



## **SimpliAdmission**

Submitted in partial fulfillment of the requirements  
of the degree of

### **Bachelor Of Engineering in Computer Engineering**

By

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2022-2023



**AET'S**  
**ATHARVA COLLEGE OF ENGINEERING**  
**CERTIFICATE**

This is to certify that the Mini Project entitled “**SimpliAdmission**” is a bonafide work of **Sahil Waradkar (68), Prathmesh Parab (11), Neha Naik (01), Priyanshu Singh (49)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of “Bachelor of Engineering” in Computer Engineering.

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## Mini Project Report Approval

This Mini project report entitled *SimpliAdmission* by *Sahil Waradkar (68)*, *Prathmesh Parab (11)*, *Neha Naik (01)*, *Priyanshu Singh (49)* is approved for the degree of “Bachelor of Engineering” in *Computer Engineering*.

Examiners

1.-----

2.-----

,

Date:

Place:

## Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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## **Abstract**

SimpliAdmission is an Admission Guide App which is a proposed solution to simplify the admission process for students seeking admission to engineering colleges. The current system lacks a software or application to guide students through the admission process, resulting in confusion and stress for students and their parents. The proposed application aims to provide a comprehensive list of colleges to which students may be admitted, along with detailed information such as fee structures, available branches, locations, and contact information. The app will help students make informed decisions about the right colleges for them, increasing their chances of being accepted into their desired college on their first attempt. By simplifying the admissions process and reducing stress for students, the Admission Guide App aims to make the entire process more efficient and effective.

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## **List of Abbreviations**

<b>Sr. No.</b>	<b>Abbreviation</b>	<b>Expanded form</b>
i	DSS	Decision Support System
ii	XML	Extensible Markup Language
iii	JDK	Java Development Kit
iv	SDK	Software Development Kit
v	AVD	Android Virtual Device
vi	API	Application Programming Interface
vii	ER	Entity-Relationship
viii	FAQ	Frequently Asked Questions
ix	CART	Classification and Regression Tree
x	CSV	Comma-Separated Values file
xi	CET	Common Entrance Test



## **1. INTRODUCTION**

SimpliAdmission is an app designed to help students navigate the college admissions process. It provides a step-by-step guide to the various stages of the process, from selecting the right college.

Our app aims to simplify the often overwhelming and confusing process of college admissions and help students to get information of various colleges.

SimpliAdmission is an android application designed to help students navigate through admission process for Engineering Admissions. The app typically includes features that provide students with information about colleges, admission steps, compare colleges and predict them. The app can be accessed through mobile devices, allowing students to access information from anywhere, anytime.

### **1.1 Description**

Students who aspire to pursue professional courses such as engineering after completing their 12th grade often face numerous challenges due to the lack of proper guidance. Admission to engineering colleges in Maharashtra, or any other state in India, is based on various entrance tests such as Common Entrance Test (CET) and other national level competitive exams. The limited availability of seats in the desired engineering branches makes it even more challenging for students from different categories such as open, home university, outside home university, and reserved categories (SC, ST, OBC, etc.) to secure admissions. It becomes more stressful when students fail to understand which college they are likely to get admission to, even after going through the cut-off data of previous years. Due to this, many students end up selecting the wrong options and fail to secure admissions. To ease the admission process and reduce the stress of students, we propose the idea of SimpliAdmission, which will enable students to get a list of all the colleges, compare colleges and predict suitable colleges.

## **1.2 Problem Formulation**

Although official college websites offer data on colleges, it is often presented in a tabular or PDF format, making it difficult for students to search and compare different colleges.

For many students living in rural areas with limited access to strong network connectivity, accessing online resources can be challenging. Our application's partial offline functionality makes it accessible to these students, allowing them to access college information and perform comparisons without relying on a consistent internet connection. However, some features such as the chatbot and live updates require an internet connection to function properly.

Students often struggle with the process of selecting the right college as they face difficulties in identifying schools that match their academic achievements and preferences. To alleviate this problem we integrated a predictive function into the college selection process.

## **1.3 Motivation**

We are excited to investigate the potential of this self-conceived concept. Our desire to work on this project has made it a pleasure to learn about different subjects from various sources. This chance to create something on our own, learn about how things work in the real-world app development industry, accept some challenges, and fail was motivating for our team. Our mutual comprehension and group stability also encouraged us to work harder. Many creators out there generously share their material with us eager beginners.

