PROJECT REPORT DOCUMENTATION

UNIVERSITY ADMIT ELIGIBILITY PREDICTOR

TEAM ID: PNT2022TMID23586

College Name: Velammal Engineering College

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1.INTRODUCTION

1.1 Project Overview

University and college admission is a complex decision process that goes beyond simply matching test scores and admission requirements. For an aspiring graduate student, choosing which universities to apply to is really a difficult problem. Often, the students wonder if their profile is good enough for a certain university. In this project, this problem has been addressed by modeling a recommender system based on various classification algorithms.

The required data was obtained from thegradcafe.com. Based on this data set,various models were trained and one best and some other similar properties carrying universities are suggested for the students such that it maximizes the chances of a student getting an admit from that university list. Classification algorithms have also been used to predict the acceptance chance of any student on any individual university.

The project is implemented using a Machine-Learning model that predicts whether the user is eligible for admission to the selected rated universities with provided details such as marks and others. The algorithm works in such a way that when the user provides the details such as (GRE Score, TOEFL Score, University Rating, SOP, LOR, CGPA, Research) the percentage of chance of admit is displayed. The user is provided with a UI (Web based application) in which the user can enter the details mentioned above for prediction.

1.2 Purpose

Our project helps students seeking admission to universities check their eligibility according to various parameters such as GRE, GPA,TOFEL,SOP,CGPA,Research.students can view the eligibility in the online mode without wasting the money,time and parents personnel work in simple way at the home.

Students from rural background find it difficult to do the necessary analysis and prepare a preference list. This idea willbe beneficial for them.Students who belong to multiple categories face difficulty in analyzing cut-offsin each of these categories and predict the best colleges they can get an admission in. Whatsoever is the student's rank, this application will aid them in finding the best branch and college for his/her rank. This accommodates the need of students to choose the best college and helps colleges too to recognize their stand in attracting students and finerprediction impliesbetter results for the students.

2.Literature survey

2.1 Existing Problem

Previous research done in this area used Naive Bayes algorithm which will evaluate the success probability of student application into a respective university but the main drawback is they didn't consider all the factors which will contribute in the student admission process like TOEFL/IELTS, SOP, LOR and under graduate score. Bayesian Networks Algorithm have been used to create a decision support network for evaluating the application submitted by foreign students of the university. This model was developed to forecast the progress of prospective students by comparing the score of students currently studying at university. The model thus predicted whether the aspiring student should be admitted to university on the basis of various scores of students. Since the comparisons are made only with students who got admission into the universities but not with students who got their admission rejected so this method will not be that much accurate.

2.2 References

● L. Chang , Applying Data Mining to Predict College Admissions Yield, Chapter 4 in J. Luan and C. Zhao (Eds.), Data mining in action: Case studies, Spring 2008 - College of Education. Data-mining technology's predictive modeling was applied to enhance the prediction of enrollment behaviors of admitted applicants at a large state university.

● Rensong Dong,The module of prediction of College Entrance Examination aspiration, Fuzzy Systems and Knowledge Discovery (FSKD), 31 May 2012 ,1559-1562. Many factors are involved in the prediction of College Entrance Examination (CEE) aspiration which is a non-linear classification problem. We proposed a CEE aspiration prediction approach based on support vector machine learning algorithm. Firstly, CEE score and ranking in all subjects, the number of college admission plan and relevant data of the latest two years are collected and a training set is formed.

● Data Visualization, Machine Learning:
https://www.analyticsvidhya.com/blog/2017/09/common-machin e learning-algorithms/

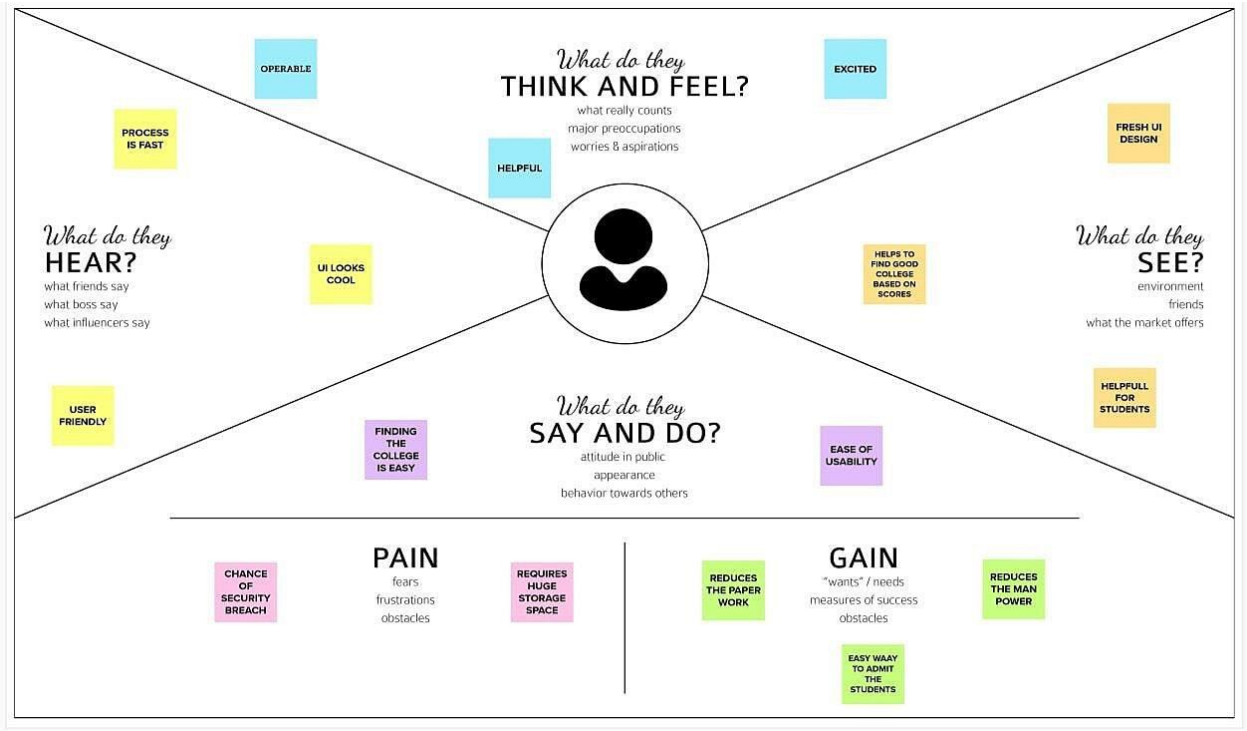
● Journal of Network Communications and Emerging Technologies(JNCET) Volume 8, Issue 4, April (2018) College Admission Predictor System is a web based application system in which students can register their marks along with their personal information. This helps to predict their admissions in colleges. Administrator can add the college details and the batch details. Using this Application, the entrance seat allotment becomes easier and efficient.

