

UNIVERSITY ADMIT ELIGIBILITY

PREDICTOR

TEAM ID: PNT2022TMID48794

ABSTRACT

Student admission for the Master's degree program consists of different criteria/scores which is taken into consideration before admitting the student to the degree program. This process is elaborative and requires lot of thought processing and analysis by the selection committee before choosing the right applicants to the Master's degree program. The purpose of this analysis is to demonstrate the top contributing scores which helps the student to get the admission into the Master's degree program. The analysis might seem straight forward but caution has to be exercised to consider the scores like GRE, TOEFL, university rating, SOP, LOR and CGPA and any outliers should not impact the decision making process.

Chapter 1

INTRODUCTION

1.1 Project Overview

The primary purpose is to discuss the prediction of student admission to university based on numerous factors and using logistic regression. Many prospective students apply for Master's programs. The admission decision depends on criteria within the particular college or degree program. The independent variables in this study will be measured statistically to predict graduate school admission. Exploration and data analysis, if successful, would allow predictive models to allow better prioritization of the applicants screening process to Master's degree programme which in turn provides the admission to the right candidates.

KEYWORDS: logistic regression, predictive analysis, college admission, data analytics

1.2 Purpose

This is a Requirements Specification Document for a new web-based University Admissions Predictor – UNIPREDICT. Unipredict is an AI based application that asks for the users to input their academic transcripts data and calculates their chances of admission into the University Tier that they selected. It also provides an analysis of the data and shows how chances of admissions can depend on various factors. This document describes the scope, objectives and goals of the system. In addition to describing the non-functional requirements, this document models the functional requirements with use cases, interaction diagrams and class models.

Chapter 2

LITERATURE SURVEY

The Education Based Prediction System helps a person decide what colleges they can apply to with their scores. The dataset that is used for processing consists of the following parameters: University name, Quants and Verbal Scores (GRE) TOEFL and AWA Scores. The GRE Test (Graduate Record Examinations) is a standardized test used by many universities and graduate schools around the world as part of the graduate admissions process. Other factors are also taken into consideration while applying to colleges, such as Letter of Recommendation (a formal document that validates someone's work, skills or academic performance), Statement of Purpose (a critical piece of a graduate school application that tells admissions committees who you are, what your academic and professional interests are, and how you'll add value to the graduate program you're applying to), Co-curricular activities and Research papers as well (research papers from journals that are not well known or have a high percentage of plagiarism are not taken into consideration for this case). When a person has completed their undergraduate degree and wants to pursue a Postgraduate degree in a field of their choice, more often than not, it is very confusing for the person to figure out what colleges they should apply to with the scores that they have obtained in GRE and TOEFL, along with their GPA at the time of their graduation. Many candidates may apply to colleges that do not fall under their score requirements and hence waste a lot of time. Applying to many colleges with scores also increases the cost. There are not many efficient methods that are available to help address this issue and hence an Education Predictor System has been developed.

2.1 Existing problem

Today in college's student details are entered manually .The

student details in separate records are tedious task .Referring to all these records updating is needed .There is a chance for more manual errors.

1.When the student comes in college.

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

3.Fills it and submits it into office.

4.Filled form is first checked with documents like merit list an details came from universitY and verified by an official person ,if there is any mistake then it is corrected.

5. Atthetimeofsubmissionofitthefeesisdepositedbythecandidate.

6. At the time of submission of admission form admission number is assignedtothecandidate by the institute.

7. Candidate gets the receipt of fees deposition.

DISADVANTAGES OF EXISTING SYSTEM

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

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

2.2 References

1. Geiser, Saul, and with Roger Studley. "UC and the SAT: Predictive validity and differential impact of the SAT I and SAT II at the University of California." Educational Assessment 8.1 (2002): 1-26.

2. Rothstein, Jesse M. "College performance predictions and the SAT." Journal of Econometrics 121.1-2 (2004): 297-317.

3. Leonard, David K., and Jiming Jiang. "Gender bias and the college predictions of the SATs: A cry of despair." Research in Higher education 40.4 (1999): 375-407.

