German Credit Risk Analysis

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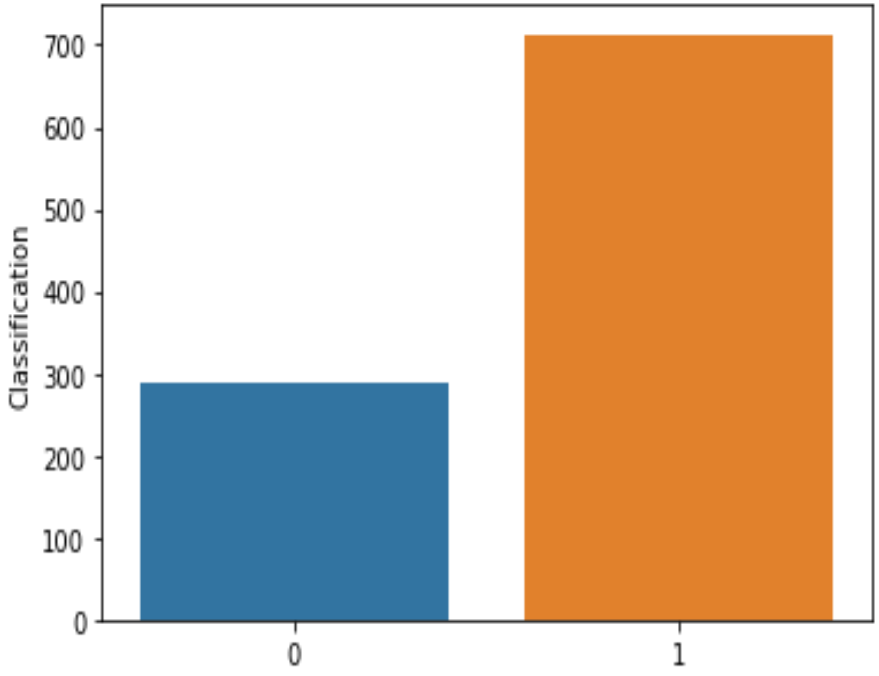
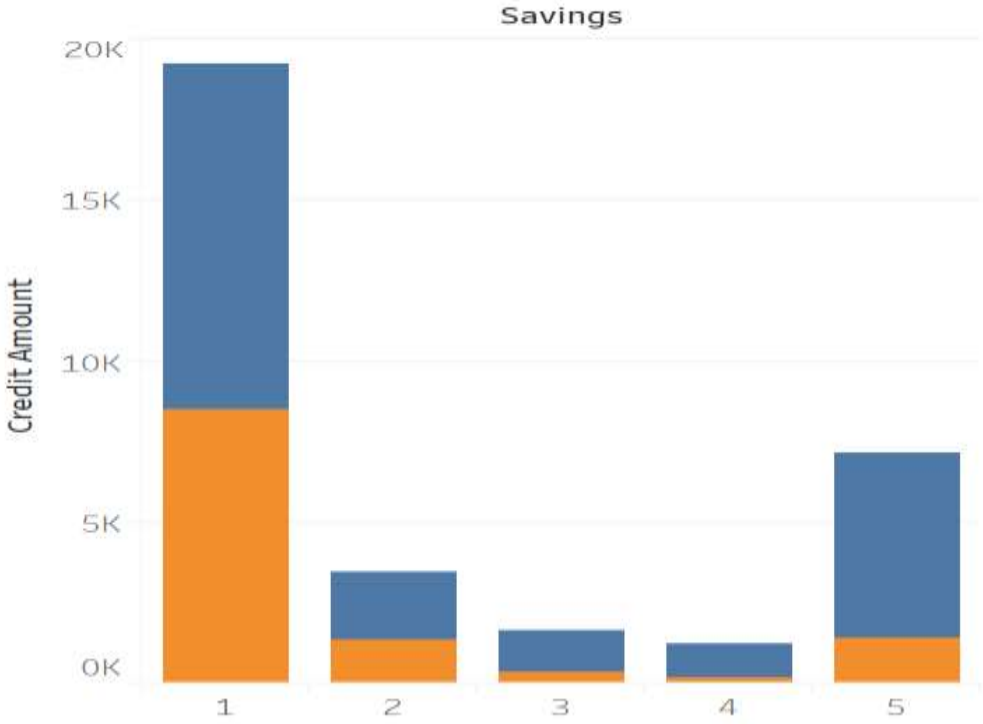
WHY CREDIT RISK ANALYSIS

Credit risk analysis is assessing the possibility of the borrower's repayment failure and the loss caused to the financer when the borrower does not for any reason repay the contractual loan obligations.



How SAVINGS and CREDIT AMOUNT are related

Savings account in range <100DM and no savings account is relatively higher (also bad credits)



BAD CREDIT RISK

GOOD CREDIT RISK

Attribute 6: (qualitative) Savings account/bonds

A61 : ... < 100 DM

A62 : 100 <= ... < 500 DM

A63 : 500 <= ... < 1000 DM

A64 : .. >= 1000 DM

A65 : unknown/ no savings account

Credit History

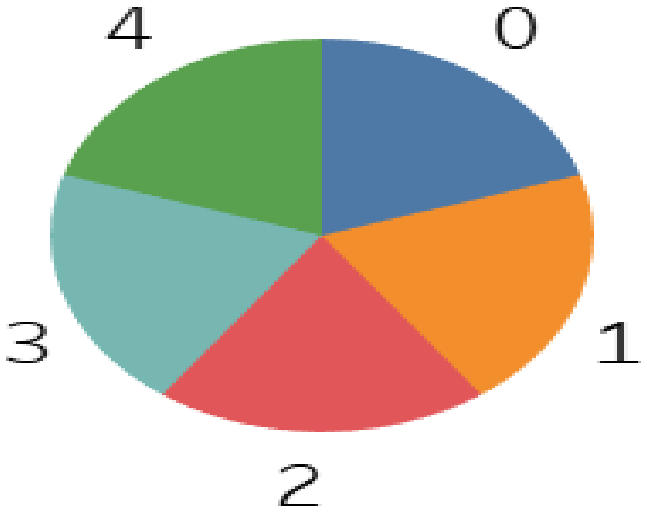
Attribute 1: (qualitative) Status of existing checking account

A11 : ... < 0 DM

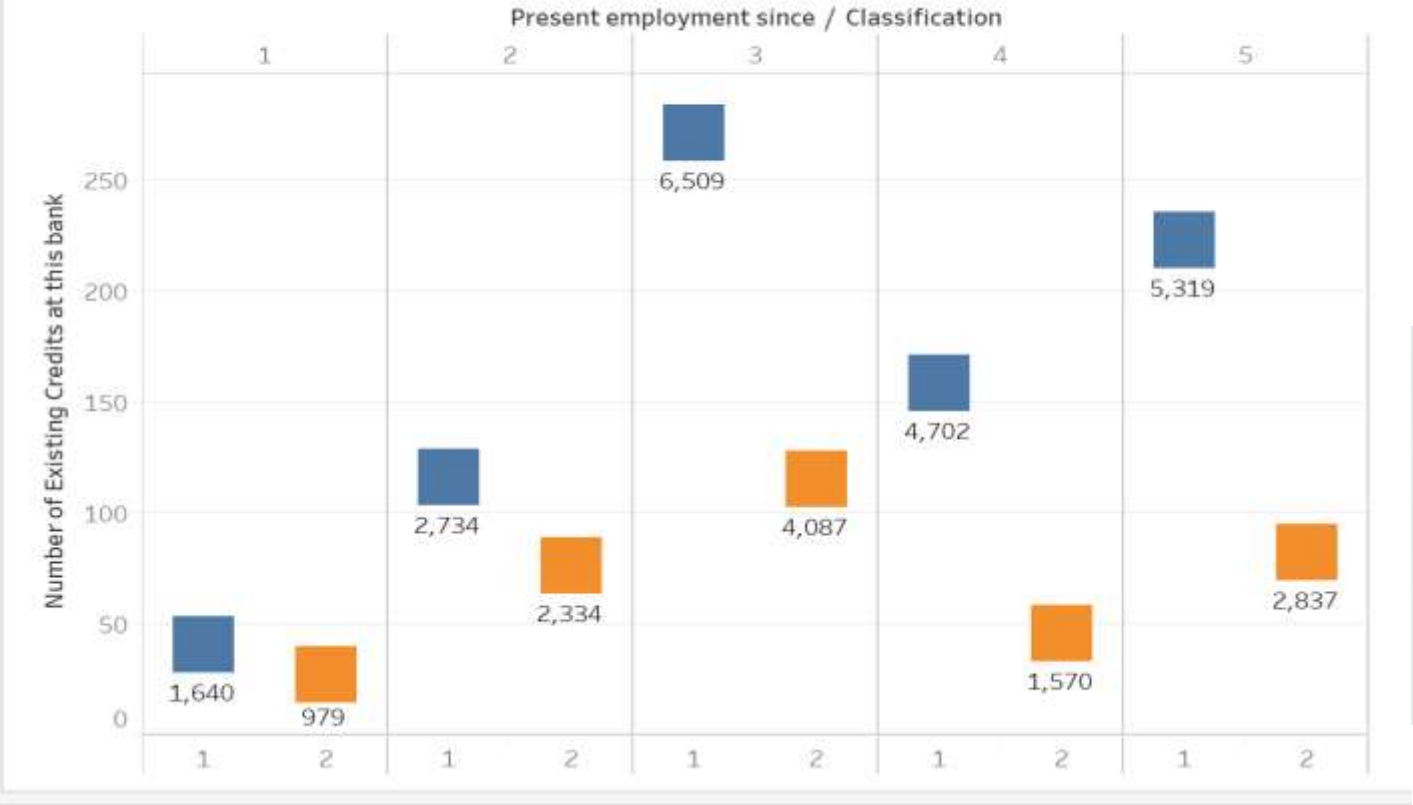
A12 : 0 <= ... < 200 DM

A13 : ... >= 200 DM / salary assignments for at least 1 year

A14 : no checking account



1-4 yrs and >7 yrs work experience stand out in taking up credit



BAD CREDIT RISK

GOOD CREDIT RISK

A71 : unemployed

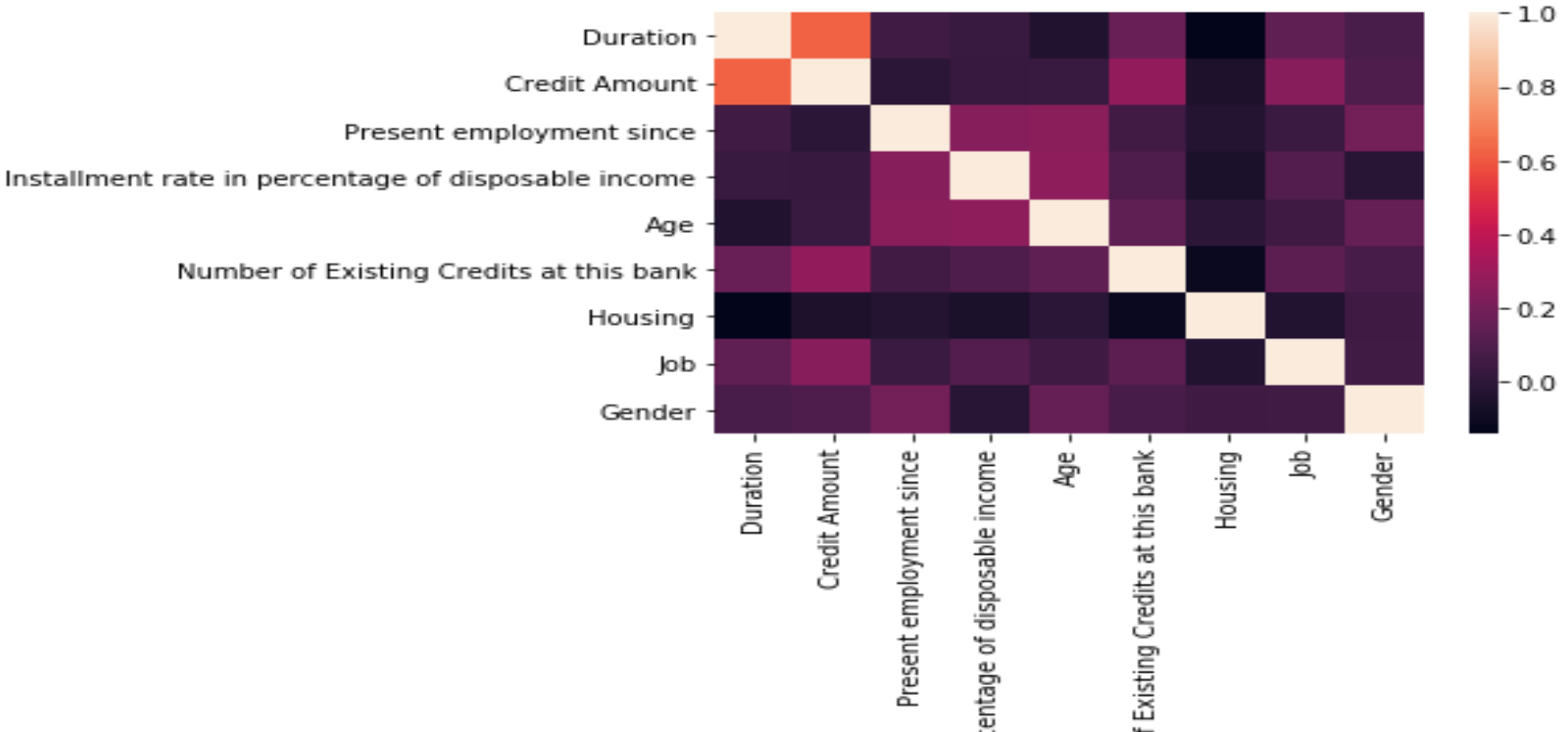
A72 : ... < 1 year

A73 : 1 <= ... < 4 years

A74 : 4 <= ... < 7 years

A75 : .. >= 7 years

CORRELATION PLOT



PROBLEM STATEMENT

The German Credit data set is a publically available data set downloaded from the UCI Machine Learning Repository. The data contains data on 20 variables and the classification whether an applicant is considered a Good or a Bad credit risk for 1000 loan applicants.

