

Direct Marketing Campaign



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10-10-2019

Outline:



Introduction



Marketing Campaign Methodology Design



Results and Discussion



Conclusion

Introduction

In this project the classification model used to predict if the client will subscribe to a term deposit or not.

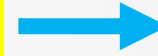


Marketing selling campaigns constitute a typical strategy to enhance business.



Companies use direct marketing when targeting segments of customers by contacting them to meet a specific goal.

Classification Methodology Design



Data Cleaning

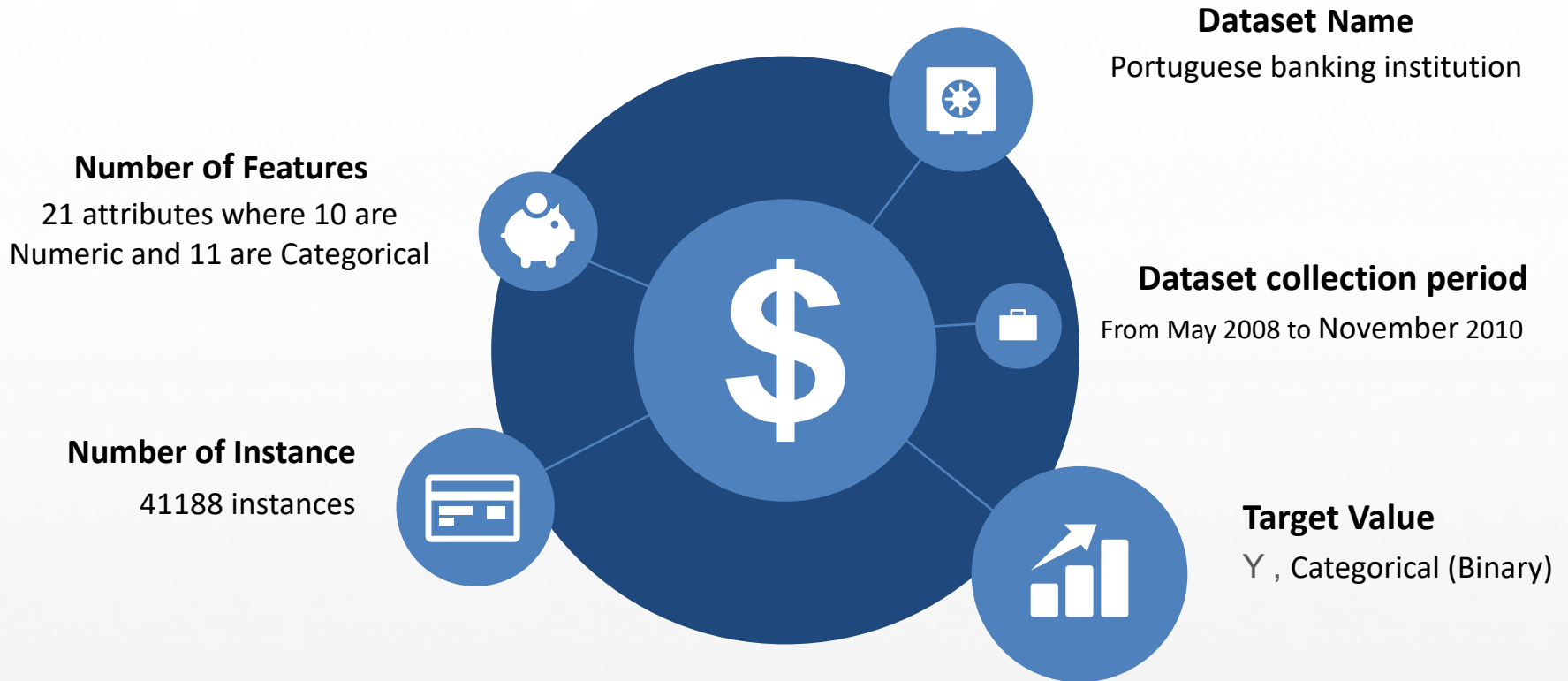


EDA

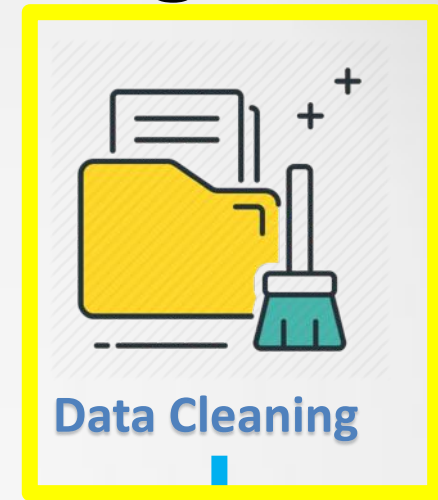


Evaluation

Description of Dataset



Classification Methodology Design



EDA



Evaluation

Data Cleaning and Pre-processing



Checking Null Values



Deleting unnecessary features such as duration



Dealing with Unknown Categorical Values

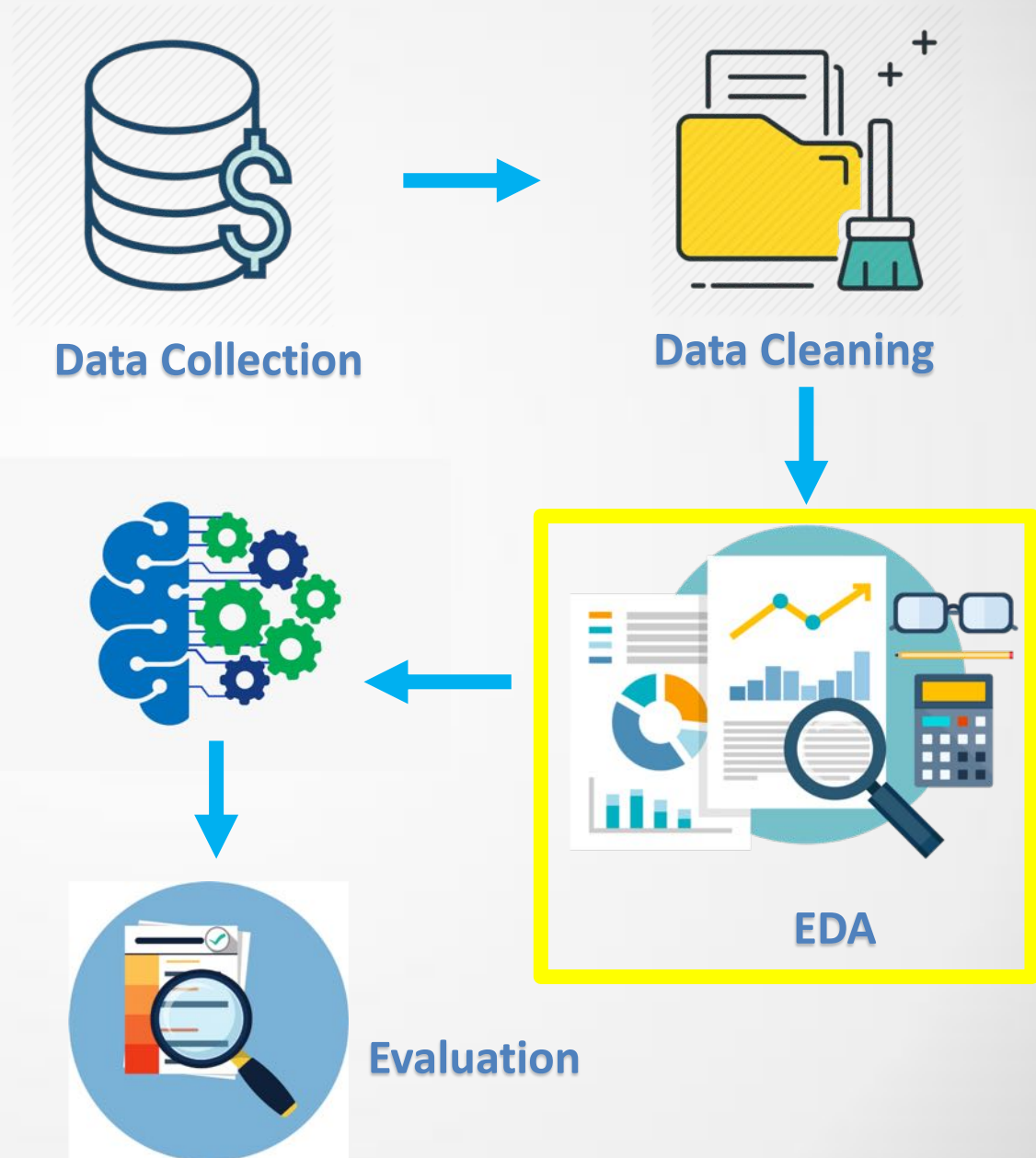


Dealing with Categorical Values (One Hot Encoding and Ordinal Converting)