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.

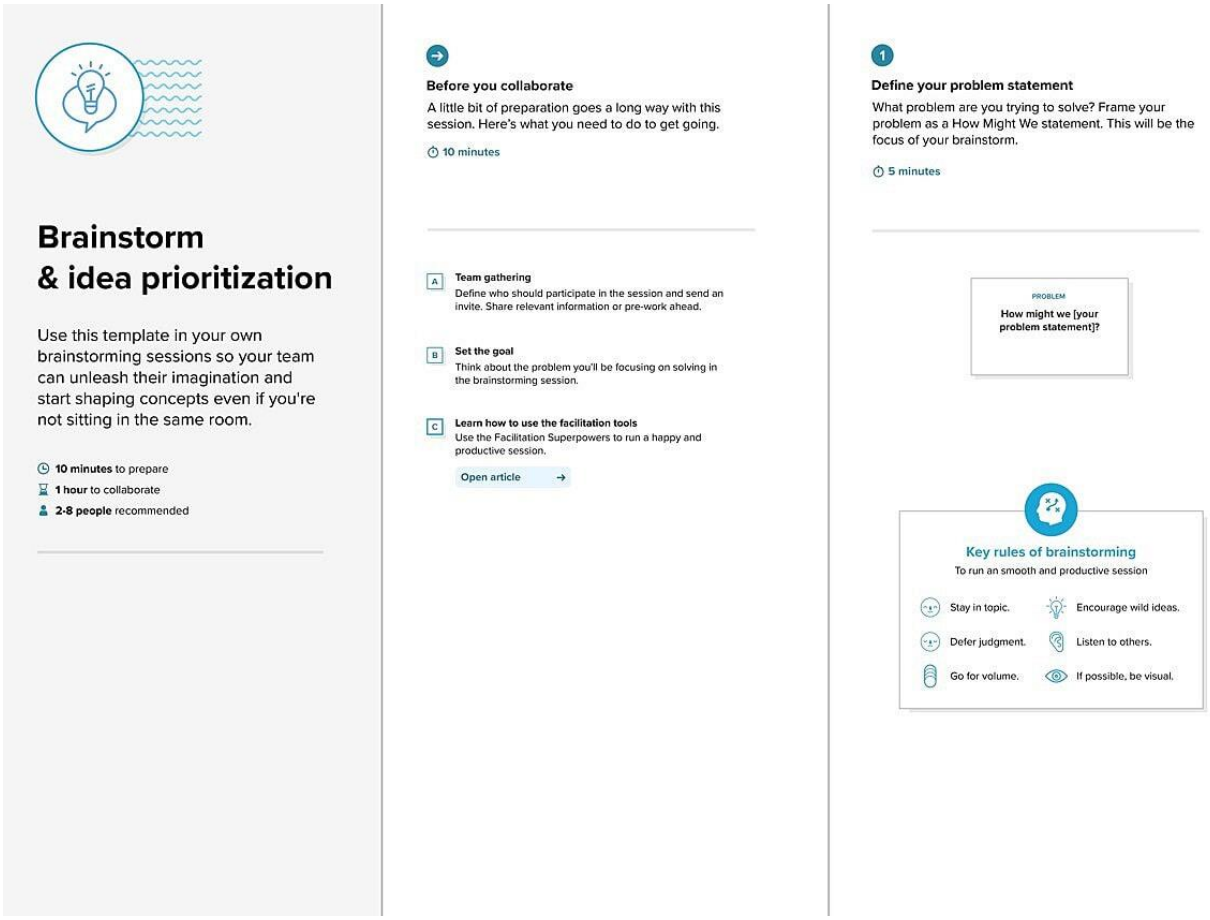
3.IDEATION AND PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation and Brainstorming

Step-1: Team Gathering, Collaboration and Select the Problem Statement



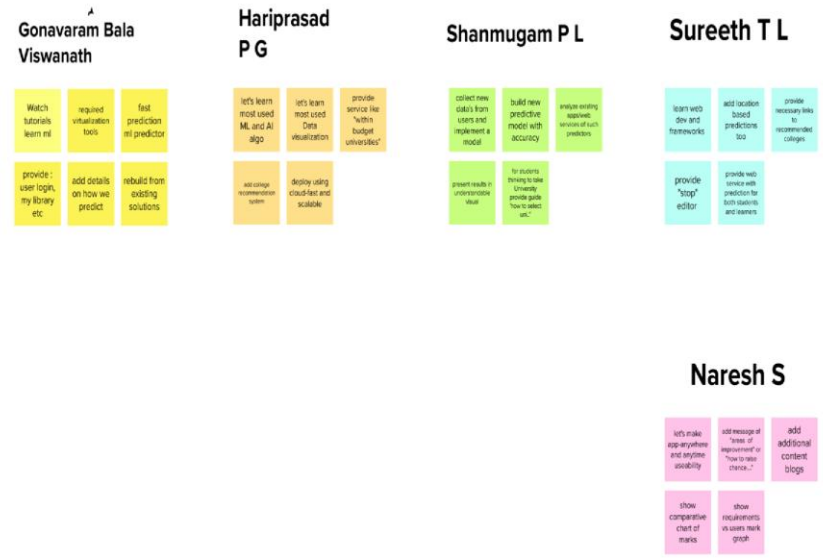
Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that comes to mind that address your problem Statement

10 minutes



Step-3: Idea Prioritization

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.