The objective of this case study is to deploy different classification techniques and find out the best classification model.

Overall Performance of Models on Credit Risk

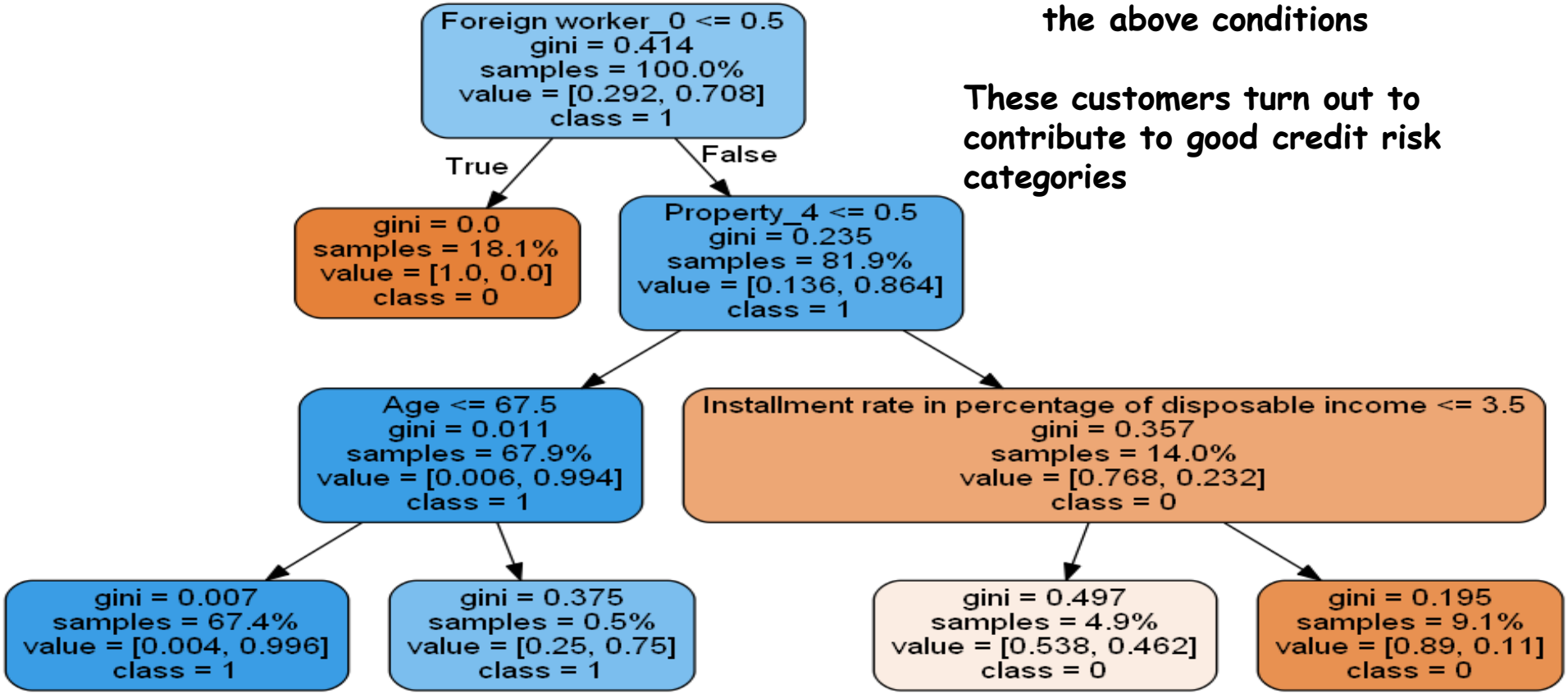
Models were applied on data obtained after cleaning

MODEL	DECISION TREE	BAGGING	RANDOM FOREST	ADA BOOSTING	XGBOOST	GRADIENT BOOSTING
ACCURACY SCORE	**98.85%**	**98%**	**98.5%**	**96%**	**98%**	**97.5%**

Decision Tree model

1. Is a foreign Worker
2. Has Property_4 =0
3. Age is less than 67.5
4. 67.4% of the data falls under the above conditions

These customers turn out to contribute to good credit risk categories



IMPORTANT FEATURES

Foreign worker_0 : Is not a foreign worker

Property_4

Installment rate in percentage of disposable income

Age

THANK YOU