## **1.4 Proposed Solution**

Our app provides a simple and informative platform for users to obtain knowledge of the engineering admission process.

Analogy among colleges on the basis of location, fees, branches, and other factors is available to provide a better understanding for students. Our app provides these features, eliminating the need for students to visit multiple websites in their search for college information.

A chatbot feature is included in the app to provide personalized assistance and support to students as they navigate the admission process. Our app also features a prediction function that utilizes a student's CET percentile to estimate the likelihood of their admission in the different colleges.

## **1.5 Scope of project**

The scope of SimpliAdmission is quite vast, as it aims to assist students with the entire college admissions process. This includes providing guidance on selecting the right colleges to apply to, guiding through the scholarship opportunities.

In addition to these core features, SimpliAdmission may also offer other helpful resources such as virtual campus placement information, expanding the database of college from Mumbai to all over India. The current systems specifically focuses on the engineering admission process and its components instead, we may concentrate on all the other subjects of study also. The app may also provide personalized recommendations based on a student's interests, academic background, and other factors to help them find the best-fit schools.

Overall, the scope of SimpliAdmission is to provide comprehensive support to students as they navigate the complex and often stressful process of college admissions, ultimately helping them achieve their goals of selecting their dream school.

## **2. REVIEW OF LITERATURE**

With the rise of mobile technology and the increasing use of smartphones, mobile applications are becoming increasingly popular for providing college admission guidance to students. These applications provide useful information about the admission requirements, deadlines, and application procedures for various colleges and universities. The purpose of this literature review is to examine the existing literature related to admission guide apps and identify the features that make them effective for helping students navigate the college admission process.

A study was conducted to examine the users' perspectives of mobile applications for college admission information. The study found that students prefer using mobile apps for admission guidance over traditional sources. The authors identified the features that users expect from a mobile app, including information on admission requirements, deadlines, and application procedures. The study suggests that mobile applications can be an effective tool for providing admission guidance to college students.

The research on the usability of college admission application processes through mobile applications identified the factors that affect the usability of mobile applications, including navigation, content, and user interface design. The study found that mobile applications can enhance the usability of the college admission process. The author suggests that mobile applications can provide a user-friendly interface that allows students to easily navigate the admission process.

An empirical study to examine the factors that affect college students' use of admission guide mobile applications identified the factors that influence students' adoption and usage of mobile applications, including perceived usefulness, ease of use, and social influence. The study found that mobile applications can be an effective tool for providing admission guidance to college students. The authors suggest that mobile applications can help students make informed decisions about their college choices.

A study to examine the effects of mobile application use for college admission guidance on academic self-efficacy and college aspirations of high school students. The research found that using mobile applications for admission guidance can increase students' academic self-efficacy and college aspirations. The study suggests that mobile applications can be an effective tool for promoting higher education among high school students.

The study on research on design and development of mobile application for college admission guidance focuses on the design and development of a mobile application for college admission guidance in China. The research found that the mobile application can provide timely and accurate information to students, and can enhance the efficiency and convenience of the admission process. This study employs a user-centered design approach to develop a college admission mobile application. The research found that the application can improve the accessibility and user experience of the admission process, and can provide valuable information to help students make informed decisions about their college choices.

The literature suggests that admission guide apps can be an effective tool for providing college admission guidance to students. These apps can improve the usability of the college admission process and increase students' academic self-efficacy and college aspirations. The studies highlight the importance of providing a user-friendly interface and relevant information to students through the mobile application. The findings suggest that mobile applications can be an effective tool for promoting higher education among high school students. Future research should focus on developing effective mobile applications that meet the needs and expectations of students.

### **3. SYSTEM ANALYSIS**

System analysis involves examination of the function, non-functional and specific(hardware/software) requirements of the app in order to design, develop, or improve it.

#### **3.1 Functional Requirements**

User Registration: The app should allow to create an account by providing their personal information such as name, email address, and password.

College Search: The app allows users to search for colleges based on criteria such as location, majors offered, admission requirements, and cost.

College Profiles: The app provides detailed information about each college, including college fees, college locations, establishment year, etc.