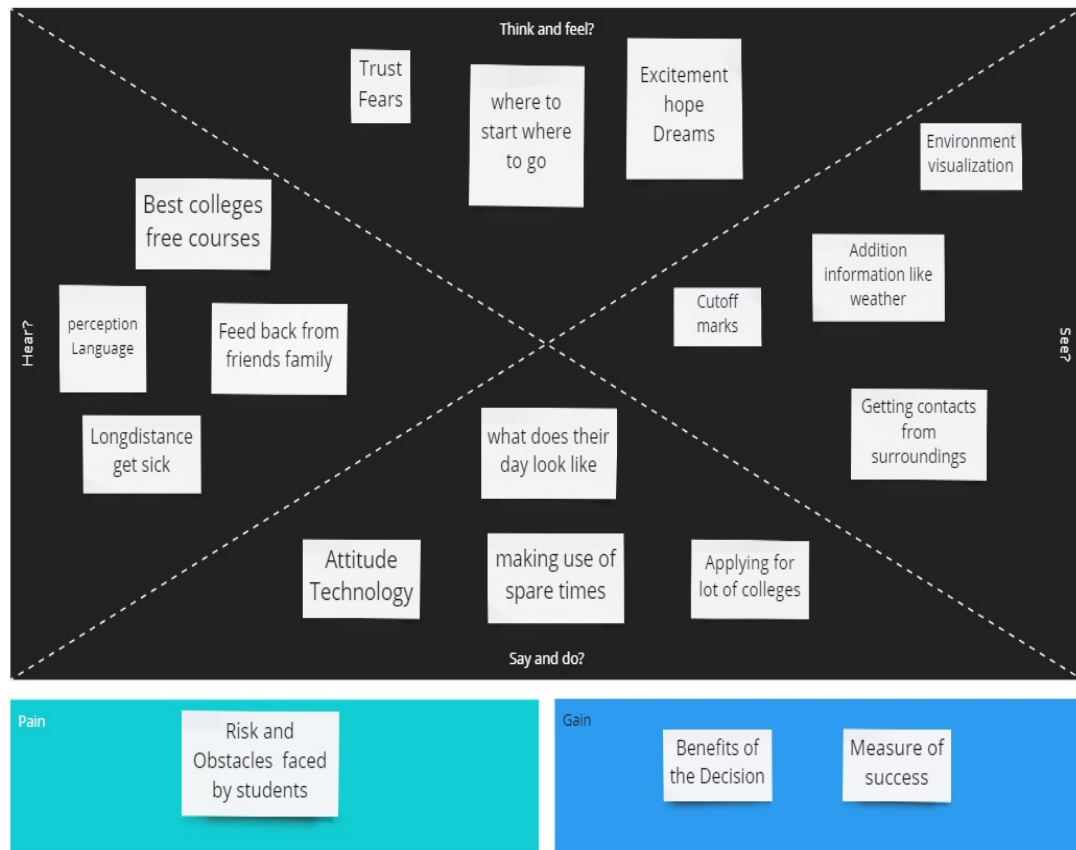
2.3 Problem Statement Definition

Educational organizations have always played an important and vital role in society for development and growth of any individual. There are different college prediction apps and websites being maintained contemporarily, but using them is tedious to some extent, due to the lack of articulate information regarding colleges, and the time consumed in searching the best deserving college. The problem statement, hence being tackled, is to design a college prediction/prediction system and to provide a probabilistic insight into college administration for overall rating, cut-offs of the colleges, admission intake and preferences of students. Also, it helps students avoid spending time and money on counsellor and stressful research related to finding a suitable college. It has always been a troublesome process for students in finding the perfect university and course for their further studies. At times they do know which stream they want to get into, but it is not easy for them to find colleges based on their academic marks and other performances.

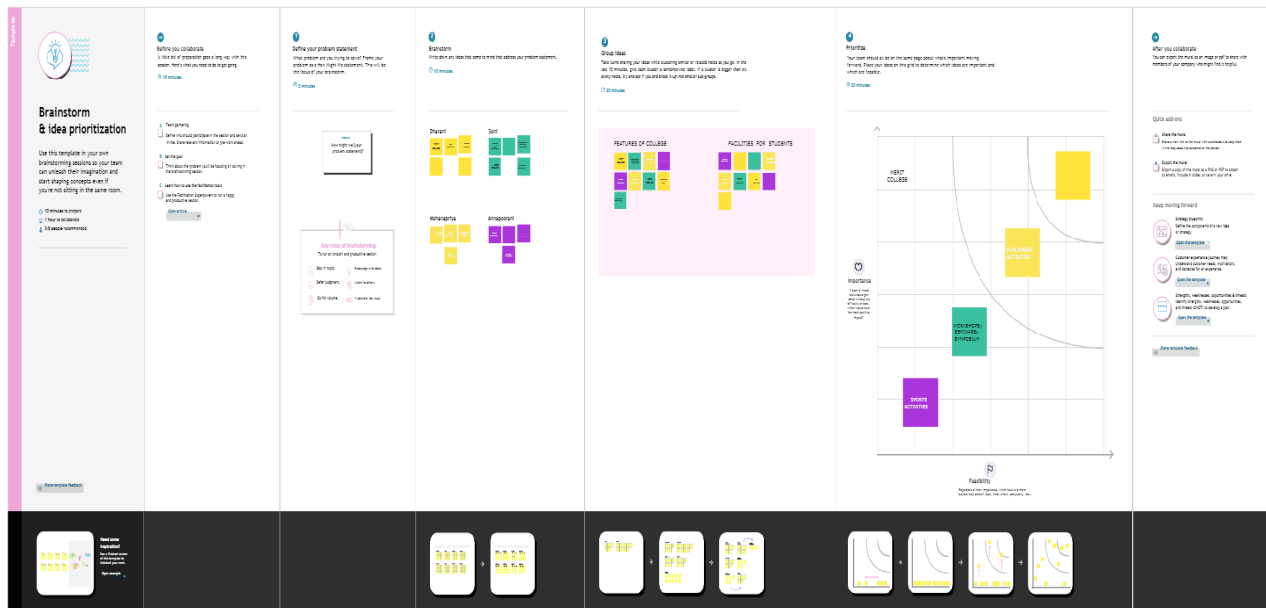
Chapter 3

IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming



3.3 Proposed Solution

The main goal of the system is to automate the process carried out in the organization with improved performance and realize the vision of paperless admission. Some of the goals of the system are listed below:

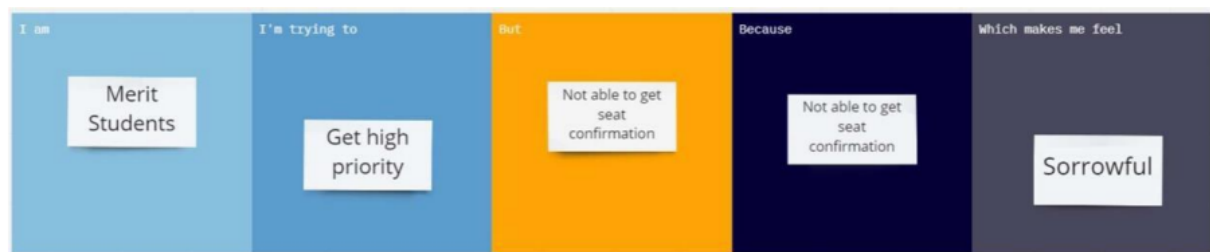
- Manage a large number of student details.
- Manage all details of student who registered for the course
- Create student accounts and maintain the data is effectively.
- View all the details of the students.
- Reduce the workload in interviewing the students for selection
- Activities like updating, modification, deletion of records should be easier.