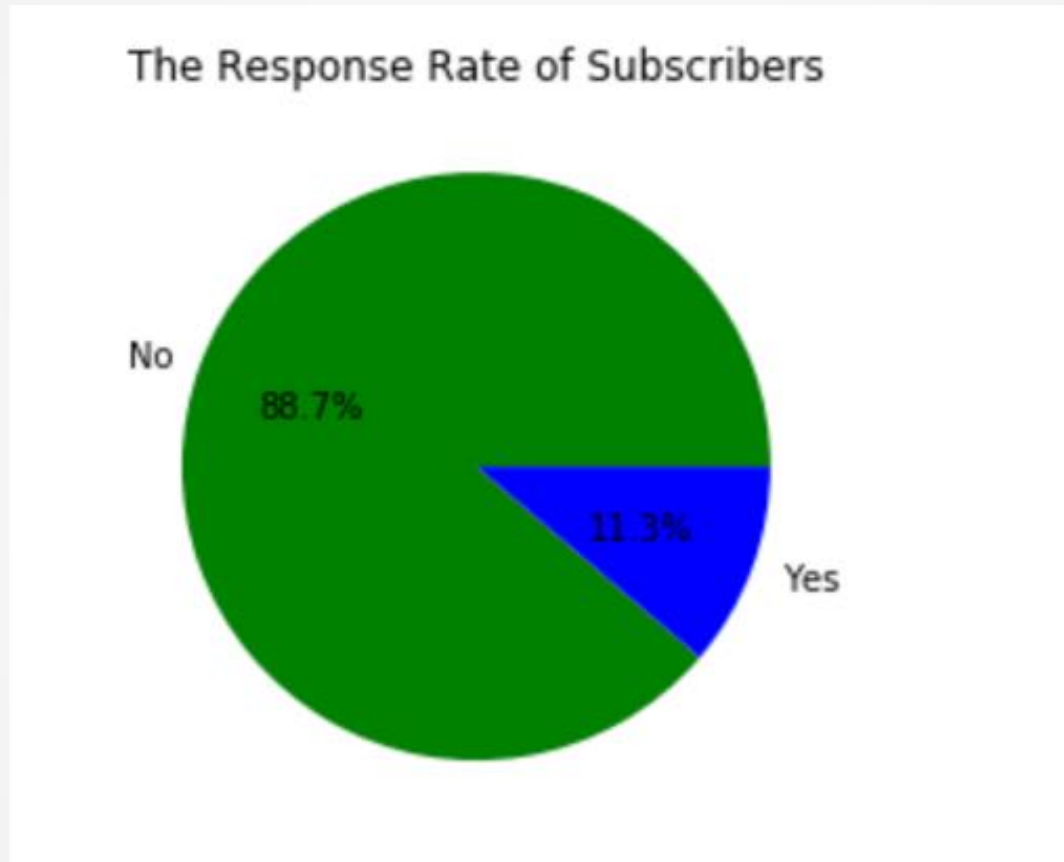


Scaling data

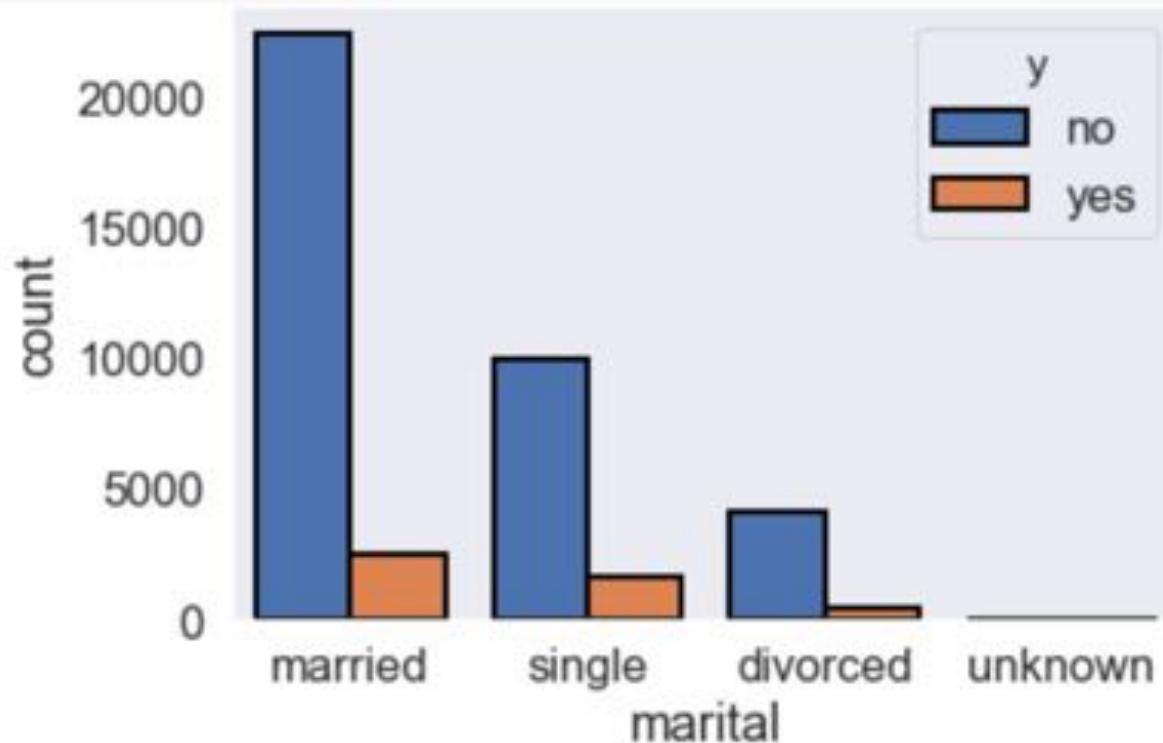
Classification Methodology Design



Exploring Bank Marketing Dataset

