University Admit Eligibility Predictor

TEAM ID:

Project Link: http://ibmsmart.pythonanywhere.com/home

1.INTRODUCTION

1.1 Project Overview

Today all the work at the time of admission of the students is done manually by ink and paper, which is very slow and consuming much efforts and time. In the modern world of technology, computer are affecting our lives in more ways than we probably are aware of computerized management maintaining information of an educational institute, colleges, other the list is endless. The main principle behind the need of college admission system is easy supervision of institutes. It can handle the details of students such as fee details or marks details. This Student Database has been designed taking into account the practical needs to manage a Students data. Moreover, it provides security at product level as well as user level. Its design concentrates on 3 types of users:

1. Admin
2. Students
3. Account
4. Student section.

This Database follows a typical event flow seen in such a system. The design and implementation of a comprehensive student information system and user interface is to replace the current paper records. This system is intended for communication purpose between users of academic institutions. This system helps the administrator to easy access the information of students. This system is also helpful for the administrator because he/she can easily bring changes to the records of the students. The mobile application would require connecting to the database on a remote server using Wi-Fi technology. Our system primarily focuses on building an efficient and user friendly Android mobile application for a Cloud based Intra-College Communication Information System using Mobile Clients. The application will be installed on the users (student/teachers) Smartphone. Here the concept of unique ID is also included using which the each student gets one unique identification number by email. This id will help to access his info or find him from multiple students..After XII, students desiring to take admissions in professional colleges like engineering face lots of problems. Admissions in engineering

colleges in the state of Maharashtra or any state is based upon common entrance test (CET) and since more than 1.5lakh seats are to be allotted in more than 200 engineering colleges and over 35 different branches of engineering , for students belonging to many categories like open, home university, outside home university, reserved category(SC,ST, OBC etc) the problem becomes more serious and students struggle to understand which colleges they are likely to get admitted in, even after going through cut-off data of previous years. Many students fill wrong Options and fail to get admission. To minimize the stress of students we came up with the idea of a computer aided method which will help the students get the list of all colleges in which they could get the admission at the click of a button, making the admission process fast and easy.

1.2 Purpose

College admission predictor is a boon to many students. This helps the student not only to help in filling out the application forms but also give the students an idea about their future college by calculating their cut off.

When students come from rural places , they find it hard to go along with the formal procedures. So, this application helps them a lot and eases out their fear. • Whatever may be their scores , this application helps to find the best colleges . Hence, our proposed computer aided system will help the students to get the list of all colleges in which they could get the admission at the click of a button. • The students only have to enter their marks of XII, AIEEE etc. With this application, the students can very easily obtain the list of colleges even branch wise and course wise. This will not only make the admission process easy but also minimizes stress for students. The main objective of our system is to make the right choice of colleges.

2. LITERATURE SURVEY

when it comes to international students the first choice of the majority of them is the United States of America. With the majority of worlds highly reputed universities, wide range of courses offered in every sector, highly accredited education system and teaching, scholarships provided to students, best job market and many more advantages make it the dream destination for the international 1 students. According to research, there are above 8 Million international students studying in more than 1700 public and 2500 private universities and colleges across the USA. (MasterPortal (2017))

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 assigned to the candidate by the institute.

7. Candidate gets the receipt of fees deposition.

2.2 References

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2. Omaer Faruq Goni, A. Matin, T. Hasan, M. Abu Ismail Siddique, O. Jyoti and F. M. Sifnatul Hasnain, "Graduate Admission Chance Prediction Using Deep Neural Network," 2020 IEEE International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE), 2020, pp. 259-262, doi: 10.1109/WIECON-ECE52138.2020.9397988

3. B. Ujkani, D. Minkovska and L. Stoyanova, "A Machine Learning Approach for Predicting Student Enrollment in the University," 2021 XXX International Scientific Conference Electronics (ET), 2021, pp. 1-4, doi: 10.1109/ET52713.2021.9579795

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5. S. Sridhar, S. Mootha and S. Kolagati, "A University Admission Prediction System using Stacked Ensemble Learning", 2020 Advanced Computing and Communication Technologies for High Performance Applications (ACCTHPA), pp. 162-167, 2020.