ADVANTAGES OF PROPOSED SYSTEM:

The aim of the proposed system is to address the limitations of the current system. The requirements for the system have been gathered from the defects recorded in the past and also based on the feedback from users of previous metrics tools. Following are the objectives of the proposed system:

- **Reach to geographically scattered student.:** One of the important objectives of the admission system is communicate with all the students scattered geographically.
- **Reducing time in activities:** Reduce the time taken process the applications of students ,admitting a student, conducting the online examination, verify student marks, and send call letters to selected students.
- **Centralized data handling:** Transfer the data smoothly to all the departments involved and handle the data centralized way.

3.4 Problem Solution fit



Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	Merit Students	Get high priority	Not able to get seat confirmation	Not able to get seat confirmation	Sorrowful
PS-2	Sports quota students	Get seat in best university	No confirmed seat in preferred university	Seats were not confirmed in preferred one	Depressed
PS-3	Average cut-off student	Get a seat	Not up to the cut-off range	I secured low marks	Melancholy
PS-4	Based on entrance exams	Get admission through entrance exam	Have not cleared the entrance exam	Expectations of preferred university is high	Frustrated
PS-5	Caste based allocation	Get admission based on category	Chance of getting seat is less	Allocated seats are limited	Sad
PS-6	Scholarship	Get admission based on finance	Change of getting seat is less	Allocated seats are limited	Sad

Chapter 4

REQUIREMENT ANALYSIS

4.1 Functional requirement

- **prediction**
- **input form**
- **percentage of chance**

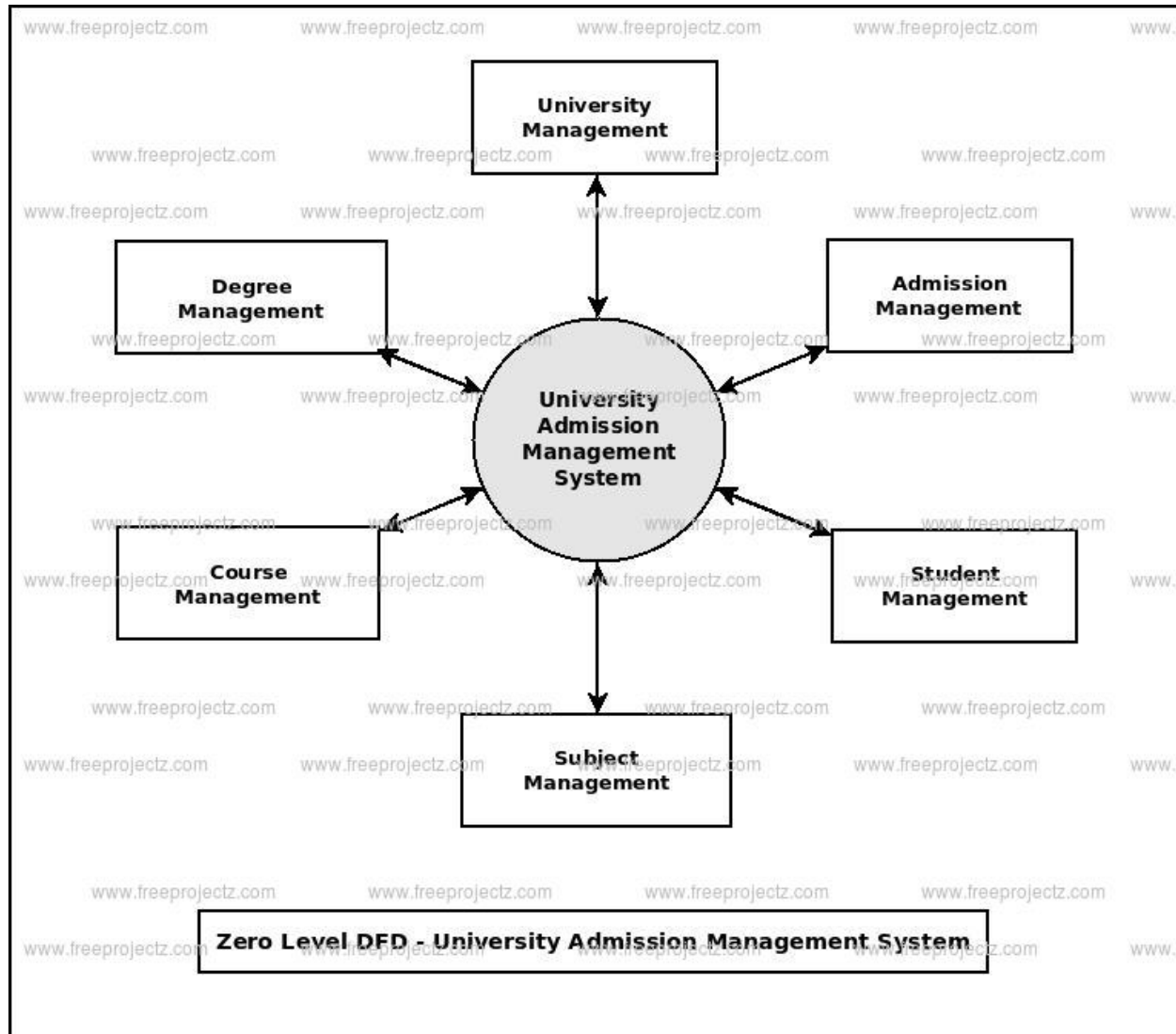
4.2 Non-Functional requirements

- **Speed**
- **Security**
- **Portability**
- **Compatibility**
- **Capacity**
- **Reliability**
- **Environment**
- **Localization**