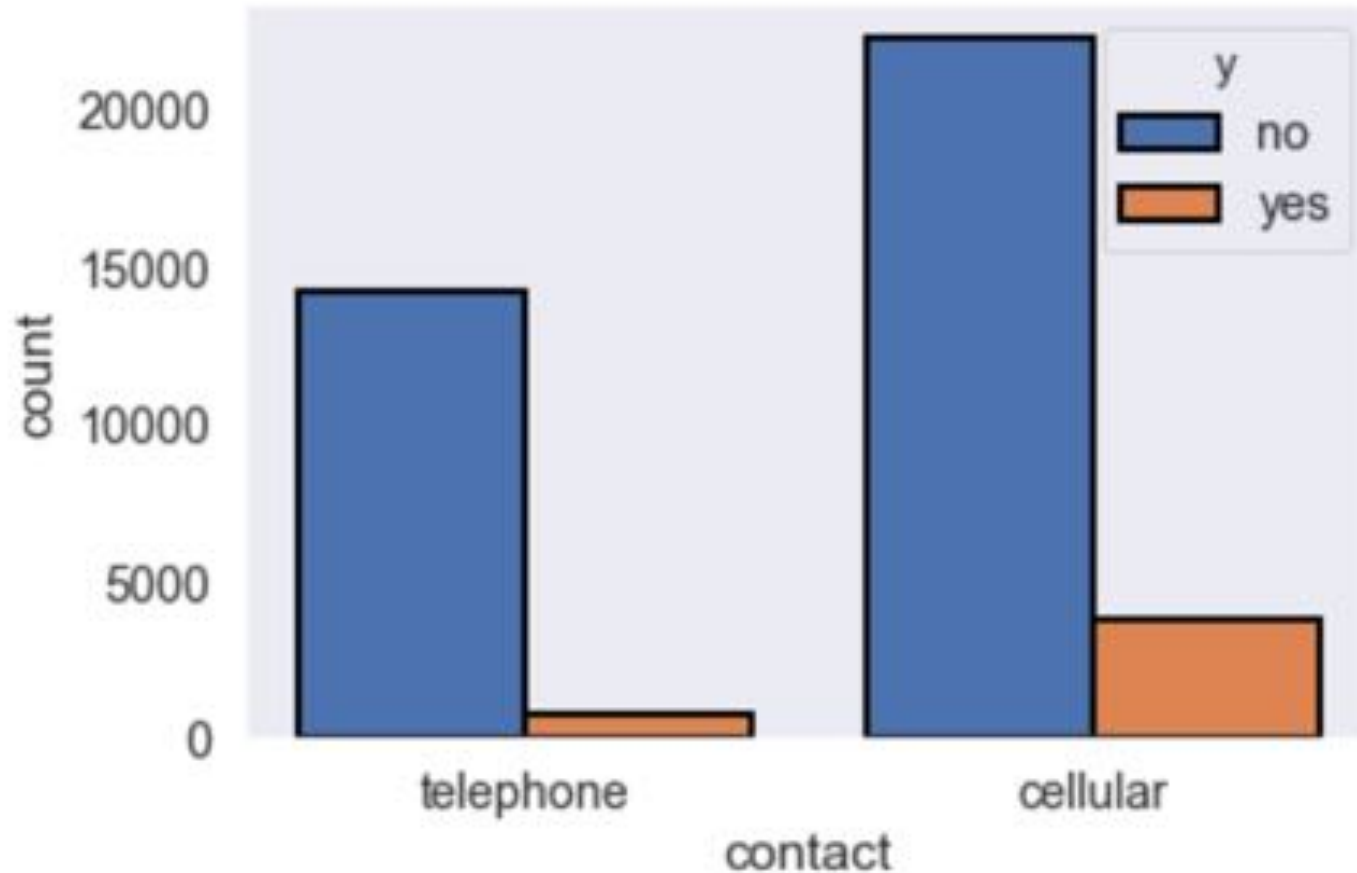


Exploring Bank Marketing Dataset



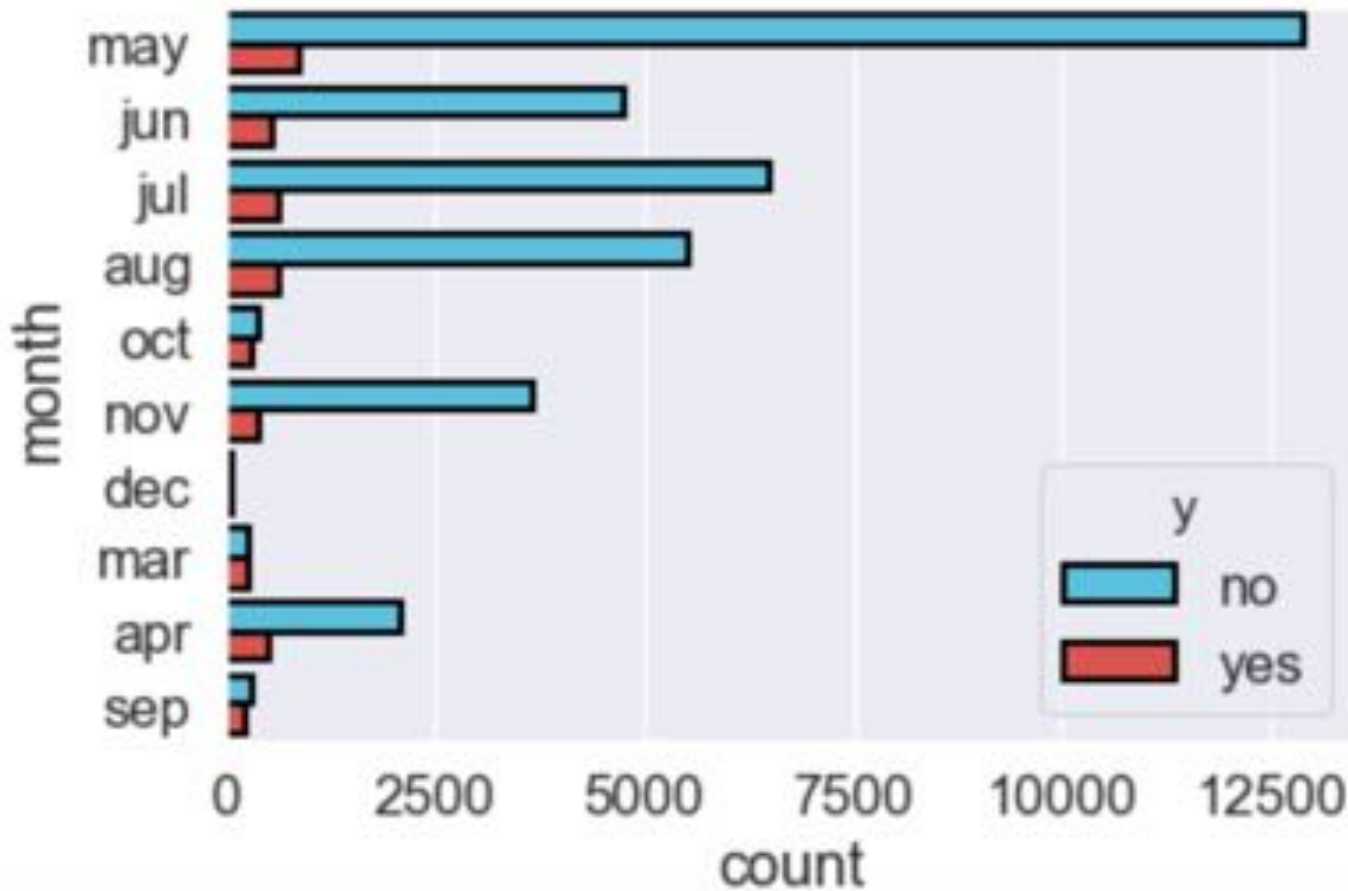
60.5% of the clients who subscribed were married

Exploring Bank Marketing Dataset



63.5% of subscribers were contacted via cellular

Exploring Bank Marketing Dataset



78.7% of contact were applied between May and Aug

Classification Methodology Design



Model Building and Hyper-Parameter Tuning

- Used balance accuracy of 10 fold cross validation as a metric to evaluate the models.
- Select the model with highest balanced accuracy as a best model.

