UNIVERSITYADMITELIGIBELITYPREDICTOR

TEAMID: PNT2022TMID23965
Project Link:http://ibmsmart.pythonanywhere.com/home
githubLink : https://github.com/IBM-EPBL/IBM-Project-14029-1659539114

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ABSTRACT

The Primary purpose is to discuss the prediction of student admission to university based on numerous factors and using logistic regression. Many prospectivestudents apply for Master's programs. The admission decisiondepends 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 condidates the University adimit eligibility predictor System is web based application in which Student can register with their personal as well as marks details for prediction the admission in colleges and the administrator can allot the seats for the student . administrator can add the college details and he batch details. Using this software, the entrance seat allotment become easier and can be implemented using system. The main advantage of the project is the computerization of the entrance seat allotment process .Administrator has the power for the allotment .he can add the allotted seats into the system . The total time for the entrance allotment becames lesser and the allotment process becames faster. A machine leaning based system built on a linear regression model using the data set available on Kaggle for predicting chance of admission for Indian student hoping to pursue their post graduate studies aborad.

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1. INTRODUCTION

ProjectOverview

Students are often worried about their chances of admission to University. The aim ofthisprojectistohelpstudentsin shortlistinguniversitieswith theirprofiles.Thepredicted output gives them a fair idea about their admission chances in a particularuniversity. This analysis should also help students who are currently preparing or willbepreparingtogetabetter idea.

Purpose

A persons education plays a vital role in theirlife.While planning for educationstudentsoftenhaveseveralquestionsregardingthecourses,universities,jobopport unities, expenses involved, etc. Securing admission in their dream university isoneoftheirmainconcerns.Itisseenthatoftenstudentsprefertopursuetheireducation fromuniversitieswhich haveglobalrecognition.

2. LITERATURESURVEY

when it comes to international students the first choice of the majority of them is theUnited States of America. With themajority of worlds highly reputed universities,wide range of courses offered in every sector, highly accredited education system andteaching, scholarships provided to students, best job market and many more advantagesmake 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 and2500privateuniversities andcolleges acrossthe USA.(MasterPortal(2017))

Existingproblem

Universitiestakeintoconsiderationdifferentfactorslikescoreonaptitudebasedexamination like the General Record Examination (GRE), command over the Englishlanguageisjudgedbasedon theirscorein English competency testlikeTestOfEnglish as a Foreign Language (TOEFL) OR International English Language TestingSystem (IELTS),their work experience in same or other fields,the quality of theLetters Of Recommendation (LOR) and the Statement Of Purpose documents providedby the student etc. Based on the overall profile of the student decision is taken by theuniversitiesadmissionteamto admitorreject aparticularcandidate.

References

1. Geiser, Saul, and with Roger Studley. "UC and the SAT: Predictive validity anddifferentialimpactoftheSATIandSATIIattheUniversityofCalifornia."Educational Assessment8.1(2002):1-26.
2. Rothstein, Jesse M. "College performance predictions and the SAT." Journal ofEconometrics121.1-2(2004):297-317.
3. Leonard, David K., and Jiming Jiang. "Gender bias and the college predictions oftheSATs: Acryofdespair."Researchin Higher education40.4(1999):375-407.

ProblemStatementDefinition

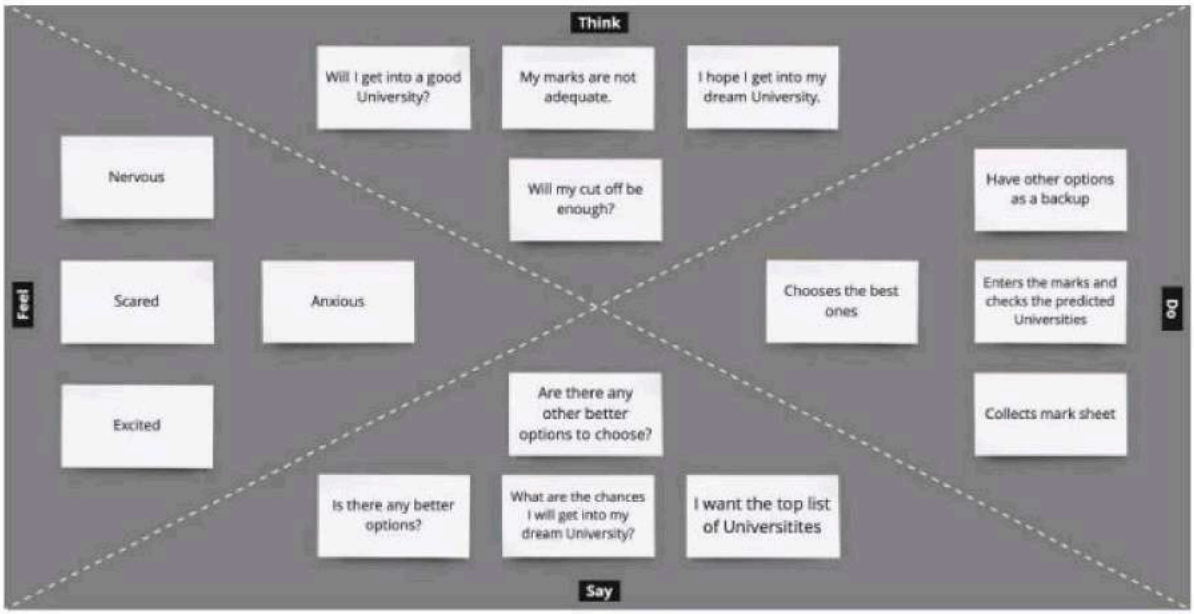
Build an application that predicts the university admission chances of a studentpowered by machine learning models. Train the model and host it on IBM cloud. Themajority of international students studying in the USA are from India and China. In thepast decade, India has seen a huge increase in the number of students opting to pursuetheir education from foreign universities in countries like The USA, Ireland, Australia,Germany, etc. Although there are significant universities and colleges in India, studentsare finding it difficult to get admission in the highly ranked colleges and also getting ajob is a challenge as the ratio of number students to the number work opportunitiesavailable is quite high. India is one of the leading counties in the number of softwareengineers produced each year; it becomes tough for the students to find jobs in elitecompanies due tohigh competition.Thismotivates a goodnumber of students topursue post-graduation in their field. It is seen that the number of students pursuingMasters in Computer Science field from universities in the USA is quite high; the focusofthisresearchwillbeonthesestudents.

3. IDEATION&PROPOSEDSOLUTION

Theprojectaimstodevelopanapplicationthatusesartificialintelligencewiththe help of chat bot to customize products for the customers which enhances the fameof ecommerce store and reduce the time which customers spends on choosing products.The applicationalsousesIBMcloud storageforstoringobjects.

Anapplicationthatpredictstheuniversityadmissionchancesofastudentpowered by machine learning models. Solution architecture is a complex process–withmanysub-processes–thatbridgesthegapbetweenbusinessproblemsandtechnology solutions. The primary objective of this research is to develop a system tosolve the problems the international students are facing while applying for universitiesintheUSA.

EmpathyMapCanvas



Ideation&Brainstorming

This task of shortlisting the universities where the student has high chances ofadmission is difficult for mainly for the international students, so they end up withapplyingtomanyuniversitiesinhopesof getting admissioninfewof them thusinvesting an extra amount of money in the applications. There are several portals andwebsites which provide information and help to students in shortlisting the universities,but they are not reliable. Most of the students dont take the risk of evaluating thecolleges by themselves, and they seek the help of the education consultancy firms to doit for them. Again for this students have to pay a huge amount of fee to the educationconsultant.

ProposedSolution

Finally, K Nearest Neighbours and Decision Tree algorithms were used as they werefoundtobethebestfitforthesystemdeveloped.Also,wewillbecreatingasimpleuser interface which will help the users to input the data related to student profile andget the predicted result for the application based on the profile as output. This researchwill thus eventually help students saving the extra amount of time and money they haveto spend at the education consultancy firms. And also it will help them to limit theirnumberofapplicationtoasmallnumberbyprovingthemthesuggestionoftheuniversities where they have the best chance of securing admission thus saving moremoneyontheapplicationfees.

ProblemSolutionfit

Wewill bedeveloping aUniversityAdmitEligibility Predictor system whichwill help the students to predict the chances of their application being selected for aparticular university for which they wish to apply based on their profile. Also, thesystem will provide a recommendation of universities to the student to which thestudenthasahighpossibilityofgettingadmission.Multiplemachinelearningclassificationalgorithmswereevaluatedtodevelop thesystem.

4. REQUIREMENTANALYSIS

Requirements analysis, also called requirements engineering, is the process ofdetermining user expectations for a new or modified product. These features, calledrequirements, must be quantifiable, relevant and detailed. In software engineering, suchrequirementsareoftencalledfunctionalspecifications.Requirementsanalysisiscritical to the success or failure of a systems or software project. The requirementsshould be documented, actionable, measurable, testable, traceable, related to identifiedbusiness needs or opportunities, and defined to a level of detail sufficient for systemdesign.

Functionalrequirement

- prediction
- inputform
- percentageofchance Non-

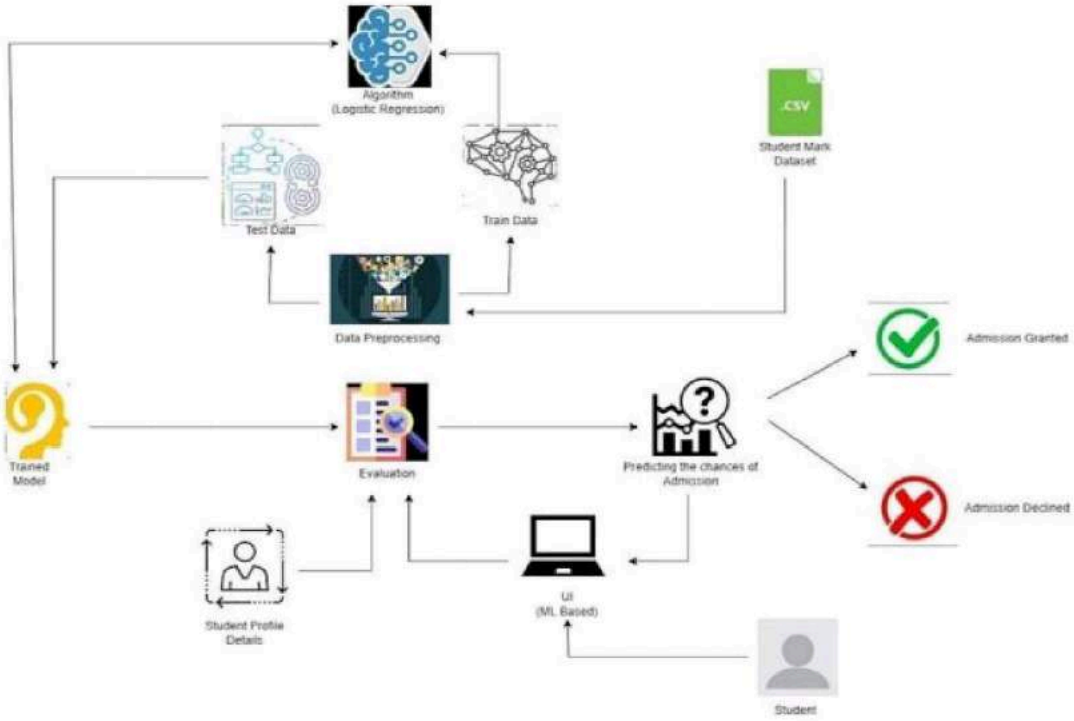
Functionalrequirements

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

4

5. PROJECTDESIGN

DataFlowDiagrams

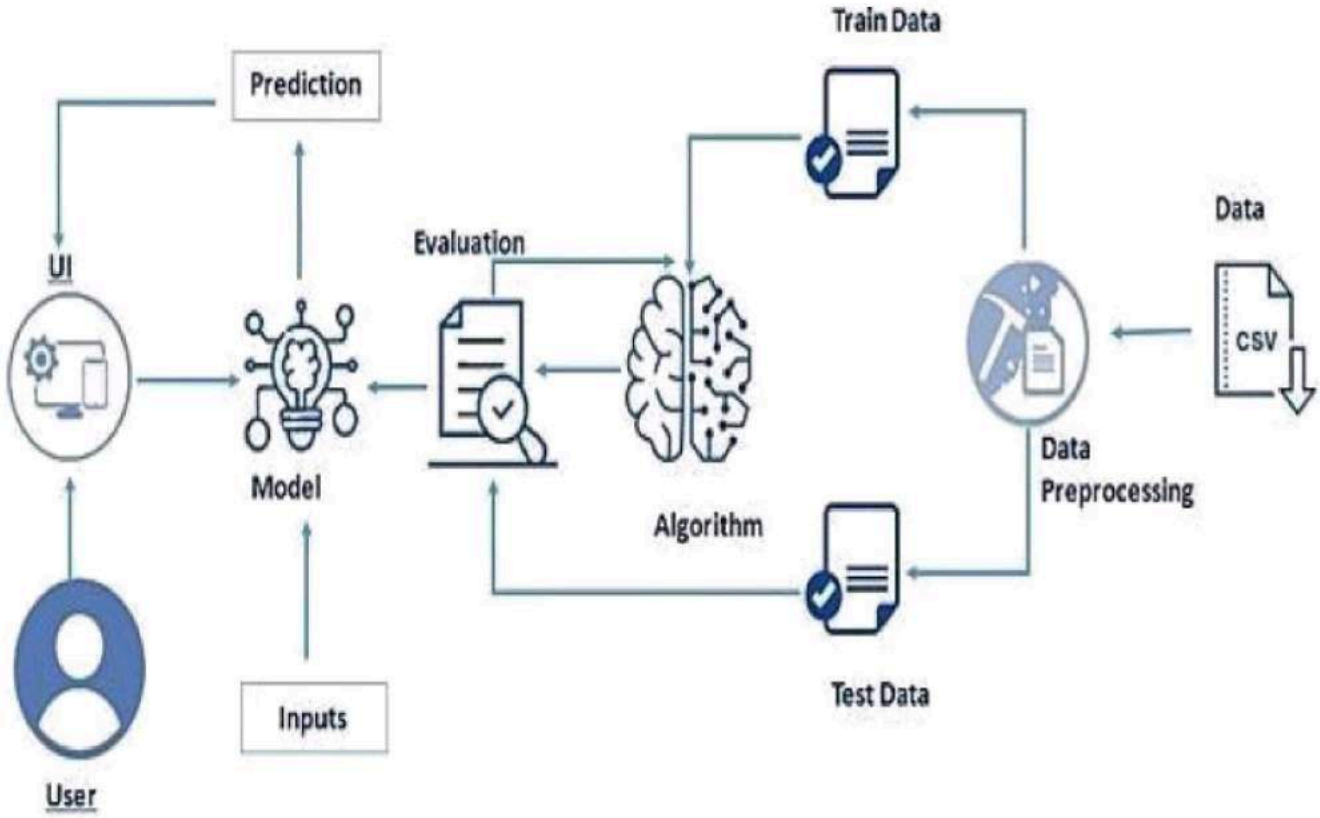


Solution&TechnicalArchitecture

Solutionarchitectureisacomplexprocess–withmanysub-processes–thatbridgesthegap betweenbusinessproblemsandtechnologysolutions. Itsgoalsareto:

- **Findthebesttechsolutiontosolveexisting businessproblems.**
- **Describethestructure,characteristics,behavior,andotheraspectsofthesoftwareto projectstakeholders.**
- **Definefeatures,developmentphases,andsolutionrequirements.**

Providespecificationsaccordingtowhichthesolutionisdefined,managed,anddelivered.



UserStories

A user story is an informal, natural language description of features of a softwaresystem. They are written from the perspective of an end user or user of a system, andmay be recorded on index cards, Post-it notes, or digitally in project managementsoftware.[1]Dependingontheproject,userstoriesmaybewrittenbydifferentstakeholderslikeclient,user,manager,ordevelopment team.

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	
	Dashboard					

SprintDeliverySchedule

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

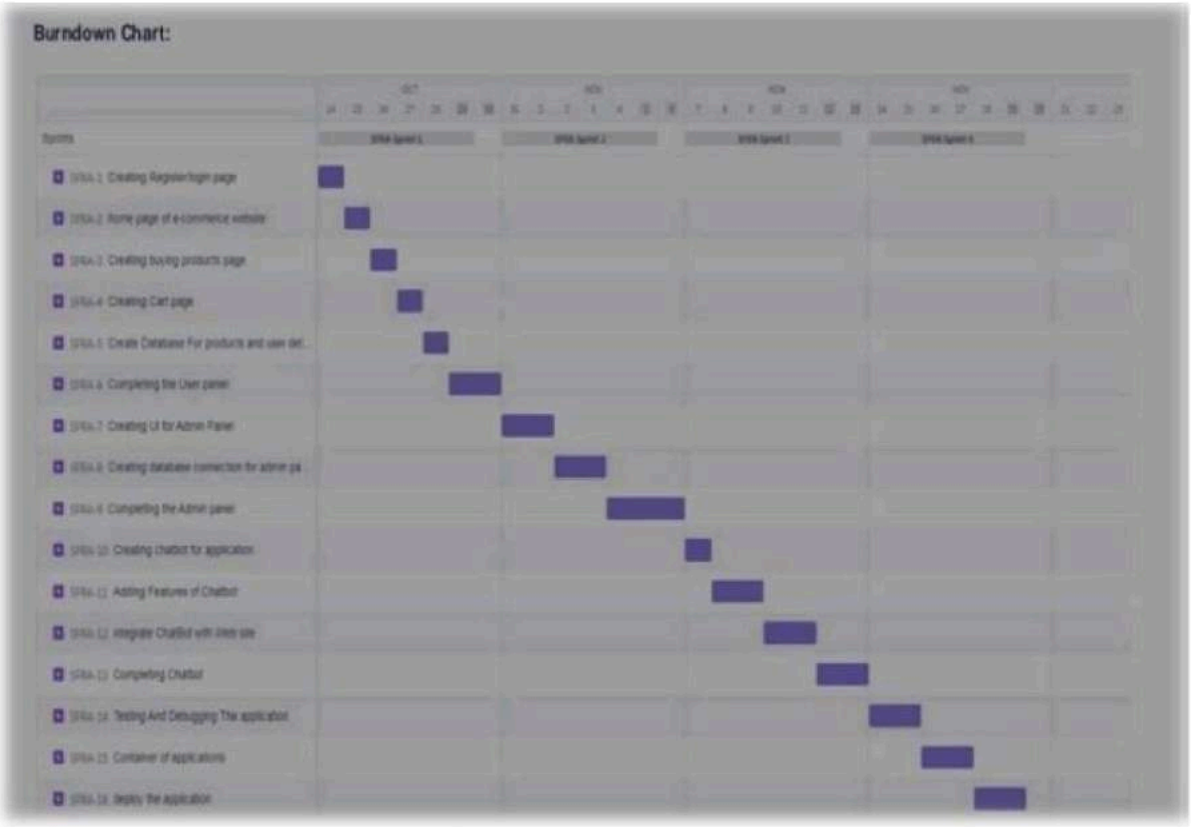
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	30 Oct 2022	02 Sept 2022	20	31 Oct 2022
Sprint-3	20	6 Days	01 Sept 2022	07 Sept 2022	20	05 Sept 2022
Sprint-4	20	6 Days	06 Sept 2022	15 Sept 2022	20	12 Sept 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)

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

ReportsfromJIRA



BURNDOWN CHART

7. CODING&SOLUTIONING Feature1 - FLASKAPP

Thefollowingistheflaskappcodeandworking

```
1   fromflaskimportFlask,render_template,redirect,url_for,request
2   importrequests3
4app=Flask( name )5
6   @app.route("/",methods=['POST','GET'])
7   defindex():
8       ifrequest.method=='POST':9
        arr=[]
10              foriinrequest.form:
11              val=request.form[i]
12              ifval==":
```

```
13                      returnredirect(url_for("demo2"))
14          arr.append(float(val))
15

16          #deepcodeignoreHardcodedNonCryptoSecret:<pleasespecifyareaso
            nofignoringthis>
17      API_KEY="wf8mge_OQdwVO8ao2kmWCtfxOfLWl8442SH44V85v2Ls"
18          token_response =
            requests.post('https://iam.cloud.ibm.com/identity/token',data={
19    "apikey":API_KEY,
20          "grant_type":'urn:ibm:params:oauth:grant-
type:apikey'21        })
22      mltoken=token_response.json()["access_token"]
23                  header={'Content-
      Type':'application/json','Authorization':'Bearer'+mltoken}
 24     payload_scoring=        {
 25         "input_data":  [{"fields":[             'GREScore',
 26                                                 'TOEFLScore',
 27                                                 'UniversityRating',
 28                                                 'SOP',
 29                                                 'LOR ',
 30                                                 '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=header40 ).json()41

 42
            result=response_scoring['predictions'][0]['values']
 43
 44         ifresult[0][0] >0.5:
 45                      returnredirect(url_for('chance',percent=result[0][0]*100))
 46         else:
```

```
47                  returnredirect(url_for('no_chance',percent=result[0][0]*100))
48      else:
49              returnredirect(url_for("demo2"))
50
51      @app.route("/home")
52      defdemo2():
53              return
 render_template("demo2.html")
54              54
55      @app.route("/chance/<percent>")
56      defchance(percent):
57       returnrender_template("chance.html",content=[percent])
 58
59      @app.route("/nochance/<percent>")
60      defno_chance(percent):
61      returnrender_template("noChance.html",content=[percent])6
2
63      @app.route('/<path:path>')
64      defcatch_all():
65              returnredirect(url_for("demo2"))
66
  67    if__name__== " _main_":
  68    app.run()
```

7.2 Feature2-UI

ThefollowingistheUIcodefortheapplication.

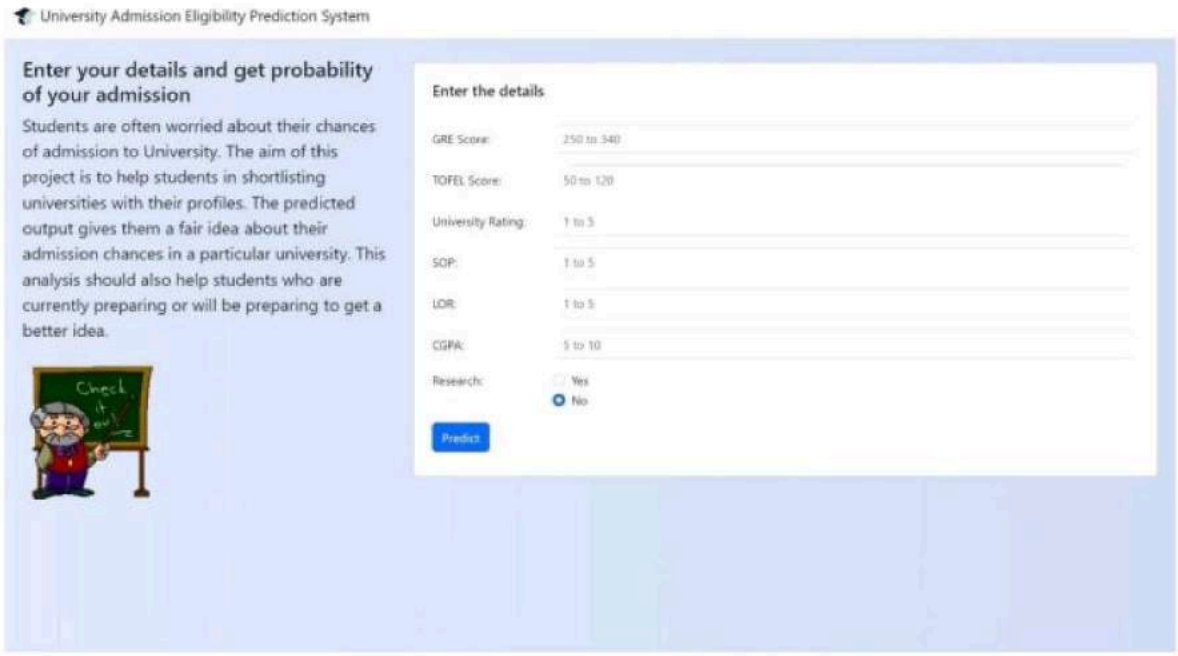
```
1     {%extends'index.html'%}
2     {%blockbody%}
3             <divclass="p-4">
 4                    <divclass="rowmb-3">
 5                           <divclass="col-4">
 6                                  <h2class="text-responsive-h">
 7                    Enter yourdetailsandgetprobabilityofyouradmission8   </h2>
 9                    <pclass="text-responsive">
```

```
10          StudentsareoftenworriedabouttheirchancesofadmissiontoUniversity.
The aim of this project is to help students in shortlisting
universitieswiththeirprofiles.Thepredictedoutputgivesthem
afairideaabouttheiradmissionchancesinaparticularuniversity.Thisanalysisshouldal
sohelpstudentswhoarecurrentlypreparingorwillbe preparingtogetabetteridea.
11                  </p>
12                  <divclass="d-flexjustify-content-right">
13                      <imgsrc="../static/img/animated-
        teach.gif"border="0"alt="..."/>
14                  </div>
15                  </div>
16              <divclass="col-8">
17                  <divclass="cardp-2 ms-2my-2">
18                      <divclass="card-body">
19                          <h5class="card-titlepb-4">
20                      Enterthedetails
21                  </h5>
22                          <formaction="/"method="post"
        id="theForm">
23                      <divclass="rowmb-3">
24                          <labelfor="gre"class="col-lg-2
        col-form-label">GREScore:</label>
25                          <divclass="col-lg-10">
26                              <inputtype="number"
    class="form-control" id="gre"   name="gre"   min="250"
                        max="340"placeholder="250to340"required>
27                      </div>
28                      </div>
29                      <divclass="rowmb-3">
30                      <label      for="tofel"      class="col-lg-2,col-form-
    label">TOFELScore:</label>
31                              <divclass="col-lg-10">
32                                  <inputtype="number"
    class="form-control" id="tofel"   name="tofel"   min="50"
                        max="120"placeholder="50 to120"required>
33                              </div>
34                          </div>
35                          <divclass="rowmb-3">
```

```
36                                  <labelfor="university_rating"
class="col-lg-2col-form-label">UniversityRating:</label>
37                              <divclass="col-lg-10">
38                                  <inputtype="number"
class="form-control"              id="university_rating"
                                  step="0.01"name="university_rating"min="1"
max="5"placeholder="1to5"required>
39                                      </div>
40                                  </div>
41                                  <divclass="rowmb-3">
42                                      <labelfor="sop"class="col-lg-2
 col-form-label">SOP:</label>
43                                  <divclass="col-lg-10">
44                                          <inputtype="number"
class="form-control" id="sop" name="sop" step="0.01" min="1"
                            max="5"placeholder="1 to5"required>
45                              </div>
46                              </div>
47                              <divclass="rowmb-3">
48                                  <labelfor="lor"class="col-lg-2
      col-form-label">LOR:</label>
49                              <divclass="col-lg-10">
50                                      <inputtype="number"
class="form-control" id="lor" name="lor" step="0.01" min="1"
                            max="5"placeholder="1 to5"required>
51                                  </div>
52                              </div>
53                              <divclass="rowmb-3">
54                                  <labelfor="cgpa"class="col-lg-2
      col-form-label">CGPA:</label>
55                                  <divclass="col-lg-10">
56                                      <inputtype="number"
class="form-
control"id="cgpa"name="cgpa"step="0.01"min="5"max="10"placeholder="5
to10"required>
57                                  </div>
58                              </div>
59                              <fieldsetclass="rowmb-3">
60                                  <legendclass="col-form-label
col-sm-2pt-0">Research:</legend>
```

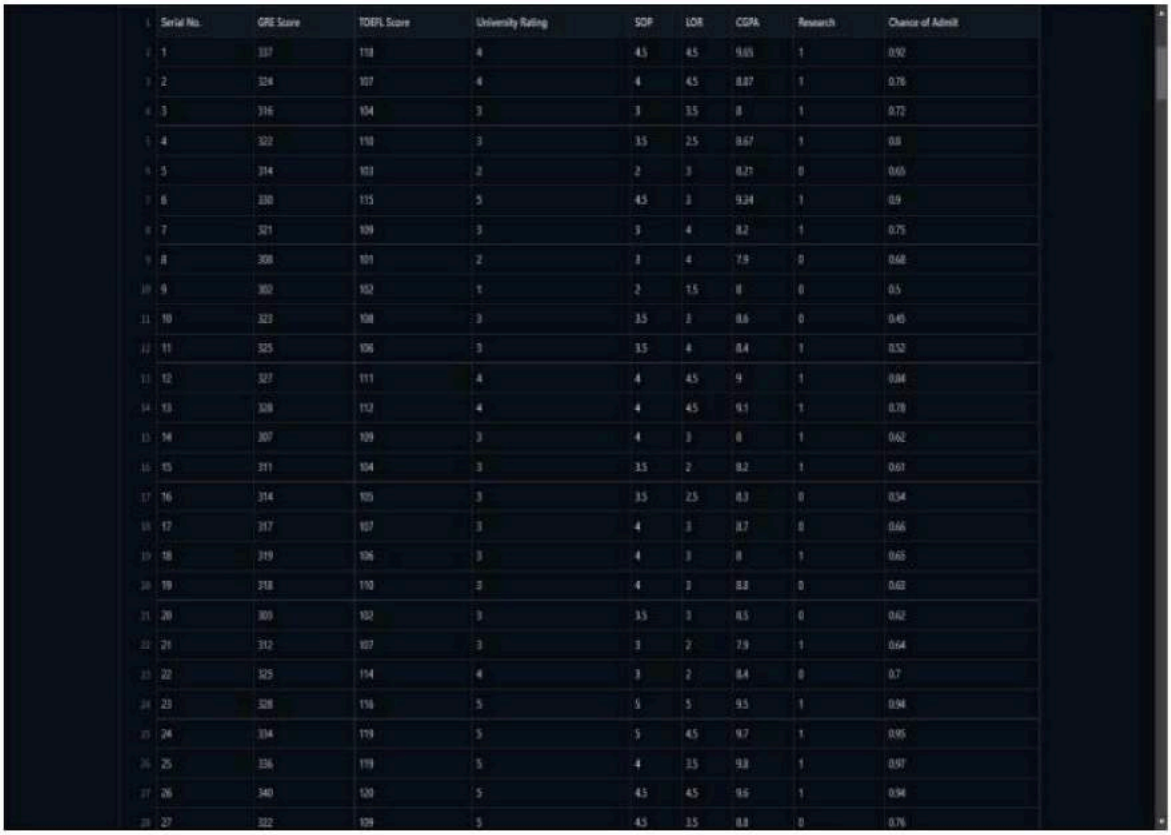
```
61                                  <divclass="col-sm-10">
62                                      <divclass="form-check">
63                                          <inputclass="form-check-
input"type="radio"     name="yes_no_radio"   id="gridRadios1"value="1">
64                                          <labelclass="form-check-
label"for="yes_no_radio">
65                                      Yes
66                                      </label>
67                                  </div>
68                                      <divclass="form-check">
69                                          <inputclass="form-check-
input"type="radio"     name="yes_no_radio"   id="gridRadios2"
                                    value="0"checked>
70                                          <labelclass="form-check-
label"for="yes_no_radio">
71                                          No
72                                          </label>

73                                      </div>
74                                  </div>
75                                  </fieldset>
76                              <divclass="rowlg-3">
77                                   <divclass="col-lg-2mb-2me-3">
78                                          <buttontype="submit"
        class="btnbtn-primary"id="button">Predict</button>
79                              </div>
80                                          <divclass="col-lg-2"
id="spinner">
81                                      <divclass="spinner-border
text-primarym-1"role="status">
82                                      <spanclass="visually-
hidden">Loading...</span>
83                              </div>
84                                  <divclass="spinner-grow
text-primarym-1"role="status">
85                                  <spanclass="visually-
hidden">Loading...</span>
```

```
86                                                                  </div>
87                                                              </div>
88                                                          </form>
89                                                      </div>
90                                                  </div>
91                                              </div>
92                                          </div>
93                                  </div>
94  <script     type="text/javascript"   src="../static/js/script.js"async></script>
95  {%endblock%}
96
97
     {%extends'index.html'%}9
 8
99
    {%blockbody%}1
0
 101 <divclass="containertext-centerp-4">
 102         <divclass="d-flexjustify-content-center">
103
 104         <divclass="card"style="width:34rem;">
 105                 <imgsrc="..\static\img\chance.png"class="card-img-
        top"alt="...">
 106                         <divclass="card-body">
 107                                 <h5class="card-title">YouHaveChance</h5>
 108                                         <pclass="card-
    text">Themodelhaspredictedthatyou have<strong>{{content[0]}}%</strong>
    chance</p>
 109                                 <a    href="/home"   class="btn   btn-
    primary">GoBack</a>
 110                         </div>
 111                 </div>
112         </div>
113 </div>
114
115 {%endblock%}
```



8. TESTING

TestCases



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	9.24	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	305	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

UserAcceptanceTesting

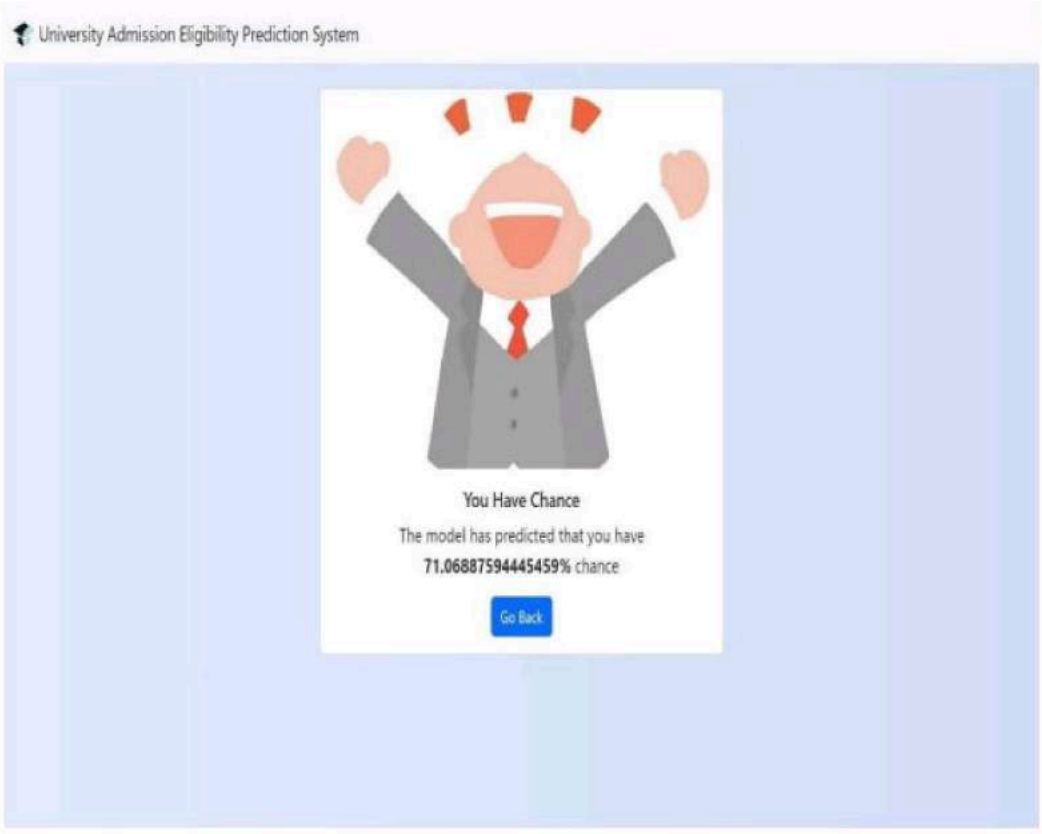
User Acceptance Testing (UAT) is a type of testing performed by the end user orthe client to verify/accept the software system before moving the software applicationtotheproductionenvironment.UATisdoneinthefinalphaseoftestingafterfunctional,integrationandsystemtestingisdone.

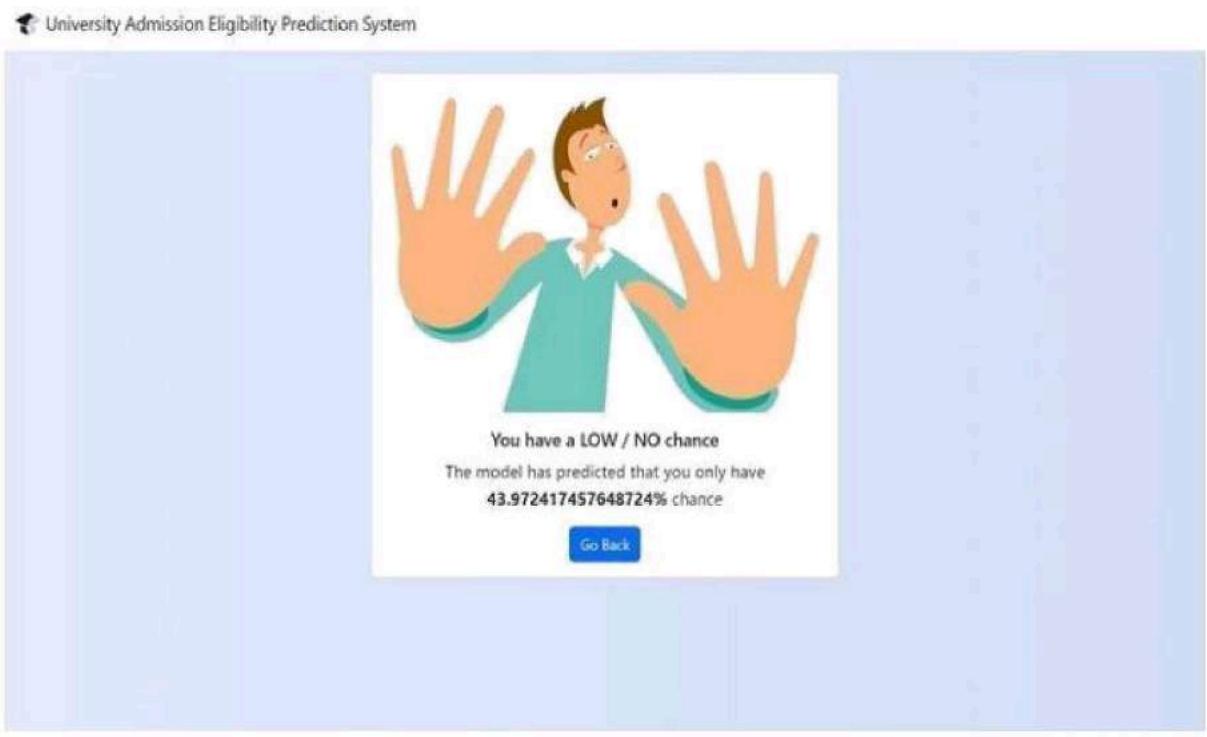
The User Acceptance of this product is not surveyed enough to give a solid conclusion.The theretical and hypothetical acceptance is calculated to be high enough to concludethat thisproductisusableandvaluable.

9. RESULTS

PerformanceMetrics

The Performance is the Accuracy of the model trained. The training accuracy of themodel is92%.
Thetestingaccuracyofthemodelis89%.





10. ADVANTAGES&DISADVANTAGES

> **ADVANTAGE**

1. **Knowthepercentage**
2. **Lowerinvestigation**
3. **ProvideRelevantMaterial**
4. **Reducetimeconsumption**
5. **Gooduserexperience**

> **DISADVANTAGE**

1. **Significiantinvestmentsrequired**
2. **Inabletocapturechanges**
3. **Privacyconcerns**

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 thedesired Universityornot.

12. FUTURESCOPE

In futre we would like to enhance the existing model in such a way thatconsumer feels the same way when purchasing in store using Virtual reality andother upcoming technologies.Reaserch to improve the accuracy of the system isunderprogress.

13. APPENDIX Source Code GitHub & Project Demo

LinkProjectLink:http://ibmsmart.pythonanywhere.com/home

github:https://github.com/IBM-EPBL/IBM-Project-14029-1659539114