Pooja Deshmukh

Session On Machine Learning

Agenda

1. Introduction
2. Road-Map
3. Machine Learning Algorithms
4. Important python libraries for ML
5. Linear Regression Model using Python

Introduction to ML

- Growing technology which enables computers to learn automatically from past data.

- It uses various algorithms for building mathematical models and making predictions using historical data or information.

- Image recognition, speech recognition, email filtering, Facebook auto-tagging, recommender system.

Introduction to ML

What is this??

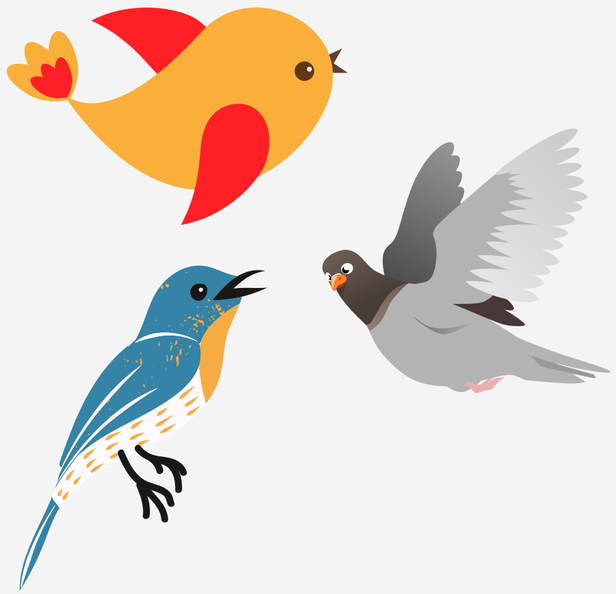
Introduction to ML

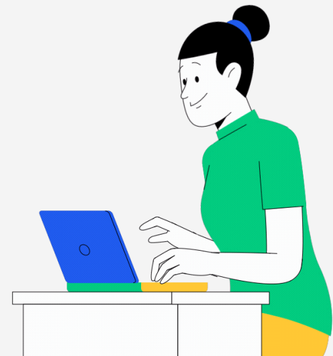
and this??

Introduction to ML

How do we know these all are birds??

