

**UNIVERSITY ADMIT ELIGIBILITY PREDICTOR**

**PROJECT REPORT**

**NALAIYA THIRAN PROJECT BASED LEARNING ON PROFESSIONAL  
READLINESS FOR INNOVATION, EMPLOYMENT AND  
ENTERPRENEURSHIP**

*Submitted by*

**TEAM ID : PNT2022TMID35992**

<b>MOHAMED FAZITH J</b>	<b>2019506051</b>
<b>SHREEJA K</b>	<b>2019506085</b>
<b>BOGAR R</b>	<b>2019506023</b>
<b>SOWMYA R</b>	<b>2019506094</b>
<b>DHANUSH KRISHNAN K</b>	<b>2019506027</b>

*Under the Guidance of:*

**INDUSTRY MENTOR : Mr.SANDESH P**

**FACULTY MENTOR : Ms. ELIZA FEMI SHERLEY S**

**EVALUATOR : Dr. P. KOLA SUJATA**

<b>CHAPTER NO</b>	<b>TITLE</b>	<b>PAGE NO</b>
<b>1.</b>	<b>INTRODUCTION</b>	
	1.1 Project Overview	4
	1.2 Purpose	4
<b>2.</b>	<b>LITERATURE SURVEY</b>	
	2.1 Existing problem	5
	2.2 References	5
	2.3 Problem Statement Definition	6
<b>3.</b>	<b>IDEATION &amp; PROPOSED SOLUTION</b>	
	3.1 Empathy Map Canvas	7
	3.2 Ideation & Brainstorming	8
	3.3 Proposed Solution	9
	3.4 Problem Solution fit	11
<b>4.</b>	<b>REQUIREMENT ANALYSIS</b>	
	4.1 Functional requirement	12
	4.2 Non-Functional requirements	12
<b>5.</b>	<b>PROJECT DESIGN</b>	
	5.1 Data Flow Diagrams	13
	5.2 Solution & Technical Architecture	13
	5.3 User Stories	14
<b>6.</b>	<b>PROJECT PLANNING &amp; SCHEDULING</b>	
	6.1 Sprint Planning & Estimation	15
	6.2 Sprint Delivery Schedule	16
	6.3 Reports from JIRA	15
<b>7.</b>	<b>CODING &amp; SOLUTIONING</b>	
	7.1 Feature 1	16

<b>8.</b>	<b>TESTING</b>	
	8.1 Model performance testing	27
	8.2 Analysis	28
<b>9.</b>	<b>RESULTS</b>	
	9.1 Performance Metrics	30
<b>10.</b>	<b>ADVANTAGES AND DISADVANTAGES</b>	31
<b>11.</b>	<b>CONCLUSION</b>	31
<b>12.</b>	<b>FUTURE SCOPE</b>	31
<b>13.</b>	<b>APPENDIX</b>	
	13.1Source Code	32
	13.2GitHub & Project Demo Link	37

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Project Overview:**

The quality of one's education determines their destiny, hence it plays a significant part in one's life. Following graduation, they frequently have a lot of questions about going back to school and selecting the finest university. Most students favour institutions of higher learning that are well-known worldwide. Therefore, a greater proportion of Indian students prefer to pursue higher education in the United States. Even though India is home to some well regarded universities, graduate students sometimes struggle to gain admission to these institutions. Additionally, because there aren't many job prospects available, finding a position is also a challenge. Students spend time and money seeking advice because they are unsure of which university is the best. There are various blogs and websites that inform students about their possibilities of admission in addition to consulting firms and consultants, but such resources are not particularly accurate, so you shouldn't rely entirely on them.

### **1.2 Purpose:**

In this paper, a machine learning model is established that considers parameters including undergraduate GPA, TOEFL score, university ranking, proposal statement and recommendation letter strength, and study experience in addition to the GRE and TOEFL scores. It forecasts the possibility of admission after receiving all the information. On obscure test occasions, the developed model has significant factual findings for the (like) assessment of the chance of confirmation and, as a result, provides an unbiased picture of measurement.

## **CHAPTER 2**

### **LITERATURE SURVEY**

#### **2.1 Existing Problem:**

##### **1. Prediction Probability of Getting an Admission into a University using Machine Learning**

The suggested model employs the random forest and linear regression methods, although the cat boost approach provides the maximum accuracy. Making a short list of schools to apply to is a challenging task for prospective graduate students. Because applications are so flexible, students frequently wonder if their profile fits the requirements of a particular university. Additionally, because it is so expensive to apply to a university, it is crucial that students narrow down their list of potential universities based on their profile.

##### **2. A University Admission Prediction System using Stacked Ensemble Learning**

Students can utilize a university admission prediction system to figure out their odds of admittance at a particular institution. Early versions of these prediction systems had several flaws, such as failing to consider crucial factors like GRE (Graduate Record Exam) results or research experience. Furthermore, older models' stated accuracy is likewise insufficiently low. A stacked ensemble model that forecasts a student's chances of admission to a specific university has been proposed in this study.

##### **3. University Admissions Predictor Using Logistic Regression**

The suggested model considers several student-related aspects, such as their background in research and other fields of employment. It might be confusing for students seeking for university admission to know if they stand a decent chance of being accepted or not. To keep this in mind, we used logistic regression techniques, which have drawn attention in the field of software engineering due to their capacity for making predictions.

#### **2.2 References:**

- [1] Sivasangari, A., et al. "Prediction Probability of Getting an Admission into a University using Machine Learning." 2021 5th International Conference on Computing Methodologies and Communication (ICCMC). IEEE, 2021
- [2] Sridhar, Sashank, Siddartha Mootha, and Santosh Kolagati. "A University Admission Prediction System using Stacked Ensemble Learning." 2020 Advanced Computing and Communication Technologies for High Performance Applications (ACCTHPA). IEEE, 2020
- [3] Fathiya, Haseeba, and Lipsa Sadath. "University Admissions Predictor Using Logistic Regression." 2021 International Conference on Computational Intelligence and Knowledge Economy (ICCIKE). IEEE, 2021.

