

LOAN PREDICTION PROJECT

- XIAODAN CHEN



PROJECT OBJECTIVE

- To build a supervised learning model that will predict whether or not a loan would be approved.
 - Deploy the model to cloud and test it by using different tools

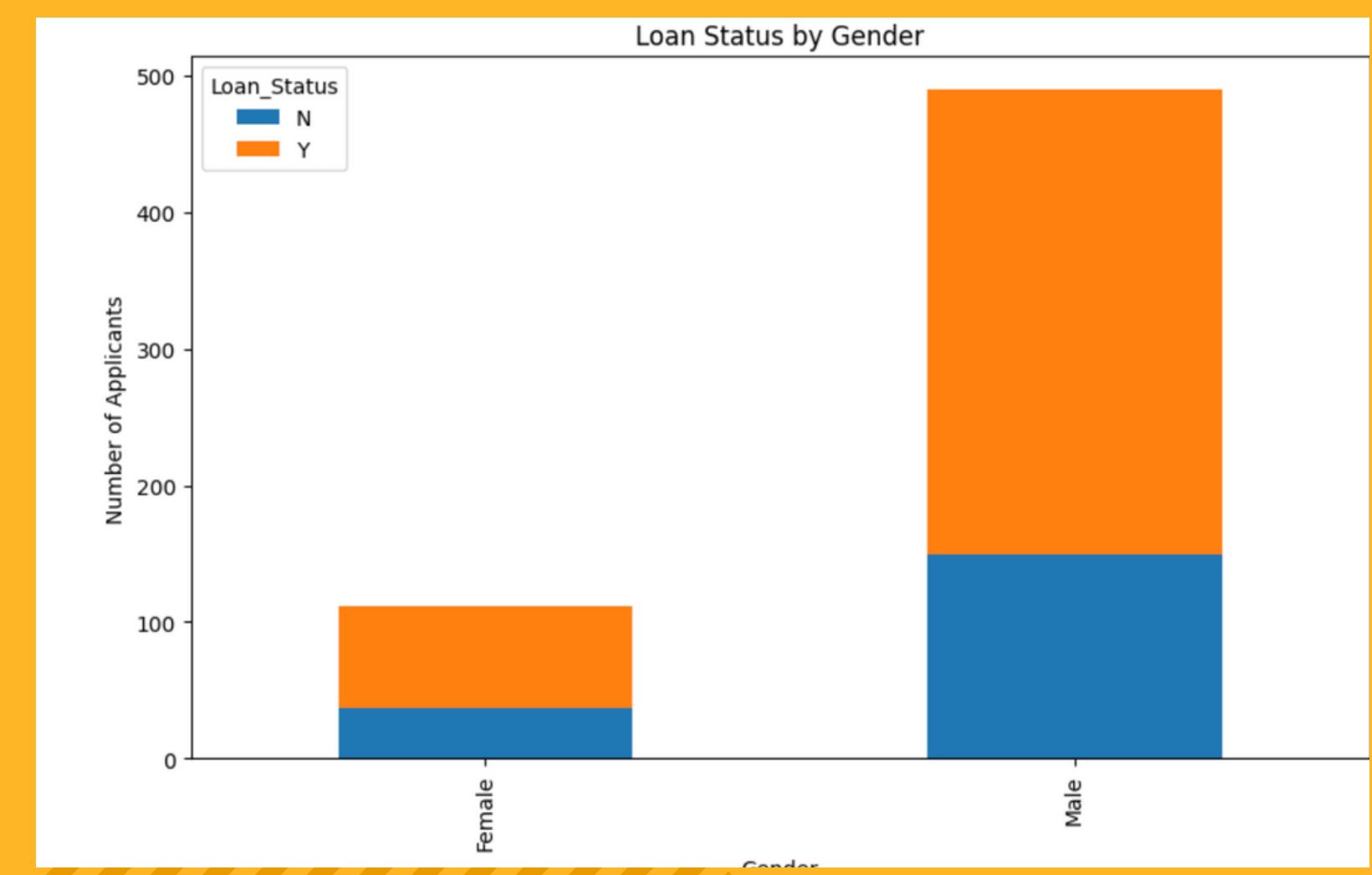
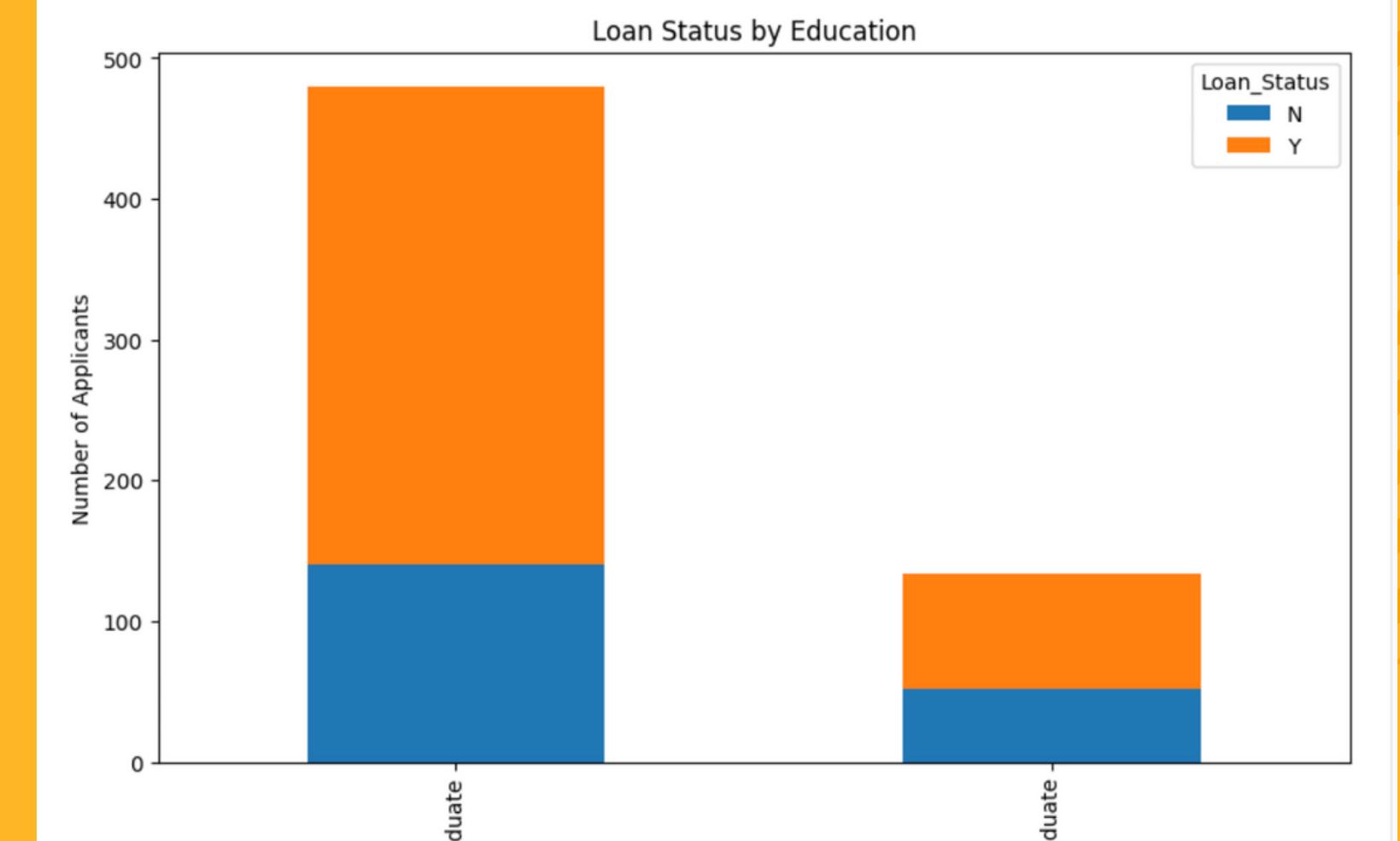
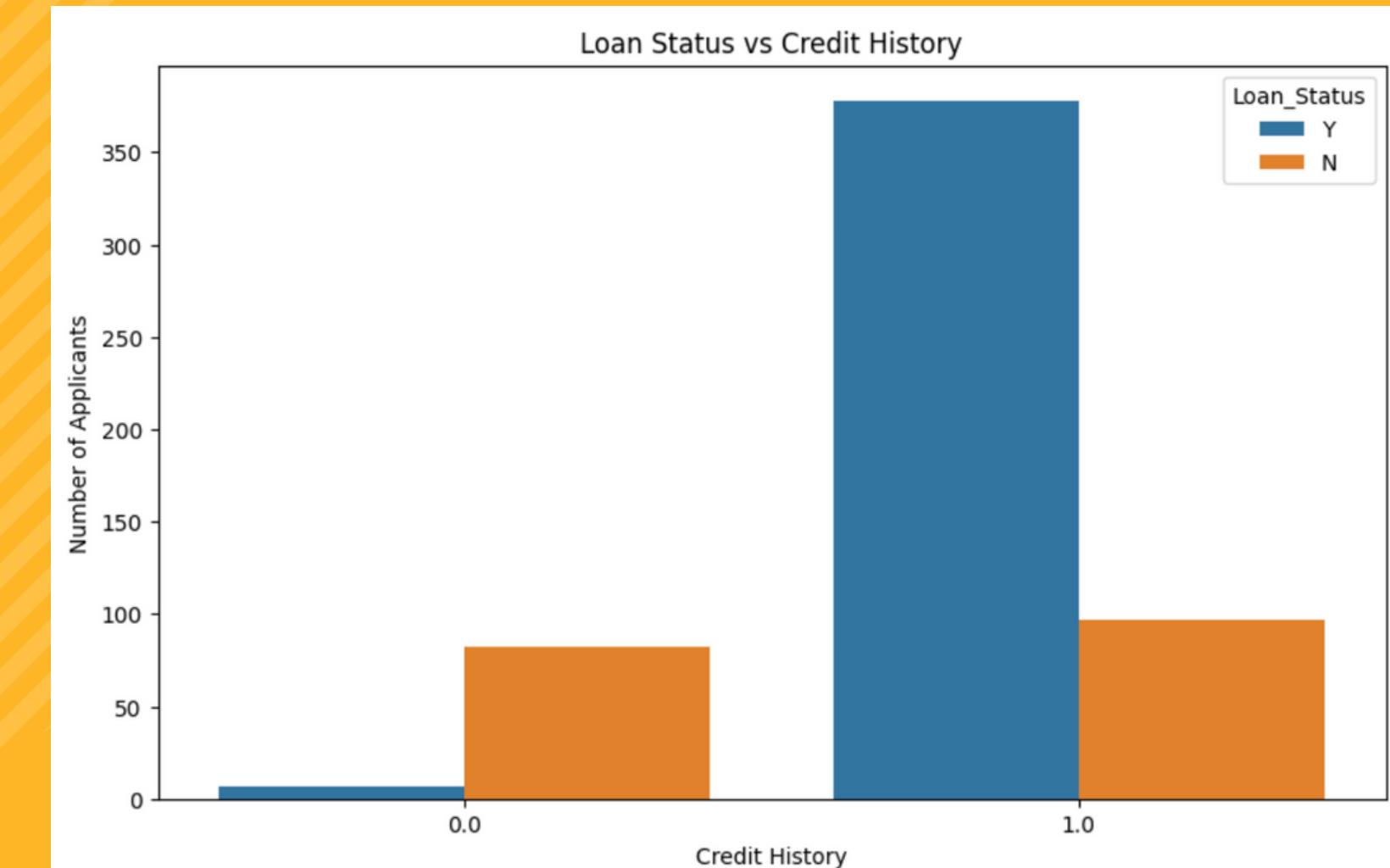
WORKFLOW

