LONE PREDICTION SYSTEM

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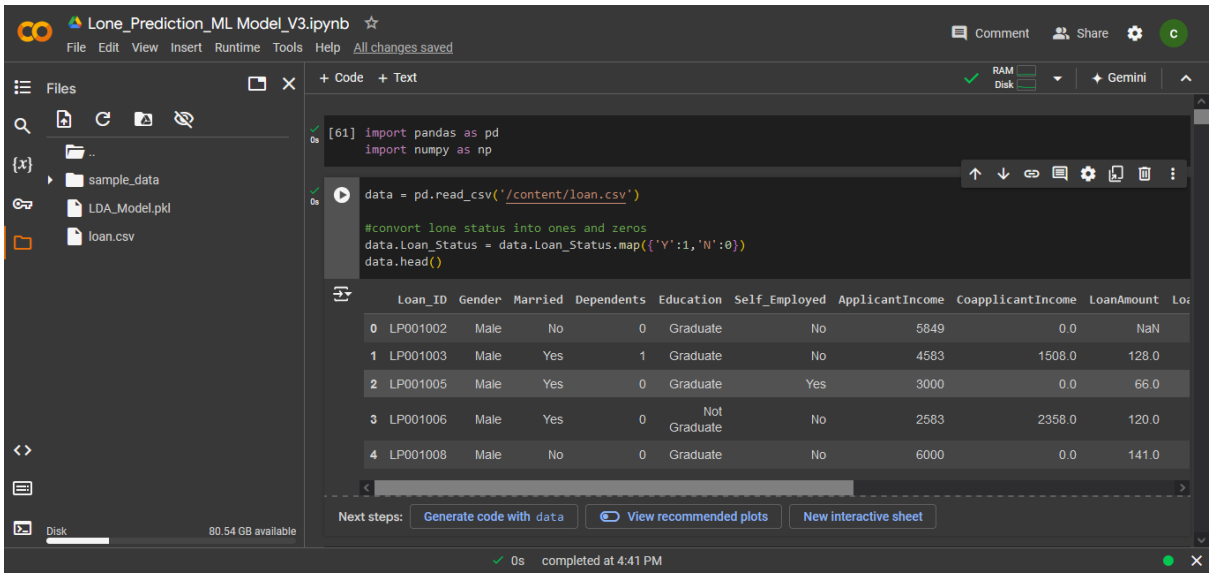
Introduction

Getting a Loan from the Bank is a challenging activity because of many factors. Such as the ability to re-pay, Current economic status, Loan repayment History, etc. Nowadays In Sri Lanka, eligibility of getting a loan is found manually or on paper. This mechanism of the procedure is time-consuming and costly. As a solution to this issue, I created a Machine Learning based Loan Prediction System. By using this Application users can easily find out whether the users can get a loan or not without time consuming. It is an efficient and practical solution. This solution is beneficial not only for users but also for banks. It provides a broader understanding of the factors affecting loan approval, helping both parties make informed decisions. For users, it clarifies the requirements and improves their chances of loan approval. For banks, it helps assess the risk and manage their lending processes more effectively.

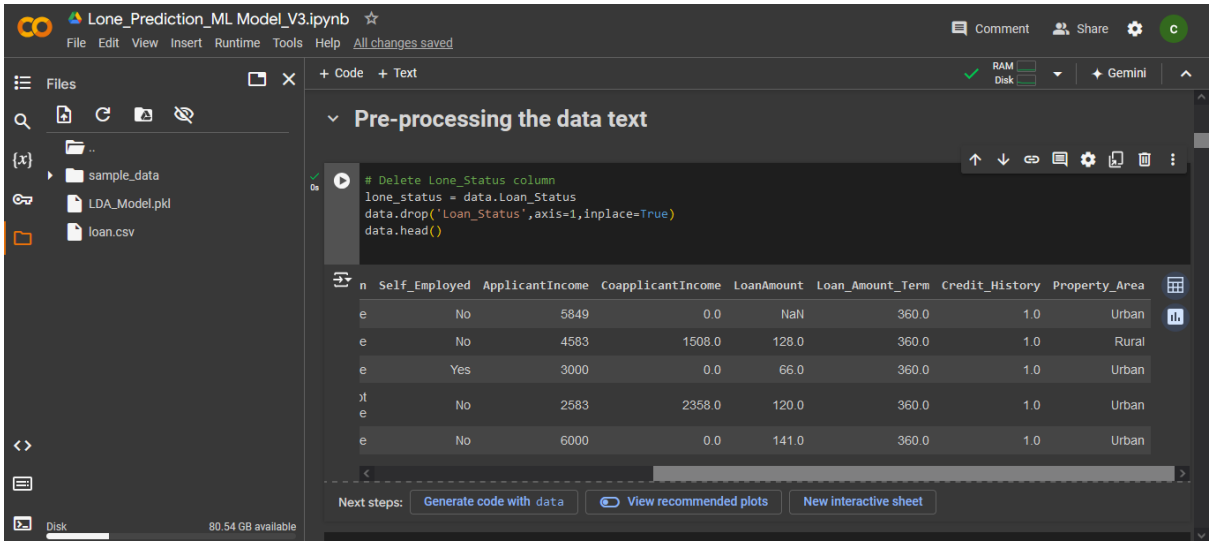
I used different factors to train the machine learning model. Such as gender, Marital Status, dependents, education, employment status, income, co-applicant income, loan amount, loan-amount terms, credit history, and properties. I downloaded the dataset from Kaggle. To clean and preprocess the dataset I used Python language and google colab environment. Streamlit library used for creating web application.

