20. Regression Analysis

- Depedning on type of data, On the basis of outcome, you decided whether to do classification or regression analysis for prediction
- outcome: continuous -> regression analysis

Regression Analysis - Real world applications:

1. Prediction of rain using temperature and other factors
2. Determining of Market trends
3. Prediction of road accidents due to rash driving

 Regression analysis

- Linear Regression: Used when input and output have linear relationship
- Non-linear regression: used when input and output have non-linear relationship

Linear Regression:

1. Linear regression
2. Multi-linear regression
3. Lasso regression
4. Ridge regression

Non-Linear Regression:

1. Polynomial regression
2. Decision tree regression
3. Random Forest regression
4. Suppor vector regression
5. K-Neartest Neighbour

20.1 Linear Regression Algorithm (Simple Linear)

- Linear regression is used when independent/input variable is single

y = mx + c

- m = slope of line (angle between x and y=axic)
- c = intercept (at how much distance the line is farther from y-axis)

m = x2 - x1 / y2 - y1

- m is +ve if anlge < 90
- m is -ve if anlge > 90
- m is 0 if angle = 0