

Problem Statement Loan Approval Predictor

Web Development using Flask

Domain:

- Finance and Banking.

Context:

Dream Housing Finance company deals in all home loans. They have a presence across all urban, semi urban and rural areas. Customers first apply for a home loan after that company manually validates the customer eligibility for loan. The company wants to automate the loan eligibility process based on customer details provided while filling in the details online. They need a web application where a user can access their website and register, login, and enter the required details such as Gender, Marital Status, Education, Number of Dependents, Income, Loan Amount, Credit History and others for checking the eligibility for the home loan.

Project Objective:

- 1) This is a standard supervised classification task. A classification problem where we have to predict whether a customer is eligible for loan or not based on a given set of independent variables(s).
- 2) To build a Python Flask ML application where a user must get registered by entering the username and password and login to the website and then enter their details to check whether they are eligible for loan or not

Dataset Description:

Dataset can be found [here](#)

SL. No	Attribute	Description
1.	Loan ID	Unique Loan ID
2.	Gender	Male or Female
3.	Married	Applicant married (Y/N)
4.	Dependents	Number of dependents
5.	Self employed	Self employed (Y/N)
6.	Education	Graduate/Undergraduate
7.	Applicant Income	Applicant income (in dollars)
8.	Co Applicant Income	Co Applicant Income (in dollars)
9.	Loan Amount	Loan amount in thousands (in dollars)
10.	Loan Amount Term	Term of loan in months
11.	Credit History	Credit history meets guidelines Yes/No(1/0)
12.	Property area	Urban/Semi Urban/Rural
13.	Loan Status (Target)	Loan Approved (Y/N)

Steps to the project:

- Model Building and saving the model using Pickle

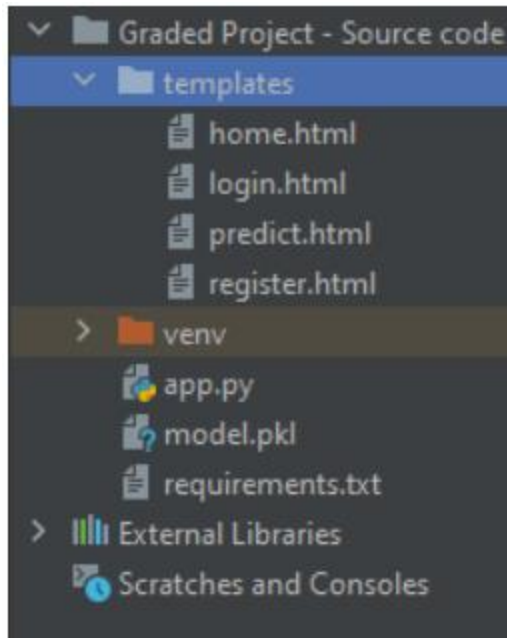
1. Import required libraries and read the dataset.

2. Check the first few samples, shape, info of the data and try to familiarize yourself with different features.
3. Check for missing values in the dataset, if present? handle them with appropriate methods and drop redundant features.
4. Visualize the distribution of the target column 'loan_status' with respect to various categorical features and write your observations.
5. Encode the categorical data.
6. Separate the target and independent features and split the data into train and test.
7. Build any classification model to predict the loan status of the customer and save your model using pickle.

- Python Flask Application development

1. Creating a project and virtual environment using pycharm or visual studio code and installing the required packages

The project structure will look like this:



2. app.py

- This is our main application file that is designed to call some of the implemented APIs and methods, such as connecting to the MYSQL database and creating a table for the database, and APIs such as user to register, login, enter_details, predict, and logout.

a) Connect to the MYSQL database and create the class for the table.

- **User** (id, username, password) (can create the table in the database using mysql workbench also)

b) Register: This is a register API. This should take username and password and store the details in the user database.

c) Login: This API should take the username and password of registered users and successfully log them in.

d) Enter Details: This API should render the 'predict.html' page, where the user has to enter their details to check the loan eligibility.

e) Predict: This API should render the prediction results on the HTML template.

f) Logout: This API should logout the user.

Once you run the application, it should route to the home.html page where the user has to register.

Please login/Signup to check loan eligibility.

Login Now

Register Now

The Register.html Page will look like this, the user enters the username and password.

Register Page

Already have an account? [Log In](#)

The username and password will get added to the database.

Result Grid			
Filter Rows:			
	id	username	password
▶	1	someone	\$2b\$12\$IEzfA3qyBAHrZ.
•	NULL	NULL	NULL

Login.html page will look like this, only a registered user with a correct password can be logged in.

Login Page

Don't have an account? [Sign Up](#)

Once the user has logged in, the predict.html page will be displayed where the user needs to enter the details to get the loan eligibility status.

House Loan Eligibility Prediction

Please enter the details in order to check your house loan eligibility

Gender

married

dependents

education

self_employed

Applicant Income (\$)

Coapplicant Income (\$)

Loan amount in thousands (\$)

Loan Amount Term (in months)

Credit History

Property Area

[Submit](#)

[Press here to logout](#)

Then the application will predict the loan eligibility based on the given features, and if the user clicks on logout, it will redirect to the login page.

House Loan Eligibility Prediction

Please enter the details in order to check your house loan eligibility

Gender

married

dependents

education

self_employed

Applicant Income (\$)

Coapplicant Income (\$)

Loan amount in thousands (\$)

Loan Amount Term (in months)

Credit History

Property Area

Congrats!! you are eligible for the loan