Sona college of Technology

UNIVERSITY ADMIT ELIGIBILITY PREDICTOR PROJECT REPORT

Domain : Applied Data Science

Team ID :PNT2022TMID18817

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1. INTRODUCTION

Project Overview

Student admission problem is very important in educational institutions. This paper addresses machine learning models to predict the chance of a student to be admitted to a master's program. This will assist students to know in advance if they have a chance to get accepted. Newly graduate students usually are not knowledgeable of the requirements and the procuder of the postgraduate admission and might spent a considerable amount of money to get advice from consultancy organizations to help them identify their admission chances. Human consultant and calculations might be bias and inaccurate. The machine learning models are multiple linear regression, k-nearest neighbor, random forest, and Multi layer Perception. Experiments show that the Multi layer Perception model surpasses other models.

Purpose

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. It helps you to understand as to how your profile can be further improved to secure an admit in your target college. It can guide you whether you need to retake the GRE or not, in

order to improve your chances of landing an admit in your preferred university. Students from rural background find it difficult to do the necessary analysis and prepare a preference list. This idea will be beneficial for them. • Students who belong to multiple categories face difficulty in analyzing cut-offs in each of these categories and predict the best colleges they can get an admission in. Whatsoever is the student's rank, this application will aid them in finding the best branch and college for his/her rank. This accommodates the need of students to choose the best college and helps colleges too to recognize their stand in attracting students and finer prediction implies better results for the students.

2. LITERATURE SURVEY

Existing problem

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

References

1. N. Chakrabarty, S. Chowdhury, and S. Rana, "A Statistical Approach to Graduate Admissions' Chance Prediction," no. March, pp. 145–154, 2020.

2. N. Gupta, A. Sawhney, and D. Roth, “Will I Get in? Modeling the Graduate Admission Process for American Universities,” IEEE Int. Conf.Data Min. Work. ICDMW, vol. 0, pp. 631–638,2016.

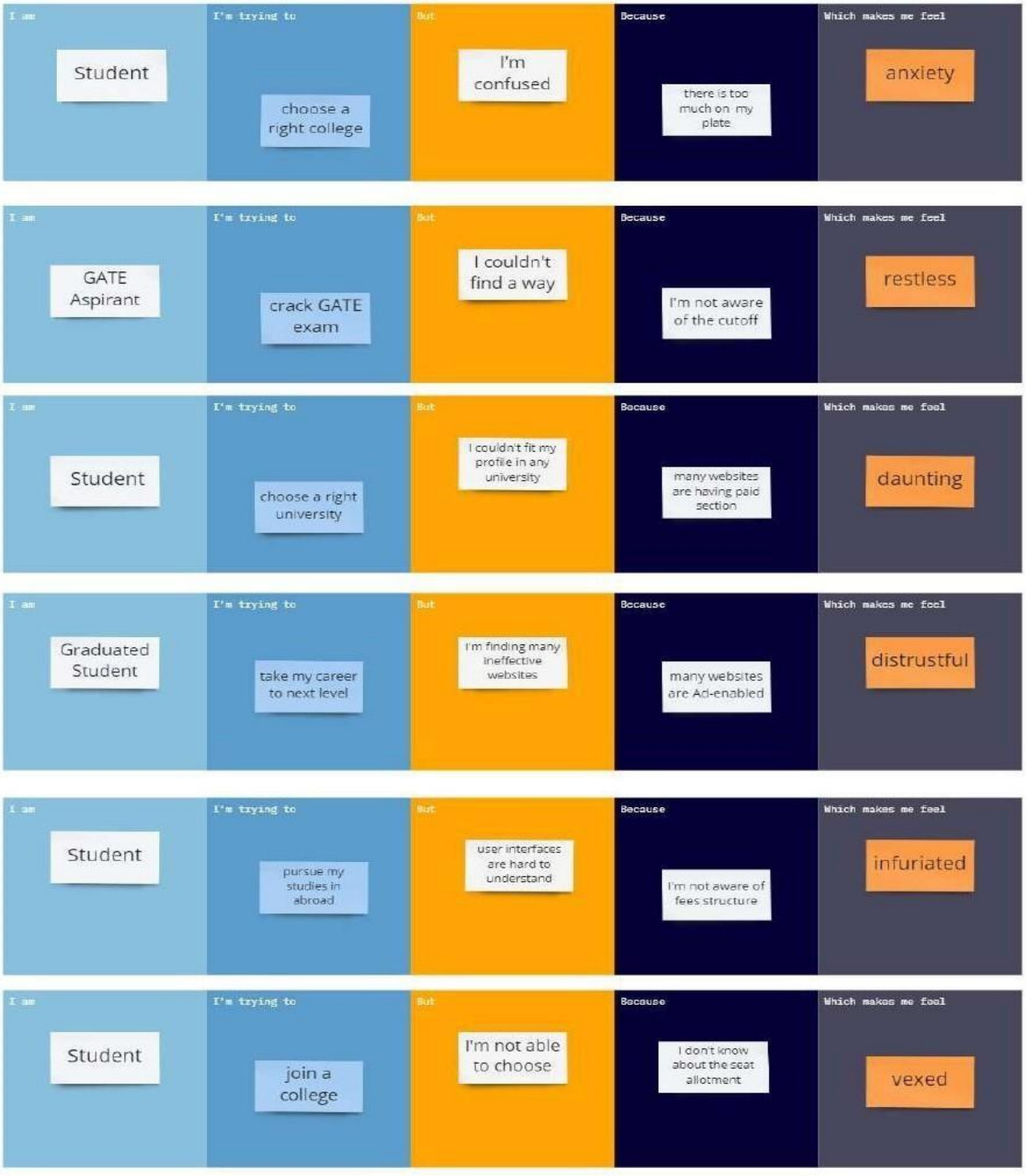
3. A. Waters and R. Miikkulainen, “GRADE : Graduate Admissions,” pp. 64–75,2014.