Introduction to ML

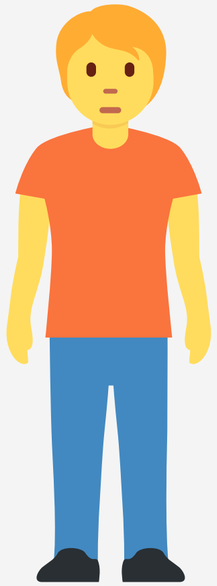




Introduction to ML

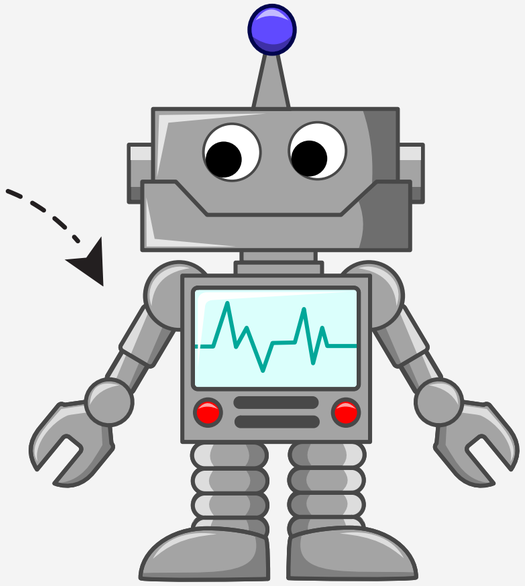
Introduction to ML

Human



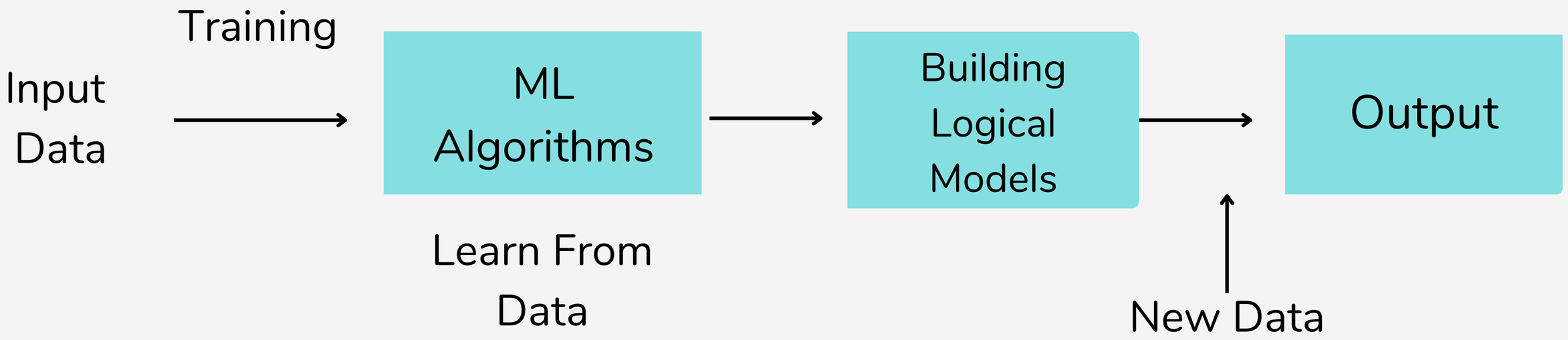
i can learn anything automatically from experience
can u learn??

Yes i can learn from the past data with the help of Machine Learning



Machine learns from historical data, builds the prediction models, and whenever it receives new data, predicts the output for it.