6. C. Haythorhwaithe, M. de Laat and S. Dawson, "Introduction to the special issue on learning analytics", American Behavioral Science, vol. 57, no. 10, pp. 1371-1379, 2013.
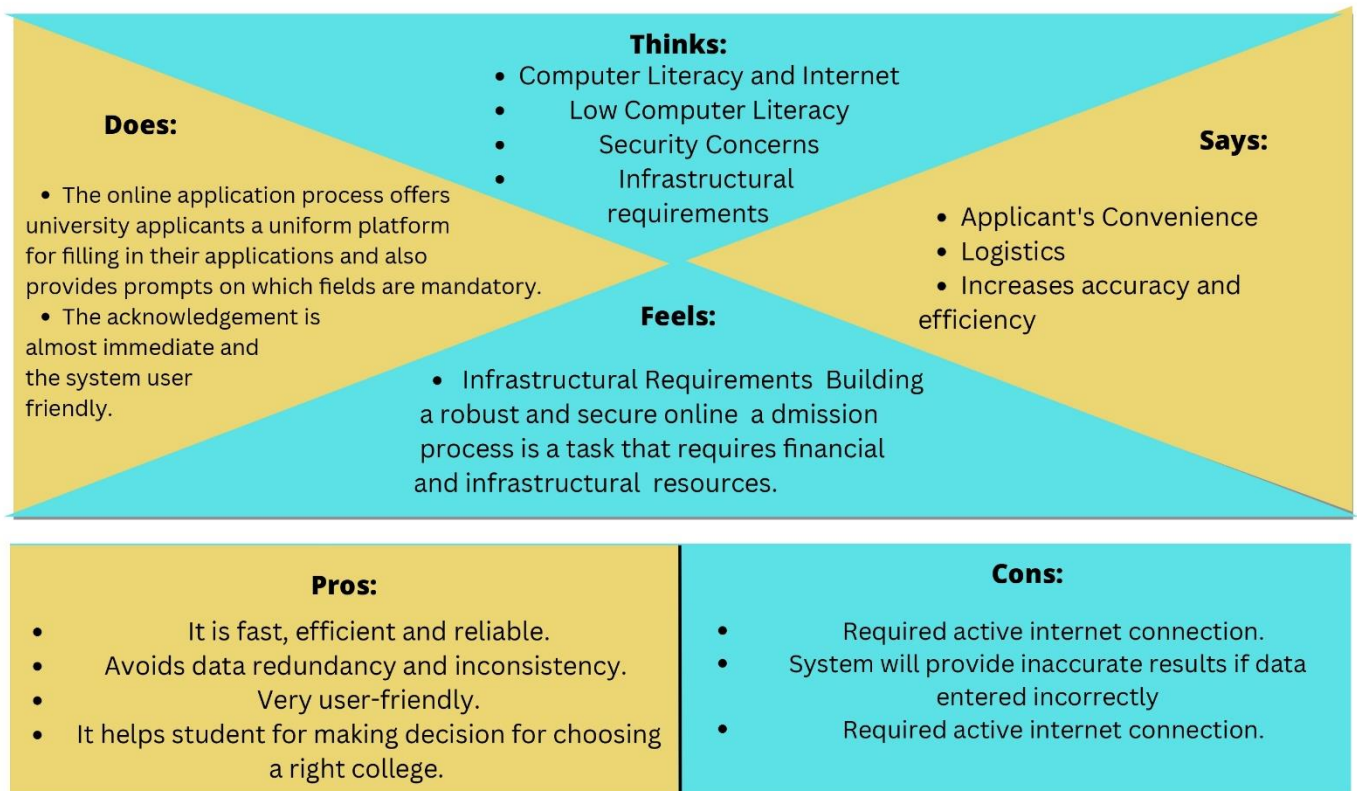
2.3 Problem Statement Definition

- The main goal of the system is to automate the process carried out in the organizationwith improved performance and realize the vision of paperless admission. Some of the goals of the system are listed below:
- Manage 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 work load in interview the students for selection.
- Activities like updating, modification, deletion of records should be easier.