Financial Aid Information: The app provides information about financial aid options, including scholarships, fees of course, etc.

Prediction: The app provides a prediction section in which users are allowed to enter their percentile and it predicts the suitable college, according to the input of users.

Communication Platform: The app provides a platform for users to communicate with chat bot section.

#### **3.2 Non Functional Requirements**

Performance: The app is designed to perform quickly and efficiently, with minimal loading times and fast response times to user actions. The app should also be designed to handle a large volume of users and data.

Security: The app is designed to ensure the security of user data, including personal information and academic records. The app should use secure encryption protocols and authentication mechanisms to prevent unauthorized access and data breaches.

Reliability: The app is reliable and consistent, with minimal downtime or errors. The app should be designed to handle unexpected events, such as server failures or network outages, and should be able to recover quickly from such events.

Scalability: The app is designed to scale up or down based on user demand, without compromising performance or security. The app should be able to handle a growing number of users and data without causing delays or disruptions.

**Usability:** The app is designed to be easy to use and understand, with clear navigation and intuitive interfaces. The app should also be designed to accommodate users with different levels of technical proficiency and accessibility needs.

**Compatibility:** The app is compatible with a wide range of devices and operating systems, including smartphones, tablets, and desktop computers. The app should also be compatible with different web browsers and screen sizes.

**Accessibility:** The app is designed to be accessible to users with disabilities, including those with visual, auditory, or motor impairments. The app should also comply with relevant accessibility guidelines and standards.

### **3.3 Specific Requirements**

In order to reduce the burden on the system running it, the software has been designed to be lightweight. It has been optimized for compatibility with the latest smartphone hardware and software. To ensure that the application runs smoothly, the following are the minimum hardware and software requirements:

#### **Hardware:**

- Pentium-pro processor or later.
- Minimum of 4 GB RAM.
- Minimum of 10 GB of hard drive space.

#### **Software:**

- Windows 10 (64-bit) or newer.
- Android Studio.
- Android Java and XML.
- Firebase Database.
- Java JDK.
- Android SDK (Minimum API 15).
- Android Virtual Device (AVD).
- Python for Machine Learning.
- API hosted on Railway.app