Development

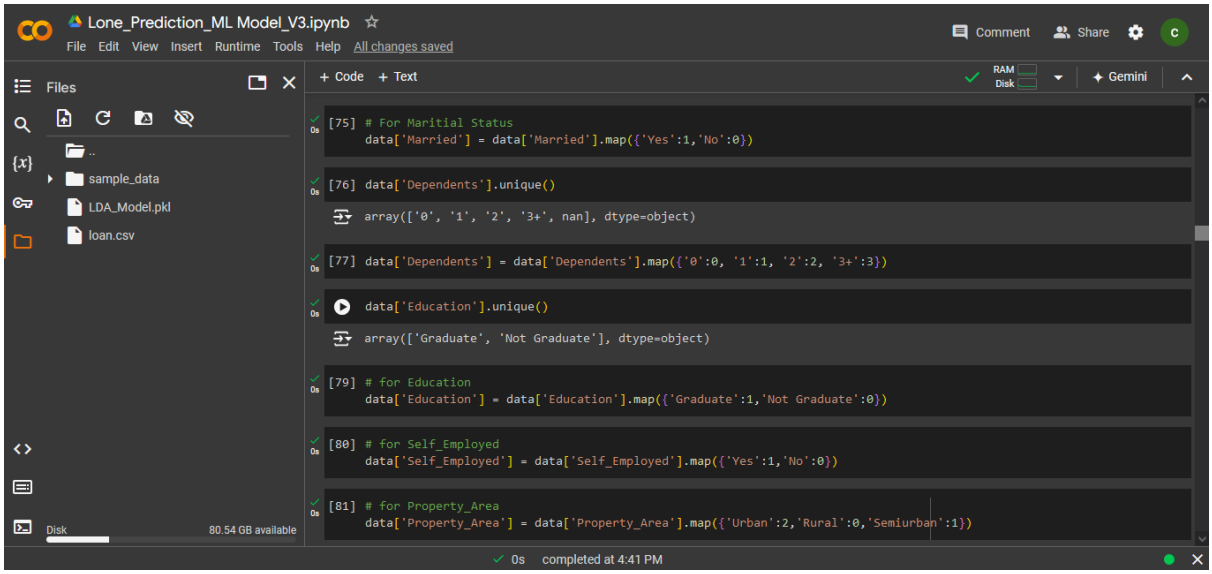
❖ To create a Machine Learning Model, Firstly I load the dataset on the google colab.



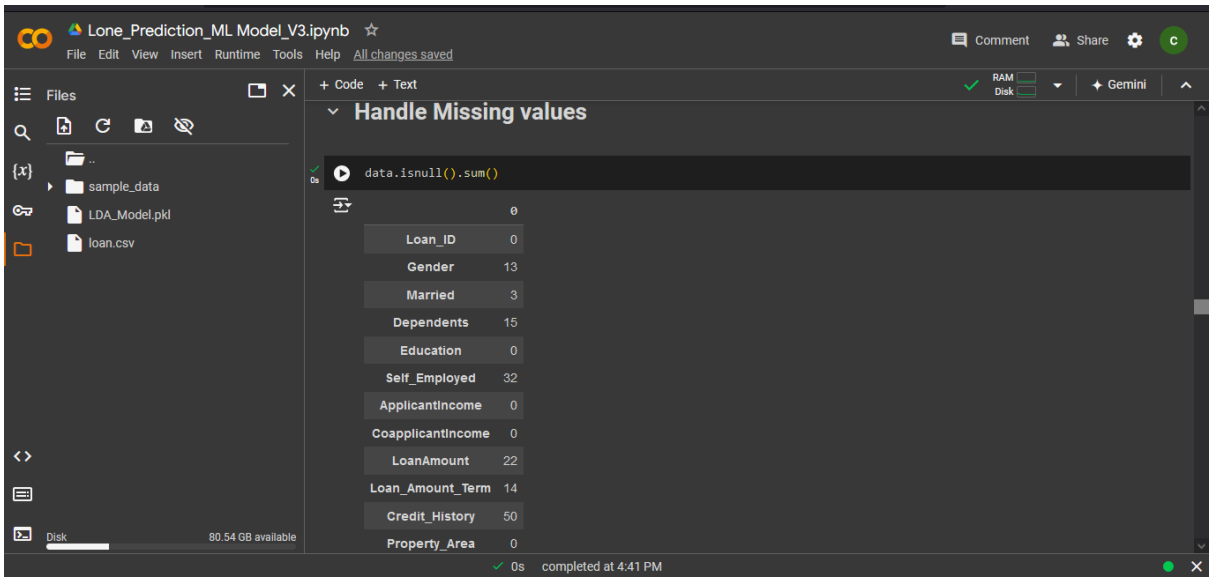
❖ After loading the dataset, I create a new variable called “lone_status” and assign the “Lone_Status” column’s data to the “lone_status” variable. Then delete Lone_Status column from the dataset because I do not need this column to train the model. Only I need this column for testing purposes.