Chapter 5

PROJECT DESIGN

5.1 Data Flow Diagrams



Zero Level Data Flow Diagram

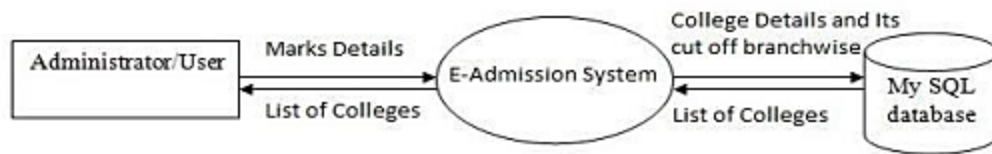
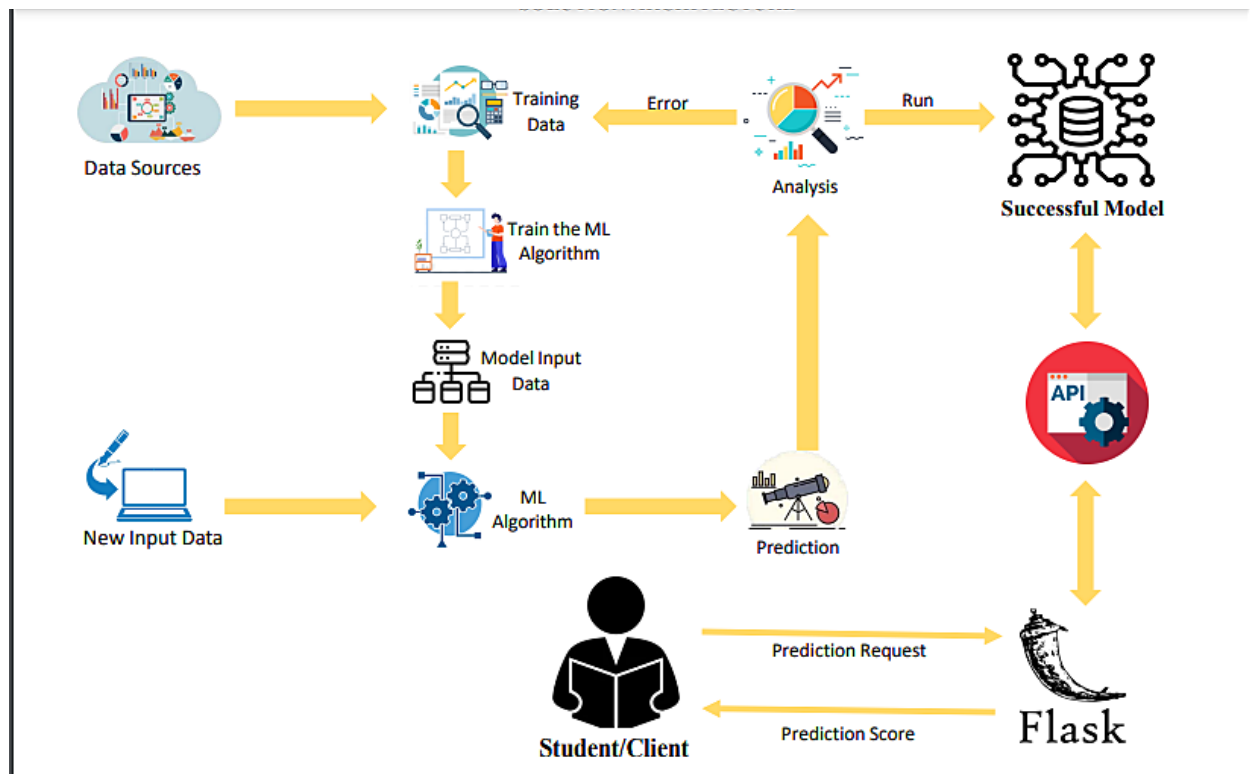


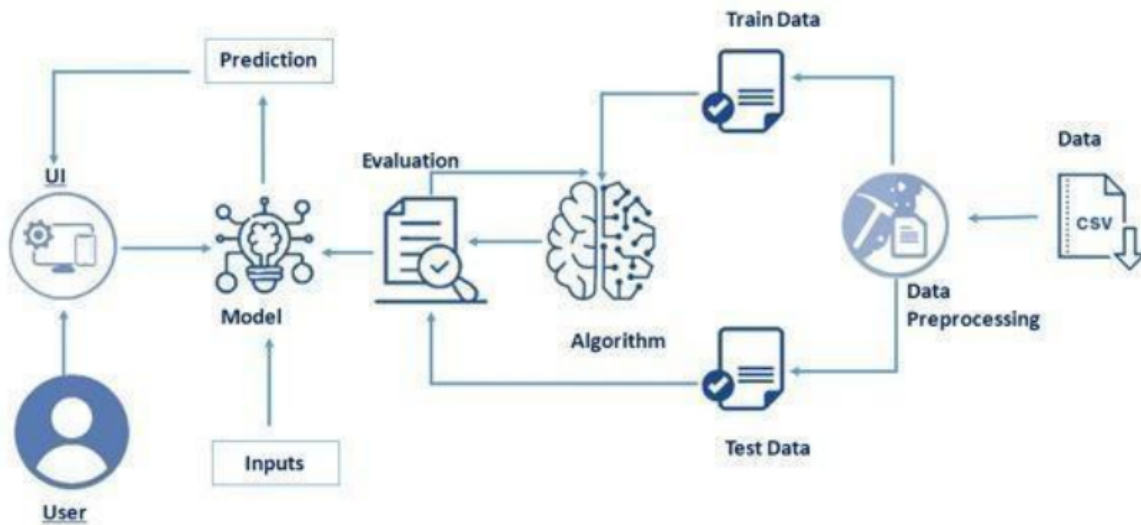
Fig:1 Dataflow Diagram

5.2 Solution & Technical Architecture

Solution Architecture:



Technical Architecture:



5.3 User Stories

A user story is an informal, natural language description of features of a software system. They are written from the perspective of an end user or user of a system, and may be recorded on index cards, Post-it notes, or digitally in project management software.[1] Depending on the project, user stories may be written by different stakeholders like client, user, manager, or development team.

