CUSTOMER CLASSIFICATION FOR DIRECT BANK MARKETING

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Problem Statement

European Banks were under pressure to increase their financial assets due to the :

1 Internal competition

2 financial crisis

They offered long term deposits with good interest rates to the people using ***direct marketing strategy,*** but contacting many people is

time consuming   low success rate

Our goal to build a Machine Learning model that learns the unknown patterns and predicts whether customer will subscribe (yes/no) a term deposit that helps:

*i*ncreasing campaign efficiently

selecting high value customers

Data Understanding

This data based on direct marketing campaigns of a Portuguese banking institution.
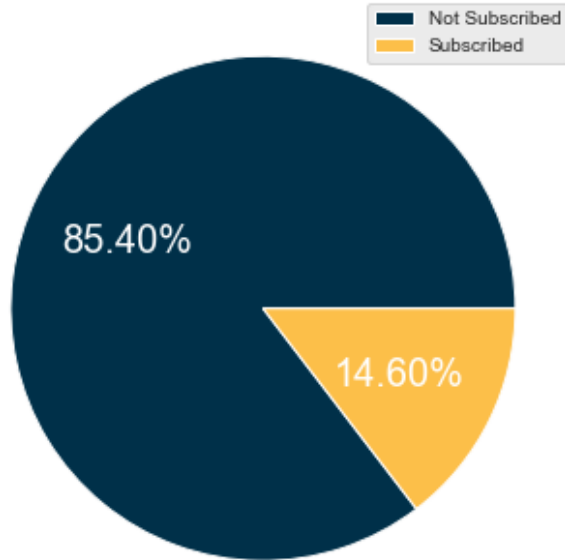The marketing campaigns are based on phone calls, which occurred from *May 2008* to *November 2010*.
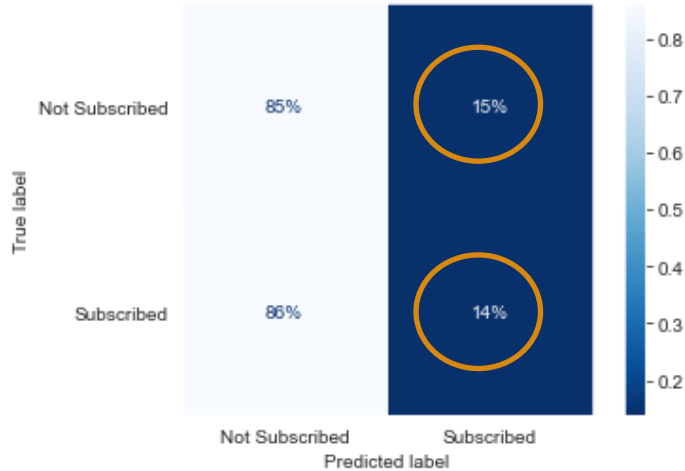
Class Distribution