3. DEATION & PROPOSED SOLUTION

The project aims to develop an application that uses artificial intelligence with the help of chat bot to customize products for the customers which enhances the fame of ecommerce store and reduce the time which customers spends on choosing products. The application also uses IBM cloud storage for storing objects. An application that predicts the university admission chances of a student powered by machine learning models. Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. The primary objective of this research is to develop a system to solve the problems the international students are facing while applying for universities in the USA.

3.1 Empathy Map Canvas

Thinks:
- Computer Literacy and Internet
- Low Computer Literacy
- Security Concerns
- Infrastructural requirements

Does:

• The online application process offers university applicants a uniform platform for filling in their applications and also provides prompts on which fields are mandatory.
• The acknowledgement is almost immediate and the system user friendly.

Says:
- Applicant's Convenience
- Logistics
- Increases accuracy and efficiency

Feels:

• Infrastructural Requirements Building a robust and secure online a dmission process is a task that requires financial and infrastructural resources.

Pros:
- It is fast, efficient and reliable.
- Avoids data redundancy and inconsistency.
- Very user-friendly.
- It helps student for making decision for choosing a right college.

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

3.2 Ideation & Brainstorming
IDEA 1:

Our project is designed to evaluate the profiles of students who want to pursue MS in the US. The profile evaluation for MS is done based on a student's undergrad percentage/GPA, GRE, and TOEFL scores. This free profile evaluation tool helps you shortlist the right set of universities to apply to, so you can optimize your efforts in the quest of that dream admit. You need to firast enter the basic details like email, phone number, etc. Then the second step is to input the GRE score followed by the English TOEFL/IELTS score. After this, you would be asked to input your academic record - consisting of the GPA scale, GPA score, and the highest GPA in the class. Then, the undergrad details are asked wherein you would need to mention your school, major, and year of graduation. This is followed by the details of your target

course. And finally, the last step consists of additional information like the term of the target course, target year of admission, and dream college. this evaluator tool gives 3 key outputs:

1. A list of 12 colleges, which are further classified into safe, moderate and ambitious categories, as per your profile's probability of securing an admit from these universities.

2. For each of these schools, we provide further details like Percentile (i.e. your rank amongst past successful admits), Major wise University Rank, Class Percentage, GRE Quant Median, and GRE Verbal Median. These parameters help you to better gauge your chances of success and you can easily filter out which colleges to apply for.

3. The GyanDhan Admit Predictor also helps you to understand as to how your profile can be further improved to secure an admit in your target college. It can guide you whether you need to retake the GRE or not, in order to improve your chances of landing an admit in your preferred university. It also compares your GPA with the median GPA of the successful applicants of your target university. In case, your GPA falls short of the median GPA then the other areas of your application which can add weight to your profile are suggested by the tool

IDEA 2:

Every year, academic institutions invest considerable effort and substantial resources to influence, predict and understand the decision-making choices of applicants who have been offered admission. In this study, we applied several supervised machine learning techniques to four years of data on 11,001 students, each with 35 associated feature. By treating the question of whether a student offered admission will accept it as a binary classification problem, we implemented a number of different classifiers and then evaluated the performance of these algorithms using the metrics of accuracy, precision, recall, F-measure and area under the receiver operator curve. The results from this study indicate that the logistic regression classifier performed best in modeling the student college commitment decision problem, i.e., predicting whether a student will accept an admission offer, with an AUC score of 79.6%. The significance of this research is that it demonstrates that many institutions could use machine learning algorithms to improve the accuracy of their estimates of entering class sizes, thus allowing more optimal allocation of resources and better control over net tuition revenue. The goal of our research is to develop a model that can make an accurate prediction regarding each student's college commitment decision by classifying the student into one of two categories: accepts admission offer and rejects admission offer. In other words, we characterize the student college commitment decision problem as a binary classification problem using supervised machine learning .

