LOAN STATUS PREDICTION

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Problem Statement

- *Sometimes it's hard to know whether a person can get loan or not, from banks and other lenders beforehand.*
- *This model aims to make it easier for both lenders and borrowers to understand if a loan will be approved or not, making the whole process simpler.*

Data Exploration

- **Importing dataset:***Taking required dataset from kaggle and linking directly.*
- **Packages:***Importing required packages like pandas,numpy,seaborn etc...*
- **Data cleaning:***Cleaning the dataset by removing the missing values.*
- **Data Processing:***Changing the labels of the columns values and dropping.*
- **Data Visualization:***Generating graphs for analysis.*

Model Building

- **Train and Test:** *Divided the data set into 80:20 ratio for training and testing sets.*
- **Algorithm:** *Chose Support Vector Machine (SVM) as the algorithm for loan status prediction.*
- **Optimization:** *Worked on different kernel types for more accuracy rate.*

Model Selection

- **Decision Tree:**

```
DecisionTreeClassifier() accuracy is 0.7604166666666666
DecisionTreeClassifier() Avg cross val score is 0.7020833333333334
```

- **Logistic Regression:**

```
LogisticRegression() accuracy is 0.8229166666666666
LogisticRegression() Avg cross val score is 0.8020833333333334
```

- **Support Vector Machine:**

```
Accuracy on training data :  80.46875
Accuracy on test data :  83.33333333333334
```

Performance Analysis

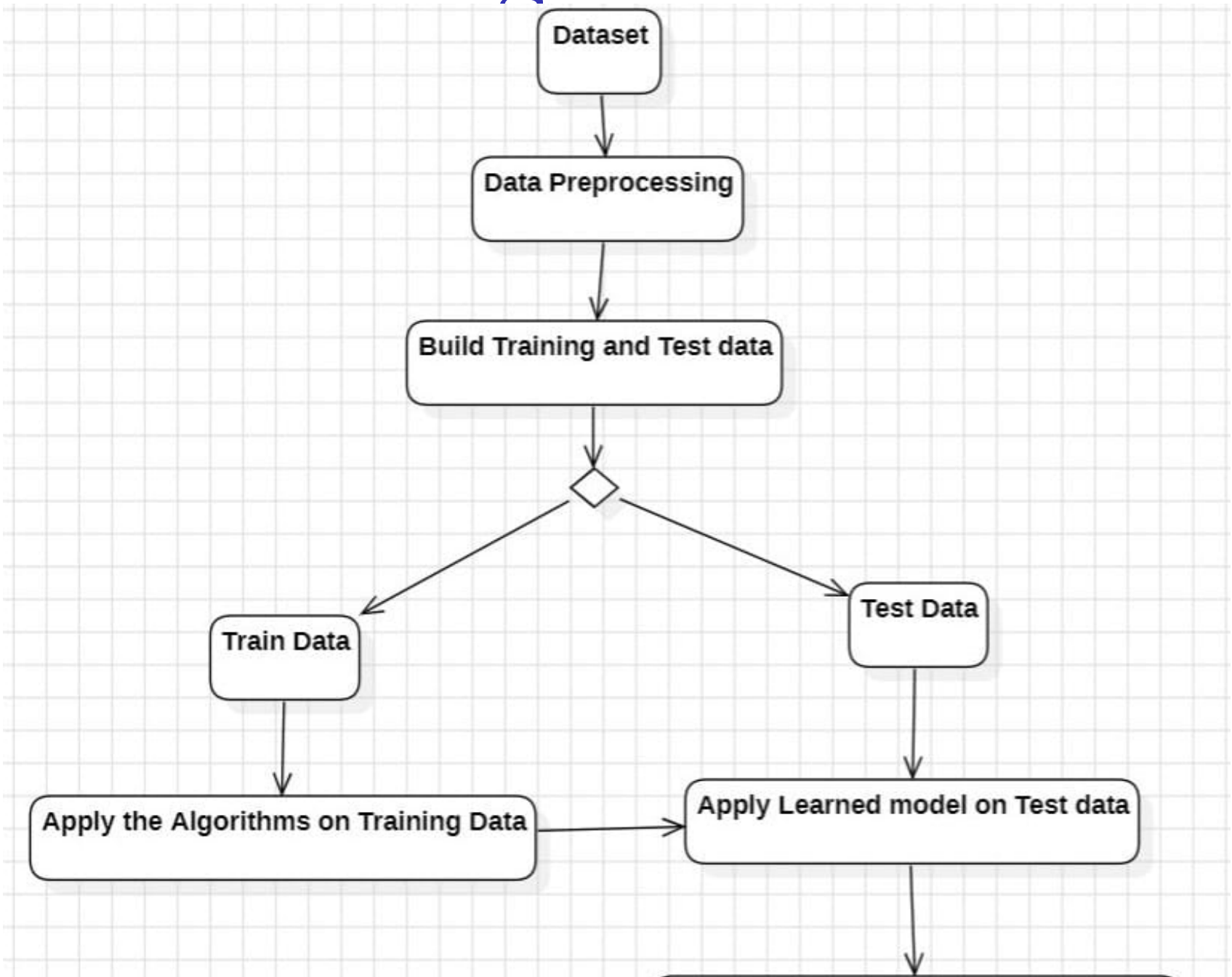
- **Accuracy rate for loan approvals by svm:**

```
Accuracy on training data :  70.3125
Accuracy on test data :  68.75
```

- **Optimized accuracy rate:**

```
Accuracy on training data :  80.46875
Accuracy on test data :  83.33333333333334
```

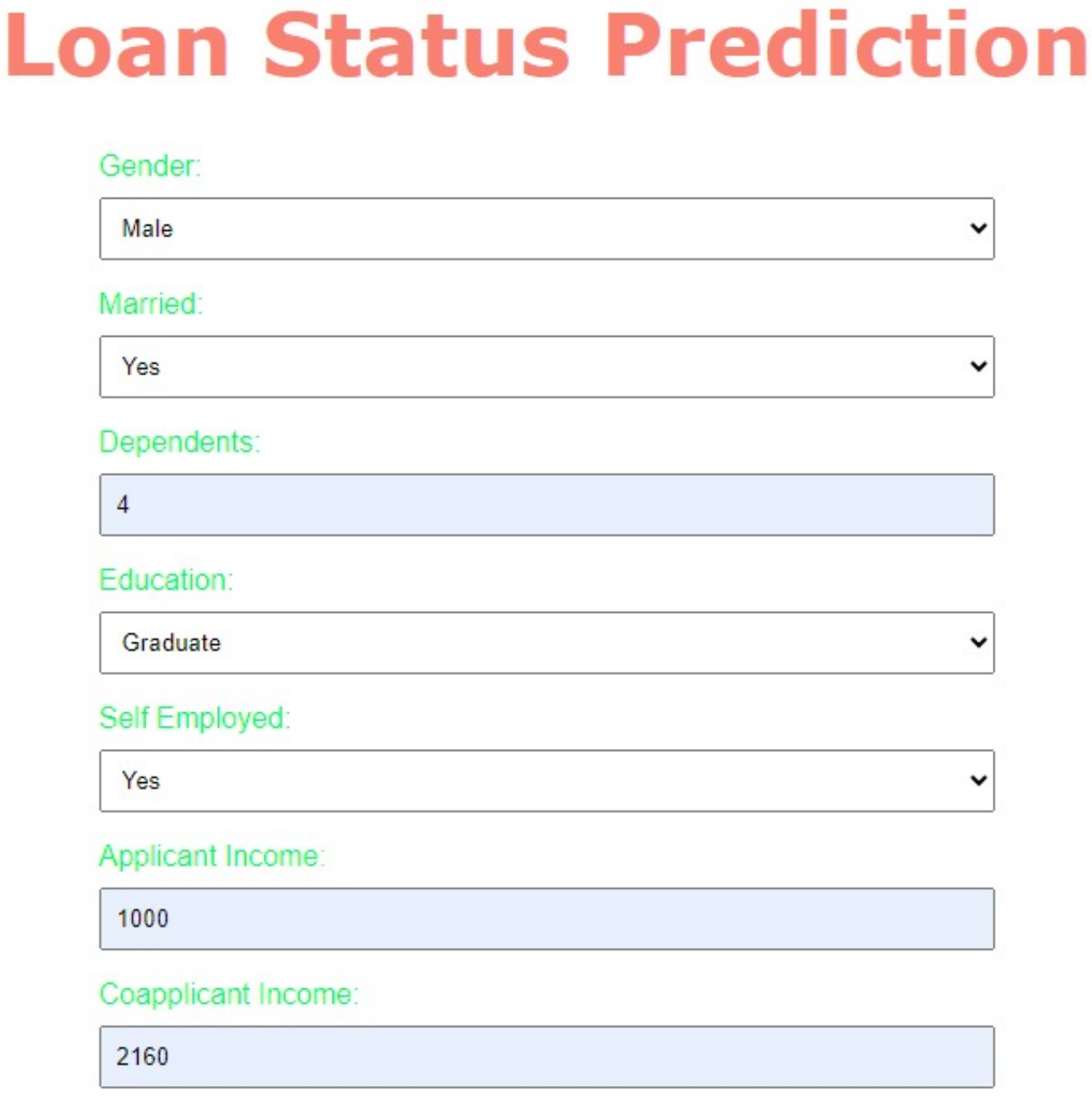
Data Flow Diagram



Challenges

- *Faced challenges in dropping the missing values and labeling in dataset.*
- *Worked on many model building algorithms and optimization techniques for getting more accuracy rates..*
- *Faced challenges in linking model to the user interface.*

Output


Loan Status Prediction
Gender:
Male
Married:
Yes
Dependents:
4
Education:
Graduate
Self Employed:
Yes
Applicant Income:
1000
Coapplicant Income:
2160

Yes

Applicant Income:

1000

Coapplicant Income:

2160

Loan Amount:

3400

Loan Amount Term:

360

Credit History:

1

Property Area:

Urban

Predict Loan

Prediction Result:

Loan Approved

Go back to home page

Loan Status Prediction

Gender:

Female

Married:

Yes

Dependents:

0

Education:

Not Graduate

Self Employed:

No

Applicant Income:

100

Coapplicant Income:

0

Self Employed:

No

Applicant Income:

100

Coapplicant Income:

0

Loan Amount:

344

Loan Amount Term:

360

Credit History:

0

Property Area:

Rural

Predict Loan

Prediction Result:

Loan Not Approved

Go back to home page

Bibliography

- *Selected dataset from kaggle*
  1. *Ninzaami-loan prediction*
  2. *abdelruhmanessam-loan-status-prediction*
- *Took reference from the Youtube videos*
  1. *Loan status prediction by Siddardhan*
  2. *ML project-loan prediction by Data Thinkers*
  3. *Loan Eligibility Prediction Tutorial by edureka!*
- *Used ChatGPT,Bard and Google for understanding terms and resolving challenges encountered during the project.*

THANK YOU