DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(NBA Accredited)
GOVERNMENT COLLEGE OF ENGINEERING, SALEM – 11
*(An Autonomous Institution Affiliated to Anna University, Chennai * NAAC Accredited)*

IBM PROJECT

DOMAIN : Applied Data Science

TITLE : University Admit Eligibility Predictor

TEAM ID : PNT2022TMID06739

DATE :19.11.2022

BATCH MEMBERS

1. PRIYADHARSHINI S 1921035 -(Team Leader)

2.PARVATHI S 1921032

3.PRIYADHARSHINI R 1921034

4.PRIYANGA S 1921036

Faculty Advisor **HOD/CSE**

IDEATION PHASE

Submitted Date: 17.09.2022

The Problem statement of the project,Literature survey, Empathy map and Brainstroming for Idea priortization was done.

PROJECT DESIGN PHASE - I

Submitted Date: 12.10.2022

The Problem solution fit, proposed solution for the problem statement and solution architecture were made.

PROJECT DESIGN PHASE - II

Submitted Date: 16.10.2022

The Solution requirements, Architecture of Technologies used, Data Flow diagrams and Customer journey were prepared.

PROJECT PLANNING PHASE

Submitted Date: 22.10.2022

The activity list is prepared and Sprint delivery plan were made.

PROJECT DEVELOPMENT PHASE

Submitted Date: 19.11.2022

The codes and Tese cases are performed and uploaded for all four Sprints.

ASSIGNMENTS AND QUIZ

Completed all four Assignments and all four Quizzes.

COMMENTS

CHAPTER 1

INTRODUCTION

1.1 Project Overview

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.

Today all the work at the time of admission of the students is done manually by ink and paper, which is very slow and consuming much efforts and time. In the modern world of technology, computer is affecting our lives in more ways than we probably are aware of computerized management maintaining information of an educational institute, colleges, other the list is endless. The main principle behind the need of college admission system is easy supervision of institutes. It can handle the details of students such as marks details. This Student Database has been designed taking into account the practical needs to manage a student's data. Moreover, it provides security at product level as well as user level. When students come from rural places, they find it hard to go along with the formal procedures. So, this application helps them a lot and eases out their fear. Whatever may be their scores, this application helps to find the best colleges. Hence, our proposed computer aided system will help the students to get the list of all colleges in which they could get the admission at the click of a button. The students only have to enter their marks of XII, AIEEE etc. With this application, the students can very easily obtain the list of colleges even branch wise and course wise. This will not only make the admission process easy but also minimizes stress for students. The main objective of our system is to make the right choice of colleges.

1.2 Purpose

The main purpose of this project is 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 in a particular college. This project web-based application in which students can register with their personal as well as marks details for prediction the admission in colleges and the administrator can allot the seats for the students. The main advantage of the project is the computerization of the entrance seat allotment process. Administrator has the power for the allotment. He can add the allotted seats into a file and the details are saved into the system. The total time for the entrance allotment became lesser and the allotment process became faster. It helps student for making decision for choosing a right college. Here the chance of occurrence of error is less when compared with the existing system. It is fast, efficient and reliable.

CHAPTER 2

LITERATURE SURVEY

2.1 Existing System

Today in college's student details are entered manually. The student details in separate records are tedious task. Referring to all these records updating is needed. There is a chance for more manual errors.

1.When the student comes in college.

2.First of all, he/she takes admission form from reception.

3.Fills it and submits it into office.

4.Filled form is first checked with documents like merit list an

details came from university and verified by an official person if there is any mistake then it is corrected.

5.At the time of submission of it the fees are deposited by the candidate.

6. At the time of submission of admission form admission number is assigned to the candidate by the institute.

7. Candidate gets the receipt of fees deposition.

Existing Problem:

1. Require much man power i.e., much efforts, much cost and hard to operate

and maintain.

2.Since, all the work is done in papers so it is very hard to locate a particular student record when it is required.

2.2 References

1. S. Sridhar, S. Mootha and S. Kolagati, "A University Admission Prediction System using Stacked Ensemble Learning", 2020 Advanced Computing and Communication Technologies for High Performance Applications (ACCTHPA), pp. 162-167, 2020

2. C. Haythorhwaithe, M. de Laat and S. Dawson, "Introduction to the special issue on learning analytics", American Behavioral Science, vol. 57, no. 10, pp. 1371-1379, 2013.

3. A. H. M. Ragab, A. F. S. Mashat and A. M. Khedra, "HRSPCA: Hybrid recommender system for predicting college admission", 2012 12th International Conference on Intelligent Systems Design and Applications (ISDA), pp. 107-113, 2012.

4. A. Sivasangari, V. Shivani, Y. Bindhu, D. Deepa and R. Vignesh, "Prediction Probability of Getting an Admission into a University using Machine Learning", 2021 5th International Conference on Computing Methodologies and Communication (ICCMC), pp. 1706-1709, 2021.

5. D. Türker, A. Özcan and Ş. G. Öğüdücü, "Deep Hybrid Recommender System", 2020 28th Signal Processing and Communications Applications Conference (SIU), pp. 1-4, 2020.

6. Pandian and A. Pasumpon, "REVIEW OF MACHINE LEARNING TECHNIQUES FOR VOLUMINOUS INFORMATION MANAGEMENT", Journal of Soft Computing Paradigm (JSCP), vol. 1, no. 02, pp. 103-112, 2019.

7. Kumar and T. Senthil, "Construction of Hybrid Deep Learning Model for Predicting Children Behavior based on their Emotional Reaction", Journal of Information Technology, vol. 3, no. 01, pp. 29-43, 2021.

8. Qazanfari, K., Youssef, A., Keane, K., & Nelson, J. (2017, October). A novel recommendation system to match college events and groups to students. In IOP Conference Series: Materials Science and Engineering (Vol. 261, No. 1, p. 012017). IOP Publishing.

9. Deokate monali, Gholave Dhanashri, Jarad Dipali, Khomane Tejaswini (2018). College Recommendation System for Admission. International Research Journal of Engineering and Technology, 9(3), 187-175.

