

# Loan Predictions & Deployment

Jagvir





01

# Project Flow

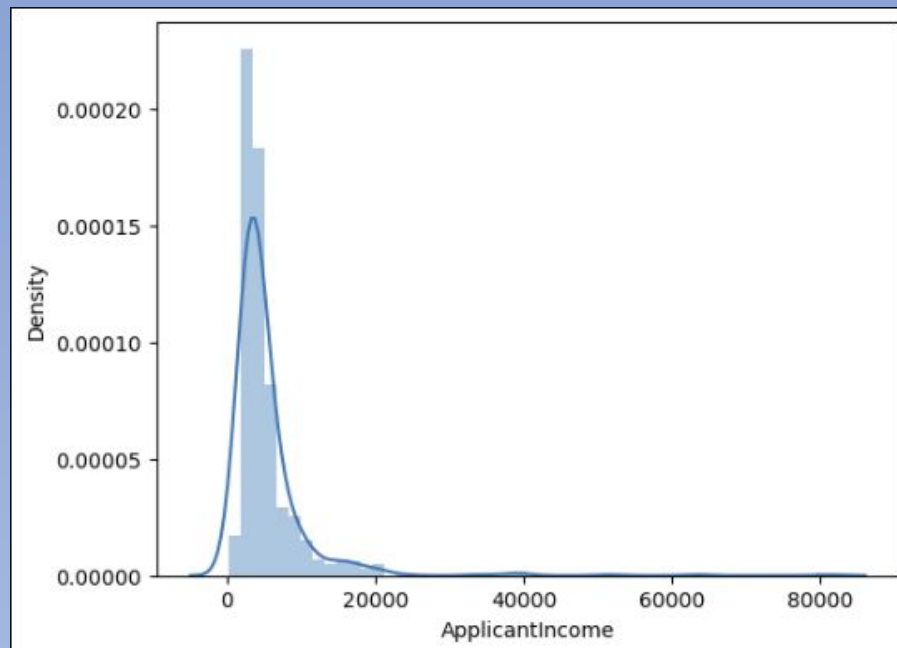


# Steps Taken

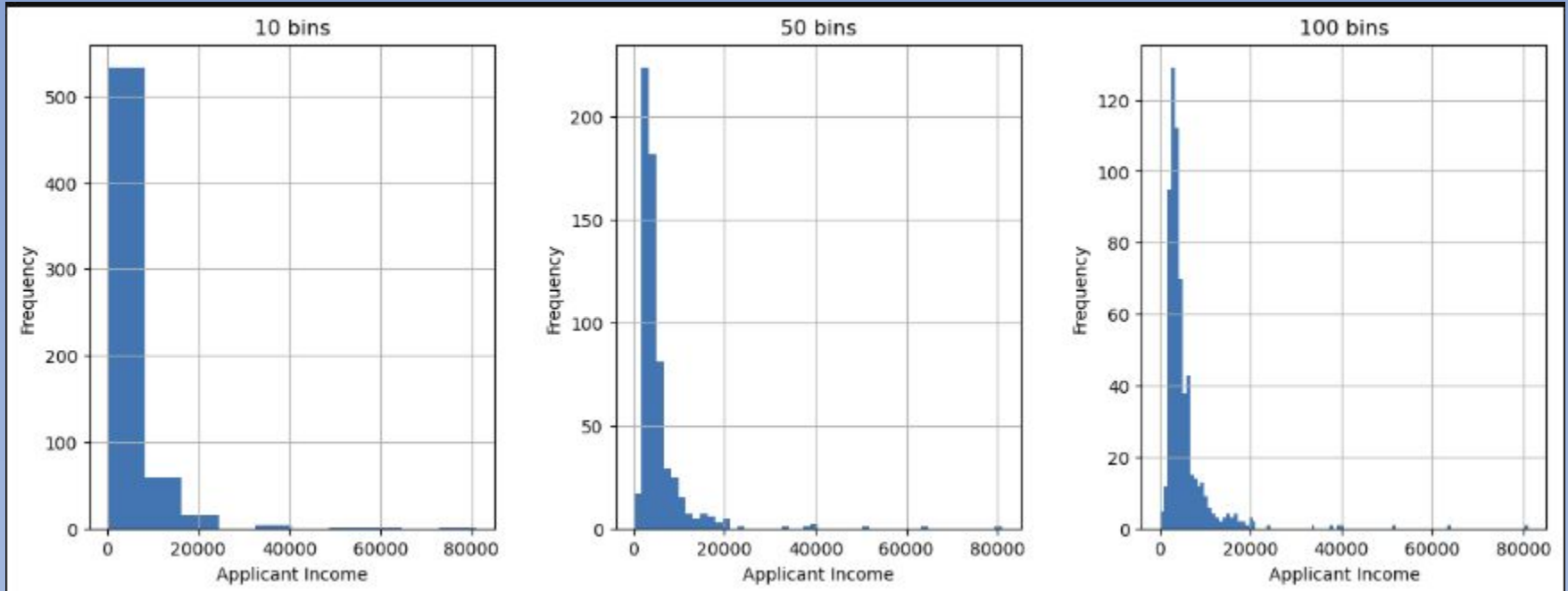
1. Hypothesis Generation
  - a. Who is most likely to get a loan?
2. EDA (Clean & Wrangle)
3. Building a Predictive Model
4. Creating a Pipeline
5. Deploying Model

# EDA Continued...

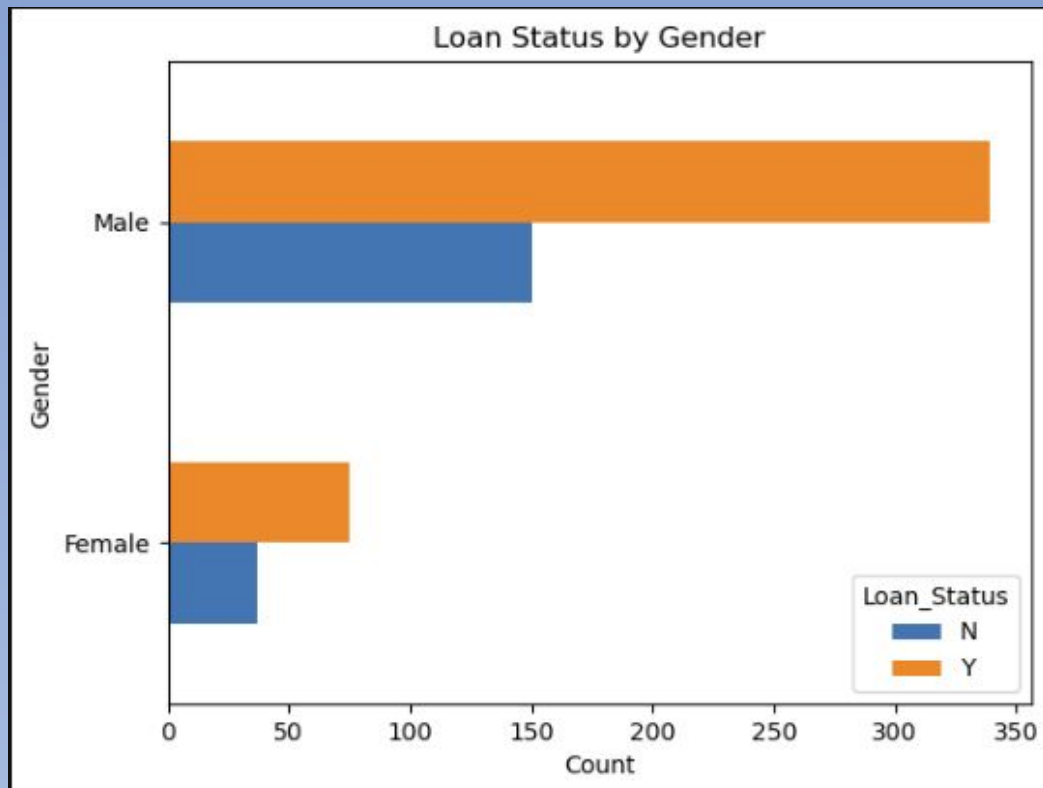
- How many applicants have a credit history?
- Gender & Married Frequencies
- How many graduates?
- Is the applicant income normally distributed



# EDA Continued...



# EDA Continued...



# EDA Continued...

## Imputing Missing Values

```
# Categorical variables can be imputed with mode as the most common/frequent values will be used to replace the missing values:  
df['Credit_History'].fillna(df['Credit_History'].mode()[0], inplace=True)  
df['Self_Employed'].fillna(df['Self_Employed'].mode()[0], inplace=True)  
df['Dependents'].fillna(df['Dependents'].mode()[0], inplace=True)  
df['Dependents'] = df['Dependents'].replace('3+', 4) # '3+' is viewed as a string and should be changed so it can be fed into model  
df['Gender'].fillna(df['Gender'].mode()[0], inplace=True)  
df['Married'].fillna(df['Married'].mode()[0], inplace=True)  
  
# Numerical variables are continuous so they can be imputed with mean to replace the missing values:  
df['LoanAmount'].fillna(df['LoanAmount'].median(), inplace=True)  
df['Loan_Amount_Term'].fillna(df['Loan_Amount_Term'].median(), inplace=True)
```

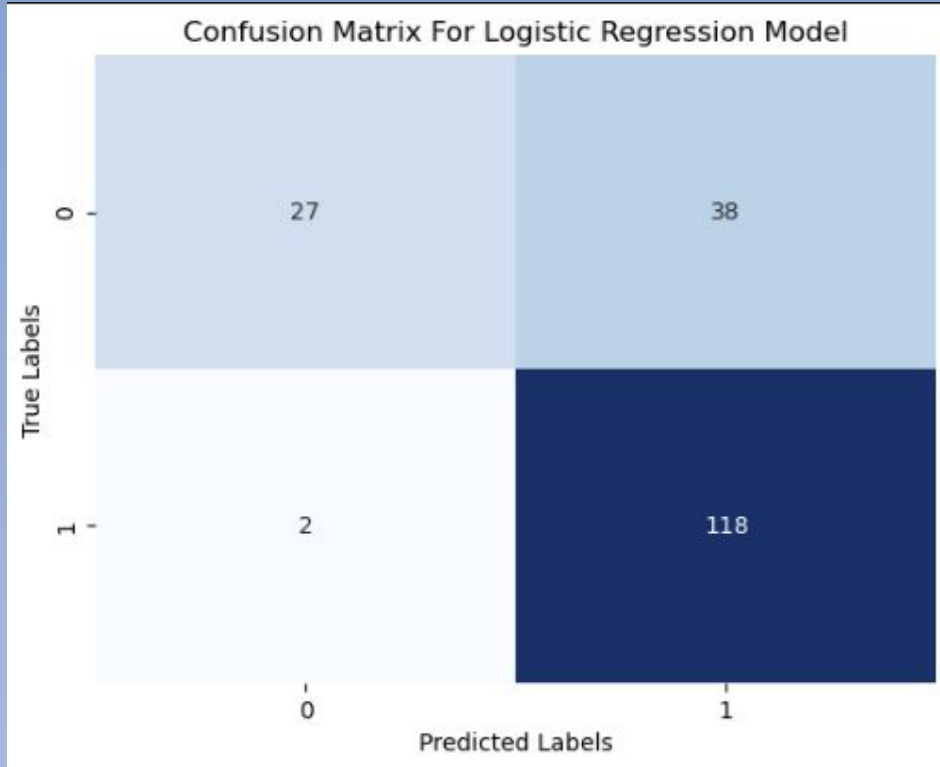
02



# Results



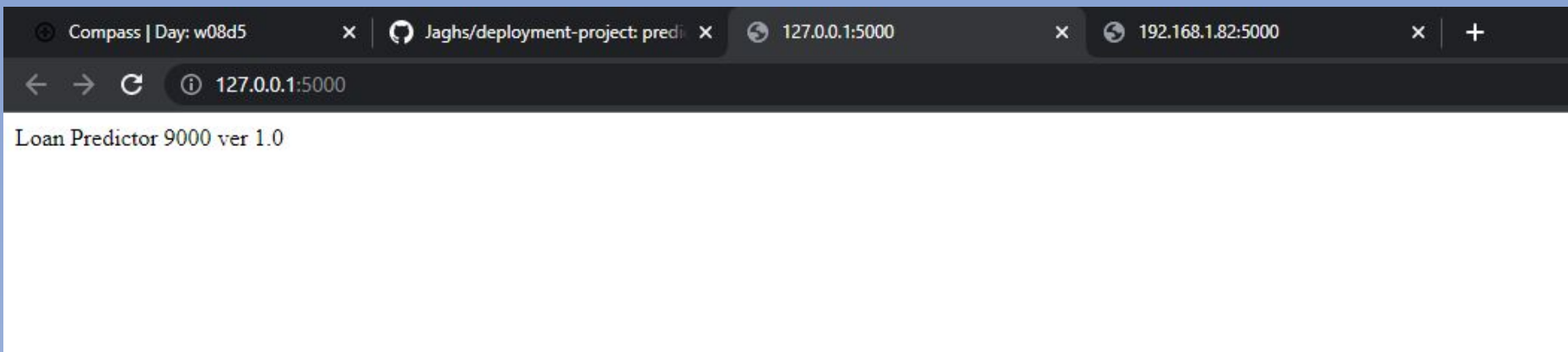
# Model Performance



Accuracy Score = 0.7837837837837838  
Precision Score = 0.7564102564102564  
Recall Score = 0.9833333333333333  
F1 Score = 0.8550724637681159

Best parameters: {'C': 0.01, 'penalty': 'none'}  
Best cross-validation score: 0.8181121751025993

# API



```
# Printing the prediction
prediction = response_data['prediction']
print(f"Prediction: {prediction}")

# Adding the prediction to the original code
if prediction == 1:
    print('Congratulations, your loan has been approved!')
else:
    print('Sorry, your loan has been rejected.')
```

```
Prediction: [0]
Sorry, your loan has been rejected.
```

03

# Challenges & Future



# Thanks!



**CREDITS:** This presentation template was created by [Slidesgo](#), and includes icons by [Flaticon](#), and infographics & images by [Freepik](#)