### **2.3 Problem statement definition:**

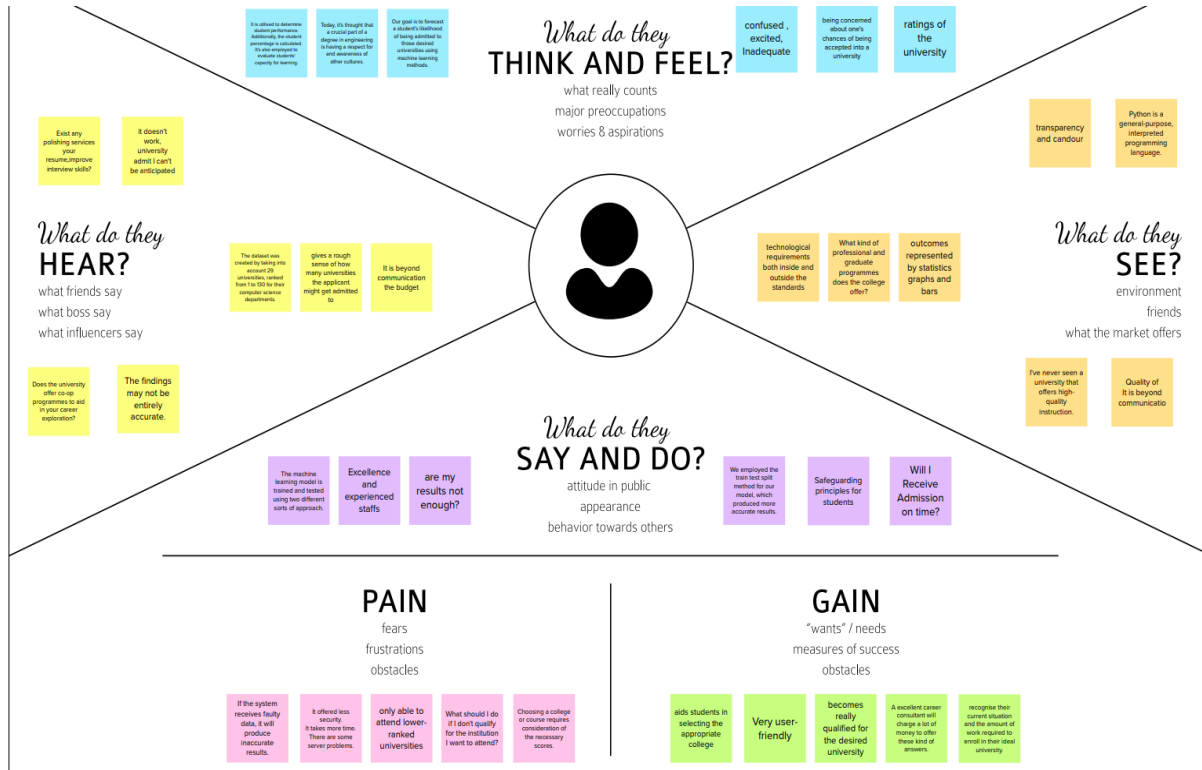
Every year thousands of college graduates apply for the master and PhD programs in various universities from all around the world. Applying to foreign universities is not an easy task, it involves many steps and procedures to follow. Choosing the right universities or colleges is definitely an another hurdle students because of the sheer number of universities of different levels. Many students are often stuck in a dilemma till the very last minute as to whether or not their applications will be accepted or not as no concrete documentation is available which lists the requirements. Also the cost for applying to universities is time consuming and expensive . This leads students of poor economic backgrounds to frustration and anxiety as they only lose surplus amount of money just for applying to those universities. This is because overall university application cost is not affordable for students with low economic backgrounds

Every year thousands of college graduates apply for the master and PhD programs in various universities from all around the world. Applying to foreign universities is not an easy task, it involves many steps and procedures to follow. Choosing the right universities or colleges is definitely an another hurdle students because of the sheer number of universities of different levels. Many students are often stuck in a dilemma till the very last minute as to whether or not their applications will be accepted or not as no concrete documentation is available which lists the requirements. Also the cost for applying to universities is time consuming and expensive . This leads students of poor economic backgrounds to frustration and anxiety as they only lose surplus amount of money just for applying to those universities. This is because overall university application cost is not affordable for students with low economic backgrounds

# CHAPTER 3

## IDEATION & PROPOSED SOLUTION

### 3.1 Empathy Map Canvas:



## 3.2 Ideation and Brainstorming:

### Brainstorm & idea prioritization

Use this template to plan your brainstorming sessions in your team. You can extend this template and add anything you need to make it your own.

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**

**1. Welcome to your session**

**2. Welcome to your session**

**3. Welcome to your session**



### 3.3 Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Admission to universities and colleges involves a complicated decision-making process that goes beyond just comparing test results and admission standards. It might be challenging for aspiring graduate students to decide which universities to apply to. Students frequently question whether they are qualified enough for a particular university. This issue has been dealt with in this research by designing a recommender system based on different classification techniques.
2.	Idea / Solution description	Students will log in and fill out their information on the website. Depending on their grades, universities will suggest courses to them. The customer has a variety of universities and courses to pick from. The predictor will compare the data and present a list of programmes and institutions to which the candidate is admittedly qualified.
3.	Novelty / Uniqueness	Instead of the students having to repeatedly choose between several universities and courses, the system suggests options for them. This system links students with the top universities suitable for the individuals based on the university rankings. There will be no need for the student to search for any other websites because the information about the suggested universities will be presented. The changes in qualifications criteria for universities will be updated periodically to be up to date and to provide accurate prediction.
4.	Social Impact / Customer Satisfaction	It will help students to be aware of various universities which are dispersed around the world. Additionally, it cuts down on the time needed to process student applications, admit students, and check their grades. It serves as a central data handling system. Reduce the price of the admissions procedure. By raising the

		process quality, it also increases operational effectiveness.
5.	Business Model (Revenue Model)	By forming partnerships with institutions, the site suggests universities to students. Additionally, the system might be helpful for any student who wants to participate in an undergraduate programme.
6.	Scalability of the Solution	For students, the initiative will forecast their chances of admission in universities. Students can determine if they are qualified for their preferred course at their preferred university.

## 3.4 Problem Solution Fit:

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span> Who is your customer? i.e. working parents of 0-5 y.o. kids  <div>Students who have completed their Higher Secondary Education</div>	<b>6. CUSTOMER CONSTRAINTS</b> <span>CC</span> 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.  <div>Time, resource wastage and also money related problems.</div>	<b>5. AVAILABLE SOLUTIONS</b> <span>AS</span> 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  <div>Eligibility Criteria due to Entrance Exam like NEET, JEE, etc , Seat allotment.</div>	Explore AS, differentiate
	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <span>J&amp;P</span> Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.  <div>To know about their status of getting a seat in their preferred university, if not recommend the next best university</div>	<b>9. PROBLEM ROOT CAUSE</b> <span>RC</span> 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.  <div>Due to high Competition and not meeting the required criteria.</div>	<b>7. BEHAVIOUR</b> <span>BE</span> 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)  <div>Spending lots of money to get their preferred university.</div>	
Identify strong TR & EM	<b>3. TRIGGERS</b> <span>TR</span> What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.  <div>When their friends or relatives get into universities that they desired to get into.</div>	<b>10. YOUR SOLUTION</b> <span>SL</span> 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.  <div>We would create an application that helps students to get the list of colleges by comparing the student's marks and college's cut off and predicting admission probability. It is fast, efficient and reliable. It will also help the students to know their stand and act accordingly.</div>	<b>8. CHANNELS of BEHAVIOUR</b> <span>CH</span> <b>8.1 ONLINE</b> What kind of actions do customers take online? Extract online channels from #7  <div>They will search online about the preferred university and the criteria to join the University</div> <b>8.2 OFFLINE</b> What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.  <div>Visiting College campus, Enquire students, Academic representatives and nearby people about the University.</div>	Identify strong TR & EM
	<b>4. EMOTIONS: BEFORE / AFTER</b> <span>EM</span> 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.  <div>Stressed or even go into depression if not getting the desired university.</div>			