4. S.Sujay, “Supervised MachineLearning Modelling & Analysis for Graduate Admission Prediction,” vol. 7, no. 4, pp. 5–7, 2020.

5. Janani P, Hema Priya V, Monisha Priya S, Prediction of MS Graduate Admissions using Decision Tree Algorithm ,International Journal of Science and Research (IJSR) ISSN: 2319- 7064 ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426.

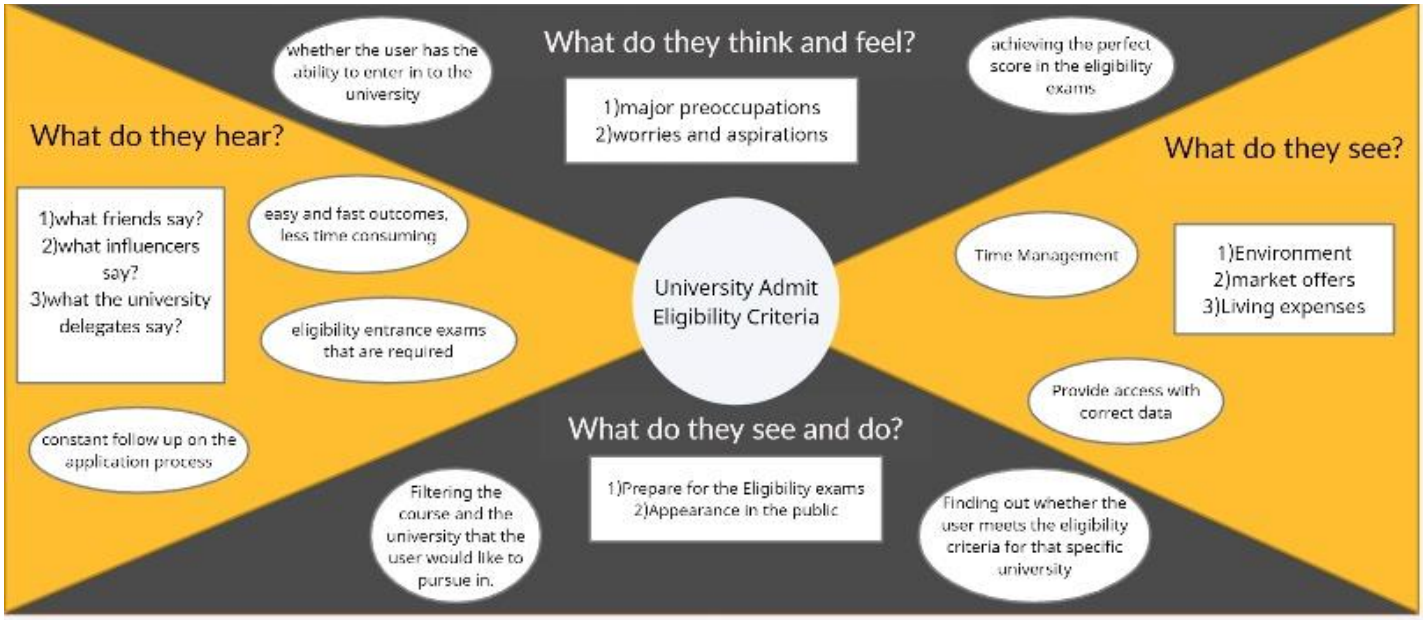
6. Chithra Apoorva D A, Malepati Chandu Nath, Peta Rohith, Bindu Shree.S, Swaroop.S modelling the Prediction for University Admission using Machine Learning. International Journal of Recent Technology and Engineering (IJRTE) ISSN: 2277-3878, Volume-8, Issue-6 March 2020.

Problem Statement Definition



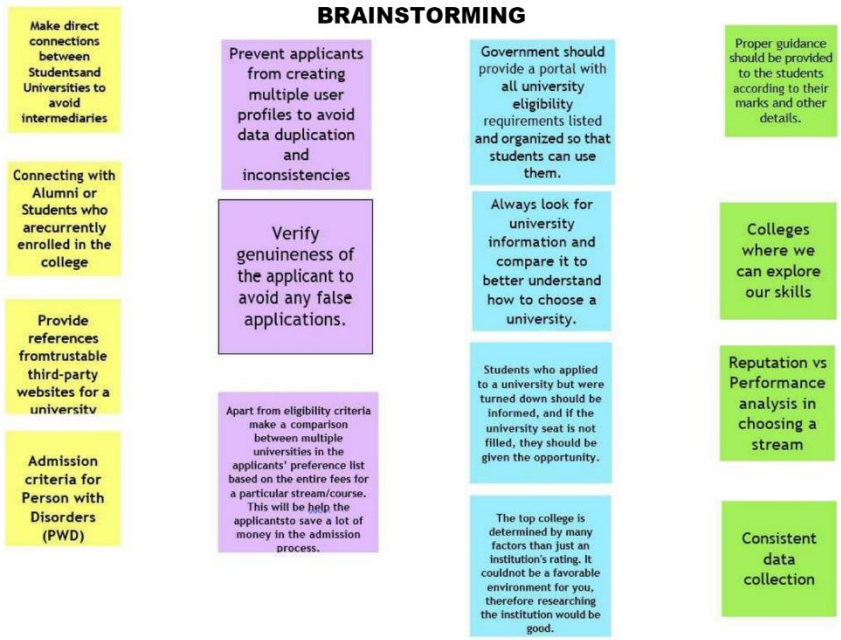
3. IDEATION & PROPOSED SOLUTION

Empathy Map Canvas



Pains	Gains
• Meeting the eligibility criteria • Getting accurate candidate details • Fear of results • Accuracy of predicted results • Frustrations due to poor results	• Measures the success rate •Provides the accurate eligibility criteria • Quick elimination of users under the eligibility criteria •Improving technology in selection operation • Shows all the scholarships (if applicable)