Not Subscribed
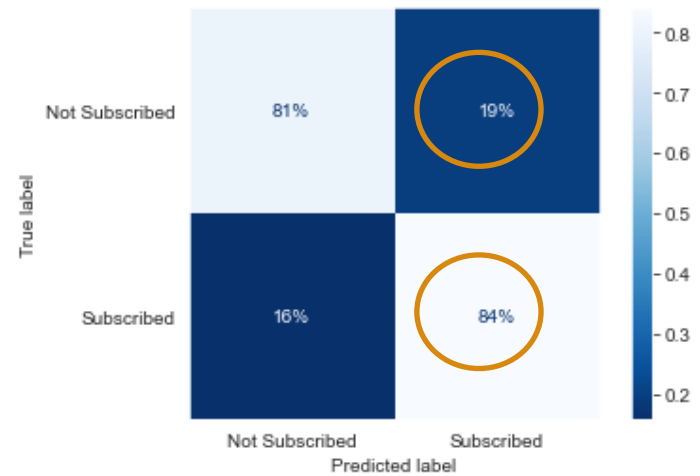Subscribed

target

85.40%

14.60%

Results/Conclusion

Baseline Model

Final Random Forest Model

Final model can perform 84% correctly classifications of the "Yes" class or potential clients that are willing to subscribe a term deposit

```
Classification Report for Training:
              precision    recall  f1-score   support

           0       0.97      0.81      0.88     21114
           1       0.43      0.84      0.57      3610

    accuracy                           0.82     24724
   macro avg       0.70      0.83      0.73     24724
weighted avg       0.89      0.82      0.84     24724