## CHAPTER 4

### REQUIREMENT ANALYSIS

#### 4.1 Functional Requirements:

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Users Data Collection	Collecting the TOEFL, GRE scores from the user.
FR-2	User Registration	Registration through Form Registration through Gmail
FR-3	Predicting the Data	Analysing the given data with the previous year cut-off of the universities and then system provides the list of universities based on the student cut-off.
FR-4	Users Preference	Users can select the universities based on their convenient and preference from the predicted list.
FR5	Output	The Universities are listed based on the Student marks where the universities will be listed in the rankwise , So the predicted output gives them a fair idea about their admission chances in a particular university.

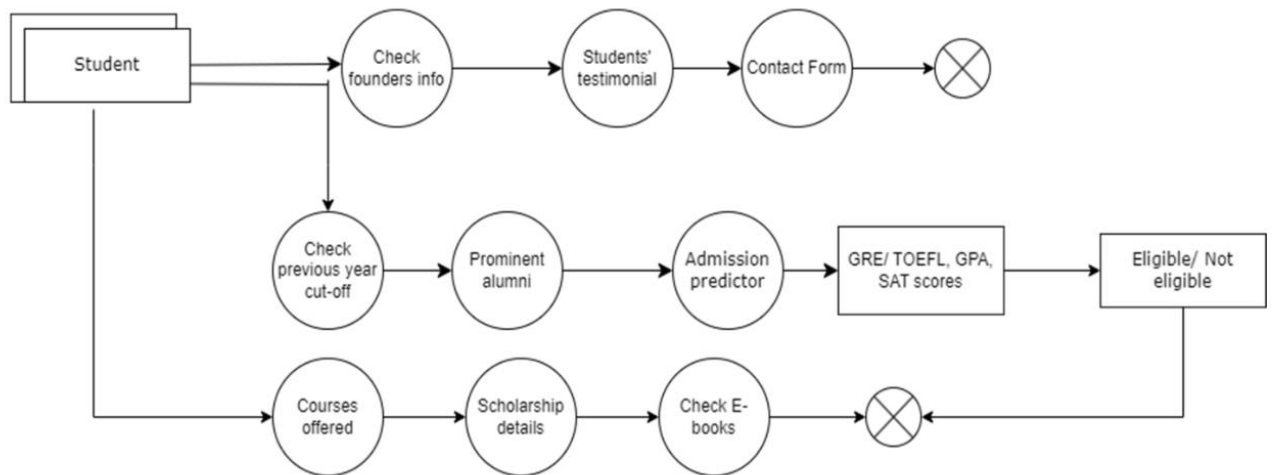
#### 4.2 Non – Functional Requirements:

FR No.	Non-Functional Requirement	Description
NFR-1	<b>Usability</b>	The predictor platform should provide the capacity to perform the right options for the users based on their profiles.
NFR-2	<b>Security</b>	The student profile and data should be maintained in a secured manner.
NFR-3	<b>Reliability</b>	<ul style="list-style-type: none"> <li>The user can find universities based on their preferred locations and results.</li> <li>The predictor system should be consistent and the system will give accurate and reliable results.</li> </ul>
NFR-4	<b>Performance</b>	The system can supply any number of users at a time and provides the list of universities, the predictor platform gives the good performance criteria.
NFR-5	<b>Availability</b>	The system predictor will available to users to accessed anytime and anywhere whenever they required.
NFR-6	<b>Scalability</b>	The system must be scalable to support many users at a time.

## CHAPTER 5

### PROJECT DESIGN

#### 5.1 Data Flow Diagram:



## 5.2 USER STORIES

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	Landing page	USN-1	As a user, I can view the details about the university	I can access the university landing page	Medium	Sprint-1
		USN-2	As a user, I can view the latest news about the university	I can access the latest news	Medium	Sprint-1
		USN-3	As a user, I can fill the contact form for queries	I can fill and submit the contact form	Low	Sprint-2
		USN-4	As a user, I can see the social media profiles of the university	I can reach out to them via social media	Medium	Sprint-1
		USN-5	As a user, I can see testimonials of students who graduated from the university	I can access the testimonials	Medium	Sprint-1
	Admissions	USN-6	As a user, I can see the previous year cut-off marks	I can download the previous year cut-off details	High	Sprint-2
		USN-7	As a user, I can read about proud alumni of the university	I can access the details of alumni of the university	Medium	Sprint-2
		USN-8	As a user, I can predict my eligibility for admission at the university	I can get result as either eligible/not eligible	High	Sprint-2
	Courses offered	USN-9	As a user, I can see the courses offered by the university for PG students	I can access the course details	Medium	Sprint-3
	Events	USN-10	As a user, I can check various technical events about to happen in the university	I can register for the events	Low	Sprint-3
	E-books	USN-11	As a user, I can download and read e-books relating to visa formalities	I can download the e-books	High	Sprint-3

## CHAPTER 6

### PROJECT PLANNING & SCHEDULING

#### 6.1 Sprint planning and estimation

**Product Backlog, Sprint Schedule, and Estimation (4 Marks)**

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Landing Page	USN-1	As a user, I can enter the scores which are required by the university in order to predict the result.	2	High	4
Sprint-1	Choose University	USN-2	As a user, I will be able to view the list of universities that the students are eligible to apply.	5	High	4
Sprint-1	Choose Course	USN-3	As a user, I will be able to view the list of courses that the students are eligible to apply.	5	Medium	2
Sprint-1	Admission Process	USN-4	As a user, I will be able to view the details Of Admission process	2	Low	5
Sprint-1	Data collection	USN-5	As a admin,the historical data is collected and cleaned in order to achieve the optimal prediction. The correlation between the data is analyzed through visualization.	1	Medium	3
Sprint-1	Pre-requisite for Model Building	USN-6	As a admin,The Data is transformed into training set suitable to build the model.	2	Medium	1
Sprint-2	Model Building	USN-7	As a admin,a model is built using various machine learning techniques..	2	High	1
Sprint-2	Model Testing	USN-8	As a admin,the Built model has been checked for accuracy and other performance metrics.	1	High	2
Sprint-3	Integration	USN-9	As a admin,the frontend and the developed Machine Learning model is integrated using flask API	1	High	3
Sprint-4	Deployment in Cloud	USN-10	As a admin,the developed application is deployed in the cloud so that it can be accessed by anyone.	2	High	5

