Department of Computer Science & Engineering

UE17CS355 – Web Tech II Laboratory

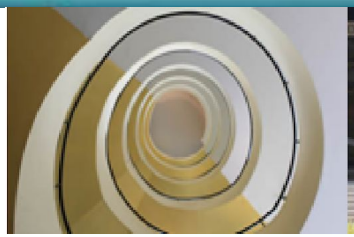
Project Evaluation

Project Title : Loan Approval Prediction

Project Team :

Aprameya Kulkarni - PES1201701583
Deepika Karanji - PES1201700103
Pragnya Sridhar- PES1201701342

PES UNIVERSITY






Project Description

Loan eligibility is important for companies to determine if a loan applicant can be given the money.

Companies would want to automate the loan eligibility process (real time) based on customer detail provided while filling online application form. These details are Gender, Marital Status, Education, Number of Dependents, Income, Loan Amount, Credit History and others.

To automate this process,we identify the customers segments, those are eligible for loan amount so that companies can specifically target these customers.

Technologies Used

1. Front End - React and Materialize CSS
2. Backend - Flask application (Python)

   Database - SQLite
3. Ajax patterns (Multistage and Periodic refresh), REST APIs
4. Model used for prediction - Support vector classifier
5. Setting Cookies

Techniques Implemented

1. Asynchronous XHR calls for form submissions (Queries and Prediction) and loading pages
2. Multistage download to load and display graphs on dashboard
3. Periodic refresh to update query page if database is updated
4. CORS Handling
5. REST APIs to handle and serve frontend requests

Intelligent Functionality

Dataset used - Dream Housing Finance company dataset

Preliminary data analysis:

Analyzing values assigned to columns through plots, we drew the following insights from the dataset.

1. Loan Approval Status: About 2/3rd of applicants have been granted loan.
2. Sex: There are more Men than Women (approx. 3x)
3. Marital Status: 2/3rd of the population in the dataset is Married; Married applicants are more likely to be granted loans.
4. Dependents: Majority of the population have zero dependents and are also likely to accepted for loan.

5. Education: About 5/6th of the population is Graduate and graduates have higher proportion of loan approval

6. Employment: 5/6th of population is not self employed.

7. Property Area: More applicants from Semi-urban are also likely to be granted loans.

8. Applicant with credit history are far more likely to be accepted.

9. Loan Amount Term: Majority of the loans taken are for 360 Months (30 years).

Intelligent Functionality

Preprocessing Data:

Input data needs to be pre-processed before we feed it to model.

Following things were taken care of:

- Encoding Categorical Features
- Handling missing values

Model used: Support vector classifier

Input: Gender, Marital Status, Dependents, Education, Self Employed, Applicant Income, Co-Applicant Income, loan amount, loan term, credit history, property area

Output: Loan Approved or Not Approved

Result

```
from sklearn.metrics import classification_report, confusion_matrix,accuracy_score
print(confusion_matrix(Y_test,y_pred))
print(classification_report(Y_test,y_pred))
print(accuracy_score(Y_test,y_pred))
```

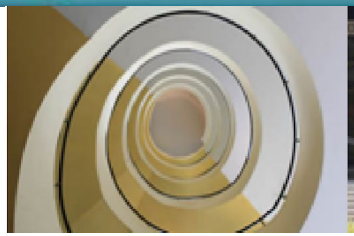
```
[[ 74  29]
 [  0 105]]
              precision    recall  f1-score   support

           0       1.00      0.72      0.84       103
           1       0.78      1.00      0.88       105

    accuracy                           0.86       208
   macro avg       0.89      0.86      0.86       208
weighted avg       0.89      0.86      0.86       208

0.8605769230769231
```

PES UNIVERSITY



Thank You