How does Machine Learning work



Road-Map for Machine Learning

1

Mathematics

Linear Algebra

Statistics

Road-Map for Machine Learning

2

Programming

Python

R

Road-Map for Machine Learning

3

Algorithms

Supervised Learning

Unsupervised Learning

Road-Map for Machine Learning

4

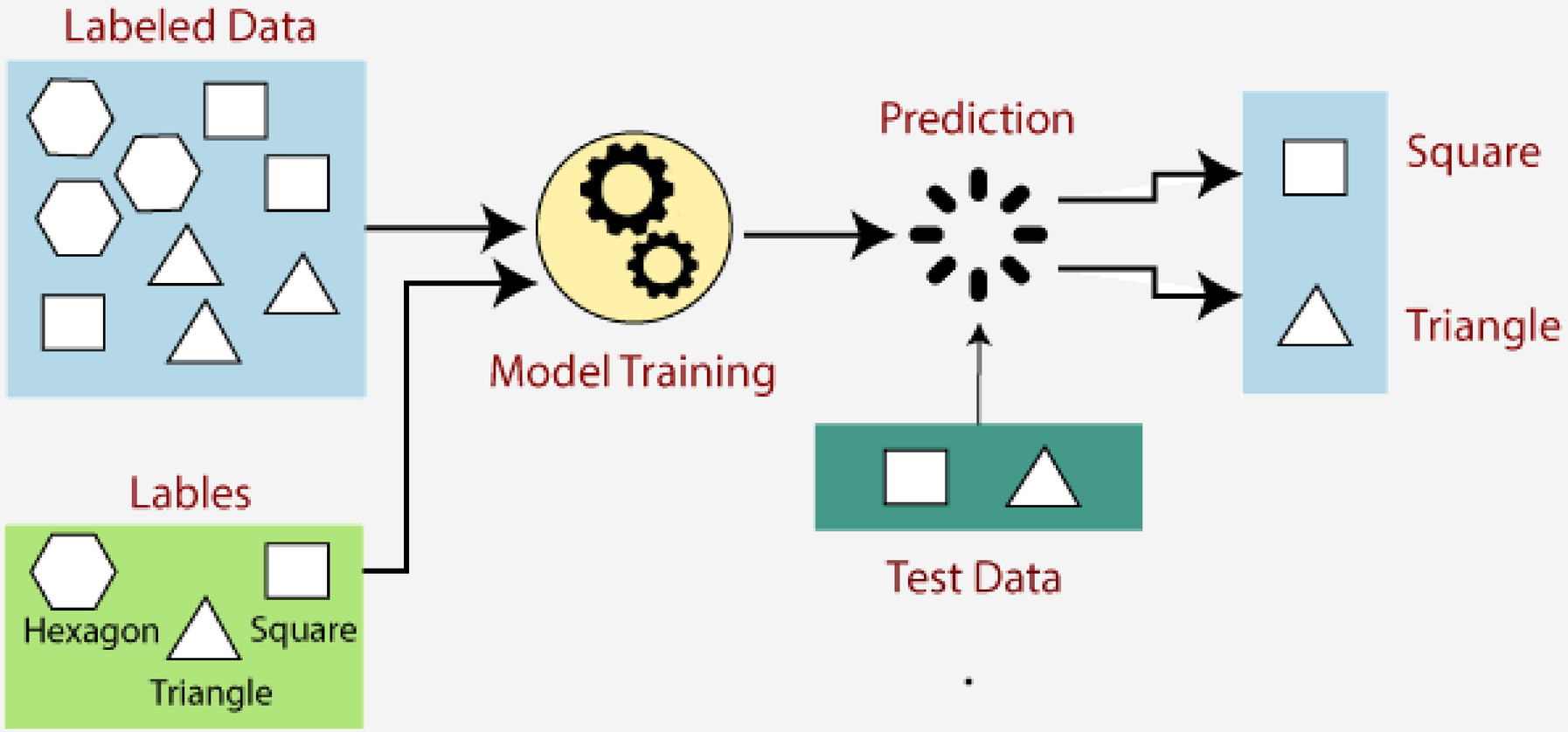
Dataset

Kaggle

Machine Learning Algorithms