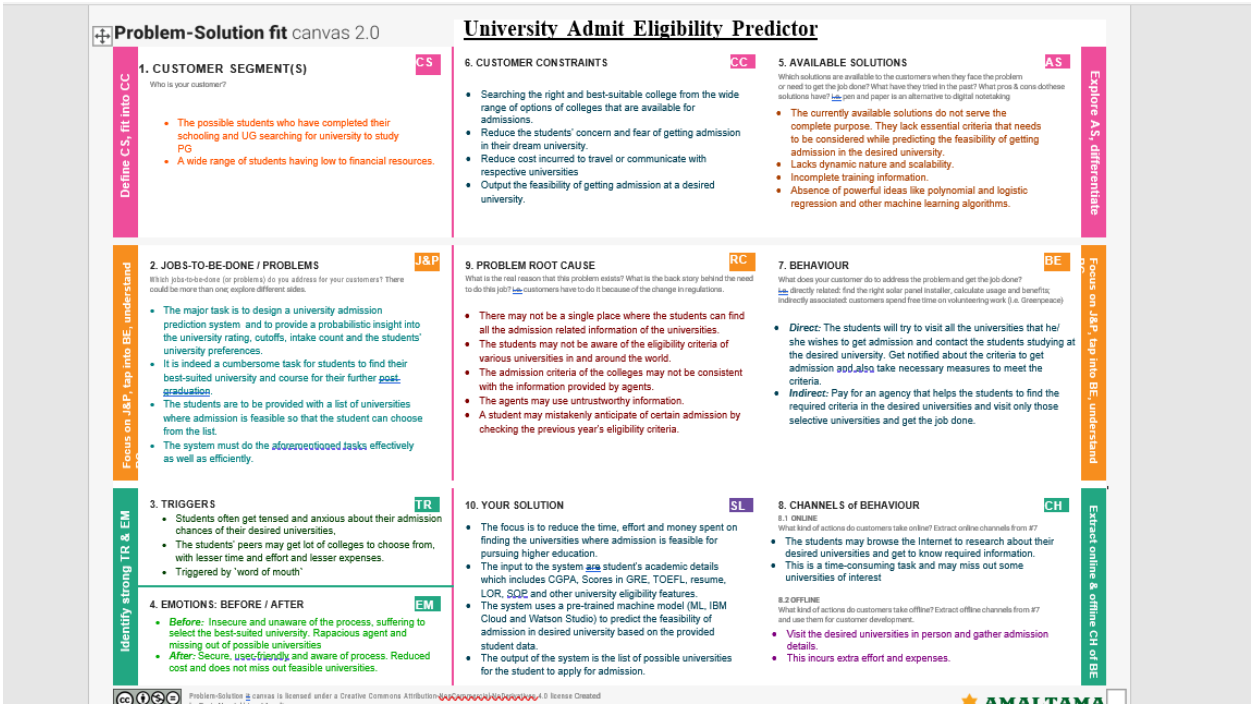
20 minutes

3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Choosing the right universities or colleges is definitely a Student have to face. Many students apply for the universities in which they have little chance of acceptance. This leads students of poor economic backgrounds to frustration and anxiety as they only lose surplus amount of money just for applying to those universities
2.	Idea / Solution description	University and College research being one part of the university application process is itself an arduous and lengthy task. This issue being a big problem for students have not been solved till now. There are recognized sites which filters the best universities and colleges based on the location, tuition fees, major and degree but none of them have use machine learning algorithm to solve the issue. Hence, we have done this research project to solve that issue to some extent with the use of data mining techniques.
3.	Novelty / Uniqueness	University Application process itself being a tedious task Students needs lots of endeavor and determination for completing overall application process. It would definitely be easier for students if they get relief from step of selecting best suited universities and colleges for application.
4.	Social Impact / Customer Satisfaction	Results of this project are not applicable to college graduates of each and every major. As there was limitation of information on dataset this system could not predict and recommend universities to students of every major. Nevertheless, the statistical data mining techniques used in this project can be applicable to all majors. If any universities have insufficient data on the major chosen by the student it will return insufficient data for prediction to the user.

5.	Business Model (Revenue Model)	From this project, financially can earn from the students admission fees but while they want to first select in their selected college in prediction. Although which is done by this project for prediction. In this project, this problem has been addressed by modeling a recommender system based on various classification algorithms. The required data was obtained from thegradcafe.com. Based on this data set, various models were trained and one best and some other similar properties carrying universities are suggested for the students such that it maximizes the chances of a student getting an admit from that university list.
6.	Scalability of the Solution	In this project, this problem has been addressed by modelling a recommender system based on various classification algorithms. To predict the best University for the particular student his/her GPA score, GRE (Verbal and Quant) Score, TOEFL score has been used as attributes for classification. K nearest neighbour has been used to predict best University and K means clustering has been used to find more similar universities. Support Vector Machine and Random forest has been used to predict the admission chance of particular student on specific University.

3.4 Problem Solution Fit



4.REQUIREMENT ANALYSIS

4.1 Functional Requirements

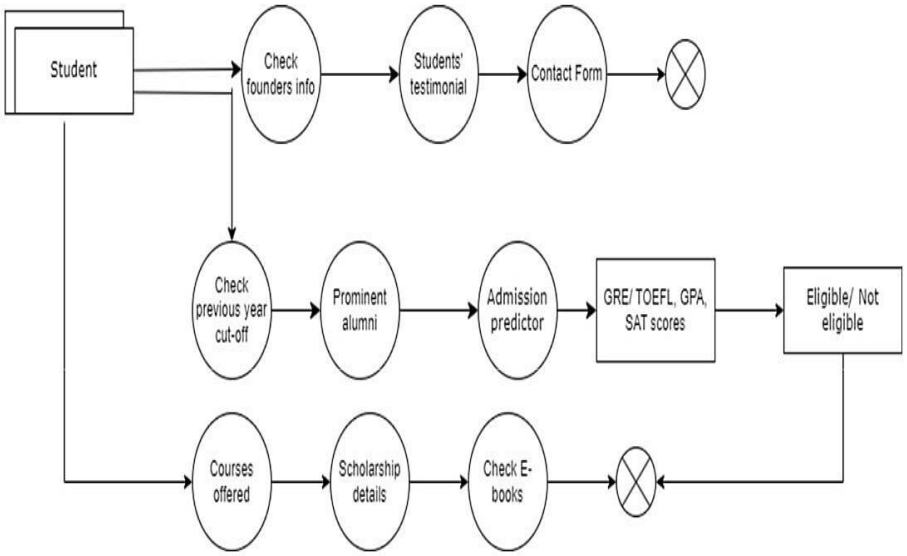
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Details	Submit the documents 1. GRE or/and TOEFL Score Sheet 2. Curriculum Vitae (CV) 3. Statement of Purpose (SOP) 4. Letter of Recommendation
FR-4	User Requirements	1. Upload all the relevant documents in the appropriate location in the website 2. Based on the uploads, the system would scrape all the necessary information 3. The list of all possible university for the candidate would be displayed based on the scraped information