## CHAPTER 7

### CODING & SOLUTION

#### 7.1 Model Building

##### 7.1.1 Data Collection & Exploratory Data Analysis

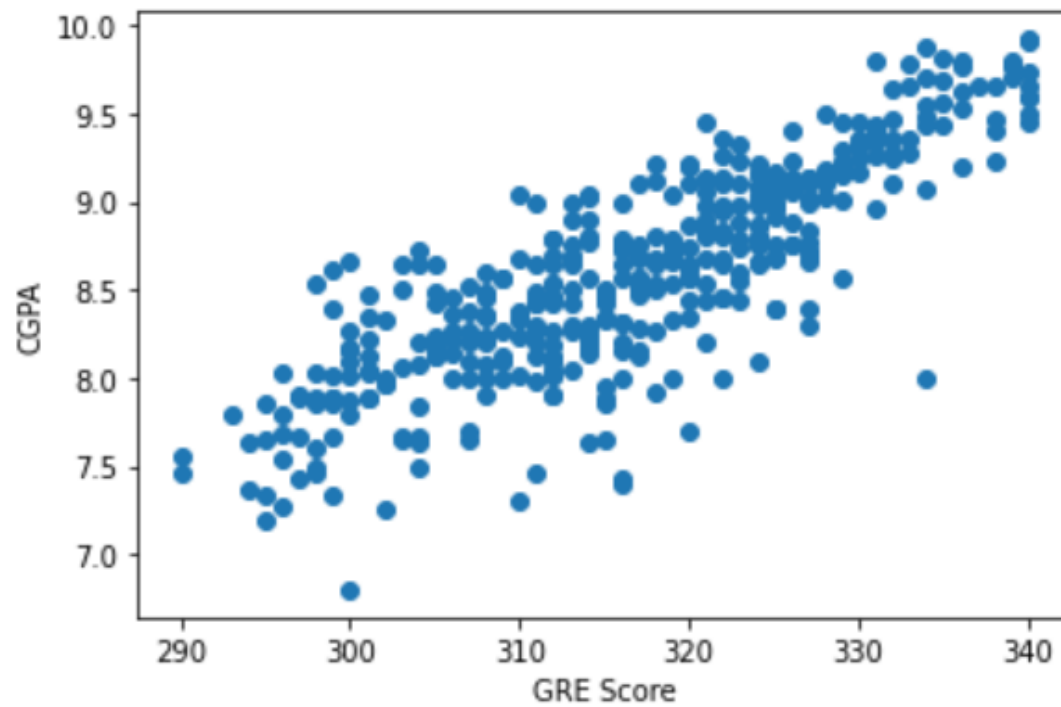
	Serial No.	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
<b>0</b>	1	337	118	4	4.5	4.5	9.65	1	0.92
<b>1</b>	2	324	107	4	4.0	4.5	8.87	1	0.76
<b>2</b>	3	316	104	3	3.0	3.5	8.00	1	0.72
<b>3</b>	4	322	110	3	3.5	2.5	8.67	1	0.80
<b>4</b>	5	314	103	2	2.0	3.0	8.21	0	0.65
...	...	...	...	...	...	...	...	...	...
<b>395</b>	396	324	110	3	3.5	3.5	9.04	1	0.82
<b>396</b>	397	325	107	3	3.0	3.5	9.11	1	0.84
<b>397</b>	398	330	116	4	5.0	4.5	9.45	1	0.91
<b>398</b>	399	312	103	3	3.5	4.0	8.78	0	0.67
<b>399</b>	400	333	117	4	5.0	4.0	9.66	1	0.95

400 rows × 9 columns

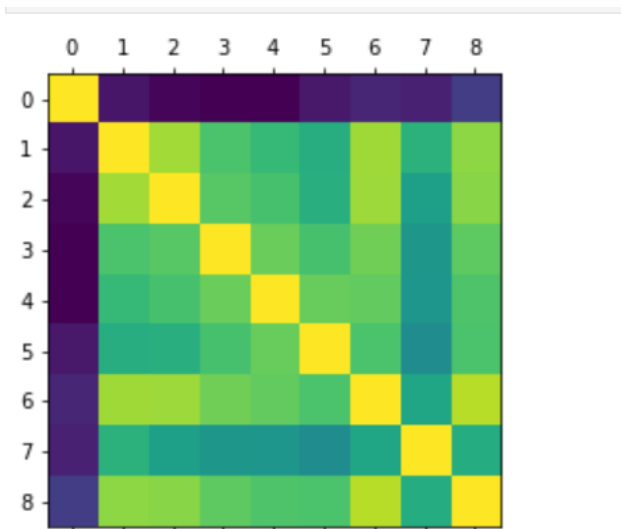


### 7.1.2 Data Visualization

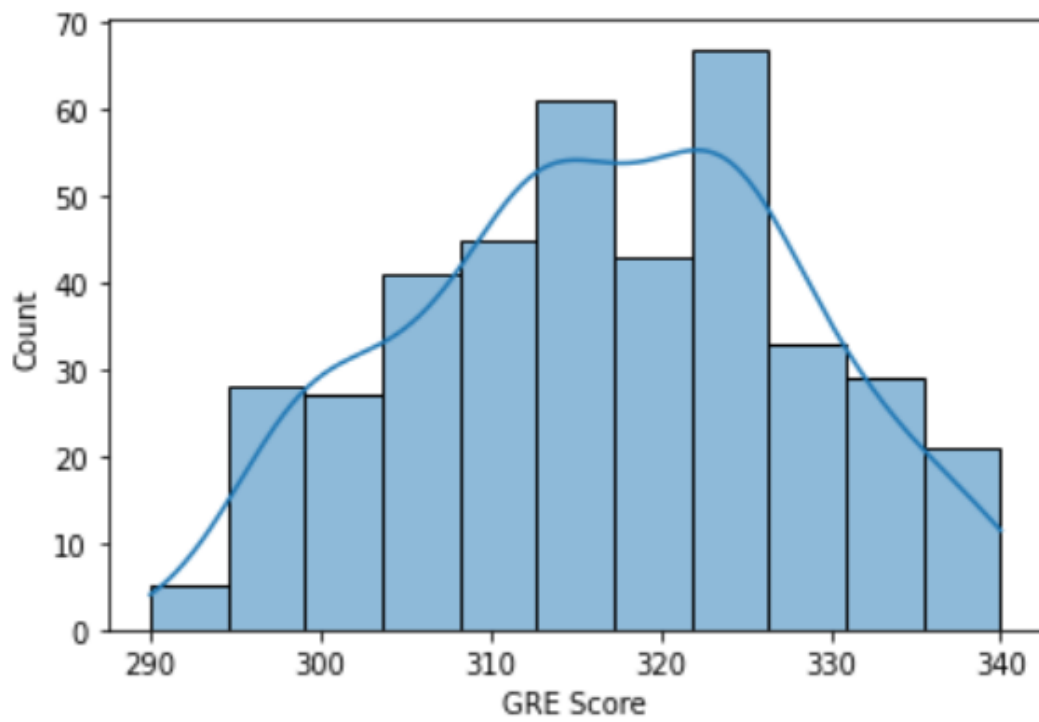
Data visualization helps to understand the data and also explain the data to others. Histogram, box plot, correlation matrix plot, scatter matrix plot, pair plot has been plotted.