Supervised Learning

sample labeled data to the machine learning system in order to train it, and on that basis, it predicts the output



Supervised Learning

Regression

When output is in continuous variables, such as Weather forecasting, Market Trends.

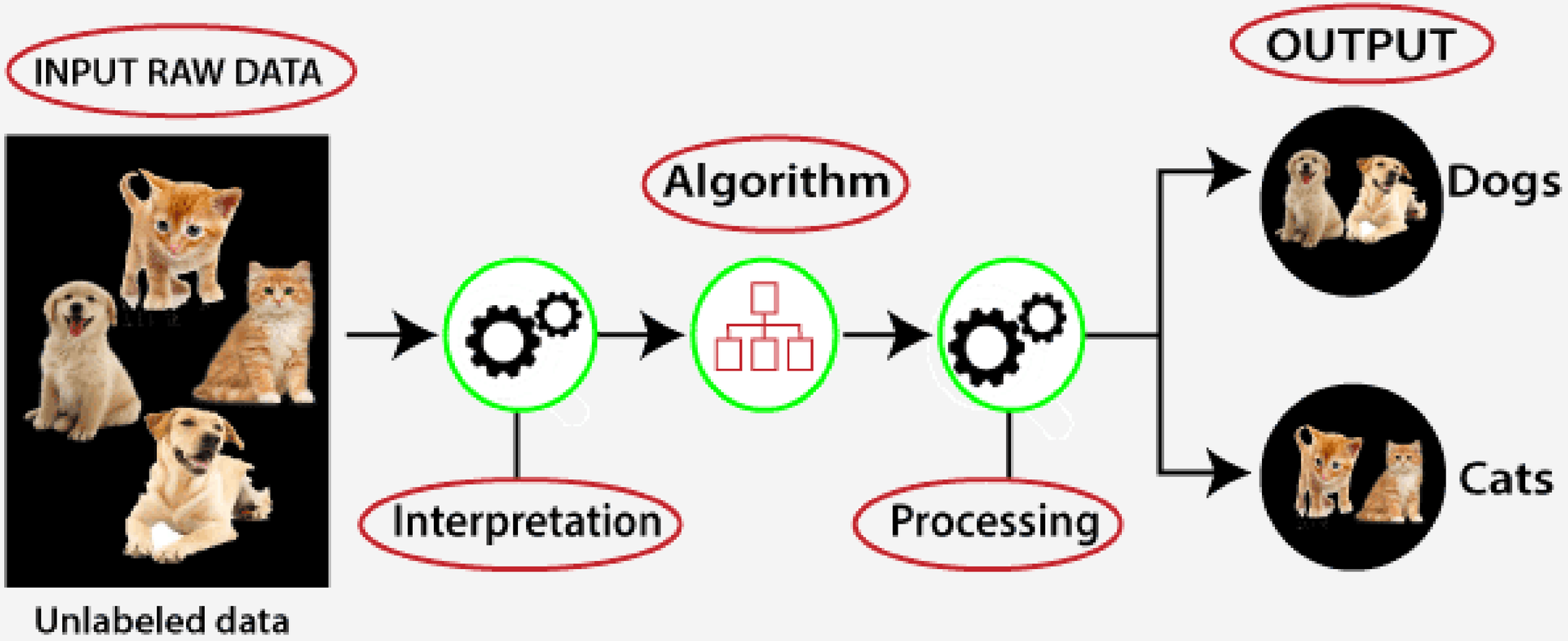
- Linear Regression
- Regression Trees
- Non-Linear Regression
- Polynomial Regression