2.3 Problem Statement Definition

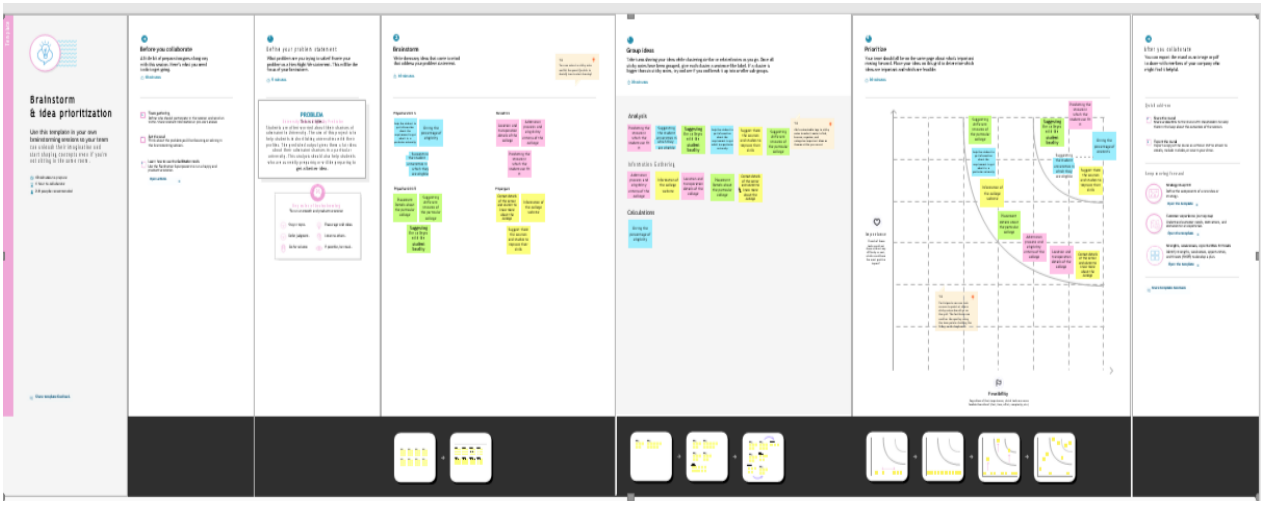
S.No	User	Need	Solution
1	Merit Student	To get high priority	The system provides the access to predictor, user fill their academic data such as GREscore, CGPA, TOEFL score, etc. Thenthe user gets the prediction of their chances of admission.
2	Sports quota Student	To get seat in best university	By filling the requirements of sports quota, the predictor predict the percentage of getting the chances of admission.
3	Average cutoff student	To get a seat	The system provides the users an analysis of how the various factors affect their chances of admission and general trend of applications to the various tiers of university.
4	Based on Entrance Exam	To get admissionthrough entranceexam	By filling the requirements such as course, exam and score, the predictor predict the percentage of getting thechances of admission.
5	Caste based Allocation	To get admissionbased on category	Based on the allocated seat the predictor predicts the percentage of the admission.

CHAPTER 3

IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming



3.3 Proposed Solution

S. No	User	Need	Solution
1	Merit Student	To get high priority	The system provides the access to predictor, user fill their academic data such as GRE score, CGPA, TOEFL score, etc. Then the user gets the prediction of theirchances of admission.
2	Sports quota Student	To get seat in best university	By filling the requirements of sports quota, the predictor predict the percentage of getting the chances of admission.
3	Average cutoff student	To get a seat	The system provides the users an analysis of how the various factors affect their chances of admission and general trend of applications to the various tiers of university.
4	Based on Entrance Exam	To get admission through entranceexam	By filling the requirements such as course, exam and score, the predictor predict the percentage of getting the chances of admission.
5	Caste based Allocation	To get admissionbased on category	Based on the allocated seat the predictor predicts the percentage of the admission.

3.4 Problem Solution Fit

CHAPTER 4

REQUIREMENT ANALYSIS

4.1 Functional Requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registrationthrough Form Registrationthrough Gmail and phone number
sFR-2	User Confirmation	Confirmationvia Email Confirmationvia OTP
FR-3	College Selection	Select college through search bar Select one the top colleges displayed in home page
FR-4	User's Profile	Applicant's dashboards: -Personal information -Wishlist -Skills and Course -Percentage
FR-5	Predicting one'schance	Compare the University's desirable marksand student's marks

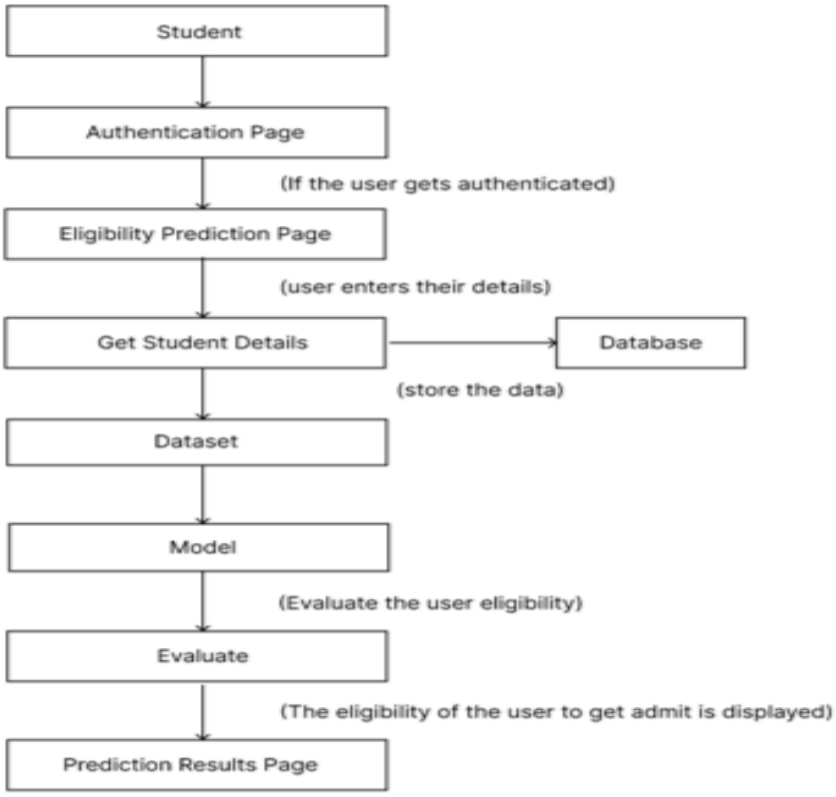
4.2 Non-Functional Requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	No training is required to use the website. Home page and other related pages load up within 10 secs.
NFR-2	Security	Verification messageof the candidates sent through mail or phone number
NFR-3	Reliability	Provide accurate results of theirchances of admission
NFR-4	Performance	The prediction is accurate even with a small amount of provided data.
NFR-5	Availability	Available 24/7 All the resources regarding timelines and updateinformation about the colleges are accessible to theusersanytime. Prediction of the college is done at any moment.
NFR-6	Scalability	The systemis scalable enoughto support any number of users at the same time maintainingoptimal performance.