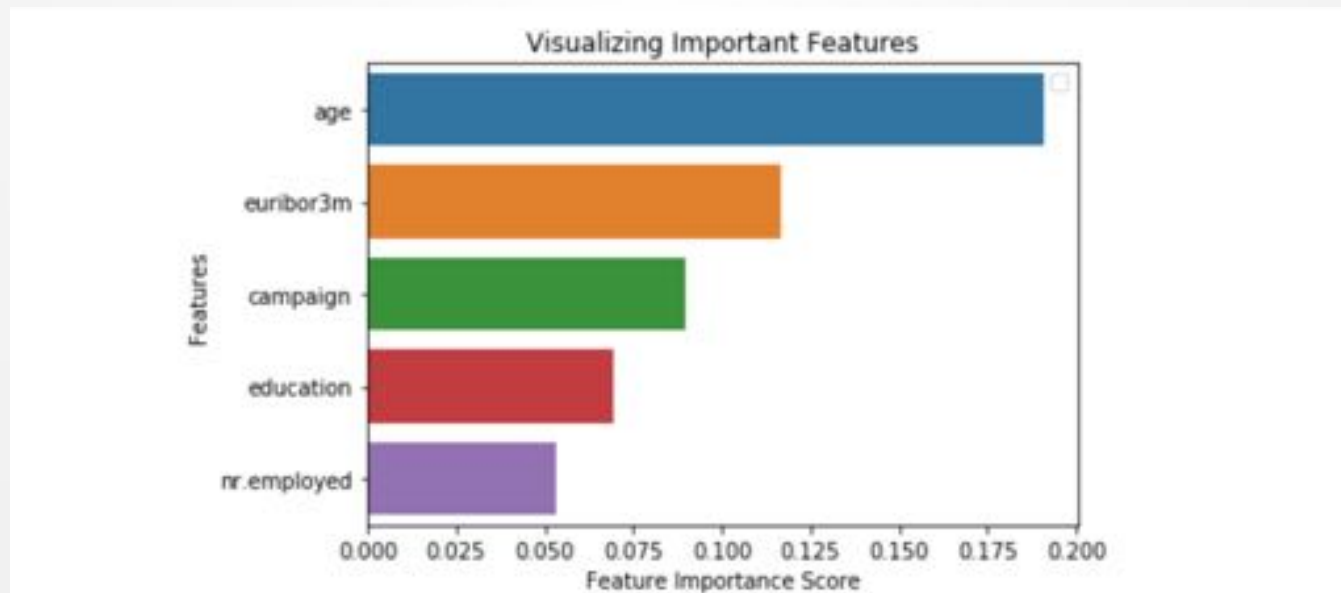
Model	Hyper-Parameter Tuned	Optimal Hyper-Parameters	Balance Accuracy
Logistic Regression	C/ penalty	C=100/ penalty=l2	0.606
Random Forest	n_estimators/ max_features/ criterion	n_estimators=100/ max_features='sqrt'/ criterion = 'gini'	0.632
K-NN	n_neighbors	n_neighbors=3	0.625

Classification Methodology Design



Results

- Obtained profits of 295686.5 from the cooked marketing metrics



Conclusion

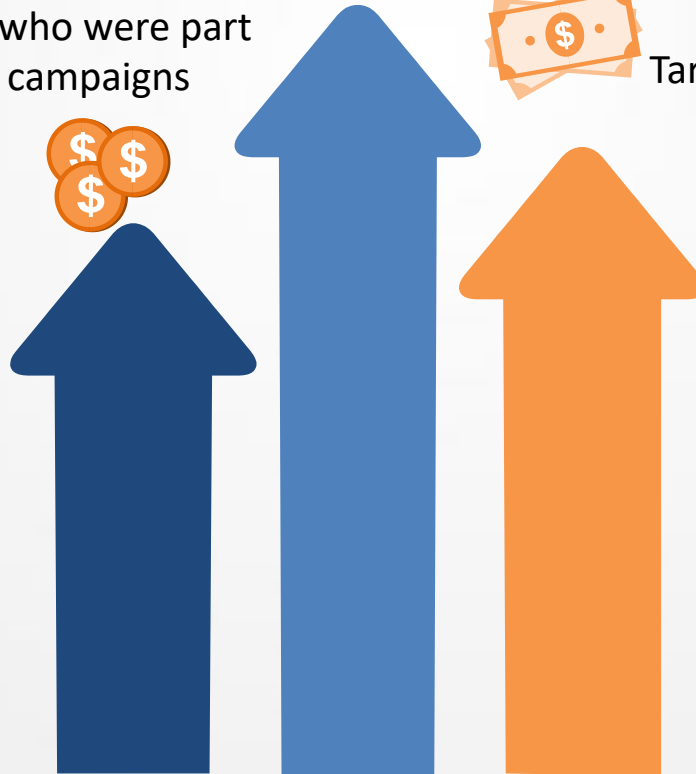
In this project the classification model used to predict if the client will subscribe to a term deposit or not. The results showed that the Random Forest Classifier has the better predictive ability among other classifiers



Prioritize those customers to who were part of the previous marketing campaigns



Target relatively Old Age people



Thank you 😊



Appendix:

F1 score for testing data is 0.402

The Confusion Matrix for Random Forest Model is :

[95]:

	0	1
0	7064	251
1	627	296