● ● EDA

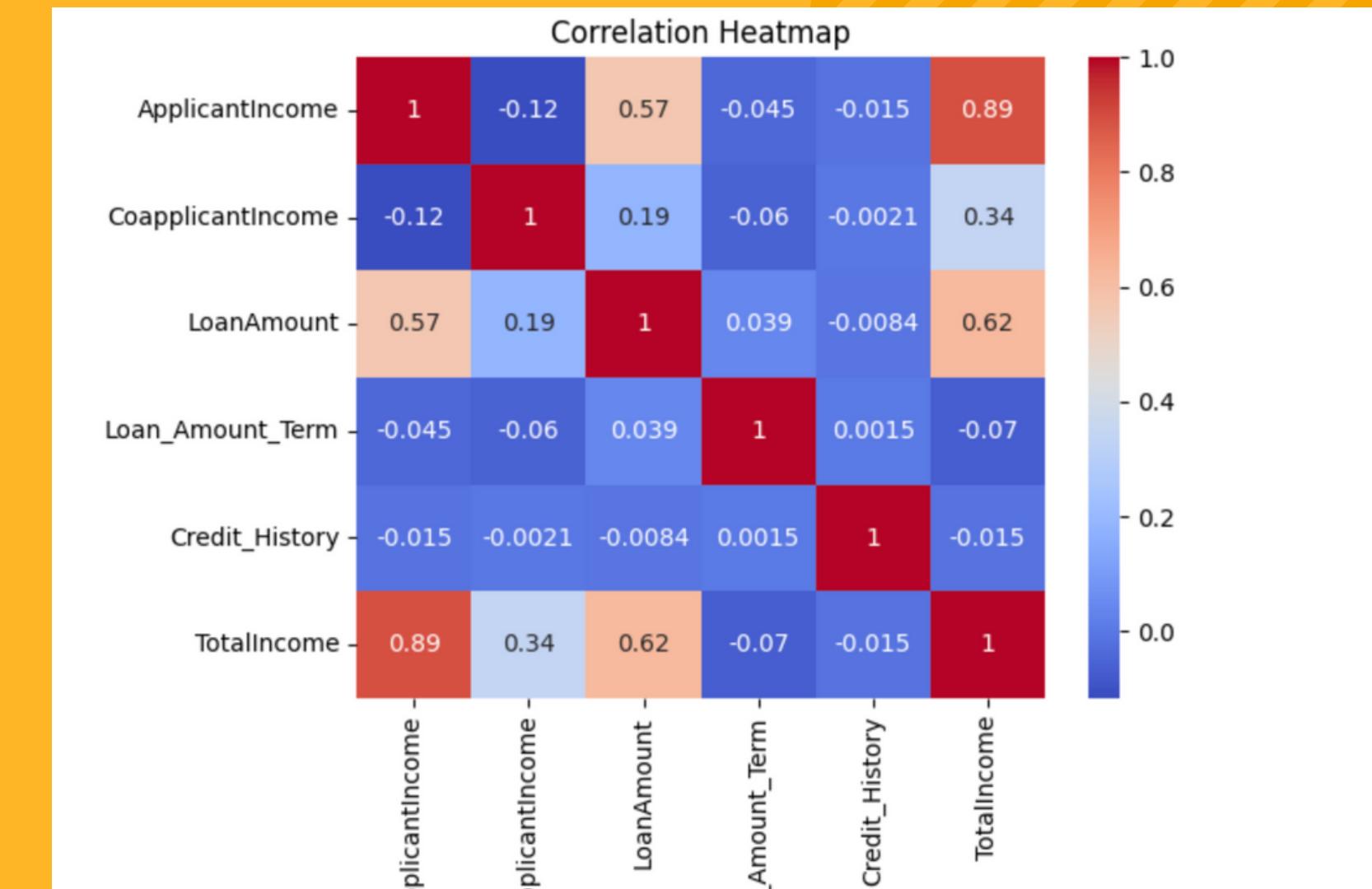