Chapter 6

PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

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

Use the below template to create product backlog and sprint schedule

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I will be able to register my application by entering my email, password, and confirming my password.	2	High	Dharani
Sprint-1		USN-2	As a user, I will be able to receive an email confirmation after registration.	1	High	Mohanapriya
Sprint-2		USN-3	As a user, I can register for the application through Gmail.	2	Low	Annapoorani
Sprint-1		USN-4	As a user, I can register for the application by entering details by self.	2	Medium	Soni
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Dharani
	Dashboard					

6.2 Sprint Delivery Schedule

Project Tracker, Velocity & Burndown Chart: (4 Marks)

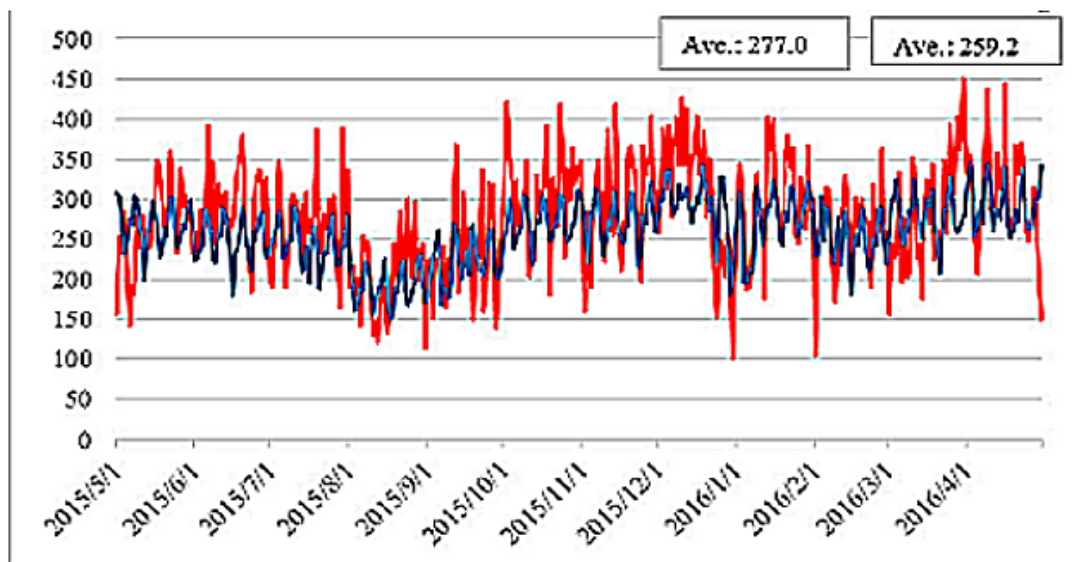
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	20 Oct 2022	27 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022		
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022		
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022		

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

6.3 Reports from JIRA



Jira Software

Your workProjectsFiltersDashboardsPeopleAppsCreate

Q Search

MS

UAEP

Software project

PLANNING

Roadmap

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

You're in a team-managed project

Learn more

Projects / UAEP

Roadmap

Give feedbackShareExport

Q

MSD

Status category

Epic

	T	NOV	DEC	
UAEP-5 Sprint 1	DONE			
UAEP-6 Sprint 2	DONE			
UAEP-7 Sprint 3	DONE			
UAEP-8 Sprint 4	DONE			
+ Create Epic				

TodayWeeksMonthsQuarters

Jira Software

Your workProjectsFiltersDashboardsPeopleAppsCreate

Q Search

MS

UAEP

Software project

PLANNING

Roadmap

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

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UAEP board

Does your team need more from Jira? Get a free trial of our Standard plan.

GROUP BYNone

TO DO

IN PROGRESS

DONE 4 ISSUES

Sprint 2

UAEP-2

Sprint 4

UAEP-4

Sprint 3

UAEP-9

Chapter 7

CODING & SOLUTIONING

7.1 Feature 1 - FLASK APP

The following is the flask app code and working

```
1  from flask import Flask, render_template, redirect, url_for, request
2  import requests
3
4  app = Flask(__name__)
5
6  @app.route("/", methods = ['POST', 'GET'])
7  def index():
8      if request.method == 'POST':
9          arr = []
10         for i in request.form:
11             val = request.form[i]
12             if val == '':
13                 return redirect(url_for("demo2"))
14             arr.append(float(val))
15
16
17 # deepcode ignore HardcodedNonCryptoSecret: <please specify a reason of ignoring this>
18 API_KEY = "wf8mge_QQdwVO8ao2kmlWctfxOfLWl8442SH44V85v2Ls"
19 token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={
20     "apikey": API_KEY,
21     "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'
22 })
23 mltoken = token_response.json()["access_token"]
24 header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}
25 payload_scoring = {
26     "input_data": [{"fields": [ 'GRE Score',
27                                'TOEFL Score',
28                                'University Rating',
29                                'SOP',
30                                'LOR ',
31                                'CGPA',
```

```

31         'Research'],
32         "values": [arr]
33     }]
34 }
35
36 response_scoring = requests.post(
37     'https://us-south.ml.cloud.ibm.com/ml/v4/deployments/8308fd4c-24a5-46ab-96fa-263657ae4ad0/predictions?version=2022-10-18',
38     json=payload_scoring,
39     headers=header
40 ).json()
41
42 result = response_scoring['predictions'][0]['values']
43
44 if result[0][0] > 0.5:
45     return redirect(url_for('chance', percent=result[0][0]*100))

```

```

46         else:
47             return redirect(url_for('no_chance', percent=result[0][0]*100))
48     else:
49         return redirect(url_for("demo2"))
50
51 @app.route("/home")
52 def demo2():
53     return render_template("demo2.html")
54
55 @app.route("/chance/<percent>")
56 def chance(percent):
57     return render_template("chance.html", content=[percent])
58
59 @app.route("/nochance/<percent>")
60 def no_chance(percent):
61     return render_template("noChance.html", content=[percent])
62
63 @app.route('/<path:path>')
64 def catch_all():
65     return redirect(url_for("demo2"))
66
67 if __name__ == "__main__":
68     app.run()

