

# Flatiron School Capstone Project- Naweed Ahmed



# Data Science Process



# Understanding the business case

- The business problem we are looking to solve, is to build a predictive model which will be able to assess the effectiveness of a Bank's Marketing campaign.
- This would allow banks and financial institutions to use our model to effectively target customers which represent the greatest chances of conversion to the product that is being marketed.
- Banks and financial institutions can reduce costs by removing the need for cold calling, and also offset the costs incurred by chasing customers who do not convert.
- Moreover, the economic features incorporated into the model would allow the Banks to approach the customer at the opportune time which would provide the highest chances of conversion.

# Data Understanding

- The dataset provides data for direct phone call marketing campaigns for a Portuguese Retail Banking institution, which aims to promote term deposits to bank's existing customers.
- The dataset includes data between May 2008 and November 2010.
- The problem to be solved is a Binary Classification one.

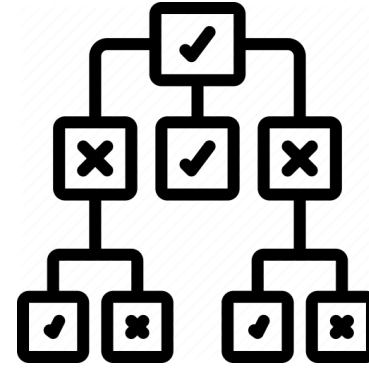
# Data Cleaning and Feature Engineering

- We obtained additional economic data to add to our original data set.
- This would allow us to make more accurate predictions, and also allow the banks to market individual customers at the most opportune time which would improve chances of conversion.

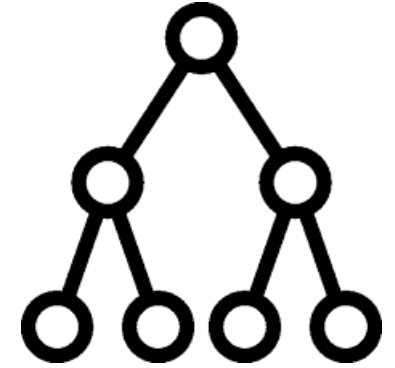
# Modelling



Logistic  
Regression



Decision Trees



Random Forest

$$P(A | B) = \frac{P(B | A)P(A)}{P(B)}$$

Guassian Naïve  
Bayes



Bagged Tree



# Evaluation

Our best performing model was the Logistic Regression. Our baseline model got an Accuracy score of 90.7%

We used GridSearchCV to hypertune the model and managed to improve the score to 92.9%

Our model improved by over 5% after adding the additional economic data.

## Future Work

The model we have built can be easily scaled, and also be applied to other regions.

With economic data readily available, we can continually update the model, making it future proof.

We can deploy this model on cloud servers



Thank You

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Linkedin: to be added later

Medium: to be added later