K.S.R. COLLEGE OF ENGINEERING

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APPLIED DATA SCIENCE

UNIVERSITY ADMIT ELIGIBILITY PREDICTOR

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CHAPTER – 1

INTRODUCTION

1.1 PROJECT OVERVIEW

The admission process in the universities is usually based on the pupil's academic performance like their high school performance and the performance of entrance exam for that particular university. Many students may have a wish for a particular location for their convenience. The dataset is collected based on the requirements of the university's admission process. Here we propose an idea where the user can know whether they can apply for the university or not with the help of the user's academic details like their high school percentage and their entrance percentage. Here we use the model Support Vector Machine for prediction because of its high accuracy.

1.2 PURPOSE

A person's education plays a vital role in their life. While planning for education students often have several questions regarding the courses, universities, job opportunities, location, etc. Securing admission in their dream university is one of their main concerns. University Prediction would be the easiest mode to predict whether the person is applicable for the university as well as it would unbiased and totally transparent. Individually the pupil would no longer need to depend upon the consultancies who may be slightly deviated towards the list of university that may be having contract with them. Moreover, applying to only that university where the student has genuine chance would even reduce application process.

CHAPTER - 2

LITERATURE SURVEY

2.1 EXISTING PROBLEM

An application which is used to predict whether the pupil is eligible to get an admission in the universities with their academic details and entrance exam results. Most of the applications predict universities based on the preferred university and their scores but not based on their preferred locations. Most of the websites predict for universities that are globally recognised. Most of the websites predict for the universities that are located in various countries with their TOFEL, GRE, etc. scores. With the help of these websites the pupil can know whether the pupil can apply for their interested university. Because it would be a lose for the pupil to apply for the university with out getting to know the eligibility criteria for the university both in economic and time.

2.2 REFERENCES

2.2.1 COLLEGE ADMISSION PREDICTION USING ENSEMBLE MACHINE LEARNING MODELS [VANDIT MANISH JAIN, RIHAAN SATIA, DECEMBER 2021]

This paper aims to build a model that can help students to pick the right universities based on their profiles. So, they can judge across a wide variety of domains that include MS (international), MTech (India) and MBA (India and International). For the accurate predictions we plan on training a machine learning model in order to provide results. The dataset contains information on the student profile and the university details with a field detailing if the admission was positive or not. Various algorithms have been

used i.e., Ensemble Machine Learning and the predictions have been compared using key performance indicators (KPIs). The model performing the best is then used to evaluate the dependent variable i.e. The chances of admit to a university. The chances of admit variable is a variable ranging from 0 to 1 which equates to the predicted probability of successful acceptance to a university. We also aim to create a portal which filters and then provides a list of universities that fall into the profile's acceptance range.

2.2.2 AN AUTOMATED PREDICTION MODEL FOR COLLEGE ADMISSION SYSTEM [DR. ARUNAKUMARI B. N, VISHNU SASTRY H K et.al, JUNE 2021]

At present, many students make mistakes in their preference list of colleges because of various reasons like inaccurate analysis of colleges, lack of knowledge, and apprehensive prediction. Later, they end up regretting the same after allotment. This application addresses this issue of the student admission community. The application uses data mining and data analysis techniques. Rank, category, preferred branches, preferred district, and preferred colleges are taken as input and the preference list, on thorough analysis of the last five years' cut-off data is generated. In this paper, an attempt has been made to develop an automated web application prediction model for a college admission system which can be used to make a wise choice of college before allotment.A candidate will obtain a rough idea regarding the seat he or she is likely to get depending on his or her rank and category. Cut-off will be different for each college, course, and category. The row headings consist of college names along with branches. The column headings consist of the various categories. The data contained in the database is of string data ;

2.2.3 GRADUATE ADMISSION PREDICTION USING MACHINE LEARNING [SARA ALJASMI, ALI BOU NASSIF et.al., OCTOBER 2020]

This paper addresses machine learning models to predict the chance of a student to be admitted to a master's program. This will assist students to know in advance if they have a chance to get accepted. The machine learning models are multiple linear regression, k-nearest neighbour, random forest, and Multilayer Perceptron. Experiments show that the Multilayer Perceptron model surpasses other models.

In this paper, machine learning models were performed to predict the opportunity of a student to get admitted to a master's program. The machine learning models included are multiple linear regression, k-nearest neighbour, random forest, and Multilayer Perceptron. Experiments show that the Multilayer Perceptron model surpasses other models.

2.2.4 GRADUATE ADMISSION CHANCE PREDICTION USING DEEP NEURAL NETWORK [MD. OMAER FARUQ GONI, MD. ABU ISMAIL SIDDIQUE et.al., SEPTEMBER 2020]

In this study, they have proposed a deep neural network (DNN) to predict the chance of getting admitted to a university according to the student portfolio. All the selection criteria are considered here to predict the chance of admission. The DNN model has been compared with existing methods in terms of different performance metrics including mean squared error (MSE), root mean squared error (RMSE), mean absolute error (MAE), R-squared score. It has shown the most promising result that includes R-squared score of 0.8538 and MSE of 0.0031.

In this study, the graduate admission dataset has been split into training dataset and testing dataset. Data normalization has been performed to accelerate the training process of the DNN model. Using the training dataset, the DNN model has been trained with optimal hyper parameter. It has been assessed through some standard bench markings. Normalization technique is proposed which is used to transform all the numeric features into a common scale without deforming and losing information. Without normalization these varieties of range can create problems in the learning process of machine learning (ML) algorithms.

2.2.5 ENGINEERING & TECHNOLOGY ADMISSION ANALYSIS AND PREDICTION [MR. SACHIN BHOITE, PROF. DR. AJIT MORE, FEBRUARY 2020]

The aim of this paper is to determine the factors estimating & guiding the students to select engineering college for their first-year admission. Most of students & parents are spending unnecessary efforts, time & money on selecting right engineering college for first year admission. Sometimes the students who are seeking admission is not eligible to take admission into engineering program based on their past academic record. Also, sometimes the students are seeking the admission to the college for she or he are not eligible as per the merit of that college. So here researcher has built predictive model to guide the students about their admissibility in the desired college & also suggest the college where they will get the admission. So, to achieve this objective we may include machine learning capabilities that allow to improve their performance based on experience, just as humans do. As right College plays very, vital role form the students' placement and career point of view the researcher has implemented various algorithms to achieve this objective.

2.2.6 MULTIPLE MACHINE LEARNING CLASSIFIERS FOR STUDENT'S ADMISSION TO UNIVERSITY PREDICTION [ANIL B, AKRAM PASHA, AMAN KUMAR SINGH et.al., MAY 2019]

The admission predictor developed in this study uses the student's application data that includes many features including a class variable that has binary value. This class variable is true if the student had taken admission or false if he did not. Therefore, an attempt is made in this study to predict the likelihood of new students based on their features. Using nominal and categorical attributes and past collected data this work is done at ease. Implementation of two different techniques on our data set; with that classification builds a predictive model and association rules which were used to find interesting hidden information in the student's records.

2.2.7 CAPSLG: COLLEGE ADMISSION PREDICTOR AND SMART LIST GENERATOR [KIRAN KUMARI, MEET KATARIA et.al., JANUARY 2019]

The CAPSLG system consists of a smart list generator working together with the help of college predictor, to aid students in the admission process. The college admission predictor uses historical colleges cut-off student admission data for predicting the most probable colleges. The system analyses student academic merits, background, and college admission criteria. Based on that, it predicts the likelihood of a university college that a student may enter. The smart list generator would enable the student to prepare the list of colleges, which could be needed to be filled in during the admission process. The system would also get feedback from the users, which would prove helpful for prediction evaluation and improving the performance factor.