Ideation & Brainstorming



Proposed Solution

1. Problem Statement (Problem to be solved)

I am a Student who is trying to choose a right college based on scores but I couldn't because I am not aware of eligibility criteria which makes me feel frustrated.

2. Idea / Solution description

This idea helps students to get the list of colleges to which they can apply as the system shortlists the colleges by comparing the student's marks and college's cut off and also predicting admission probability.

3. Novelty / Uniqueness

The main advantage of the project is the computerization of the entrance seat allotment process. The total time for the entrance allotment became lesser and the allotment process became faster.

4. Social Impact / Customer Satisfaction

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. It helps you to understand as to how your profile can be further improved to secure an admit in your target college. It can guide you whether you need to retake the GRE or not, in order to improve your chances of landing an admit in your preferred university. Students from rural background find it difficult to do the necessary analysis and prepare a preference list. This idea will be beneficial for them.

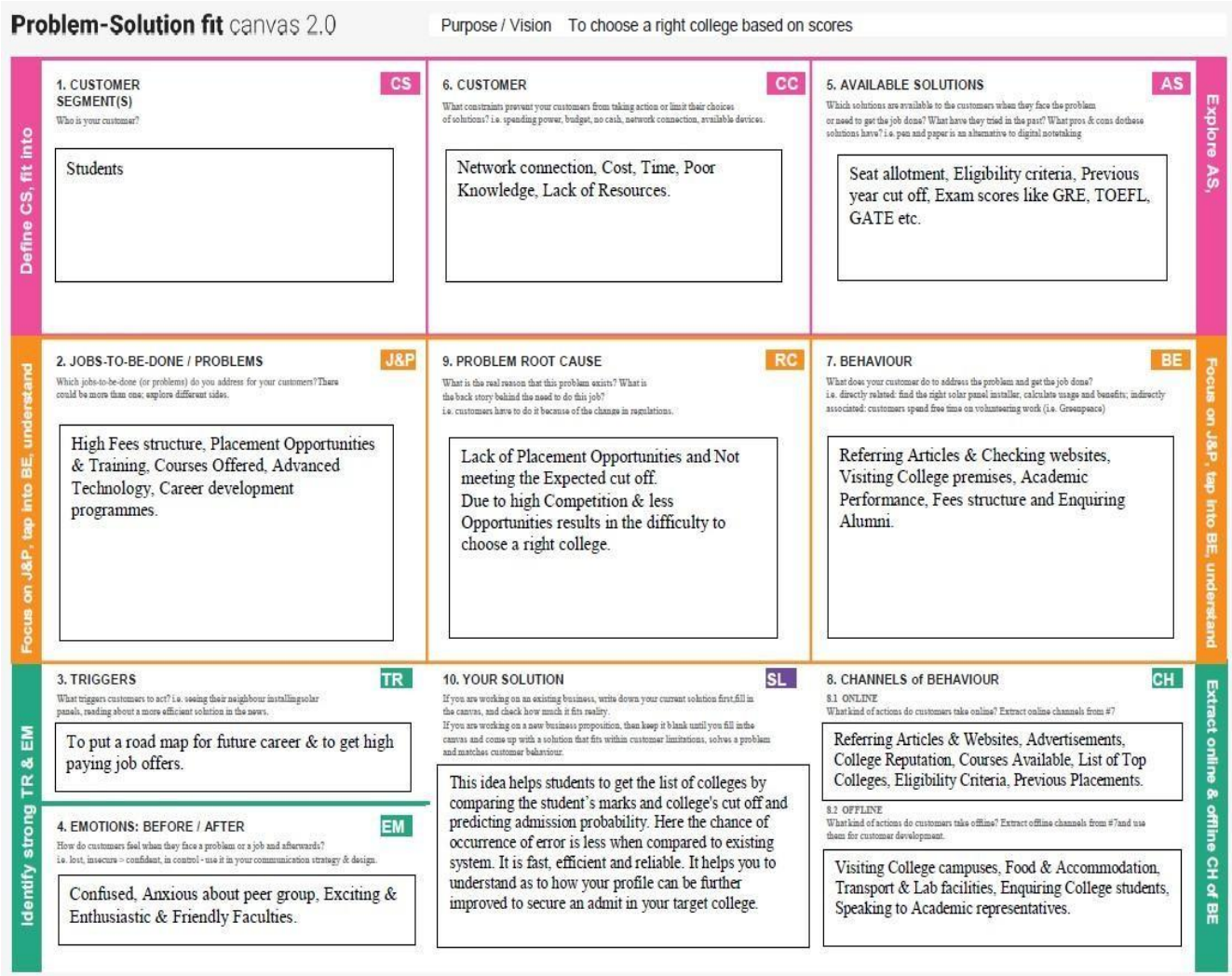
5. Business Model (Revenue Model)

Like most areas of the educational world these days, technology is forcing higher education institutions to do more with less. Institutions are under increasing pressure to admit more students, retain these students, and do their best to ensure student success. Facing this pressure, tech-savvy institutions can benefit greatly from predictive analytics and predictive models to help achieve their goals. Predictive analytics has also allowed colleges to better tailor their advising services and personalize learning to improve student outcomes as well as institutional efficiencies.