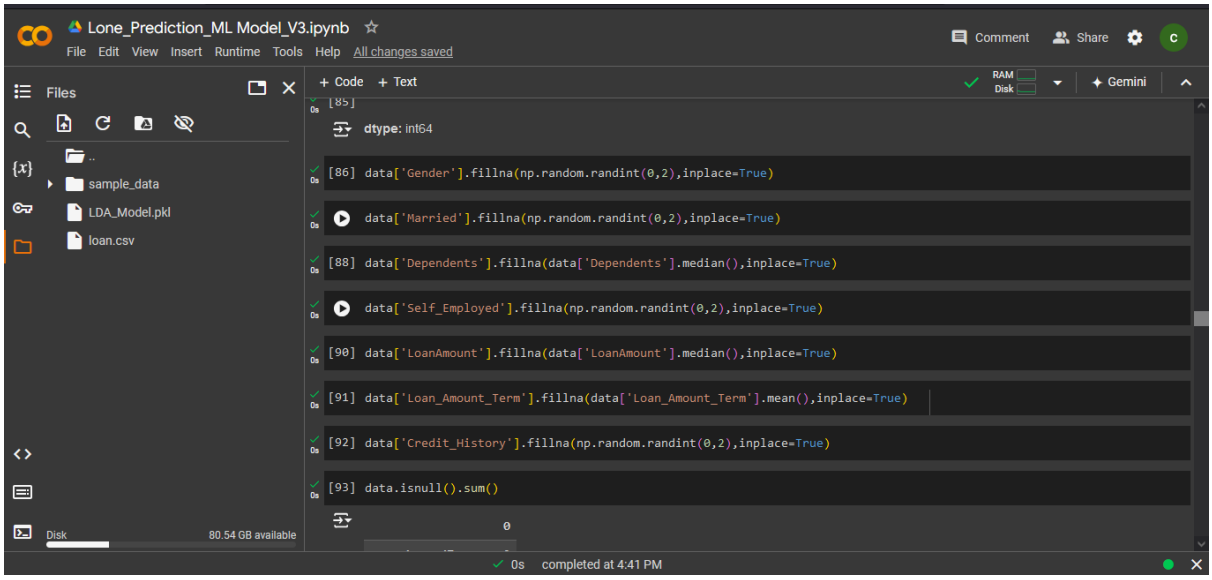
❖ Then I did Label Encoding for the categorical column's data.



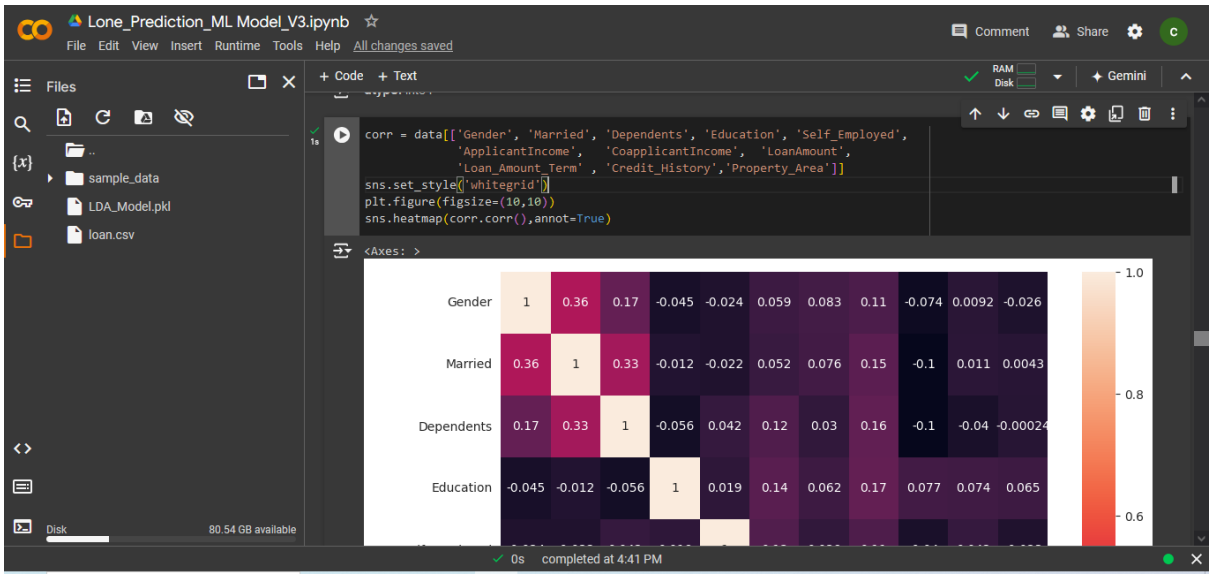
❖ After that I check the missing values of my dataset.

