Project Description

Introduction:
The goal of this project was to use classification models in order to predict the term deposit subscription by the financial institutions, where they can improve their marketing campaign among others.
A term deposit is a cash investment held in the client's account for a fixed period at financial institutions, where the investor won't be able to withdraw their funds before the term ends. money will be locked up for that period of time.
Because term deposits are a big source of income for the bank, and to increase the number of clients who will accept the term deposit offer, financial institutions need to identify customers with high chance of accepting the offer so they can be targeted and aimed when contacting customers using the different contact methods.

Design:
The project question is: Predicting if a new customer of the bank will accept the deposit offer or not?. For financial institutions to improve their future marketing campaigns, they need to find ways that can lead them to apply the best strategies. By analyzing the "Bank Marketing Dataset", banks will be able to get useful insights in which they can use to answer the project main question and so improve their marketing campaigns in the future.
In this project, I will use the available data in the dataset in order to predict whether the new customers will accept the deposit offer from the bank?

Data:
The "Bank Marketing Dataset" is retrieved from:
https://www.kaggle.com/janiobachmann/bank-marketing-dataset/version/1
Dataset contains 11.2k records with 17 features as the following:

Age	Customer's age 'numeric'
Job	Job type 'categorical'
Marital	Marital status 'categorical'
Education	Level of education 'categorical'
Default	Has credit in default? 'categorical'
Balance	Bank balance 'numeric'
Housing	Has housing loan? 'categorical'
Loan	Has personal loan? 'categorical'
Contact	Communication type 'categorical'
Day	Last contact day of the week 'numeric'
Month	Last contact month of the week 'categorical'
Duration	Last contact duration in seconds

Campaign	No. of contacts performed during this campaign for this client 'numeric'
Pdays	No. of days passed by after the client was last contacted from the previous campaign 'numeric'
Previous	No. of contacts performed before this campaign for this client 'numeric'
Poutcome	Outcome of the previous marketing campaign 'categorical'

Output variable "desired target", has the client subscribe to the term deposit offer? (Binary: 'yes' or 'no')

Tools:
Numpy and Pandas for data manipulation
Matplotlib and Seaborn for plotting and visualization
Sklearn for modeling

Algorithms:
Logistic Regression
Decision Tree Classifier
Support Vector Machine
Random Forest Classifier

Done by:
Sarah Mohammedfareed Abu Zabibah
Sarahabuzabibah@gmail.com