4.2 Non-Functional Requirements

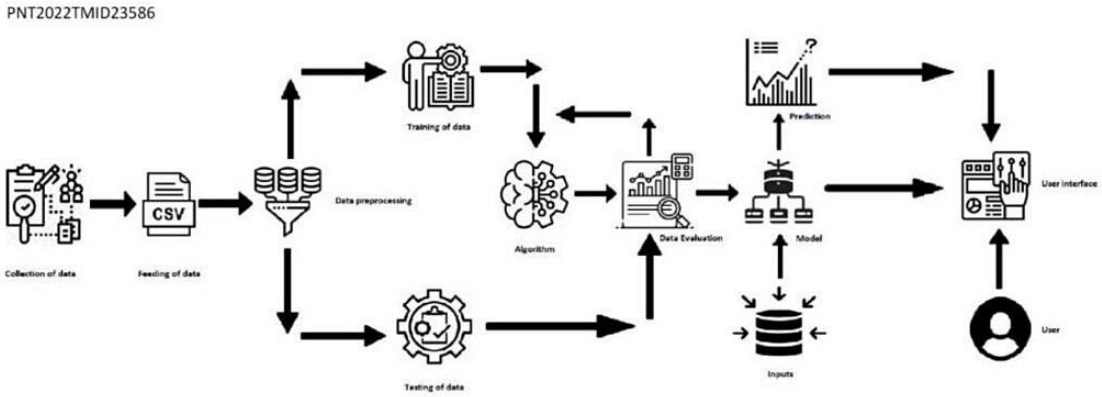
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	1. The system doesn't expect any technical pre-requisite from the user i.e.; even the naïve user can access it 2. The UI would focus on recognize over recall 3. User friendly 4. Reduced focus on Short Term memory load Focus on Internal Locus of Control 5. The page would not take a lot of time to load the content and display them (< 30 seconds) 6. The fields in the site would be selfexplanatory
NFR-2	Security	1. Only the authenticated user would be able to utilize the services of the site. 2. Database should be backed up every hour
		Under any error, the system should be able to come back to normal operation in under an hour.
NFR-3	Reliability	1. The system would always strive for maximum reliability due to the importance of data and damages thar could be cause by incomplete and incorrect data 2. The system will run 7 days a week, 24 hours a day
NFR-4	Performance	1. The website can efficiently handle the traffic by service the request as soon as possible 2. Viewing this webpage using a 56-kbps modem connection would not exceed 30 seconds (quantitatively, the mean time)
NFR-5	Availability	1. Minimal data redundancy 2. Less prone to errors 3. Fast and efficient 4. The system will run 7 days a week, 24 hours a day
NFR-6	Scalability	1. Since an academic portal is crucial to the courses that use it, it is crucial that a sizable number of users be able to access the system at the same time. 2. The admission season is probably when the system will be under the most strain. 3. It must therefore be able to manage numerous concurrent users.

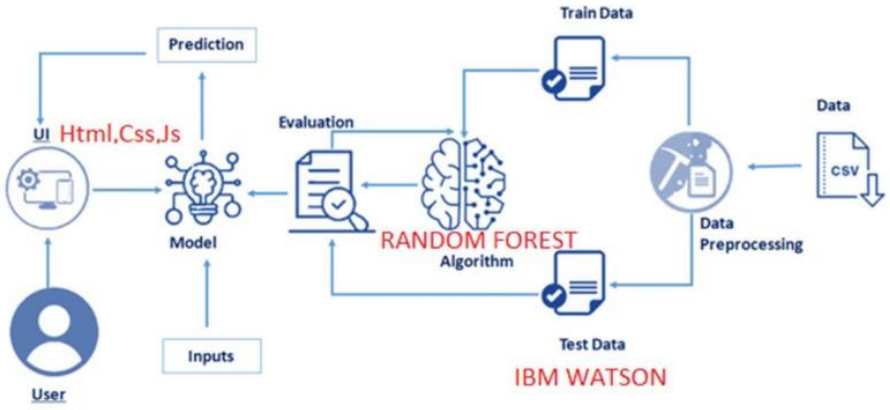
5. PROJECT DESIGN

5.1 Data Flow Diagram



5.2 Solution and Technical Architecture



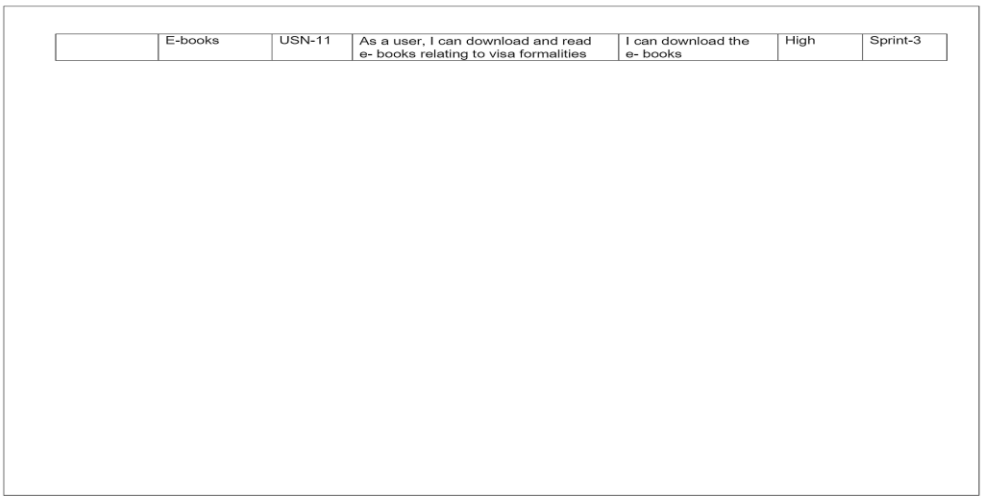


5.3 User Stories

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	Landing page	USN-1	As a user, I can view the details about the university	I can access the university landing page	Medium	Sprint-1
		USN-2	As a user, I can view the latest news about the university	I can access the latest news	Medium	Sprint-1
		USN-3	As a user, I can fill the contact form for queries	I can fill and submit the contact form	Low	Sprint-2
		USN-4	As a user, I can see the social media profiles of the university	I can reach out to them via social media	Medium	Sprint-1
		USN-5	As a user, I can see testimonials of students who graduated from the university	I can access the testimonials	Medium	Sprint-1
	Admissions	USN-6	As a user, I can see the previous year cut- off marks	I can download the previous year cut-off details	High	Sprint-2
		USN-7	As a user, I can read about proud alumni of the university	I can access the details of alumni of the university	Medium	Sprint-2
		USN-8	As a user, I can predict my eligibility for admission at the university	I can get result as either eligible/not eligible	High	Sprint-2
	Courses offered	USN-9	As a user, I can see the courses offered by the university for PG students	I can access the course details	Medium	Sprint-3
	Events	USN-10	As a user, I can check various technical events about to happen in the university	I can register for the events	Low	Sprint-3