### Correlation Matrix:



### Histogram:



### 7.1.3 Data Preprocessing & Splitting the dataset

In the first step data preprocessing is done. Preprocessing is the method by which we perform data cleaning i.e., raw dataset is converted into cleaned dataset. There are no missing values in the dataset. The dataset is divided into 80:20 ratio where 80% is for training data and 20% for testing data.

#### Splitting The Data Into Train And Test

```
In [40]: from sklearn.model_selection import train_test_split
x=df[['GRE Score','TOEFL Score','University Rating','CGPA']]
y=df['Chance of Admit ']
```

```
In [41]: y=(y>0.5).astype(int)
```

```
In [42]: y
```

```
Out[42]: 0    1
1    1
2    1
3    1
4    1
..
395  1
396  1
397  1
398  1
399  1
Name: Chance of Admit , Length: 400, dtype: int32
```

```
In [43]: x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2)
```

### 7.1.4 Model Building and Hyper parameter tuning

# Support Vector Machine

```
In [7]: from sklearn.svm import SVC
from sklearn.metrics import accuracy_score
from decimal import Decimal
svm_clf = SVC(probability = True, kernel='linear')
svm_clf.fit(x_train,y_train)
```

```
Out[7]: SVC(kernel='linear', probability=True)
```

## Testing the model

```
In [8]: y_pred = svm_clf.predict(x_test)

acc_svm = round(Decimal(accuracy_score(y_test, y_pred) * 100), 2)

print(f"Accuracy (SVM) : {acc_svm}%")

Accuracy (SVM) : 98.75%
```

## Decision Tree

```
: from sklearn.tree import DecisionTreeClassifier
from sklearn import metrics
drugTree = DecisionTreeClassifier(criterion="entropy", max_depth=4)

drugTree.fit(x_train, y_train)
predicted = drugTree.predict(x_test)

print(predicted)

print("DecisionTrees's Accuracy: ", metrics.accuracy_score(y_test, predicted))
```

[1 1 1 1 1 1 1 1 1 1 1 1 0 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  
1  
1 1 1 1 1 1]

DecisionTrees's Accuracy: 0.9625

## Naïve bayes

```
In [21]: from sklearn.naive_bayes import GaussianNB
```

```
# instantiate the model  
gnb = GaussianNB()
```

```
# fit the model  
gnb.fit(x_train, y_train)
```

```
Out[21]: GaussianNB()
```

```
In [22]: y_pred = gnb.predict(x_test)  
  
y_pred
```

```
Out[22]: array([1, 0, 0, 1, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 1, 0, 0, 1, 1, 1, 1, 1,  
                1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 1, 0, 1,  
                1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 1, 1, 1, 0, 1, 1, 1, 1, 1, 1, 1,  
                1, 0, 1, 0, 1, 0, 1, 1, 1, 1, 1, 1, 0, 1, 1])
```

```
In [23]: from sklearn.metrics import accuracy_score  
  
print('Model accuracy score: {0:0.4f}'.format(accuracy_score(y_test, y_pred)))
```

```
Model accuracy score: 0.8625
```

## Logistic regression

```
In [24]: from sklearn.preprocessing import StandardScaler  
sc_x = StandardScaler()  
xtrain = sc_x.fit_transform(x_train)  
xtest = sc_x.transform(x_test)  
  
print (xtrain[0:10, :])  
  
[[-0.78273911 -0.72719334 -0.97762    -0.20053014]  
 [ 1.99550994  2.01617126  1.65127412  1.6347779 ]  
 [-0.86955939 -0.88856772 -0.10132196 -0.56428488]  
 [-0.43545798 -1.04994211 -0.97762    -0.94457394]  
 [-0.52227826 -0.24307017 -0.97762    -0.58081919]  
 [ 1.21412739  2.01617126 -0.10132196  0.57658227]  
 [ 0.6932057   0.56380177 -0.10132196  0.1466903 ]  
 [ 1.21412739  0.72517616  1.65127412  1.96546403]  
 [-0.86955939  0.24105299 -0.10132196 -1.01071116]  
 [ 0.34592456 -0.08169578 -0.97762    -0.28320167]]
```

```
In [25]: from sklearn.linear_model import LogisticRegression  
classifier = LogisticRegression(random_state = 0)  
classifier.fit(x_train, y_train)
```

```
Out[25]: LogisticRegression(random_state=0)
```

```
In [26]: y_pred = classifier.predict(x_test)
```

```
In [26]: y_pred = classifier.predict(x_test)
```

```
In [27]: from sklearn.metrics import accuracy_score  
print ("Accuracy : ", accuracy_score(y_test, y_pred))
```

```
Accuracy : 0.9375
```

---

## Random Forest

```
from sklearn.ensemble import RandomForestRegressor  
rf = RandomForestRegressor(n_estimators = 1000, random_state = 42)  
# Train the model on training data  
rf.fit(x_train,y_train);
```

```
# Use the forest's predict method on the test data  
predictions = rf.predict(x_train)  
# Calculate the absolute errors  
errors = abs(predictions - y_train)  
# Print out the mean absolute error (mae)  
print('Mean Absolute Error:', round(np.mean(errors), 2), 'degrees.')
```

```
Mean Absolute Error: 0.05 degrees.
```

```
# Calculate mean absolute percentage error (MAPE)  
mape = 100 * (errors / y_train)  
# Calculate and display accuracy  
accuracy = 100 - np.mean(mape)  
print('Accuracy:', round(accuracy, 2), '%.')
```

```
Accuracy: 94 %
```

## 7.2 Flask Integration

### Index.html:

```
<!DOCTYPE html>  
<html lang="en">  
<head>  
  <meta charset="UTF-8">  
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
```

```

<meta name="viewport" content="width=device-width, initial-scale=1.0">
<link rel="stylesheet" href="{{ url_for('static', filename='style.css') }}" />
<!-- <link rel="stylesheet" href="style.css">-->
<title>Model Deployment</title>

</head>
<body>
    <image src="{{ url_for('static', filename='images/header.jpeg') }}" alt="Girl in a jacket"
    style="width: 1880px;height: 150px;">

    <center>
    <h1><b>UNIVERSITY ADMIT PREDICTION SYSTEM </b></h1>
    <h2>Enter your details and get probability of your admission</h2>
    <form action="{{ url_for('predict') }}" method="post">
    <table>
        <tr><th>Enter GRE score:</th>
        <td><input type="number" name="precip" placeholder="Enter GRE score" ></td></tr>
        <tr><th>Enter TOFEL score</th>
        <td><input type="number" name="maxT" placeholder="Enter TOFEL score" ></td></tr>
        <tr><th>University number</th>
        <td><select name="no">
            <option value="1">1-Stanford</option>
            <option value="2">2-Windsor</option>
            <option value="3">3-Michigan</option>
            <option value="4">4-Harvard</option>
            <option value="5">5-University of Toronto</option>
        </select></td>
        </tr></br>

        <!--<tr><th>Enter SOP </th>
        <td><input type="number" name="sop" placeholder="sop" ></td></tr> -->
        <tr><th>Enter cgpa </th>
        <td><input type="number" step="any" name="cgpa" placeholder="cgpa"
></td></tr>

        <!-- <tr><th>Enter LOR </th>
        <td><input type="number" name="lor" placeholder="lor" ></td></tr>

        <tr><th>Reserach</th>
        <td><input type="radio" name="RESEARCH" value="RESEARCH">RESEARCH</td></tr>
        <tr><th></th>
        <td><input type="radio" name="NO RESEARCH" value="NO RESEARCH">NO
RESEARCH</td></tr>-->

    </table>

```

```

<br>
<!--<button type="button">PREDICT</button>-->
<button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
</form>
<br>
<br><br>
</center>

```

```

</body>
</html>

```

### Selected.html:

```

<!DOCTYPE html>
<html>
  <head>
    <style>
      body{ background-color:rgb(134, 222, 144);}
    </style>
    <title>
      SELECTED
    </title>
  </head>
  <body><center>

    <h1>
      <u> Predicting chance of Admission</u>
    </h1>

    <h3>
      Prediction:<u>
        You Have a Chance

        </u>
      </h3>

    
    <br>
    
  </center>
</body>

```



```
</html>
```

## Rejected.html:

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body{ background-color:rgb(232, 139, 122);}
    </style>
    <title>
      REJECTED
    </title>
  </head>
  <body><center>

    <h1>
      <u> Predicting chance of Admission</u>
    </h1>

    <h3>
      Prediction:<u>
        You Dont Have a Chance

      </u>
    </h3>

    
    <br>
    
  </center>
</body>
</html>
```

## Design.css

```
html, body {
  padding: 0;
  margin: 0;
}
button:hover {
  background-color: #4CAF50; /* Green */
  color: white;
```

```

}
button {
  transition-duration: 0.4s;
  background-color:rgb(68, 83, 202) ;
  border: none;
  color: rgb(240, 235, 238);
  padding: 5px 15px;
  text-align: center;
  text-decoration: none;
  display: inline-block;
  font-size: 16px;
  margin: 4px 2px;
  cursor: pointer;
}
h2{
  font-family: "Brush Script MT";
  font-size:20;
  padding: 5px 10px;
}

body{
  font-family: "Poppins", sans-serif;
  font-weight: 300;
  font-size: 20px;
  line-height: 1.7;
  color: #171426;
  background-color: rgb(149, 156, 205);
  overflow-x: hidden;
}

table{
  display: table;
  border-collapse: separate;
  box-sizing: border-box;
  text-indent: initial;
  border-spacing: 2px;
  padding: 0.5vmin;
  border-radius: 1em;
  border: 2px solid #e5dab6;
}

center{
  display: block;
  text-align: -webkit-center;
}

```

```
tr, th, td{
    padding: 0.5vmax;
    text-align: left;
}
```

```
input {
    background-color: #c4c3ca;
    color: #1f2029;
}
```

## **App.py**

```
import numpy as np
from flask import Flask, request, jsonify, render_template
import pickle
```

```
# Create flask app
flask_app = Flask(__name__)
model = pickle.load(open('svm.pkl','rb'))
```

```
@flask_app.route("/")
def Home():
    return render_template("index.html")
```

```
@flask_app.route("/predict", methods = ["POST"])
def predict():
    float_features = [float(x) for x in request.form.values()]
    features = [np.array(float_features)]
    prediction = model.predict(features)
    if prediction==1:
        return render_template("goto.html")
    else:
        return render_template("rejected.html")
```

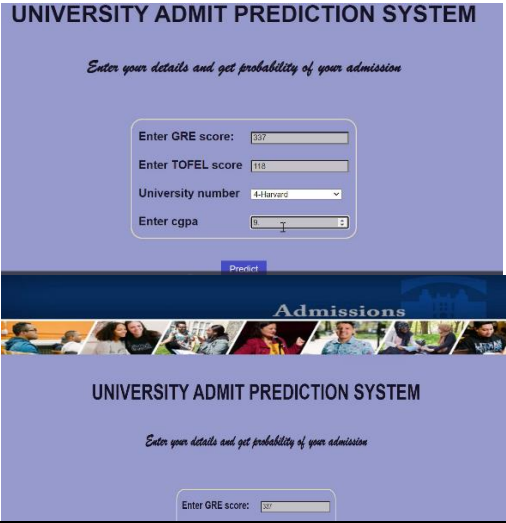
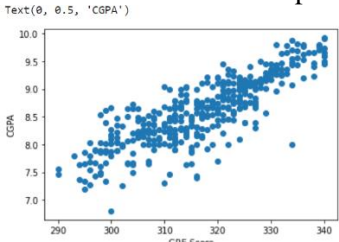
```
if __name__ == "__main__":
    flask_app.run(debug=True)
```

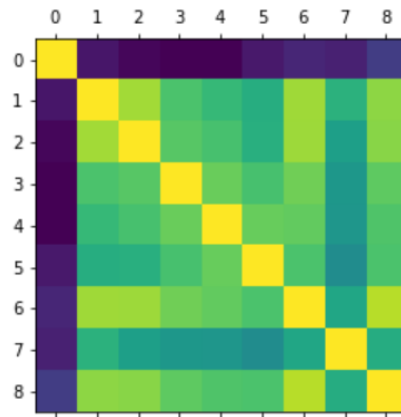
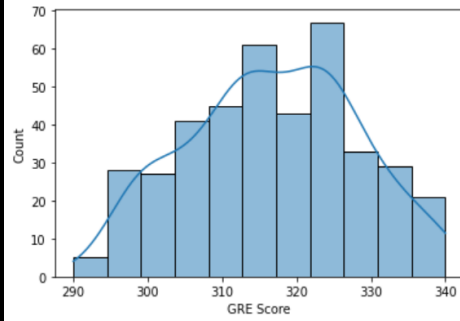


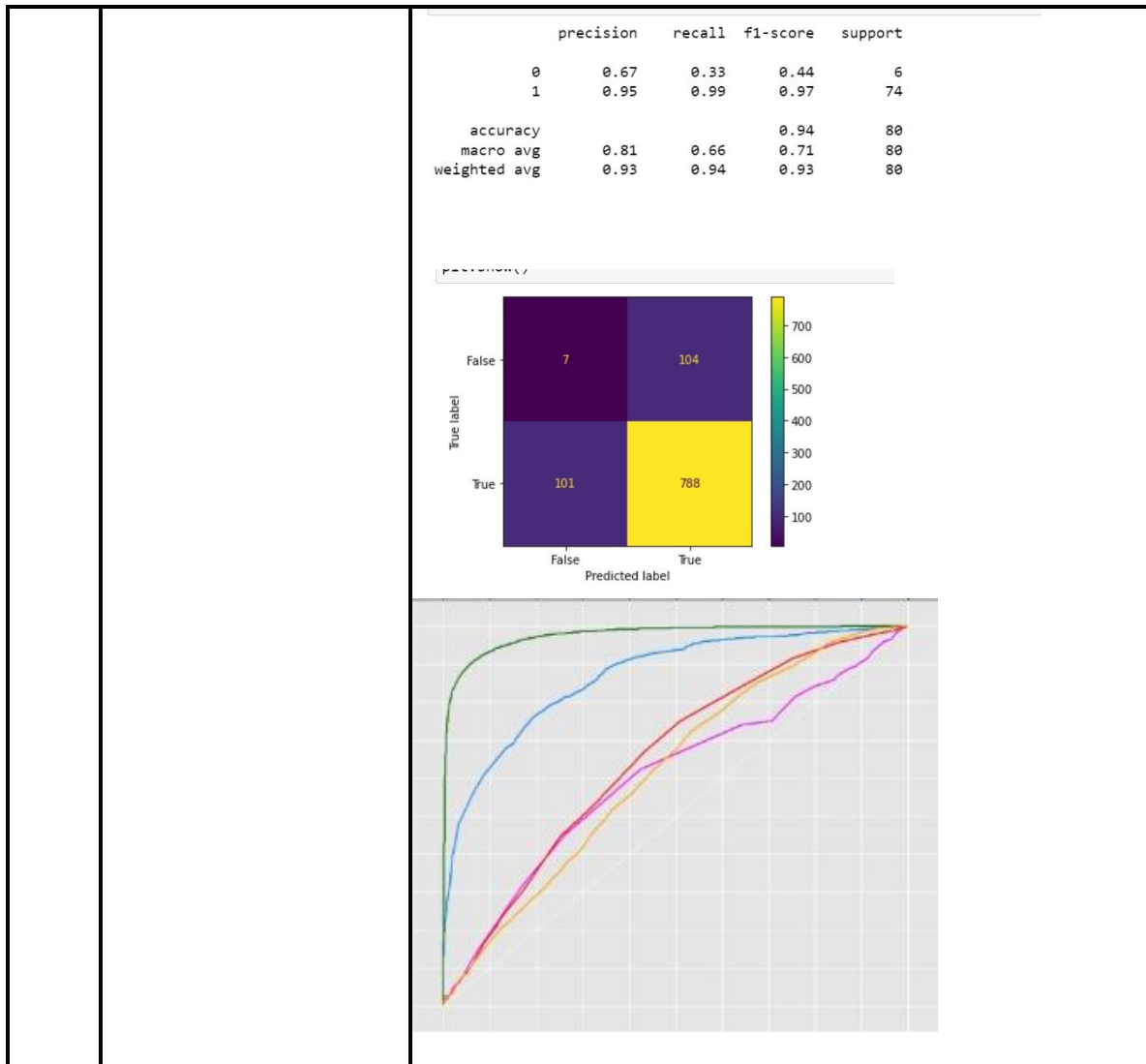
## CHAPTER 8

### TESTING

#### 8.1 Model Performance testing

S.No.	Parameter	Screenshot / Values
1.	Dashboard design	No of Visualizations / Graphs -2  
2.	Metrics	<pre>print('Mean Absolute Error:', mean_absolute_error(y_test,pred_lr)) print('Mean Squared Error:', mean_squared_error(y_test,pred_lr)) print('Root Mean Squared Error:', np.sqrt(mean_squared_error(y_test,pred_lr)))</pre> <p>Mean Absolute Error: 0.047854809740532175  Mean Squared Error: 0.004565099424278329  Root Mean Squared Error: 0.06756551949240329</p>
3.	DB2 Metrics (Response Metrics)	Status: 0 (Active)
4.	Effective User Story	No of Scene Added - 5
5.	Descriptive Reports	No of Visualizations / Graphs – 5 





## 8.2 Analysis

### Defect Analysis

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	0	4	2	3	9
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	4	21
Not Reproduced	0	0	1	0	1

Skipped	0	0	1	1	2
Won't Fix	0	5	2	1	8
Totals	14	14	13	10	51

## Test Case Analysis:

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	3	0	0	3
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

## 8.3 Test case Report

				Date	3-Nov-22				
				Team ID	PNT2022TMD35992				
				Project Name	University Admit Eligibility Predictor				
				Maximum Marks	4 marks				
Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status
LoginPage_TC_001	Functional	Home Page	Verify user is able to see the Login/register popup when user clicked on My account button		1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/register popup displayed or not	Username: abc@gmail.com password: 123456789	Login/register popup should display	Working as expected	Pass
LoginPage_TC_003	Functional	Home page	Verify user is able to log into application with Valid credentials		1.Enter URL( <a href="https://shopenzer.com/">https://shopenzer.com/</a> ) and click go 2.Click on login button	Username: abc@gmail.com password: 123456789	User should navigate to form for collecting user details	Working as expected	Pass
DashboardForm_TC_007	Functional	Dashboard Form Validation	Verify values entered for marks are non-negative		1.Enter URL and click go 2.Login with valid credentials 3.Enter valid values for numerical fields		Application should allow submission of form	Working as expected	Pass
DashboardForm_TC_007	Functional	Prediction	Correct prediction for eligible students		Click predict button to predict the chances	GRE Score: 337 Toef Score:118 CGPA: 9 University: Harvard	Application should correctly predict the chances	Working as expected	Pass
DashboardForm_TC_007	Functional	Prediction	Correct prediction for eligible students		Click predict button to predict the chances	GRE Score: 187 Toef Score:118 CGPA: 7 University: Harvard	Application should correctly predict the chances	Working as expected	Pass



## **CHAPTER 9**

### **RESULTS**

#### **9.1 Performance Metrics**

##### **Accuracy:**

- **SUPPORT VECTOR MACHINE:**

**Validation Accuracy :98.75%**

- **DECISION TREE:**

**Validation Accuracy:96.25%**

- **RANDOM FOREST:**

**Validation Accuracy:94%**

- **NAÏVE BAYES CLASSIFIER**

**Validation Accuracy:86.25%**

- **LOGISTIC REGRESSION**

**Validation Accuracy:93.75%**

## **CHAPTER 10**

### **ADVANTAGES & DISADVANTAGES**

#### **ADVANTAGES:**

- Predict eligibility for different universities
- High Accuracy
- User friendly

#### **DISADVANTAGES:**

- Not a generalized model
- Huge number of rules

## **CHAPTER11**

### **CONCLUSION**

In this study, a proposed methodology, a few algorithms, and their implementation are reviewed, as well as the stages required in model trained and discussed. The accuracy of 98 % obtained with the Support vector machine is the highest quantitative result to predict eligibility for admission into various universities

## **CHAPTER 12**

### **FUTURE SCOPE**

We plan to develop system add-ons in the future, and if we can obtain a structured dataset , we will be able to detect it much more quickly than with any other method. In the future work a web extension can be made so that the working will be much simplified for the endusers / customers.

## Chapter13

### APPENDIX

#### 13.1 Source Code

##### Flask Integration with scoring end pointIndex.html:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="{ { url_for('static', filename='style.css') } }" />
  <!-- <link rel="stylesheet" href="style.css">-->
  <title>Model Deployment</title>

</head>
<body>
  <image src="{ { url_for('static', filename='images/header.jpeg') } }" alt="Girl in a jacket"
style="width: 1880px;height: 150px;">


  <center>
<h1><b>UNIVERSITY ADMIT PREDICTION SYSTEM </b></h1>
<h2>Enter your details and get probability of your admission</h2>
<form action="{ { url_for('predict') } }" method="post">
<table>
  <tr><th>Enter GRE score:</th>
    <td><input type="number" name="precip" placeholder="Enter GRE score" ></td></tr>
  <tr><th>Enter TOFEL score</th>
    <td><input type="number" name="maxT" placeholder="Enter TOFEL score" ></td></tr>
  <tr><th>University number</th>
    <td><select name="no">
      <option value="1">1-Stanford</option>
      <option value="2">2-Windsor</option>
      <option value="3">3-Michigan</option>
      <option value="4">4-Harvard</option>
      <option value="5">5-University of Toronto</option>
    </select></td>
  </tr></br>
```

```

        <!--<tr><th>Enter SOP </th>
        <td><input type="number" name="sop" placeholder="sop" ></td></tr> -->
        <tr><th>Enter cgpa </th>
        <td><input type="number" step="any" name="cgpa" placeholder="cgpa"
></td></tr>

        <!-- <tr><th>Enter LOR </th>
        <td><input type="number" name="lor" placeholder="lor" ></td></tr>

        <tr><th>Reserach</th>
        <td><input type="radio" name="RESEARCH" value="RESEARCH">RESEARCH</td></tr>
        <tr><th></th>
        <td><input type="radio" name="NO RESEARCH" value="NO RESEARCH">NO
RESEARCH</td></tr>-->

</table>
    <br>
    <!--<button type="button">PREDICT</button>-->
    <button type="submit" class="btn btn-primary btn-block btn-large">Predict</button>
</form>
    <br>
    <br><br>
</center>

</body>
</html>

```

### **Selected.html:**

```

<!DOCTYPE html>
<html>
    <head>
        <style>
            body{ background-color:rgb(134, 222, 144);}
        </style>
        <title>
            SELECTED
        </title>
    </head>
    <body><center>

        <h1>
            <u> Predicting chance of Admission</u>
        </h1>

```

```

<h3>
  Prediction:<u>
    You Have a Chance

  </u>
</h3>

  
  <br>
  
</center>
</body>
</html>

```

## Rejected.html:

```

<!DOCTYPE html>
<html>
  <head>
    <style>
      body{ background-color:rgb(232, 139, 122);}
    </style>
    <title>
      REJECTED
    </title>
  </head>
  <body><center>

    <h1>
      <u> Predicting chance of Admission</u>
    </h1>

    <h3>
      Prediction:<u>
        You Dont Have a Chance

      </u>
    </h3>

    
    <br>
    
</center>
</body>
</html>

```

## Design.css

```

html, body {
    padding: 0;
    margin: 0;
}
button:hover {
    background-color: #4CAF50; /* Green */
    color: white;
}
button {
    transition-duration: 0.4s;
    background-color:rgb(68, 83, 202) ;
    border: none;
    color: rgb(240, 235, 238);
    padding: 5px 15px;
    text-align: center;
    text-decoration: none;
    display: inline-block;
    font-size: 16px;
    margin: 4px 2px;
    cursor: pointer;
}
h2{
    font-family: "Brush Script MT";
    font-size:20;
    padding: 5px 10px;
}

body{
    font-family: "Poppins", sans-serif;
    font-weight: 300;
    font-size: 20px;
    line-height: 1.7;
    color: #171426;
    background-color: rgb(149, 156, 205);
    overflow-x: hidden;
}

```

```
table{
  display: table;
  border-collapse: separate;
  box-sizing: border-box;
  text-indent: initial;
  border-spacing: 2px;
  padding: 0.5vmin;
  border-radius: 1em;
  border: 2px solid #e5dab6;
}
```

```
center{
  display: block;
  text-align: -webkit-center;
}
```

```
tr, th, td{
  padding: 0.5vmax;
  text-align: left;
}
```

```
input {
  background-color: #c4c3ca;
  color: #1f2029;
}
```

## **App.py**

```
import numpy as np
from flask import Flask, request, jsonify, render_template
import pickle
```

```
# Create flask app
flask_app = Flask(__name__)
model = pickle.load(open('svm.pkl','rb'))
```

```
@flask_app.route("/")
def Home():
    return render_template("index.html")
```

```
@flask_app.route("/predict", methods = ["POST"])
def predict():
```

```
float_features = [float(x) for x in request.form.values()]
features = [np.array(float_features)]
prediction = model.predict(features)
if prediction==1:
    return render_template("goto.html")
else:
    return render_template("rejected.html")

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

## **GitHub and project link**

**GitHub link -** <https://github.com/IBM-EPBL/IBM-Project-1964-1658421490>

**Demo link -**

[https://drive.google.com/file/d/1snx6CSv5\\_1I4X5F1\\_9kEvnWX\\_3eMBHxS/view?usp=sharing](https://drive.google.com/file/d/1snx6CSv5_1I4X5F1_9kEvnWX_3eMBHxS/view?usp=sharing)