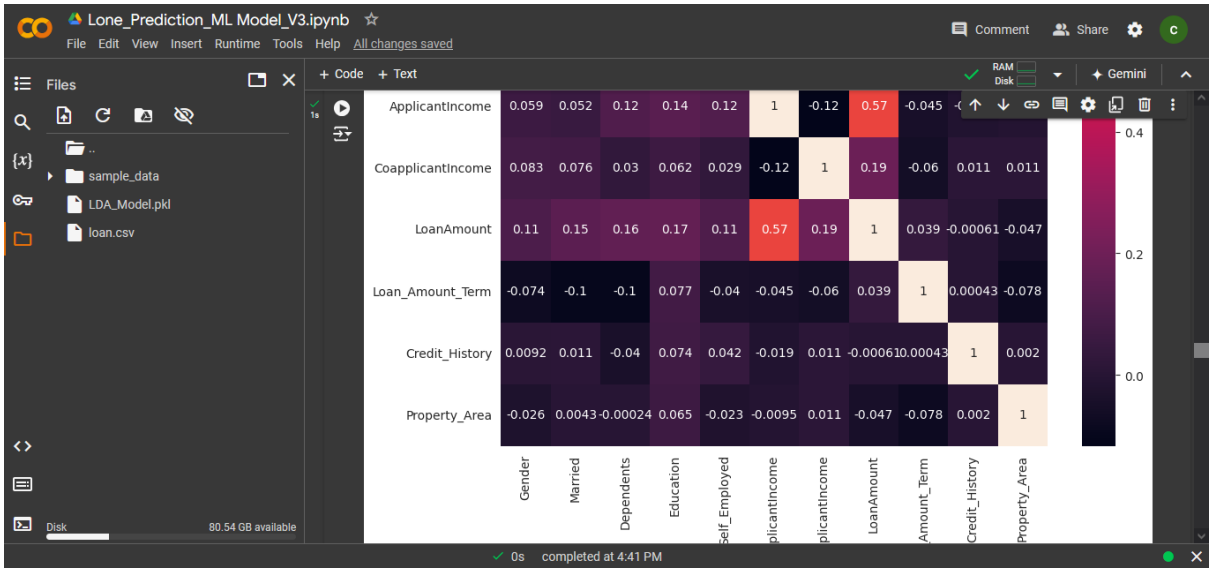


❖ After checking the missing values, I fill all those missing values with the most suitable data.

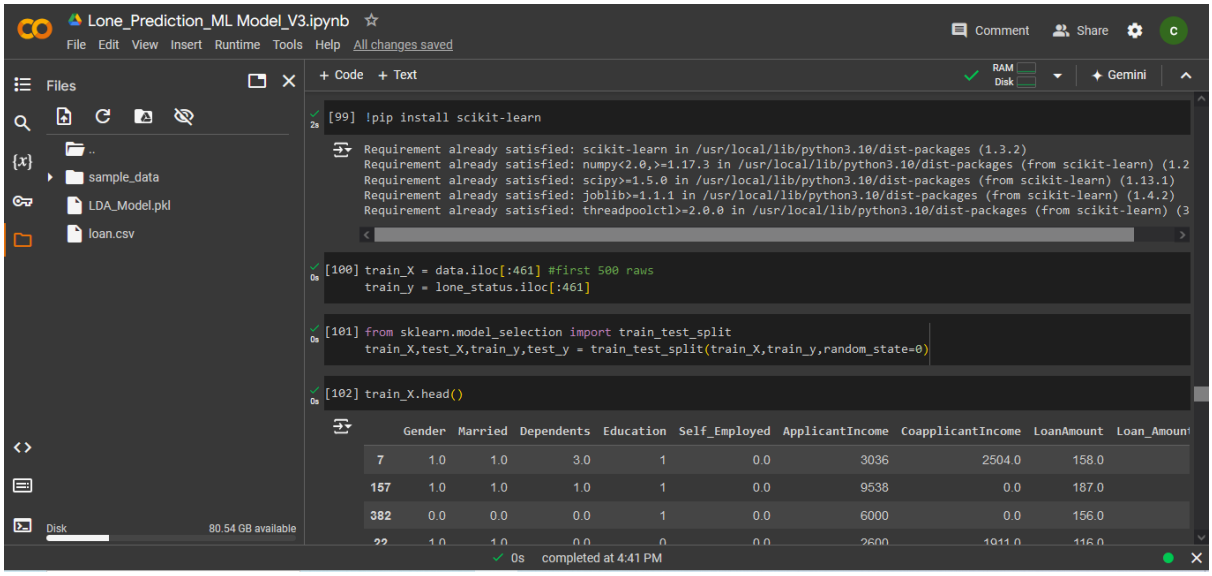


❖ Then, I create a heatmap with the all-numeric columns. In this stage, I could find a strong co-relationship between the “Loan Amount” and the “Applicant's Income” it was 0.57.