```

7.2 Feature 2 - UI

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">
  <meta name="viewport" content="width=device-width, initial-scale=1, maximum-scale=1,
user-scalable=no">
  <link rel="stylesheet" type="text/css" rel="noopener" target="_blank"
href="../../static/css/styles.css">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
Zenh87qX5JnK2Jl0vWa8Ck2rdkQ2Bzep5IDxbcnCeu0xjzrPF/et3URy9Bv1WTRi"
crossorigin="anonymous">
  <title>University Admit Eligibility Predictor</title>
</head>
<body>
  <nav class="navbar navbar-expand-lg bg-light">
  <div class="container-fluid">

```

```

<a class="navbar-brand text-responsive-h" href="/">

  University Admission Eligibility Prediction System
</a>
</div>
</nav>
{% block body %}
<h1> Index Page </h1>
  {% endblock %}
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js/bootstrap.bundle.min.js"
integrity="sha384-OERcA2EqjJCMA+/3y+gxIOqMEjwtxJY7qPCqsdltbNJuaOe923+mo//f6V8Qbsw3"
crossorigin="anonymous"></script>
</body>
</html>

```

Demo2.html

```

{% extends 'index.html' %}
{% block body %}
  <div class="p-4">
    <div class="row mb-3">
      <div class="col-4">
        <h2 class="text-responsive-h">
          Enter your details and get probability of your admission
        </h2>
        <p class="text-responsive">
          Students are often worried about their chances of admission to
          University. The aim of this project is to help students in shortlisting universities
          with their profiles. The predicted output gives them a fair idea about their admission
          chances in a particular university. This analysis should also help students who are
          currently preparing or will be preparing to get a better idea.
        </p>
        <div class="d-flex justify-content-right">
          
        </div>
      </div>
    </div>
  <div class="col-8">
    <div class="card p-2 ms-2 my-2">
      <div class="card-body">
        <h5 class="card-title pb-4">
          Enter the details
        </h5>
        <form action="/" method="post" id="theForm">
          <div class="row mb-3">
            <label for="gre" class="col-lg-2 col-form-label">GRE
            Score:</label>

```

```

        <div class="col-lg-10">
            <input type="number" class="form-control" id="gre" name="gre"
min="250" max="340" placeholder="250 to 340" required>
        </div>
    </div>
    <div class="row mb-3">
        <label for="tofel" class="col-lg-2 col-form-label">TOFEL Score:</label>
        <div class="col-lg-10">
            <input type="number" class="form-control" id="tofel" name="tofel"
min="50" max="120" placeholder="50 to 120" required>
        </div>
    </div>
    <div class="row mb-3">
        <label for="university_rating" class="col-lg-2 col-form-
label">University Rating:</label>
        <div class="col-lg-10">
            <input type="number" class="form-control"
id="university_rating" step="0.01" name="university_rating" min="1" max="5"
placeholder="1 to 5" required>
        </div>
    </div>
    <div class="row mb-3">
        <label for="sop" class="col-lg-2 col-form-label">SOP:</label>
        <div class="col-lg-10">
            <input type="number" class="form-control" id="sop" name="sop"
step="0.01" min="1" max="5" placeholder="1 to 5" required>
        </div>
    </div>
    <div class="row mb-3">
        <label for="lor" class="col-lg-2 col-form-label">LOR:</label>
        <div class="col-lg-10">
            <input type="number" class="form-control" id="lor"
name="lor" step="0.01" min="1" max="5" placeholder="1 to 5" required>
        </div>
    </div>
    <div class="row mb-3">
        <label for="cgpa" class="col-lg-2 col-form-label">CGPA:</label>
        <input type="number" class="form-control" id="cgpa"
name="cgpa" step="0.01" min="5" max="10" placeholder="5 to 10" required>
    </div>
</div>
<fieldset class="row mb-3">
    <legend class="col-form-label col-sm-2 pt-0">Research:</legend>
    <div class="col-sm-10">
        <div class="form-check">
            <input class="form-check-input" type="radio" name="yes_no_radio"
id="gridRadios1" value="1">

```

```

        <label class="form-check-label" for="yes_no_radio">
        Yes
    </label>
    </div>
    <div class="form-check">
        <input class="form-check-input" type="radio" name="yes_no_radio"
id="gridRadios2" value="0" checked>
        <label class="form-check-label" for="yes_no_radio">
        No
    </label>
    </div>
</div>
</fieldset>
<div class="row lg-3">
    <div class="col-lg-2 mb-2 me-3">
        <button type="submit" class="btn btn-primary" id="button">Predict</button>
    </div>
    <div class="col-lg-2 id="spinner">
        <div class="spinner-border text-primary m-1" role="status">
            <span class="visually-hidden">Loading...</span>
        </div>
        <div class="spinner-grow text-primary m-1" role="status">
            <span class="visually-hidden">Loading...</span>
        </div>
    </div>
</div>
</form>
</div>
</div>
</div>
</div>
<script type="text/javascript" src="../../static/js/script.js" async></script>
{% endblock %}

```

chance.html

```

{% extends 'index.html' %}

{% block body %}

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

        
        <div class="card-body">
            <h5 class="card-title">You Have Chance</h5>
            <p class="card-text">The model has predicted that you have
<strong>{{content[0]}}%</strong> chance</p>

```

```

        <a href="/home" class="btn btn-primary">Go Back</a>
    </div>
</div>
</div>
{% endblock %}

```

noChance.html

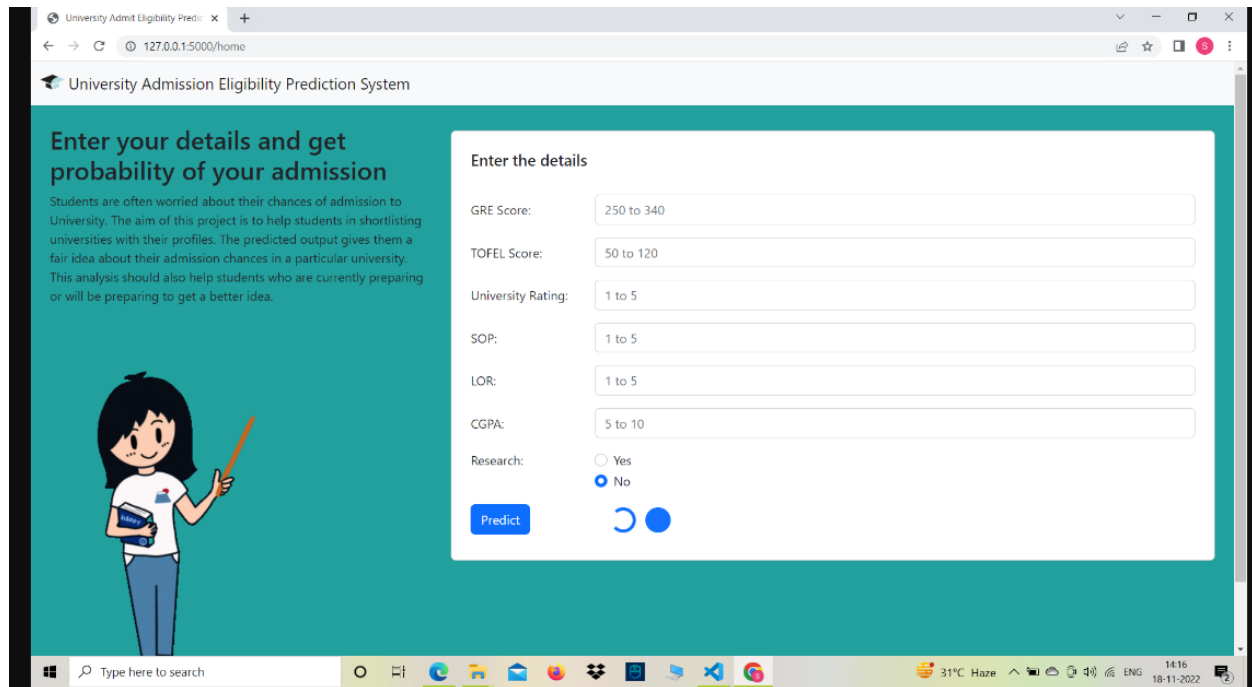
```

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

<div class="container text-center p-4">
    <div class="d-flex justify-content-center">
        <div class="card" style="width: 34rem;">
            
            <div class="card-body">
                <h5 class="card-title">You have a LOW / NO chance</h5>
                <p class="card-text">The model has predicted that you only have
<strong>{{content[0]}}%</strong> chance</p>
                <a href="/home" class="btn btn-primary">Go Back</a>
            </div>
        </div>
    </div>
</div>