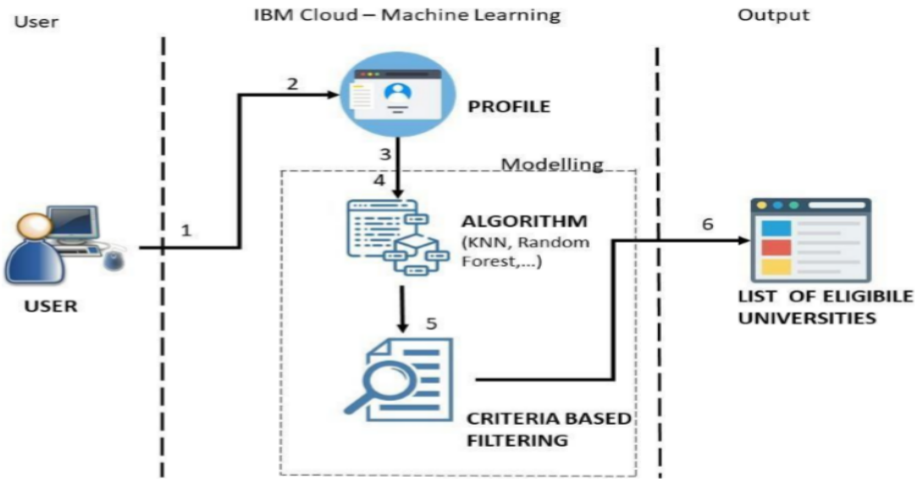
CHAPTER 5

PROJECT DESIGN

5.1 Data Flow Diagram



5.2 Solution and Technical Architecture



5.3 User Stories

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 username,email and password.	I can access my account	High	Sprint-1
		USN-2	As a user, I can register for the application through Gmail	I can access my account	Medium	Sprint-2
		USN-3	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
	Login	USN-4	As a user, I can log into the application by entering email & password	I can access various pages	High	Sprint-1
	Dashboard	USN-5	As a user, I can give my details to know my eligibility to get admitted in a university	I can receive information related to that university such as placements, locations etc	High	Sprint-1
		USN-6	As a user, I can the eligibility to get admit in a university	I can receive information about the eligibility criteria in that university	Medium	Sprint-2
		USN-7	As a user, I can know my eligibility percentage to get admit in that university	I can receive my eligibility percentage	Low	Sprint-2
	Search	USN-8	As a user, I can search for various universities	I can receive information about a particular university	Low	Sprint-2
	View	USN-9	As a user, I can view the university details	I can get information about my eligibility	High	Sprint-1
	Notification	USN-10	As a user, I can receive notifications about the suggested university based on my eligibility criteria	I will get updates of the preferred universities	Medium	Sprint-2
		USN-11	As a user, I can receive notifications about the suggested courses to improve my skills	I will get preferred courses	Low	Sprint-2
	Chat	USN-12	As a user, I can chat with the alumni of the college for clarifications	I can clear my doublts through chat with alumni	Medium	Sprint-2
Administrator	Analysis	USN-13	As a admin, I will analyse the given dataset	I can analyse the dataset	High	Sprint-1
	Predict	USN-14	As a admin, I will predict the admission	I can predict eligibility for admission	High	Sprint-1

CHAPTER 6

PROJECT PLANNING & SCHEDULING

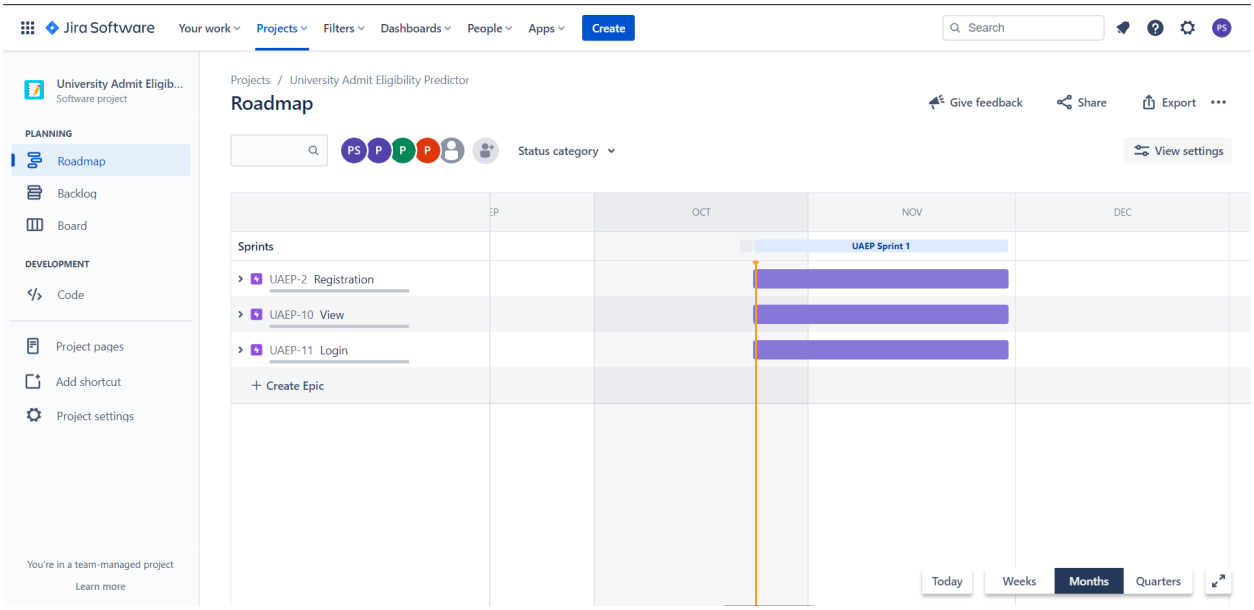
6.1 Sprint Planning & Estimation

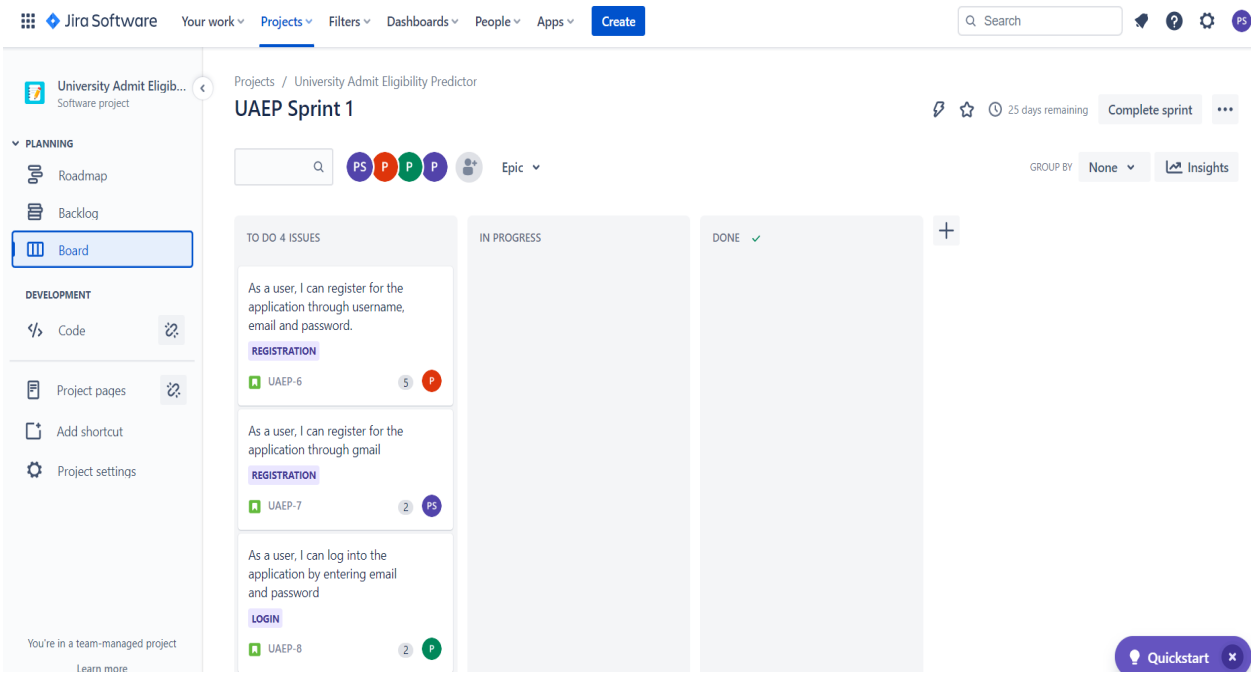
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application through email, password.	5	High	Priyadharshini S
Sprint-1		USN-2	As a user, I can register for the application through Gmail	2	Low	Priyadharshini R
Sprint-1	Login	USN-3	As a user, I can log into the application by entering email & password	2	Medium	Priyanga S
Sprint-2	Dashboard	USN-4	As a user, I can give my details to know my eligibility percentage	3	High	Parvathi S
Sprint-1		USN-5	As a user, I can view my profile	2	Medium	Priyadharshini S
Sprint-3	Feedback	USN-6	As a user, I should able to provide feedback	2	Low	Priyadharshini R
Sprint-2	Search	USN-7	As a user, I can search for new university details	5	Medium	Priyanga S
Sprint-2		USN-8	As a admin, I should store data of an individual user.	3	High	Parvathi S
Sprint-3		USN-9	As a admin, I should clean and preprocess data	5	High	Priyadharshini S
Sprint-3		USN-10	As a user, I should train and test the dataset	5	High	Priyadharshini R
Sprint-3		USN-11	As a user, I can chat with expert for suggestion	7	Medium	Priyanga S
Sprint-4		USN-12	As a admin, I should predict the result	3	High	Parvathi S
Sprint-4		USN-13	As a admin, I should connect all tier using python flask	3	High	Priyadharshini S
Sprint-4	Predict	USN-14	As a user, I can get the universities predict	2	High	Priyadharshini R
Sprint-2		USN-15	As a user, I should able to search university	5	High	Priyanga S