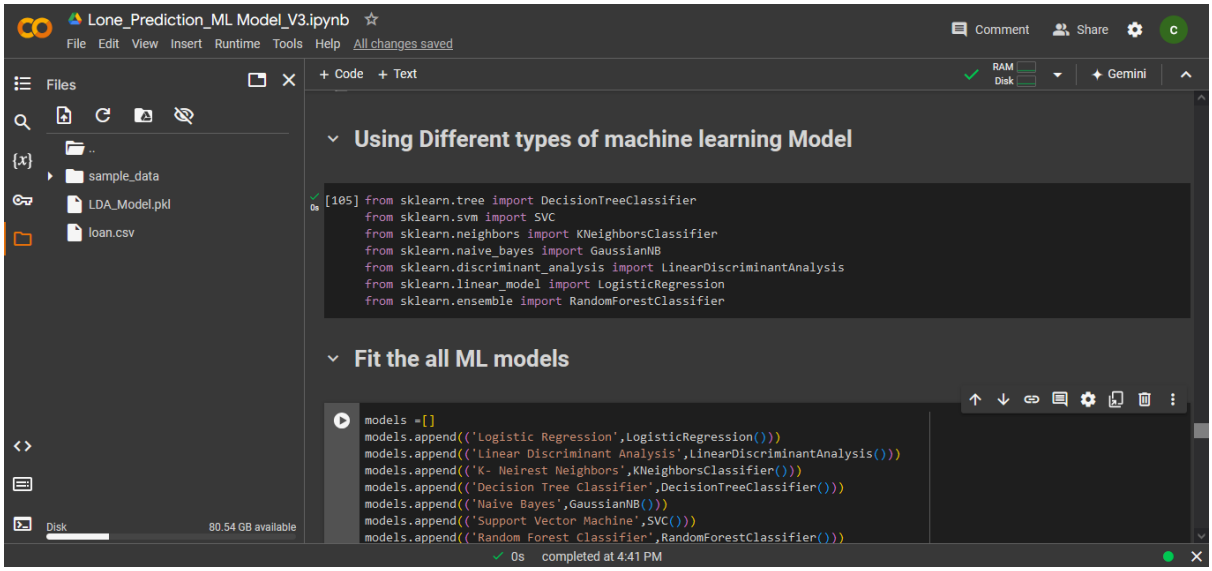




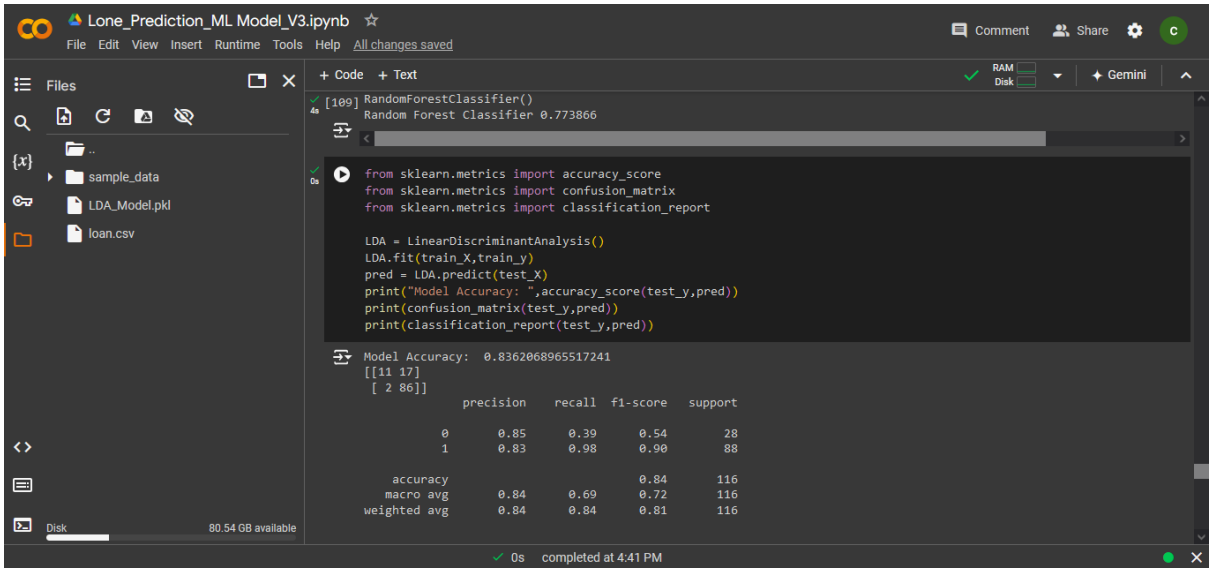
❖ After the data preprocessing, I split data into X and Y for training and testing purposes.



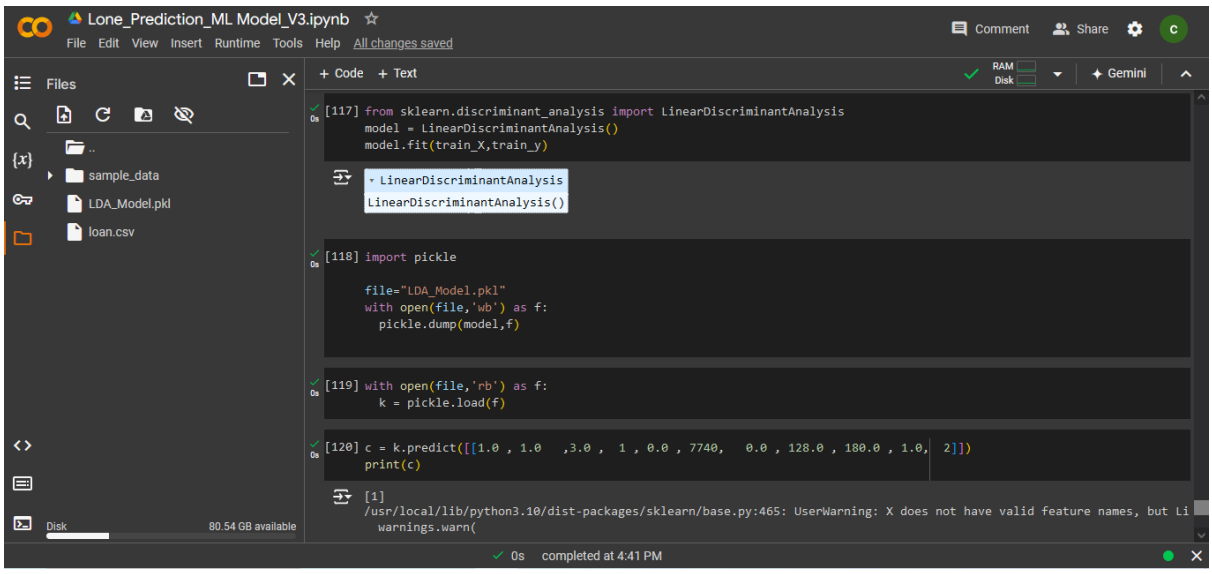
- I check the accuracy of my model by using six machine learning models like Decision tree Classifier, Logistic Regression, Linear Discriminant Analysis, K – Neirest Neighbors, Naïve Bayes, SVM, and Random Forest Classifier.