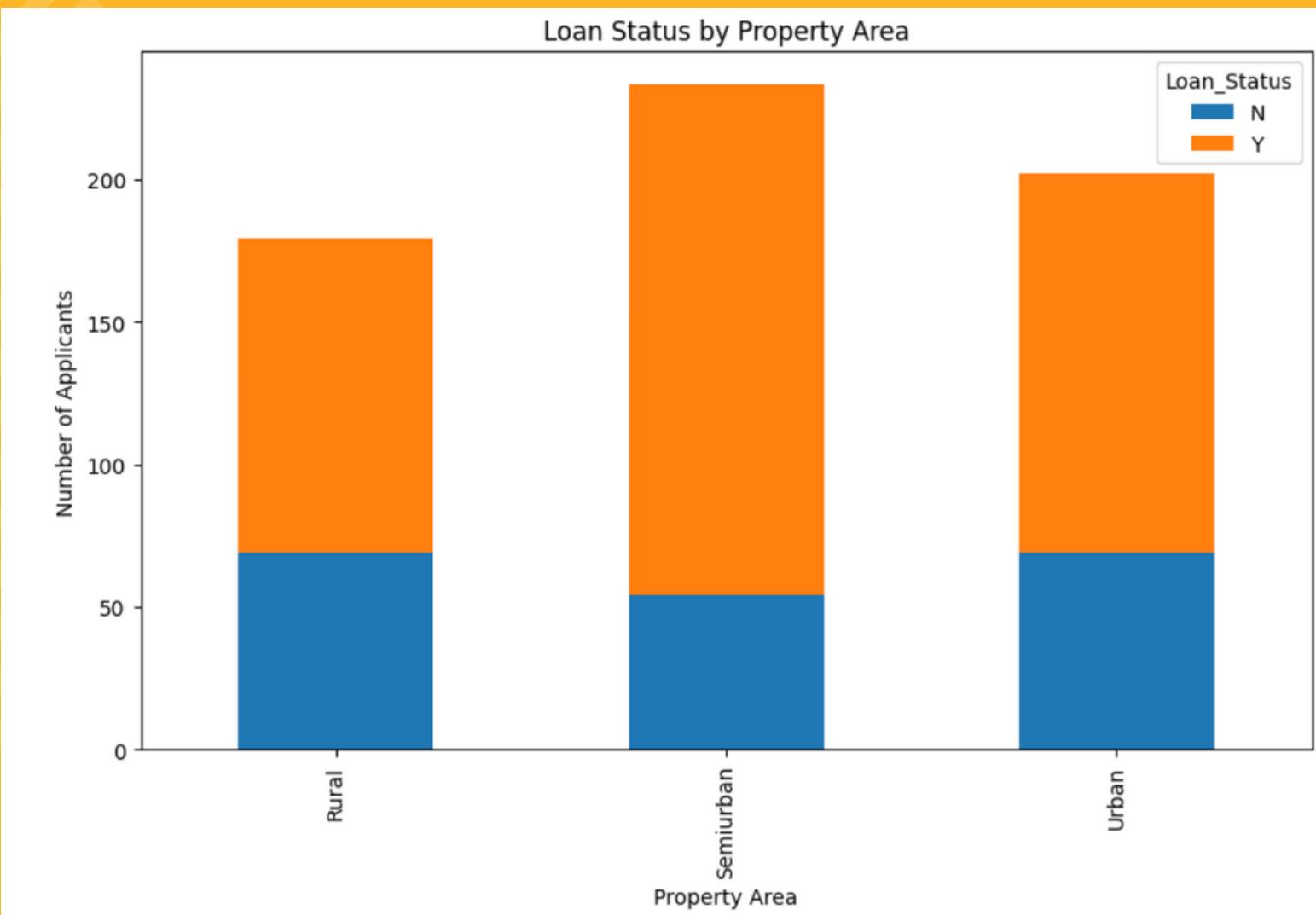
● ● FEATURE
ENGINEERING