6. Scalability of the Solution

This will also help you to finalize your dream schools with a realistic road map, with the help of factual information coupled with a bit of reality check on your academic scores, credentials, work experience, your eminence over your peers. On the other hand, we have connoisseurs who shall work with you to amplify your prospects of receiving offers by ensuring that the universities you apply, do not digress from your profile, and chiefly your ambition. However with open source technology widely available, analytics tools are easier to access and are getting more affordable. The key lies in investing in analytics professionals that can contribute effectively to the entire process. Another concern is privacy and ownership for both students and teachers

Problem Solution fit



4. REQUIREMENT ANALYSIS

Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP

FR-3	User Details	Enter the Marks scored ● HSC/Diploma score ● GRE score ● TOEFL score ● GATE score ● IELTS score ● CGPA etc.
FR-4	User Requirements	● Choose the tier of university they wish to apply and then get a prediction of their chances of admission to that level university based on the mapping between their requirements and the student's results. ● The system shall allow the user's details to be stored for the next time they return to the website. ● If the user chooses to take a new evaluation, the most recent inputs as well as prediction shall replace any previous data.

Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	● No training is required to use the website. ● The form, home, about, FAQ and analysis pages load up within 10 seconds. ● The results from the predictor should not take more than 30 seconds.
NFR-2	**Security**	● The system shall provide password protected access to the website to all users – students & admins both.

NFR-3	**Reliability**	● University Application process itself being a tedious task students needs lots of endeavor and determination for completing overall application process. ● It seems students have to work on lots of things when he/she prepares for application process. ● It would definitely be easier for students if they get relief from step of selecting best suited universities and colleges for application. ● This would encourage them to work vigorously on other application components so that their application candidacy will be potent enough to be selected. ● This system shall be completely operational all hours of the day unless system failure or upgradation work is to be performed. ● Downtime after a failure shall not exceed 24 hours.
NFR-4	**Performance**	● This system can support any number of users at a time. ● The mean time to view a webpage over a 56 Kbps modem connection shall not exceed 5 seconds.
NFR-5	**Availability**	● Easy access of data. ● Avoids data redundancy and inconsistency. ● It is fast, efficient and reliable. ● Very user friendly. ● Chances of occurrence of error is less when compared to existing system.

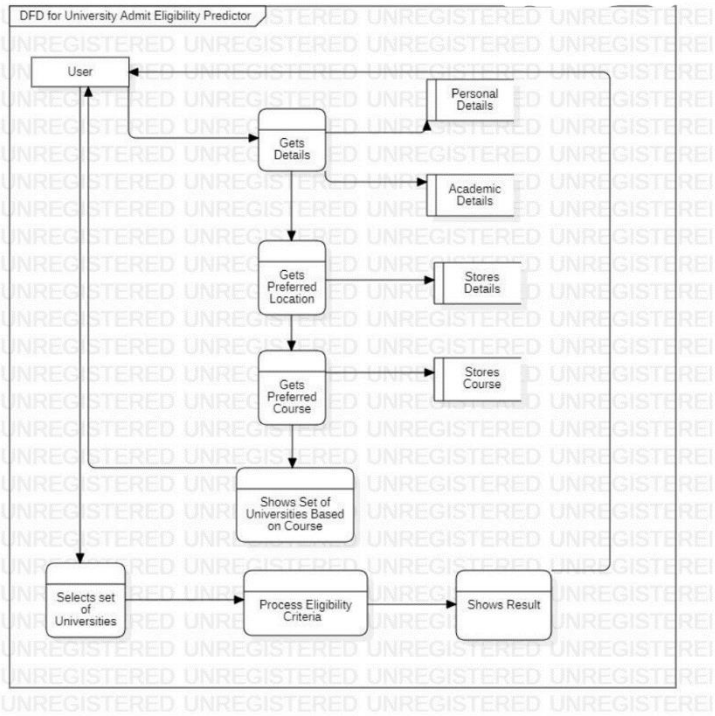
NFR-6	**Scalability**	● This will also help you to finalize your dream schools with a realistic road map, with the help of factual information coupled with a bit of reality check on your academic scores, credentials, work experience, your eminence over your peers. ● On the other hand, we have connoisseurs who shall work with you to amplify your prospects of receiving offers by ensuring that the universities you apply, do not digress from your profile, and chiefly your ambition. ● However with open source technology widely available, analytics tools are easier to access and are getting more affordable. ● The key lies in investing in analytics professionals that can contribute effectively to the entire process. ● Another concern is privacy and ownership for both students and teachers.

5. PROJECT DESIGN

Data Flow Diagrams

Project Design Phase-II
Data Flow Diagram & User Stories

Data Flow Diagram:



Solution & Technical Architecture

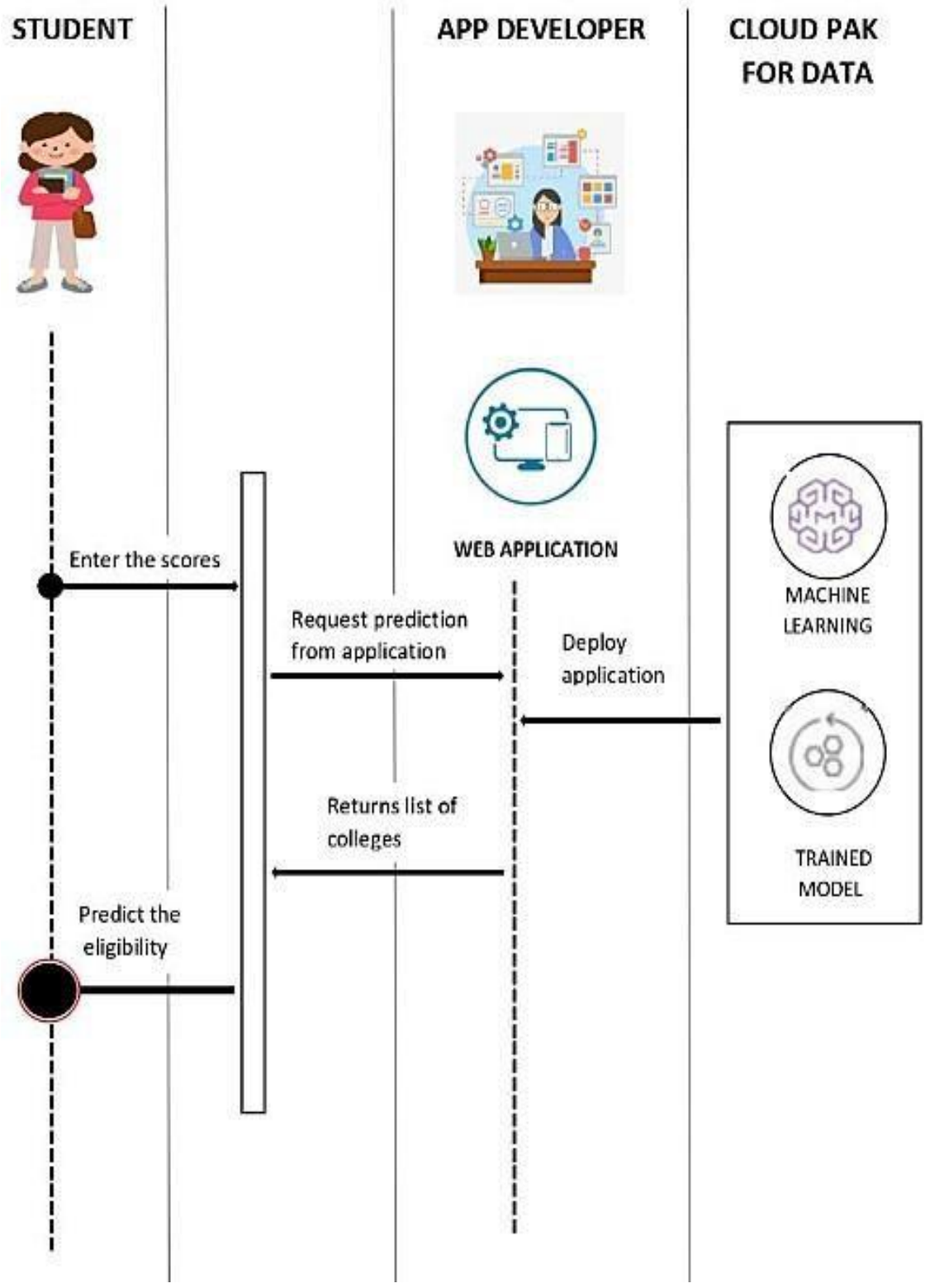
Solution Architecture

1.This solution helps students to get the list of colleges to which they can apply as the system shortlists the colleges by comparing the student's marks and college's cut off.

2.The chance of occurrence of error is less when compared with the existing system. 3.First, Enter the scores in the fields.

4. Next, request the prediction from web application.
5. Returns the list of colleges based on scores.
6. Predicts the eligibility score.

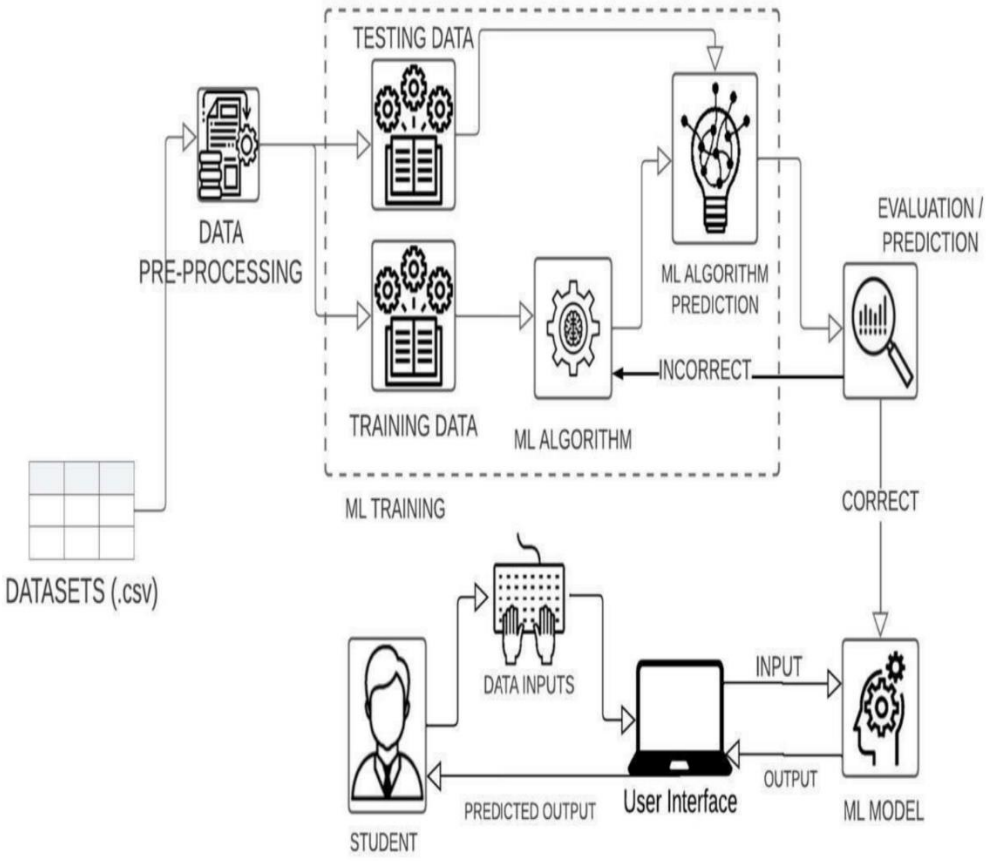
7. Recommending best suitable universities to students based on their GRE, GPA and TOEFL scores and also predicting admission probability.



Technical Architecture

Technology Stack

Technical Architecture:



Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	Web Application	Flutter

User Stories

User Stories

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

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	I can register & access the dashboard with Gmail Login	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can access the dashboard	High	Sprint-1
	Dashboard	USN-6	As a user, I can enter the scores.	I can find eligibility	High	Sprint-2
Customer (Web user)	Registration	USN-7	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-8	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-9	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
		USN-10	As a user, I can register for the application through Gmail	I can register & access the dashboard with Gmail Login	Medium	Sprint-1
	Login	USN-11	As a user, I can log into the application by entering email & password	I can access the dashboard	High	Sprint-1
	Dashboard	USN-12	As a user, I can enter the scores.	I can find eligibility	High	Sprint-2
Customer Care Executive	Support	USN-13	As a Customer Care Executive, responding to queries via telephone, live chat etc.	Immediate response is sent.	Medium	Sprint-3
		USN-14	As a Customer Care Executive, Ask for and act on customer feedback	Thank you for your valuable feedback	High	Sprint-2
		USN-15	As a Customer Care Executive, analyse customer data and communication to adjust customer care strategies.	We'll look into that issue soon & try to rectify it	Low	Sprint-3
Administrator	Administrative functions	USN-16	As an Administrator, design, develop, maintain and troubleshoot websites.	No issues are found	High	Sprint-3
		USN-17	As an Administrator, view and manage user permissions in an application.	Allows the user to manage permissions	Low	Sprint-4
		USN-18	As an Administrator, implementing user protocols & creating backups.	Data is synced & later recovered	Medium	Sprint-4
		USN-19	As an Administrator, resolving software problems & updating new features.	Update to new features	High	Sprint-4

6. PROJECT PLANNING & SCHEDULING

Sprint Planning & Estimation , Sprint Delivery Schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	2
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	1
Sprint-2		USN-3	As a user, I can check the eligibility criteria for various universities by uploading the necessary documents	2	Low	2
Sprint-3		USN-4	As a user, I can register for the desired university through Gmail and can also upload further course completion documents if necessary.	2	Medium	2
Sprint-4	User Login	USN-5	As a user, I can log into the application by entering email & password	1	High	2

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	30 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	06 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	15	13 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	25	20 Nov 2022

7. CODING & SOLUTIONING

Feature 1

- We have updated the website image which can change the visual apperance of website that can be very effective way to refresh the above fold content .
- It help to attract attention and to guide the user 's line of sight.
- Clear and consistent navigation is a basic requirement for the user interface.
- If it turns out to be difficult, most users will not want to waste their time to figure it out
- Easy to Understand
- Well designed and functional
- Site visitors are always in a hurry. Don’t make them work for information. User Experience plays a key role in helping visitors use, understand and stay on your website.
- Optimized for Search and the Social Web
- Images enables the identification of features that may not be as easily detected in the spatial domain.

```
<!DOCTYPE html>
<html>
<head>
        <title>University Admit Eligibility Predictor</title>
</head>
<link rel="preconnect" href="https://fonts.gstatic.com">
<link href="https://fonts.googleapis.com/css2?family=Raleway:wght@100&display=swap" rel="stylesheet">
<link href="https://fonts.googleapis.com/css2?family=Noto+Sans+HK:wght@500&display=swap" rel="stylesheet">
<style type="text/css">

        h1,h2{
                font-family: 'Times New Roman', serif;
                color: black;
        }
        h2,h1,form,p,b{
                text-align: left;
                color: black;
        }
        label,p,b{
                font-family: 'Arial', sans-serif;
                color: black;
        }
        .elements{
                padding-top: 1px;
        }

</style>
<body>

        <img src="https://www.linkpicture.com/q/Screenshot-2022-11-10-185544_1.png" style= "position: -webkit-sticky; position: sticky; top: 0;" align="right">
        <h1 style="font-size: 3rem; text-decoration-line: underline; text-decoration-thickness: auto;">University Admit Eligibility Predictor</h1>

        <p style="font-size: 2rem; font-family: 'Arial', sans-serif;"> <strong> ABOUT </strong></p>
        <p style="font-size: 1.5rem; font-family: 'Helvetica', sans-serif;">Enter your details to predict whether you'll get an admission or not .</p>
```

```
        <form action="/predict" method="post" class="elements" style="font-size: 1rem;">
                <p style="font-size: 2rem; font-family: 'Arial', sans-serif;"> <strong> DETAILS </strong></p>
                <p class="elements">GRE Score</p>
                <p><input type="text" name="gre" value="Score range 0-340" style=" border-radius: 8px;"></p>
                <p class="elements">TOEFL Score</p>
                <p><input type="text" name="tofl" value="Score range 0-120" style=" border-radius: 8px;"></p>
                <p class="elements"><label>University Rating</label> </p>
                <select name="rating" style=" border-radius: 8px;">
                        <option value="1">1</option>
                        <option value="2">2</option>
                        <option value="3">3</option>
                        <option value="4">4</option>
                        <option value="5">5</option>
        </select>
                <br>
                <p class="elements">SOP</p>
                <p><input type="text" name="sop" value="Score range 0-5" style=" border-radius: 8px;"></p>
                <p class="elements">LOR</p>
                <p><input type="text" name="lor" value="Score range 0-5" style=" border-radius: 8px;"></p>
                <p class="elements">CGPA</p>
                <p><input type="text" name="cgpa" value="Score range 0-10" style=" border-radius: 8px;"></p>
                <p class="elements"><label>Research</label></p>
                <select name="research" style=" border-radius: 8px;">
                        <option value="Yes">Yes</option>
                        <option value="No">No</option>
        </select>
                <p class="elements"> <input type = "Submit" value = "Submit" style=" border-radius: 8px;"/> </p>
        </form>

</body>
</html>
```