	E-books	USN-11	As a user, I can download and read e- books relating to visa formalities	I can download the e- books	High	Sprint-3

User Type	Functional Requirment (Epic)	User Story Number	User Story/ Task	Acceptance criteria	Priority	Release
	Scholarship	USN-12	As a user, I shall find resources regarding scholarship availability	I can access scholarshi presources	High	Sprint-4
	Test prep materials	USN-13	As a user, I can download and readGRE,TOEFL test preparation materials	I can download test preparation materials	Mediu m	Sprint-4
Administrato r	Landing page	USN-14	As an administrator, I shall updatethe news about the university	I can check if the update is reflected or not	Mediu m	Sprint-4
	Events	USN-15	As an administrator, I can update thelist of activities to be hosted	I can check if the update is reflected or not	Mediu m	Sprint-4

6.PROJECT PLANNING AND SCHEDULE

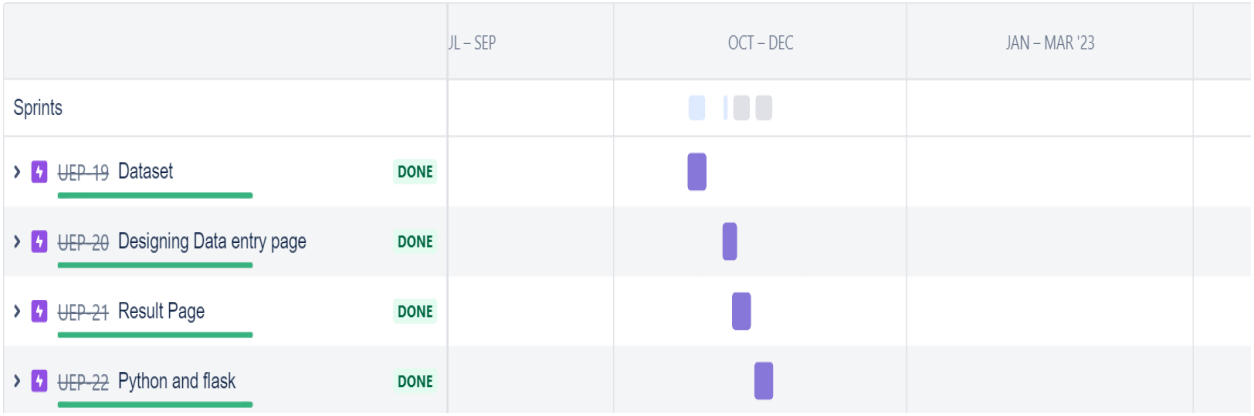
6.1 Sprint Planning and Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Data Set	USN-1	Performing Data Analysis , Choosing perfect model(ML),Checking Error Matrix.	5	High	Hari Prasad P G
Sprint-2	Designing Data Entry page	USN-2	As a user,I can enter the details of marks ,to predict universities\Designing User Interface Page.	5	High	Sureeth T L
Sprint-3	Result Page	USN-3	As a user, I can Predict the Chances of Universities.	5	Medium	Naresh
Sprint-4	Python And Flask	USN-4	Integrating Backend and Frontend with using Flask.	5	High	Shanmugam P L Bala Viswanath

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	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	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.3 Reports from JIRA



7.CODING AND SOLUTIONING

7.1 Feature 1

We have updated the website image which can change the visual apperance of websitethat can bevery effectiveway to refresh the above fold content.
It help to attract attention and to guide the user 's line of sight.

Clear and consistent navigation is a basic requirement for the user interface.

If it turns out to be difficult, most users will not want to wastetheir time to figure it out

Easy to Understand

Well designed and functional

Site visitors are always in a hurry. Don’t make them work for information. UserExperienceplays a key role in helpingvisitors use, understand and stay on your website.

Optimized for Search and the Social Web

Images enables the identification of features that may not be as easily detected in thespatialdomain.

index.html

```
<!DOCTYPE html>
<html>
<head>
 <SCRIPT language=Javascript>


 </SCRIPT>
<meta name="viewport" content="width=device-width, initial-scale=1">

<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
<style>
body {
 font-family: Arial, Helvetica, sans-serif;
 color:brown;
}
* {
 box-sizing: border-box;
}
/* style the container */
.container {
 position: relative;
 border-radius: 5px;
 /* background-color:aqua; */
```

```
 background-image: url(https://img.freepik.com/premium-vector/happy-group-students-different-race-standing-isolated-white-background-smiling-young-people-with-backpacks-bags-books-vector-illustration-flat-style-education-youth-concept_124127-25.jpg?w=2000);
 background-size:cover;
 padding: 20px 0 30px 0;
}

/* style inputs and link buttons */
input,
.btn {
 width: 100%;
 padding: 12px;
 border: none;
 border-radius: 4px;
 margin: 5px 0;
 opacity: 0.85;
 display: inline-block;
 font-size: 17px;
 line-height: 20px;
 text-decoration: none; /* remove underline from anchors */
}

input:hover,
.btn:hover {
 opacity: 1;
}

li{
 font-family: Impact, Haettenschweiler, 'Arial Narrow Bold', sans-serif;
 color:black;
}


/* style the submit button */
input[type=submit] {
 background-color: #000000;
 color: white;
 cursor: pointer;
}
input[type=submit]:hover {
 background-color: #151615;
}
/* Two-column layout */
.col {
 float: left;
 width: 50%;
 margin: auto;
 padding: 0 50px;
 margin-top: 6px;
```

```
}

/* Clear floats after the columns */
.row:after {
 content: "";
 display: table;
 clear: both;
}

/* vertical line */
.vl {
 position: absolute;
 left: 50%;
 transform: translate(-50%);
 border: 2px solid rgb(8, 8, 8);
 height: 490px;
}



/* hide some text on medium and large screens */
.hide-md-lg {
 display: none;
}

/* bottom container */
.bottom-container {
 text-align: center;
 background-color:aliceblue;
 border-radius: 0px 0px 4px 4px;
}

/* Responsive layout - when the screen is less than 650px wide, make the two columns stack on top of each other instead of next to each
other */
@media screen and (max-width: 650px) {
 .col {
   width: 100%;
   margin-top: 0;
 }
 /* hide the vertical line */
 .vl {
   display: none;
 }
/* show the hidden text on small screens */
 .hide-md-lg {
   display: block;
   text-align: center;
 }
}
</style>
```

```
</head>
<body>

<div class="container">
 <form action="{{url_for('predict')}}" method="post">
  <div class="row">
   <marquee class="bottom-container"><h2>HBNSS Admits - If studying abroad is your dream, making it simple is ours!</h2></marquee>
   <div class="vl">
    <span class="vl-innertext"></span>
   </div>

   <div class="col">
  <p><b>A simple Web App to predict the chances of getting an admit based on Student's profile</p></b>
  <h3>Input Guide</h3>
   <ul>
   <li>GRE Score (out of 340)</li>
   <li>TOEFL Score (out of 120)</li>
   <li>University Rating (out of 5) - the category of the target university</li>
   <li>Statment of Purpose {SOP} Strength (out of 5)</li>
   <li>Letter of Recommendation {LOP} Strength (out of 5)</li>
   <li>Undergraduate CGPA (out of 10)</li>
   <li>Research Experience (0 for NONE and 1 for YES)</li>

  </ul>
   </div>

   <div class="col">
    <div class="hide-md-lg">
    </div>

   <input type="number" name="GRE Score" placeholder="GRE Score" required="required" min="0" max="340"/>
   <input type="number" name="TOEFL Score" placeholder="TOEFL Score" required="required" min="0" max="120"/>
   <input type="number" name="University Rating" placeholder="University Rating" required="required" min="1" max="5"/>
   <input type="number" name="SOP" placeholder="SOP" required="required" onkeypress="return check(event,value)" step="0.1"
min="1" max="5"/>
   <input type="number" name="LOR" placeholder="LOR" required="required" onkeypress="return check(event,value)" step="0.1"
min="1" max="5"/>
   <input type="number" name="CGPA" placeholder="CGPA" required="required" onkeypress="return check(event,value)" step="0.01"
min="1" max="10"/>
   <input type="number" name="Research" placeholder="Research" required="required" min="0" max="1"/>
   <input type="submit" value="Predict"></input>

   <h4 style="text-align: center;">{{prediction_text}}</h4>
   </div>

  </div>
 </form>

</div>
```

```
</body>
</html>
```

7.2 Feature 2

Chance.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <style>
    *{
      margin: 0;
      padding: 0;
    }
    body{
      /* background-color: aquamarine; */
      /* https://i.pinimg.com/originals/89/e3/7d/89e37d9611818e81f65d368d0350e5c7.jpg */

      background: url("https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-1635-
1658406225/master/Project%20Development%20Phase/Sprint%202/images/chance.png");
      background-color:cadetblue;
      background-size:cover;

      background-repeat: no-repeat;

      height: 100vh;
    }
   section{
     /* border:10px solid gray; */
     height: 90vh;

    position: relative;
   }
   .container{

    border:10px solid gray;
    max-width: 700px;
    width: 100%;

    height:50vh;
    display:flex;
    align-items: center;
```

```
      justify-content: center;

      position: absolute;
      right: 0;
      left: 0;
      top: 0;
      bottom:0 ;
      margin: auto;

    }

  </style>
 </head>
<body>

  <section>

    <div class="container" >
      <h1>Prediction:You have a Chance</h1>
    </div>
  </section>




</body>
</html>
```

nochance.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
  <style>
    *{
      margin: 0;
      padding: 0;
    }
    body{
      /* background-color: aquamarine; *
      /* https://i.pinimg.com/originals/89/e3/7d/89e37d9611818e81f65d368d0350e5c7.jpg */
      background: url("https://raw.githubusercontent.com/IBM-EPBL/IBM-Project-1635-
1658406225/master/Project%20Development%20Phase/Sprint%202/images/noChance.jpg");
      background-color: cadetblue;
```

```
        background-size:cover;
        background-repeat: no-repeat;
        height: 100vh;
      }
    section{
      /* border:10px solid gray; */
      height: 90vh;

      position: relative;
    }
    .container{
      border:10px solid gray;
      max-width: 700px;
      width: 100%;

      height:50vh;
      display:flex;
      align-items: center;
      justify-content: center;

      position: absolute;
      right: 0;
      left: 0;
      top: 0;
      bottom:0 ;
      margin: auto;

    }

  </style>
</head>
<body>

  <section>
    <div class="container">
      <h1>Prediction:You Do not have a Chance</h1>
    </div>
  </section>


</body>
</html>
```

7.3 Database Schema

	A	B	C	D	E	F	G	H	I	J
1	Serial No.	GRE Score	TOEFL Sco	University	SOP	LOR	CGPA	Research	Chance of Admit	
2	1	337	118	4	4.5	4.5	9.65	1	0.92	
3	2	324	107	4	4	4.5	8.87	1	0.76	
4	3	316	104	3	3	3.5	8	1	0.72	
5	4	322	110	3	3.5	2.5	8.67	1	0.8	
6	5	314	103	2	2	3	8.21	0	0.65	
7	6	330	115	5	4.5	3	9.34	1	0.9	
8	7	321	109	3	3	4	8.2	1	0.75	
9	8	308	101	2	3	4	7.9	0	0.68	
10	9	302	102	1	2	1.5	8	0	0.5	
11	10	323	108	3	3.5	3	8.6	0	0.45	
12	11	325	106	3	3.5	4	8.4	1	0.52	
13	12	327	111	4	4	4.5	9	1	0.84	
14	13	328	112	4	4	4.5	9.1	1	0.78	
15	14	307	109	3	4	3	8	1	0.62	
16	15	311	104	3	3.5	2	8.2	1	0.61	
17	16	314	105	3	3.5	2.5	8.3	0	0.54	

8. TESTING

8.1 Test Cases

Test Cases Drive Link:
https://drive.google.com/drive/folders/1BUA9Kv_Rq97j6Va-d5dWZXeM1bNi01Kn?usp=share_link

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
LoginPage_TC_OO1	Functional	Home Page	User can check the Web app URL is valid or Not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.Enter URL and click go 2.Verify Login page is visible or Not.	http://127.0.0.1:5000/	The Project will be Display	Working as expected	Pass	No Commnets	-		HARI PRASAD P G(TL)
LoginPage_TC_OO2	UI	Home Page	Verify the UI is Visble or not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.Enter URL and click go 2..User will see the interface	http://127.0.0.1:5000/	Application should show below UI elements: a.GRE text box b.TOFEL text box c.SOP text box d.LOR text box e.CGPA text box f.Research text box	Working as expected	Pass	No Commnets	-		SUREETH T L
LoginPage_TC_OO3	Functional	Home page	Verify user is able to enter the GRE , TOFEL Score or Not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	GRE Score : Value must be 250 to 340 , TOFEL Score : Value must be 50 to 120	Application Should shows Chance / No chance image with Prediction value	Working as expected	Pass	No Commnets	-		NARESH S
LoginPage_TC_OO4	Functional	HomePage	Verify user is able to enter the SOP , LOR Score or Not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	SOP Score : Value must be 1 to 5 , LOR Score : Value must be 1 to 5	Application Should shows Chance / No chance image with Prediction value	Working as expected		No Commnets	-		SHANMUGAM P L
LoginPage_TC_OO4	Functional	Home Page	Verify user is able to enter the CGPA , University rating Score or Not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict botton	CGPA Score : Value must be 5 to 10 , University Rating Score : Value must be 1 to 5	Application Should shows Chance / No chance image with Prediction value	Working as expected	Pass	No Commnets	-		GONAVARAM BALA VISWANATH
LoginPage_TC_OO4	UI	Home Page	Verify user is able to see the predict botton	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2..Enter Valid inputs in the text box 3..Click the predict botton	http://127.0.0.1:5000/	Application Predit bottom will be look at Black	Working as expected	Pass	No Commnets	-		HARI PRASAD P G(TL)

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
LoginPage_TC_OO5	Functional	Home Page	Verify the user able to access the research radio botton is working or not	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	Research : Enter value 1 or 0	Application research text box working	Working as expected	Pass	No Commnets	-		NARESH S
LoginPage_TC_006	Funtional	Home Page	Verify that user gets warning when the user entering the value that lesser than or greater than the given input value limit	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	1.GRE Score : Value must be 250 to 340 , TOFEL Score : Value must be 50 to 120 2.SOP Score : Value must be 1 to 5 , 3.LOR Score : Value must be 1 to 5CGPA Score : Value must be 5 to 10 , University Rating Score : Value must be 1 to 5	Application Warning pop-up must be shown	Working as expected	Pass	No Commnets	-		HARI PRASAD P G(TL)
LoginPage_TC_007	Functioal	HomePage	Verify that user can get redirected to the destination page that shows their eligibility criteria when entering all requested values correctly	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	Redirect to eligible page when the user was eligible or Redirected to not-eligible page when the user was not meeting the minimum requirements	Redirecting to destination page as suited for users given data	Working as expected	Pass	No Commnets	-		HARI PRASAD P G(TL)
LoginPage_TC_008	UI	HomePage	Visibility of the picture in the background	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	Visibility of the picture in the background	Background picture is visible	Working as expected	Pass	No Commnets	-		SUREETH T L

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
Login_Page_TC_010	UI	HomePage	Verify that the font size of the website was easy to read by the user in safe distance	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/	Website must have larger font size	Working as expected	Pass	No Commnets	-		SHANMUGAM P L
Login_Page_TC_011	UI	HomePage	Verify that website was capable of running in different devices	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/	Website must run on different devices	Working as expected	Pass	No Commnets	-		GONAVARAM BALA VISWANATH
Login_Page_TC_012	Functional	Homepage	Verify that website was calculating the given data and shows result with suitable redirected page	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/	Website must redirect to suitable webpages with respect to the calculated results	Working as expected	Pass	No Commnets	-		SHANMUGAM P L
Login_Page_TC_013	UI	Result Page 1	Verify that redirecting to chance result page	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/chance/72.9825019624117 6	Verify that redirecting to chance result page	Working as expected	Pass	No Commnets	-		NARESH S
Result_Page_TC_014	UI	Result Page 2	Verify that redirecting to no chance result page	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/nochance/38.38468399442998	Verify that redirecting to no chance result page	Working as expected	Pass	No Commnets	-		GONAVARAM BALA VISWANATH
Result_Page_TC_014	Funtional	Result Page 1	Verify that result page was showin the calculated result with respected eligibility	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/chance/72.9825019624117 6	Website must show the calculated result along with the eligibility level	Working as expected	Pass	No Commnets	-		HARI PRASAD P G(TL
Result_Page_TC_015	Funtional	Result Page 2	Verify that result page was showin the calculated result with respected eligibility	Proper Working Condition Laptop/Desktop,Wifi /Internet connection,Any legal Browser.	1.EnterURL(http://127.0.0.1:5000/) and click go 2.Enter Valid inputs in the text box 3.Click the predict button	http://127.0.0.1:5000/nochance/38.38468399442998	Website must show the calculated result along with the eligibility level	Working as expected	Pass	No Commnets	-		SUREETH T L

8.2 User Acceptance Testing

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the University Admit Eligibility Predictor project at the time of the release to User Acceptance Testing (UAT).

2. 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	0	0	2	1	3
Duplicate	1	0	0	0	1
External	0	0	1	0	1
Fixed	0	1	1	0	2
Not Reproduced	0	1	0	0	1
Skipped	0	0	0	0	0
Won't Fix	0	0	0	0	0
Totals	1	2	4	1	8

3. Test Case Analysis

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

Section	Total Cases	Not Tested	Fail	Pass
View home page	10	0	0	10
Enter the scores	25	0	0	25
Click Submit button	25	0	0	25
Redirecting to Prediction page	25	0	0	25
Final Report Output	25	0	0	25
Version Control	20	0	0	20

9.RESULTS

9.1 Performance Metrics

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Regression Model:**
		
		R2_score=0.808
		
		MSE=0.0044
		
		MAE=0.045
		
		RMSE=0.067
			MULTIPLE LINEAR REGRESSION
			
			`multiple_lin_reg = LinearRegression()`
			`multiple_lin_reg.fit(x_train,y_train)`
			
			`y_pred_mlr = multiple_lin_reg.predict(x_test)`
			
			`r2_score_mlr = r2_score(y_test,y_pred_mlr)`
			`mse=mean_squared_error(y_test,y_pred_mlr)`
			`mae=mean_absolute_error(y_test,y_pred_mlr)`
			`rmse=np.sqrt(mean_squared_error(y_test,y_pred_mlr))`
			
			`print("r2_score = {:.3f}".format(r2_score_mlr))`
			`print("Mean Squared Error={:.4f}".format(mse))`
			`print("Mean Absolute Error={:.3f}".format(mae))`
			`print("Root Mean Squared Error={:.3f}".format(rmse))`
			
			`r2_score = 0.808`
			`Mean Squared Error=0.0044`
			`Mean Absolute Error=0.045`
			`Root Mean Squared Error=0.067`

2.	Tune the Model	Hyperparameter Tuning – I have changed the parameters it gives 1 percent more accuracy	`x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.30,random_state=1)`
			
			`multiple_lin_reg = LinearRegression()`
			`multiple_lin_reg.fit(x_train,y_train)`
			
			`y_pred_mlr = multiple_lin_reg.predict(x_test)`
			
			`r2_score_mlr = r2_score(y_test,y_pred_mlr)`
			`mse=mean_squared_error(y_test,y_pred_mlr)`
			`mae=mean_absolute_error(y_test,y_pred_mlr)`
			`rmse=np.sqrt(mean_squared_error(y_test,y_pred_mlr))`
			