- After that I used Linear Discriminant Analysis for my model training because this model performs 0.84 accuracy.

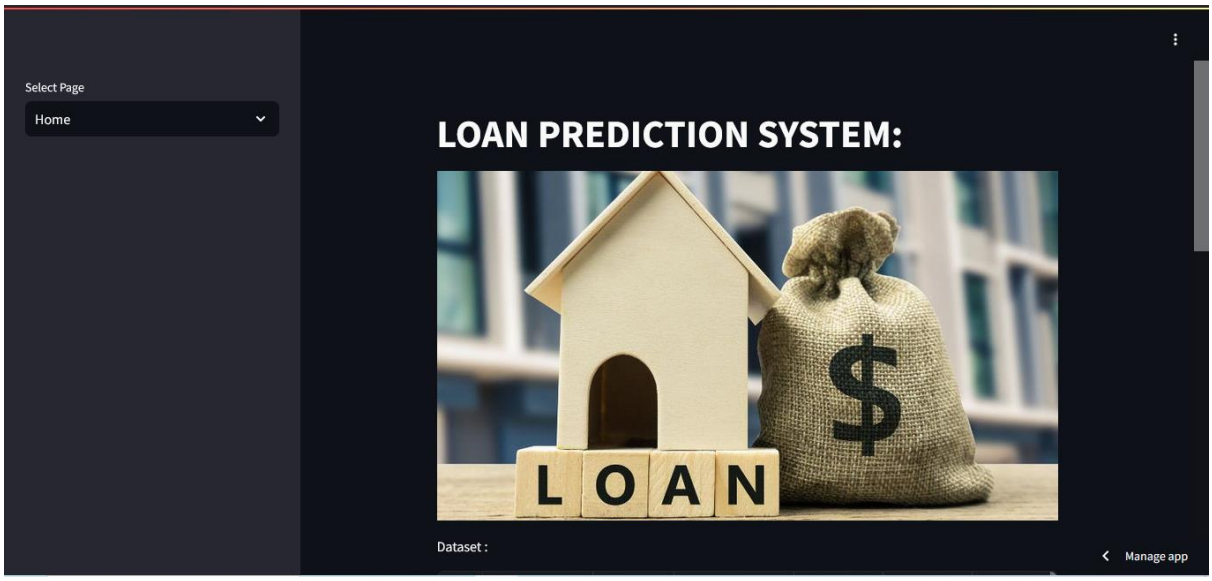


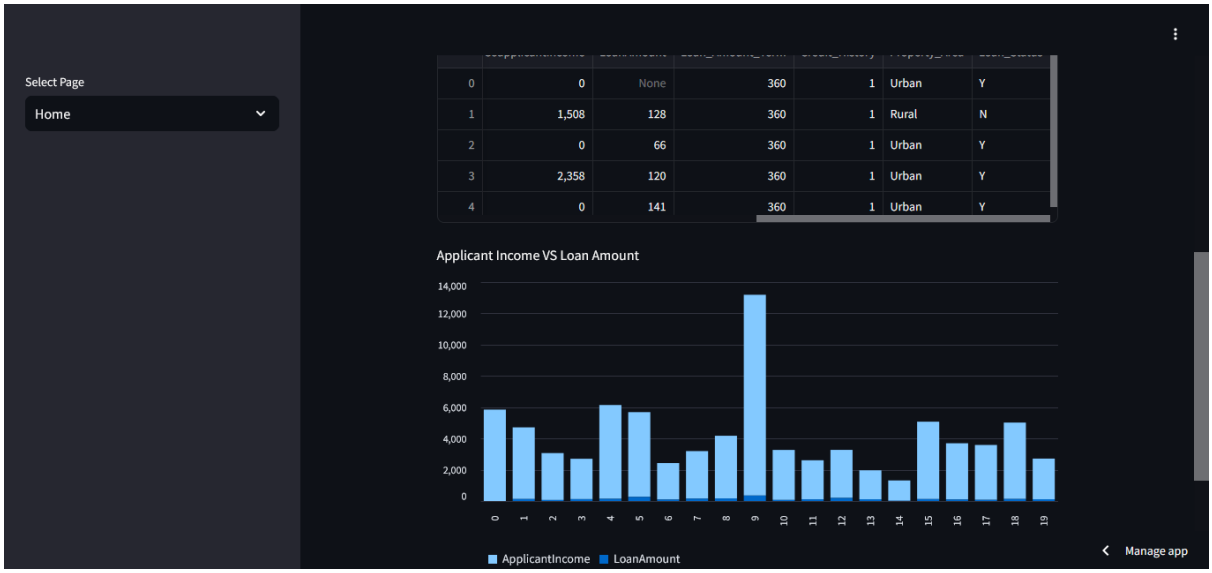
❖ Then I create a model and download to my pc.