IDEA 3:

The future and sustainability of the higher education model is an important topic of discussion. The University Admit Eligibility Prediction can give the estimated idea of the college based on the performance of the students by considering the rank in the competitive exams as well as by considering the inputs like class 10 th marks, 12 th marks. The above details can be taken into account and the best-suited college for them should be predicted. Based on the students 10th and 12th marks the school would issue the predicted score.It should have the genuine letter head, institution seal, signature of the authority along with the current date when you submit the same. It requires score of entrance exam like jee mains, neet, mhtcet etc. You need score well in one of these exams for predicting the suitable college. the application of machine learning techniques to analyze data and other information in the context of educational settings. This area of study is generally known as "educational data mining" can be used. The college predictor lets you predict the rank for the college for which you might get selected for admission for that particular academic year.The students shall be shortlisted for the university based on your merit list and preferences . The rank predictor uses an advanced algorithm, opening marks, and closing marks of the previous year's counselling data to predict the best college for you to pursue the program. With the help of the rank predictor, you can easily estimate your rank based on your scores in the university admit eligibility predictor shall be shortlisted for the seat allotment process based on your merit list and preferences. If your name is on the allotment list, you can either accept the seat, apply for an upgrade, or exit from the admission process

3.3 Proposed Solution

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 ofthe 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.

3.4 Problem Solution fit

Centralized data handling: Transfer the data smoothly to all the departments involved and handle the data centralized way.

Paperless admission with reduced man power: Reduce the manpower needed to perform all the admission and administration task by reducing the paper works Cost cutting. Reduce the cost involved in the admission process.

Operational efficiency: Improve the operational efficiency by improving the quality of the process.
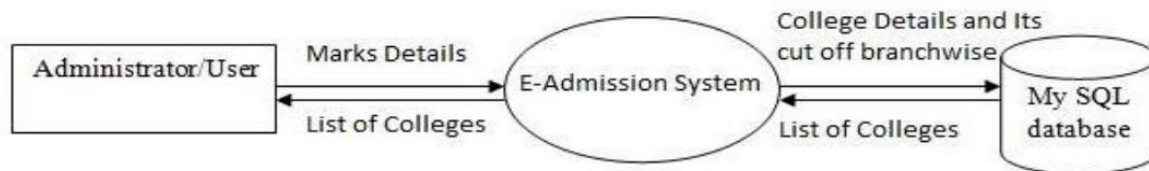
4. REQUIREMENT ANALYSIS

Requirements analysis, also called requirements engineering, is the process of determining user expectations for a new or modified product. These features, called requirements, must be quantifiable, relevant and detailed. In software engineering, such requirements are often called functional specifications.

