#### UNIVERSITY ADMIT ELIGIBILITY PREDICTOR

#### A PROJECT REPORT

Submitted by

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In partial fulfilment for the award of the degree

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BACHELOR OF TECHNOLOGY

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MAHENDRA ENGINEERING COLLEGE

NAMAKKAL

ANNA UNIVERSITY CHENNAI 600035

**NOVEMBER 2022** 

#### **ANNA UNIVERSITY: CHENNAI 600 025**

#### **BONAFIDE CERTIFICATE**

Certified that this project report titled "UNIVERSITY ADMIT ELIGIBILITY PREDICTOR"

is the bonafide work of "THAMARAI SELVAM T(6113192071103), THIRU MURUGAN A(6113192071106), YOGESHWARAN T(611319207119), YUVARAJ SINGH(6113192071120) "who carried out the project work under my supervision.

SIGNATURE OF INDUSTRIAL MENTOR MR.P.SANDESH SIGNATURE OF MENTOR Dr.K.RADHA

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#### **ABSTRACT**

Data is the most important asset for any organization, which is then processed to produce useful information. Machine learning and big data techniques are widely used in industrial sectors to create useful models to generate more profits and grow businesses. In recent years, much research work has been done using Big Data techniques on education data to improve education system. Machine Learning and Big Data can be useful in predicting student enrollment, teaching performance, student performance, identifying groups of students with similar behavior. However, the manual profile verification process is time-consuming, tedious, and error-prone; due to the inherent volume and complexity of the data. In this study, the combination of linear and non-linear machine learning algorithms; Logistic regression, decision tree, k-NN and Naïve Bayes were selected to perform target class prediction for unseen survey observation. Since the models built in this work predict the probability of students being admitted to any university based on student data collected by any marketing agency, the combined models are collectively known as admission predictors. Administrative managers at any academic institution can use this type of application to discover and analyze patterns affecting student admissions and recommend innovative strategies for improvement. improve admission. Such an application not only plays an important role in the management, but also helps the management to reframe the marketing criteria for the overall development of the academic institution.

#### **CHAPTER-1**

#### INTRODUCTION

#### 1.1 Project Overview

We are currently students aiming for future studies, and we wanted to know the odds of getting admission in a university according to our scores before applying. It takes input from the user, namely, their GRE score, TOFEL score, current CGPA, SOP, LOP, and university rating and it outputs the result according to the trained Machine Learning model. In this hands-on guided project, we will train regression models to find the probability of a student getting accepted into a particular university based on their profile. This project could be practically used to get the university acceptance rate for individual students using web application and to understand regression and classification problems

To grab insights from data through visualization.
Applying different ML algorithms to determine the probability of
acceptance in a particular university.
Evaluation metrics
Build a web application using the Flask framework.

#### 1.2 PURPOSE

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

### CHATER-2 LITERATURE SURVEY

#### 2.1 EXISTING SYSTEM

In today's world many students are often worried about their chances of admission to university. The main moto of the project is help students to short listing universities with their marks. 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.

Given certain metrics of a student, our task is to predict the probability of the student getting accepted into graduate programs. Statistically, we have seen many students pursue their education away from their native countries. Generally, as the students don't have much of an idea about the procedures, requirements, and details of the universities, they seek help from education consultancy firms to help them successfully secure admission to the universities which are best suitable for their profiles. For this, they have to invest huge amounts of money in consultancy fees. The aim of this research is to develop a system using Applied Data Science.

University prediction would be the easiest mode to predict the university/college person is applicable for as well as it would be unbiased and totally transparent. Individually would no more need to depend upon the consultancies who may be slightly deviated from the list of colleges/universities that may be having contracts with them. Moreover, applying to only colleges/universities where the student has a genuine chance would reduce the application process. Additionally, living expense of the area where colleges/university is located would also be provided on the website.

#### 2.2 REFERENCES

#### PAPER 1

**TITLE:** PREDICTION FOR UNIVERSITY ADMISSION USING MACHINE LEARNING

**AUTHOR NAME:** Chithara Apoorva D A

**DESCRIPTION:** Students who want to do masters in America have to write GRE and TOEFL/IELTS. Once they have attended the exams, they have to prepare their SOP and LOR which are one of the crucial factors they have to consider. These LOR and SOP play a vital role if the student was looking for any scholarship.

#### **ADVANTAGES:**

- Give more accurate options for foreign universities.
- Train more quickly, especially with bigger datasets.

#### **DISADVANTAGES:**

• Models, particularly those trained on CPUs, may be computationally costly and time-consuming.

#### PAPER 2

**TITLE:** GRADE MACHINE LEARNING SUPPOURT FOR GRADUATE ADMISSIONS

**AUTHOR NAME:** Austin Waters

**DESCRIPTION:** Waters and Mikkulainen proposed an astounding that asides in posting affirmation application as per the degree of acknowledgement and upgrades the presentation of inspecting applications utilizing measurable AI.

#### **ADVANTAGE:**

• GRADE has minimal software and hardware dependencies.

• It is implemented in Python with the Pandas and Skit-learn packages, which are open source and freely available.

#### **DISADVANTAGE:**

- It is used to display the result as a dotted graph.
- It is to predict the approximate value.

#### PAPER 3

#### **TITLE:**PREDICTING UNDERGRADUATE ADMISSION

**AUTHOR NAME:**Md. Portiku Zaman

**DESCRIPTION:** Here, the authors apply three machine learning algorithms XGBoost, lightGBM, and GBM on a collected dataset to estimate the probability of getting admission to the university after attending or before attending the admission test.

#### **ADVANTAGES:**

- Easy to implement evaluation of the conditional probability is simple.
- Individuals would no longer need to rely on consultancies that may have contracts with schools and universities that are somewhat off the list.

#### **DISADVANTAGES:**

• It is not always true that the conditional independence assumption is true. The feature often exhibits some sort of dependence.

#### PAPER 4

**TITLE:** GRATUATE ADMISSION PREDICTION USING

**MACHINELEARNING** 

**AUTHOR NAME:** Sara Aljasami

**DESCRIPTION:** This will assist students to know in advance if they have a chance to get accepted. The machine learning models are multiple linear regression, K-nearest neighbour, random forest, and multilayer perceptron.

#### **ADVANTAGES:**

- It uses many algorithms like random forest, K-nearest neighbour, multi layer preception.
- The simplest way to determine whether a person is eligible for a university or college as well as being completely objective and transparent.

#### **DISADVANTAGES:**

• Contrarily, linear regression presumes that the relationship between the dependent and independent variables is linear. The implies that it considers their relationship to be linear. The independence of the qualities is assumed.

## 2.3 PROBLEM STATEMENT DEFINITION

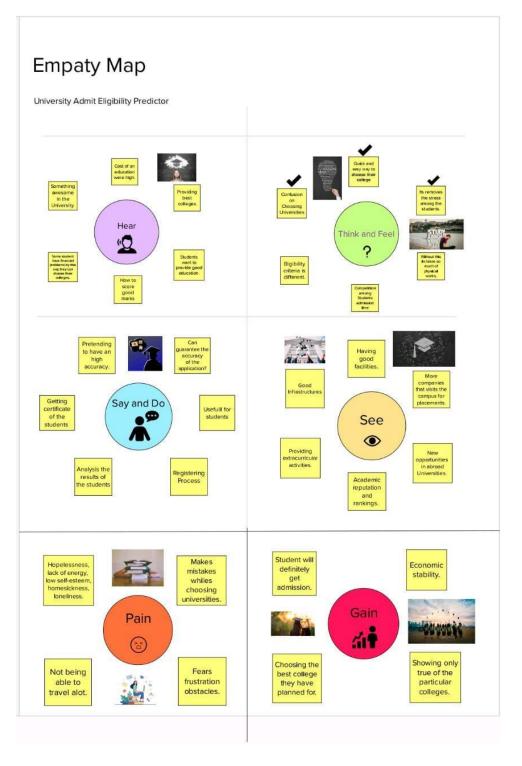
Problem Statement (PS)	I am (Custo mer)	I'm trying to	But	Because	Which makes me feel
PS-1	A student	Choose a good university	I am unaware about cutoff	I can't find people to guide me	Dejected
PS-2	A student	Enrol in a master degree	I am unaware about visa formaliti es	I can't find trusted website s	Frustrated
PS-3	A student	Enrol in a master	I am unaware about	I can't find helping	Depressed

		degree	scholars hip opportun ities	organisati ons	
PS -4	A student	Choose good university with well infrastruct ure	I am unaware about infrastruct ure and placement	guide	Anxious

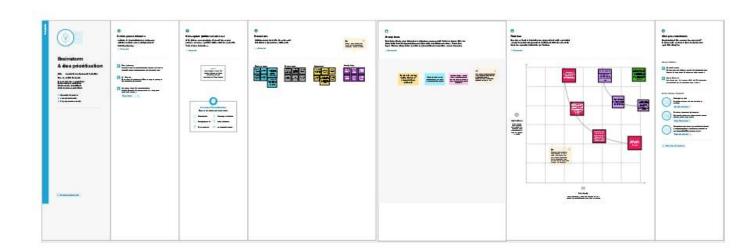
#### **CHAPTER-3**

#### **IDEATION & PROPOSED SOLUTION**

#### 3.1 EMPATHY MAP



## 3.2 BRAINSTROM

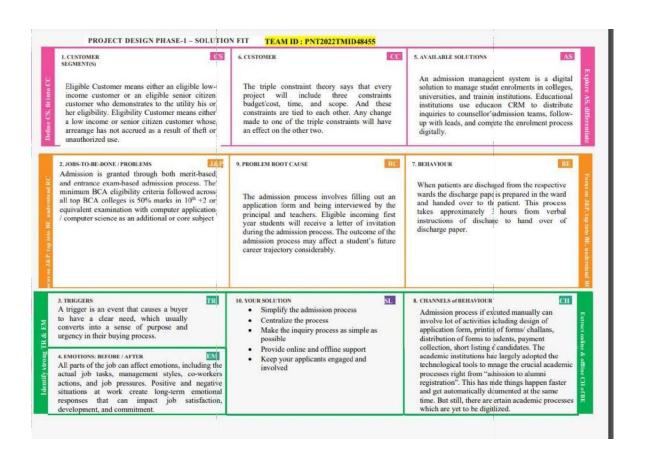


## 3.3 PROPOSED SOLUTION

S.No	Parameter	Description
1.	Problem Statement (Problem to be solved)	To predict the universities for the students towho is going to higher studies.
2.	Idea / Solution description	It will help the students to get admission for under graduate degrees from the top universities and well infrastructure laboratories. This analysis is helpful who is unaware of choosing UG degrees after secondary education. It will predict the students admission to the respected universities based on their secondary education marks.
3.	Novelty / Uniqueness	This website has to predict the universities inside India. And also give various information about the universities. Also to list the universities in the ranking list.

4.	Social Impact / Customer Satisfaction	The website will reduce the panic and unawareness among students. It will reduce ourtime, travel, and costs. It will give the exact approximate prediction based on students secondary education marks.
5.	Business Model (Revenue Model)	Universities shall find the websites in order tomaintain it. This website will predict and display the exact results to the students.
6.	Scalability of the Solution	A future update shall have chat space comprising faculty, current students

#### 3.4 PROBLEM SOLUTION FIT



## **CHAPTER-4**

## REQUIREMENT ANALYSIS

## **4.1 FUNCTIONAL REQUIREMENTS**

Following are the functional requirements of the proposed solution.

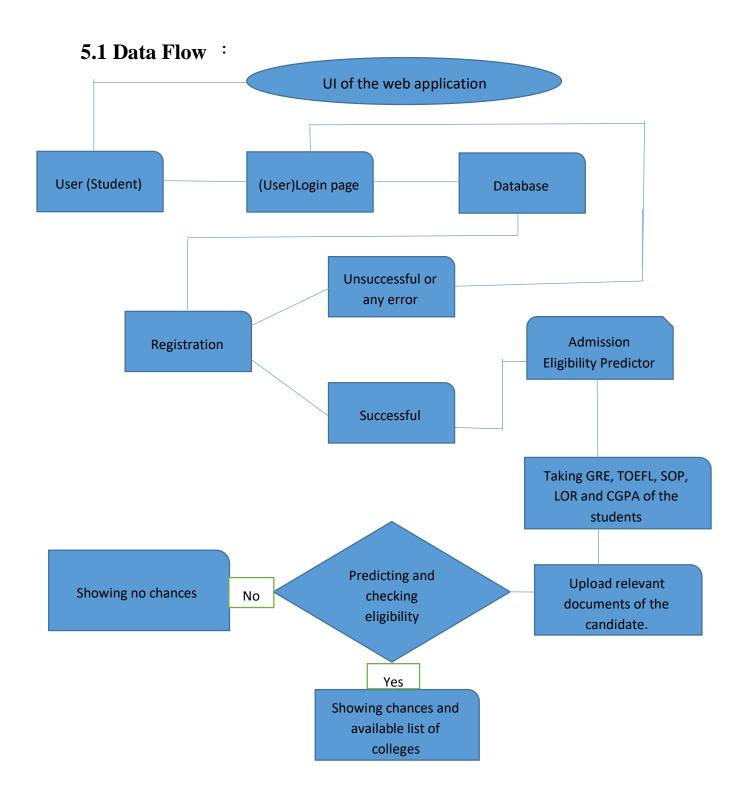
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Calculate admission Prediction	Enter GPA, TOFEL, GRE Scores
FR-2	Check information about the university	Visit the website of the respected university and to contact the alumni and faculties of those universities.
FR-3	Watch campus tour	Check guide for visa application and other procedures
FR-4	Check financial assistance lab	Check scholarship eligibility and application procedure
FR-5	Information about the university and location	Refer official websites and contact directly to the faculty.

## **4.2 NON FUNCTIONAL REQUIREMENTS**

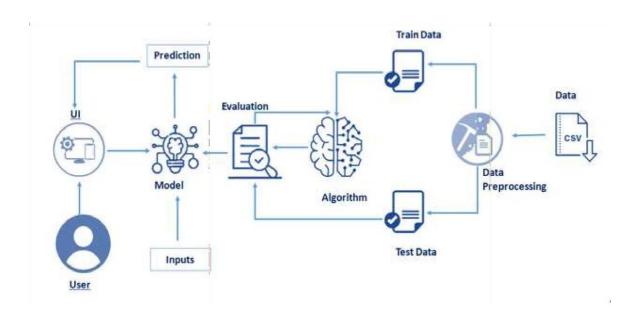
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The UI/UX enhances the user experience. The entire journey of the customer throughout the application will be smooth and user-friendly approach to the user.
NFR-2	Security	It is the safest application you never used it before because it doesn't store your data.
NFR-3	Reliability	The system will give you to the most accurate and exact results.
NFR-4	Performance	The index page supporting more than 1000 users per hour must provide some seconds delay response time in a chrome desktop browser, including the rendering of text and images and over an LTE connection.
NFR-5	Availability	The admission predictor will be available to users 99.9 percent of the time every month
NFR-6	Scalability	The system must be scalable enough to support morethan one lacks visits at the same time while maintaining optimal performance.

## CHAPTER-5 PROJECT DESIGN



## **5.2 SOLUTION ARCHETECTURE**



#### **5.3 USER STORIES**

Type	Functional	User	User Story / Task	Acceptance criteria	Priority
	Requirement	Story			
	(Epic)	Number			
Customer (Web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	We can access my account / User dashboard	High
		USN-2	As a user, I will receive confirmation email once I have registered for the application	We can receive confirmation email & click confirm	High
		USN-3	As a user, I can register for the application through Facebook	We can register & access the dashboard with	

				Facebook Login	
		USN-4	As a user, I can register for the application through Gmail	We can register and access the dashboard	Medium
	Login	USN-5	As a user, I can log into the application by entering email & password	We can access various pages	High
	Dashboard	USN-6	As a user, I can search for various universities	We can access several pages	High
	Search	USN-7	As a user, I can search for Universities with different field	We can receive information related to universities on various locations	High
	View	USN-8	As a user, I can view the University details	We will get the information on seat availability, eligibility criteria.	High
	Receive notification	USN-9	As a user, I will receive notifications about the Suggested universities based on student marks	We will get frequent updates of the preferred universities	Low
	Chat with expert	USN-10	As a user, I can chat with the expert for clarifications	We can clear my doubts through chat with expert option	Medium
Admin	Analysis	USN-11	As an admin, I will analyze the given dataset	We can analyze the dataset	High
	Predict	USN-12	As an admin, I will predict the admission	We can predict eligibility for admission	High

# CHAPTER-6 PROJECT PLANNING AND SCHEDULING

## **6.1 SPRINT PLANNING AND ESTIMATION**

Sprint	Functiona 1 Requirem ent(Epic)	User Story Numb er	User Story / Task	Stor y Poin ts	Priori ty	Team Memb ers
Sprint -1	Registratio n	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 -1		USN-3	As a user, I can register for the application through Gmail	1	High	1

Sprint-	Login	USN-4	As a user, I can log into the application by entering email & password	3	High	3
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priorit y	Team Members
Sprint -	Update Profile	USN-5	As a user, after logging in, I will have to update my profile by providing	5	High	5

			all the required details			
Sprint-	Choose university	USN-6	As a user, I will be able to view the list of Universities that the students are eligible to apply	5	Medi um	5
Sprint-	Choose course	USN-7	As a user, I will be able to view the details of Admission process like date and venue of certification verification	2	Low	2
Sprint- 4	Admission process	USN-8	As a user, I will be able to view the list of courses thatthe students are eligible to apply	3	High	3
Sprint- 1	Authentication	USN-9	As a admin, the login credential of the user is authenticated my me	2	High	2

## **6.2 SPRINT DELIVARY SCHUDULE**

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	2 0	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	2 0	50 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	2 0	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	2 0	19 Nov 2022

## CHAPTER-7 CODING AND SOLUTIONING

## 7.1 FEATURE 1 FLASK CODE

```
#University Admit Eligibility predictor
from flask import Flask, render_template, request
from math import ceil
import pickle
app = Flask(__name__)
model = pickle.load(open("model1.pkl","rb"))
@app.route('/')
def home():
  return render_template("index.html")
@app.route('/predict',methods=["GET","POST"])
def predict():
  gre=(eval(request.form["gre"])-290)/(340-290)
  toefl=(eval(request.form["toefl"])-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 == 1:
    research = 1
  else:
    research = 0
  pred = [[gre,toefl,rating,sop,lor,cgpa,research]]
  result=model.predict(pred)
  if result > 0.5:
    return render_template("chance.html",msg="Congratulation, you are eligible.
As the probability is "+str(ceil(result[0]*100))+"%")
  return render_template("nochance.html",msg="Sorry, Unfortunately you aren't
eligible. As the probability is "+str(ceil(result[0]*100))+"%")
if __name__ == "__main__":
  app.run(port=8801)
7.2 FEATURE 2
INDEX
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
```

```
<!-- <li>tink rel="stylesheet" href="{{ url_for("static", filename="css/styles.css")}
}}"> -->
  <link rel="stylesheet" href="./static/css/styles.css">
  <!-- UIkit CSS -->
  <!-- <li>!-- !stylesheet"
href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css" /> -->
  <!-- UIkit JS -->
  <!-- <script
src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script> -->
  <!-- <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-
icons.min.js"></script> -->
</head>
<body>
  <header class="uk-width-1-1">
     <h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR
SYSTEM</b></center></h1>
    <h5>Enter your details and get probability of your admission</h5>
  </header>
  <section class="uk-flex uk-flex-center uk-padding-large uk-width-1-1">
     <div class="card uk-padding">
       <div class="uk-divider-icon"></div>
       <div class="form">
         <form action="/predict" method="post">
            <div class="label">
              <label for="gre"><b>GRE Score</b></label>
            </div>
```

```
<div class="input">
              <input type="text" name="gre" id="gre" placeholder="Enter your</pre>
score between 0 - 360" required/>
            </div>
            <div class="label">
              <label for="toefl"><b>TOEFL Score</b></label>
            </div>
            <div class="input">
              <input type="text" name="toefl" id="toefl" placeholder="Enter</pre>
your TOEFL score between 0 - 120" required/>
            </div>
            <div class="label">
              <label for="rating"><b>University Rating</b></label>
            </div>
            <div class="input">
              <select name="rating" id="rating" required>
                <option disabled>select a rating/option>
                <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>
            </div>
            <div class="label">
              <label for="sop"><b>SOP</b></label>
```

```
</div>
            <div class="input">
              <input type="text" name="sop" id="sop" placeholder="Enter your</pre>
SOP score between 0 - 5" required/>
            </div>
            <div class="label">
              <label for="lor"><b>LOR</b></label>
            </div>
            <div class="input">
              <input type="text" name="lor" id="lor" placeholder="Enter your</pre>
LOR score between 0 - 5" required/>
            </div>
            <div class="label">
              <label for="cgpa"><b>CGPA</b></label>
            </div>
            <div class="input">
              <input type="text" name="cgpa" id="cgpa" placeholder="Enter</pre>
your CGPA score between 0 - 10" required/>
            </div>
            <div class="label">
              <label for="research"><b>Research</b></label>
            </div>
            <div class="input">
              <select name="research" id="research" required>
                 <option value="1">Yes</option>
                 <option value="0">No</option>
```

```
</select>
           </div>
           <div class="btn uk-flex uk-flex-center uk-margin-top">
              <input type="submit" value="Predict" />
           </div>
         </form>
       </div>
    </div>
  </section>
</body>
<script src={{url_for("static",filename="js/scripts.js")}}></script>
</html>
CHANCE
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
  <link rel="stylesheet" href="{{ url_for("static", filename="css/styles.css") }}">
  <!-- <li>href="../static/css/styles.css"> -->
  <!-- UIkit CSS -->
```

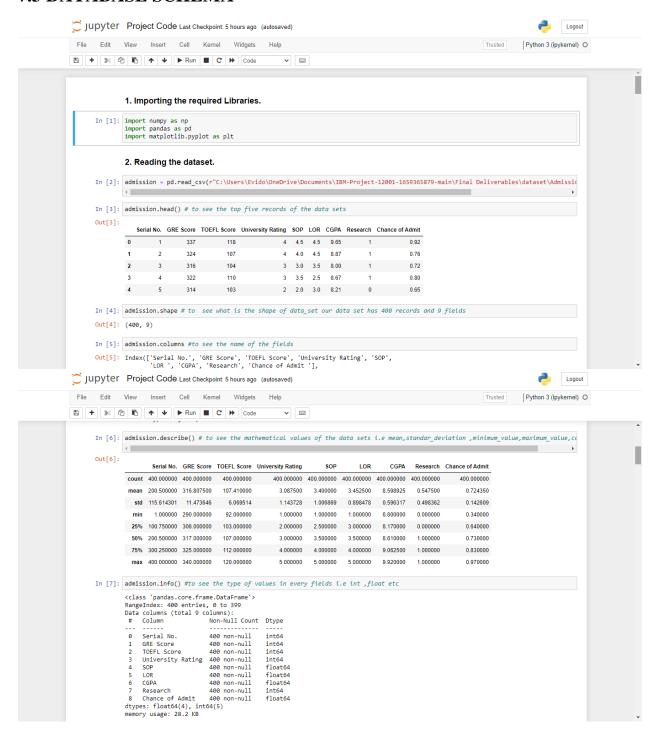
```
k rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css"/>
  <!-- UIkit JS -->
  <script
src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-</pre>
icons.min.js"></script>
</head>
<body>
  <header class="uk-width-1-1">
     <h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR
SYSTEM</b></center></h1>
  </header>
  <section class="uk-flex uk-flex-center uk-flex-column uk-padding-large uk-</pre>
width-1-1">
    <div class="card uk-padding uk-box-shadow-xlarge">
       <div class="img">
         <!-- <img src="../static/images/chance.jpeg" alt="response">-->
         <img src="{{ url_for("static", filename="images/chance.jpg") }}"</pre>
alt="Chance">
       </div>
       <div class="msg uk-margin-top uk-padding uk-width-1-1 uk-text-justify">
          { msg } 
       </div>
       <div class="nav uk-flex uk-flex-center uk-margin-top uk-width-1-1 uk-</pre>
link-toggle uk-text-large">
         <a class="uk-link-heading" href="/"><b>Back to Form</b></a>
       </div>
```

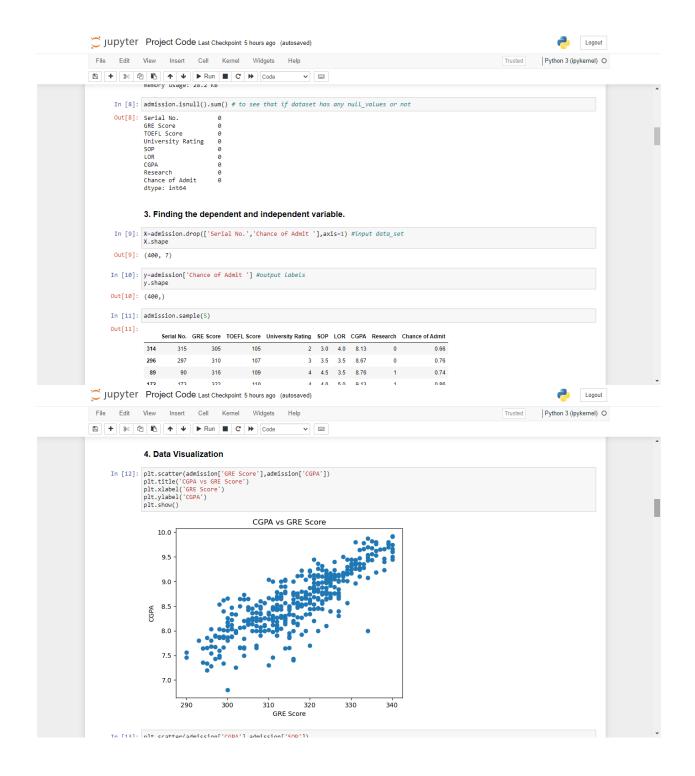
```
</div>
  </section>
</body>
</html>
NO CHANCE
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
  <link rel="stylesheet" href="{{ url_for("static", filename="css/styles.css") }}">
  <!-- <li>href="../static/css/styles.css"> -->
  <!-- UIkit CSS -->
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href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css"/>
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src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-</pre>
icons.min.js"></script>
</head>
<body>
  <header class="uk-width-1-1">
```

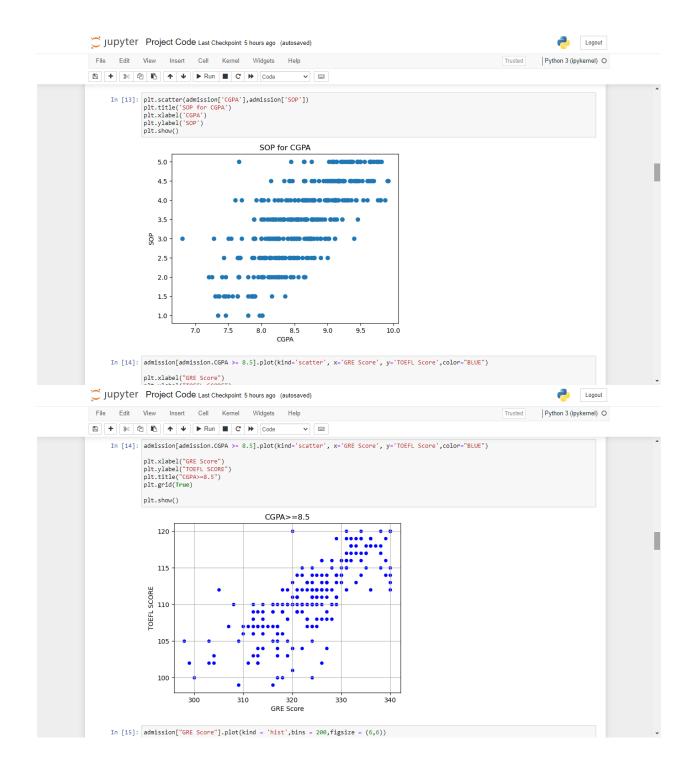
<h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR SYSTEM</b></center></h1>

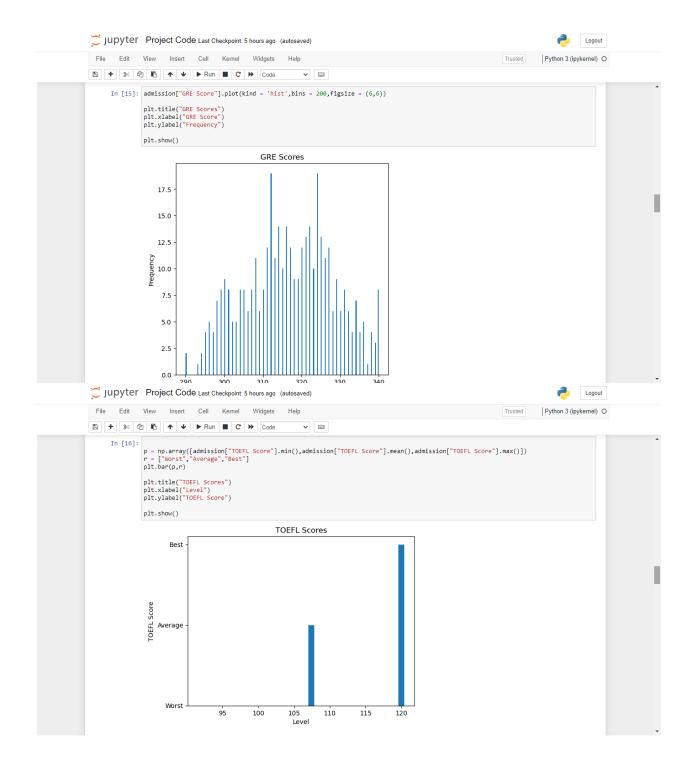
```
</header>
  <section class="uk-flex uk-flex-center uk-flex-column uk-padding-large uk-</pre>
width-1-1">
     <div class="card uk-padding uk-box-shadow-xlarge">
       <div class="img">
          <img src="{{ url_for("static", filename="images/nochance.jpg") }}"</pre>
alt="No chance">
       </div>
       <div class="msg uk-margin-top uk-padding uk-width-1-1 uk-text-justify">
          {{msg}}
       </div>
       <div class="nav uk-flex uk-flex-center uk-margin-top uk-width-1-1 uk-</pre>
link-toggle uk-text-large">
         <a class="uk-link-heading" href="/"><b>Back to Form</b></a>
       </div>
     </div>
  </section>
</body>
  </html>
```

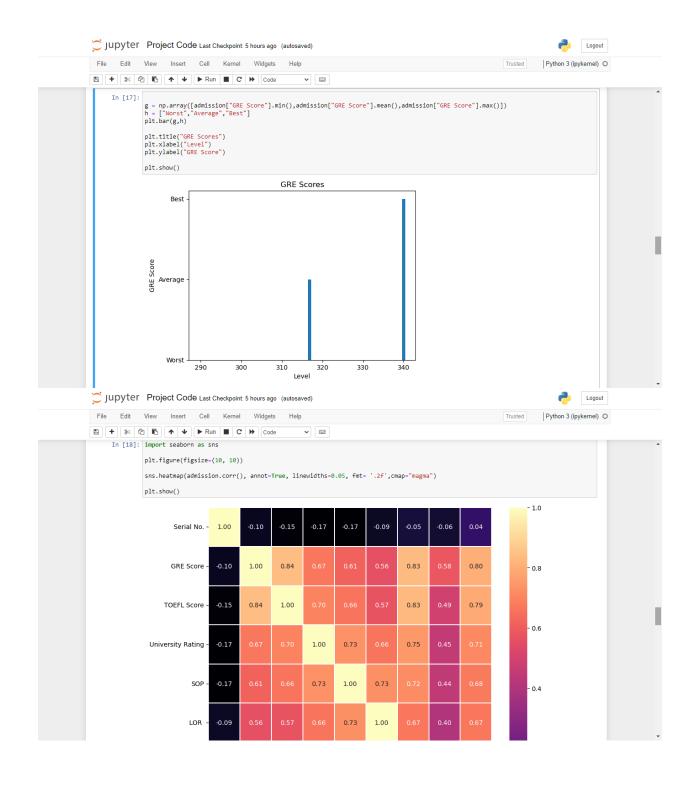
#### 7.3 DATABASE SCHEMA



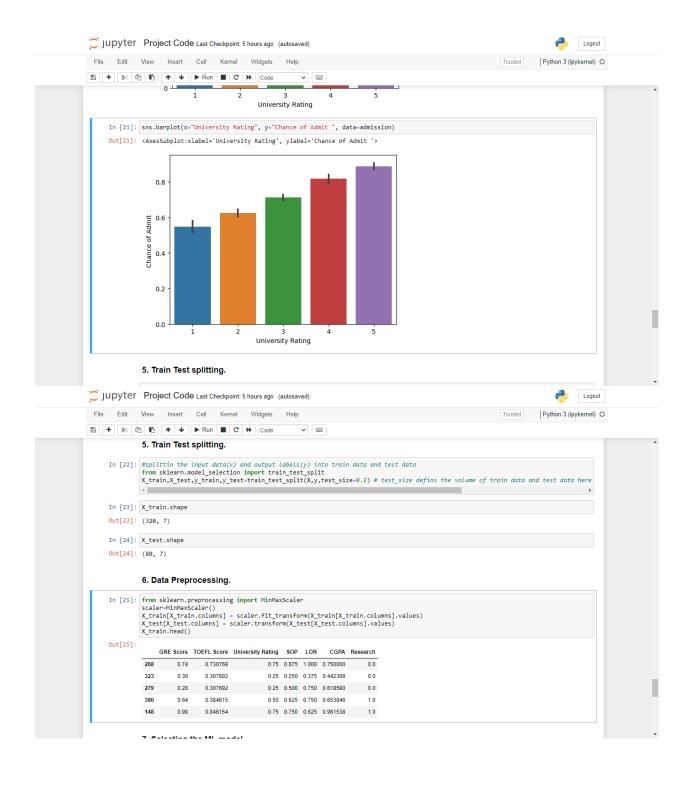


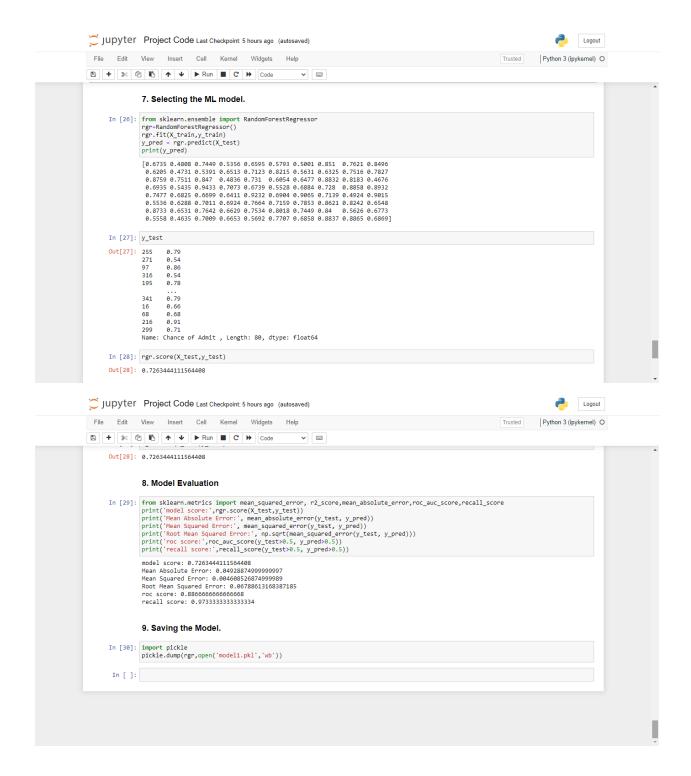






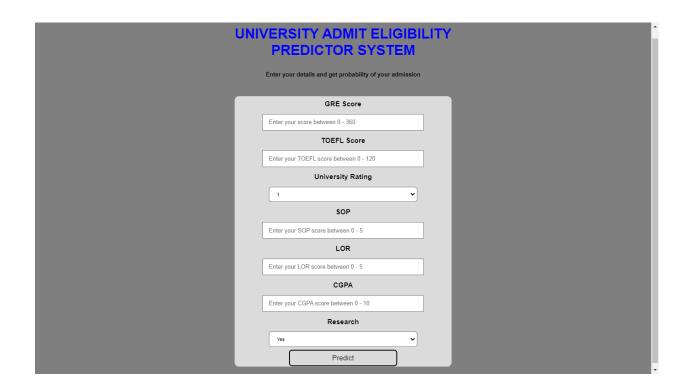


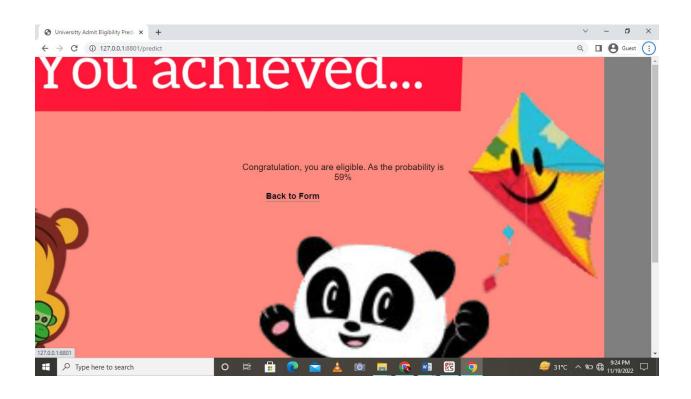


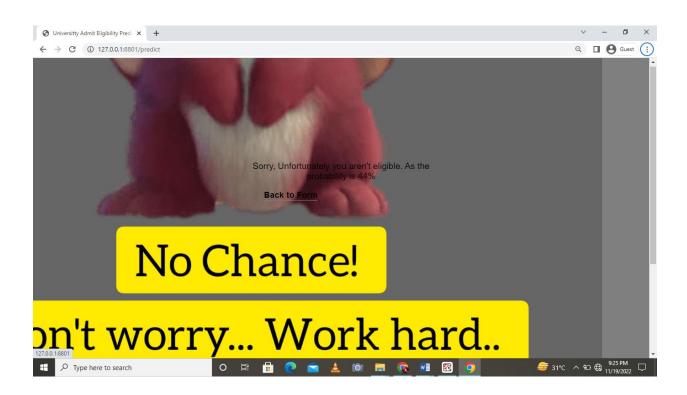


# CHAPTER-8 TESTING

# **8.1 TEST CASES**







## 8.2 USER ACCEPTANCE

User Acceptance Testing (UAT) is a type of testing performed by the end user or the client to verify/accept the software system before moving the software application to the production environment. UAT is done in the final phase of testing after functional, integration and system testing is done.

# **Purpose of UAT**

The main Purpose of UAT is to validate end to end business flow. It does not focus on cosmetic errors, spelling mistakes or system testing. User Acceptance Testing is carried out in a separate testing environment with production-like data setup. It is kind of black box testing where two or more end-users will be involved. UAT is performed by -

- Client
- End users

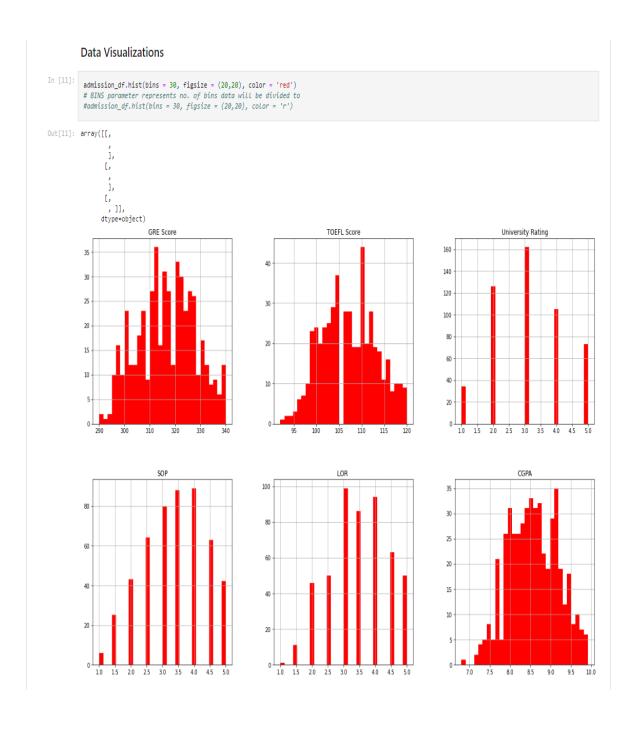
Need of User Acceptance Testing arises once software has undergone Unit, Integration and System testing because developers might have built software based on requirements document by their own understanding and further required changes during development may not be effectively communicated to them, so for testing whether the final product is accepted by client/end-user, user acceptance testing is needed.

Developers code software based on requirements document which is their "own" understanding of the requirements and may not actually be what the client needs from the software.

Requirements changes during the course of the project may not be communicated effectively to the developers.

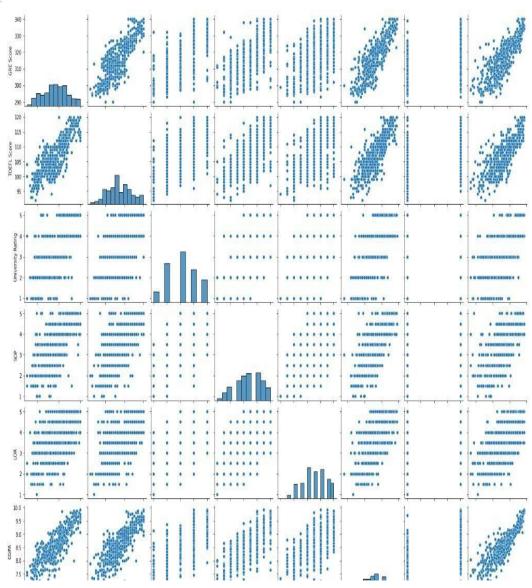
# CHAPTER-9 RESULTS

# 9.1 PERFORMANCE METRICS

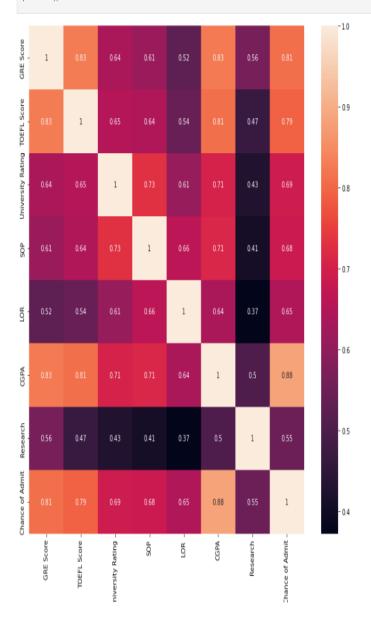


sns.pairplot(admission\_df)
# can look at any type of relationship through pairplot





```
In [13]: # correlation matrix, heatmap
          corr_matrix = admission_df.corr()
          plt.figure(figsize = (12,12))
          sns.heatmap(corr_matrix, annot = True) # annot: so that numbers are shown in the heatmap
          plt.show()
```



```
Calculating Regression Model
                 \label{eq:ypredict} $$y_predict = regressor.predict(X_test)$ plt.plot(y_test, y_predict, `^', color = 'y') $$\# '^' means to show data points in a triangular format $$plt.xlabel('y_test (Ground Truth)')$
Out[41]: []
                   2.0
                  1.5
                  1.0
                  0.5
                  0.0
                 -0.5
                 -1.0
In [42]: # applying inverse transform to represent the data in its original units
#(as earlier we did feature scaling, gonna reverse that so that data makes sense in its original units)
y_predict_orig = scaler_y.inverse_transform(y_predict)
y_test_orig = scaler_y.inverse_transform(y_test)
In [43]: plt.plot(y_test_orig, y_predict_orig, '^', color = 'r')
Out[43]: []
                 1.0
                 0.9
                 0.8
                 0.7
                 0.6
                 0.5
                                                      0.6
                                                                 0.7
                                          0.5
In [32]:
    result = ANN_model.evaluate(X_test, y_test)
    accuracy_ANN = 1 - result
    print("Accuracy : {}".format(accuracy_ANN))
                In [33]: # Looking at the progression of the network throughout the number of epochs epochs_hist.history.keys()
Out[33]: dict_keys(['loss'])
In [34]:
                # loss => progression of network throughout the no. of epochs
plt.plot(epochs_hist.history['loss'])
plt.title('Model Loss Progress during Training')
plt.xlabel('Fpoch')
plt.ylabel('Training Loss')
plt.legend(['Training Loss']) # for label/box in the plot
                                        Model Loss Progress during Training
                   0.45
                                                                              - Training Loss
                   0.40
                   0.35
                0.30
                Paining
0.25
```

77.8% accuracy of ANN model

0.20 0.15 0.10

### **CHAPTER-10**

#### ADVANTAGES & DISADVANTAGES

#### **ADVANTAGES**

- Give more accurate options for foreign universities.
- Train more quickly, especially with bigger datasets.
- GRADE has minimal software and hardware dependencies.
- It is implemented in Python with the Pandas and Skit-learn packages, which are open sourceand freely available.
- It uses many algorithms like random forest, K-nearest neighbour, multi layer preceptIon.
- The simplest way to determine whether a person is eligible for a university or college as wellas being completely objective and transparent.
- Easy to implement evaluation of the conditional probability is simple.
- Individuals would no longer need to rely on consultancies that may have contracts withschools and universities that are somewhat off the list.

#### **DISADVANTAGES**

- It is used to display the result as a dotted graph.
- It is to predict the approximate value.
- Contrarily, linear regression presumes that the relationship between the dependent and independent variables is linear. The implies that it considers their relationship to be linear. The independence of the qualities is assumed.
- It is not always true that the conditional independence assumption is true. The feature often exhibits some sort of dependence.

# CHAPTER-11 CONCLUSION

# **CONCLUSION**

University Admit Eligibility Prediction representation is build by using different types of algorithms. Same dataset is trained for the three algorithms and by training the representation we obtained the results. Finally, Random Forest is the best algorithm to provide accurate result for the dataset that is available. The accuracy level we obtained using Random Forest is 94%, which is very encouraging. A user interface to interact with scholars to see the result is created using Node-RED.

# **CHAPTER-12**

# **FUTURE WORKS**

## **FUTURE WORKS**

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.

## **APPENDIX**

## **SOURCE CODE**

#### **FLASK CODE**

```
#University Admit Eligibility predictor
from flask import Flask, render_template, request
from math import ceil
import pickle
app = Flask(__name__)
model = pickle.load(open("model1.pkl","rb"))
@app.route('/')
def home():
  return render_template("index.html")
@app.route('/predict',methods=["GET","POST"])
def predict():
  gre=(eval(request.form["gre"])-290)/(340-290)
  toefl=(eval(request.form["toefl"])-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 == 1:
    research = 1
  else:
    research = 0
  pred = [[gre,toefl,rating,sop,lor,cgpa,research]]
  result=model.predict(pred)
  if result > 0.5:
    return render_template("chance.html",msg="Congratulation, you are eligible.
As the probability is "+str(ceil(result[0]*100))+"%")
  return render_template("nochance.html",msg="Sorry, Unfortunately you aren't
eligible. As the probability is "+str(ceil(result[0]*100))+"%")
if __name__ == "__main__":
  app.run(port=8801)
FEATURE 2
INDEX
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
```

```
<!-- <li>tink rel="stylesheet" href="{{ url_for("static", filename="css/styles.css")}
}}"> -->
  <link rel="stylesheet" href="./static/css/styles.css">
  <!-- UIkit CSS -->
  <!-- <li>!-- !stylesheet"
href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css" /> -->
  <!-- UIkit JS -->
  <!-- <script
src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script> -->
  <!-- <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-
icons.min.js"></script> -->
</head>
<body>
  <header class="uk-width-1-1">
     <h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR
SYSTEM</b></center></h1>
    <h5>Enter your details and get probability of your admission</h5>
  </header>
  <section class="uk-flex uk-flex-center uk-padding-large uk-width-1-1">
     <div class="card uk-padding">
       <div class="uk-divider-icon"></div>
       <div class="form">
         <form action="/predict" method="post">
            <div class="label">
              <label for="gre"><b>GRE Score</b></label>
            </div>
```

```
<div class="input">
              <input type="text" name="gre" id="gre" placeholder="Enter your</pre>
score between 0 - 360" required/>
            </div>
            <div class="label">
              <label for="toefl"><b>TOEFL Score</b></label>
            </div>
            <div class="input">
              <input type="text" name="toefl" id="toefl" placeholder="Enter</pre>
your TOEFL score between 0 - 120" required/>
            </div>
            <div class="label">
              <label for="rating"><b>University Rating</b></label>
            </div>
            <div class="input">
              <select name="rating" id="rating" required>
                <option disabled>select a rating/option>
                <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>
            </div>
            <div class="label">
              <label for="sop"><b>SOP</b></label>
```

```
</div>
            <div class="input">
              <input type="text" name="sop" id="sop" placeholder="Enter your</pre>
SOP score between 0 - 5" required/>
            </div>
            <div class="label">
              <label for="lor"><b>LOR</b></label>
            </div>
            <div class="input">
              <input type="text" name="lor" id="lor" placeholder="Enter your</pre>
LOR score between 0 - 5" required/>
            </div>
            <div class="label">
              <label for="cgpa"><b>CGPA</b></label>
            </div>
            <div class="input">
              <input type="text" name="cgpa" id="cgpa" placeholder="Enter</pre>
your CGPA score between 0 - 10" required/>
            </div>
            <div class="label">
              <label for="research"><b>Research</b></label>
            </div>
            <div class="input">
              <select name="research" id="research" required>
                 <option value="1">Yes</option>
                 <option value="0">No</option>
```

```
</select>
           </div>
           <div class="btn uk-flex uk-flex-center uk-margin-top">
              <input type="submit" value="Predict" />
           </div>
         </form>
       </div>
    </div>
  </section>
</body>
<script src={{url_for("static",filename="js/scripts.js")}}></script>
</html>
CHANCE
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
  <link rel="stylesheet" href="{{ url_for("static", filename="css/styles.css") }}">
  <!-- <li>href="../static/css/styles.css"> -->
  <!-- UIkit CSS -->
```

```
k rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css"/>
  <!-- UIkit JS -->
  <script
src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-</pre>
icons.min.js"></script>
</head>
<body>
  <header class="uk-width-1-1">
     <h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR
SYSTEM</b></center></h1>
  </header>
  <section class="uk-flex uk-flex-center uk-flex-column uk-padding-large uk-</pre>
width-1-1">
    <div class="card uk-padding uk-box-shadow-xlarge">
       <div class="img">
         <!-- <img src="../static/images/chance.jpeg" alt="response">-->
         <img src="{{ url_for("static", filename="images/chance.jpg") }}"</pre>
alt="Chance">
       </div>
       <div class="msg uk-margin-top uk-padding uk-width-1-1 uk-text-justify">
          { msg } 
       </div>
       <div class="nav uk-flex uk-flex-center uk-margin-top uk-width-1-1 uk-</pre>
link-toggle uk-text-large">
         <a class="uk-link-heading" href="/"><b>Back to Form</b></a>
       </div>
```

```
</div>
  </section>
</body>
</html>
NO CHANCE
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Universitty Admit Eligibility Predictor</title>
  <link rel="stylesheet" href="{{ url_for("static", filename="css/styles.css") }}">
  <!-- <li>href="../static/css/styles.css"> -->
  <!-- UIkit CSS -->
  k rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/css/uikit.min.css"/>
  <!-- UIkit JS -->
  <script
src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/uikit@3.15.12/dist/js/uikit-</pre>
icons.min.js"></script>
</head>
<body>
  <header class="uk-width-1-1">
```

<h1><center> <b> UNIVERSITY ADMIT ELIGIBILITY<br> PREDICTOR SYSTEM</b></center></h1>

```
</header>
  <section class="uk-flex uk-flex-center uk-flex-column uk-padding-large uk-</pre>
width-1-1">
     <div class="card uk-padding uk-box-shadow-xlarge">
       <div class="img">
          <img src="{{ url_for("static", filename="images/nochance.jpg") }}"</pre>
alt="No chance">
       </div>
       <div class="msg uk-margin-top uk-padding uk-width-1-1 uk-text-justify">
          {{msg}}
       </div>
       <div class="nav uk-flex uk-flex-center uk-margin-top uk-width-1-1 uk-</pre>
link-toggle uk-text-large">
         <a class="uk-link-heading" href="/"><b>Back to Form</b></a>
       </div>
     </div>
  </section>
</body>
  </html>
STYLE SHEETS
*{
  padding: 0;
  margin: 0;
  font-family: sans-serif;
```

```
}
body\{
  width:100%;
  min-height:100vh;
  height:fit-content;
  max-height:fit-content;
  background: url("./images/university.jpg") no-repeat fixed;
  background-color:rgba(0,0,0,0.5);
  background-size:cover;
}
.bor{
  border:1px solid brown;
}
.heading{
  width:100%;
  background: #252525;
  font-size: 1.2rem;
}
.uk-width-1-1{
  text-align: center;
}
```

```
h1{
  color: blue;
}
h5{
  margin-top: 2%;
}
.uk-width-1-1{
  margin-top: 2%;
  font-size: larger;
  font-weight: 400px;
}
.heading a, .heading a:hover{
  color: #fff;
  text-decoration: none;
}
.uk-flex{
  display: flex;
  align-items: center;
  justify-content: center;
  text-align: center;
}
```

```
.card{
  margin: 1% 0%;
  width:35%;
  height:fit-content;
  backdrop-filter: blur(0px) saturate(200%);
  -webkit-backdrop-filter: blur(0px) saturate(200%);
  background-color: rgba(255, 255, 255, 0.72);
  border-radius: 12px;
  border: 1px solid rgba(209, 213, 219, 0.3);
  align-items: center;
  justify-content: center;
}
.info{
  font-size: 1.3rem;
}
.label{
  width:inherit;
  padding:0.5rem 0;
  /* border:1px solid green; */
}
.input{
  width:inherit;
```

```
padding:0.5rem 0;
  /* border:1px solid blue; */
  margin: 0px 5px;
}
.input input{
  width:70%;
  padding:0.75rem 1rem;
  outline: none;
  border:1.3px solid #7a7a7a;
  border-radius: 0.50%;
  font-size: 1rem;
}
.label label{
  width: 70%;
}
.input select{
  width:70%;
  padding:0.75rem 1rem;
  outline: none;
  border:1.3px solid #7a7a7a;
  border-radius: 0.50rem;
}
```

```
.input input:hover, .input select:hover{
  border:1.3px solid white;
}
.input select:focus, .input input:focus{
  border:1.3px solid white;
}
.btn{
  width:100%;
}
.btn input{
  width:50%;
  padding:0.5rem 1rem;
  outline: none;
  border:3px solid #000;
  border-radius: 0.55rem;
  background:transparent;
  color:black;
  font-size: 1.2rem;
}
.btn uk-flex uk-flex-center uk-margin-top{
  color: black;
  background: transparent;
```

```
.btn input:hover{
  background-color:gray;
}
.img
  width: 100px;
  height: 100px;
  display: flex;
  align-items: center;
  justify-content: center;
}
.msg\{
  font-size: 1.5rem;
}
.nav{
  width:50%;
  margin-left:10px;
  align-items: center;
  margin-top:3%;
.nav a{
```

```
margin-top: 2%;
  text-decoration: none;
  color: #000;
}
.nav a:hover{
  border-bottom: 2px solid grey;
}
/* small mobile devices.. */
@media screen and (min-width: 320px) and (max-width: 480px){
}
/* ipads, tablets and large mobile devices.. */
@media screen and (min-width: 481px) and (max-width: 768px){
}
/* small screen, Laptops.. */
@media screen and (min-width: 769px) and (max-width:1024px){
}
/* Desktops and Large screens.. */
@media screen and (min-width:1025px) and (max-width:1200px)
```

```
}
@media screen and (min-width:1201px){
}
```

**GITHUB:** <a href="https://github.com/IBM-EPBL/IBM-Project-20254-1659715845">https://github.com/IBM-EPBL/IBM-Project-20254-1659715845</a>

# **DEMONSTRATION VIDEO LINK:**

https://drive.google.com/drive/folders/1BB576E1iB8GP5-O1qkxUj6JiX97H9mTX?usp=sharing