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Classification Report for Testing:
              precision    recall  f1-score   support

           0       0.97      0.81      0.88      5278
           1       0.43      0.84      0.56       903

    accuracy                           0.81      6181
   macro avg       0.70      0.82      0.72      6181
weighted avg       0.89      0.81      0.83      6181


Testing Recall Score of Random Forest Classifier : 83.83%
```
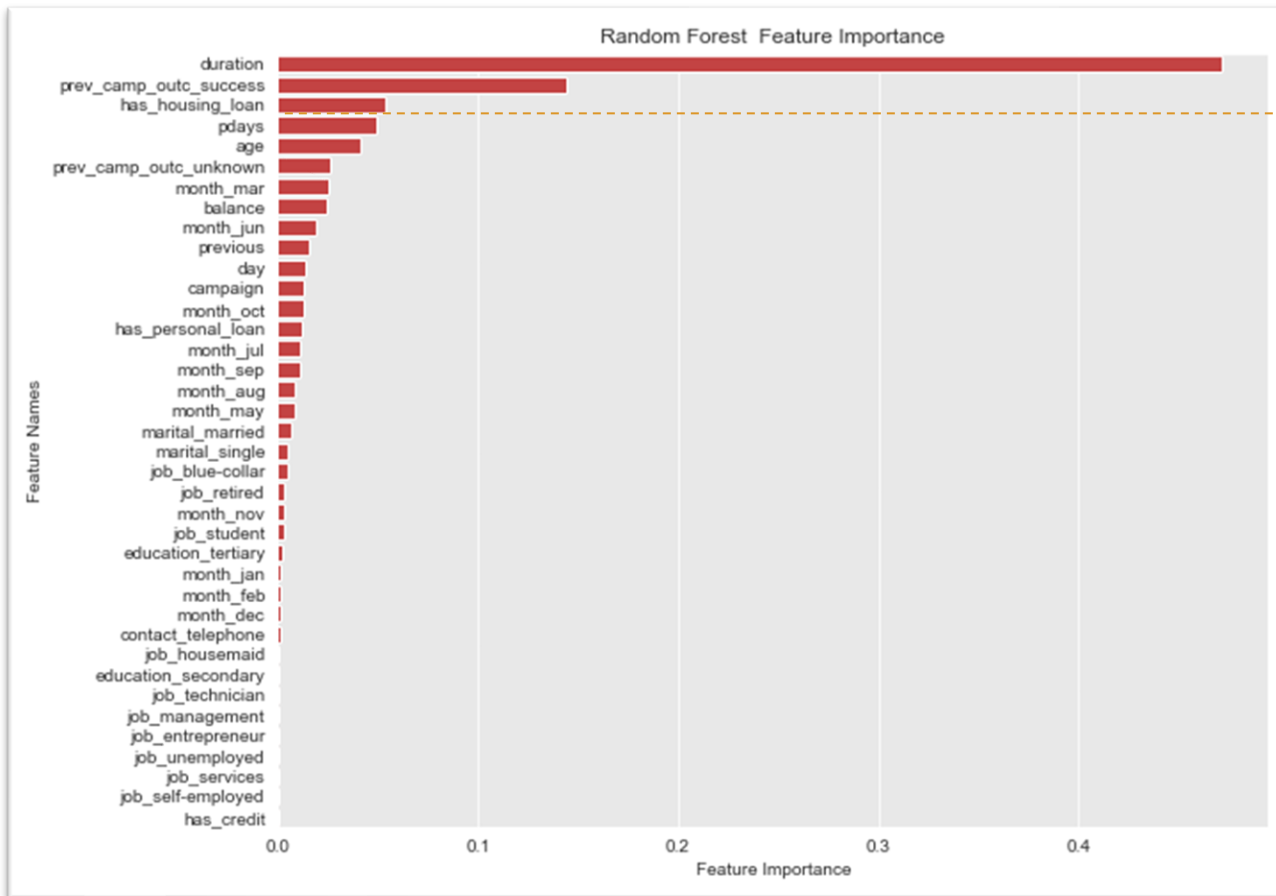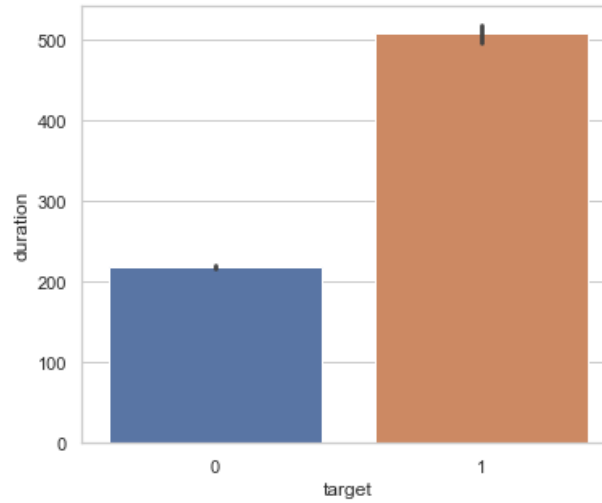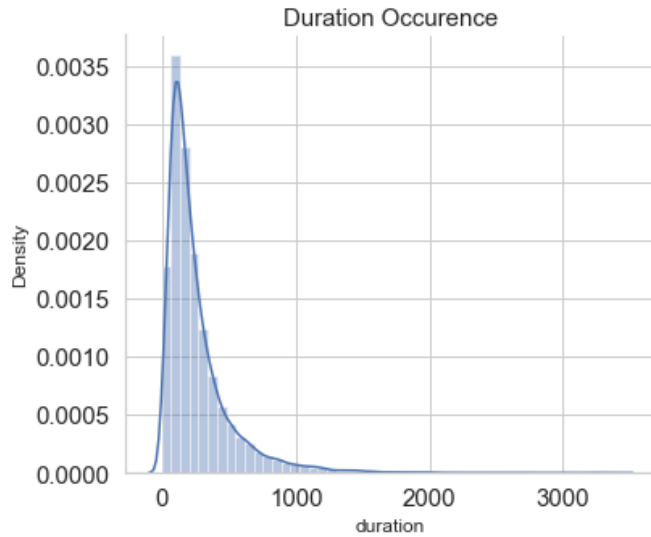
Random Forest Feature Importance

Recommendations

Duration Occurence

- Develop a marketing strategies during the Calls like:

- providing an interesting questionnaire for potential clients during the calls which increases conversation length
- monitoring call activity and conversations
- adding contextual call routing strategies to the marketing campaigns
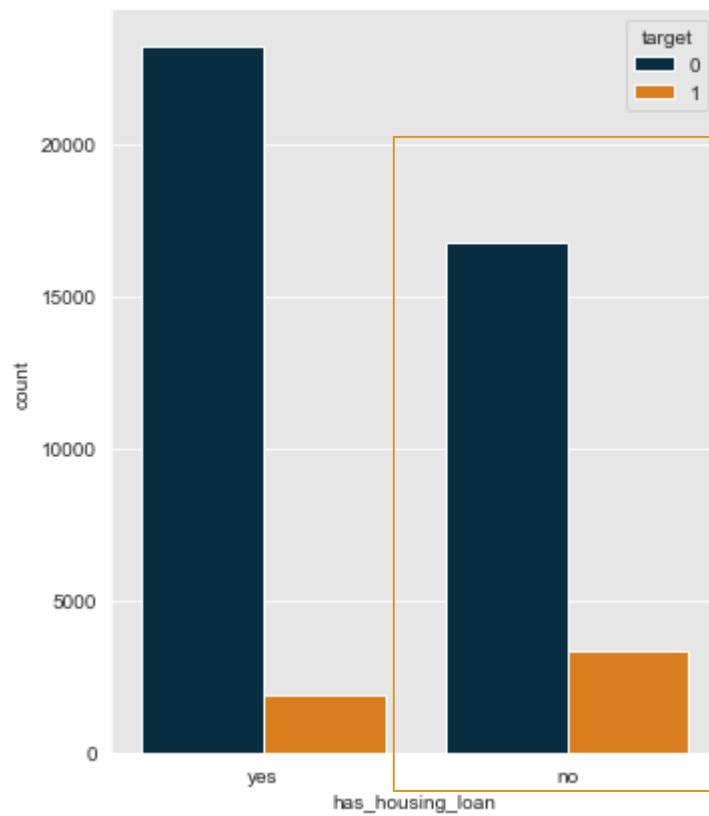
Recommendations
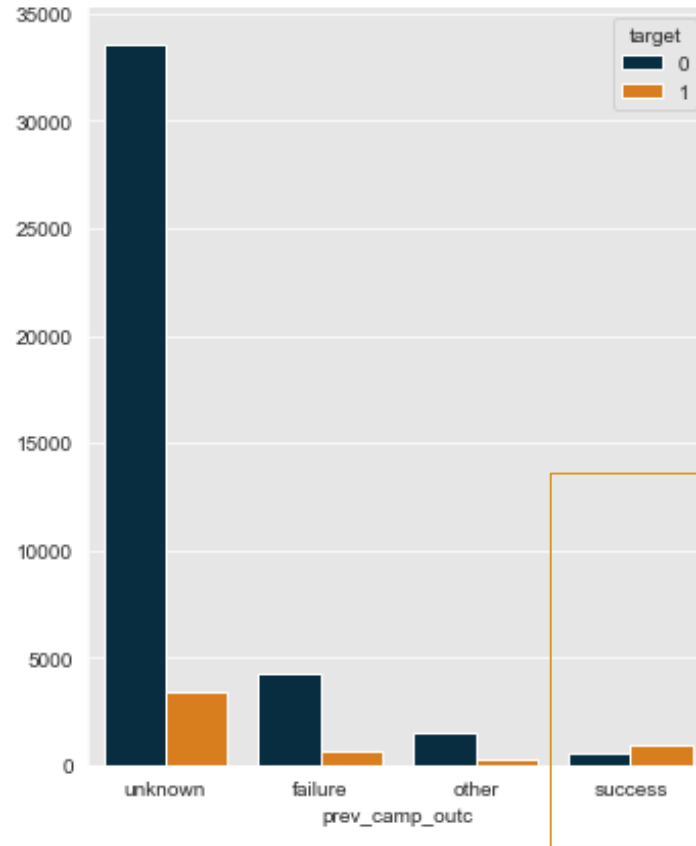
- The successful outcome of the previous marketing campaign did positively affect customers to subscribe to upcoming campaigns.

I would highly recommend to develop a loyalty program for the previously subscribed clients by giving them some bonuses and unique offers.

Recommendations

- House Loans and Balances

Potential clients in the average and high balances are less likely to have a house loan and therefore, more likely to open a term deposit. Lastly, the next marketing campaign should focus on individuals of average and high balances in order to increase the likelihood of subscribing to a term deposit

Future Considerations

More descriptive features can be useful here for example interview summary. In that case natural language processing will give better results.

THANK YOU!

Do you have any questions?

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