PROJECT REPORT

PROJECT TITLE: University Admit Eligibility Predictor

TEAM ID: PNT2022TMID03239

TEAM MEMBERS:

ALLA VENKATA CHARAN REDDY
CHIRANJEEVI A
BONAMSETTI NAGA NARENDRA
DARISI VENKATA VEERA SOMASEKHAR

1. INTRODUCTION

1.1 Project Overview

In the present conditions, students regularly have difficulty finding a fitting institution to pursue higher studies based on their profile. There are some advisory administrations and online apps that recommend universities but they ask huge consultancy fees and online apps are not accurate. So, the aim of this research is to develop a model that predict the percentage of chances into the university accurately. This model provides alsothe analysis of scores versus chance of prediction based on historical data so that students can understand whether their profile is suitable or not. The proposed model uses linear regression and random forest algorithms but cat boost algorithm is giving highest accuracy.

1.2 Purpose

The primary purpose of the University Admit Eligibility Predictor is to help the student to find the chance to get their desired University and the percentage of getting them inside the University with surity. This give them a fair idea about their admission chances in a particular university. This analysis should als help students who are currently preparing or will be preparing to get a better idea.

2. LITERATURE SURVEY

2.1 Existing problem

Decision making by applying data mining methods is being used in many service organizations. Educational bodies gradually started to use the business intelligence techniques to identify the current progress in their institutions. Numerous factors which have an impact in academia will be vivid to the educationalists while applying data mining techniques on the academic data. By employing the data mining methodologies, we could identify different patterns which aid institutions to take strategic decisions to improve the students' academic performance. Potential graduate students will have a dilemma on identifying the universities for their post graduate admissions and on the other hand an average graduate student would be uncertain on getting post graduate admission in a reputed university based on their academic scores. In this study, we applied the classification techniques such as Logistic Regression, KNN Classification, Support Vector Classification, Naive Bayes Classification, Decision Tree Classification and Random Forest Classification on the given academic admission dataset.

2.2 References

[1] Selvaprabu Jeganathan, Saravanan Parthasarathy and P. M. Ashok Kumar, "PREDICTING THE POST GRADUATE ADMISSIONS USING CLASSIFICATION TECHNIQUES"

[2] Akkem Yaganteeswarudu, "MULTI DISEASE PREDICTION MODEL BY USING MACHINE LEARNING AND FLASK API"

[3] A. Sivasangari, V. Shivani, Y. Bindhu, D. Deepa, R. Vignesh, ": PREDICTION PROBABILITY OF GETTING AN ADMISSION INTO A UNIVERSITY USING ML"

[4] S. Sridhar, S. Mootha and S. Kolagati, "A UNIVERSITY ADMISSION PREDICTION SYSTEM USING STACKED ENSEMBLE LEARNING"

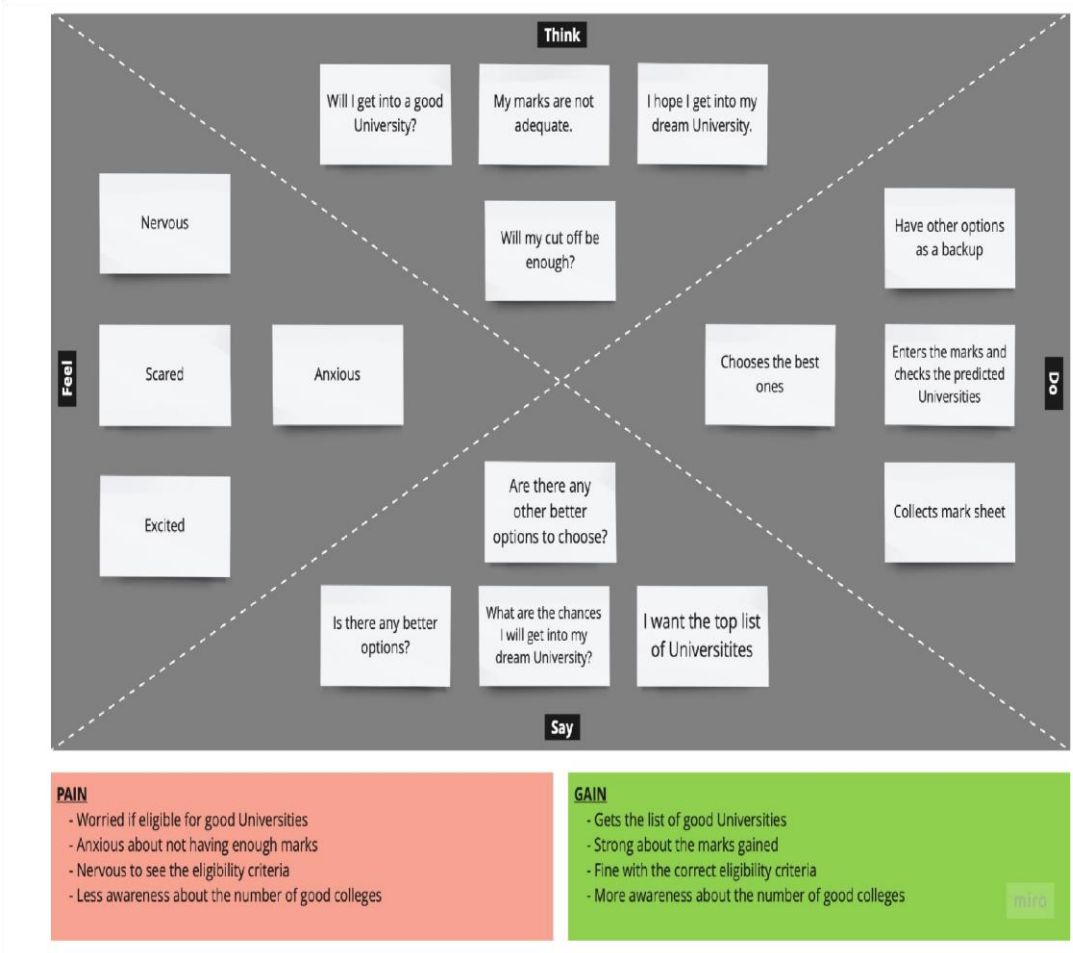
2.3 Problem Statement Definition

Students are often worried about their chances of admission to University. The aim of this project is to help students in shortlisting universities with their profiles. The predicted output gives them a fair idea about their admission chances in a particular university. This analysis should also help students who are currently preparing or will be preparing to get a better idea.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming



Template

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

10 minutes to prepare
1 hour to collaborate
2-8 people recommended

Share template feedback

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM
University Admit Eligibility Predictor

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →

2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

Keerthana S

- Students below 18yrs cannot apply for any streams.
- Students applying for Polytechnic studies should be minimum of 16 yrs.
- Students Profile should match with their originals.
- If their profile details are not matched, thier admission will be rejected.

Aarthikha R

- If their marks are below the expectation of University,thier application will be rejected.
- All the required certificates,proofs have to be submitted during registration.
- If they are PG applicants,then their UG Certificates have to be submitted.
- Original certificates of students have to be maintained as Confidential.

Nisha M

- Marks of entrance exams is considered.
- Students who are applying for Sports Quota have to submit their Sports certificates.
- Required Certificates have to be submitted if the applicants is a Handicap,transgender or specially abled.
- Student's Tenth,Twelfth marks,CGPA for PG applicants have to be collected.

Rabeka S

- Certificate proof has to be uploaded if they are First Graduates.
- Based on thier scores, branches of University will vary.
- Students under reservation quota are given more preference for admission.
- Proof of entrance exams specific to their applied course has to submitted.

Anuvarshini G

- The cutoff requirement of admission is done based on caste.
- According to their suggestions, specially abled people are given location.
- Admissions are done based on the marks obtained by students in University level Entrance Exams.
- Students from other states receive preference over those with specially abled.

3 Group ideas

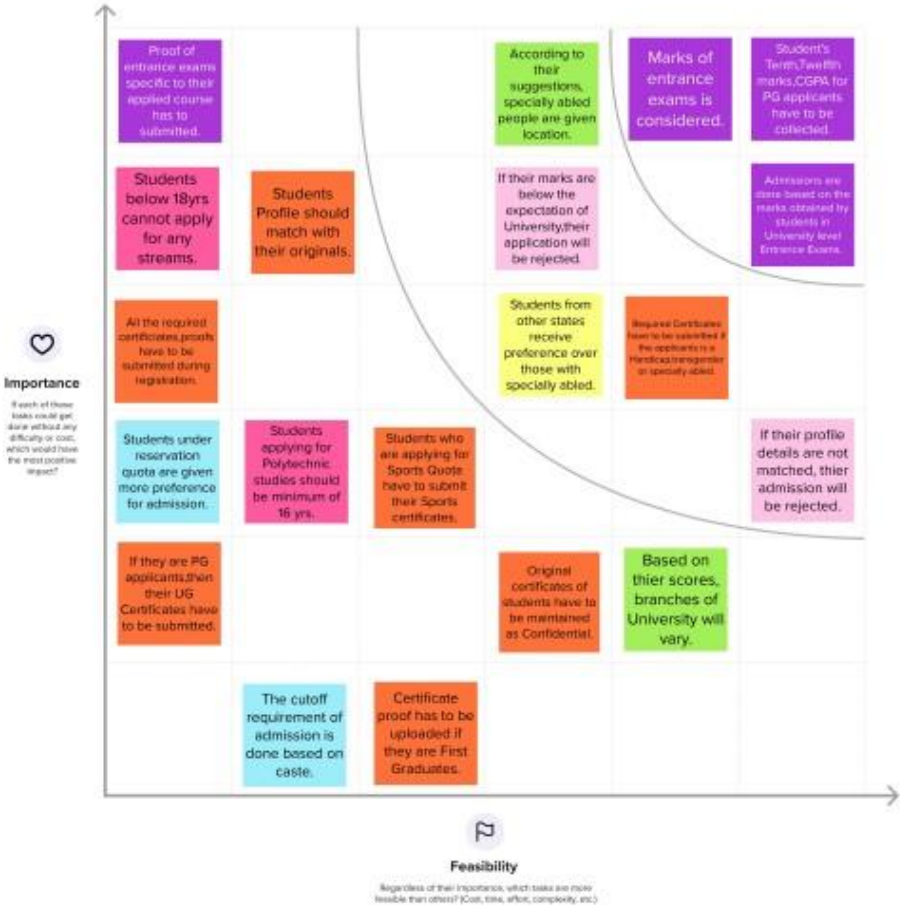
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

4 Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes



After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

A **Share the mural**
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.

B **Export the mural**
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

Strategy blueprint
Define the components of a new idea or strategy.
Open the template →

Customer experience journey map
Understand customer needs, motivations, and obstacles for an experience.
Open the template →

Strengths, weaknesses, opportunities & threats
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
Open the template →

Share template feedback

3.3 Proposed Solution

Proposed Solution

Date	03 November 2022
Team ID	PNT2022TMID03239
Project Name	Project - University Admit Eligibility Predictor
Maximum Marks	2 Marks

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No:	Parameter	Description
1.	Problem Statement (Problem to be solved)	Students are often worried about their chances of admission to University. The aim of this project is to help students in shortlisting universities with their profiles.
2.	Idea / Solution description	ML-based application for estimating the likelihood that students would be admitted to the best university based on their senior high school grades and entrance exam results for applicants to undergraduate programs, and their CGPA for applicants to postgraduate programs.
3.	Novelty / Uniqueness	By using more datasets and better methodology like Logistic Regression, the prediction of student eligibility for admission may be produced with good accuracy.
4.	Social Impact / Customer Satisfaction	The predicted result will satisfy students to find their University without any trouble of attending career guidance programs.
5.	Business Model (Revenue Model)	
6.	Scalability of the Solution	It can handle any amount of data and perform many computations in a costeffective and time- saving way.

3.4 Problem Solution fit

Solution Architecture

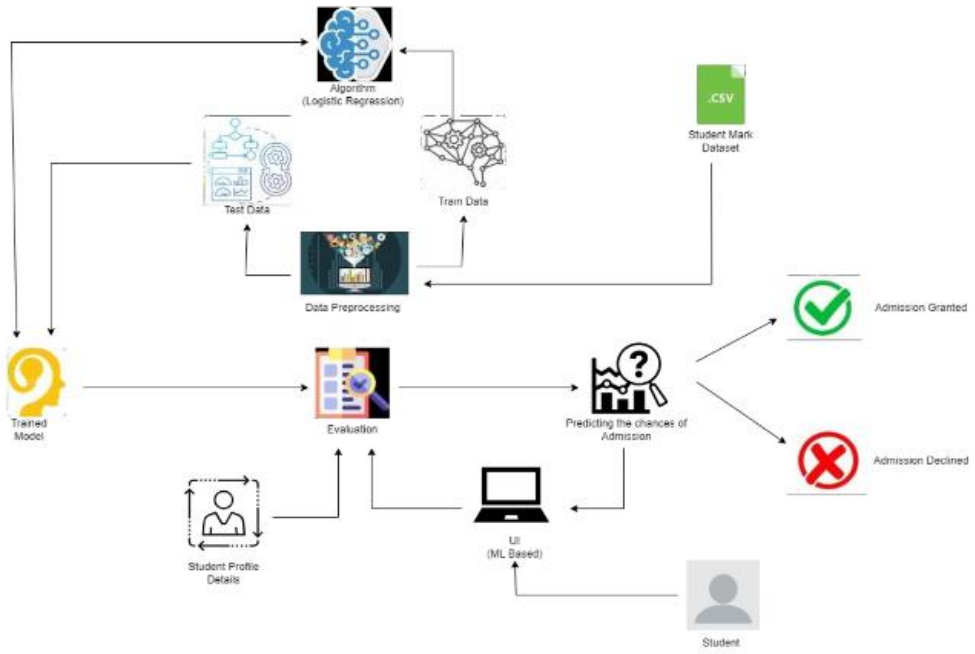
Date	03 November2022
Team ID	PNT2022TMID03239
Project Name	Project - University Admit Eligibility Predictor
Maximum Marks	4 Marks

Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Solution ArchitectureDiagram:



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Data Collection	The following details of Students' Score are collected: HSC SSLC CGPA if their PG Applicants.
FR-4	Evaluation	Using ML algorithms to analyse the data entered by the students and testing the developed ML model with the supplied data.
FR-5	Prediction	Prediction is done based on the result of evaluation, the List of Universities for which the students are eligible to apply will be displayed.
FR-6	Output	Based on their eligibility, students move forward with the admissions procedure to the predicted university and course.

4.2 Non-Functional requirements

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Interactive and Effective UI Visualization of Progress Customer Satisfaction Ease of Learning
NFR-2	**Security**	Frequent Updates using the Customers' feedback. Automatic Logout when the app is not in use to prevent unauthorized access to the user's account.
NFR-3	**Reliability**	The predictor system will be consistent in order for the system to produce trustworthy and accurate outcomes.
NFR-4	**Performance**	As logistic regression is applied to develop, performance will be more effective.
NFR-5	**Availability**	Users will be able to access the system predictor at any time, anyplace, as needed.
NFR-6	**Scalability**	It can handle any amount of data and perform many computations in a cost-effective and time-saving way.

5. PROJECT DESIGN

5.1 Data Flow Diagrams

Project Design Phase-II Data Flow Diagram & User Stories

Date	03November 2022
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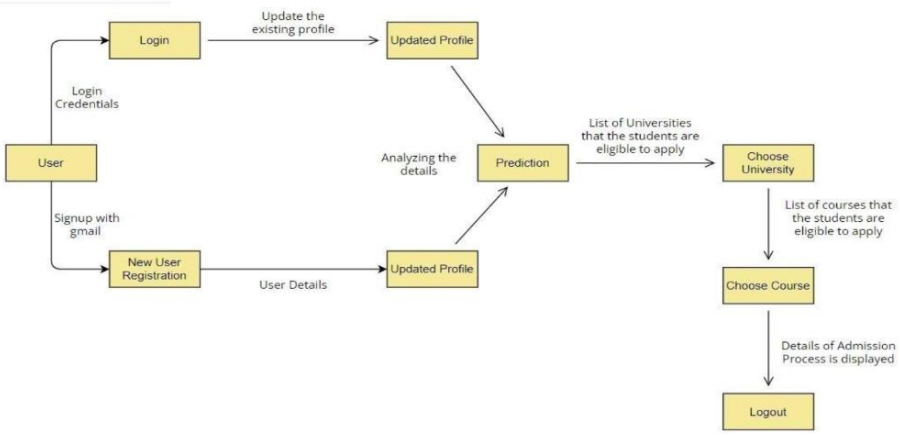
Project Name	Project – University Admit Eligibility Predictor
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 Solution & Technical Architecture

Technology Architecture

Date	03November2022
TeamID	PNT2022TMID03239
ProjectName	Project–University Admit Eligibility Predictor
MaximumMarks	4Marks

TechnicalArchitecture:

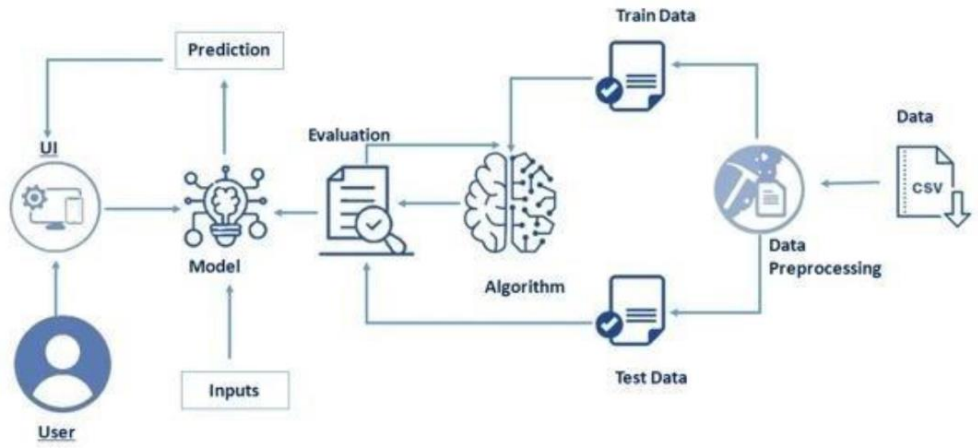


Table-1:Components&Technologies:

S.No	Component	Description	Technology
1	User Interface	The Front-end part of the application	HTML,CSS
2	Application Logic-1	Logic for a process in the application	Python
3	Application Logic-2	Logic for a process in the application	IBM Watson
4	Application Logic-3	Logic for a process in the application	IBM Watson
5	Database	Data type ,Configuration	MySQL
6	Cloud Database	Database services on cloud	IBM DB2,IBM Cloudant,etc.
7	Libraries	Import Libraries into data	Numpy,Pandas,Seaborn,Matplotlib
8	File Storage	File storage requirements	Local File System
9	Machine Learning Model	Purpose of Machine Learning Model	Admission Prediction Model
10	Training and testing data	Purpose of training and testing data	Logistic Regression algorithm
11	Accuracy	Accuracy of the tested and trained data	Root Mean Squared Logarithmic Error(RMSLE),Mean Squared Error(MSE)
12	Infrastructure	Cloud Local Server Configuration	Local

Table-2:ApplicationCharacteristics:

S.No	Characteristics	Description	Technologies Used
1	Open-Source Frameworks	List the open-source frameworks used	Flask Framework
2	Security Implementations	The user profile has been stored in a secured way	Encryptions
3	Scalable Architecture	Many computations can be done in a time saving and effective way	Logistic Regression
4	Availability	Our web application is available at anytime and at any place	IBM Load Balancer
5	Performance	As logistic regression is applied to develop the performance will be more effective	Logistic Regression

5.3 User Stories

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register to the application through Gmail	I can access my account	Medium	Sprint-1
	Login	USN-4	As a user, I can log into the application by entering email & password	I can access my account	High	Sprint-1
	Update Profile	USN-5	As a user,after logging in, I will have to update my profile by providing all the required details.	I can complete the profile to proceed with the prediction process.	High	Sprint-2
	Choose University	USN-6	As a user, I will be able to view the list of Universities that the students are eligible to apply.	I can choose the University from the List of University provided in the drop down menu.	High	Sprint-3
	Choose Course	USN-7	As a user, I will be able to view the list of courses that the students are eligible to apply.	I can choose the course from the List of courses provided in the drop down menu.	Medium	Sprint-3
	Admissio n Process	USN-8	As a user,I will be able to view the details of Admission process like date and venue of certification verification.	I can view the details of Admission process being displayed at the end of prediction.	Low	Sprint-4
Administrator	Authentication	USN-9	As a admin , the login credential of the user is authenticated my me.	I can retrieve and make use of all the user details.	High	Sprint-1
	Update Profile	USN-10	As a admin,I can verify the user entered details.	I can confirm and access the user details.	High	Sprint-2
	Prediction	USN-11	As a admin,I can test the trained ML	I can test the user data	High	Sprint-3

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Project Planning Template (Product Backlog, Sprint Planning, Stories, Story points)

Date	03November 2022
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Project Name	Project - University Admit Eligiblity Predictor
Maximum Marks	8 Marks

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Alla Venkata charan reddy
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Bonamsetti Naga Narendra
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Darisi Venkata Veera Somasekhar
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	Chiranjeevi A
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Alla Venkata charan reddy
	Dashboard					

6.3 Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

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	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	04 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	04 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	18 Nov 2022

Velocity:
Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

7. CODING & SOLUTIONING

7.1 Feature 1

- IBM Watson Platform
  - Web UI
  - Python Code
    - HTML
    - CSS
    - JS

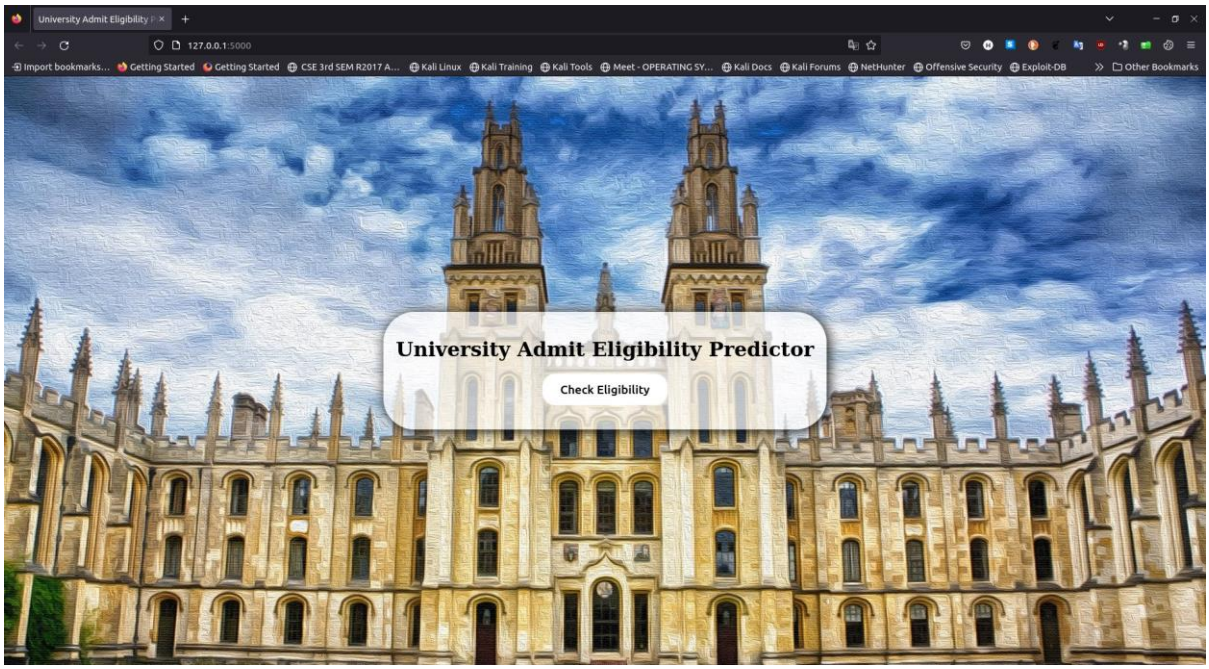
7.2 Feature 2

- Index
- Chance
- Nochance
- Demo2

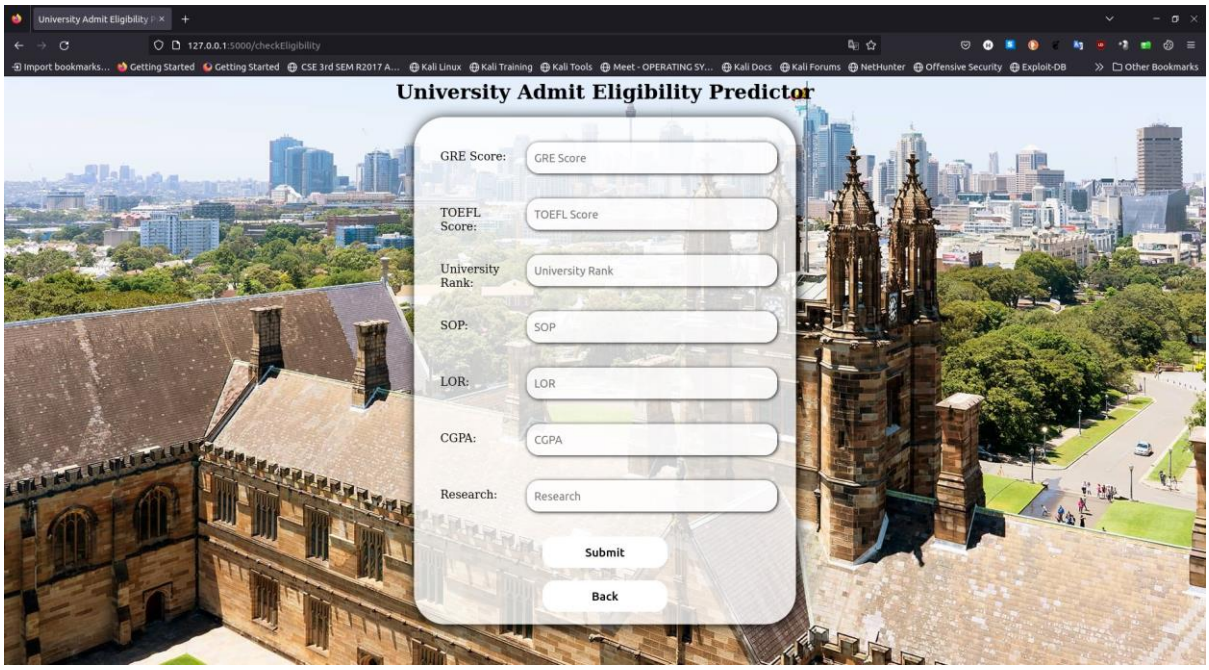
8. TESTING AND RESULTS

8.1 Test Cases

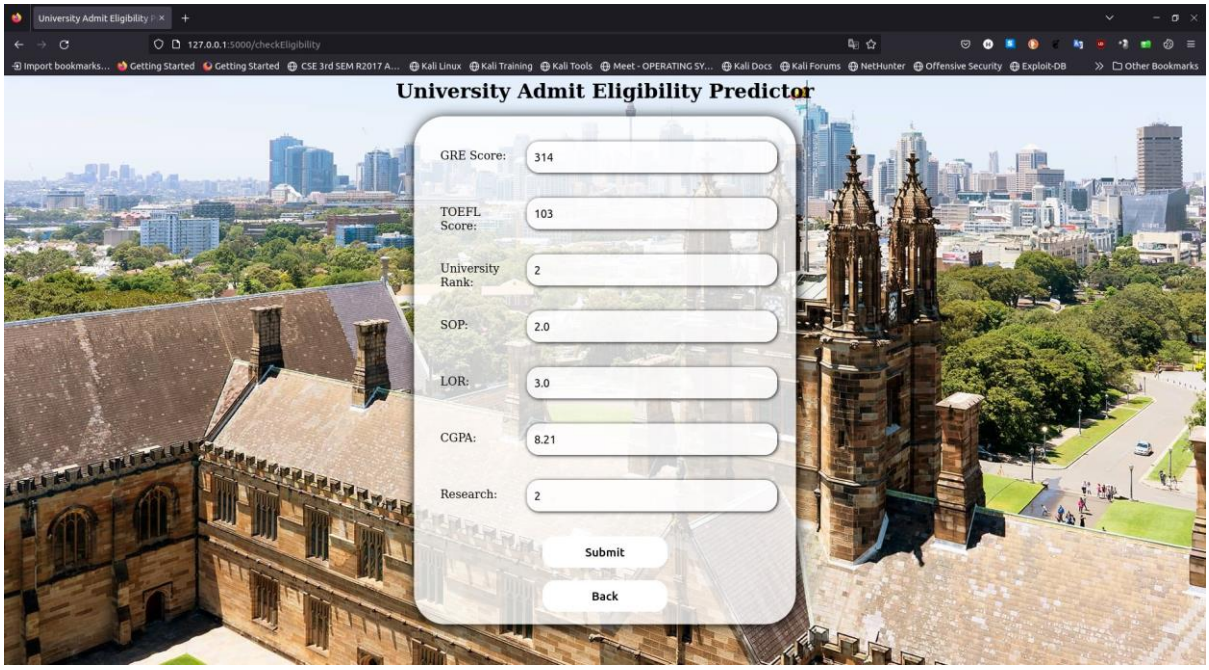
TEST CASE 1



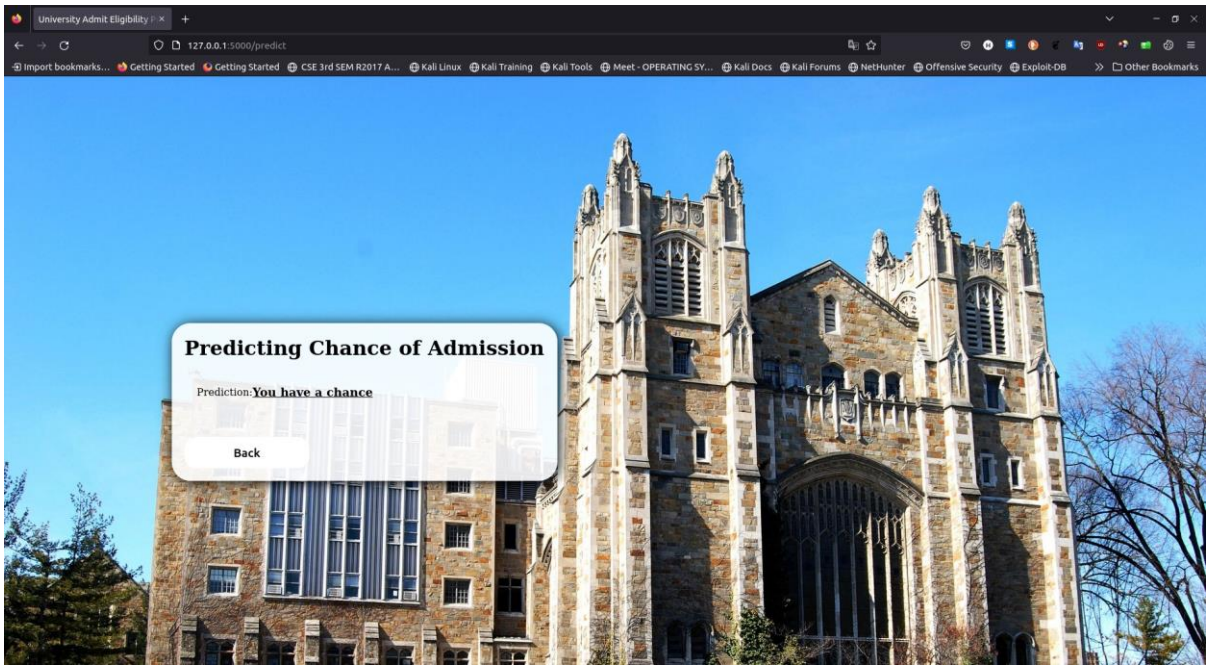
TEST CASE 2



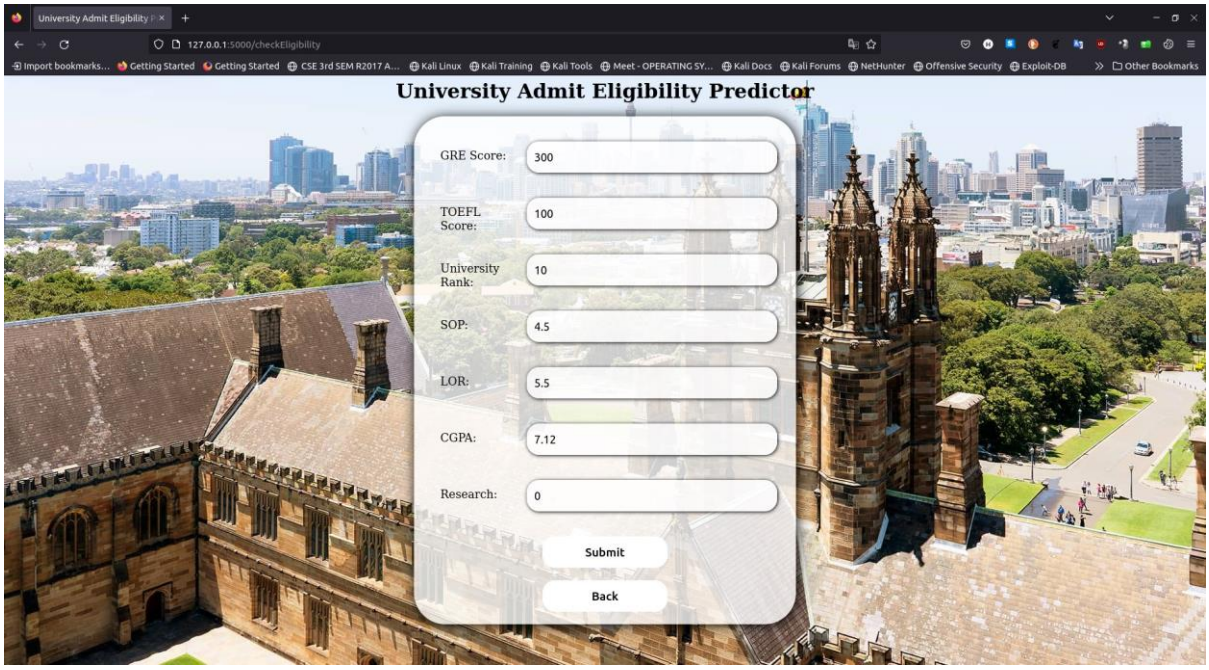
TEST CASE 3



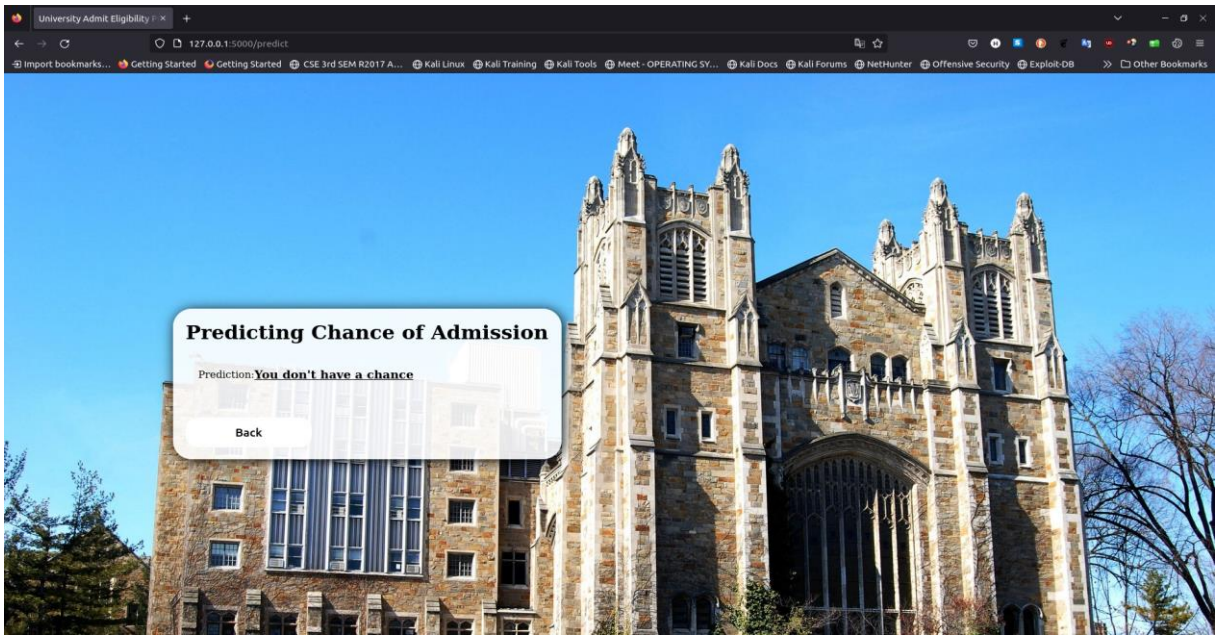
TEST CASE 4



TEST CASE 5



TEST CASE 6



9. ADVANTAGES

- Easy prediction of University based on the scores secured.
- It helps student for making decision for choosing the right college.
- It avoids data redundancy and inconsistency.

10. DISADVANTAGES

- Only few selected university are available for the prediction.
- A system will provide inaccurate result if data entered incorrectly.

11. CONCLUSION

In University Admit Eligibility Predictor students can register with their personal as well as marks details for predicting the admission in the colleges and administrator can allot the seats for thr students.

12. FUTURE SCOPE

In the updated version of this software, it will contain features that we can select more number of universities for prediction and the system will provide correct results even if the data has been entered wrong.

13. APPENDIX

13.1 Source Code

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



API_KEY = "dAkQTmsJ7sfRzutZ8fTcNbHZvKD_ZyoxqjtYF7h8VwC7"
token_response     = requests.post('https://iam.cloud.ibm.com/identity/token',
     data={"apikey": API_KEY, "grant_type":
     'urn:ibm:params:oauth:granttype:apikey'})
mltoken = token_response.json()["access_token"]
header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}


app = Flask(__name__, static_url_path='')
@app.route('/')   def
index():
   return render_template('index.html')


@app.route('/checkEligibility')     def
checkEligibility():
   return render_template('Demo2.html')


@app.route('/predict',   methods=['POST'])   def
predict():
   greScore = int(request.form['greScore'])
   toeflScore = int(request.form['toeflScore'])
   univRank = int(request.form['univRank'])
   sop = float(request.form['sop'])
   lor = float(request.form['lor'])
   cgpa = float(request.form['cgpa'])
   research = int(request.form['research'])
   array_of_input_fields = ['greScore', 'toeflScore', 'univRank', 'sop', 'lor', 'cgpa',
    'research']
```

```
    array_of_values_to_be_scored = [greScore, toeflScore, univRank, sop, lor,
     cgpa, research]
    payload_scoring = {"input_data": [{"fields": [array_of_input_fields], "values":
     [array_of_values_to_be_scored]}]}
                          response_scoring  =
         requests.post('https://ussouth.ml.cloud.ibm.com/ml/v4/deployments/9f
     4939ed-7f21-4881-
     8ae4-234e7515f65a/predictions?version=2022-10-21',
     json=payload_scoring, headers={'Authorization': 'Bearer ' + mltoken})
    predictions = response_scoring.json()
    prediction = predictions['predictions'][0]['values'][0][0]

    if prediction:
        return render_template('chance.html')
    else:
        return render_template('noChance.html')


if __name__ == "__main__":
    app.run()
```

13.2 GitHub

https://github.com/IBM-EPBL/IBM-Project-5972-1658821487.git