● ● MODEL
BUILDING AND
EVALUATION

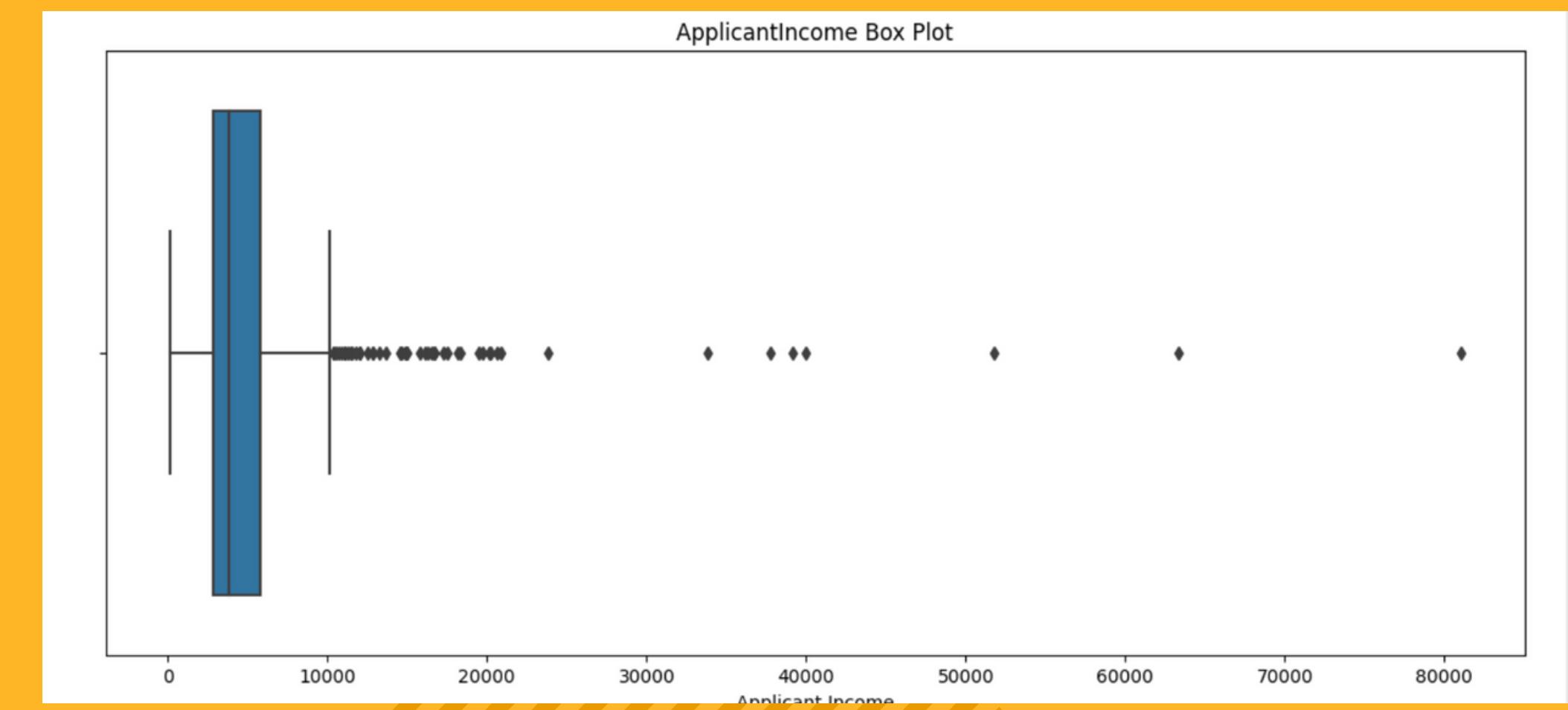
● ● DEPLOYMENT
TO THE CLOUD



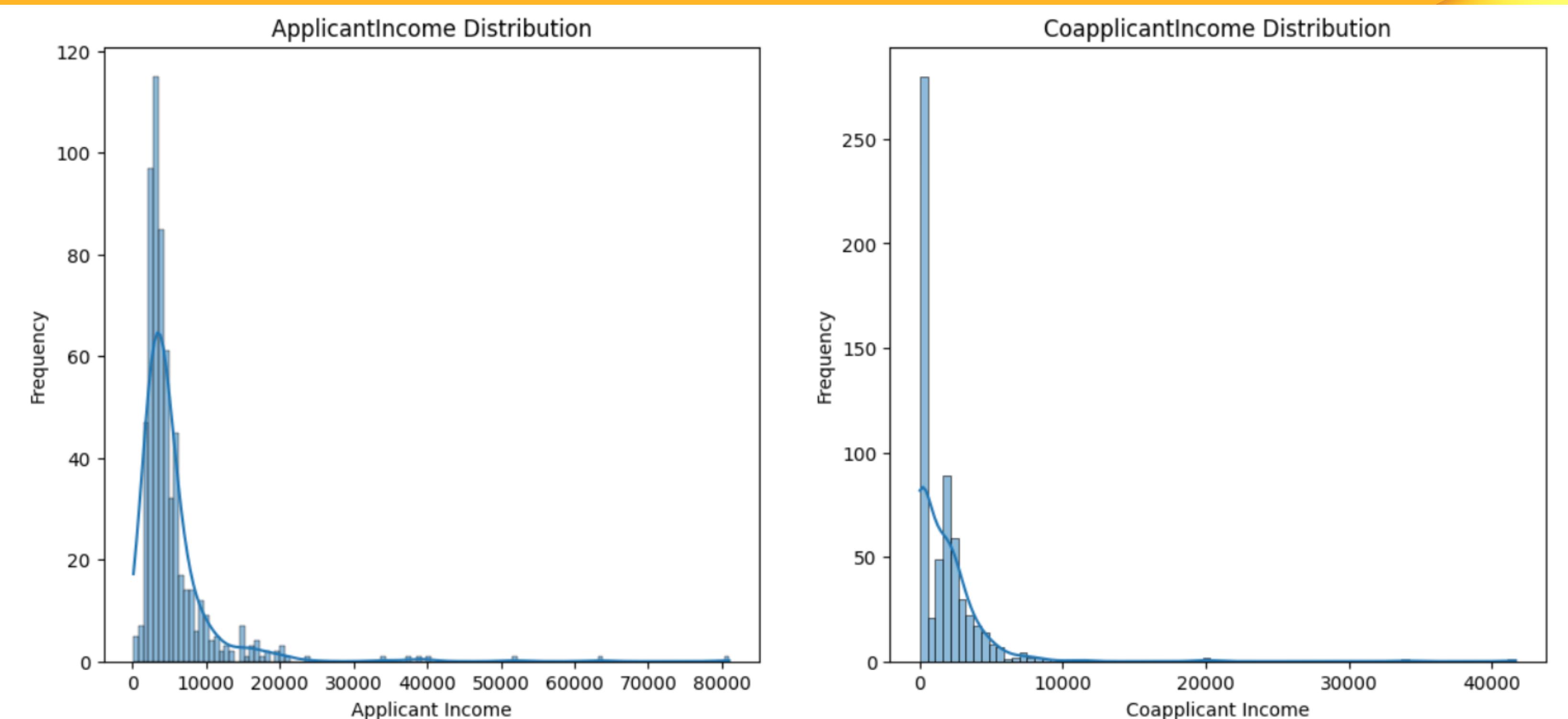
EDA PHARSE



EDA PHARSE



APPLICANT-INCOME DISTRIBUTION



FEATURE ENGINEERING

```
# total income with applicant and coapplicant together  
df['TotalIncome'] = df['ApplicantIncome'] + df['CoapplicantIncome']
```

```
# Impute missing values for categorical columns with mode  
categorical_columns = ['Gender', 'Married', 'Dependents', 'Self_Employed', 'Credit_History']
```

```