Classification

When the output variable is categorical, Email Spam Detection

- Random Forest
- Decision Trees
- Logistic Regression
- Support vector Machines

Unsupervised Learning



Clustering Algorithms

K-means clustering
KNN (k-nearest neighbors)
Hierarchal clustering

Machine Learning Using Python

Python Libraries

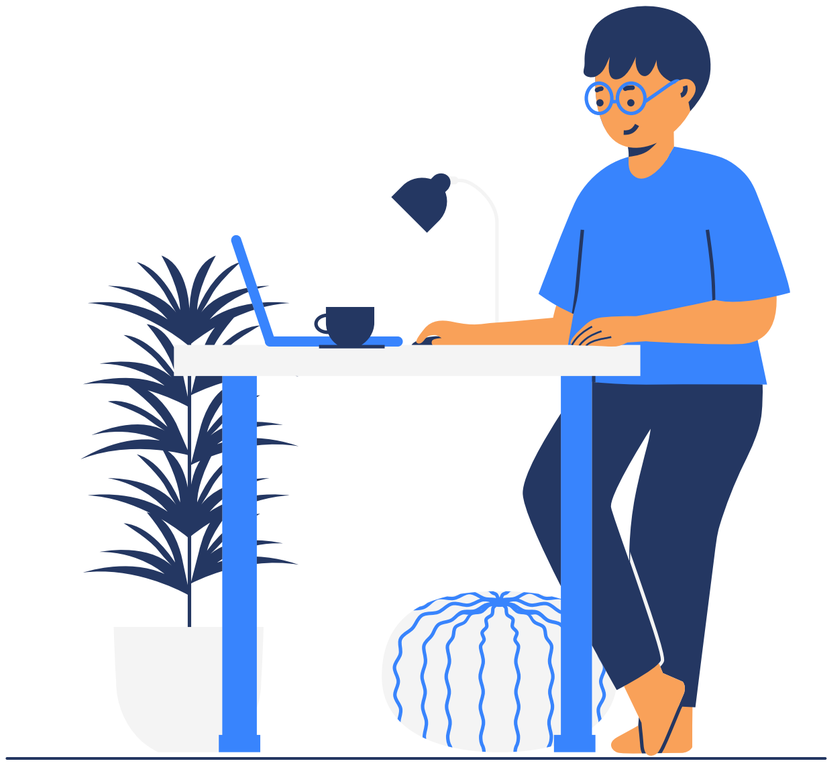
01 Pandas

02 Numpy

03 matplotlib

04 seaborn

05 Scikit-learn



Linear Regression

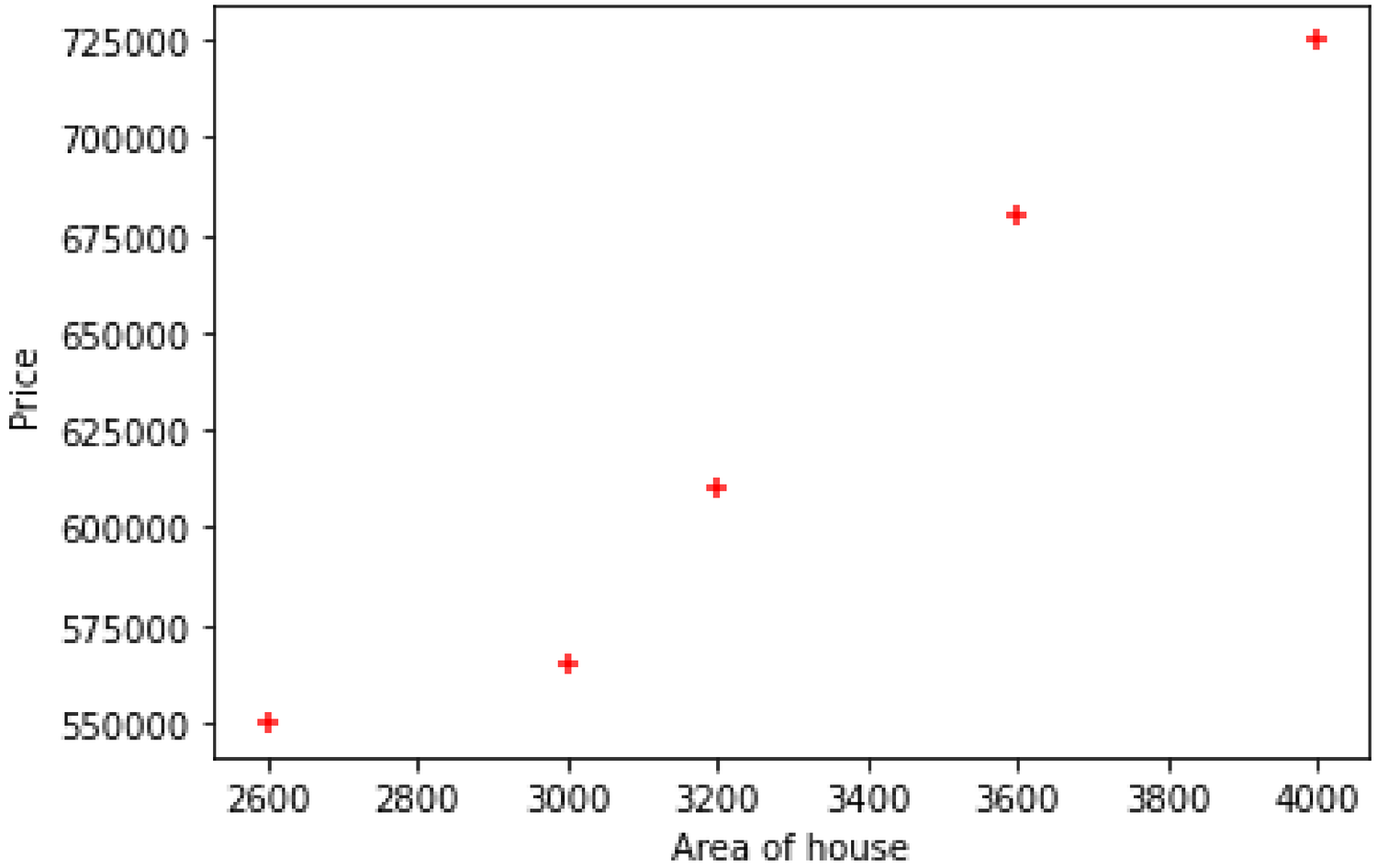
area	price
2600	550000
3000	565000
3200	610000
3600	680000
4000	725000