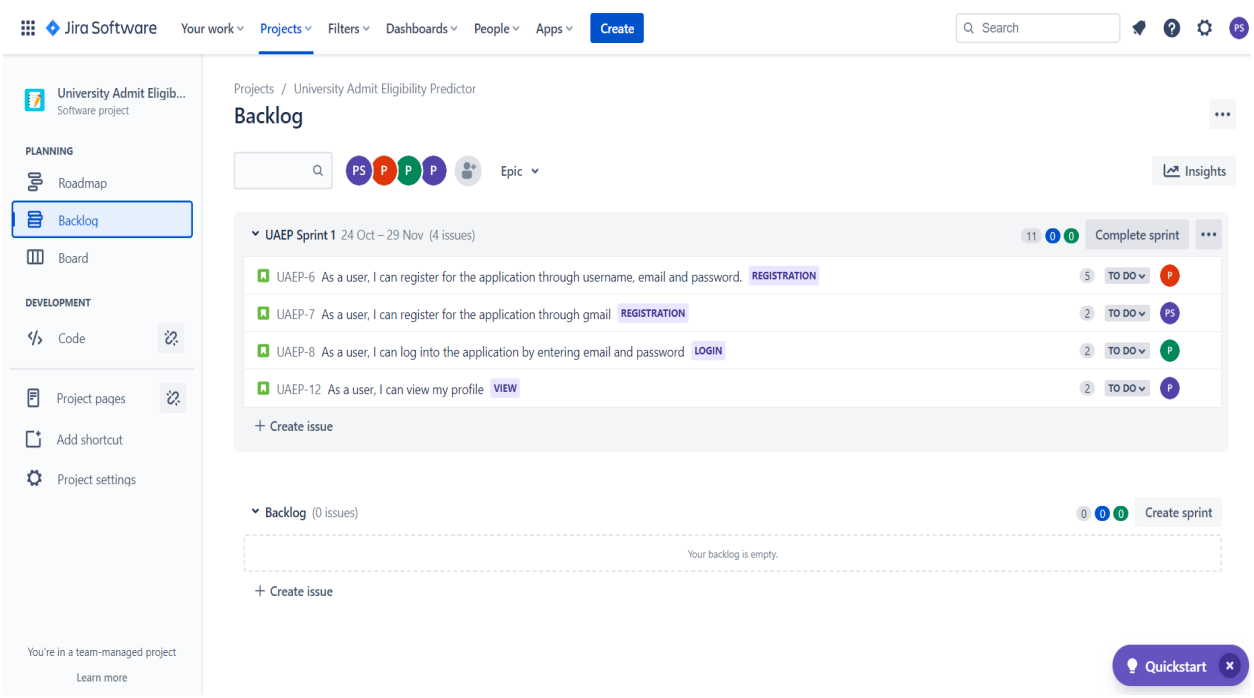
6.2 Sprint Delivery Schedule

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	11	6 Days	24 Oct 2022	29 Oct 2022	11	30 Oct 2022
Sprint-2	16	6 Days	31 Oct 2022	05 Nov 2022	16	06 Nov 2022
Sprint-3	19	6 Days	07 Nov 2022	12 Nov 2022	19	13 Nov 2022
Sprint-4	8	6 Days	14 Nov 2022	19 Nov 2022	8	20 Nov 2022

6.3 Reports From JIRA






Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
University Admit Eligib...
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / University Admit Eligibility Predictor
Backlog
Epic
Insights
UAEP Sprint 1 24 Oct – 29 Nov (4 issues)
Complete sprint
UAEP-6 As a user, I can register for the application through username, email and password. REGISTRATION
UAEP-7 As a user, I can register for the application through gmail REGISTRATION
UAEP-8 As a user, I can log into the application by entering email and password LOGIN
UAEP-12 As a user, I can view my profile VIEW
TO DO
Create issue
Backlog (0 issues)
Create sprint
Your backlog is empty.
Create issue
Quickstart

CHAPTER 7

CODING & SOLUTIONING

7.1 Feature 1 – Feedback

Feedback helps to improve the current and the future actions that will help to take better informed decisions. It helps to highlight the areas of improvement that are required to perform well. Feedback is not just an annual review process but it's something that needs to be given on a continual basis. When feedback happens on a continual basis, employees at all the levels of the organization feel comfortable responding to each other on an on-going basis and this will help create open communication, grab opportunities, and new learning. They will be able to share the good and bad experiences that they face with your business website while their experience is still fresh. This will make sure that you get the most accurate and actionable data that will help you to improve and deliver experiences that will make your brand stand out.

Code

```
<html>
<head>
   <title>Contact us</title>

   <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">
   <link rel="stylesheet" href="home.css">
</head>
<body>
 <nav>
      <div class="logo" >
        University Admit Eligibility Predictor
      </div>
                  
```

```
       
             
      <div class="nav-items">
         <li><a href="home.html">Home</a></li>
         <li><a href="index.php">Feedback</a></li>
         <li><a href="about.html">About</a></li>
      </div></nav>
   <div class="container">
      <form action="form-process.php" method="POST">
         <div class="form-group">
            <label for="firstname">Firstname</label>
            <input type="text" name="firstname" id="firstname" class="form-control" required>
         </div>
         <div class="form-group">
            <label for="lastname">Lastname</label>
            <input type="text" name="lastname" id="lastname" class="form-control" required>
         </div>
         <div class="form-group">
            <label for="phone">Phone</label>
            <input type="tel" name="phone" id="phone" class="form-control" required>
         </div>
         <div class="form-group">
            <label for="email">Email</label>
            <input type="email" name="email" id="email" class="form-control" required>
         </div>
         <div class="form-group">
            <label for="message">Message</label>
            <input type="text" name="message" id="message" class="form-control" required>
         </div>
         <div class="form-group">
      <button class="btn btn-success" type="submit">Submit</button>
      <button class="btn btn-danger" type="reset">Reset</button>
   </div></form> </div></body></html>
```