Requirements analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

4.1 Functional requirement

Technology : HTML,CSS,JAVASCRIPT,BOOTSTRAP

Languages Used : PHP

Database : Mysql

Operating Systems : Windows 8 -64 bit and above

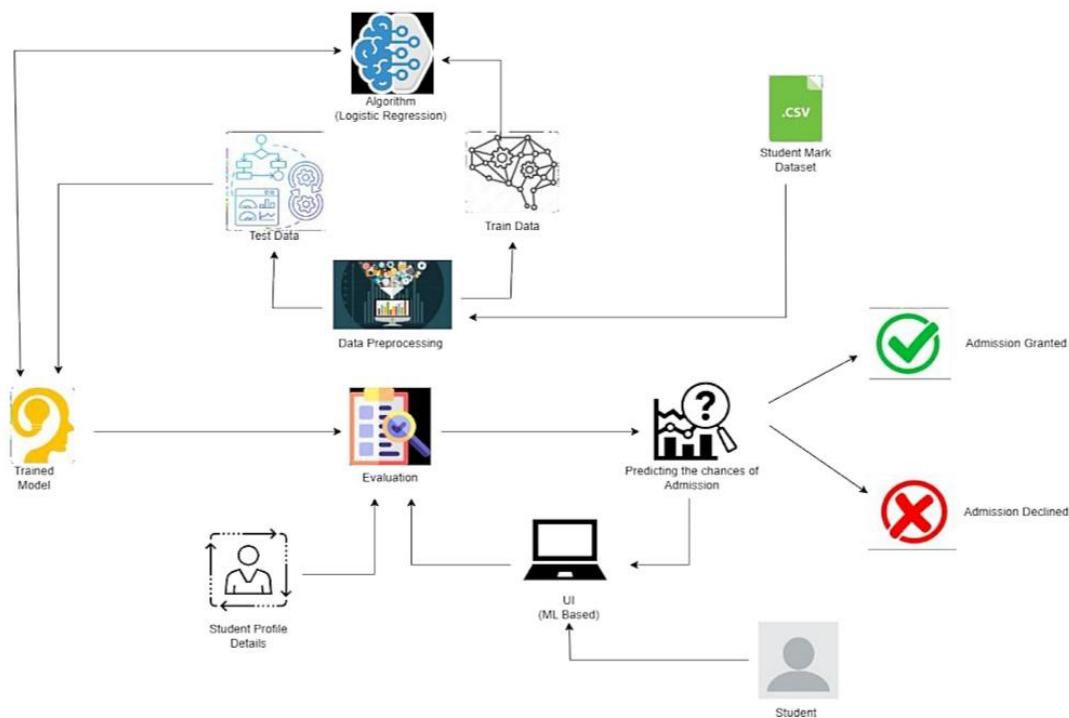## 4.2 Non-Functional requirements

Processor : i5 and above

RAM : 4GB and above

Hard Disk : 80GB and above

5. PROJECT DESIGN

5.1 Data Flow Diagrams

5.2 Solution & Technical Architecture

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.

- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.

- Define features, development phases, and solution requirements.

Provide specifications according to which the solution is defined, managed, and delivered.
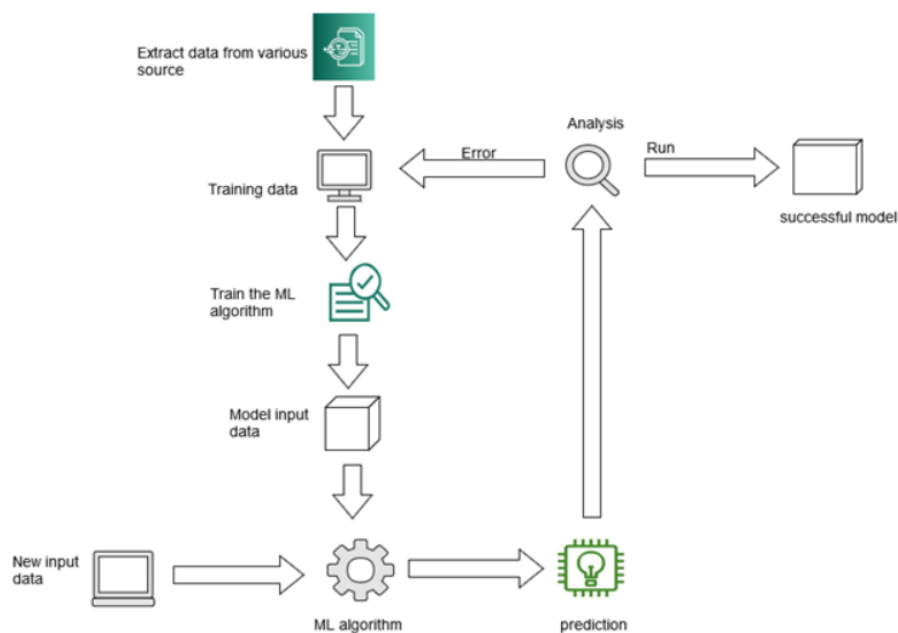
5.3 User Stories

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.

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, you can register in the application by entering your email address, password, and confirming the password	2	High	Harshita Sharma
Sprint-1		USN-2	As a user, you will receive a confirmation email after registering in the application	1	High	Harinie A
Sprint-2		USN-3	As a user, you can register in the application via Facebook	2	Low	Agnes Preethi J
Sprint-1		USN-4	As a user, you can register in the application via Gmail	2	Medium	Harshita Sharma
Sprint-1	Login	USN-5	As a user, you can login to the application by entering your email and password	1	High	Harinie A

2.4 Sprint Delivery Schedule

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	5 Days	29 Oct 2022	04 Nov 2022	20	03 Nov 2022
Sprint-2	20	4 Days	04 Oct 2022	08 Nov 2022	20	07 Nov 2022
Sprint-3	20	4 Days	08 Nov 2022	11 Nov 2022	20	10 Nov 2022
Sprint-4	20	4 Days	11 Nov 2022	14 Nov 2022	20	13 Nov 2022