for col in categorical_columns:  
    df[col].fillna(df[col].mode()[0], inplace=True)
```

```
.....
```

```
# Impute missing values for numerical columns with mean or median
```

```
df['LoanAmount'].fillna(df['LoanAmount'].mean(), inplace=True)  
df['Loan_Amount_Term'].fillna(df['Loan_Amount_Term'].mode()[0], inplace=True)
```

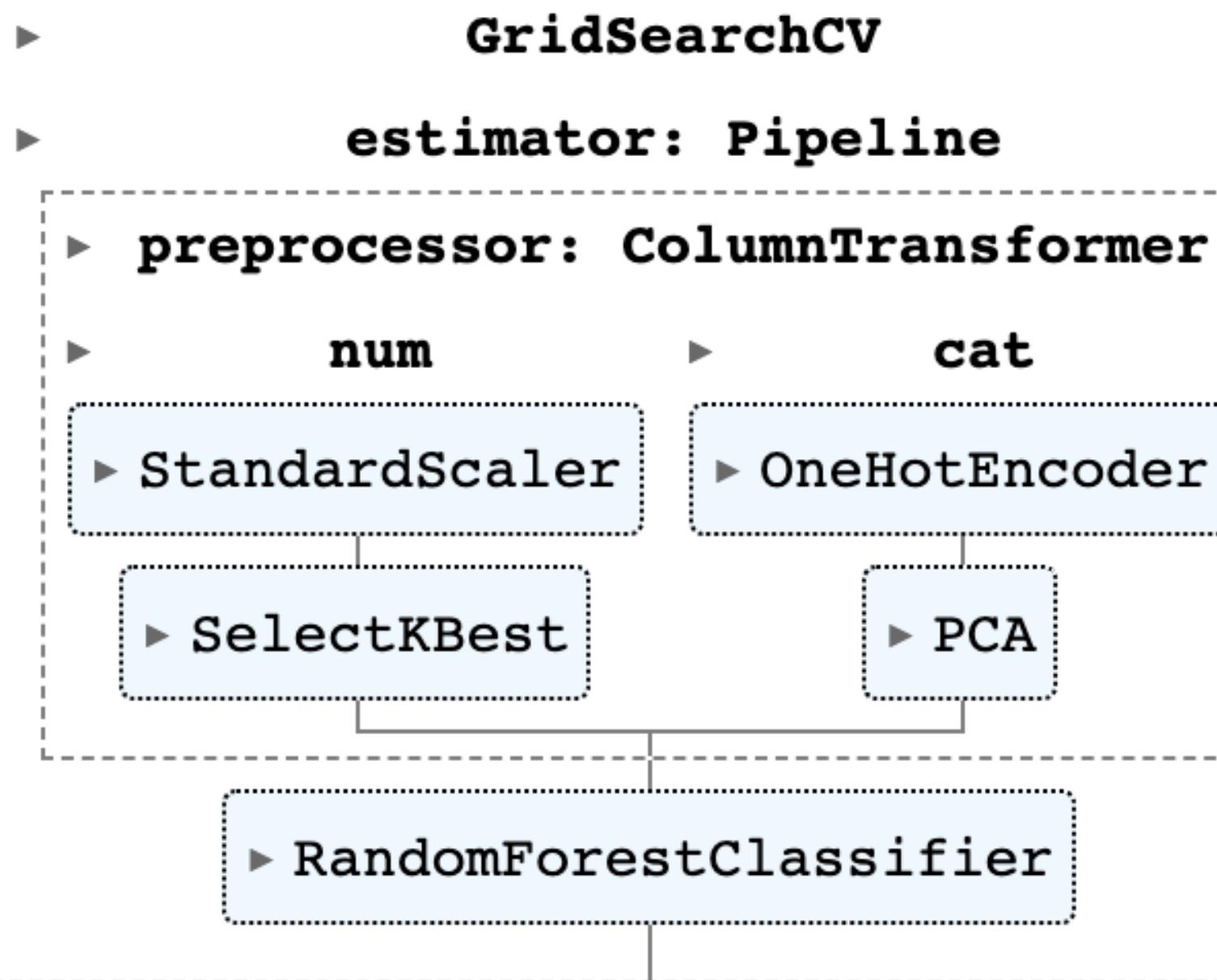
```
# Replace 0 with mode in Loan_Amount_Term if necessary
```

```
df['Loan_Amount_Term'].replace({0: df['Loan_Amount_Term'].mode()[0]}, inplace=True)
```