2.3 PROBLEM STATEMENT DEFINITION

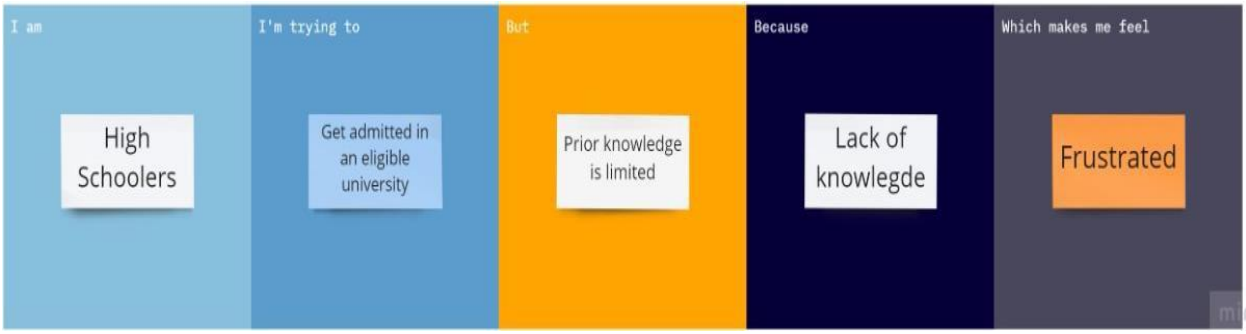


Fig. No. 2.1 Problem Statement1

Fig. No. 2.2 Problem Statement2

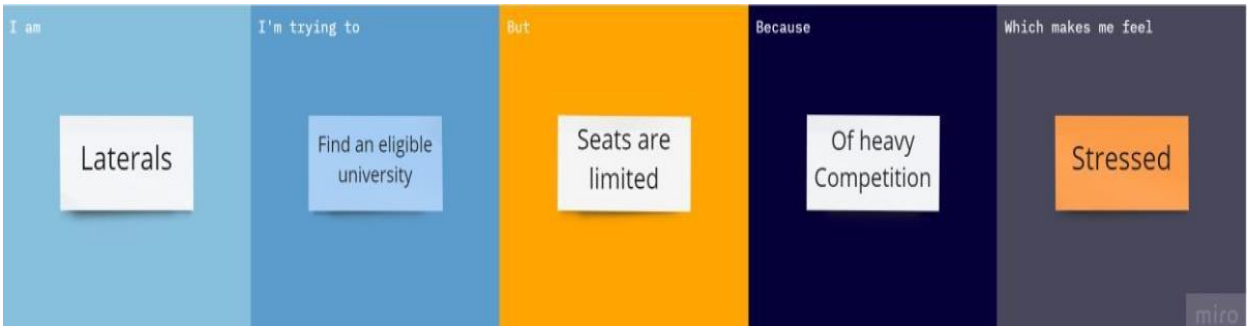


Fig. No. 2.3 Problem Statement3

Fig. No. 2.4 Problem Statement4

CHAPTER - 3
IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

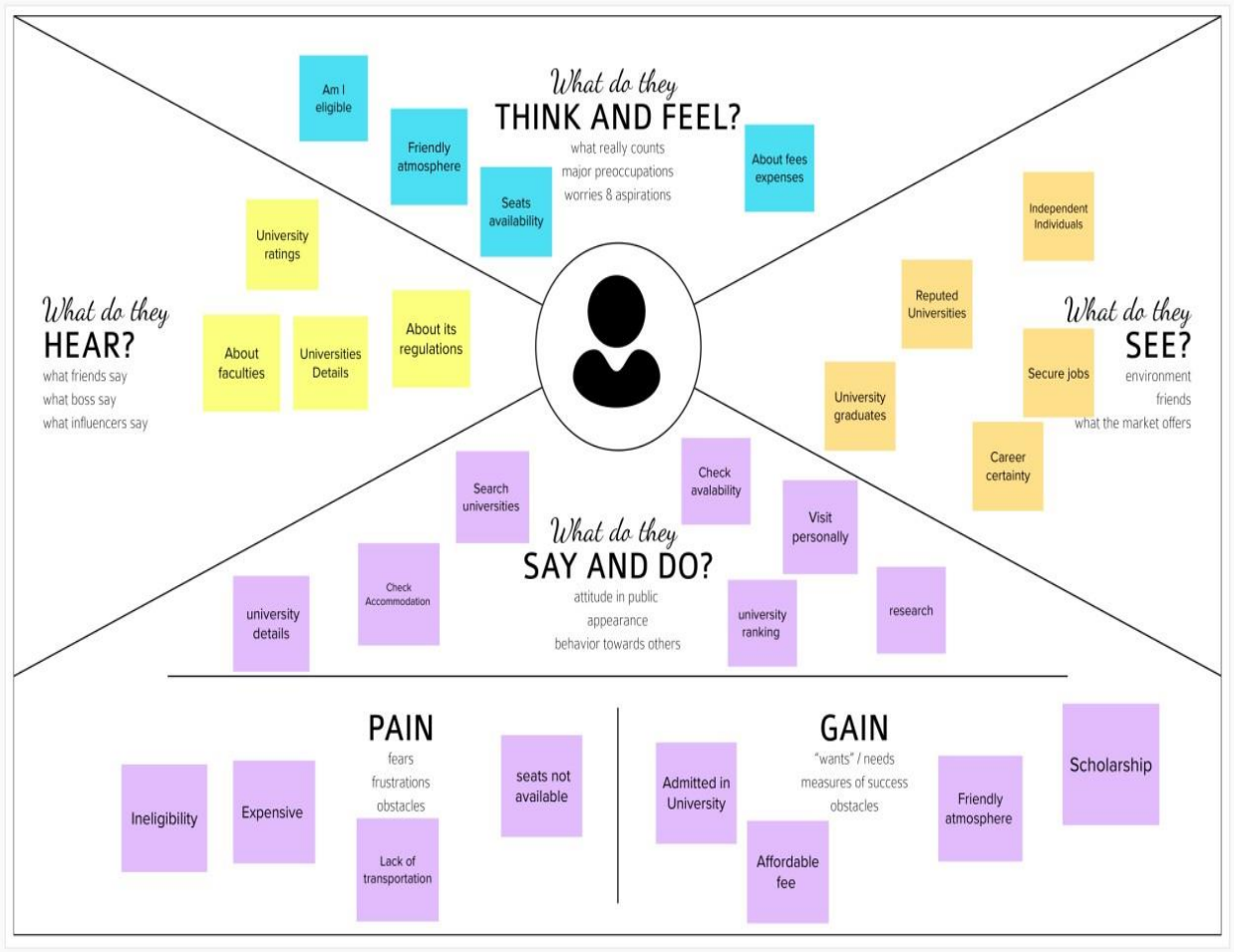


Fig. No. 3.1 Empathy Map Canvas

3.2 IDEATION & BRAINSTROMING

Fig. No. 3.2 Team Gathering, Collaboration and Select the Problem Statement

Fig. No. 3.3 Brainstorm and Idea Listing

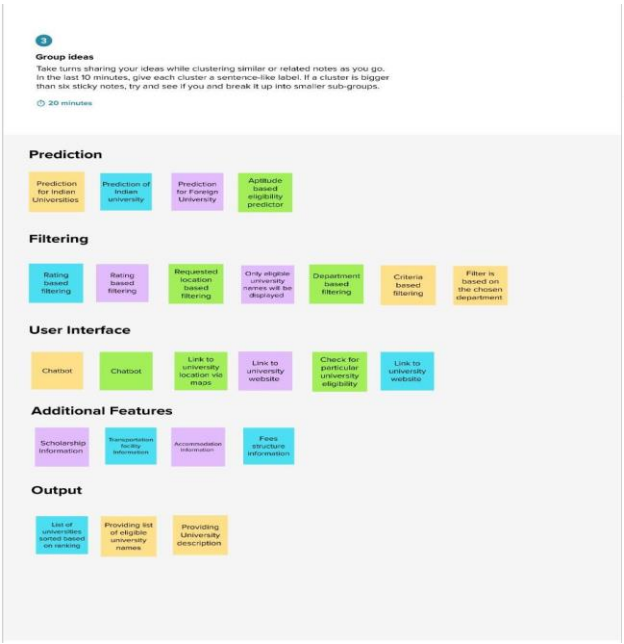


Fig. No. 3.4 Grouping

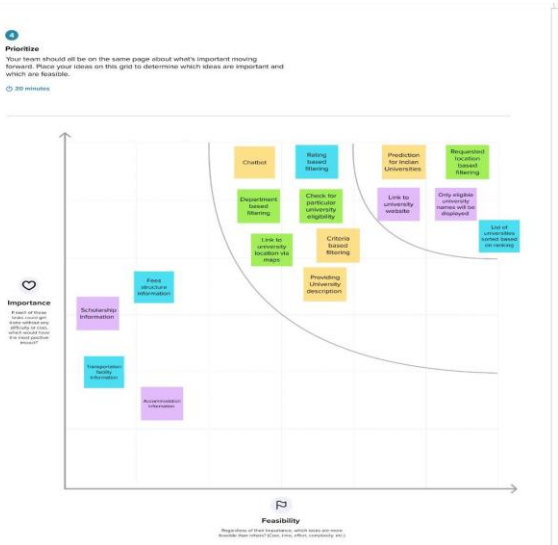


Fig. No. 3.5 Idea Prioritization

3.3 PROPOSED SOLUTION

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	The list of eligible universities has to be predicted based on the user's profile.
2.	Idea / Solution description	Based on the user's profile and location preference the eligible universities are predicted using decision tree, KNN and random forest algorithm. The list of universities is ordered based on its rankings and the link to university websites and locations will also be provided.
3.	Novelty / Uniqueness	By using this predictor, the user can able to get to know about the eligible universities that falls under their preferred location. The link to the universities also be provided which helps the user to know about the universities.
4.	Social Impact / Customer Satisfaction	The final list will be based on the location preference and the order of universities will be based on rankings of university which makes the user to know about the number of their eligible universities and this prior knowledge will be useful for their preparing.
5.	Business Model (Revenue Model)	Based on the user's profile and preferred location the eligible universities will be predicted.Hence by knowing the particular universities the user will get a better idea.
6.	Scalability of the Solution	The students from all over India can check their eligibility criteria for universities located in India.

Table 3.1 Proposed Solution

3.4 PROBLEM SOLUTION FIT

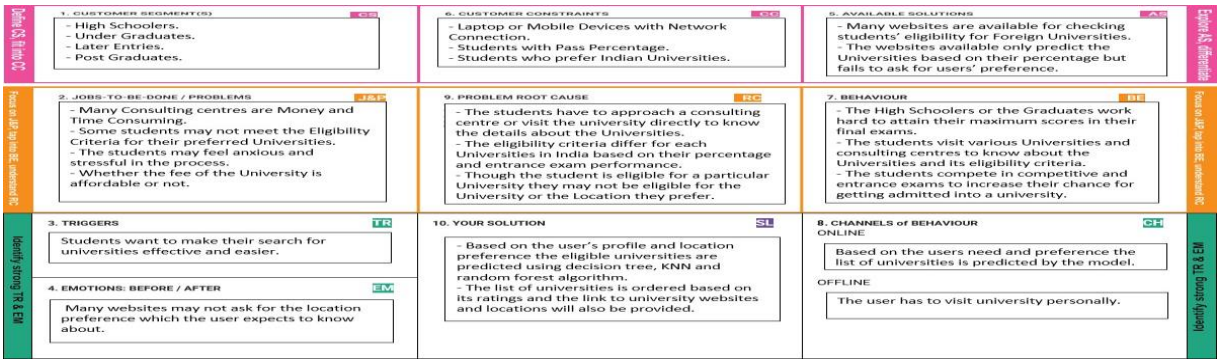


Fig. No. 3.6 Problem Solution Fit Template

CHAPTER - 4

REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Profile	Complete user profile by providing the Student Academic details.
FR-2	User Search	Search for desired University. Search for Universities based on their Academic Performance and eligibility criteria.
FR-3	User Preference	Search for Universities based on their location preference.
FR-4	Result	The list of universities is filtered based on the eligibility of the students. The order of the list will be based on the ratings of the university.

Table 4.1 Functional Requirement

4.2 NON-FUNCTIONAL REQUIREMENTS

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Filters the universities based on the user profile.
NFR-2	**Security**	User details are secured from unauthorised parties.
NFR-3	**Reliability**	The users can find universities based on their preferred location and results.
NFR-4	**Performance**	The website will provide the list of universities within 30 seconds.
NFR-5	**Availability**	Students across India can access the website anytime.
NFR-6	**Scalability**	The solution will be helpful for the students in India to know the details about universities they are eligible.

Table 4.2 Non-Functional Requirement

CHAPTER - 5

PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS

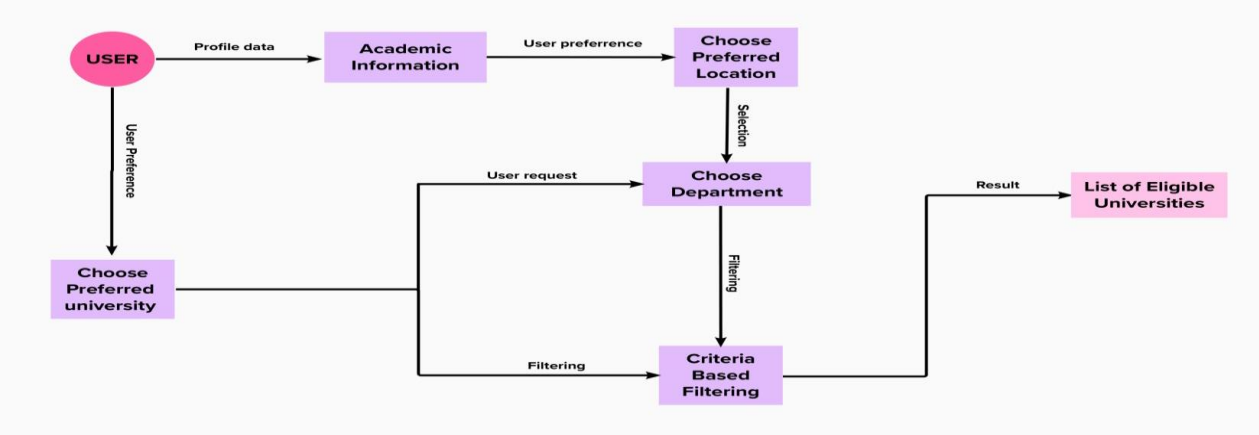


Fig. No. 5.1 Data Flow Diagram

5.2 SOLUTION AND TECHNICAL ARCHITECTURE

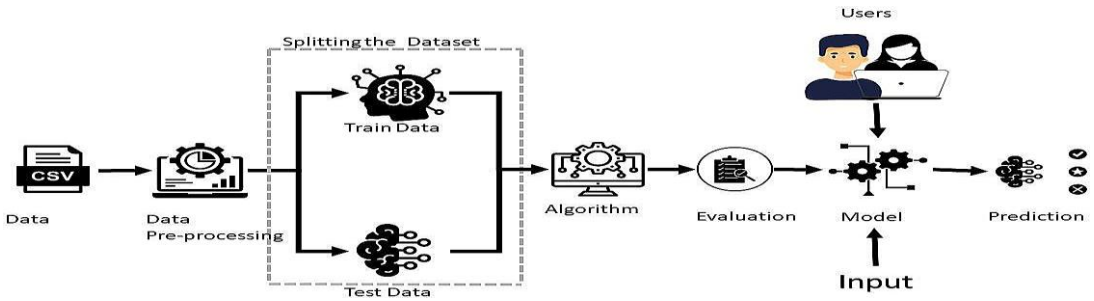


Fig. No. 5.1 Solution Architectur

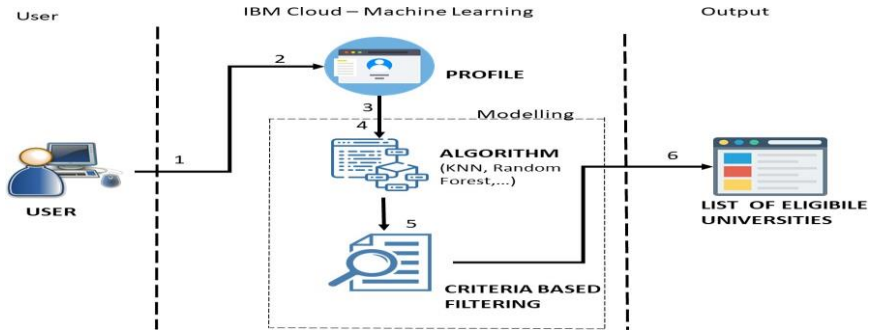


Fig. No. 5.2 Technical Architecture

Guidelines for Technical Architecture:

1. Include all the processes (As an application logic / Technology Block)

2. Provide infrastructural demarcation (Local / Cloud)

3. Indicate interface to machine learning models

4. Include necessary machine learning algorithms

5. Indicate Data Storage components / services

6. Provide the list of all eligible universities along with its description

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chatbot etc.	HTML, CSS, JavaScript etc.
2.	Application Logic-1	Logic for a process in the application	Python (Jupyter)
3.	Application Logic-2	Logic for a process in the application	IBM Watson Assistant
4.	Database	Data Type, Configurations etc.	CSV
5.	External API	Purpose of External API used in the application	List of eligible Universities
6.	Machine Learning Model	Purpose of Machine Learning Model	KNN, Random Forest, Decision Tree, Support Vector Machineetc.
7.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local, Cloud etc.

Table 5.1 Components & Technologies

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Python for Backend purpose and flask is imported for front end purpose	Python(Flask)
2.	Security Implementations	The user profile will be secure	Encryptions, IAM Controls, OWASP etc.

3.	Scalable Architecture	The accurate list of eligible universities name and its description will be provided	Support Vector Machine ML Algorithm
4.	Availability	Anyone and in anytime they can visit our website	IBM Load Balancer
5.	Performance	The user can have a knowledge of their eligibility for applying Universities through our website	Support Vector Machine ML Algorithm

Table 5.2 Application Characteristics

5.3 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web user)	Profile	USN-1	As a user, I can Give my academic information in the profile section	I can access my dashboard	High	Sprint-1
		USN-2	As a user, I will be able to select a location that I prefer	I can receive the list of locations in the dropdown to select	High	Sprint-1
	Search	USN-3	As a user I can search for my preferred university	I can use the search bar	Medium	Sprint-2
	User Preference	USN-4	As a user, I can select my preferred university from the list to check my eligibility for the particular university	I can use the dropdown list provided to select the university	Medium	Sprint-2
		USN-5	As a user, I can select my preferred location	I can select my preferred location	High	Sprint-1
		USN-6	As a user, I will be able to select my preferred department	I can select a department from the dropdown list	Medium	Sprint-1

	Result	USN-7	As a user, I can view the list of universities that I am eligible in accordance to my preferred location	I can view the list of universities filtered by the model	High	Sprint-3
		USN-8	As a user, I can access the link to the university that I am eligible from the list	I can access the university link	Medium	Sprint-3
		USN-9	As a user, I can access the location link of the university that I am eligible from the list	I can access the university location link	Low	Sprint-3

Table 5.3 User Stories

CHAPTER - 6
PROJECT PLANNING AND SCHEDULING

6.1 SPRINT PLANNING AND ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Profile	USN-1	As a user, I can give my academic information in the profile section	3	High	Lokendran s And Kavinesh K
Sprint-1		USN-2	As a user, I will be able to select a location that I prefer	5	High	Lokendran s And Kavinesh K
Sprint-2	Search	USN-3	As a user I can search for my preferred university	3	Medium	Kumar S And Sukumar V
Sprint-1	User Preference	USN-4	As a user, I can select my preferred location	3	High	Kumar S And Sukumar V
Sprint-1		USN-5	As a user, I will be able to select my preferred department	3	Medium	Lokendran s And Kavinesh K

Sprint-2		USN-6	As a user, I can select my preferred university from the list to check my eligibility for the particular university	8	High	Kumar S And Sukumar V
Sprint-3	Result	USN-7	As a user, I can view the list of universities that I am eligible in accordance to my preferred location	3	High	Kumar S And Sukumar V
Sprint-3		USN-8	As a user, I can access the link to the university that I am eligible from the list	2	Medi um	Kumar S And Sukumar V
Sprint-3		USN-9	As a user, I can access the location link of the university that I am eligible from the list	1	Low	Lokendran s And Kavinesh K
Sprint-3		USN-10	From the list of universities, I can select and view the eligibility for the particular university	5	High	Kumar S And Sukumar V
Sprint-4	Output	USN-11	As a user, I will give my information accordingly asked in the website	5	High	Lokendran s And Kavinesh K
Sprint-4		USN-12	As a user, I will be able to view whether I'm eligible for the selected University and the list of other Universities that I'm eligible.	8	High	Kumar S And Sukumar V

Table 6.1 Product Backlog, Sprint Schedule, and Estimation

6.2 SPRINT DELIVERY SCHEDULE

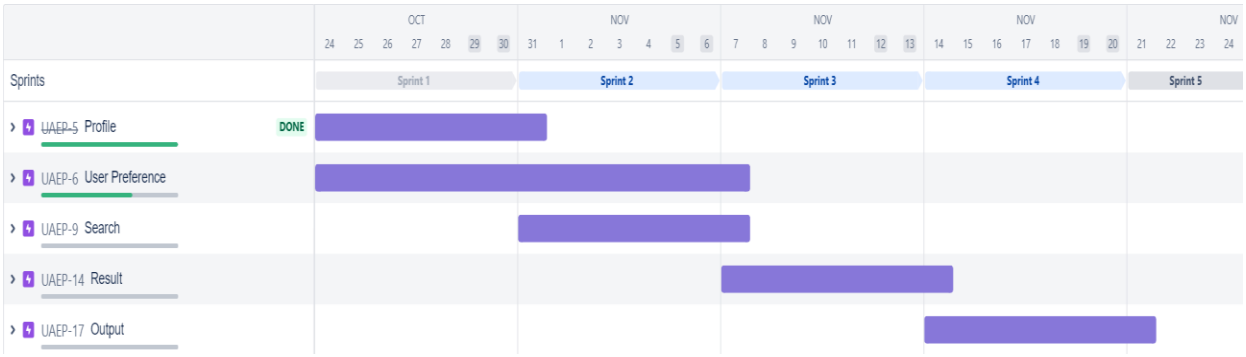
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	14	6 Days	24 Oct 2022	29 Oct 2022	14	29 Oct 2022
Sprint-2	11	6 Days	31 Oct 2022	05 Nov 2022	11	31 Oct 2022

Sprint-3	11	6 Days	07 Nov 2022	12 Nov 2022	11	07 Nov 2022
Sprint-4	13	6 Days	14 Nov 2022	19 Nov 2022	13	14 Nov 2022

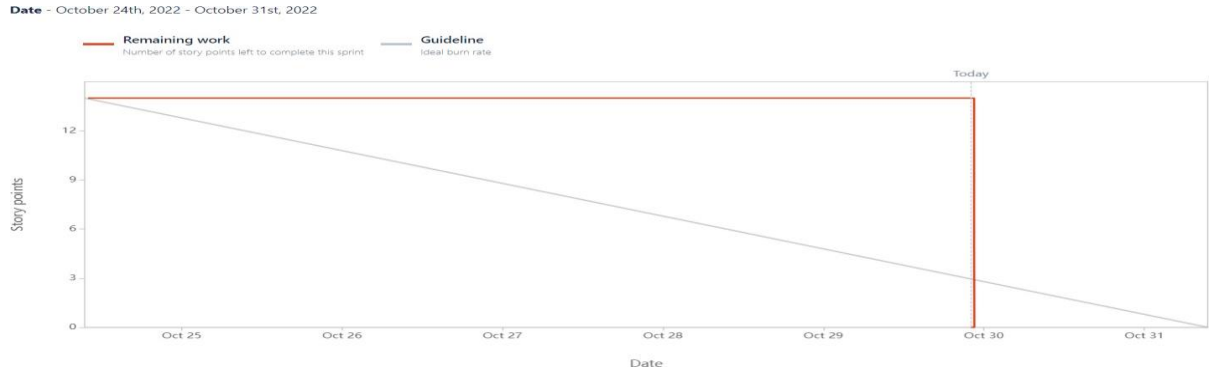
Table 6.2 Project Tracker

6.3 REPORTS FROM JIRA

6.3.1 Road Map – Sprint 1

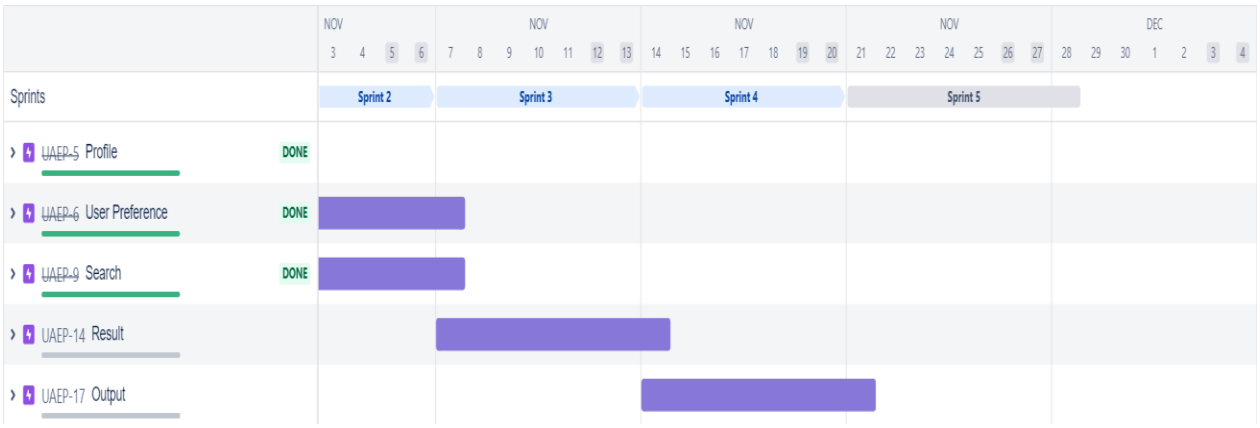


6.3.2Burn down Chart – Sprint

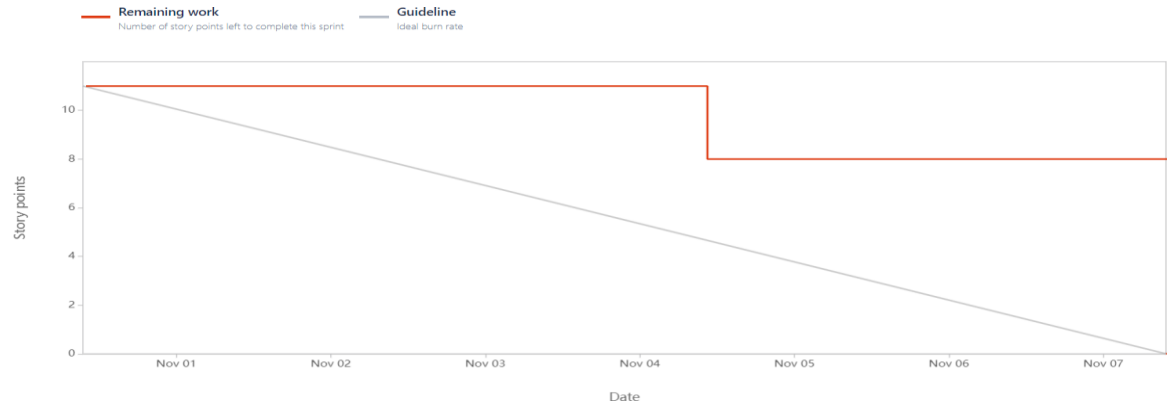


6.3.3 Velocity Chart – Sprint 1

6.3.4 Road Map – Sprint 18

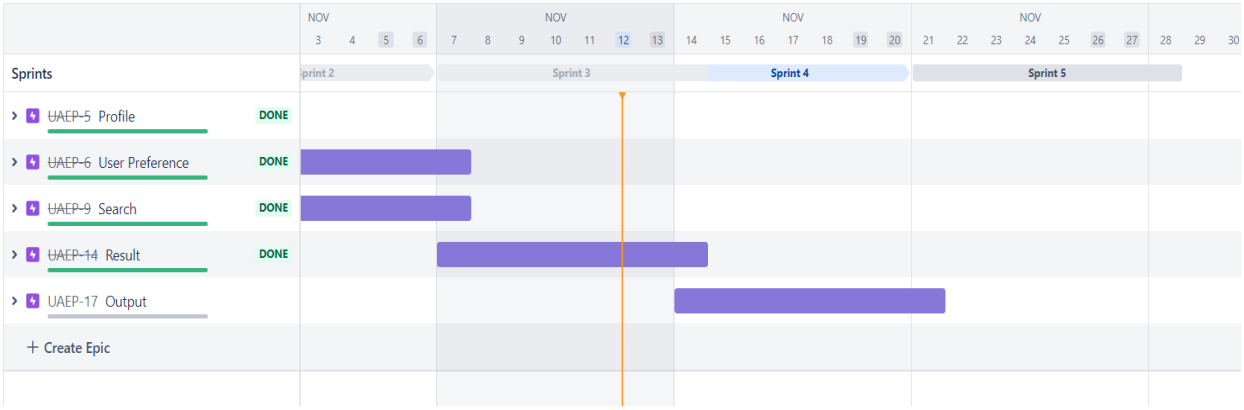


6.3.5 Velocity Chart – Sprint 2

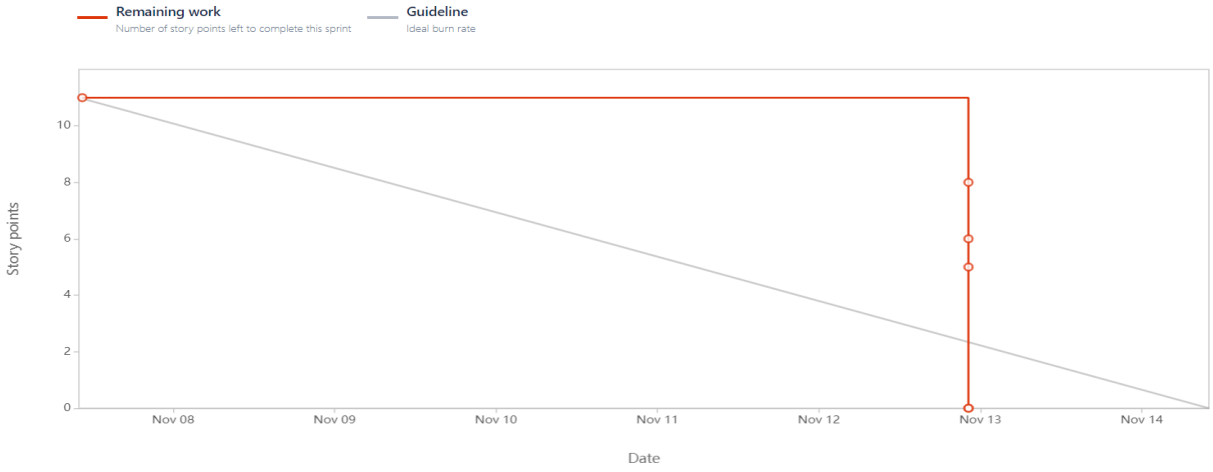


6.3.6 Velocity Chart – Sprint 2

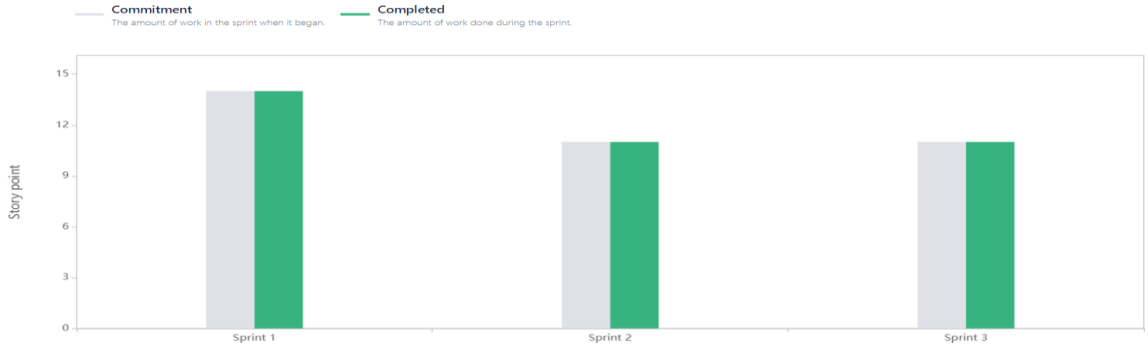
6.3.7 Road Map – Sprint 19



6.3.8 Burn-down Chart – Sprint 3

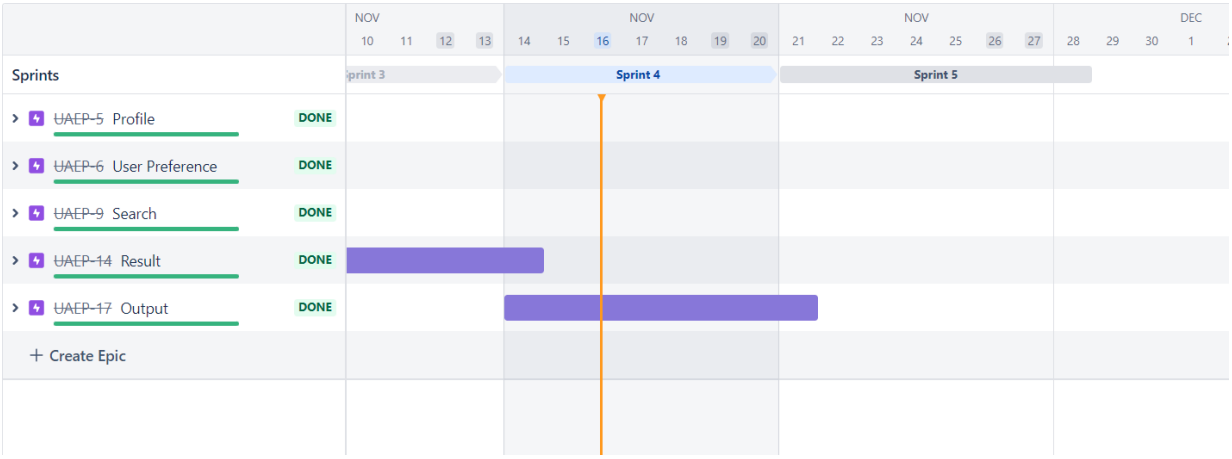


6.3.9 Velocity Chart – Sprint 3

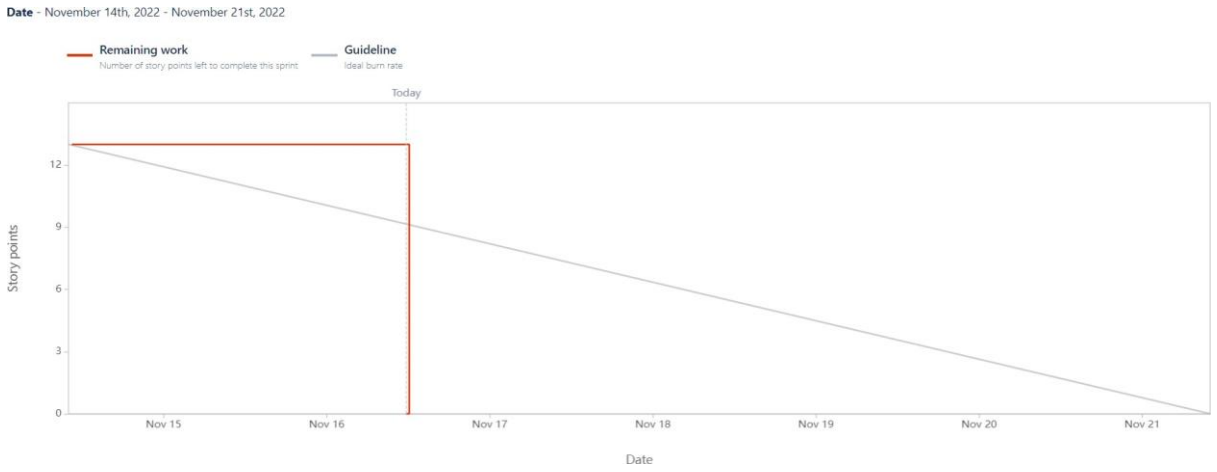


Sprint	Commitment	Completed
Sprint 1	14	14
Sprint 2	11	11
Sprint 3	11	11

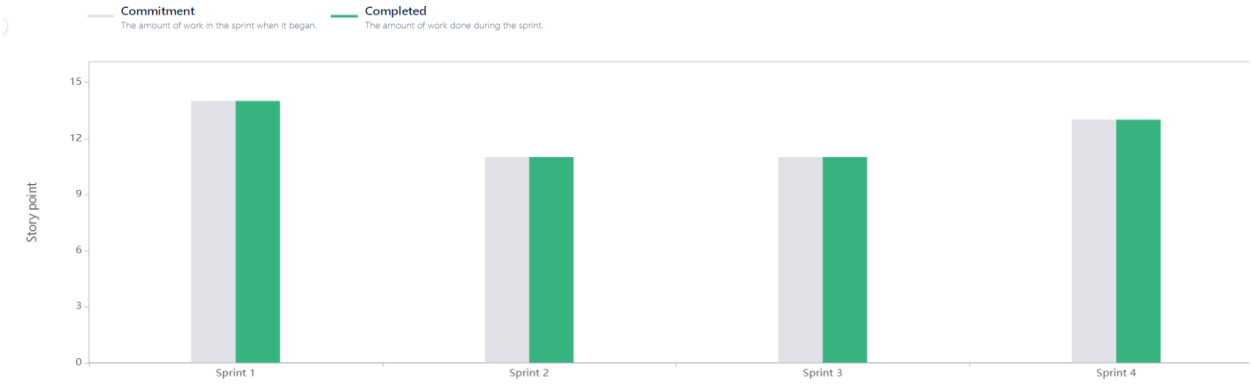
6.3.10 Road Map – Sprint 4



6.3.11 Burn-down Chart – Sprint 4



6.3.12 VelocityChart – Sprint 4



Sprint	Commitment	Completed
Sprint 1	14	14
Sprint 2	11	11
Sprint 3	11	11
Sprint 4	13	13

CHAPTER – 7

CODING AND SOLUTIONING

7.1 FEATURE 1 – Choosing Particular Department to Check Eligibility for Admission in a Particular University

Students nowadays are entering into a university with a lot of dreams to achieve. Many candidates have a particular department which they are interested in learning. The universities have different admission criteria for getting admitted in different universities. Many candidates are unaware of the eligibility criteria of the university for that particular department which they are interested in. So, in our application we have come up with the feature where the candidates can choose a particular department which they are interested and in the redirected page the candidate can choose the particular university in which they are interested to join. Our application provides the top 20 universities for the particular department the user can choose their interested university from them. The predicted output is based on the user input and the selected university's eligibility criteria.

```
    </p>
</div>
<div class="box">
    <form action="/choose_dept" name="deptForm" method="POST">
        <div class="input-icon">
            <i class="fas fa-graduation-cap ic"></i>
            <label class="dept" for="depts">Department :</label>
            <select class="depttext" value="depts" name="depts">
                <option disabled selected >Choose Department</option>
                <option value="civil">Civil Engineering</option>
                <option value="cse">Computer Science and Engineering</option>
                <option value="ece">Electronics and Communication Engineering</option>
                <option value="eee">Electrical and Eletronics Engineering</option>
                <option value="mech">Mechanical Engineering</option>
            </select>
        </div>
        <input class="sub" type="submit" value="Go..!">
    </form>
</div>
```

Fig. No. 7.1 Choosing Department

7.2 FEATURE 2 – Choosing a Particular Location

The candidates wishing to join in a university in which they are interested. Some students may have a preferred location and from that location they may wish to join in a university. The candidates may be unaware of the different universities present in that particular location and their eligibility criteria. So, in our application we have come up with a feature where the user can first choose their interested department and they choose their preferred location and university from the particular location. The predicted output is based on the user input and the selected university's eligibility criteria.

```
        </div><br>
        <div class="input-icon">
            <i class="fas fa-map-marked ic"></i>
            <label class="city" for="cities">City :</label>
            <select class="citytext" value="citiesM" name="citiesM" required>
                <option></option>
                <option value="Bar">Baroda</option>
                <option value="Ban">Bangalore</option>
                <option value="Ch">Chennai</option>
                <option value="Kol">Kolkata</option>
                <option value="Mum">Mumbai</option>
                <option value="Moh">Mohali</option>
                <option value="ND">New Delhi</option>
                <option value="Pha">Phagwara</option>
                <option value="Pu">Pune</option>
                <option value="Tiru">Tiruchirappalli</option>
                <option value="Vel">Vellore</option>
            </select>
        </div><br>
```

Fig. No. 7.2 Choosing Location for Mechanical

7.3 FEATURE 3 – Choosing Particular University to Check Eligibility for Admission

The pupils after completing their higher school studies wish to join a best university to continue their higher studies. Many candidates applying for universities have a dream university in which they are interested in learning. Different universities have different eligibility criteria for admitting candidates. The candidates have to meet the criteria set by the university to get admitted. Many candidates are unaware of the eligibility criteria set by the universities. So, we have come up with a solution with the feature where the candidates can select a particular university to check their eligibility in that particular university of their interested department.

```
    </div><br>
    <div class="input-icon">
    <i class="fas fa-university ic"></i>
    <label class="univ" for="uniE">University Name:</label>
    <select class="univtext" value="uniE" name="uniE" required>
        <option></option>
        <option value="SRM">SRM Institute of Science and Technology</option>
        <option value="VIT">Vellore Institute of Technology</option>
        <option value="CU">Christ University</option>
        <option value="LPU">Lovely Professional University</option>
        <option value="SPPU">Savitribai Phule Pune University</option>
        <option value="GGSIU">Guru Gobind Singh Indraprastha University</option>
        <option value="RU">REVA University</option>
        <option value="IISB">Indian Institute of Science, Bangalore</option>
        <option value="CHU">Chandigarh University</option>
        <option value="NITT">National Institute of Technology Tiruchirappalli</option>
        <option value="SIST">Sathyabama Institute of Science and Technology</option>
        <option value="PUB">Presidency University, Bangalore</option>
        <option value="NITW">National Institute of Technology, Warangal</option>
        <option value="MGR">Dr MGR Educational and Research Institute</option>
        <option value="PES">PES University</option>
        <option value="MU">Manipal University</option>
        <option value="AU">Annamalai University</option>
        <option value="NITK">National Institute of Technology Karnataka</option>
        <option value="VNIT">Visvesvaraya National Institute of Technology</option>
        <option value="BITS">Birla Institute of Technology and Science</option>
    </select>
    </div>
```

Fig. No. 7.8 Choosing University for EEE

7.4 FEATURE 4 - Providing with Other List of Universities in Output that the User is Eligible to Apply

Many students may not be eligible for their interested university with their educational qualifications. So, in our application we are providing an additional feature where the user can view the additional list of universities that they are eligible to apply to after viewing the predicated output for their given inputs. Besides it the link to the university website is also provided for the user to check for additional information about the university.

```
headings=("University Name","State","District","College Link","Location Link","Entrance Percentage","Ranking","12th Percentage")
data=(("Aligarh Muslim University","Uttar Pradesh","Aligarh","https://www.amu.ac.in/","https://goo.gl/maps/bSXzBBmonzYchKdt9",80,11,55),
      ("Annamalai University","Tamil Nadu","Chidambaram","https://annamalaiuniversity.ac.in/index.php","https://goo.gl/maps/NEjmf5ZQxppH
      ("Banaras Hindu University","Uttar Pradesh","Varanasi","https://www.bhu.ac.in/","https://goo.gl/maps/Rakq5Nzp9nYeBRJs8",60,6,50),
      ("Birla Institute of Technology and Science","Tamil Nadu","Palani","https://www.bits-pilani.ac.in/","https://goo.gl/maps/SfpECfucm
      ("Chandigarh University","Punjab","Mohali","https://www.cuchd.in/","https://g.page/ChandigarhUni?share",55,29,50),
      ("Christ University","Karnataka","Bangalore","https://christuniversity.in/","https://goo.gl/maps/kN6GTxWdqatbPvYv7",40,71,55),
      ("Delhi Technological University","New Delhi","New Delhi","http://www.dtu.ac.in/","https://goo.gl/maps/VHMGgd3YwdPJitHD8",60,36,60
      ("Dr MGR Educational and Research Institute","Tamil Nadu","Chennai","https://www.drmgrdu.ac.in/","https://goo.gl/maps/tYMpvFVbBPng
      ("Dr Vishwanath Karad MIT World Peace University","Maharashtra","Pune","https://mitwpu.edu.in/","https://goo.gl/maps/wKQeTk9u8s8mH
      ("Guru Gobind Singh Indraprastha University","New Delhi","New Delhi","http://www.ipu.ac.in/","https://goo.gl/maps/YknYxUsX6m2MAXRX
      ("Indian Institute of Science, Bangalore","Karnataka","Bangalore","https://iisc.ac.in/","https://goo.gl/maps/GK9gUja8pnfSpFYL7",70
      ("Indian Institute of Technology,Bombay","Maharashtra","Mumbai","https://www.iitb.ac.in/","https://goo.gl/maps/kbKqj6Z9bfGnERS39",
      ("Indian Institute of Technology,Madras","Tamil Nadu","Chennai","https://www.iitm.ac.in/","https://goo.gl/maps/73bHL5Q8RQS8yt5v9",
      ("Indian Institute of Technology,Delhi","New Delhi","New Delhi","https://home.iitd.ac.in/","https://goo.gl/maps/3gPFUWx7fp2A99fP6"
      ("Indira Gandhi National Open University","New Delhi","New Delhi","http://ignou.ac.in/","https://goo.gl/maps/SfsYq66L9xvvDFsbA",55
      ("Institute of Chemical Technology, Mumbai","Maharashtra","Mumbai","https://www.ictmumbai.edu.in/","https://goo.gl/maps/Y6rD7yit6K
      ("Jadavpur University","West Bengal","Kolkata","http://www.jaduniv.edu.in/","https://goo.gl/maps/dLSJoT2jB61XXBUZA",60,4,45),
      ("Jamia Hamdard","New Delhi","New Delhi","http://jamiahamdard.edu/","https://goo.gl/maps/z6S684pksuWb4vFs5",50,46,50),
      ("Jamia Millia Islamia","New Delhi","New Delhi","https://www.jmi.ac.in/","https://goo.gl/maps/NCaytJGjbrEMc3WU8",50,3,50),
      ("Jawaharlal Nehru University","Tamil Nadu","Pali","https://www.jnu.ac.in/","https://goo.gl/maps/s6VEFh8SNQ391jLs9",55,10,55),
      ("Lovely Professional University","Punjab","Phagwara","https://www.lpu.in/","https://g.page/LPUUniversity?share",55,47,60),
      ("Maharaja Sayajirao University of Baroda","Gujarat","Baroda","https://www.msubaroda.ac.in/","https://g.page/TheMSUB?share",50,90,
      ("Manipal University","Rajasthan","Jaipur","https://manipal.edu/mu.html","https://goo.gl/maps/JsuTibUDEocMwkxt9",50,103,50),
      ("National Institute of Technology Karnataka","Karnataka","Mangalore","https://www.nitk.ac.in/","https://goo.gl/maps/eRFnpagJi5i4z
      ("National Institute of Technology Tiruchirappalli","Tamil Nadu","Tiruchirappalli","https://www.nitt.edu/","https://goo.gl/maps/jC
      ("National Institute of Technology, Warangal","Telangana","Warangal","https://www.nitw.ac.in/","https://goo.gl/maps/nE1XMKvb5eRTfo
      ("NIMS University","Rajasthan","Chitanukalan","https://www.nimsuniversity.org/","https://g.page/MyNIMS?share",50,101,45),
      ("PES University","Karnataka","Bangalore","https://pes.edu/","https://goo.gl/maps/6C2mn7kWp4JDaVz17",60,83,50),
      ("Presidency University, Bangalore","Karnataka","Bangalore","https://presidencyuniversity.in/","https://goo.gl/maps/Zvwj62U1qjGfV1
      ("REVA University","Karnataka","Bangalore","https://www.reva.edu.in/","https://goo.gl/maps/wW8DzUoECBTwBGJ79",50,151,45),
      ("Sathyabama Institute of Science and Technology","Tamil Nadu","Chennai","https://www.sathyabama.ac.in/","https://goo.gl/maps/QuVe
```

Fig. No. 7.12 List of Universities in Output

CHAPTER – 8

TESTING

8.1 TEST CASES

Test Cases	Features	Description	Steps to Execute	Expected Results
TC-001	UI	Check whether all the UI elements present in the web pages are visible and functioning	1. Enter into the webpage. 2. Verify whether the UI elements are functioning.	The UI elements to function
TC_002	Functional	Check whether the options provided in the dropdown list is redirecting when its chosen	1. Click on the dropdown list. 2. Choose a department from the list provided.	Whether the page is redirecting when the choice is chosen
TC_003	Validation	Check whether the percentage is accepted a both in integer in all the department pages	1. Choose the percentage input. 2. Enter the input as integer	Check whether the in input is accepted as integer
TC_004	Validation	Check whether the percentage is accepted a both in float in all the department pages	1. Choose the percentage input. 2. Enter the input as float	Check whether the in input is accepted as float
TC_005	Functional	Check whether the user can choose a particular city from the give dropdown list in all the department pages	1. Choose the city dropdown list 2. Select a particular city	The particular city should be selected
TC_006	Functional	Check whether the user can choose a particular university from the give dropdown list in all the department pages	1. Choose the city dropdown list 2. Select a particular city	The particular university should be selected

TC_007	Functional	Check whether the user is redirected to the output page and the output is predicted as the user is eligible to apply for the university or not	1. After entering the required details redirect to the output page 2. The output is produced as the user is eligible or the user is not eligible.	The eligibility of the user should be displayed.
TC_008	Functional	Check whether the list of other universities is given after the prediction output for all the departments.	Check for the tale with list of universities.	The list of universities is displayed based on the user input.

Table 8.1 Test Cases

8.2 USER ACCEPTANCE TESTING

1. Defect Analysis

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved.

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	1	4	2	3	10
Duplicate	1	0	0	0	1
External	2	3	0	2	7
Fixed	3	2	2	5	12
Not Reproduced	0	0	1	0	1
Skipped	1	2	1	1	4
Won't Fix	0	1	2	1	4
Totals	8	12	8	12	39

2. Test Case Analysis

This report shows the number of test cases that have passed, failed,and untested.

Section	Total Cases	Not Tested	Fail	Pass
Home Page	8	0	0	8
Computer Science Page	7	0	0	7
CIVIL Engineering Page	8	0	0	8
EEE Page	5	0	0	5
ECE Page	7	0	0	7
Mechanical Page	5	0	0	5
Version Control	2	0	0	2
Output Page	7	0	2	5

CHAPTER – 9

RESULTS

9.1 PERFORMANCE METRICS

A confusion matrix is a tabular representation of prediction outcomes of any binary classifier, which is used to describe the performance of the classification model on a set of test data when true values are known. The confusion matrix is simple to implement, but the terminologies used in this matrix might be confusing for beginners.

S.No.	Parameter	Values
1.	Metrics	**Classification Model:** Confusion Matrix – [115,15,15,92] Accuracy Score-87.34 Classification Report – 89.85
2.	Tune the Model	Hyperparameter Tuning - 88.22 Validation Method - RandomizedCV

```
    #Creating the Confusion matrix
    from sklearn.metrics import confusion_matrix,accuracy_score
    cm= confusion_matrix(y_test, y_pred)
    cm
]
```

```
array([[115,  15],
       [ 15,  92]], dtype=int64)
```

Fig. No. 9.1 Confusion Matrix

The accuracy metric is one of the simplest Classification metrics to implement, and it can be determined as the number of correct predictions to the total number of predictions.

```
    accuracy_score(y_pred,y_test)  * 100
```

```
87.34177215189874
```

```
    classifier.score(x_train,y_train) *100
```

```
89.85507246376811
```

```
    classifier.score(x_test,y_test)*100
```

```
87.34177215189874
```

Fig. No. 9.2 Model Accuracy

The model that has been developed using Support Vector Machine for university admit eligibility prediction provides an accuracy of 87.3 for test data and 89.85 for train data with a overall accuracy of 87.34.

```
In [75]: from sklearn.model_selection import RandomizedSearchCV
rs = RandomizedSearchCV(svm.SVC(gamma='auto'), {
        'C': [1,10,20],
        'kernel': ['rbf','linear']
    },
    cv=5,
    return_train_score=False,
    n_iter=2
)
rs.fit(x_train,y_train)
```

Fig.No.9.3 Hyper Parameter Tuning

```
In [62]: (rs.best_score_ ) * 100
Out[62]: 88.22113022113022

In [63]: (rs.best_params_)
Out[63]: {'kernel': 'linear', 'C': 10}

In [67]: rs_tuned = SVC(C =10,kernel = 'linear')
         rs_tuned
Out[67]: SVC(C=10, kernel='linear')

In [68]: rs_tuned.fit(x_train,y_train)
         C:\Users\A.Afrinbanu\anaconda3\lib\site-packages\sklearn\utils\validation.py:72: DataConversionWarning: A column-vector y was p
         assed when a 1d array was expected. Please change the shape of y to (n_samples, ), for example using ravel().
           return f(**kwargs)
Out[68]: SVC(C=10, kernel='linear')

In [71]: Pred_tuned=rs_tuned.predict(x_test)
         Pred_tuned
Out[71]: array([1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1,
                1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0,
                1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0,
                1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
                0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 0, 1, 0, 0,
                0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0,
                1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0,
```

Fig.No.9.4 Hyper Parameter Tuning

```
Pred_tuned
```

```
Out[71]: array([1, 0, 1, 0, 1, 1, 0, 1, 1, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 1, 1,
                1, 1, 1, 0, 1, 0, 1, 1, 0, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0,
                1, 0, 1, 1, 0, 0, 0, 1, 0, 0, 1, 0, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0,
                1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0,
                0, 1, 0, 0, 1, 1, 0, 1, 1, 0, 1, 0, 1, 0, 1, 1, 1, 0, 0, 1, 0, 0,
                0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1, 1, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0,
                1, 0, 0, 1, 0, 0, 0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 0,
                1, 1, 0, 0, 1, 0, 1, 1, 0, 1, 1, 0, 1, 0, 0, 1, 0, 0, 0, 1, 1, 1,
                1, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1,
                0, 1, 1, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 1, 0, 1, 0, 1, 1, 1, 1,
                0, 1, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 1, 0, 0, 1])
```

```
In [73]: accuracy_score(Pred_tuned,y_test)

Out[73]: 0.8354430379746836
```

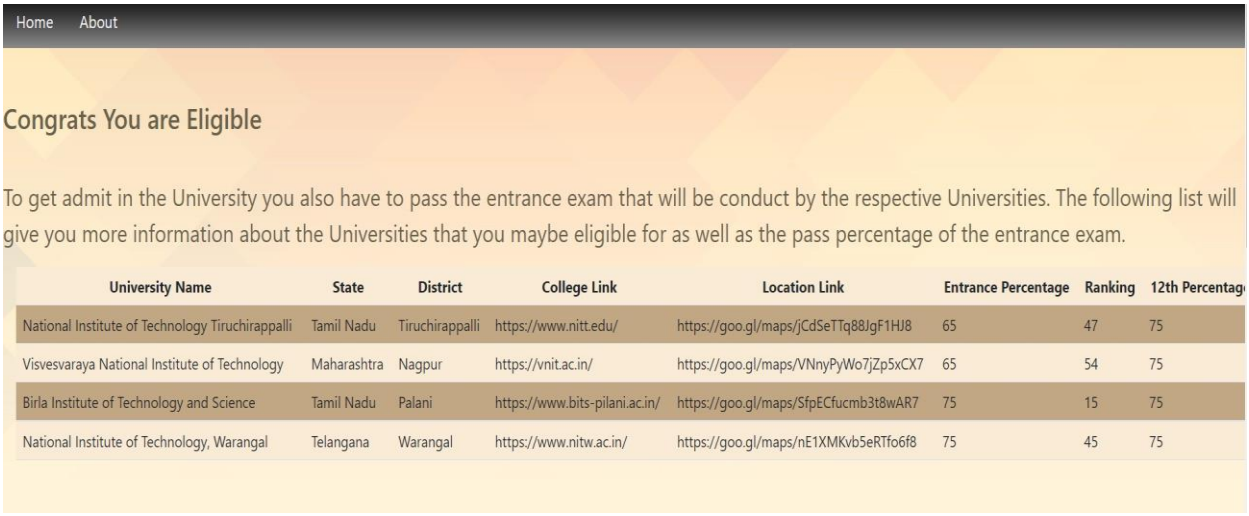
```
In [74]: confusion_matrix(Pred_tuned,y_test)

Out[74]: array([[110,  19],
                [ 20,  88]], dtype=int64)
```

Fig.No.9.5 Hyper Parameter Tuning

9.2 OUTPUT

Fig. No. 9.6 User Input



Home About

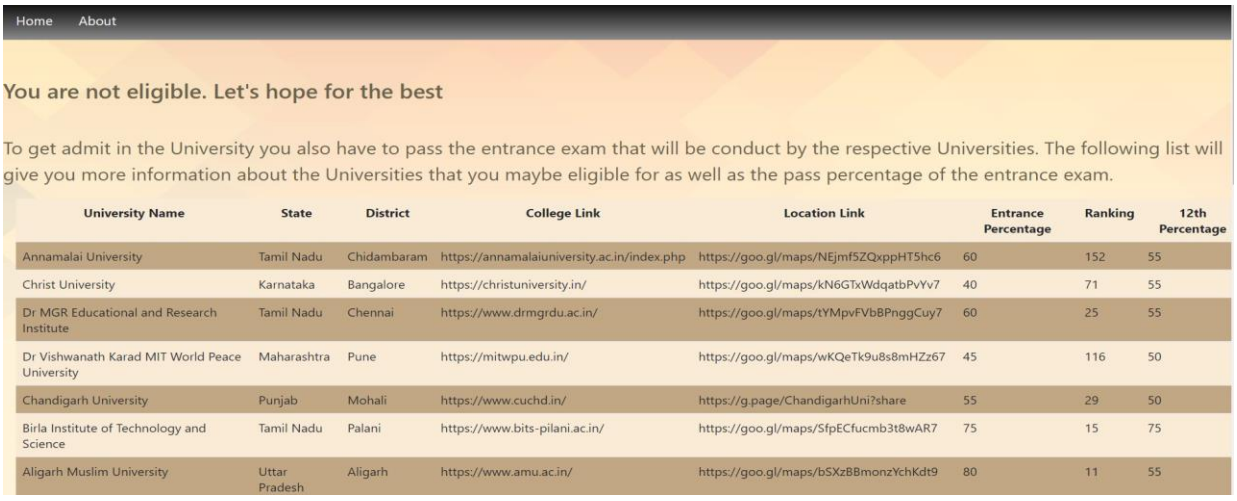
Congrats You are Eligible

To get admit in the University you also have to pass the entrance exam that will be conduct by the respective Universities. The following list will give you more information about the Universities that you maybe eligible for as well as the pass percentage of the entrance exam.

University Name	State	District	College Link	Location Link	Entrance Percentage	Ranking	12th Percentag
National Institute of Technology Tiruchirappalli	Tamil Nadu	Tiruchirappalli	https://www.nitt.edu/	https://goo.gl/maps/jCdSeTTq88JgF1HJ8	65	47	75
Visvesvaraya National Institute of Technology	Maharashtra	Nagpur	https://vnit.ac.in/	https://goo.gl/maps/VNnyPyWo7jZp5xCX7	65	54	75
Birla Institute of Technology and Science	Tamil Nadu	Palani	https://www.bits-pilani.ac.in/	https://goo.gl/maps/SfpECfucmb3t8wAR7	75	15	75
National Institute of Technology, Warangal	Telangana	Warangal	https://www.nitw.ac.in/	https://goo.gl/maps/nE1XMKvb5eRTfo6f8	75	45	75

Fig. No. 9.7 Output for User is Eligible

Fig. No. 9.8 User Input



Home About

You are not eligible. Let's hope for the best

To get admit in the University you also have to pass the entrance exam that will be conduct by the respective Universities. The following list will give you more information about the Universities that you maybe eligible for as well as the pass percentage of the entrance exam.

University Name	State	District	College Link	Location Link	Entrance Percentage	Ranking	12th Percentage
Annamalai University	Tamil Nadu	Chidambaram	https://annamalaiuniversity.ac.in/index.php	https://goo.gl/maps/NEjmf5ZQxppHT5hc6	60	152	55
Christ University	Karnataka	Bangalore	https://christuniversity.in/	https://goo.gl/maps/kN6GTxWdqatbPvYv7	40	71	55
Dr MGR Educational and Research Institute	Tamil Nadu	Chennai	https://www.drmgrdu.ac.in/	https://goo.gl/maps/tYMpvFVbBPnggCuy7	60	25	55
Dr Vishwanath Karad MIT World Peace University	Maharashtra	Pune	https://mitwpu.edu.in/	https://goo.gl/maps/wKQeTk9u8s8mHZz67	45	116	50
Chandigarh University	Punjab	Mohali	https://www.cuchd.in/	https://g.page/ChandigarhUni?share	55	29	50
Birla Institute of Technology and Science	Tamil Nadu	Palani	https://www.bits-pilani.ac.in/	https://goo.gl/maps/SfpECfucmb3t8wAR7	75	15	75
Aligarh Muslim University	Uttar Pradesh	Aligarh	https://www.amu.ac.in/	https://goo.gl/maps/bSXzBBmonzYchKdt9	80	11	55

Fig. No. 9.9 Output for User is Not Eligible

CHAPTER-10

ADVANTAGES & DISADVANTAGES

10.1 ADVANTAGES

- The user who are willing to get admitted in a university can choose a particular department in which they are interested to learn.
- The user can select their preferred location and the university and can ask for prediction for their eligibility for getting admitted in that university.
- The application provides them with the list of additional universities that the student is eligible to apply other than their preferred university based on their educational qualifications.
- In the list of universities, the application also provides the user with additional information like the link to the university website and location of the university and their entrance mark admission percentage

10.2 DISADVANTAGES

In the application output for the list of other universities the link to college website and location of the university are not directly redirected.

CHAPTER-11

CONCLUSION

By using this application University Admit Eligibility Predictor developed using the Machine Learning classification algorithm Support Vector Machine the output is predicted as whether the user is eligible to get an admission in the particular university or not. The students have their own preferred university, location and department. In our application the user can choose their own preferred department provided in the list in the application, location that is provided and top 20 universities based on the department is provided in the application. The user can select their own preferred department, location and university in that location. Then the user can enter their 12^{th} percentage in the provided box then the model predicts whether the user is eligible to apply for the university or not based on the inputs given by the user. The application also provides the user with the list of other universities that the student is eligible to apply and it also provides additional information like link to the university website and location of that university. The model predicted using SVM has an accuracy 87.34.

CHAPTER-12

FUTURE SCOPE

In the future, the application can be enhanced in such a way that the user can get access to various departments and other universities located in India. In addition to that the user also gets the access to chatbot where the user can chat with the admin to collect more information about the universities and the information to increase their scores so that the user can improve themselves.

CHAPTER-13

APPENDIX

SOURCE CODE

HTML FILES:

Home.html

```
<html>
   <head>
      <meta charset="UTF-8">
      <meta name="viewport" content="wideth=device-maximum, initial-scale=1">
      <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css" rel="stylesheet"
integrity="sha384-Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
      <title>Home</title>
      <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-
awesome.min.css">
      <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/5.15.2/css/all.min.css">
      <link rel="icon" type="image/x-icon" href="static/images/favicon.ico">
      <link rel="stylesheet" type="text/css"  href="/static/style.css">
   </head>
   <body>
      <header><marquee>VIDYAPEETH-University Admit Eligibility Predictor</marquee></header>

      <div class="topnav" id="myTopnav">
         <a href="/" class="active" target="_blank">Home</a>
         <a href="/about" target="_blank">About</a>
        </div>

      <div class="box1">
         <div class="pic">
```

```
            <img  src="https://thumbs.dreamstime.com/b/business-intelligence-abstract-concept-vector-illustration-data-analysis-management-tools-enterprise-strategy-development-driven-204327386.jpg" alt="^-^" style="width:390px; height:470px; background-color: thistle;">
            <p>“Keep a little fire burning; however small, however hidden.” <i>—Cormac McCarthy</i></p>
        </div>
    </div>

    <div class="text">
        <p>
            <b>NAMASTE!!</b><br><br>
            Hello aspiring and thirsty minds!! <br><br>
            Are you eager to know about the Universities that you are eligible to get an admission with your academic profile? Then you are at the right place.<br><br>
            Lets' Quench your thirst ^-^ <br><br>
            Lets' Know your academic profile, your preferred location, the department and the University name that your thirsty mind shouting and know whether an admission is possible in the University.<br><br>

            Else pen's up Here is the list of universities that you are eligible to get an admission.<br>
        </p>
    </div>
    <div class="box">
        <form action="/choose_dept" name="deptForm" method="POST">
            <div class="input-icon">
                <i class="fas fa-graduation-cap ic"></i>
                <label class="dept" for="depts">Department :</label>
                <select class="depttext" value="depts" name="depts">
                    <option disabled selected >Choose Department</option>
                    <option value="civil">Civil Engineering</option>
                    <option value="cse">Computer Science and Engineering</option>
                    <option value="ece">Electronics and Communication Engineering</option>
                    <option value="eee">Electrical and Eletronics Engineering</option>
                    <option value="mech">Mechanical Engineering</option>
                </select>
            </div>
            <input class="sub" type="submit" value="Go..!">
        </form>
    </div>
<div class="footer">
        <h3 style="color:antiquewhite">Contact Us:</h3>
        <div class="icon">
            <i class="fab fa-google"><label> vidyapeethinfo@gmail.com</label></i>
        </div><br><br>
        <div class="icon">
            <i class="fab fa-linkedin-in"><label> www.linkedin.com/in/vidhyapeeth</label></i>
        </div><br><br>
        <div class="icon">
```

```
            <i class="fab fa-twitter"><label> https://twitter.com/Vidhyapeethinfo</label></i>
          </div>
        </div>

    </body>
</html>
```

Flask file

```
import requests
from flask import Flask, render_template, request

API_KEY = "L2b9n_p3zo6q3O4y9dDEELnvPDoruLIdD0lsYBSlicy2"
token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
API_KEY, "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'})
mltoken = token_response.json()["access_token"]

header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}

city_dict={ "Ali" : 18 ,"Bar" : 2 ,"Ban" : 1 ,"Ch" :3,"Chid" :22,"Chit" :0,"Hyd"
:6,"Kol":8,"Jai":15,"Moh":10,"Mum":11,"Man":7,"ND":13,
"Nag": 20,"Pal": 4,"Pali":12 ,"Pha":16 ,"Pu" :17 ,"Sa" :5 ,"Tiru":19 ,"Var":9 ,"Vel":21,"War":14 }

city_dict1={ "Ali" : "Aligarh" ,"Bar" : "Baroda" ,"Ban" : "Bangalore" ,"Ch" :"Chennai","Chid"
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li","Mum":"Mumbai","Man":"Mangalore","ND":"New Delhi",
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,"Tiru":"Tiruchirappalli" ,"Var":"Varanasi","Vel":"Vellore","War":"Warangal" }
univ_dict={"AMU" : [23 ,80],"AU" : [37 , 60],"BHU" :[28 , 60],"BITS" : [24 ,75],"CHU":[20,55],"CU"
:[5,40],"DTU" : [6,60],"GGSIU" :[10,50],
"ICTM" : [16,66],"IGNOU" :[14,55],"IISB" : [18,70],"IITB" : [15,50],"IITD" : [13,75],"IITM"
:[12,55],"JH" : [17,50],"JMI" : [9,50],
"JNU" : [3 ,55],"JU" : [11,60],"LPU" :[4,55],"MGR" : [7,60],"MSUB" :[29,50],"MU" :[26 ,50 ],"NIMS" :
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"NITW" :[19 ,75],"PES" : [38,60],"PUB" : [22 , 45],"RU":[21,50],"SIST" :[31,45],"SPPU" :
[32,55],"SRM" :[30,60],"TIU" : [8,60],"UD" : [34,45],
"UH" : [35,60],"VIT":[36,55],"VKMWPU" : [33,45],"VNIT" : [1 ,65],"YCMOU" :[27,40]}

headings=("University Name","State","District","College Link","Location Link","Entrance
Percentage","Ranking","12th Percentage")
data=(("Aligarh Muslim University","Uttar
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    ("Annamalai University","Tamil
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HT5hc6",60,152,55),
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Pradesh","Varanasi","https://www.bhu.ac.in/","https://goo.gl/maps/Rakq5Nzp9nYeBRJs8",60,6,50),
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("Dr MGR Educational and Research Institute","Tamil
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("Dr Vishwanath Karad MIT World Peace
University","Maharashtra","Pune","https://mitwpu.edu.in/","https://goo.gl/maps/wKQeTk9u8s8mHZz67",45,116,50),
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Delhi","http://ignou.ac.in/","https://goo.gl/maps/SfsYq66L9xvvDFsbA",55,71,55),
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Mumbai","Maharashtra","Mumbai","https://www.ictmumbai.edu.in/","https://goo.gl/maps/Y6rD7yit6Kc7dH189",66,14,55),
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("National Institute of Technology Tiruchirappalli","Tamil

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hcu?share",60,10,60),
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5,54,75),
    ("Yashwantrao Chavan Maharashtra Open
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fjWg6",40,93,45)
)

app = Flask(__name__)


@app.route('/',methods=['GET'])
def home():
   return render_template("Home.html")
```

```
@app.route('/about')
def about():
    return render_template('About.html')

@app.route('/choose_dept', methods=['POST'])
def departments():
    dep = request.form["depts"]
    if(dep == "civil"):
        return render_template("civil.html")
    if(dep == "cse"):
        return render_template("cse.html")
    if(dep == "ece"):
        return render_template("ece.html")
    if(dep == "eee"):
return render_template("eee.html")
    if(dep == "mech"):
        return render_template("mech.html")

@app.route('/civil',methods=['POST'])
def civil():
    d1_civil=[]
    d2_civil=[]
    u=0
    e=0
    percent= request.form.get('twelC',type=float)
    cities=request.form["citiesC"]
    univ = request.form["uniC"]
    for key in city_dict1:
        if key == cities:
            c=city_dict1[key]
    for key1 in univ_dict:
        if key1 == univ:
            x=univ_dict[key1]
            u = x[0]
            e = x[1]
    pred = [[u,int(percent),e,0]]

    payload_scoring = {"input_data": [{"fields": [['University Name','12th Percentage','Entrance
Percentage','Department']], "values": pred}]}
    response_scoring = requests.post('https://eu-de.ml.cloud.ibm.com/ml/v4/deployments/ba6c6e10-7576-
4d5d-9c73-ca1b9b4ebf21/predictions?version=2022-11-17', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})

    probability = response_scoring.json()['predictions'][0]['values'][0][0]
    i=0
    for ds in data:
            if(float(ds[7]) >= percent or c==ds[2]) and i<10:
```

```
            d1_civil.insert(i,ds)
            i+=1

    d2_civil = list(set(j for j in d1_civil))
    if(probability == 1):
        return render_template("output.html",prediction="Congrats You are Eligible",
headings=headings,d2=d2_civil)
    else:
        return render_template("output.html",prediction="You are not eligible. Let's hope for the
best",headings=headings,d2=d2_civil)

@app.route('/cse',methods=['POST'])
def cse():
    d1_cse=[]
    d2_cse=[]
    d=1
    percent1=  request.form.get('twel',type=float)
    cities=request.form["cities"]
    univ = request.form["uni"]
for key in city_dict1:
        if    key    ==    cities:
            c1=city_dict1[key]
    for key1 in univ_dict:
        if key1 == univ:
            x=univ_dict[key1]
            u1 = x[0]
            e1 = x[1]
    pred = [[u1,int(percent1),e1,d]]
    payload_scoring = {"input_data": [{"fields": [['University Name','12th Percentage','Entrance
Percentage','Department']], "values": pred}]}
    response_scoring = requests.post('https://eu-de.ml.cloud.ibm.com/ml/v4/deployments/ba6c6e10-7576-
4d5d-9c73-ca1b9b4ebf21/predictions?version=2022-11-17', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})

    probability = response_scoring.json()['predictions'][0]['values'][0][0]
    i1 = 0
    for ds in data:
        if(float(ds[7]) >= percent1 or c1==ds[2]) and i1 < 10:
            d1_cse.insert(i1,ds)
            i1 += 1

    d2_cse = list(set(j for j in d1_cse))
    if(probability == 1):
        return render_template("output.html",prediction="Congrats You are Eligible",
headings=headings,d2=d2_cse)
    else:
        return render_template("output.html",prediction="You are not eligible. Let's hope for the
best",headings=headings,d2=d2_cse)
```

```
@app.route('/ece',methods=['POST'])
def ece():
    d1_ece=[]
    d2_ece=[]
    d=3
    percent2= request.form.get('twelEC',type=float)
    cities=request.form["citiesEC"]
    univ = request.form["uniEC"]
    for key in city_dict1:
        if key == cities:
            c2=city_dict1[key]
    for key1 in univ_dict:
        if key1 == univ:
            x=univ_dict[key1]
            u2 = x[0]
            e2 = x[1]
    pred = [[u2,int(percent2),e2,d]]
    payload_scoring = {"input_data": [{"fields": [['University Name','12th Percentage','Entrance
Percentage','Department']], "values": pred}]}
response_scoring = requests.post('https://eu-de.ml.cloud.ibm.com/ml/v4/deployments/ba6c6e10-7576-
4d5d-9c73-ca1b9b4ebf21/predictions?version=2022-11-17', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})

    probability = response_scoring.json()['predictions'][0]['values'][0][0]

    i2 = 0
    for ds in data:
            if(float(ds[7]) >= percent2 or c2==ds[2]) and i2 < 10:
                d1_ece.insert(i2,ds)
                i2 += 1

    d2_ece = list(set(j for j in d1_ece))
    if(probability == 1):
        return render_template("output.html",prediction="Congrats You are Eligible",
headings=headings,d2=d2_ece)
    else:
        return render_template("output.html",prediction="You are not eligible. Let's hope for the
best",headings=headings,d2=d2_ece)

@app.route('/eee',methods=['POST'])
def eee():
    d1_eee=[]
    d2_eee=[]
    d=2
    percent3=  request.form.get('twelE',type=float)
    cities=request.form["citiesE"]
    univ = request.form["uniE"]
```

```
    for key in city_dict1:
        if key == cities:
            c3=city_dict1[key]
    for key1 in univ_dict:
        if key1 == univ:
            x=univ_dict[key1]
            u3 = x[0]
            e3 = x[1]
    pred = [[u3,int(percent3),e3,d]]
        payload_scoring = {"input_data": [{"fields": [['University Name','12th Percentage','Entrance
Percentage','Department']], "values": pred}]}
    response_scoring = requests.post('https://eu-de.ml.cloud.ibm.com/ml/v4/deployments/ba6c6e10-7576-
4d5d-9c73-ca1b9b4ebf21/predictions?version=2022-11-17', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})

    probability = response_scoring.json()['predictions'][0]['values'][0][0]
    i3=0
    for ds in data:
        if(float(ds[7]) >= percent3 or c3==ds[2]) and i3 < 10:
            d1_eee.insert(i3,ds)
            i3 += 1

    d2_eee = list(set(j for j in d1_eee))
    if(probability == 1):
        return render_template("output.html",prediction="Congrats You are Eligible",
headings=headings,d2=d2_eee)
    else:
        return render_template("output.html",prediction="You are not eligible. Let's hope for the
best",headings=headings,d2=d2_eee)

@app.route('/mech',methods=['POST'])
def mech():
    d1_mech=[]
    d2_mech=[]
    d=4
    percent4= request.form.get('twelM',type=float)
    cities=request.form["citiesM"]
    univ4 = request.form["uniM"]
    for key in city_dict1:
        if key == cities:
            c4=city_dict1[key]
    for key1 in univ_dict:
        if key1 == univ4:
            x=univ_dict[key1]
            u = x[0]
            e = x[1]

    pred = [[u,int(percent4),e,d]]
```

```
    payload_scoring = {"input_data": [{"fields": [['University Name','12th Percentage','Entrance
Percentage','Department']], "values": pred}]}
    response_scoring = requests.post('https://eu-de.ml.cloud.ibm.com/ml/v4/deployments/ba6c6e10-7576-
4d5d-9c73-ca1b9b4ebf21/predictions?version=2022-11-17', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})
    probability = response_scoring.json()['prediction'][0]['values'][0][0]
    i4=0
    for ds in data:
            if(float(ds[7]) >= percent4 or c4==ds[2]) and i4 < 10:
                d1_mech.insert(i4,ds)
                i4 += 1

    d2_mech = list(set(j for j in d1_mech))
    if(probability == 1):
        return render_template("output.html",prediction="Congrats You are Eligible",
headings=headings,d2=d2_mech)
    else:
        return render_template("output.html",prediction="You are not eligible. Let's hope for the
best",headings=headings,d2=d2_mech)
    if__name__== '__main__':
    app.run(debug=True)
```

ipynb file

```
# # Import Libraries

import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as mtp
import sklearn
from scipy.stats import iqr

df = pd.read_csv(r"C:\Users\Laptop\Desktop\flask-example\project example\university.csv")
df.head()

df1 = df
df1.head()

df1.isnull().sum()

df1.shape

df1.describe()

# # Univariate Analysis
```

```
sns.distplot(df1['12th Percentage'])  #univariate

df = df1.drop(['District'],axis=1)
df.head()

# # Descriptive Statistics

df1.mean()

df1.median()

df1.mode()

df1.var()

df1.std()
df1.min()

q = df1.quantile([0.75,0.25])
q
iqr = q.iloc[0] - q.iloc[1]
iqr

u = q.iloc[0] + (1.5 *iqr)
u

l = q.iloc[1] - (1.5*iqr)
l

print(df1.skew())

# # outliers

sns.boxplot(df1['Entrance Percentage'])

# # handling outliers

df1['Entrance Percentage'] = np.where(df1['Entrance Percentage'] >70,40,df1['Entrance Percentage'])

sns.boxplot(df1['Entrance Percentage'])

# # Encoding

from sklearn.preprocessing import LabelEncoder

le = LabelEncoder()

df['University Name'] = le.fit_transform(df1['University Name'])
```

```
df['District'] = le.fit_transform(df1['District'])
df['Department'] = le.fit_transform(df1['Department'])
df['Output'] = le.fit_transform(df1['Output'])

df.head()

x = df.iloc[:,1:5]

x.head()

y = df.iloc[:,5:6]
y.head()

# # Scaling

from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
x_scaled = sc.fit_transform(x)
x_scaled

# # Splitting dataset into train and test

from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test = train_test_split(x,y,test_size = 0.3,random_state =0)

x_train

y_test

# # Training And Test  the model

from sklearn.svm import SVC # "Support vector classifier"
classifier = SVC(kernel='linear', random_state=0)
classifier.fit(x_train, y_train)

#Predicting the test set result

y_pred= classifier.predict(x_test)
y_pred

#Creating the Confusion matrix
from sklearn.metrics import confusion_matrix,accuracy_score
cm= confusion_matrix(y_test, y_pred)
cm


accuracy_score(y_pred,y_test)  * 100
```

```
classifier.score(x_train,y_train) *100

classifier.score(x_test,y_test)*100

import pickle
pickle.dump(classifier,open("project.pkl","wb"))
```

GITHUB & PROJECT DEMO LINK :

GitHub Link - https://github.com/Ilavarasan2002

Project Demo Link - https://drive.google.com/file/d/1FkgVp1mxgO0z7fRbHRfc3lKummok4r7h/view?usp=drivesdk

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[2] Dr. Arunakumari B. N, Vishnu Sastry H K et.al, "An Automated Prediction Model for College Admission System", June 2021

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[4] Md. Omaer Faruq Goni, Md. Abu Ismail Siddique et.al., "Graduate Admission Chance Prediction Using Deep Neural Network", September 2020

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