❖ Finally, I created a streamlit application by using streamlit library and deploy my application to the streamlit cloud. My streamlit Application you can see in below,

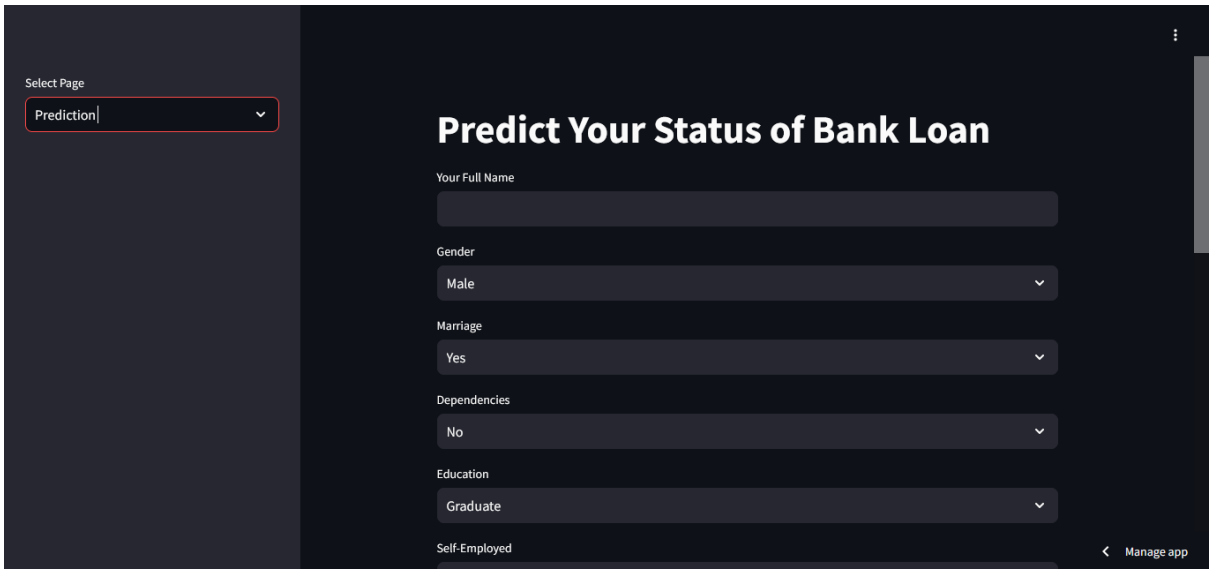
Home Page

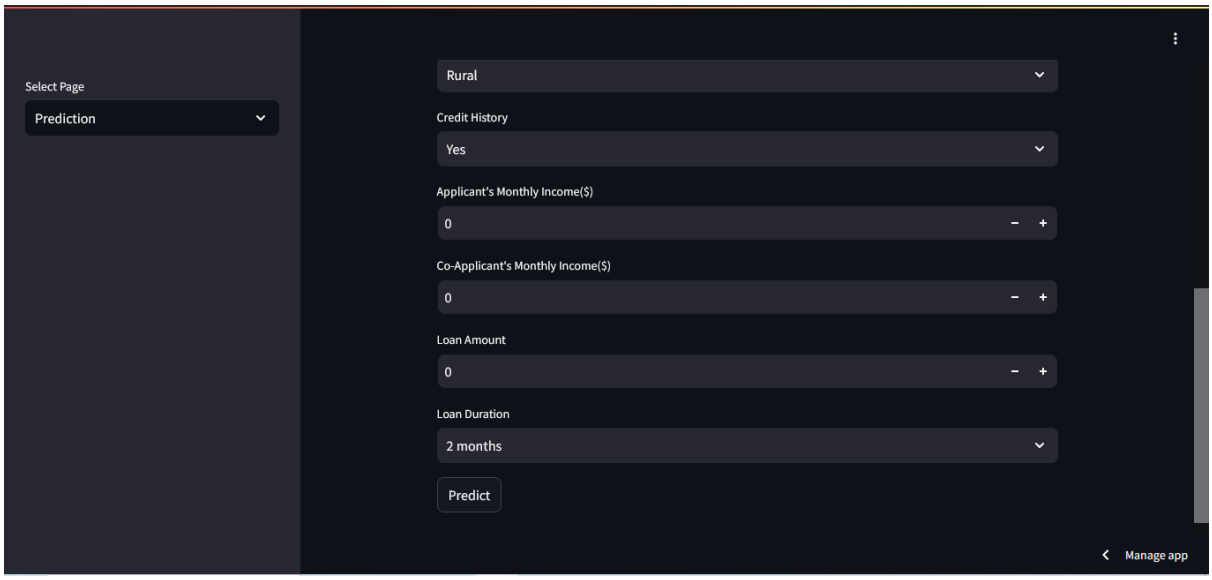




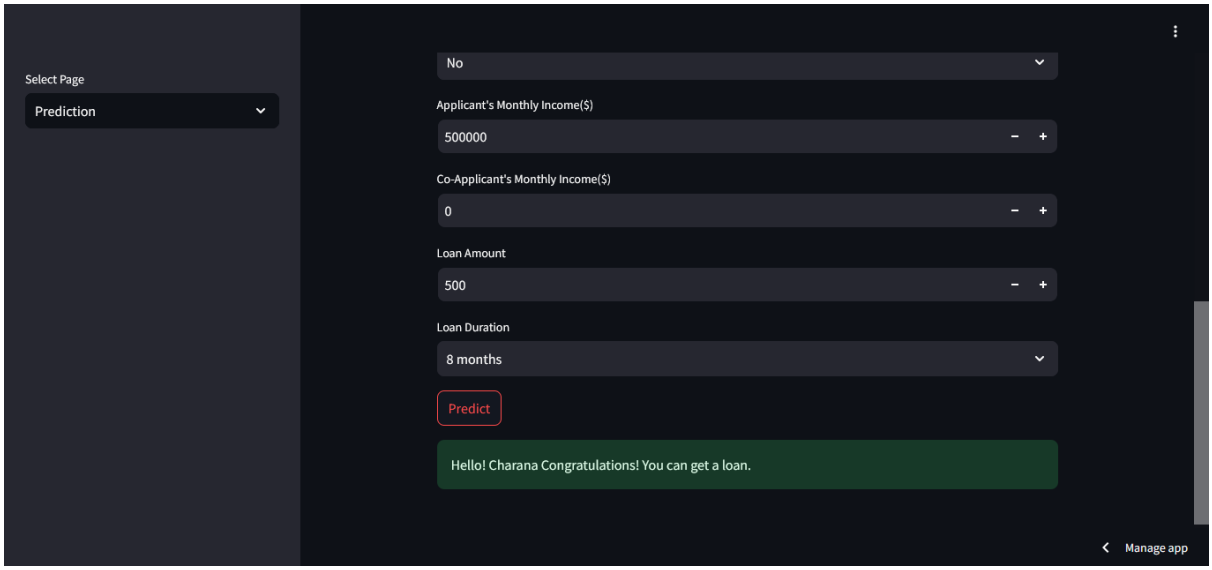
❖ users can click the left-top corner drop-down list to redirect to the prediction page.

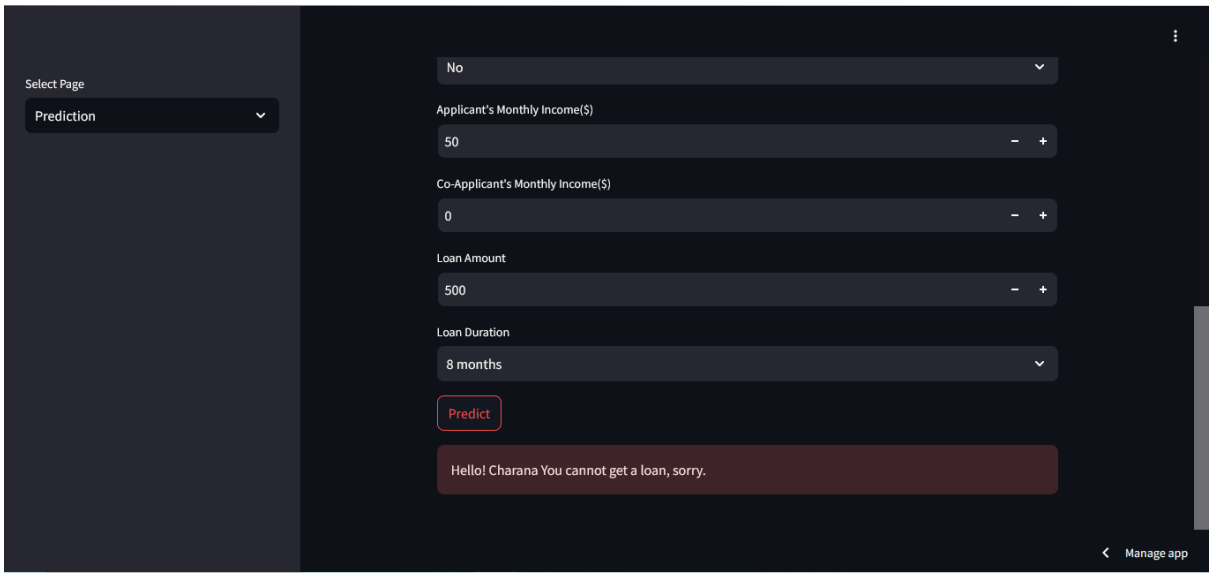
Prediction Page





Prediction


Select Page
Prediction
No
Applicant's Monthly Income($)
500000
Co-Applicant's Monthly Income($)
0
Loan Amount
500
Loan Duration
8 months
Predict
Hello! Charana Congratulations! You can get a loan.
Manage app


Select Page
Prediction
No
Applicant's Monthly Income($)
50
Co-Applicant's Monthly Income($)
0
Loan Amount
500
Loan Duration
8 months
Predict
Hello! Charana You cannot get a loan, sorry.
Manage app

Links

- My Git hub link and Streamlit URL you can see in below box,

Git-Hub Link:

https://github.com/Thenuka09/Lone-Prediction-System

Streamlit URL:

https://lone-prediction-system.streamlit.app/