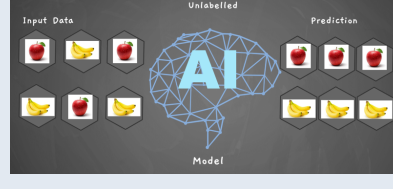
- K-Nearest Neighbor
- Support Vector Machine
- Decision Tree
- Random Forest
- Naive Bayes
- Neural Network
- Stochastic Gradient Descent

Some of the algorithms can also be used as both classification and Regression

Regression

- Linear Regression
- Logistic Regression
- Polynomial Regression

2



Unsupervised Learning

Clustering

- Principle Component Analysis
- Hierarchical Clustering
- Singular Value Decomposition
- Independent Component Analysis
- K- Means Clustering

Association

3



Reinforcement Learning

3 Ways of Implementation

- Model Based
- Policy Based
- Value Based

Model

- Q-Learning
- Markov Decision Process

2

How ?

1

Programming

- R
- Python

2

Skills

Mathematics

- Linear Algebra
- Calculus
- Probability

Statistics (Data Analytics)

- Mean
- Variance
- Inferential Statistics
- IQR
- Probability
- Descriptive Statistics
- Regression
- Correlation
- Hypothesis Testing
- Normal Distribution
- Range
- A/B Testing
- Mode
- Maximum Likelihood
- Standard Deviation

Database

- MongoDB
- MySQL

BI Tools

- Qlik Sense
- Tableau
- Power BI

3

Steps

- Gathering Data
- Data preparation
- Choosing a model
- Training
- Evaluation
- Parameter Tuning
- Prediction

3

Why ?

Job

- ₹744K/Annum - India
- \$172K/Annum - USA

4

Application

Disease Detection & Classification

Social Media

- User Pattern Analysis
- Suggestions

Autonomous Vehicle

- Pedestrian Detection
- Lane Detection
- Road Sign Detection

Search Engines

- Suggestions
- Analysis
- Prediction