MODEL & EVALUATION

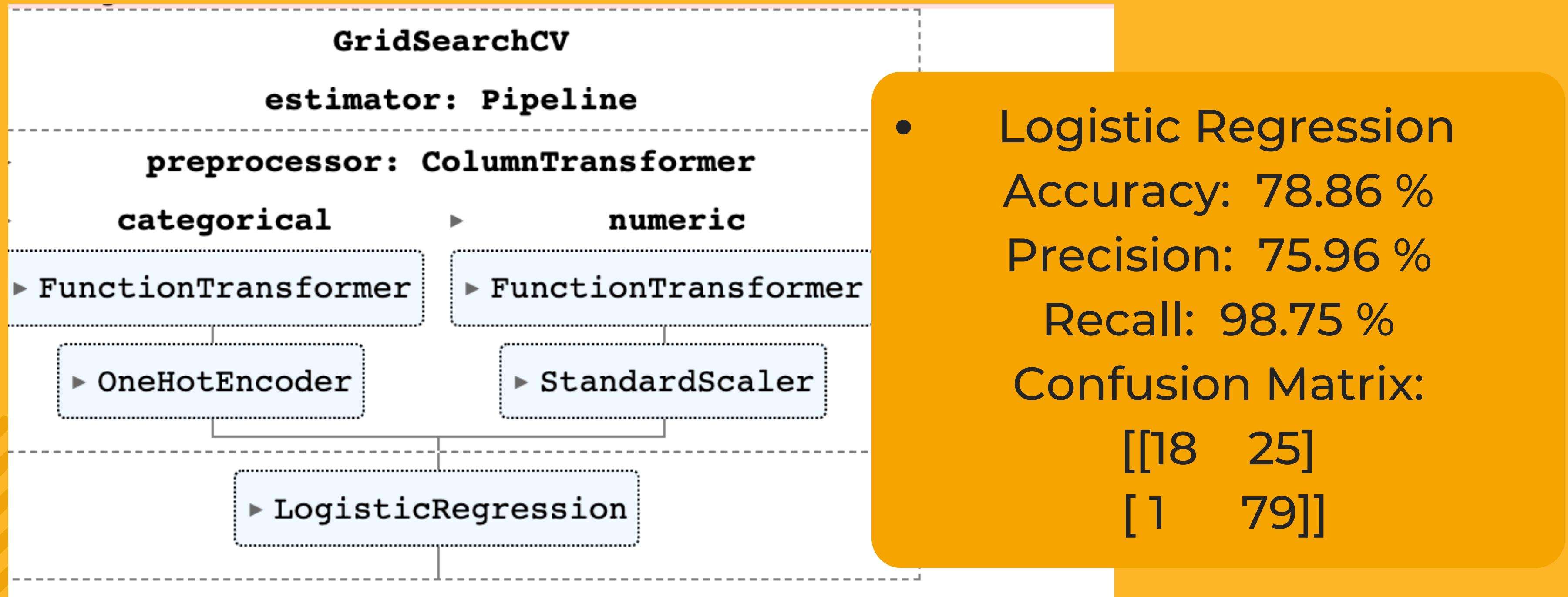
Fitting 5 folds for each of 243 candidates, totalling 1215 fits



- Random Forest Classifier
 - Accuracy: 73.98 %
 - Precision: 74.49 %
 - Recall: 91.25 %
 - Confusion Matrix:

[[18	25]
[7	73]]

MODEL & EVALUATION



Overview POST http://127.0.0.1:5005/p ... POST http://ec2-18-206-12... + ... No Environment

http://127.0.0.1:5005/predict

POST http://127.0.0.1:5005/predict

Send

Params Authorization Headers (8) Body ● Pre-request Script Tests Settings Cookies

none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify

```
1 {  
2     "Gender": "Male",  
3     "Married": "Yes",  
4     "Dependents": "0",  
5     "Education": "Graduate",  
6     "Self_Employed": "No",  
7     "LoanAmount": 175.0,  
8     "Loan_Amount_Term": 360.0,  
9     "Credit_History": 1.0,  
10    "Property_Area": "Rural",  
11    "TotalIncome": 7710.0  
12}
```