6.3 Reports from JIRA
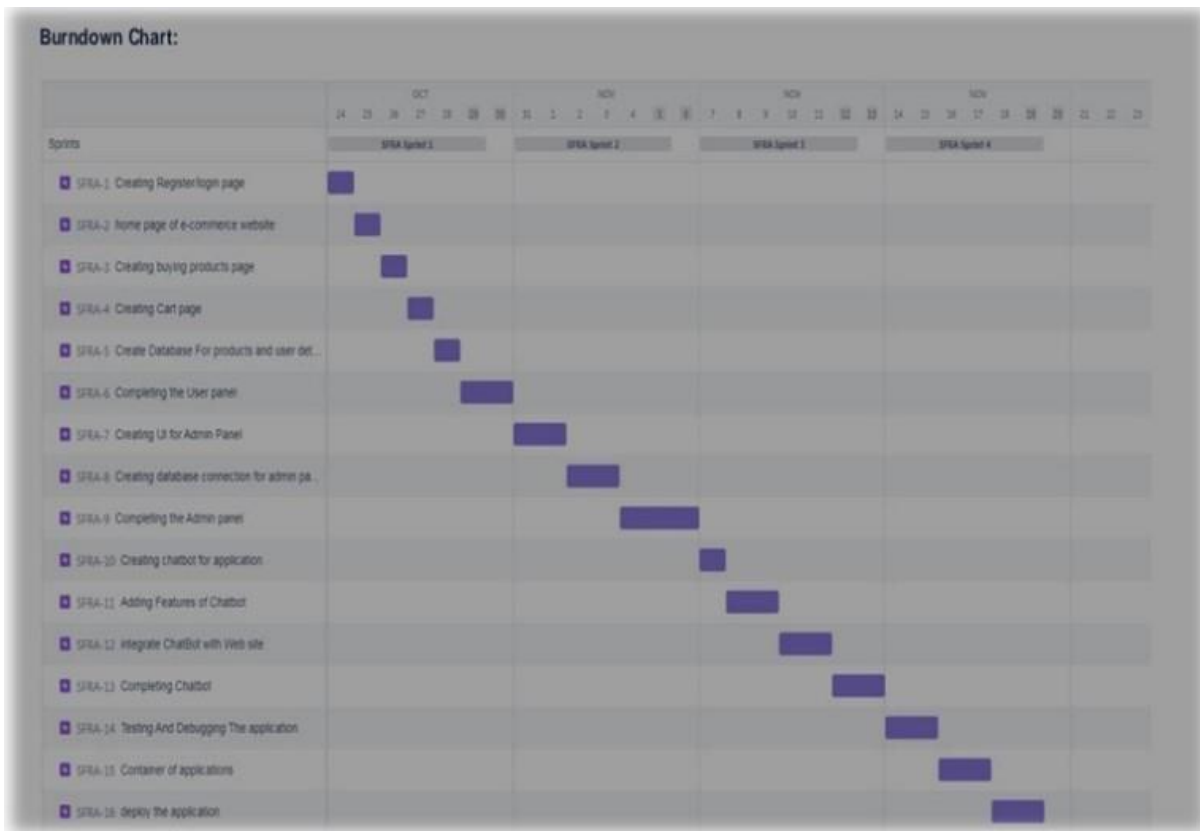
BURNDOWN CHART

7. CODING & SOLUTIONING

7.1 Feature 1 - FLASK APP

The following is the flask app code and working

```python
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                                              # deepcode ignore HardcodedNonCryptoSecret: <p
                                                specify a reason of ignoring this>
17                                              API_KEY =
                                                "wf8mge_OQdwVO8ao2kmWCtfxOfLWl8442SH44\
18                                              token_response =
                                                requests.post('https://iam.cloud.ibm.com/identity
                                                data={
19                                              "apikey": API_KEY,
20                                              "grant_type": 'urn:ibm:params:oauth:granttype:ap
21                                              })
22                                              mltoken = token_response.json()["access_token"]
23                                              header = {'Content-Type': 'application/json',
    'Authorization': 'Bearer ' + mltoken}
24                                              payload_scoring = {
25                                              "input_data": [{"fields":[  'GRE Score',
26                                              'TOEFL Score',
27                                              'University Rating',
28                                              'SOP',
29                                              'LOR ',
```

```python
30                                                        'CGPA',
31                                                        'Research'],
32                                                        "values": [arr]
33                                                        }]
34                                                        }
35
36                    response_scoring = requests.post(
37                    'https://ussouth.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")
52def demo2():
53    return render_template("demo2.html") 54
55@app.route("/chance/<percent>")
56def chance(percent):
57    return render_template("chance.html", content=[percent]) 58
59@app.route("/nochance/<percent>")
60def no_chance(percent):
61    return render_template("noChance.html", content=[percent]) 62
63@app.route('/<path:path>')
64def catch_all():
65    return redirect(url_for("demo2"))


66
67if __name__ == "__main__":
```

```
68    app.run()
```

7.2 Feature 2 - UI

The following is the UI code for the application.

```
1 {% extends 'index.html' %}
2 {% block body %} 3    <div class="p-4">
4      <div class="row mb-3"> 5        <div class="col-4"> 6            <h2 class="text-responsive-h">
7            Enter your details and get probability of your admission 8            </h2>

           class  "text-responsive"

10            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.
11          </p>
12          <div class="d-flex justify-content-right"> 13            <img
src="../static/img/animated-teach.gif" border="0" alt="..." />
```

```
20                                          Enter the details
21                                          </h5>
22                                          <form action="/" method="post" id="theForm">
23                                          <div class="row mb-3">
24                                          <label for="gre" class="col-lg-2 col-form-
                                            label">GRE Score:</label>
25                                          <div class="col-lg-10">
26                                          <input type="number" class="form-control"
                                            id="gre" name="gre" min="250" max="340"
                                            placeholder="250 to 340" required>
27                                          </div>
28                                          </div>
29                                          <div class="row mb-3">
30                                          <label for="tofel" class="col-lg-
    2 col-form-label">TOFEL Score:</label>
31                                          <div class="col-lg-10">
32                                          <input type="number" class="form-control"
                                            id="tofel" name="tofel" min="50" max="120"
                                            placeholder="50 to 120" required>
33                                          </div>
34                                          </div>
35                                          <div class="row mb-3">
36                                          <label for="university_rating" class="col-lg-2 col-
                                            form-label">University Rating:</label>
37                                          <div class="col-lg-10">
38                                          <input type="number" class="form-control"
                                                id="university_rating"   step="0.01"
                                            name="university_rating" min="1" max="5"
                                            placeholder="1 to 5" required>
39                                          </div>
40                                          </div>
41                                          <div class="row mb-3">
42                                          <label for="sop" class="col-lg-2 col-form-
                                            label">SOP:</label>
43                                          <div class="col-lg-10">
44                                          <input type="number" class="form-control"
                                            id="sop" name="sop" step="0.01" min="1"
                                            max="5" placeholder="1 to 5" required>
45                                          </div>
```

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 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.

The User Acceptance of this product is not surveyed enough to give a solid conclusion. The theretical and hypothetical acceptance is calculated to be high enough to conclude that this product is usable and valuable.

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%.

You Have Chance

The model has predicted that you have

71.06887594445459% chance

Go Back

You have a LOW / NO chance

The model has predicted that you only have

43.972417457648724% chance

Go Back

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.Significiant investments required

2.Inable to capture changes

3.Privacy concerns

11. CONCLUSION

We have successfully developed an application using python flask, HTML, CSS.

By using the application we can predict weather we can get adimition in the desired University or not.

12. FUTURE SCOPE

In futre we would like to enhance the existing model in such a way that consumer feels the same way when purchasing in store using Virtual reality and other upcoming technologies.Reaserch to improve the accuracy of the system is under progress.

13. APPENDIX Source Code GitHub & Project Demo Link Project Link:

Project link: http://ibmsmart.pythonanywhere.com/home

github: https://github.com/IBM-EPBL/IBM-Project-19316-1659696089

Demo: