## PROJECT DOCUMENTATION REPORT

# UNIVERSITY ADMIT ELIGIBILITY PREDICTOR

## IBM – Nalaiaya Thiran

Team ID: PNT2022TMID30773

Team members:

- Kavitha.G
- Kanishka.V
- Malini.B
- Monika sree.S

# CONTENTS

# INTRODUCTION

## Project Overview

The primary concern on the minds of most passed out students is their university admissions. It is something which can greatly alter their future and hence they are often worried and anxious about it. Each and every university have their own admission process, and admit students based on the criteria set by them pertaining to the admission process. Unfortunately, most students are unaware of these criteria and this hinders their chances of getting admitted into those universities.

It'd be really helpful for the students if they can find out their chances of getting admitted into different universities since they can take decisions regarding admissions based on that. And the university admit eligibility predictor does just that. It predicts if the user has a chance of getting admitted into a certain university based on an 'eligibility score'. If the score is found to be above a threshold value, the user is informed that they are eligible.

The criteria considered by this specific model are: GRE score, TOFEL score, University ranking, SOP, LOR, CGPA, Research. An eligibility score is calculated based on these criteria which is used to decide if the user is eligible/ineligible. It has been ensured that the accuracy of model is as high as practically possible. Hence, this would be a handy tool for students aspiring to get admitted into prominent universities to find out their eligibility chances.

## Purpose

The university eligibility predictor is a tool that is designed for students who are finished with their schooling/UG and aspire to get admitted into prominent universities. It provides them with their chances of admission in different universities based on certain criteria pertaining to their admission process. It could prove to be really helpful as it can provide some clarity to students on universities to which they can apply for admission.

The predictor would have served its purpose if it is found out that the eligibility chances predicted by it are close enough to actual results, since it'd mean that it is a trustable tool for students.

# LITERATURE SURVEY

- **What is a university admit eligibility predictor?**

A university eligibility predictor is a tool that is designed for students who are finished with their schooling/UG and aspire to get admitted into prominent universities in India/abroad. It provides them with their chances of admission in different universities based on certain criteria pertaining to their admission process. It could prove to be really helpful as it can provide some clarity to students on universities to which they can apply for admission.

- **Problem statement**

How to design an eligibility predictor for students which provides them with their chances of getting admitted into different universities based on their scores and other important criteria.

**USE CASE:**

University education is becoming a critical pillar of social and economic life in the twenty-first century. It is crucial not only in the educational process but also in assuring two vital things: a great job and financial stability. On the other hand, might be extremely challenging because pupils are unaware of the admission standards. They waste lot of time and money.

Social Impact:

It will help students making decision for choosing a right college.

Business impact:

Getting potential students automatically business will increase

## **EXISTING SOLUTION I : CollegeAI**

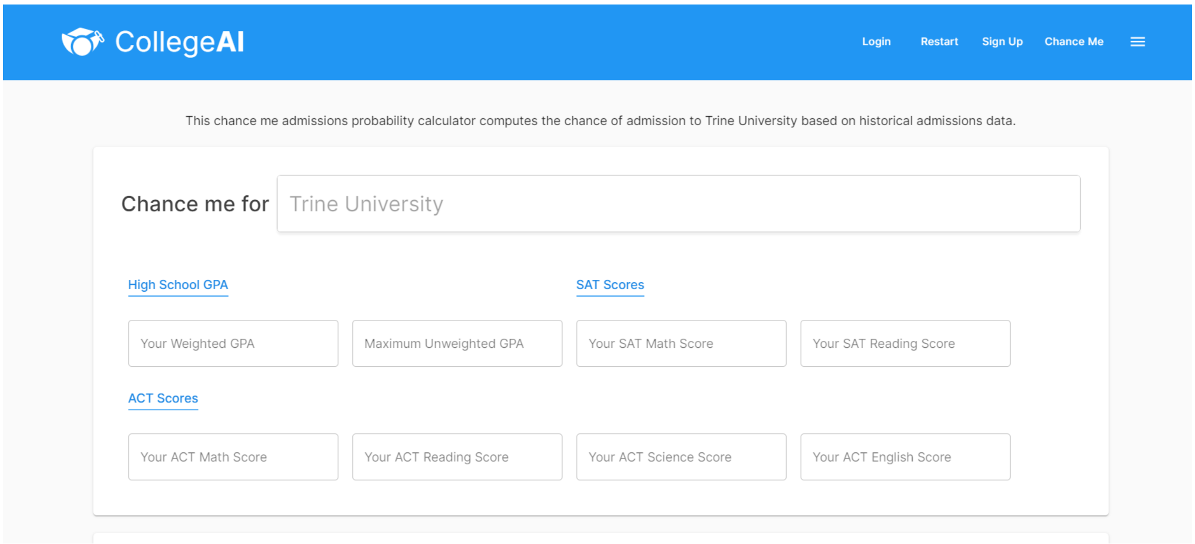
This chance me admissions probability calculator computes the chance of admission to Universities in US based on historical admissions data.

This predictor has been designed to predict chances of admissions for a student in 10 prominent universities in the United States (University of Arizona, Texas state University, Florida state university etc.)

It also has a 'Find your perfect college' feature which asks the user to fill out a small survey which questions them on their likes, dislikes, talents, skills and areas of interests and then suggest colleges which it finds suitable for the user based on the survey..,

**Factors considered:**

- High school GPA
- SAT score
- ACT score



This chance me admissions probability calculator computes the chance of admission to Trine University based on historical admissions data.

Chance me for Trine University

High School GPA

Your Weighted GPA

Maximum Unweighted GPA

SAT Scores

Your SAT Math Score

Your SAT Reading Score

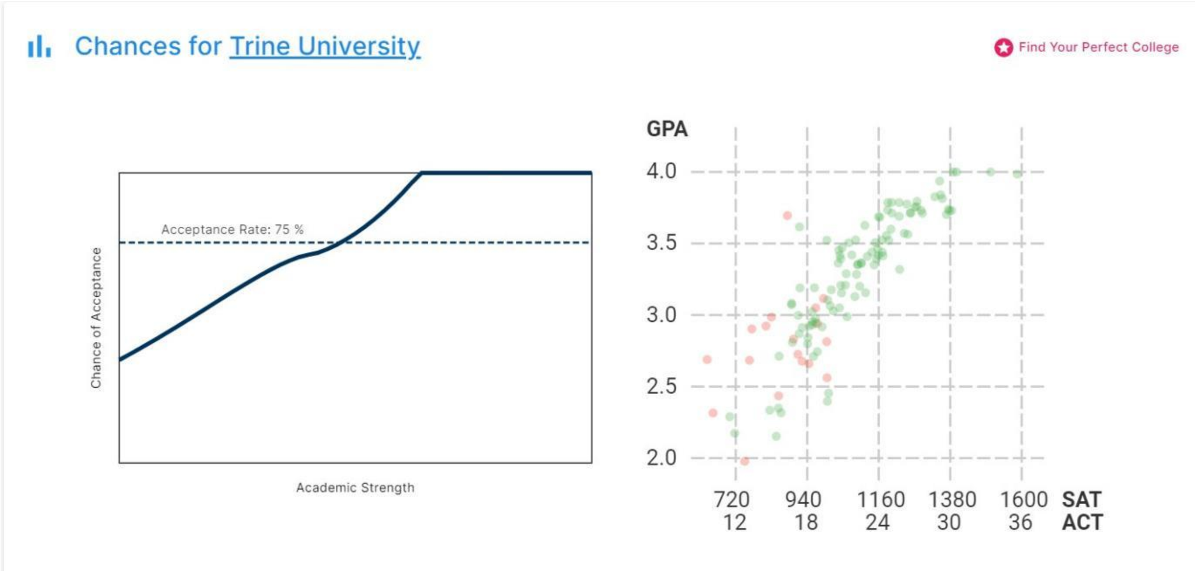
ACT Scores

Your ACT Math Score

Your ACT Reading Score

Your ACT Science Score

Your ACT English Score



<u>Drawbacks</u>:

- It covers only a limited number of universities
- Graphical representation would be a bit difficult to comprehend.
- It doesn't provide the user with their chances of getting a particular course at a specific university.
- Takes very few factors into account for judging eligibility.

<u>Learnings</u>:

The questionnaire employed to suggest colleges suitable to the student is a very interesting concept and might prove to be very beneficial to students. The UI is very smooth and easy on the eye from an user's POV.

## EXISTING SOLUTION – II : CollegeVine

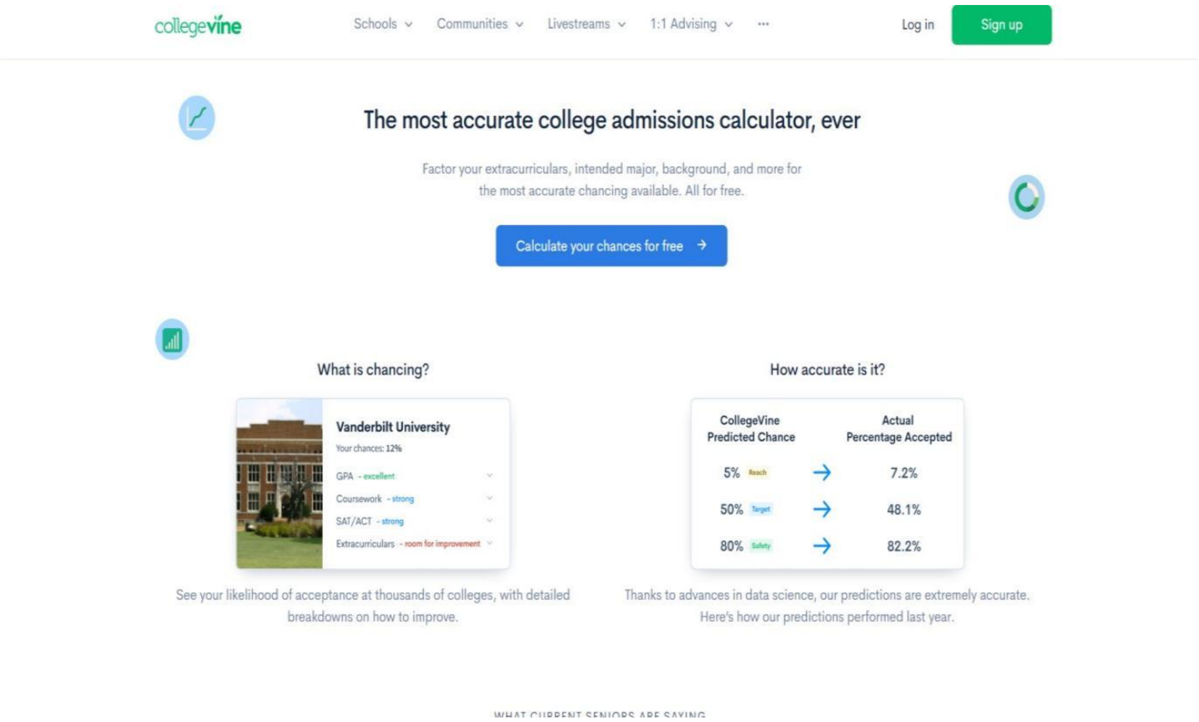
CollegeVine focuses on taking the guess work out of college admissions and clearing the misconceptions surrounding average acceptance rates and personal admission chances prevalent among students.

It also tries to take certain factors that might be outside of a student's control (diverse racial, economic and personal backgrounds) into account before deciding their chances.

It focuses on prominent universities based in the United States like Vanderbit university, Princeton university, Stanford university etc.

**Factors considered**

- Coursework
- GPA
- Test scores
- Extra Curriculars
- Demographics
- Intended major
- Class rank



The most accurate college admissions calculator, ever

Factor your extracurriculars, intended major, background, and more for the most accurate chancing available. All for free.

What is chancing?

Vanderbilt University
Your chances: 12%
GPA - excellent
Coursework - strong
SAT/ACT - strong
Extracurriculars - room for improvement

See your likelihood of acceptance at thousands of colleges, with detailed breakdowns on how to improve.

How accurate is it?

| CollegeVine Predicted Chance | | Actual Percentage Accepted |
|---|---|---|
| 5% Reach | → | 7.2% |
| 50% Target | → | 48.1% |
| 80% Safety | → | 82.2% |

Thanks to advances in data science, our predictions are extremely accurate. Here's how our predictions performed last year.

WHAT CURRENT SENIORS ARE SAYING

Drawbacks:

- Not very user friendly in nature
- UI is not up to the mark and this might put the user through a lot of hassles
- Misuse of data submitted by the user is a possibility

Learnings:

The whole process behind calculating eligibility chances is explained in simple terms for the user's benefit which is a very important aspect from an user's POV.

This predictor takes a lot of factors into account including certain non-academic factors before judging the chances of a student which might be the reason behind their model's astounding accuracy rate.

## EXISTING SOLUTION – III : Yocket

Yocket Admit Predictor gives the user the chances of making it into a particular program in a university they like. It is a very handy feature that's specifically designed for aspirants pursuing Masters in either US or Canada.

They have equipped it with Artificial Intelligence and Machine learning to give the user a close enough percentage based on the data information they have gathered along the way.

It is exclusively for students aspiring to get admitted into top universities outside of India.

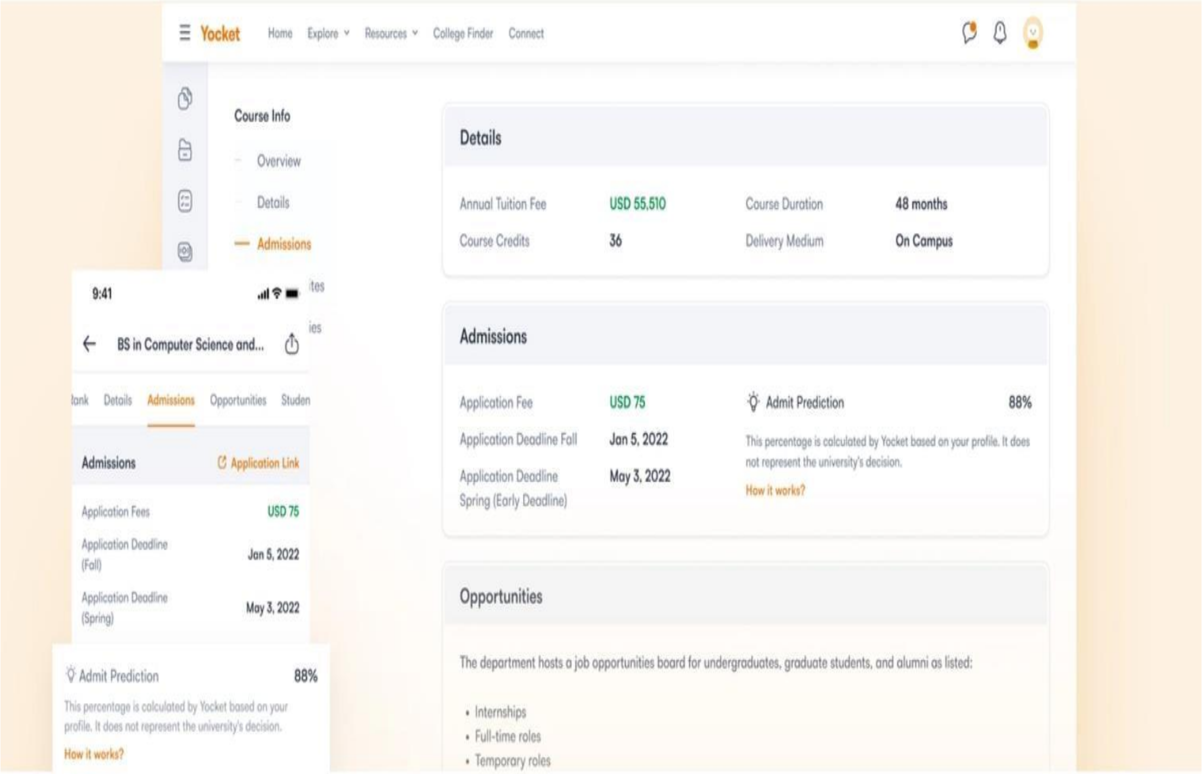
Admit Predictor works on the combination of historical Yocket user data, Artificial Intelligence based algorithms and Machine Learning.

**Factors considered**:

- GRE scores
- Aptitude scores
- UG scores
- English test scores
- Experience
- Technical papers

Drawbacks:

- Not free to use
- Restricted to Masters programs only
- Procedure is time consuming in nature and might test an user's patience



Details

| | | | |
|---|---|---|---|
| Annual Tuition Fee | USD 55,510 | Course Duration | 48 months |
| Course Credits | 36 | Delivery Medium | On Campus |

Admissions

| | |
|---|---|
| Application Fee | USD 75 |
| Application Deadline Fall | Jan 5, 2022 |
| Application Deadline Spring (Early Deadline) | May 3, 2022 |

Admit Prediction 88%

This percentage is calculated by Yocket based on your profile. It does not represent the university's decision.

How it works?

Opportunities

The department hosts a job opportunities board for undergraduates, graduate students, and alumni as listed:

- Internships
- Full-time roles
- Temporary roles

Admissions

| | |
|---|---|
| Application Fees | USD 75 |
| Application Deadline (Fall) | Jan 5, 2022 |
| Application Deadline (Spring) | May 3, 2022 |

Admit Prediction 88%

This percentage is calculated by Yocket based on your profile. It does not represent the university's decision.

How it works?

<u>Learnings:</u>

An algorithm has been developed by Yocket team which collects all the relevant data like admits, rejects, test scores, CGPA, course studied and more provided by previous Yocket users over the years. The algorithm has created a pattern of admits and rejects across courses and universities based on the collected information.

When the user adds information to their profile, it compares and calculates the admit chances based on the pattern it has deciphered.

The Machine Learning aspect of the feature takes in their information including admit and reject record to update its database and results in the future

## <u>EXISTING SOLUTION – IV : Careers360</u>

It lets it users know their college admission chances based on their rank, home state, caste, etc

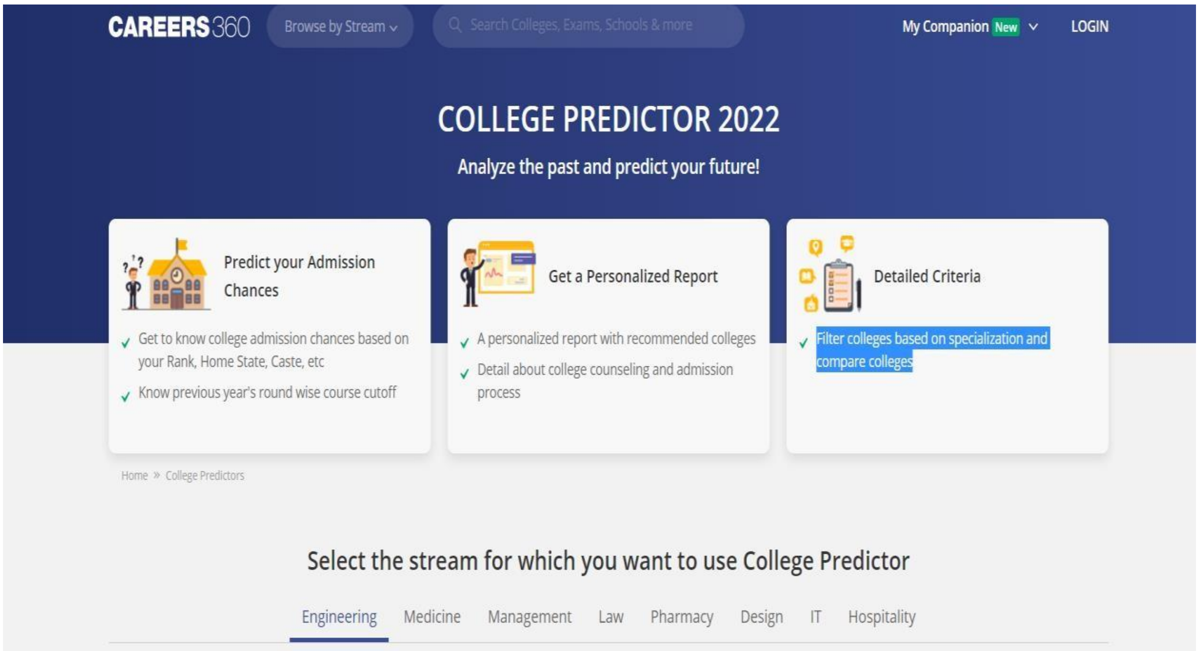
It additionally provides them with previous year's round wise course cut-off and details about the counselling and admission process

A personalized report with recommended colleges is designed exclusively for the users

Finally, it lets its users filter colleges based on specialization and compare colleges

**Factors considered:**

- Rank
- Home state
- 12th marks
- Entrance exams scores
- Choice of course



COLLEGE PREDICTOR 2022

Analyze the past and predict your future!

Predict your Admission Chances

✓ Get to know college admission chances based on your Rank, Home State, Caste, etc

✓ Know previous year's round wise course cutoff

Get a Personalized Report

✓ A personalized report with recommended colleges

✓ Detail about college counseling and admission process

Detailed Criteria

✓ Filter colleges based on specialization and compare colleges

Select the stream for which you want to use College Predictor

Drawbacks:

- Not many factors are not taken into consideration
- This predictor is not reliable as other predictors found online
- There is no information about the working procedure of the algorithm used for this model.

Learnings:

This predictor covers a lot of colleges across varied fields (engineering, medicine, law, pharmacy etc..), since its scope is very large , it could prove to be the one-stop destination for all passed out students. Since it has to cover a lot of universities across diverse fields, it has to factor in different entrance exams specific to each of those fields into their algorithm.

**INFERENCES**

Upon carefully analysing these existing solutions and several other research papers related to our project, 'University admit eligibility predictor', we have made the following interferences which might aid us in our bid to design an eligibility predictor of our own:

I. We have to take into account as many factors as to increase the accuracy and reliability of the model.

II. The predictor should be user friendly in nature and the whole process should be hassle free.

III. The UI of the predictor should be smooth and decluttered.

IV. We need to try and increase the scope of our predictor as much as possible to increase the number of users accessing our product.

V. It should be ensured that the whole process doesn't turn out to be a the time-consuming affair for the user.

VI. We should try to convey the working procedure behind the model in simple terms to the user.

VII. Data collection is one of the most important steps in the process of designing the model and achieving a near perfect data set could go a long way in increasing the accuracy and reliability of our model.

VIII. Scores secured by the students in entrance exams should be taken into consideration as well since certain university base their admissions on those scores.

IX. Certain non -academic criteria could also be a deciding factor in the admission process of some universities, so we need to research them and factor it into our model if possible.

X. The privacy/security of the user should be of utmost importance and the data provided by them should be safe guarded.

## REFERENCES

- CollegeAI predictor

  https://collegeai.com/chanceme

- CollegeVine predictor

  https://www.collegevine.com/admissions-calculator

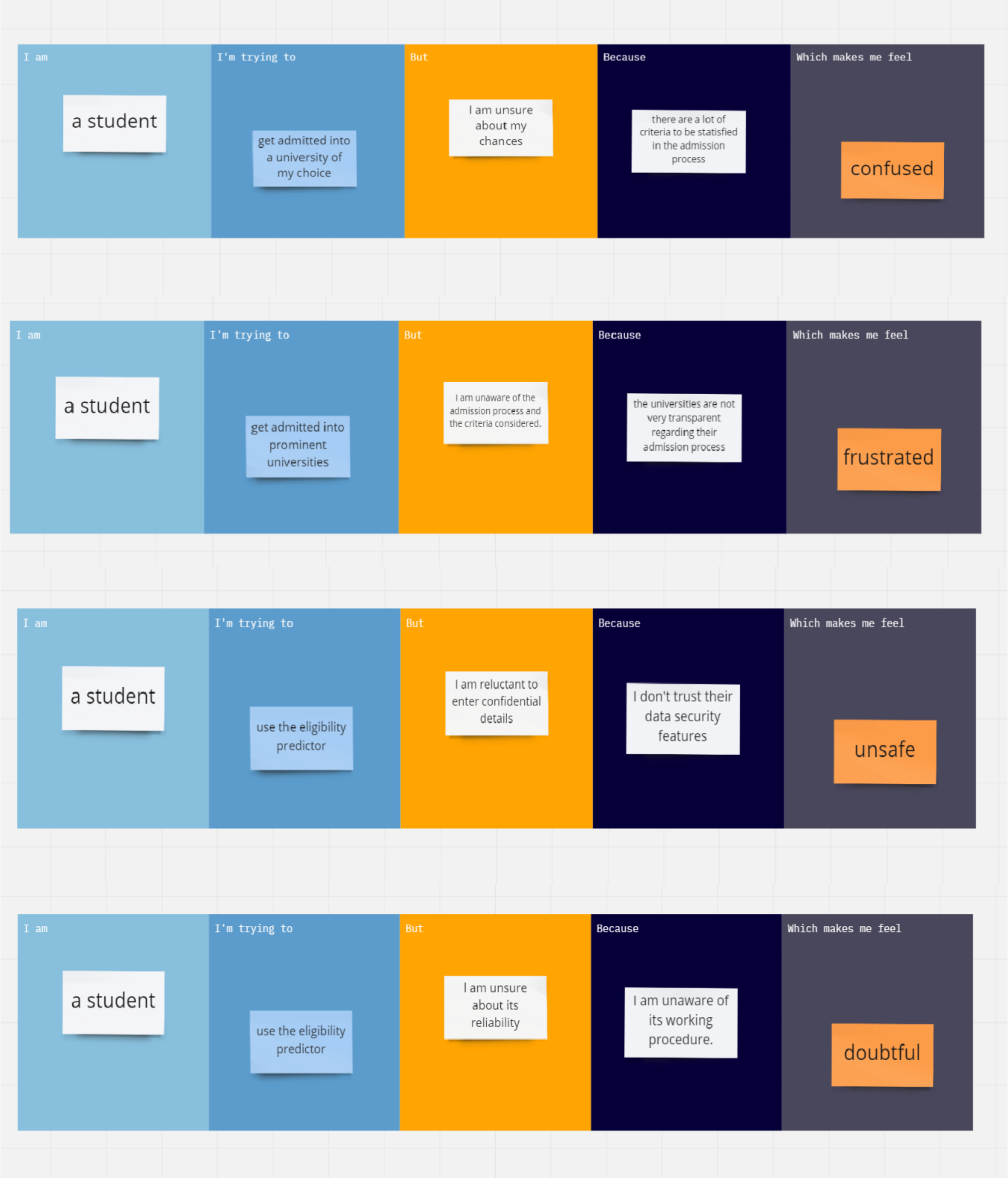
- Yocket's admit predictor

  https://yocket.com/blog/yocket-admit-predictor

- Careers360 predictor

  https://www.careers360.com/college-predictor

# PROBLEM STATEMENT DEFINITION



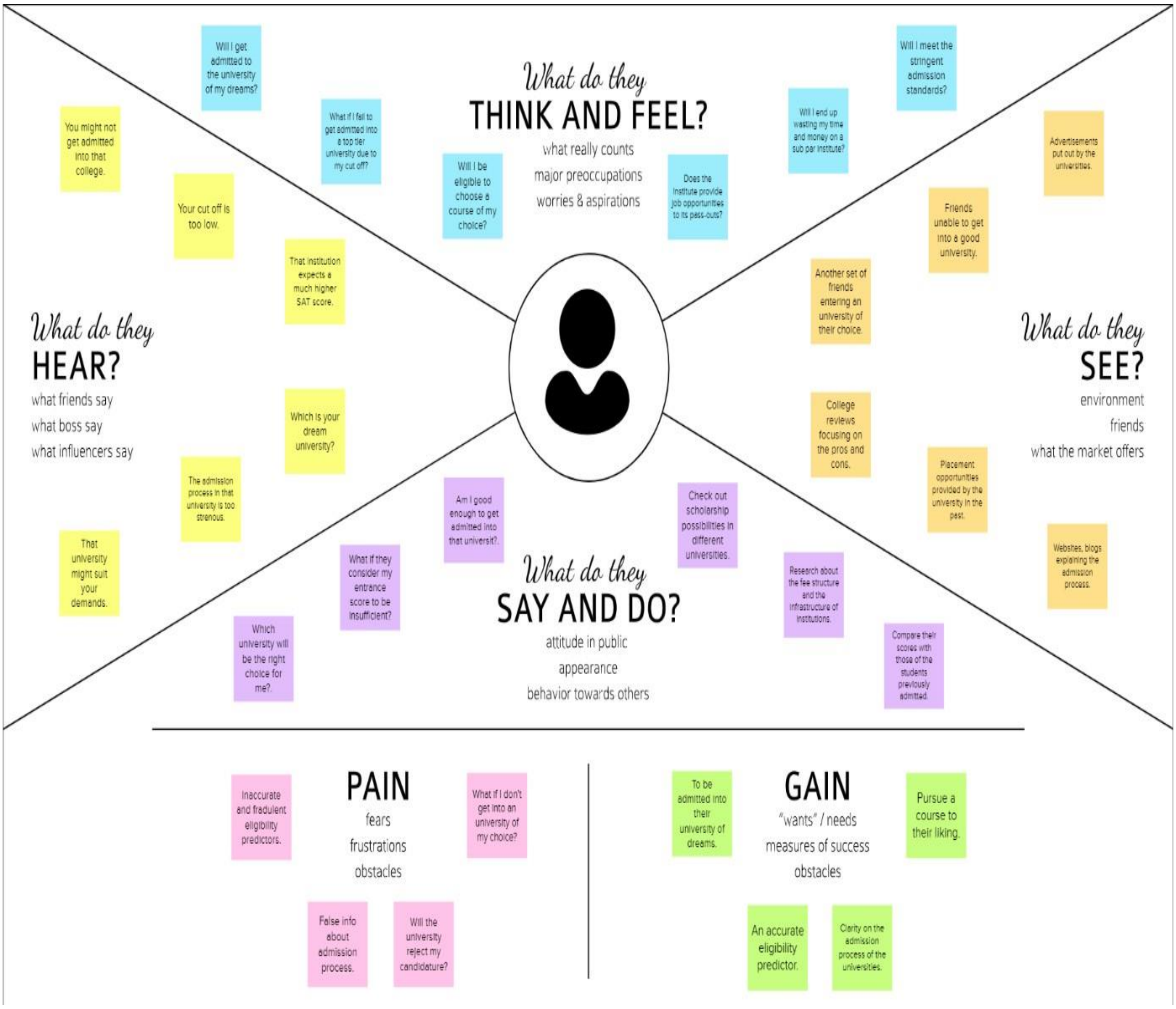
| I am | I'm trying to | But | Because | Which makes me feel |
|---|---|---|---|---|
| a student | get admitted into a university of my choice | I am unsure about my chances | there are a lot of criteria to be statisfied in the admission process | confused |
| a student | get admitted into prominent universities | I am unaware of the admission process and the criteria considered. | the universities are not very transparent regarding their admission process | frustrated |
| a student | use the eligibility predictor | I am reluctant to enter confidential details | I don't trust their data security features | unsafe |
| a student | use the eligibility predictor | I am unsure about its reliability | I am unaware of its working procedure. | doubtful |

**Customer Problem Statement**

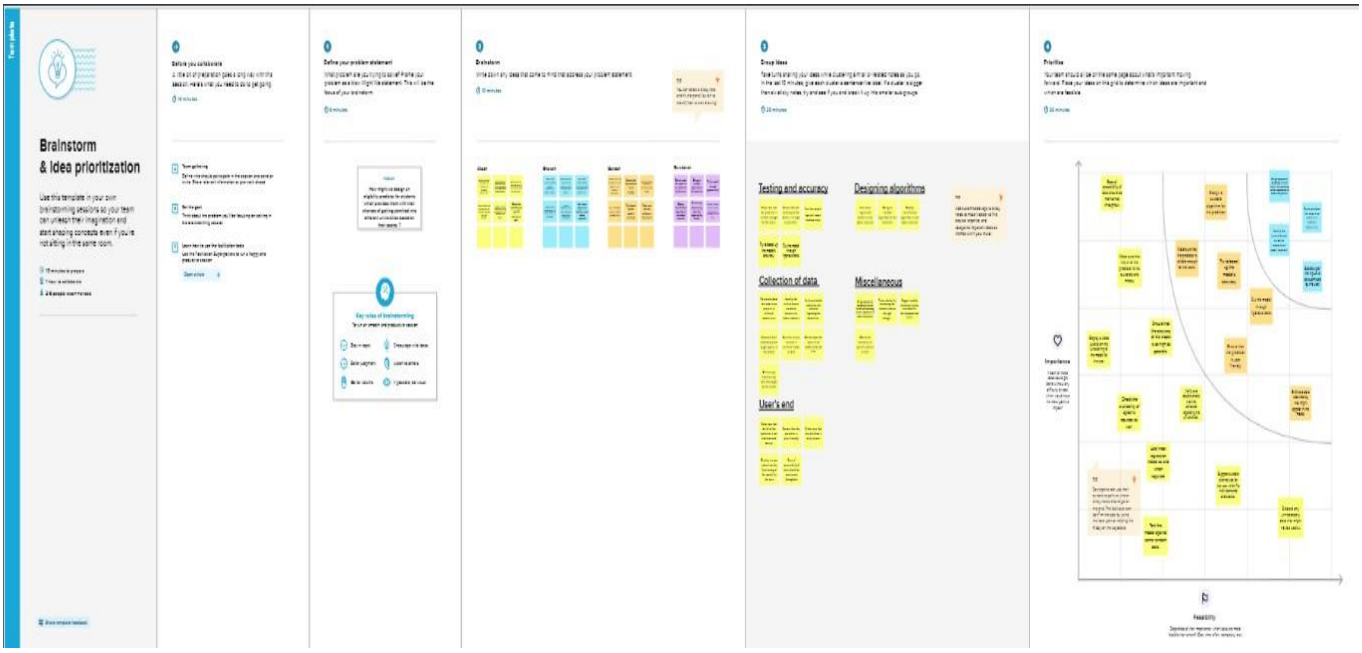
| Problem Statement (PS) | I am (Customer) | I'm trying to | But | Because | Which makes me feel |
|---|---|---|---|---|---|
| PS-1 | A student | To get admitted into a university of my choice | I am unsure about my chances. | There are a lot of criteria to be satisfied in the admission process. | confused |
| PS-2 | A student | To get admitted into a prominent university | I am unaware of the admission process and criteria considered. | Universities are not very transparent regarding the admission process | frustrated |
| PS-3 | A student | Use the eligibility predictor | I am reluctant to enter confidential details. | I don't trust its data security features | unsafe |
| PS-4 | A student | Use the eligibility predictor | I am unsure about its reliability. | I am unaware of its working procedure | doubtful |

# IDEATION & PROPOSED SOLUTION

## EMPATHY MAP CANVAS


What do they
THINK AND FEEL?
what really counts
major preoccupations
worries & aspirations
Will I get admitted to the university of my dreams?
What if I fail to get admitted into a top tier university due to my cut off?
Will I be eligible to choose a course of my choice?
Does the Institute provide job opportunities to its pass-outs?
Will I end up wasting my time and money on a sub par institute?
Will I meet the stringent admission standards?
What do they
HEAR?
what friends say
what boss say
what influencers say
You might not get admitted into that college.
Your cut off is too low.
That institution expects a much higher SAT score.
Which is your dream university?
The admission process in that university is too strenous.
That university might suit your demands.
What do they
SEE?
environment
friends
what the market offers
Advertisements put out by the universities.
Friends unable to get into a good university.
Another set of friends entering an university of their choice.
College reviews focusing on the pros and cons.
Placement opportunities provided by the university in the past.
Websites, blogs explaining the admission process.
What do they
SAY AND DO?
attitude in public
appearance
behavior towards others
Am I good enough to get admitted into that universit?.
What if they consider my entrance score to be insufficient?
Which university will be the right choice for me?.
Check out scholarship possibilities in different universities.
Research about the fee structure and the infrastructure of institutions.
Compare their scores with those of the students previously admitted.
PAIN
fears
frustrations
obstacles
Inaccurate and fradulent eligibility predictors.
What if I don't get into an university of my choice?
False info about admission process.
Will the university reject my candidature?
GAIN
"wants" / needs
measures of success
obstacles
To be admitted into their university of dreams.
Pursue a course to their liking.
An accurate eligibility predictor.
Clarity on the admission process of the universities.

## IDEATION AND BRAINSTORMING

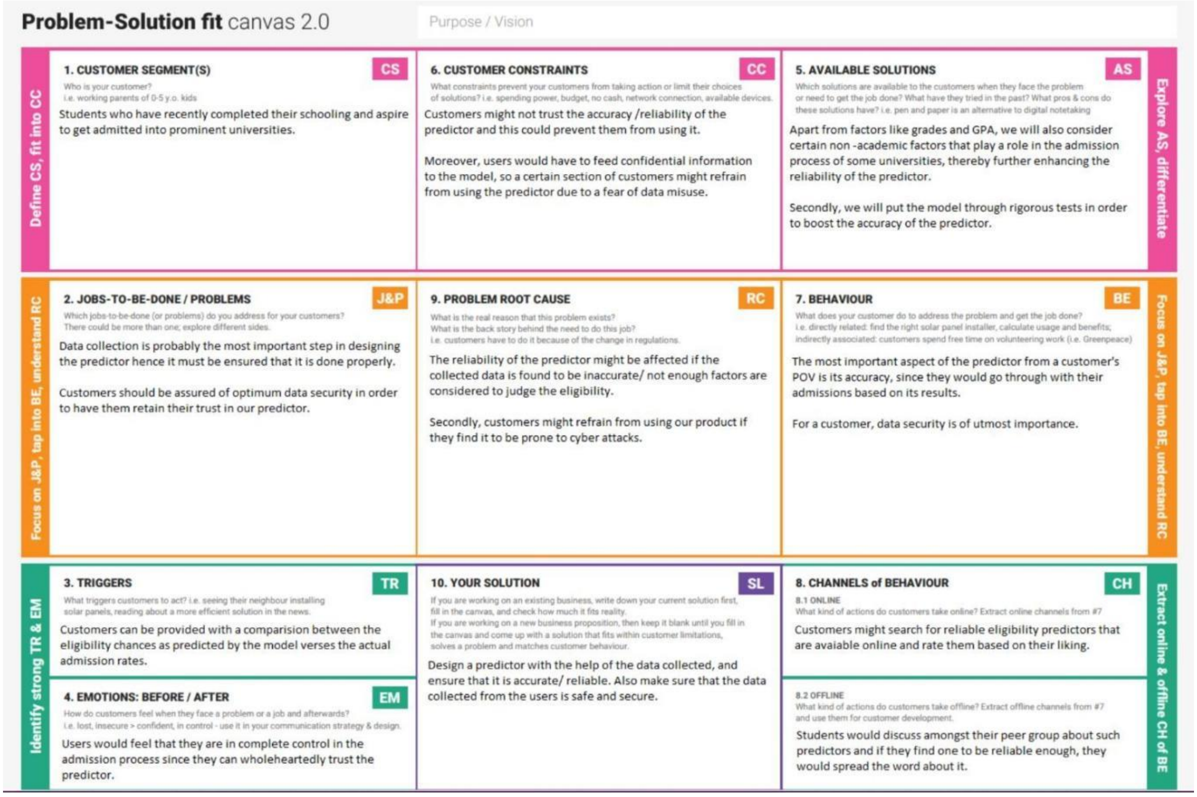

Brainstorm
& idea prioritization
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.
Before you collaborate
Define your problem statement
Brainstorm
Key rules of brainstorming
Group ideas
Prioritize
Testing and accuracy
Designing algorithms
Collection of data
Miscellaneous
User's end
Importance
Feasibility

## PROPOSED SOLUTION

| S.No | Parameter | Description |
|---|---|---|
| 1. | Problem Statement (Problem to be solved) | How might we design an eligibility predictor for students which provides them with their chances of getting admitted into different universities based on their scores and other important criteria. |
| 2. | Idea / Solution description | 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 regarding the admission process.<br>A model is developed which analyses the data provided by the user and evaluates it in accordance with the algorithm developed to predict the eligibility of the user for the specified university. |

|  |  |  |
|---|---|---|
| 3. | Novelty / Uniqueness | We aim to design the model in such a way that it takes certain non-academic factors which influence the admission process into consideration as well. This further enhances the accuracy of the predictor. This attribute is not considered in most predictors available in the market. |
| 4. | Social Impact / Customer Satisfaction | This predictor would provide a clarity to passed out students who might be confused regarding their future with respect to university admissions. The students can apply to universities based on their eligibility chances. |
| 5. | Business Model (Revenue Model) | Such predictors have a huge demand in the market since students who complete their schooling are always in need of tools like this to plan out their university admissions. |
| 6. | Scalability of the Solution | The scope of this predictor is very wide as a large number of universities could be brought within the range of this predictor depending on the requirements of the user.<br>Hence, this solution is largely scalable in nature. |

## PROBLEM SOLUTION FIT



**Problem-Solution fit** canvas 2.0

Purpose / Vision

Define CS, fit into CC

**1. CUSTOMER SEGMENT(S)** CS

Who is your customer?
i.e. working parents of 0-5 y.o. kids

Students who have recently completed their schooling and aspire to get admitted into prominent universities.

**6. CUSTOMER CONSTRAINTS** CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

Customers might not trust the accuracy /reliability of the predictor and this could prevent them from using it.

Moreover, users would have to feed confidential information to the model, so a certain section of customers might refrain from using the predictor due to a fear of data misuse.

**5. AVAILABLE SOLUTIONS** AS

Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

Apart from factors like grades and GPA, we will also consider certain non -academic factors that play a role in the admission process of some universities, thereby further enhancing the reliability of the predictor.

Secondly, we will put the model through rigorous tests in order to boost the accuracy of the predictor.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

**2. JOBS-TO-BE-DONE / PROBLEMS** J&P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

Data collection is probably the most important step in designing the predictor hence it must be ensured that it is done properly.

Customers should be assured of optimum data security in order to have them retain their trust in our predictor.

**9. PROBLEM ROOT CAUSE** RC

What is the real reason that this problem exists?
What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

The reliability of the predictor might be affected if the collected data is found to be inaccurate/ not enough factors are considered to judge the eligibility.

Secondly, customers might refrain from using our product if they find it to be prone to cyber attacks.

**7. BEHAVIOUR** BE

What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

The most important aspect of the predictor from a customer's POV is its accuracy, since they would go through with their admissions based on its results.

For a customer, data security is of utmost importance.

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

**3. TRIGGERS** TR

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

Customers can be provided with a comparision between the eligibility chances as predicted by the model verses the actual admission rates.

**4. EMOTIONS: BEFORE / AFTER** EM

How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

Users would feel that they are in complete control in the admission process since they can wholeheartedly trust the predictor.

**10. YOUR SOLUTION** SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

Design a predictor with the help of the data collected, and ensure that it is accurate/ reliable. Also make sure that the data collected from the users is safe and secure.

**8. CHANNELS of BEHAVIOUR** CH

8.1 ONLINE
What kind of actions do customers take online? Extract online channels from #7

Customers might search for reliable eligibility predictors that are avaiable online and rate them based on their liking.

8.2 OFFLINE
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

Students would discuss amongst their peer group about such predictors and if they find one to be reliable enough, they would spread the word about it.

Extract online & offline CH of BE

# REQUIREMENT ANALYSIS

**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<br>Registration through Gmail<br>Registration through Facebook |
| FR-2 | Authentication of user | An OTP is sent to the registered phone number and email to authenticate the user. |
| FR-3 | User Data (input)<br>User confirmation | A confirmation mail/SMS is sent to the user after the successful registration |
| FR-4 | User Data (input) | Details like CGPA, IELTS/TOEFL score, projects done, GRE score are collected from the user |
| FR-5 | Log in/Log out | Users can login using their mail id and password. They can logout as and when required. |
| FR-6 | Editing user profile | The users must have an option to edit their profile even after the initial registration is over. |
| FR-7 | Chat box facility | A chat box to provide the answers to FAQs and resolve any issues in the functioning. |
| FR-8 | Video tutorial | A video tutorial explaining the working of the predictor should be made available for the convenience of the user. |
| FR-9 | Previous admission records | Admission records of the universities in the years before the current academic year, should be made available to the user. |

**Non-functional Requirements:**

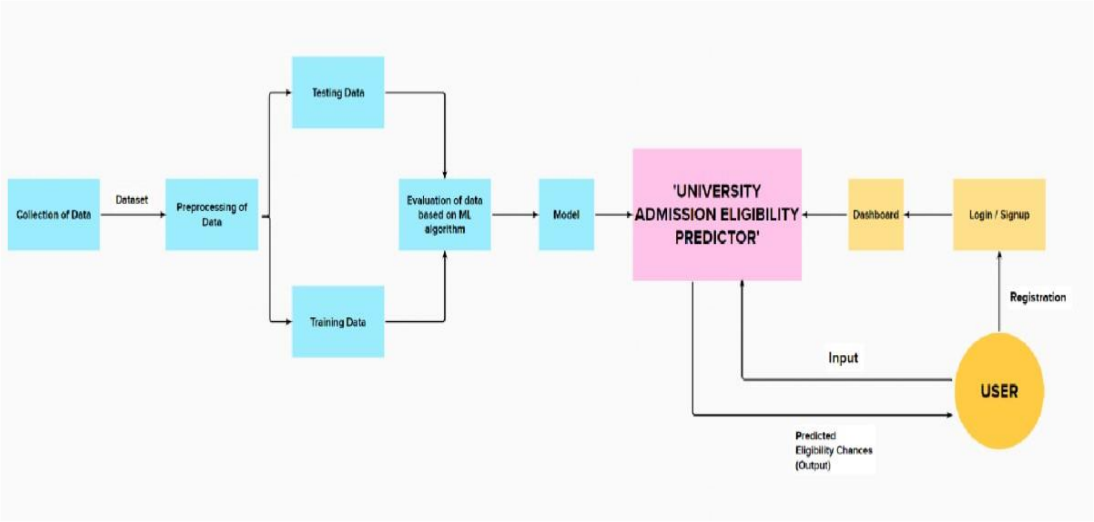
Following are the non-functional requirements of the proposed solution.

| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | The predictor must be easy to use and the UI should be smooth and decluttered. |
| NFR-2 | **Security** | It should be ensured that necessary security features are in place to safe guard users' data from activities like data theft |
| NFR-3 | **Reliability** | The reliability of the predictor must be maintained by providing the customer close-to-accurate results every single time. |

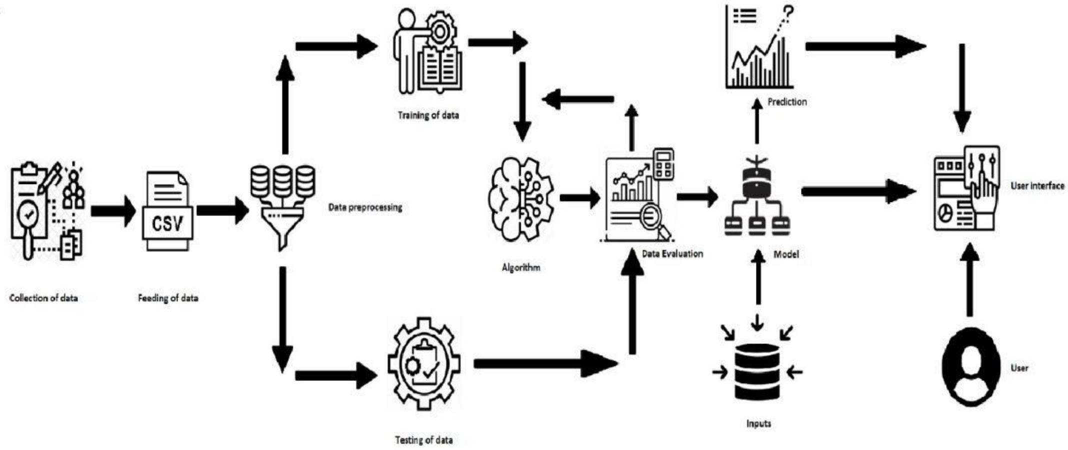
|  |  |  |
|---|---|---|
| NFR-4 | **Performance** | The performance of the predictor is entirely dependent on its accuracy and the time taken by it to come up with the results. |
| NFR-5 | **Availability** | It must be made accessible through any browsers to ensure that it is available to a wide spectrum of users. |
| NFR-6 | **Scalability** | The predictor must be designed in such a way that its range/scope can easily be increased without any massive changes |
| NFR-7 | **Serviceability** | Customer service must be provided through chat box/chat bots to resolve any issues that they might face and to resolve their queries. |
| NFR-8 | **Manoeuvrability** | The platform must be easily manoeuvrable. |

# PROJECT DESIGN

## DATA FLOW DIAGRAM


Collection of Data
Dataset
Preprocessing of Data
Testing Data
Training Data
Evaluation of data based on ML algorithm
Model
'UNIVERSITY ADMISSION ELIGIBILITY PREDICTOR'
Dashboard
Login / Signup
Registration
Input
USER
Predicted Eligibility Chances (Output)

## SOLUTION ARCHITECTURE



**USER STORIES**

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance criteria | Priority | Release |
|---|---|---|---|---|---|---|
| Customer (Mobile user/Web user) | Registration (Sign Up) | 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 for the application through Gmail or Facebook | I can register & access the dashboard with Facebook or Gmail | Medium | Sprint-2 |
| | | USN-4 | A disclaimer explaining our policy against unfair promotion of any university is displayed before registration. | I read the disclaimer and then proceed with the registration process. | Low | Sprint-1 |
| | Login/Signup | USN-5 | As a user, I can log into the application by entering email & password | I am able to log in to the application using my email and password. | High | Sprint-1 |
| | Dashboard | USN-6 | As a user, I can view my personal information on the dashboard | I am able to see my personal info on the dashboard | Low | Sprint-1 |
| | | USN-7 | I am able to access admission records of different universities previously. | I can access the files containing the records but with read only permission. | Medium | Sprint-2 |
| Customer Care Executive | Chatbot/Chat box | USN-8 | As the customer care executive, I am responsible for responding to the | I can access the chatbot/chatbot | Low | Sprint-3 |

| User Type | Functional Requirement (Epic) | User Story Number | User Story / Task | Acceptance criteria | Priority | Release |
|---|---|---|---|---|---|---|
| | | | user's queries. | | | |
| Administrator | Data collection and management. | USN-9 | As the admin, I am responsible for updating the predictor regularly based on any changes in the universities' admission process | I am able to update the changes successfully | High | Sprint-2 |
| | | USN-10 | I have complete access and control over the resources of the model. | I have complete control over the predictor. | Medium | Sprint-1 |
| | | USN-11 | I have to resolve any issues that might arise while using the model. | I can resolve the issues that arise while using the predictor. | Low | Sprint-3 |
| | | USN-12 | I must make necessary changes to the model as and when required based on customer feedback | I am able to makes necessary changes to the model without altering its functionality | High | Sprint-3 |

## TECHNICAL ARCHITECTURE

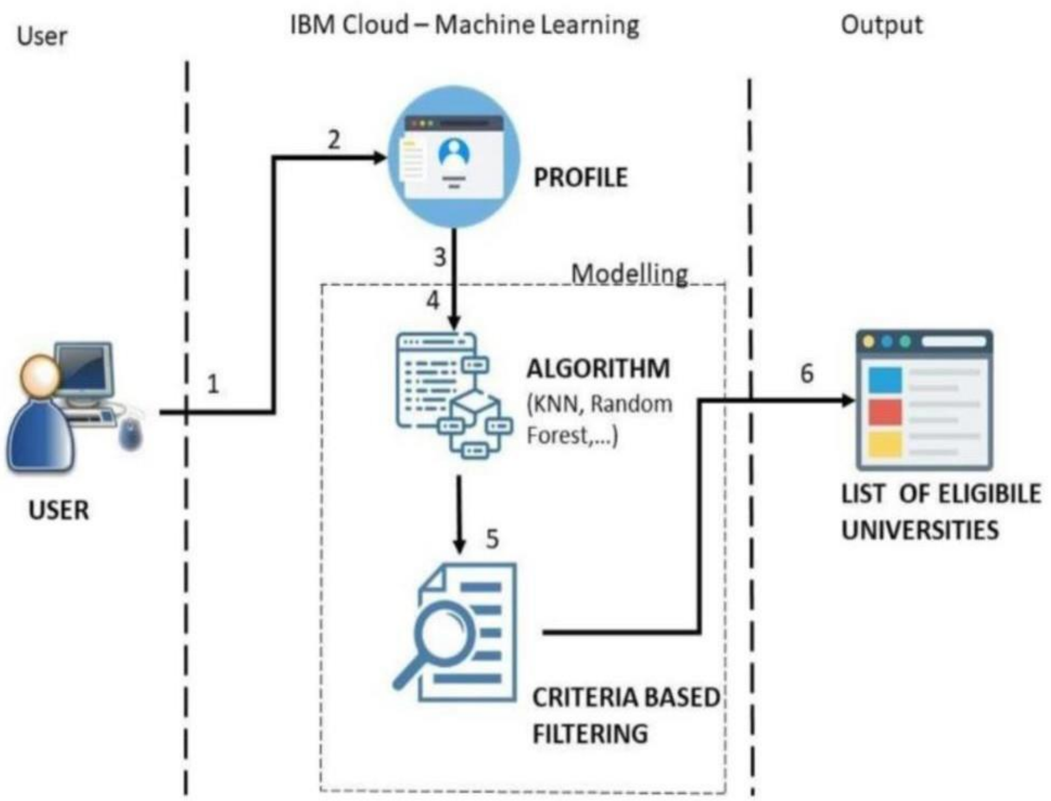


**Table-1 : Components & Technologies:**

| S.No | Component | Description | Technology |
|---|---|---|---|
| 1 | User Interface | How user interacts with application and its features. | HTML, CSS, JavaScript etc. |
| 2 | Application Logic-1 | The user fills the data into his profile which is then fed into the model to calculate the chances | Python [Jupyter] |
| 3 | Application Logic-2 | The model predicts the eligibility chances of the user for different universities based on the input data | IBM Watson STT, Python |

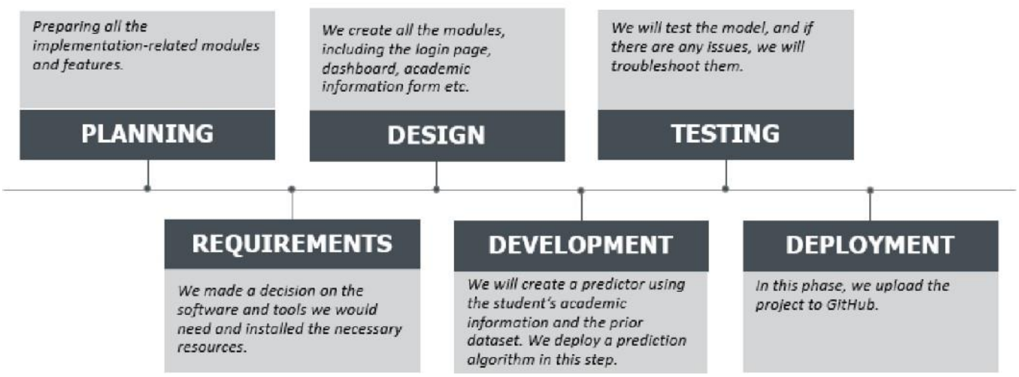
|  |  |  |  |
|---|---|---|---|
| 4 | Database | Data of the names of the universities and their corresponding cut-offs and exam scores for admission | Imported through pandas in a csv format |
| 5 | Machine Learning Model | Predicts the output using the ML algorithm | KNN, Decision tree, Random Forest, etc. |
| 6 | Infrastructure (Server / Cloud) | Application Deployment on Local System / Cloud | IBM cloud, local cloud |

**Table-2: Application Characteristics:**

| S.No | Characteristics | Description | Technology |
|---|---|---|---|
| 1. | Open-Source Frameworks | Python for backend and Flask for front end | Python, Flask |
| 2. | Security Implementations | To ensure the security of the data provided by the user | Encryption, OWASP |
| 3. | Scalable Architecture | The model is scalable in nature because its scope can be increased easily. | Random forest ML algorithm, Logistic regression |
| 4. | Availability | The model is available to anyone, anywhere, anytime | IBM load balancer |
| 5. | Performance | The chances are predicted with a greater accuracy | Random forest ML algorithm |

# PROJECT PLANNING & SCHEDULING

## MILESTONE AND ACTIVITY LIST



PLANNING

Preparing all the implementation-related modules and features.

REQUIREMENTS

We made a decision on the software and tools we would need and installed the necessary resources.

DESIGN

We create all the modules, including the login page, dashboard, academic information form etc.

DEVELOPMENT

We will create a predictor using the student's academic information and the prior dataset. We deploy a prediction algorithm in this step.

TESTING

We will test the model, and if there are any issues, we will troubleshoot them.

DEPLOYMENT

In this phase, we upload the project to GitHub.

## Product Backlog, Sprint Schedule, and 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 by entering my email, password, and confirming my password. | 2 | High | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-1 | | USN-2 | As a user, I will receive confirmation email once I have registered for the application. | 1 | High | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-2 | | USN-3 | As a user, I can register for the application through Facebook and Gmail. | 2 | Low | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-2 | Authentication | USN-4 | An OTP is sent to a registered phone number and email id to authenticate the | 2 | Medium | Ganesh, Bharath, Akash, Gurubaran |

| Sprint | Functional Requirement (Epic) | User Story Number | User Story / Task | Story Points | Priority | Team Members |
|---|---|---|---|---|---|---|
| | | | user. | | | |
| Sprint-1 | Login | USN-5 | As a user, I can log into the application by entering email & password | 1 | High | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-3 | Dashboard | USN-6 | As a user, I can view my personal information in the dashboard | 1 | Medium | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-3 | Data collection and Management | USN-7 | As the Admin, I am responsible for updating the predictor regularly based on any changes in the universities' admission process | 3 | High | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-4 | Customer services | USN-8 | As the customer service executive, I'm responsible for responding to the user's queries. | 2 | Low | Ganesh, Bharath, Akash, Gurubaran |
| Sprint-4 | Feedback | USN-9 | As a user, I can provide my feedback for the improvement of the application | 2 | Low | Ganesh, Bharath, Akash, Gurubaran |

**Project Tracker, Velocity & Burndown Chart**

| 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 | 4 | 6 Days | 24 Oct 2022 | 29 Oct 2022 | 4 | 29 Oct 2022 |
| Sprint-2 | 4 | 6 Days | 31 Oct 2022 | 05 Nov 2022 | 4 | 05 Nov 2022 |
| Sprint-3 | 4 | 6 Days | 07 Nov 2022 | 12 Nov 2022 | 4 | 12 Nov 2022 |
| Sprint-4 | 4 | 6 Days | 14 Nov 2022 | 19 Nov 2022 | 4 | 19 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 = Sprint duration / Velocity

= 6 / 4

= 1.5

# CODING & SOLUTIONING

**Demo:**

```
<!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">
  <meta name="viewport" content="width=device-width, initial-scale=1, maximum-scale=1,
user-scalable=no">
  <link rel="stylesheet" type="text/css" rel="noopener" target="_blank"
href="../static/css/styles.css">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeuOxjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
  <title>University Admit Eligibility Predictor</title>
</head>

<body>

  {% block body %}

  <h1>index page
  </h1>

  {% endblock %}
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.bundle.min.js"
integrity="sha384-
OERcA2EqjJCMA+/3y+gxIOqMEjwtxJY7qPCqsdltbNJuaOe923+mo//f6V8Qbsw3"
crossorigin="anonymous"></script>
</body>

</html>
{% extends 'index.html' %} {% block body %}
<div class="main">
  <nav class="navbar navbar-expand-lg bg-light">
    <div class="container-fluid">
      <a class="navbar-brand text-responsive-h" href="/">
```

```
        <img src="/static/img/logo.jpg" alt="Logo" width="30" height="50" class="d-inline-
block align-text-top "> UNIVERSITY ADMIT ELIGIBILITY PREDICTOR
      </a>
    </div>
  </nav>
  <div class="MAIN">
    <p class="text-responsive,">
      This university eligibility predictor is a tool that is designed for students who are
finished with their schooling/UG and aspire to get admitted into prominent universities . It
provides them with their chances of admission in different universities
      based on certain criteria pertaining to their admission process. It could prove to be
really helpful as it can provide some clarity to students on universities to which they can
apply for admission.</p>
    <p>The aim of this project is to help students in shortlisting universities with their
profiles.
    </p>
  </div>
</div>
<!-- </div> -->
<div class="p-4">
  <div class="row mb-2">
    <div class="col-4">


    </div>



    <div class="row-6">
      <div class="card p-2 ms-2 my-2">
        <div class="card-body">
          <h5 class="card-title pb-4">
            Enter the details
          </h5>
          <div class="form">
            <form action="/" method="post" class="form-horizontal" id="theForm">
              <div class="row mb-3 ">
                <label for="gre" class="col-lg-2 col-form-label">GRE Score:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="gre" name="gre"
min="250" max="340" placeholder="250 to 340" required>
                </div>
              </div>
              <div class="row mb-3">
                <label for="tofel" class="col-lg-2 col-form-label">TOFEL Score:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="tofel" name="tofel"
min="50" max="120" placeholder="50 to 120" required>
```

```
                </div>
              </div>
              <div class="row mb-3">
                <label for="university_rating" class="col-lg-2 col-form-label">University
Rating:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="university_rating"
step="0.01" name="university_rating" min="1" max="5" placeholder="1 to 5" required>
                </div>
              </div>
              <div class="row mb-3">
                <label for="sop" class="col-lg-2 col-form-label">SOP:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="sop" name="sop"
step="0.01" min="1" max="5" placeholder="1 to 5" required>
                </div>
              </div>
              <div class="row mb-3">
                <label for="lor" class="col-lg-2 col-form-label">LOR:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="lor" name="lor"
step="0.01" min="1" max="5" placeholder="1 to 5" required>
                </div>
              </div>
              <div class="row mb-3">
                <label for="cgpa" class="col-lg-2 col-form-label">CGPA:</label>
                <div class="col-lg-10">
                  <input type="number" class="form-control" id="cgpa" name="cgpa"
step="0.01" min="5" max="10" placeholder="5 to 10" required>
                </div>
              </div>
              <fieldset class="row mb-3">
                <legend class="col-form-label col-sm-2 pt-0">Research:</legend>
                <div class="col-sm-10">
                  <div class="form-check">
                    <input class="form-check-input" type="radio" name="yes_no_radio"
id="gridRadios1" value="1">
                    <label class="form-check-label" for="yes_no_radio">
                    Yes
                    </label>
                  </div>
                  <div class="form-check">
                    <input class="form-check-input" type="radio" name="yes_no_radio"
id="gridRadios2" value="0" checked>
                    <label class="form-check-label" for="yes_no_radio">
                    No
                    </label>
```

```
                                    </div>
                                </div>
                            </fieldset>
                            <div class="row lg-3">
                                <div class="col-lg-2 mb-2 me-3">
                                    <button type="submit" class="btn btn-primary"
id="button">Predict</button>
                                </div>
                                <div class="col-lg-2" id="spinner">
                                    <div class="spinner-border text-primary m-1" role="status">
                                        <span class="visually-hidden">Loading...</span>
                                    </div>
                                    <div class="spinner-grow text-primary m-1" role="status">
                                        <span class="visually-hidden">Loading...</span>
                                    </div>
                                </div>

                        </form>
                        </div>
                    </div>
                </div>
            </div>

        </div>
    </div>

    <script type="text/javascript" src="../static/js/script.js" async></script>
    {% endblock %}
```

**‘Chance’ page:**

```
{% extends 'index.html' %} {% block body %}

<div class="container text-center p-4">
    <div class="d-flex justify-content-center">

        <div class="card" style="width: 34rem;">
            <img src="/static/img/sucess.gif" height="30px" width="30px" class="card-img-top"
alt="...">
            <div class="card-body">
                <h5 class="card-title">Congratulations!</h5>
                <p class="card-text">Yay!The model has predicted that you have a chance</p>
                <p> Eligibility Score:<strong>{{content[0]}}%</strong> </p>
                <a href="/home" class="btn btn-primary">Go Back</a>
            </div>
        </div>
    </div>
</div>

{% endblock %}
```

**‘No Chance’ page:**

```
{% extends 'index.html' %} {% block body %}

<div class="container text-center p-4">
    <div class="d-flex justify-content-center">
        <div class="card" style="width: 34rem;">
            <img src="/static/img/faliure.gif" width="120px" height="auto" class="card-img-top" 
alt="...">
            <div class="card-body">
                <h5 class="card-title">Sorry</h5>
                <p class="card-text">Oops!The model has predicted that you don't have a 
chance</p>
                <p>Eligibility Score:<strong>{{content[0]}}%</strong> </p>
                <a href="/home" class="btn btn-primary">Go Back</a>
            </div>
        </div>
    </div>
</div>

{% endblock %}
```

**CSS:**

```
* {
    margin: 0;
    padding: 0;
    border: 0;
}

.heading {
    text-align:  center;
    color: rgb(65, 199, 220);
}

.MAIN {
    padding-top:    20px;
    padding-left:    20px;
    padding-right: 20px;
    font-family: 'Times New Roman', Times, serif;
    font-size: 25px;
}

.navbar {
    text-align: center;
}

body {
    font: 62.5%/1.5 "Lucida Grande", "Lucida Sans", Tahoma, Verdana, sans-serif;
    background: #a3a9bde9;
    background: -webkit-linear-gradient(to right, #bccce9, #b6cef0);
    background: linear-gradient(to right, #bacbed, #bcd0ed);
    color: #000000;
    text-align: center;
}

h1 {
    font-size: 2.2em;
}

h2 {
    font-size: 2.0em;
}

h4 {
    font-size: 1.6em;
}

input.text {
    padding: 3px;
    border: 1px solid #999999;
}

img {
    max-width: auto;
    height: auto;
}

.text-responsive-h {
    font-size: calc(80% + 0.6vw + 0.6vh);
}
```

**Java Script file:**

```
const button = document.getElementById('button');
const theForm = document.getElementById('theForm');
const loading = document.getElementById('spinner');

const disableButton = () => {
   console.log('Submitting form...');
   button.disabled = true;
   button.className = "btn btn-outline-primary";
   button.innerHTML = "Predicting..."
   loading.style.display = "block"
};

const enableButton = () => {
   console.log('Loading window...');
   button.disabled = false;
   button.className = "btn btn-primary"
   button.innerHTML = "Predict"
   loading.style.display = "none"
}

theForm.onsubmit = disableButton;

window.onload = enableButton;
```

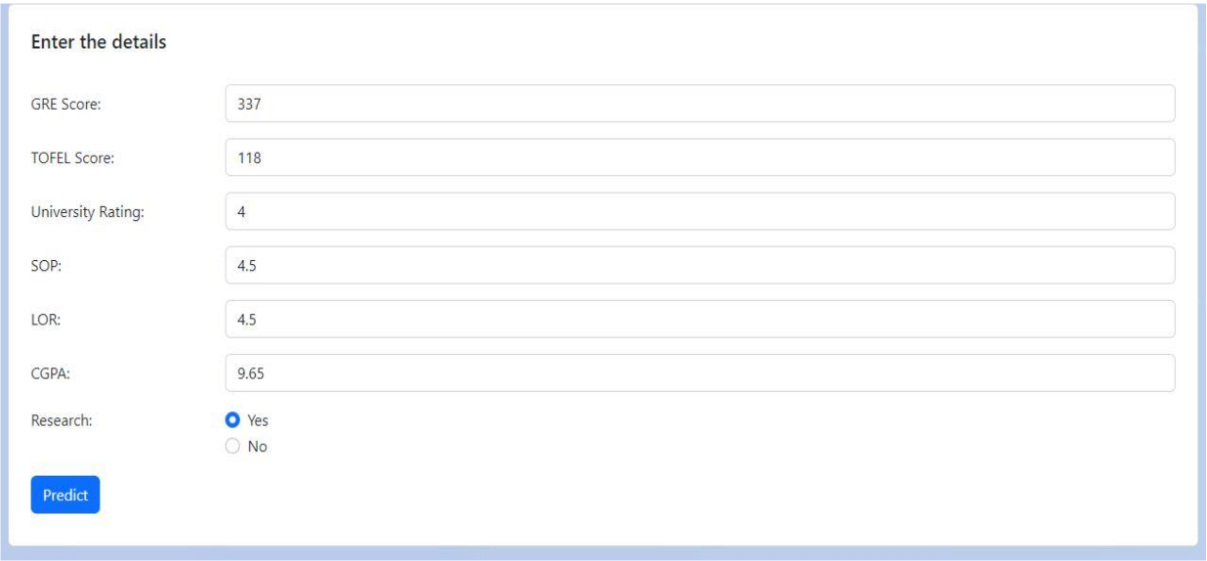
**Flask Interfacing code:**

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

app = Flask(_name_)

@app.route("/", methods = ['POST', 'GET'])
def index():
   if request.method == 'POST':
      arr = []
      for i in request.form:
         val = request.form[i]
         if val == '':
            return redirect(url_for("demo2"))
         arr.append(float(val))

      # deepcode ignore HardcodedNonCryptoSecret: <please specify a reason of ignoring
this>
      API_KEY =  "M9HzyQsT95Fg-UVXiBtaNwNEl_8vdomPyIOtKwTlPohb"
      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}
        payload_scoring = {
            "input_data": [{"fields":[  'GRE Score',
                                'TOEFL Score',
                                'University Rating',
                                'SOP',
                                'LOR ',
                                'CGPA',
                                'Research'],
                        "values": [arr]
                        }]
                    }

        response_scoring = requests.post(
            'https://us-south.ml.cloud.ibm.com/ml/v4/deployments/fcb08da1-ca92-4142-aab9-
6af6797d177c/predictions?version=2022-11-13',
            json=payload_scoring,
            headers=header
        ).json()

        result = response_scoring['predictions'][0]['values']

        if result[0][0] > 0.5:
            return redirect(url_for('chance', percent=result[0][0]*100))
        else:
            return redirect(url_for('no_chance', percent=result[0][0]*100))
    else:
        return redirect(url_for("demo2"))

@app.route("/home")
def demo2():
    return render_template("demo2.html")

@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])

@app.route('/<path:path>')
def catch_all():
    return redirect(url_for("demo2"))

if _name_ == "_main_":
    app.run()
```

# TESTING

***Test cases (inputs from the dataset)***

Case (i)



Enter the details

GRE Score: 337

TOFEL Score: 118

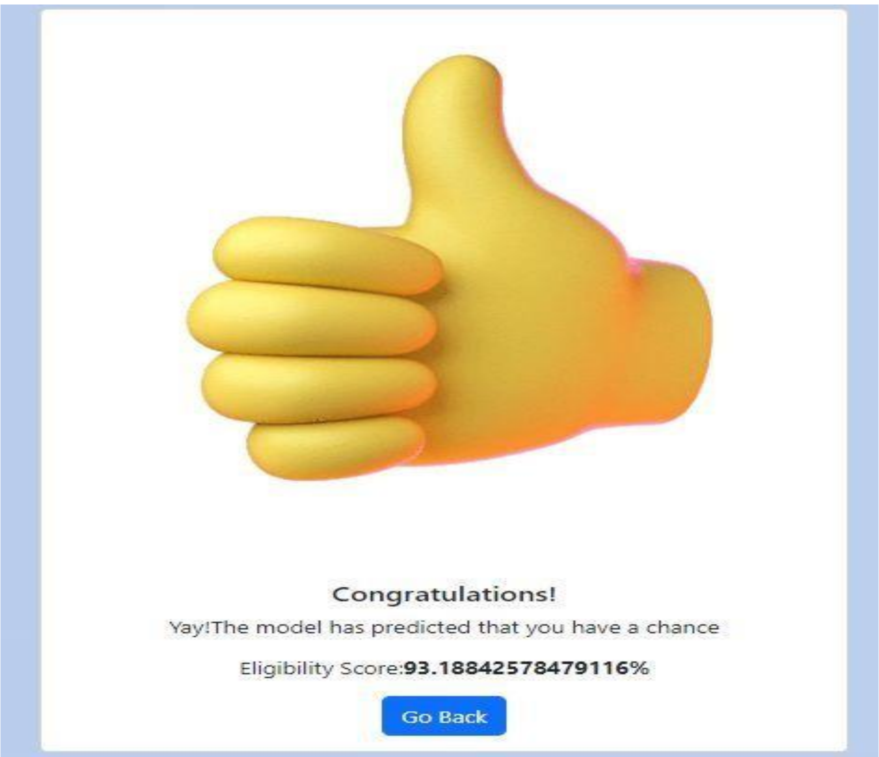
University Rating: 4

SOP: 4.5

LOR: 4.5

CGPA: 9.65

Research: ● Yes ○ No

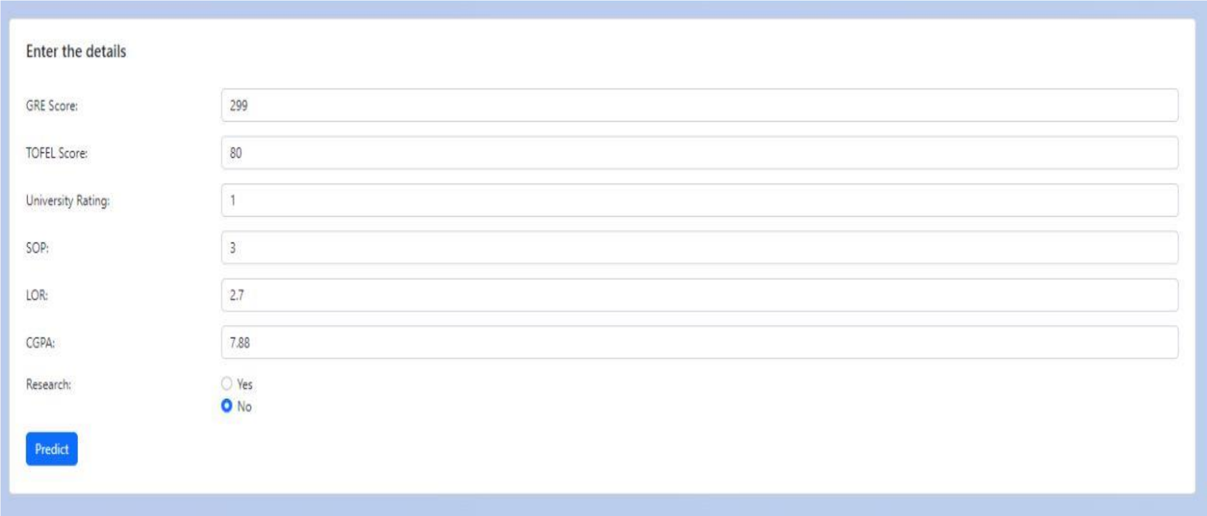


Congratulations!

Yay!The model has predicted that you have a chance

Eligibility Score:**93.18842578479116%**

Case (ii)



Enter the details

GRE Score: 299

TOFEL Score: 80

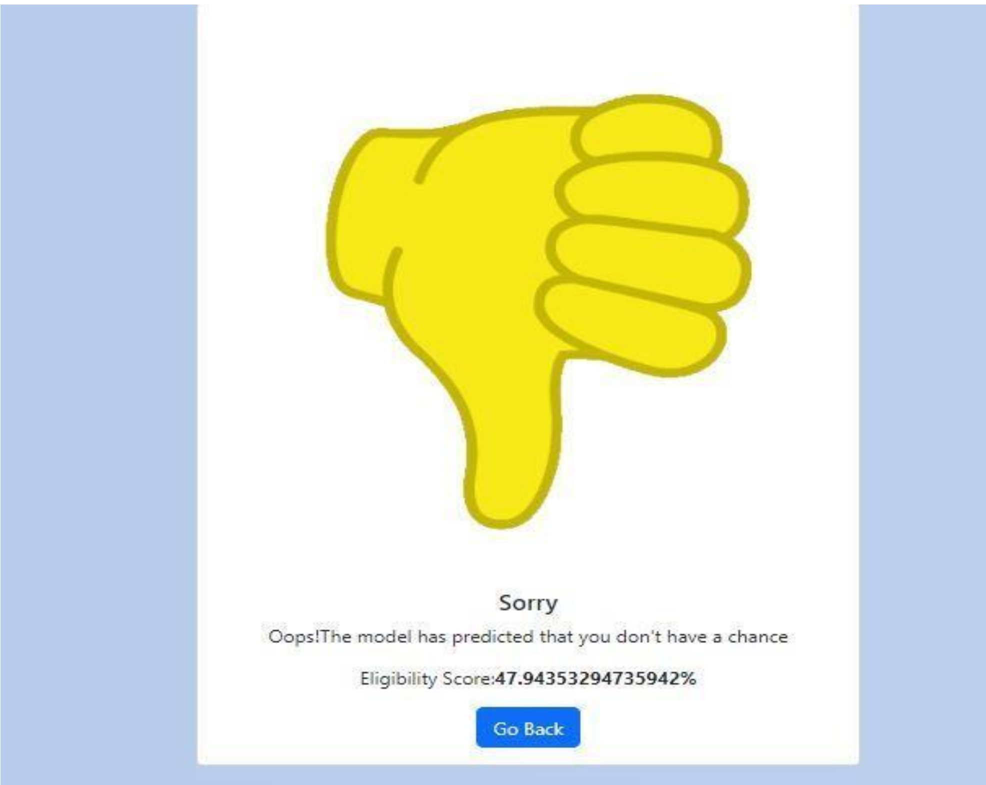
University Rating: 1

SOP: 3

LOR: 2.7

CGPA: 7.88

Research: ○ Yes ● No



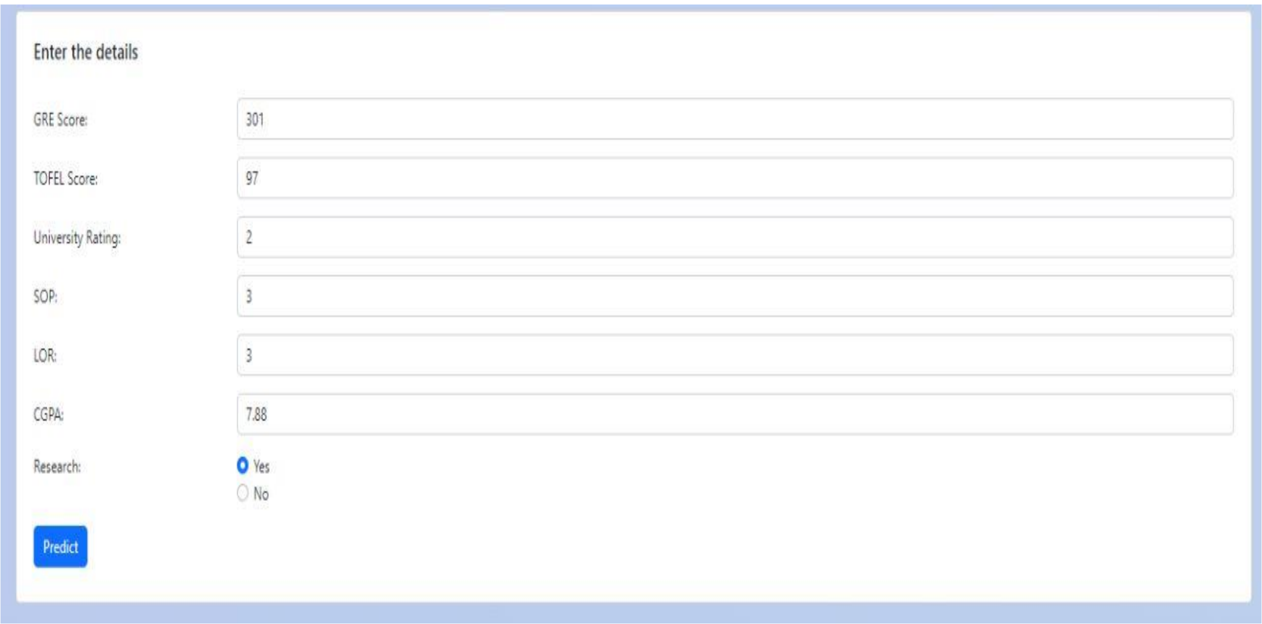
Sorry

Oops!The model has predicted that you don't have a chance

Eligibility Score:**47.943532947735942%**

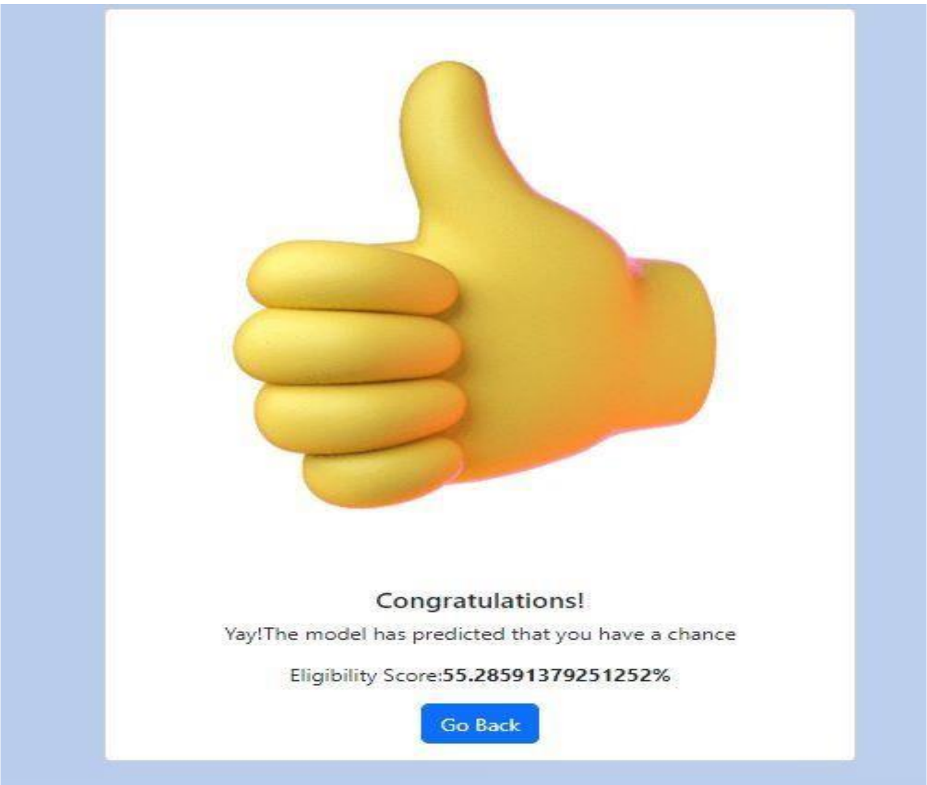
***User acceptance testing***

Case (i)



Enter the details

| | |
|---|---|
| GRE Score: | 301 |
| TOFEL Score: | 97 |
| University Rating: | 2 |
| SOP: | 3 |
| LOR: | 3 |
| CGPA: | 7.88 |
| Research: | ● Yes<br>○ No |

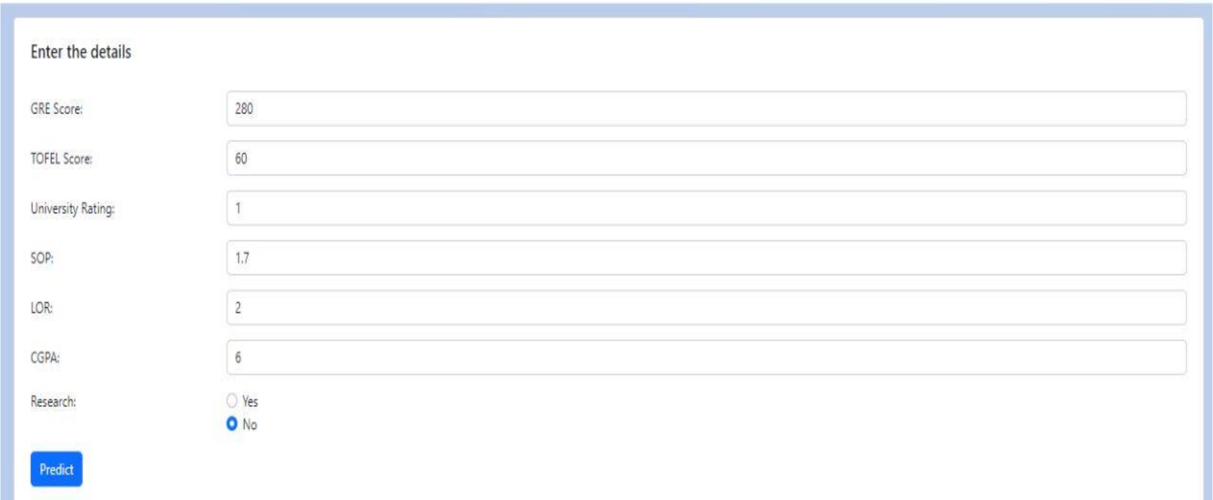


Congratulations!

Yay!The model has predicted that you have a chance

Eligibility Score:**55.28591379251252%**

Case (ii)



Enter the details

GRE Score: 280

TOFEL Score: 60

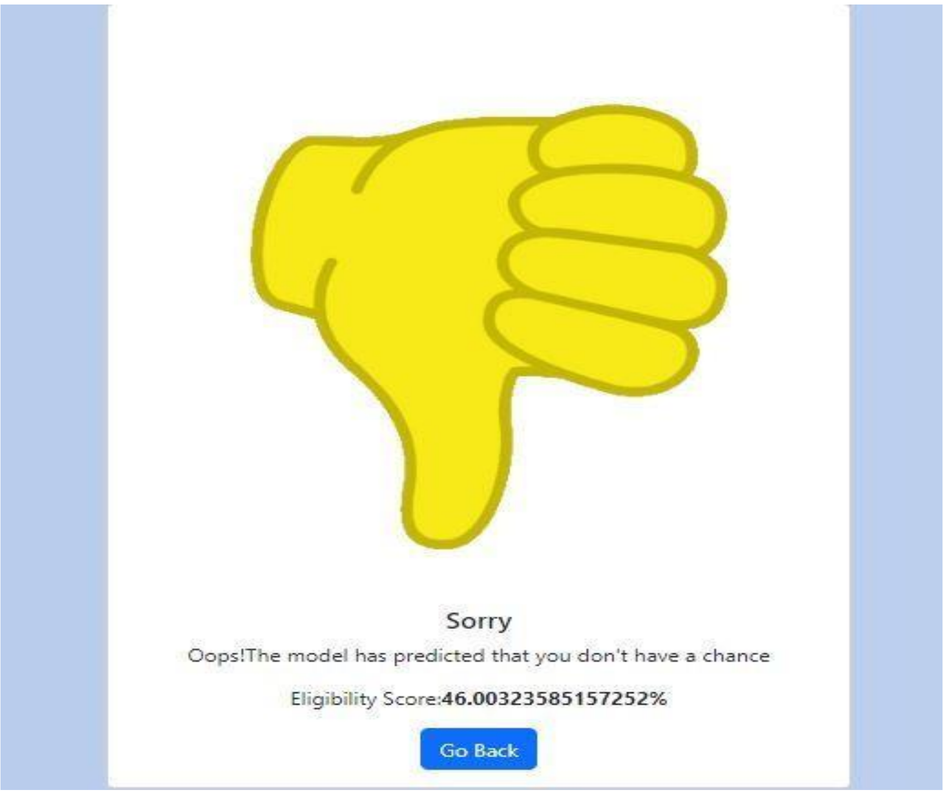
University Rating: 1

SOP: 1.7

LOR: 2

CGPA: 6

Research: ○ Yes ● No



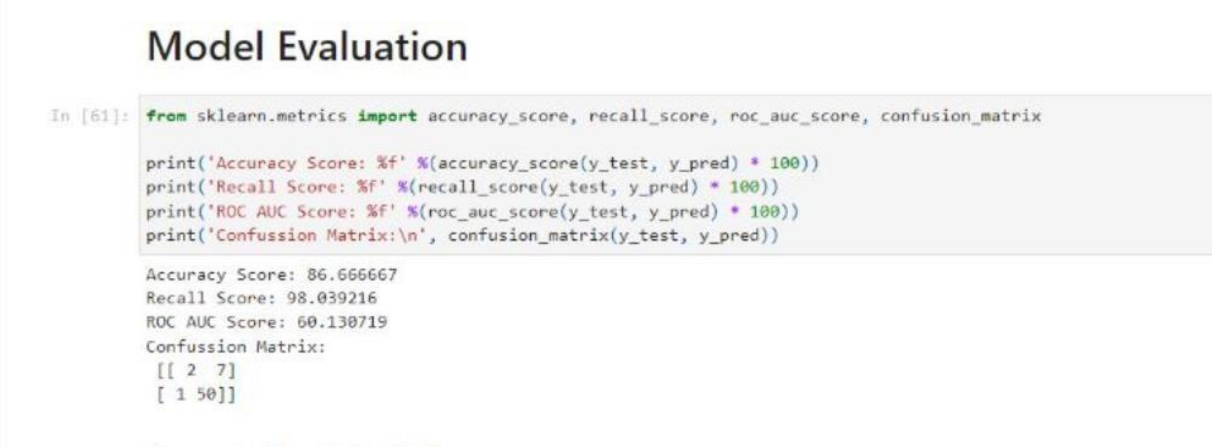
Sorry

Oops!The model has predicted that you don't have a chance

Eligibility Score:**46.00323585157252%**

# RESULTS

## Performance metrics



Model Evaluation

In [61]:
```
from sklearn.metrics import accuracy_score, recall_score, roc_auc_score, confusion_matrix

print('Accuracy Score: %f' %(accuracy_score(y_test, y_pred) * 100))
print('Recall Score: %f' %(recall_score(y_test, y_pred) * 100))
print('ROC AUC Score: %f' %(roc_auc_score(y_test, y_pred) * 100))
print('Confussion Matrix:\n', confusion_matrix(y_test, y_pred))
```

```
Accuracy Score: 86.666667
Recall Score: 98.039216
ROC AUC Score: 60.130719
Confussion Matrix:
 [[ 2  7]
 [ 1 50]]
```

**Accuracy score = 86.66**

- ✓ It is the ratio of true positives and true negatives to all positive and negative observations.

**Recall Score = 98.03**

- ✓ It is used to measure the model performance in terms of measuring the count of true positives in a correct manner out of all the actual positive values.

**ROC AUC score = 60.13**

- ✓ It is a performance measurement for classification of problems at different threshold settings

**Confusion matrix**
**[ [ 2 7]**
**[ 1 50]]**

- ✓ It is a matrix used to determine the performance of the classification model for a given set of test data

# ADVANTAGES & DISADVANTAGES

**Advantages:**

- It helps student for making decision for choosing a right college.
- It is quick, accurate, efficient and reliable.
- It is very user friendly.
- This model avoids data redundancy and inconsistency.
- It provides the user with an eligibility score.

**Disadvantages:**

- Since the model is built on a limited dataset, the accuracy of the predictor can be affected as a whole.
- There are a number of non-academic factors that can determine whether the students get admitted into the university but the model doesn't take those into account.
- An active internet connection is required to access this predictor.

# CONCLUSION

To conclude, we’d have to admit that this project has been more taxing than we had imagined before we began working on it. But it has been a huge and valuable learning curve for all of us as we were able to put all our theoretical knowledge to use in a practical scenario for the first time. We had to learn and unlearn a lot of things during the process of developing the predictor and we thoroughly enjoyed that aspect of it. We have put in a lot of effort into increasing the accuracy of the model. Our primary focus beyond boosting the accuracy was on developing a user-friendly model which has a clean and decluttered UI. We believe that we have achieved that. This project has a lot of scope and could be scaled if the demand is high in the future.

# FUTURE SCOPE

Scalability of the model is one of the most important non-functional requirements which should be in focus while developing any model as it ensures that its scope is wide. Hence, we ensured that the predictor we developed is scalable in nature in order to meet any future demands. The user-friendly nature of the predictor will make sure that it is popular among students over an extended period of time. The predictor can be accessed anywhere anytime as long as the user has a stable internet connection. Advanced security features can be implemented in the model in the future to overcome data theft. There is always a possibility of increasing the accuracy score of the model by fine tuning the code. Hence, the predictor has a wide scope and can be developed in the future as per the customer’s demands.

# APPENDIX

**Source code:**

```
import pandas as pd
import numpy  as np
import matplotlib.pyplot as plt
import seaborn as sns
import os, types
import pandas as pd
from botocore.client import Config
import ibm_boto3

def___iter__(self): return 0

# @hidden_cell
# The following code accesses a file in your IBM Cloud Object Storage. It includes your
credentials.
# You might want to remove those credentials before you share the notebook.
cos_client = ibm_boto3.client(service_name='s3',
    ibm_api_key_id='MwLMvoaVaULL9-J0Yma10fFGdKwGGy0psJIkbuyuIJJP',
    ibm_auth_endpoint="https://iam.cloud.ibm.com/oidc/token",
    config=Config(signature_version='oauth'),
    endpoint_url='https://s3.private.us.cloud-object-storage.appdomain.cloud')

bucket = 'universityadmiteligibilitypredict-donotdelete-pr-fm8fmnu4arxxzo'
object_key = 'Admission_Predict.csv'

body = cos_client.get_object(Bucket=bucket,Key=object_key)['Body']
# add missing __iter___method, so pandas accepts body as file-like object
if not hasattr(body, "__iter__"): body.__iter___= types.MethodType( __iter__, body )

df = pd.read_csv(body)
df.head()
df.drop(['Serial No.'],axis=1,inplace=True)
df.describe()
df.info()
df.isnull().any()
df.isnull().sum()
sns.displot(x=df["GRE Score"], kde=True, color='Darkblue')
plt.title("GRE score distribution");
sns.displot(x=df["TOEFL Score"], kde=True, color='Red')
plt.title("TOEFL score distribution");
sns.countplot(x=df["University Rating"]);
plt.title("Universities Star Rating by applicants");
```

```
sns.displot(x=df["SOP"], kde=True, color='darkgreen');
plt.title("Distribution for ratings on SOP");
sns.displot(x=df["CGPA"], kde=True, color='orange');
plt.title("Distribution of CGPA Score");
sns.countplot(x=df["Research"]);
plt.title("Research Count");
df.columns
sns.regplot(x='SOP', y='CGPA', data=df)
sns.boxplot(x='SOP',y='CGPA',data=df,color='orange')
sns.violinplot(x='SOP',y='CGPA',data=df,color='yellow')
sns.scatterplot(x='SOP', y='CGPA', data=df)
sns.pairplot(df,hue='Research')
corr_matrix = df.corr()
plt.figure(figsize = (15, 15))
sns.heatmap(corr_matrix,annot=True,fmt='0.2f')
plt.title("Correlation Matrix", fontsize = 20)
plt.show()
pd.plotting.scatter_matrix(df.loc[:,"GRE Score":"Research"],diagonal="kde",figsize=(20,15))
plt.show
x = df.iloc[:,0:7]
x
x.head()
y = df.iloc[:,7:]
y
y.head()
x.shape
y.shape
print(f'x contains: {x.shape[0]} rows and {x.shape[1]} columns')
print(f'y contains: {y.shape}')
X=df.drop(['Chance of Admit '],axis=1)
y=df['Chance of Admit ']
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.15)
x_train
x_train.shape
y_train
y_train.shape
x_test
x_test.shape
y_test
y_test.shape
from sklearn.ensemble import GradientBoostingRegressor
model = GradientBoostingRegressor()
model.fit(x_train,y_train)
model.score(x_test,y_test)
y_predict=model.predict(x_test)
```

```
from sklearn.metrics import mean_squared_error, r2_score,mean_absolute_error
import numpy as np
print('Mean Absolute Error:', mean_absolute_error(y_test, y_predict))
print('Mean Squared Error:', mean_squared_error(y_test, y_predict))
print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_predict)))
y_train = (y_train>0.5)
y_test = (y_test>0.5)
y_train
y_test
from sklearn.linear_model._logistic import LogisticRegression
classifier=LogisticRegression(random_state=0)
lr=classifier.fit(x_train,y_train.ravel())
y_pred = lr.predict(x_test)
y_pred
from sklearn.metrics import accuracy_score, recall_score, roc_auc_score, confusion_matrix

print('Accuracy Score: %f' %(accuracy_score(y_test, y_pred) * 100))
print('Recall Score: %f' %(recall_score(y_test, y_pred) * 100))
print('ROC AUC Score: %f' %(roc_auc_score(y_test, y_pred) * 100))
print('Confussion Matrix:\n', confusion_matrix(y_test, y_pred))
import pickle
pickle.dump(lr, open("university.pkl", "wb"))
pickle.dump(model, open("university_percent.pkl", "wb"))
predictions = pickle.load(open("university.pkl", "rb"))
percent = pickle.load(open("university_percent.pkl", "rb"))
from ibm_watson_machine_learning import APIClient
import json
wml_credentials = {
   "url":"https://us-south.ml.cloud.ibm.com",
   "apikey" : "M9HzyQsT95Fg-UVXiBtaNwNEl_8vdomPyIOtKwTlPohb"

}
wml_client = APIClient(wml_credentials)
wml_client.spaces.list()
SPACE_ID="1bd6f2af-83fb-4b69-b53d-ce5027f9a495"
wml_client.set.default_space(SPACE_ID)
wml_client.set.default_space(SPACE_ID)
import sklearn
sklearn.__version___
MODEL_NAME = 'Prediction'
DEPLOYMENT_NAME = 'Prediction'
DEMO_MODEL = model
software_spec_uid = wml_client.software_specifications.get_id_by_name('runtime-22.1-
py3.9')
model_props = {
   wml_client.repository.ModelMetaNames.NAME: MODEL_NAME,
   wml_client.repository.ModelMetaNames.TYPE: 'scikit-learn_1.0',
    wml_client.repository.ModelMetaNames.SOFTWARE_SPEC_UID: software_spec_uid
}
model_details = wml_client.repository.store_model(
    model=DEMO_MODEL,
    meta_props=model_props,
    training_data=x_train,
    training_target=y_train
)
model_details
model_id = wml_client.repository.get_model_id(model_details)
model_id
deployment_props = {
    wml_client.deployments.ConfigurationMetaNames.NAME:DEPLOYMENT_NAME,
    wml_client.deployments.ConfigurationMetaNames.ONLINE: {}
}
deployment = wml_client.deployments.create(
    artifact_uid=model_id,
    meta_props=deployment_props
)
```

**GITHUB LINK:**
https://github.com/IBM-EPBL/IBM-Project-1671-1658409013

**PROJECT DEMO LINK:**
https://drive.google.com/file/d/1H069g2mNshNGauR_2smBFg0FA7ZPvpjb/view?usp=sharing

**************************************************************