Feature 2

Chance

```
<!DOCTYPE html>
<html>
<head>
        <title>eligibility</title>
</head>
<body>
        <img src="https://i.pinimg.com/736x/d7/6f/89/d76f89a73987e8b831253bb9a4b8cfa5.jpg" style="float: right;">
        <div style="padding-top: 15%">
        <h2>Predicting chance of admission</h2>
        <h3>A Machine Learning Web App Using Flask</h3>
        <p>Prediction : <b>You've a <b>{{p}}</b> chance to get the admission !</b></p>
    </div>
</body>
</html>
```

No Chance

```
<!DOCTYPE html>
<html>
<head>
        <title>eligibility</title>
</head>
<body>
        <img src="https://ih1.redbubble.net/image.436264386.5214/st,small,507x507-pad,600x600,f8f8f8.u5.jpg" style="float: right; " height="50%" width="50%">
        <div style="padding-top: 15%">
        <h2>Predicting chance of admission</h2>
        <h3>A Machine Learning Web App Using Flask</h3>
        <p>Prediction : <b>You don't have a chance!</b></p>
        </div>
</body>
</html>
```

Database Schema

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

8. TESTING

Test Cases

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status
LoginPage_TC_001	UI	Home Page	Verify the UI elements in Home Page		1.Enter URL and click go 2.Verify Home Page with below UI elements: a.GRE Score b.TOEFL Score c.University Rating d.SOP e.LOR f.CGPA	http://127.0.0.1:4000/	Application should show below UI elements: a.GRE Score b.TOEFL Score c.University Rating d.SOP e.LOR f.CGPA g.Research	Working as expected	Pass
LoginPage_TC_002	UI	Home Page	Verify the UI elements in Home Page		1.Enter URL and click go 2.Click the text box to enter scores 3.View the image displayed 4.Click submit button to know the prediction	http://127.0.0.1:4000/	1. Should be able to enter the scores 2. The image should be displayed on the right side. 3. We can know the chance of admit	Working as expected	Pass
LoginPage_TC_003	Functional	Web page	Verify user is able to predict the chance of admit		1.Enter URL(http://127.0.0.1:4000/) and click go 2.Enter the scores in the given fields 3.Click on Submit button, once you have entered all the scores.	a.GRE Score - 334 b.TOEFL Score - 119 c.University Rating - 5 d.SOP - 5 e.LOR - 4.5 f.CGPA - 9.7 g.Research - Yes	Application should show 'You have a 95% chance to get the admission!'	Application should show 'You have a 95% chance to get the admission!'	Pass
LoginPage_TC_004	Functional	Web page	Verify user is able to predict the chance of admit		1.Enter URL(http://127.0.0.1:4000/) and click go 2.Enter the scores in the given fields 3.Click on Submit button, once you have entered all the scores.	a.GRE Score - 327 b.TOEFL Score - 111 c.University Rating - 4 d.SOP - 4 e.LOR - 4.5 f.CGPA - 9 g.Research - Yes	Application should show 'You have a 84% chance to get the admission!'	Application should show 'You have a 84% chance to get the admission!'	Pass
LoginPage_TC_005	Functional	Web page	Verify user is able to predict the chance of admit		1.Enter URL(http://127.0.0.1:4000/) and click go 2.Enter the scores in the given fields 3.Click on Submit button, once you have entered all the scores.	a.GRE Score - 311 b.TOEFL Score - 104 c.University Rating - 3 d.SOP - 3.5 e.LOR - 2 f.CGPA - 8.2 g.Research - Yes	Application should show 'You have a 61% chance to get the admission!'	Application should show 'You have a 65% chance to get the admission!'	Fail
LoginPage_TC_006	Functional	Web page	Verify user is able to predict the chance of admit		1.Enter URL(http://127.0.0.1:4000/) and click go 2.Enter the scores in the given fields 3.Click on Submit button, once you have entered all the scores.	a.GRE Score - 298 b.TOEFL Score - 98 c.University Rating - 2 d.SOP - 4 e.LOR - 3 f.CGPA - 8.03 g.Research - No	Application should show 'You don't have a chance!'	Application should show 'You have a 55% chance to get the admission!'	Fail
LoginPage_TC_007	Functional	Web page	Verify user is able to predict the chance of admit		1.Enter URL(http://127.0.0.1:4000/) and click go 2.Enter the scores in the given fields 3.Click on Submit button, once you have entered all the scores.	a.GRE Score - 297 b.TOEFL Score - 96 c.University Rating - 2 d.SOP - 2.5 e.LOR - 2 f.CGPA - 7.43 g.Research - No	Application should show 'You don't have a chance!'	Application should show 'You don't have a chance!'	Pass

User Acceptance Testing

1. Purpose of Document

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

2. Defect Analysis

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

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	0	0	2	1	3
Duplicate	1	0	0	0	1
External	0	0	1	0	1
Fixed	0	1	1	0	2
Not Reproduced	0	1	0	0	1
Skipped	0	0	0	0	0
Won't Fix	0	1	0	0	1
Totals	1	3	4	1	9

3. Test Case Analysis

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

Section	Total Cases	Not Tested	Fail	Pass
View Home Page	10	0	3	7
Enter the scores	20	0	3	17
Click Submit button	2	0	0	2
Image displayed	10	0	4	6
Selecting from Drop down	5	0	0	5
Final Report Output	30	0	10	20
Version Control	5	0	2	3

9.

RESULTS

Performance Metrics

S.No.	Parameter	Values	Screenshot

1.	Metrics	**Regression Model:** MAE - 0.0530887499999999, MSE - 0.005890691124999996, RMSE - 0.07675083794330845, R2 score - 0.6045653205836166	`from sklearn.metrics import mean_squared_error, r2_score,mean_absolute_error`
			`print('Mean Absolute Error:', mean_absolute_error(y_test, y_pred))`
			`print('Mean Squared Error:', mean_squared_error(y_test, y_pred))`
			`print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test, y_pred)))`
			`print('r2 score:',r2_score(y_pred,y_test))`
			`Mean Absolute Error: 0.05308874999999998`
			`Mean Squared Error: 0.005890691124999996`
			`Root Mean Squared Error: 0.07675083794330845`
			`r2 score: 0.6045653205836166`

2.	Tune the Model	Hyperparameter Tuning – Cross Validation Validation Method – GridSearchCV method	`print(best_grid.score(X_test, y_test))` `0.7752131291397252`

Mean Absolute Error: 0.0530887499999999 Mean Squared Error: 0.005890691124999996

10.

Root Mean Squared Error: 0.07675083794330845 r2 score:
0.7102742554605375

Best grid score : 0.7752131291397252

ADVANTAGES

- It helps student for making decision for choosing a right college.
- Here the chance of occurrence of error is less when compared with existing system.
- It is fast, efficient and reliable.
- Avoids data redundancy and inconsistency.
- Very user-friendly.
- Easy accessibility of data.
- It would be the easiest mode to predict the university/colleges person is applicable for as well as it would unbiased and totally transparent.
- Individually would no more need to depend upon the consultancies who may be slightly deviated towards the list of colleges/university that may be having contract with them.
- Moreover applying to only that colleges/university where the student has genuine chance would even reduce application process.
- Additionally living expense of the area where colleges/university is located would also be provided on website.

DISADVANTAGES

- Required active internet connection.
- System will provide inaccurate results if data entered incorrectly.

11.

- Other factors such as changes in policies by the university or by the country can also affect chances of admissions in a way that is beyond the scope of this project.
- Admissions also depend on the individual university's policy regarding the intake of foreign students and is not modeled by our system.

CONCLUSION

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

12. FUTURE SCOPE

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

- 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.
- The user had not need to travel a long distance for the admission and his/her time is also saved as a result of this automated system.
- The scope of this project is a web application that allows users to enter their academic data and get predictions of their chances of admissions in the university tier of their choosing.
- It also provides an analysis based on the data set used that shows how the different affect chances of admissions.

12.

- A Database will also be implemented for the system so that students can save their data and review and edit it as they progress with the most recent predictions being saved with their profile.
- Future work in the project could include weighing in the features that have been ignored as of yet like percentage seats for Foreign Students.
- Other criterion's like Co-curricular achievements, Leadership positions held, job experience etc can also be included as metrics for the model.

13. APPENDIX

Source Code

```
import pickle
from flask import Flask , request, render_template
from math import ceil
app = Flask(__name__)
model = pickle.load(open("model.pkl","rb"))

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

@app.route('/predict',methods = ['GET','POST'])
def admin():
    gre=(eval(request.form["gre"])-290)/(340-290)
    tofl=(eval(request.form["tofl"])-92)/(120-92)
    rating=(eval(request.form["rating"])-1.0)/4.0
    sop=(eval(request.form["sop"])-1.0)/4.0
    lor=(eval(request.form["lor"])-1.0)/4.0
    cgpa=(eval(request.form["cgpa"])-6.7)/(10.0-6.7)
    research=request.form["research"]
    if (research=="Yes"):
        research=1
    else:
        research=0
    preds=[[gre,tofl,rating,sop,lor,cgpa,research]]
    xx=model.predict(preds)
    if (xx>0.5):
        return render_template("chance.html",p=str(ceil(xx[0]*100))+"%")
    return render_template("nochance.html")
if __name__ == '__main__':
    app.run(debug = False, port=4000)
```

13.2 Github & Project Demo Link

Github Link: https://github.com/IBM-EPBL/IBM-Project-26998-1660043115