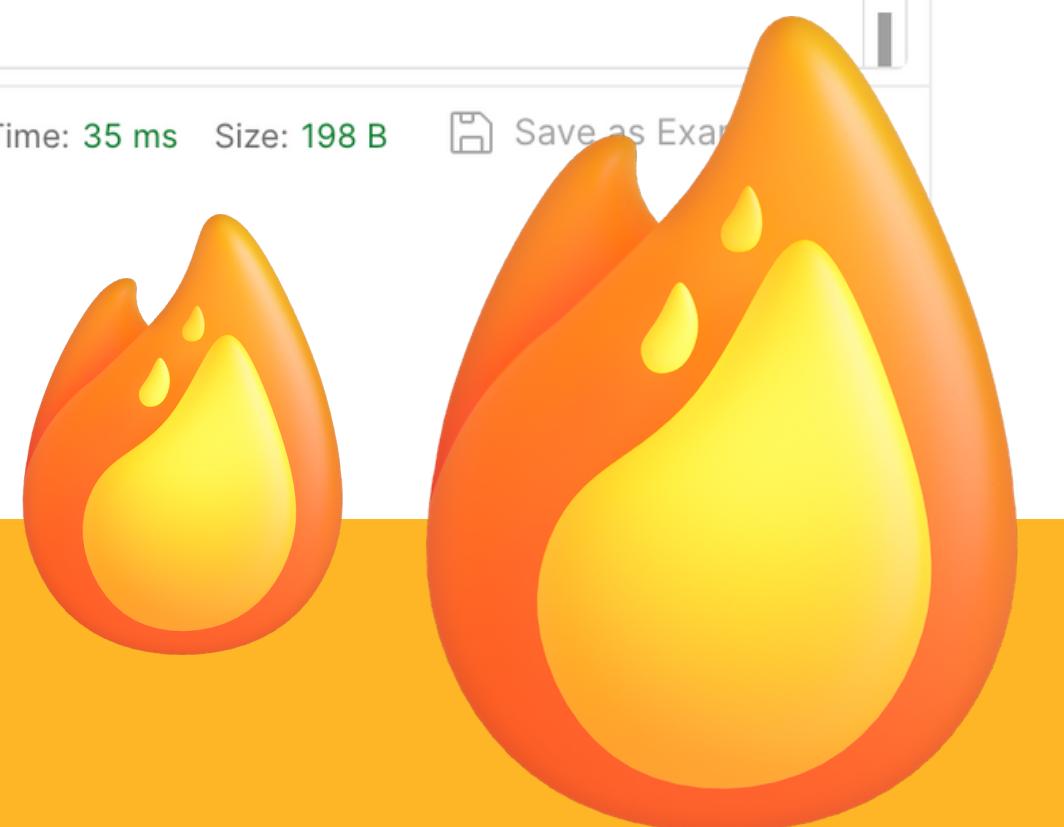
Body Cookies Headers (5) Test Results

Status: 200 OK Time: 35 ms Size: 198 B Save as Example

Pretty Raw Preview Visualize JSON

```
1 {  
2     "Loan Approved": "[ 'Y' ]"  
3 }
```

Deployment on Cloud





Collections



> New API



APIs



Environments



Mock Servers



Monitors



Flows



History

Start working with your team

http://ec2-18-206-125-175.compute-1.amazonaws.com:5005/predict

Save

Edit

Comment

</>

POST



http://ec2-18-206-125-175.compute-1.amazonaws.com:5005/predict

Send



Params

Authorization

Headers (8)

Body

Pre-request Script

Tests

Settings

Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

```
1 {  
2   "Gender": "Male",  
3   "Married": "Yes",  
4   "Dependents": "0",  
5   "Education": "Graduate",  
6   "Self_Employed": "No",  
7   "LoanAmount": 175.0,  
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9   "Credit_History": 1.0,  
10  "Property_Area": "Rural",  
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12 }
```

Body

Cookies

Headers (5)

Test Results

Pretty

Raw

Preview

Visualize

JSON



```
1 {  
2   "Loan_Approved": "[Y]"  
3 }
```



200

OK

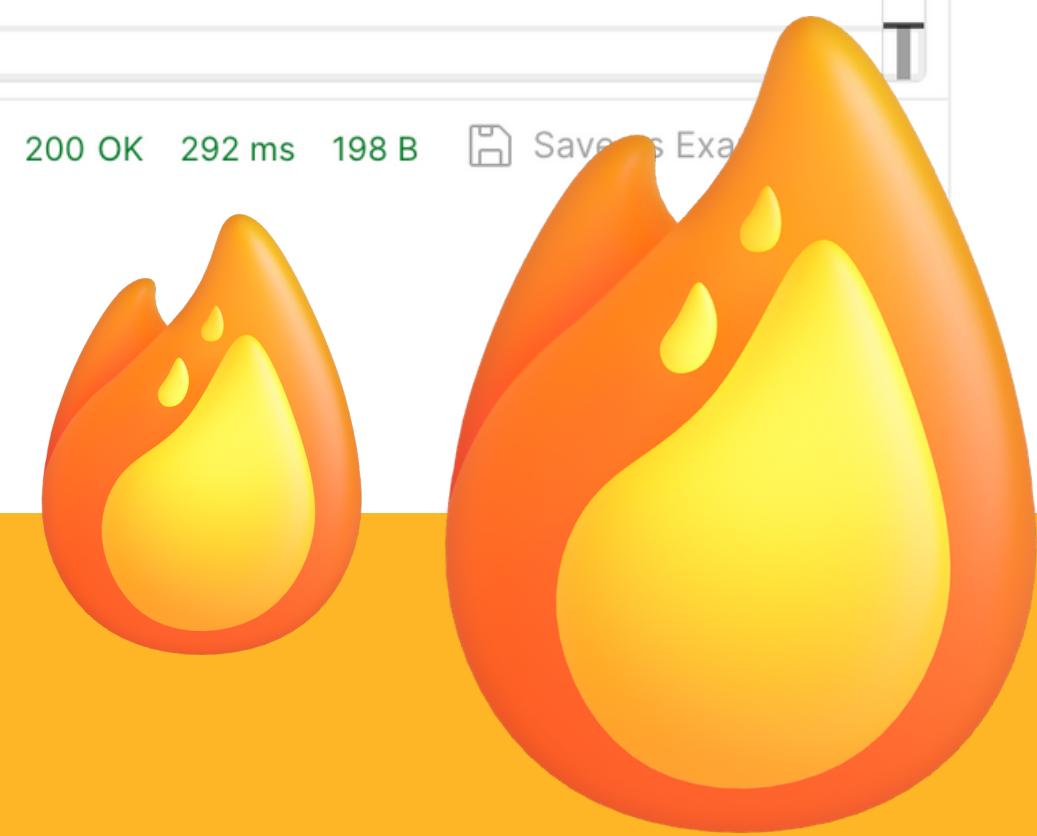
292 ms

198 B



Save as Example

Deployment on Cloud



THANK YOU!