{% endblock %}

```

Chapter 8

TESTING

8.1 Test Cases

Serial No.	GRE Score	TOEFL Score	University Rating	SOP	LOR	CGPA	Research	Chance of Admit
1	337	118	4	4.5	4.5	9.65	1	0.92
2	324	107	4	4	4.5	8.87	1	0.76
3	316	104	3	3	3.5	8	1	0.72
4	322	110	3	3.5	2.5	8.67	1	0.8
5	314	103	2	2	3	8.21	0	0.65
6	330	115	5	4.5	3	9.34	1	0.9
7	321	109	3	3	4	8.2	1	0.75
8	308	101	2	3	4	7.9	0	0.68
9	302	102	1	2	1.5	8	0	0.5
10	323	108	3	3.5	3	8.6	0	0.45
11	325	106	3	3.5	4	8.4	1	0.52
12	327	111	4	4	4.5	9	1	0.84
13	328	112	4	4	4.5	9.1	1	0.78
14	307	109	3	4	3	8	1	0.62
15	311	104	3	3.5	2	8.2	1	0.61
16	314	105	3	3.5	2.5	8.3	0	0.54
17	317	107	3	4	3	8.7	0	0.66
18	319	106	3	4	3	8	1	0.65
19	318	110	3	4	3	8.8	0	0.63
20	303	102	3	3.5	3	8.5	0	0.62
21	312	107	3	3	2	7.9	1	0.64
22	325	114	4	3	2	8.4	0	0.7
23	328	116	5	5	5	9.5	1	0.94
24	334	119	5	5	4.5	9.7	1	0.95
25	336	119	5	4	3.5	9.8	1	0.97
26	340	120	5	4.5	4.5	9.6	1	0.94
27	322	109	5	4.5	3.5	8.8	0	0.76

8.2 User Acceptance Testing

User Acceptance Testing (UAT) is an important part of the development process. If carried out as early as possible and as regularly as possible, it not only alerts the development team to aspects that don't yet meet the requirements of the users, but also gives governance a better idea of progress. If UAT is delayed, defects become expensive and troublesome to fix.

Chapter 9

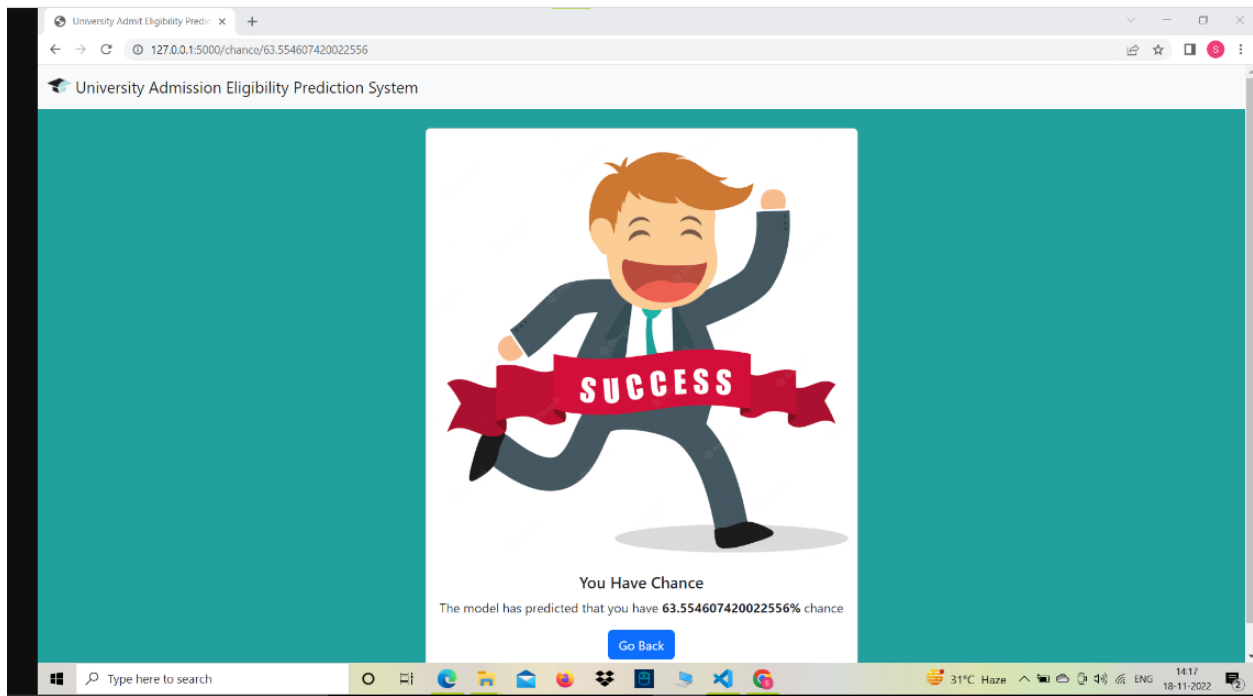
RESULTS

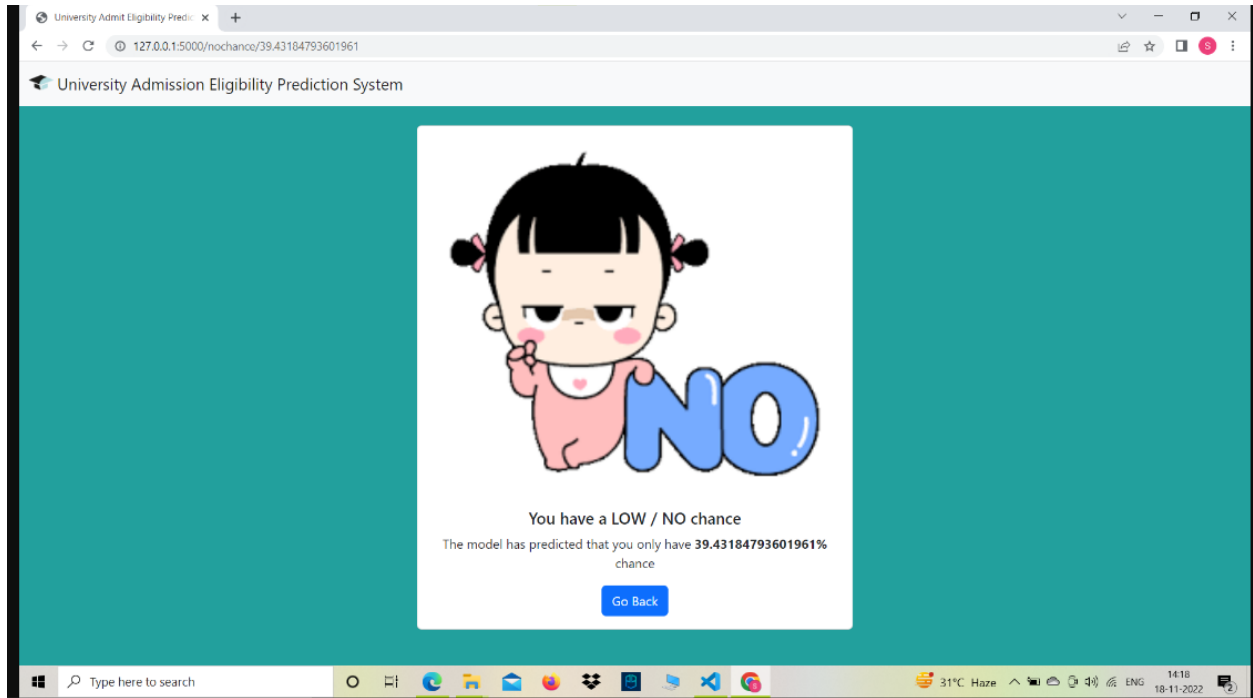
9.1 Performance Metrics

The Performance is the Accuracy of the model trained.

The training accuracy of the model is 92%.

The testing accuracy of the model is 89%.





Chapter 10

ADVANTAGES & DISADVANTAGES

➤ ADVANTAGE

- 1. Know the percentage**
- 2. Lower investigation**
- 3. Provide Relevant Material**
- 4. Reduce time consumption**
- 5. Good user experience**

➤ DISADVANTAGE

- 1. Significant investments required**
- 2. Inable to capture changes**
- 3. Privacy concerns**

Chapter 11

CONCLUSION

The subject of this examination was to determine if the below variables contribute to the admission of student to Master's degree program.

GRE Score
TOEFL Score
University Rating
SOP
LOR
CGPA

The results of this examination appear to indicate that it greatly contributes to the response variable 'Chance of Admit'. Higher the GRE, TOEFL score then higher the admit chances. The model predicts 87.5% accuracy and can be used for predicting the admit chances based on the above factors. This model will be helpful for the universities to predict the admission and ease their process of selection and timelines. As part of the hypothesis, the model proved that admission to Master's degree program is dependent on GRE, TOEFL and other scores. This model would likely be greatly improved by the gathering of additional data of students from different universities which has similar selection criteria to choose the candidates for Master's program.

Chapter 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.**

Chapter 13

APPENDIX Source Code GitHub & Project Demo Link

github:<https://github.com/IBM-EPBL/IBM-Project-41647-1660643725>

Demo:

