BANK LOAN PAYOFF

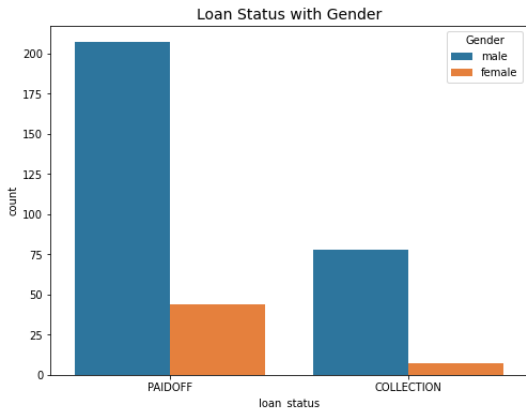## A Capstone Project in Data Science

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Problem and it's background

- A manager at a ABC bank is disturbed because of more and more loans are being collected. The manager would really appreciate it if someone could predict for them which loan is going to get collected.

- I was interested to solve the problem. I talked with the manager and he sent me a data containing records of customers at the bank. The data has 8 features.
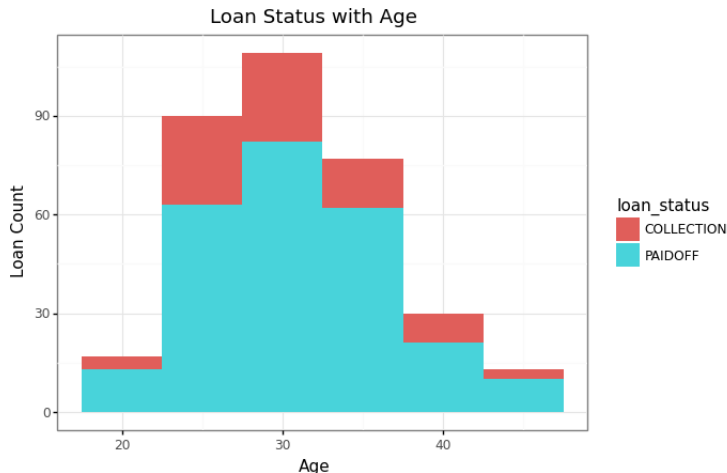
Current Situation

- 75% people have paid off the loan on time while 25% have gone into collection.
- 86 % of female pay their loans while only 73 % of males pay their loan.

Loan Status with Gender

Current Situation

- People of age around 25-35 take more loan and have more collection as well.
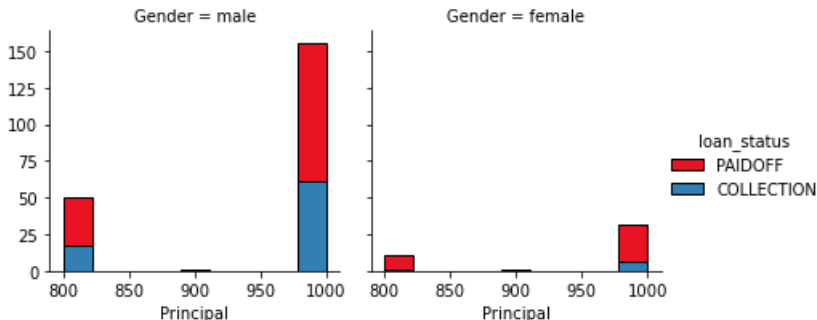
Model

- I used classification algorithms like Logistic Regression, Naive Bayes, KNN, SVM, Decision Tree or Random Forest to create a suitable model.
- Based on the performance report the Logistic Regression model is more consistent and works better than the others.

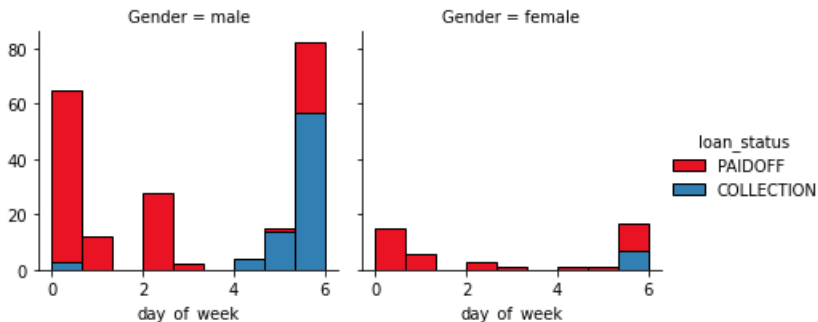| Algorithm	Accuracy Score	F1-score	LogLoss
Logistic Regression	0.76	0.71	0.51
Naive Bayes	0.74	0.63	8.95
KNN	0.63	0.62	1.74
SVM	0.72	0.67	NA
Decision Tree	0.78	0.77	2.3
Random Forest	0.72	0.73	1.85

Findings

- More than 25% of the loan have gone into collection.
- Loan taken by males is in more risk than the loan taken by females.

Findings

- Loan of bigger amount has more chance of being collection especially for men.
- People of age around 25-35 have more collected loan.
- People who take loan at the end of the week mainly on Thursday and Friday do not pay it off.

Recommendations:

- Emphasize on providing loans for female customers than male.

- Do not provide loan of bigger amount for male unless good guarantee of the loan.

- Reduce the number loans for the people of age around 25-35.

- Reduce the number of loans providing at the end of the week mainly on Thursday and Friday.

Conclusion:

- Apply all the credit check methods strictly, collect correct data and do good research about the costumers before providing any loans.

- Apply the model for each customers information to predict whether the loan for that customer will be paid off or collected.

QUESTIONS?

THANK YOU!!!