			`print("r2_score = {:.3f}".format(r2_score_mlr))`
			`print("Mean Squared Error={:.4f}".format(mse))`
			`print("Mean Absolute Error={:.3f}".format(mae))`
			`print("Root Mean Squared Error={:.3f}".format(rmse))`
			
			`r2_score = 0.810`
			`Mean Squared Error=0.0043`
			`Mean Absolute Error=0.046`
			`Root Mean Squared Error=0.066`

10.ADVANTAGES AND DISADVANTAGES

Advantages

1. It helps studentfor making decisionfor choosing a right college.
2. Here the chanceof occurrence of error is less when compared with existing system.
3. It is fast, efficient and reliable.
4. Avoids data redundancy and inconsistency.
5. Very user-friendly.
6. Easy accessibility of data.
7. Itwould be the easiest mode to predict the university/colleges person is applicableforas well asit would unbiased and totally transparent.
8. Individually would no more need to depend upon the consultancies who may be slightlydeviatedtowards the list of colleges/university that may be having contract with them.
9. Moreover applying to only that colleges/university where the student has genuinechance wouldevenreduce application process.
10. Additionally living expense of the area where colleges/university is located would alsobeprovided on website.

Disadvantages

1. Required active internet connection.
2. System will provide inaccurate results if data enteredincorrectly.
3. Other factors such as changes in policies by the university or by the country can alsoaffectchancesof admissions in a way that is beyondthe scope of this project.
4. Admissions also depend on the individual university's Policy regardingthe intake offoreignstudents and is not modeled by our System

11.CONCLUSION

Student admission problem is very important in educational institutions. In this project addresses machine learning models to predict the chance of a student to be admitted. This will assist students to know in advance if they have a chance to get accepted. 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 neighbor, random forest, and Multi layer Perceptron. Experiments show that the Multi layer Perceptron model surpasses other models. As for the future work, more models can be conducted on more datasets to learn the model that gives the best performance.

12.FUTURE SCOPE

The future scope of this projectis very broad. Few of them are:

1. This can be implemented in less time for properadmission process.
2. This can be accessedanytime anywhere, since it is a web application providedonly aninternet connection.
3. The user had not need to travel a long distancefor the admission and his/hertimeis alsosaved as a result of this automated system.
4. The scope of this project is a web application that allows users to enter their academicdata andget predictions of their chancesof admissions in the university tier of their choosing.
5. It also provides an analysis based on the data set used that shows how the different affectchances of admissions.
6. ADatabase will also be implemented for the systemso that studentscan save their data andreview and edit it as they progress with the most recent predictions being saved with their profile.
7. Future work in the project could include weighingin the features that have been ignoredasof yetlike percentage seats forForeign Students.
8. Other criterion's like Co-curricular achievements, Leadership positionsheld, job experienceetccan also be includedas metrics for the model.

13.APPENDIX

Source Code for model saved in IBM cloud

```
import pandas as pd
from flask import Flask, request, jsonify, render_template,redirect,url_for
```

```
import requests



# NOTE: you must manually set API_KEY below using information retrieved from your IBM Cloud account.
API_KEY="dBZwh_kI4ymMDFrMHVa3Qt4_hBk-ezkorDqJNV6t7NI_"
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}




app = Flask(__name__,template_folder='Template')



@app.route('/')
def home():
    return render_template('index.html')

@app.route('/predict', methods=['GET','post'])
def predict():

    GRE_Score = int(request.form['GRE Score'])
    TOEFL_Score = int(request.form['TOEFL Score'])
    University_Rating = int(request.form['University Rating'])
    SOP = float(request.form['SOP'])
    LOR = float(request.form['LOR'])
    CGPA = float(request.form['CGPA'])
    Research = int(request.form['Research'])
    final_features = [[GRE_Score, TOEFL_Score, University_Rating, SOP, LOR, CGPA,Research]]

    payload_scoring={'input_data':[{'fields':[["GRE Score","TOEFL Score","University Rating","SOP","LOR
","CGPA","Research"]],'values':final_features}]}
    print("hello")
    response_scoring = requests.post('https://us-south.ml.cloud.ibm.com/ml/v4/deployments/2872d436-41b9-47f3-bc57-
6b9f2bc28348/predictions?version=2022-11-10', json=payload_scoring,
    headers={'Authorization': 'Bearer ' + mltoken})
    print("scoring response")
    pred=response_scoring.json()
    print(pred)
    output=pred['predictions'][0]['values'][0][0]

    if output > 0.5:
        return redirect(url_for('chance', percent=output*100))
    else:
        return redirect(url_for('no_chance', percent=output*100))
```

```
@app.route("/chance/<percent>")
def chance(percent):
  return render_template("chance.html", content=[percent])

@app.route("/nochance/<percent>")
def no_chance(percent):
  return render_template("noChance.html", content=[percent])

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

Source Code for model saved in local system

```
import pandas as pd
from flask import Flask, request, jsonify, render_template,redirect,url_for
import pickle

app = Flask(__name__,template_folder='Template')
model = pickle.load(open('D:/IBM_UAEP/model.pkl', 'rb'))



@app.route('/')
def home():
  return render_template('index.html')

@app.route('/predict', methods=['GET','post'])
def predict():

  GRE_Score = int(request.form['GRE Score'])
  TOEFL_Score = int(request.form['TOEFL Score'])
  University_Rating = int(request.form['University Rating'])
  SOP = float(request.form['SOP'])
  LOR = float(request.form['LOR'])
  CGPA = float(request.form['CGPA'])
  Research = int(request.form['Research'])

  final_features = pd.DataFrame([[GRE_Score, TOEFL_Score, University_Rating, SOP, LOR, CGPA,Research]])
  predict=model.predict(final_features)

  output=predict[0]
  if output > 0.5:
    return redirect(url_for('chance', percent=output*100))
  else:
    return redirect(url_for('no_chance', percent=output*100))
```

```
@app.route("/chance/<percent>")
def chance(percent):
    return render_template("chance.html", content=[percent])

@app.route("/nochance/<percent>")
def no_chance(percent):
    return render_template("noChance.html", content=[percent])

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

13.2 GITHUB AND PROJECT DEMO LINK

GitHub link:

https://github.com/IBM-EPBL/IBM-Project-23433-1659883037

Project Demo Link:

https://drive.google.com/drive/folders/1VJiqQerBVQTNZ5WffR_mq0xHyzaeexQW?usp=share_link

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