7.2 Feature 2 – Chat

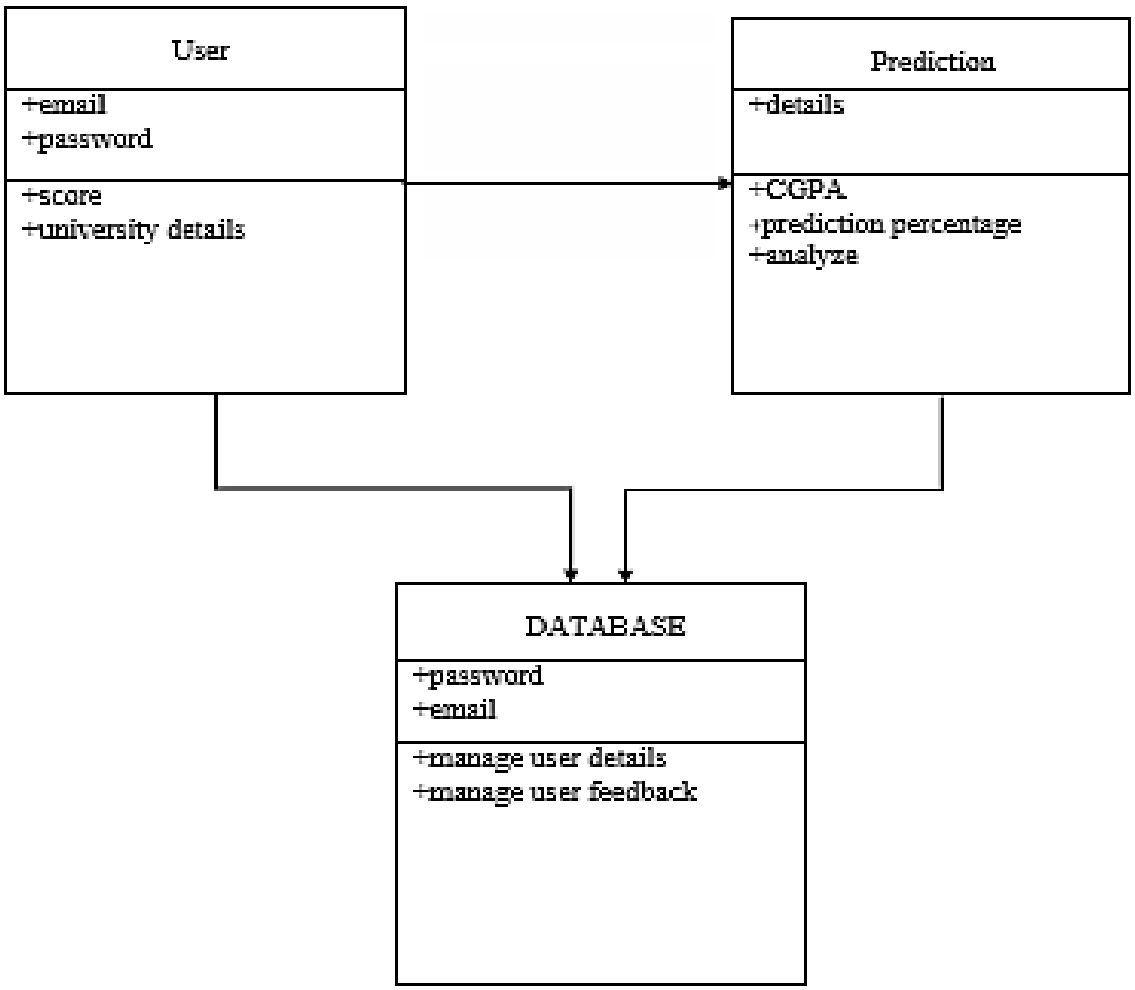
A chatbot is a programmed chat interface that is developed to support conversations between customers and businesses. When deployed on a website, it can enable the visitors to interact with the business in a conversational manner. A website chatbot can closely mimic the way humans converse and facilitate a two-way conversation. Unlike the live chat software where the responses are delivered by persons, a bot is programmed to respond to queries on its own.

Using a website chatbot, your customers can easily find solutions to their problems, get their issues fixed without any human intervention, and easily access all the information on the website

Code:

```
<script>
window.watsonAssistantChatOptions = {
   integrationID: "9082fac4-8e4e-40fc-81a5-583995b4d42d", // The ID of this integration.
   region: "au-syd", // The region your integration is hosted in.
   serviceInstanceID: "fb1ad98b-b087-4b31-95f2-b28590b850e4", // The ID of your service instance.
   onLoad: function(instance) { instance.render(); }
 };
 setTimeout(function(){
   const t=document.createElement('script');
   t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" + (window.watsonAssistantChatOptions.clientVersion || 'latest') + "/WatsonAssistantChatEntry.js";
   document.head.appendChild(t); });</script>
```

7.3 Database Schema



CHAPTER 8
TESTING

8.1 Test Cases

There are several rules that can serve as testing objectives. They are:

1. Testing is process of executing a program and finding a bug. A good test case is one that has a high probability of finding an undiscovered.

2. A successful test is one that uncovers an undiscovered error. If testing is conducted successfully according to the objectives as stated above, it would uncover errors in the software. Also testing demonstrates that software functions appear to the working according to the specification, that performance requirements appear to have been met.

8.1.1. Unit testing

Unit testing is carried out screen-wise, each screen being identified as an object. Attention is diverted to individual modules, independently to one another to locate errors. This has enabled the detection of errors in coding and logic. This is the first level of testing. In this, codes are written such that from one module, we can move on to the next module according to the choice we enter.

8.1.2 System Testing

In this, the entire system was tested as a whole with all forms, code, modules and class modules. System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently before live operation commences. It is a series of different tests that verifies that all system elements have been properly integrated and perform allocated functions. System testing makes logical assumptions that if all parts of the system are correct, the goal will be successfully achieved. Testing is the process of executing the program with the intent of finding errors.

8.1.3 Integration Testing

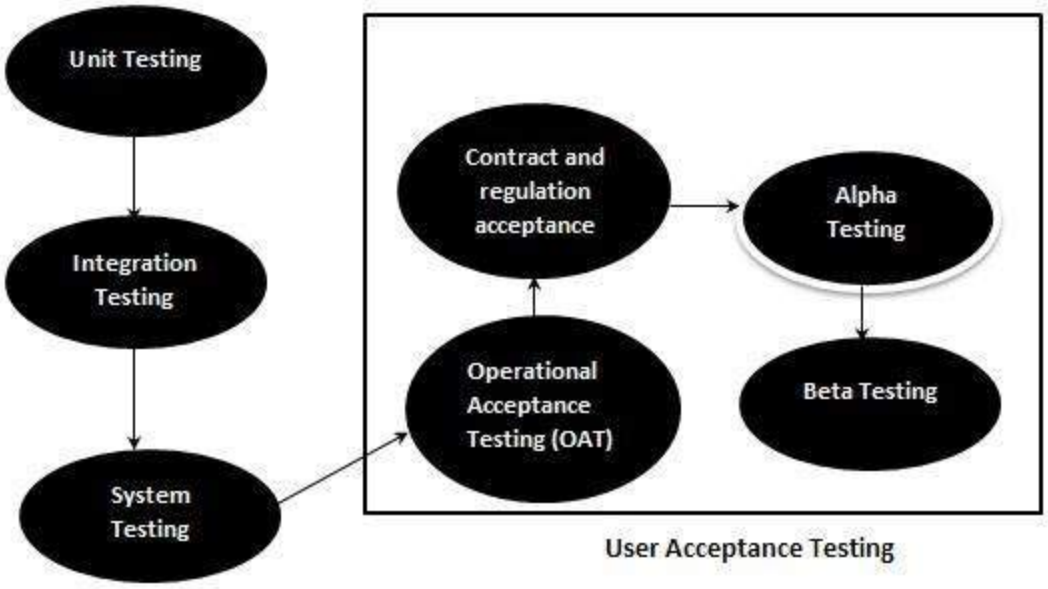
This testing strategies combines all the modules involved in the system. After the independent modules are tested, dependent modules that use the independent modules are tested. This sequence of testing layers of dependent modules continues until the entire system is constructed. Though each module individually, they should work after linking them together. Data may be lost across interface and one module can have adverse effect on another. Subroutines, after linking, may not do the desired function expected by the main routine. Integration testing is a systematic technique for constructing program structure while at the same time, conducting test to uncover errors associated with the interface.

8.2 User Acceptance Testing

User acceptance testing, a testing methodology where the clients/end users involved in testing the product to validate the product against their requirements. It is performed at client location at developer's site.For industry such as medicine or aviation industry, contract and regulatory compliance testing and operational acceptance testing is also carried out as part of user acceptance testing.UAT is context dependent and the UAT plans are prepared based on the requirements and NOT mandatory to execute all kinds of user acceptance tests and even coordinated and contributed by testing team.

Acceptance Criteria

- Acceptance criteria are defined on the basis of the following attributes:
- Functional Correctness and Completeness
- Data Integrity
- Data Conversion
- Usability
- Performance
- Timeliness
- Confidentiality and Availability
- Installability and Upgradability
- Scalability
- Documentation



CHAPTER 9

RESULTS

9.1 Performance Metrics

Model evaluation is very important in data science. It helps you to understand the performance of your model and makes it easy to present your model to other people. There are many different evaluation metrics out there but only some of them are suitable to be used for regression.

The sklearn. metrics module implements several loss, score, and utility functions to measure classification performance. Some metrics might require probability estimates of the positive class, confidence values, or binary decisions values.

Three main metrics

1. R Square/Adjusted R Square
2. Mean Square Error(MSE)/Root Mean Square Error(RMSE)
3. Mean Absolute Error(MAE)

R Square/Adjusted R Square

R Square measures how much variability in dependent variable can be explained by the model. It is the square of the Correlation Coefficient(R) and that is why it is called R Square.

$$R^2 = 1 - \frac{SS_{Regression}}{SS_{Total}} = 1 - \frac{\sum_i (y_i - \hat{y}_i)^2}{\sum_i (y_i - \bar{y})^2}$$

R square formula

R Square is calculated by the sum of squared of prediction error divided by the total sum of the square which replaces the calculated prediction with mean.R Square value is between 0 to 1 and a bigger value indicates a better fit between prediction and actual value.R Square is a good measure to determine how well the model fits the dependent variables.However, it does not take into consideration of overfitting problem. If your regression model has many independent variables,because the model is too

complicated,it may fit very well to the training data but performs badly for testing data. Adjusted R Square is introduced because it will penalize additional independent variables added to the model and adjust the metric to prevent overfitting issues.

R2-square for Testing Accuracy

print(metrics.r2_score(y_test,pred))

0.7970727383280378

R2-square for Training Accuracy

print(metrics.r2_score(y_train,pred_train))

0.802562940404405

2. Mean Square Error(MSE)/Root Mean Square Error(RMSE)

MSE is calculated by the sum of square of prediction error which is real output minus predicted output and then divide by the number of data points. It gives you an absolute number on how much your predicted results deviate from the actual number. You cannot interpret many insights from one single result but it gives you a real number to compare against other model results and help you select the best regression model.

$$MSE = \frac{1}{N}\sum_{i=1}^{N}(y_i - \hat{y}_i)^2$$

Mean square formula

Root Mean Square Error(RMSE) is the square root of MSE. It is used more commonly than MSE because firstly sometimes MSE value can be too big to compare easily. Secondly, MSE is calculated by the square of error, and thus square root brings it back to the same level of prediction error and makes it easier for interpretation.

MSE(Mean square error)

print(metrics.mean_squared_error(y_test,pred))

0.004000322019944528

RMSE

print(np.sqrt(metrics.mean_squared_error(y_test,pred)))

0.0632480989433242

3. Mean Absolute Error(MAE)

Mean Absolute Error(MAE) is similar to Mean Square Error(MSE). However, instead of the sum of square of error in MSE, MAE is taking the sum of the absolute value of error.

$$MAE = \frac{1}{N}\sum_{i=1}^{N}|y_i - \hat{y}_i|$$

Mean Absolute square formula

Compare to MSE or RMSE, MAE is a more direct representation of sum of error terms. MSE gives larger penalization to big prediction error by square it while MAE treats all errors the same.

MAE

print(metrics.mean_absolute_error(y_test,pred))\

0.04723243001365442

CHAPTER 10

ADVANTAGES AND DISADVANTAGES

10.1 Advantages

- It helps student for making decision for choosing a right college.
- Here the chance of occurrence of error is less when compared with the existing system.
- It is fast, efficient and reliable.
- Avoids data redundancy and inconsistency.
- Very user-friendly.
- Easy accessibility of data

10.2 Disadvantages

- Though Internet penetration is rather high, Internet connectivity and speed issues are major impediments to bring any real advantage to university applicants. Most rural areas experience high blackouts and electricity issues. This means, once again candidates in urban districts and areas are placed at a significant advantage.
- System will provide inaccurate results if data entered incorrectly.
- The system is built on a limited data set, this could affect the accuracy of the predictions as a whole. The system cannot guarantee that our predictions will be a 100% guarantee because a lot other factors such as the Personal Interview also plays a major role in the admissions procedure.

CHAPTER 11

CONCLUSION

11.1 Conclusion

This system, being the first we have created in PHP, has proven more difficult than originally imagined. While it may sound simple to fill out a few forms and process the information, much more is involved in the selection of applicants than this. Every time progress was made and features were added, ideas for additional features or methods to improve the usability of the system made themselves apparent. Furthermore, adding one feature meant that another required feature was now possible, and balancing completing these required features with the ideas for improvement as well as remembering everything that had to be done was a project in itself. Debugging can sometimes be a relatively straight forward process, or rather finding out what you must debug can be. Since so many parts of the prediction system are integrated in to one another, if an error occurs on one page, it may be a display error, for example: it may be the information is not correctly read from the database; or even that the information is not correctly stored in the database initially, and all three must be checked on each occasion. This slows down the process and can be frustrating if the apparent cause of a problem is not obvious at first. Language used must be simple and easy to understand and compatibility is paramount. If this system were not designed as an entirely web based application, it would not have been possible to recreate its current state of portability. Overall, the system performs well, and while it does not include all of the features that may have been desired, it lives up to initial expectations. The majority of features that are included work flawlessly and the errors that do exist are minor or graphical.

CHAPTER 12

FUTURE SCOPE

12.1 Future Scope

- This can be implemented in less time for proper admission process.
- This can be accessed anytime anywhere, since it is a web application provided only an internet connection.
- Include Voice recognition and Voice search for better user interaction with support for multiple languages.
- Get our website as a government authorized platform for favoring the students by providing our services.
- Embed many things like develop a mobile application which will integrate itself with the application server.

APPENDIX

SOURCE CODE

app_ibm.py

```
import flask

from flask import redirect, request, render_template

from flask_cors import CORS

from flask_mysqldb import MySQL

import requests

import subprocess

# NOTE: you must manually set API_KEY below using information retrieved from your IBM
Cloud account.

API_KEY = "JyhzzPTqYb5vdnL-g25mEurwEUgEHsrht4XjZo6UvyUm"

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.Flask(_name_, static_url_path='')

CORS(app)

app.config['MYSQL_HOST'] = 'localhost'

app.config['MYSQL_USER'] = 'root'

app.config['MYSQL_PASSWORD'] = ''

app.config['MYSQL_DB'] = 'contactdata'


mysql = MySQL(app)
```

```
@app.route('/redirect', methods=['POST'])
def sendThanksPage():
    firstName = request.form['firstname']
    lastName = request.form['lastname']
    phone = request.form['phone']
    email = request.form['email']
    message = request.form['message']
    cursor = mysql.connection.cursor()
    cursor.execute(''' INSERT INTO contactdata
VALUES(%s,%s,%s,%s,%s)''',(firstName,lastName,phone,email,message))
    mysql.connection.commit()
    cursor.close()
    return f"Thank You For Contacting Us "
@app.route('/redirect', methods=['POST'])
def sendPage():
  proc = subprocess.Popen("form-process.php", shell=True, stdout=subprocess.PIPE)
  return proc.stdout.read()
@app.route('/about')
def sendAboutPage():
   return render_template('about.html')

@app.route('/feedback')
def sendFeedbackPage():
   return render_template('index.html')
```

```
@app.route('/', methods=['GET'])
def sendHomePage():
    return render_template('home.html')
@app.route('/predict', methods=['POST'])
def predict():
    gre = int(request.form['GRE_Score'])
    toefl = int(request.form['TOEFEL_Score'])
    universityRating = int(request.form['u_rate'])
    sop = float(request.form['sop'])
    lor = float(request.form['lor'])
    cgpa = float(request.form['cgpa'])
    research = int(request.form['Research'])
    X = [[gre,toefl,universityRating,sop,lor,cgpa,research]]
# NOTE: manually define and pass the array(s) of values to be scored in the next line
    payload_scoring = {"input_data": [{"fields":
['gre','toefl','universityRating','sop','lor','cgpa','research'], "values": X}]}
    response_scoring = requests.post('https://us-
south.ml.cloud.ibm.com/ml/v4/deployments/0bfdeda4-f2a5-45c8-9262-
ad4eb310e85f/predictions?version=2022-11-06', json=payload_scoring,
headers={'Authorization': 'Bearer ' + mltoken})
    print(response_scoring)
    predictions = response_scoring.json()
    predict = predictions['predictions'][0]['values'][0][0]
    print("Final prediction :",predict)
 # showing the prediction results in a UI# showing the prediction results in a UI
    return render_template('predict.html', predict=predict)
```

```
if _name_ == '_main_' :
    app.run(debug= False)
```

Home.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">
    <link rel="stylesheet" href="about.css">
    <link rel="stylesheet" href="home.css">
    <script>
        window.watsonAssistantChatOptions = {
          integrationID: "9082fac4-8e4e-40fc-81a5-583995b4d42d", // The ID of this integration.
          region: "au-syd", // The region your integration is hosted in.
          serviceInstanceID: "fb1ad98b-b087-4b31-95f2-b28590b850e4", // The ID of your service
instance.
          onLoad: function(instance) { instance.render(); }
        };
        setTimeout(function(){
          const t=document.createElement('script');
          t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
(window.watsonAssistantChatOptions.clientVersion || 'latest') + "/WatsonAssistantChatEntry.js";
          document.head.appendChild(t);
        });
      </script>
    <title>About</title>
</head>
<body>
    <nav>
        <div class="logo" >
          University Admit Eligibility Predictor
        </div>
                    
       
```

```
         
           
      <div class="nav-items">
         <li><a href="/">Home</a></li>
         <li><a href="/feedback">Feedback</a></li>
         <li><a href="#">About</a></li>
      </div>
    </nav>
   <div class="wrapper">

      <div class="background-container">
         <div class="bg-1"></div>
         <div class="bg-2"></div>
      </div>
      <div class="about-container">
         <!-- <div class="image-container">
            <img src="image3.jpg" alt="">
         </div> -->

         <div class="text-container">
            <h1>About us</h1>
            <p>Students are often worried about their chances of admission to University. Our
website will help the students to get the list of university in which they could get the admission
with their profiles. The students only have to enter their marks and details. With this website, the
students can very easily obtain the list of universities and find their chance of admission in a
univeristy. This will minimizes stress of students. The main objective of our website is to give
the students a good idea about thier chances of admission in a college and to help their
preparation.</p>
            <a href="">Chat with Us</a>
         </div>
      </div></div></body></html>
```

predict.html

```
<!DOCTYPE html>
<!-- Created By CodingNepal -->
<html lang="en" dir="ltr">
  <head>
    <meta charset="utf-8">
    <title>RESULT</title>
    <link rel="stylesheet" href="home.css">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/5.15.3/css/all.min.css"/>
  </head>
  <body>
      <br> <br> <br> <br> <br>
      <p class="res"> Your chance of getting admit in this University is: </p>
      <div class="dataset">
        <form action="/" method="GET">
          <p class="result">
            {{predict}}
          </p>
          <div class="rbutton">
          <input type="submit" class="button" value="Back" />
          </div>
        </form>
         </div>
    </body>
  </html>
```

home.css

```
@import
url('https://fonts.googleapis.com/css?family=Montserrat:400,500,600,700&display=swap');

*{

  margin: 0;

  padding: 0;
```

```
  outline: none;
  box-sizing: border-box;
  font-family: 'Montserrat', sans-serif;
}
body{
  background: #f2f2f2;
}
nav{
  background:  #1c8adb;
  display: flex;
  flex-wrap: wrap;
  align-items: center;
  justify-content:left;
  height: 70px;
  padding: 0 100px;
}
nav .logo{
  color: #fff;
  font-size: 30px;
  font-weight: 600;
  letter-spacing: -1px;
  align-items: left;
}
nav .nav-items{
  display: flex;
```

```
  flex: 1;
  padding: 0 0 0 40px;
}
nav .nav-items li{
  list-style: none;
  padding: 0 15px;
}
nav .nav-items li a{
  color: #fff;
  font-size: 18px;
  font-weight: 500;
  text-decoration: none;
}
nav .nav-items li a:hover{
  color: #0f0e0e;
}
nav form{
  display: flex;
  height: 40px;
  padding: 2px;
  background:  #1c8adb;
  min-width: 18%!important;
  border-radius: 2px;
  border: 1px solid rgba(155,155,155,0.2);
}
```

```
nav form .search-data{
  width: 100%;
  height: 100%;
  padding: 0 10px;
  color: #fff;
  font-size: 17px;
  border: none;
  font-weight: 500;
  background: none;
}
nav form button{
  padding: 0 15px;
  color: #fff;
  font-size: 17px;
  background: #0cbb9e;
  border: none;
  border-radius: 2px;
  cursor: pointer;
}
nav form button:hover{
  background: #07e9d6;
}
nav .menu-icon,
nav .cancel-icon,
nav .search-icon{
```

```
  width: 40px;
  text-align: center;
  margin: 0 50px;
  font-size: 18px;
  color: #fff;
  cursor: pointer;
  display: none;
}
nav .menu-icon span,
nav .cancel-icon,
nav .search-icon{
  display: none;
}
body{
  margin: 0;
  padding: 0;
  background: url(home-Background.jpg);
  background-size:cover;
  background-position:center;
  font-family: sans-serif;
}
```

```
@media (max-width: 1245px) {
  nav{
    padding: 0 50px;
  }
}
@media (max-width: 1140px){
  nav{
    padding: 0px;
  }
  nav .logo{
    flex: 2;
    text-align: center;
  }
  nav .nav-items{
    position: fixed;
    z-index: 99;
    top: 70px;
    width: 100%;
    left: -100%;
    height: 100%;
    padding: 10px 50px 0 50px;
    text-align: center;
    background: #14181f;
    display: inline-block;
    transition: left 0.3s ease;
```

```
}
nav .nav-items.active{
  left: 0px;
}
nav .nav-items li{
  line-height: 40px;
  margin: 30px 0;
}
nav .nav-items li a{
  font-size: 20px;
}
nav form{
  position: absolute;
  top: 80px;
  right: 50px;
  opacity: 0;
  pointer-events: none;
  transition: top 0.3s ease, opacity 0.1s ease;
}
nav form.active{
  top: 95px;
  opacity: 1;
  pointer-events: auto;
}
nav form:before{
```

```
  position: absolute;
  content: "";
  top: -13px;
  right: 0px;
  width: 0;
  height: 0;
  z-index: -1;
  border: 10px solid transparent;
  /* border-bottom-color: #1e232b; */
  margin: -20px 0 0;
}
nav form:after{
  position: absolute;
  content: '';
  height: 60px;
  padding: 2px;
  background: #1e232b;
  border-radius: 2px;
  min-width: calc(100% + 20px);
  z-index: -2;
  left: 50%;
  top: 50%;
  transform: translate(-50%, -50%);
}
nav .menu-icon{
```

```
    display: block;
  }
  nav .search-icon,
  nav .menu-icon span{
    display: block;
  }
  nav .menu-icon span.hide,
  nav .search-icon.hide{
    display: none;
  }
  nav .cancel-icon.show{
    display: block;
  }
}
.content{
  position: absolute;
  top: 50%;
  left: 50%;
  text-align: center;
  transform: translate(-50%, -50%);
}
.content header{
  font-size: 30px;
  font-weight: 700;
}
```

```
.content .text{
  font-size: 30px;
  font-weight: 700;
}
.space{
  margin: 10px 0;
}
nav .logo.space{
  color: red;
  padding: 0 5px 0 0;
}
@media (max-width: 980px){
  nav .menu-icon,
  nav .cancel-icon,
  nav .search-icon{
    margin: 0 20px;
  }
  nav form{
    right: 30px;
  }
}
@media (max-width: 350px){
  nav .menu-icon,
  nav .cancel-icon,
  nav .search-icon{
```

```
    margin: 0 10px;
    font-size: 16px;
  }
}
.content{
  position: absolute;
  top: 50%;
  left: 50%;
  transform: translate(-50%, -50%);
}
.content header{
  font-size: 30px;
  font-weight: 700;
}
.content .text{
  font-size: 30px;
  font-weight: 700;
}
.content .space{
  margin: 10px 0;
}
*, *:before, *:after {
  -moz-box-sizing: border-box;
  -webkit-box-sizing: border-box;
  box-sizing: border-box;
```

```
}
body {
  font-family: 'Nunito', sans-serif;
  color: #384047;
}
form {
  /* display: inline-block; */
  max-width: 300px;
  margin: 10px auto;
  padding: 10px 20px;

  border-radius: 8px;
}
h1 {
  margin: 0 0 30px 0;
  text-align:center;
}

 .dataset{

  top: -1px;
  right: -10px;
 }
input[type="text"],
input[type="password"],
```

```
input[type="date"],
input[type="datetime"],
input[type="email"],
input[type="number"],
input[type="search"],
input[type="tel"],
input[type="time"],
input[type="url"],
textarea,
select {
  background: rgba(255,255,255,0.1);
  border: none;
  font-size: 16px;
  height: auto;
  margin: 0;
  outline: 0;
  padding: 15px;
  width: 100%;
  background-color: #c5d5d8;
  color: #8a97a0;
  box-shadow: 0 1px 0 rgba(0,0,0,0.03) inset;
  margin-bottom:20px;
  font-size: 18px;
  height: 34px;
  display:flex;
```

```
}
input[type="radio"],
input[type="checkbox"] {
  margin: 0 4px 8px 0;
}
select {
  padding: 6px;
  height: 32px;
  border-radius: 2px;
  margin: auto;

}
.button {
  background: linear-gradient(to bottom right, #6647ef, #5aafff);
  border: 0;
  border-radius: 12px;
  color: #FFFFFF;
  cursor: pointer;
  display: inline-block;
  font-family: -apple-system,system-ui,"Segoe UI",Roboto,Helvetica,Arial,sans-serif;
  font-size: 16px;
  font-weight: 500;
  line-height: 2.5;
  outline: transparent;
```

```
  padding: 0 1rem;
  text-align: center;
  text-decoration: none;
  transition: box-shadow .2s ease-in-out;
  user-select: none;
  -webkit-user-select: none;
  touch-action: manipulation;
  white-space: nowrap;
}
.label{
  text-align: left;
}
button:not([disabled]):focus {
  box-shadow: 0 0 .25rem rgba(0, 0, 0, 0.5), -.125rem -.125rem 1rem rgba(71, 214, 239, 0.5), .125rem .125rem 1rem rgba(255, 154, 90, 0.5);
}

button:not([disabled]):hover {
  box-shadow: 0 0 .25rem rgba(0, 0, 0, 0.5), -.125rem -.125rem 1rem rgba(71, 191, 239, 0.5), .125rem .125rem 1rem rgba(255, 154, 90, 0.5);
}
.dataset{
  text-align: center;
}
```

```
fieldset {
  margin-bottom: 30px;
  border: none;
}

label {
  /* display: inline-block; */
  margin-bottom: 8px;
}

label.light {
  font-weight: 300;
  /* display: inline; */
}
.result{
  text-align: center;
}
.rbutton{
  width: 300px;
  height: 300px;
  display: flex;
  justify-content: center;
  align-items: center;
}
.res{
```

```
  text-align: center;

  font-family: Inter,Helvetica,"Apple Color Emoji","Segoe UI Emoji",NotoColorEmoji,"Noto Color Emoji","Segoe UI Symbol","Android Emoji",EmojiSymbols,-apple-system,system-ui,"Segoe UI",Roboto,"Helvetica Neue","Noto Sans",sans-serif;

  font-size: 16px;

  font-weight: 700;

  line-height: 24px;

}
```

GITHUB AND PROJECT DEMO LINK

Github **:**https://github.com/IBM-EPBL/IBM-Project-23121-1659867360

Project Demo Link : shorturl.at/htXZ4