These Home prices are given and find out the price of homes whose area is,

3300 square feet

5000 square feet

Linear Regression



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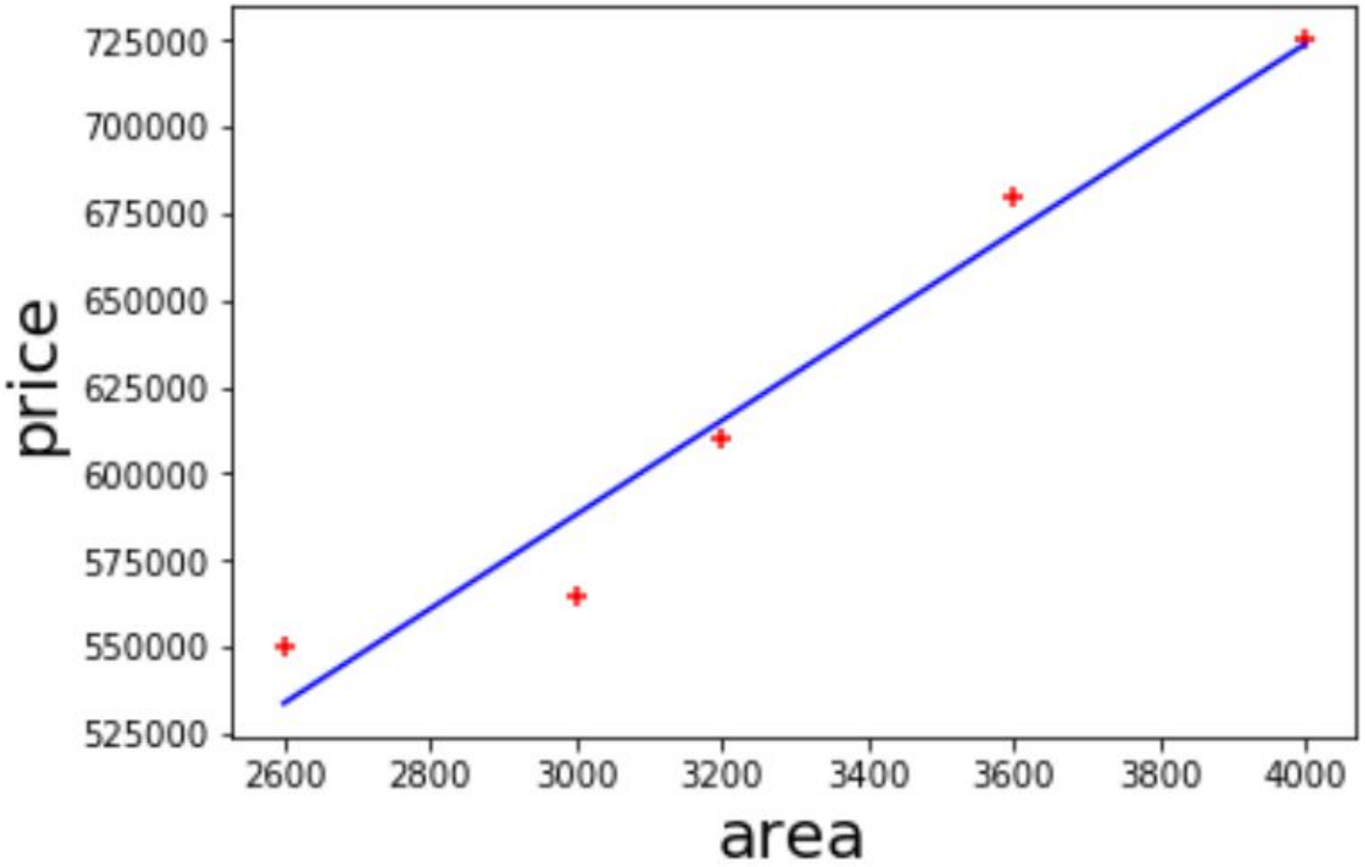

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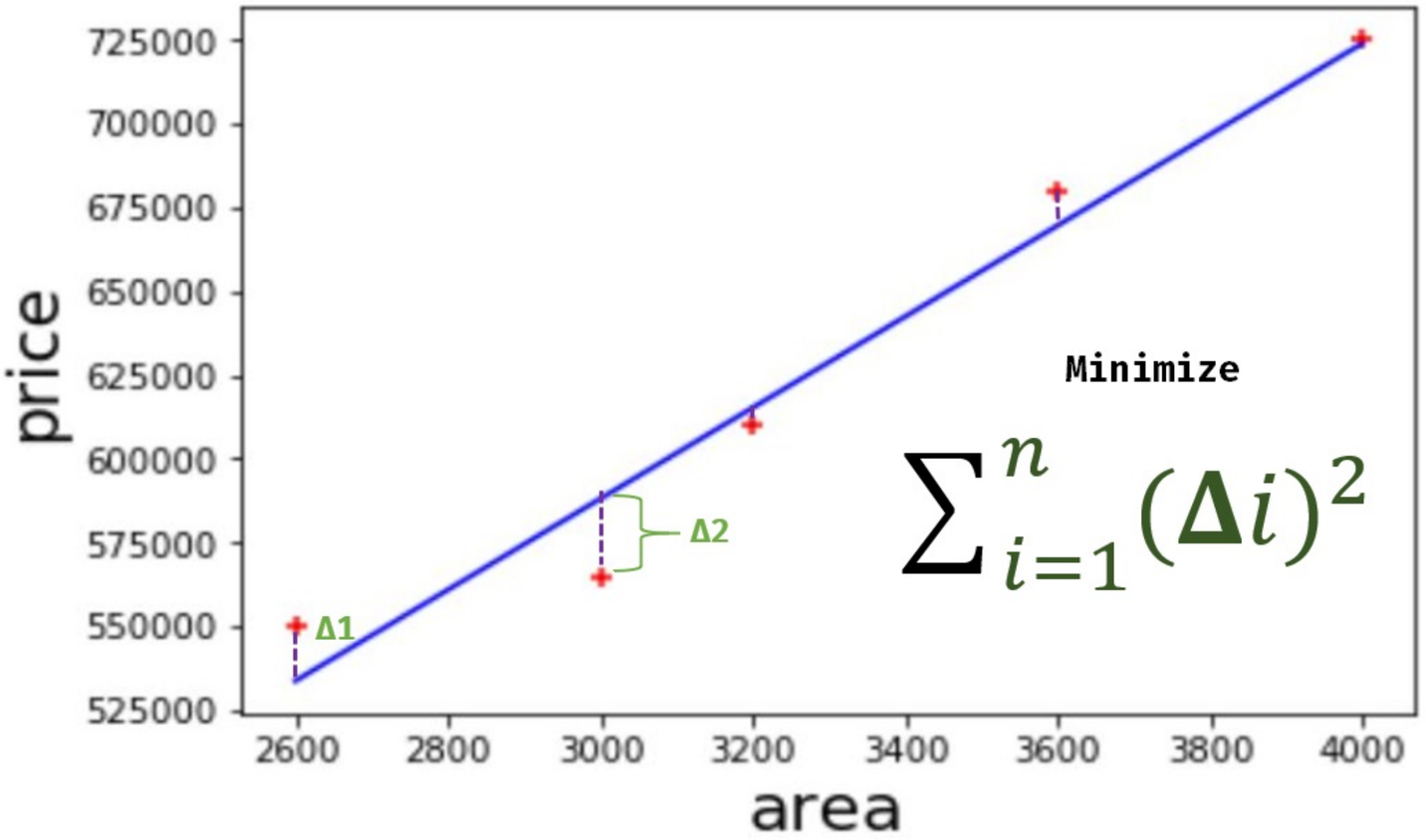
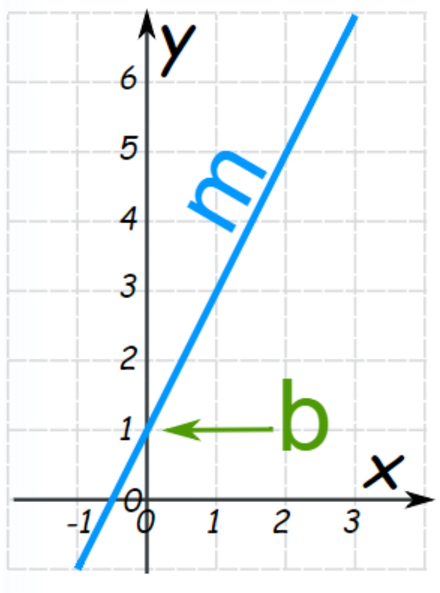


Linear Regression




```
price = m * area + b
```

$$y = mx + b$$

Slope (or Gradient) Y Intercept

Reference: https://www.mathsisfun.com/algebra/linear-equations.html


Thank
You