### 3.4 Use-Case Diagrams and description

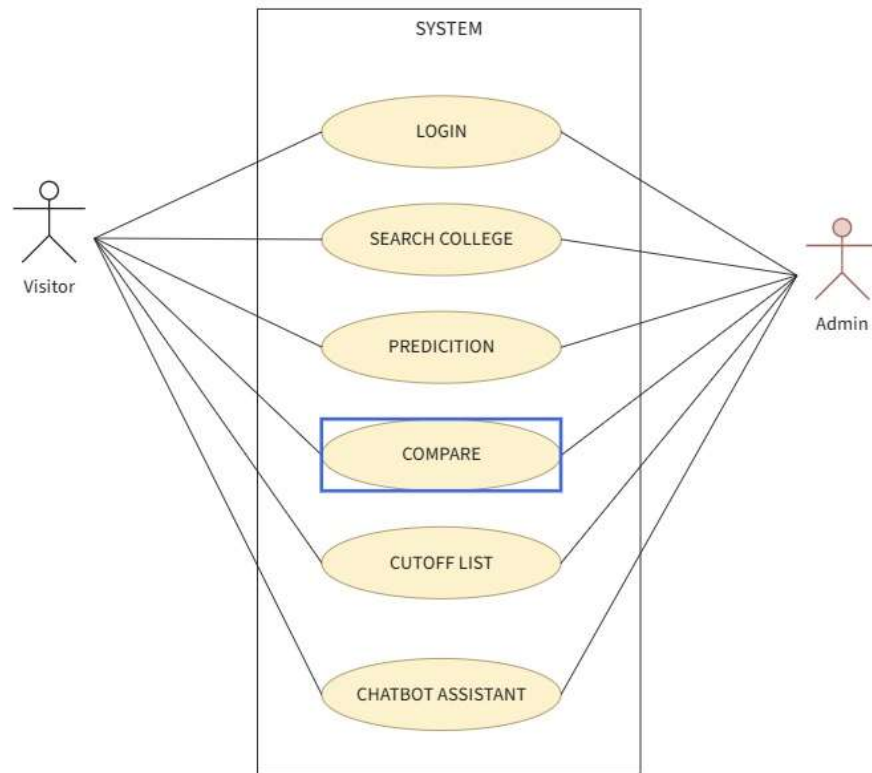


Fig 1

A use case diagram is a visual representation that depicts the interactions between users and a system. The SimpliAdmission app's use case diagram illustrates the various ways in which users interact with the application to accomplish their objectives. The diagram has several use cases, each of which represents a specific function that the application performs. It provides an overview of the various functions and interactions between the student and the SimpliAdmission app, assisting in understanding how the application helps students navigate the complex admission process for engineering colleges.



## **4. ANALYSIS MODELLING**

### **4.1 Data Modeling**

An Entity-Relationship (ER) diagram for SimpliAdmission represents the entities involved in the app's database and the relationships between them.

By describing these elements of the ER diagram we have provided a comprehensive overview of the app's database structure and how the entities and relationships are organized.

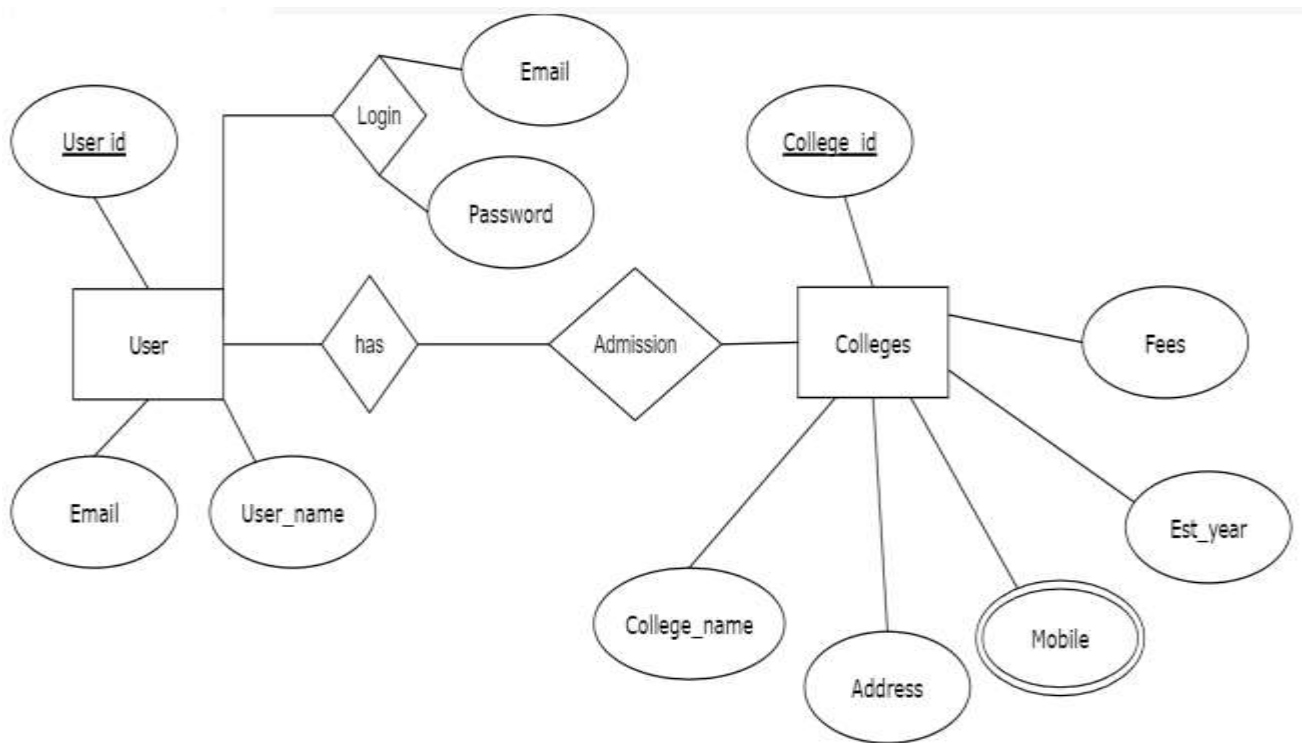


Fig 2

## 4.2 Class Diagram

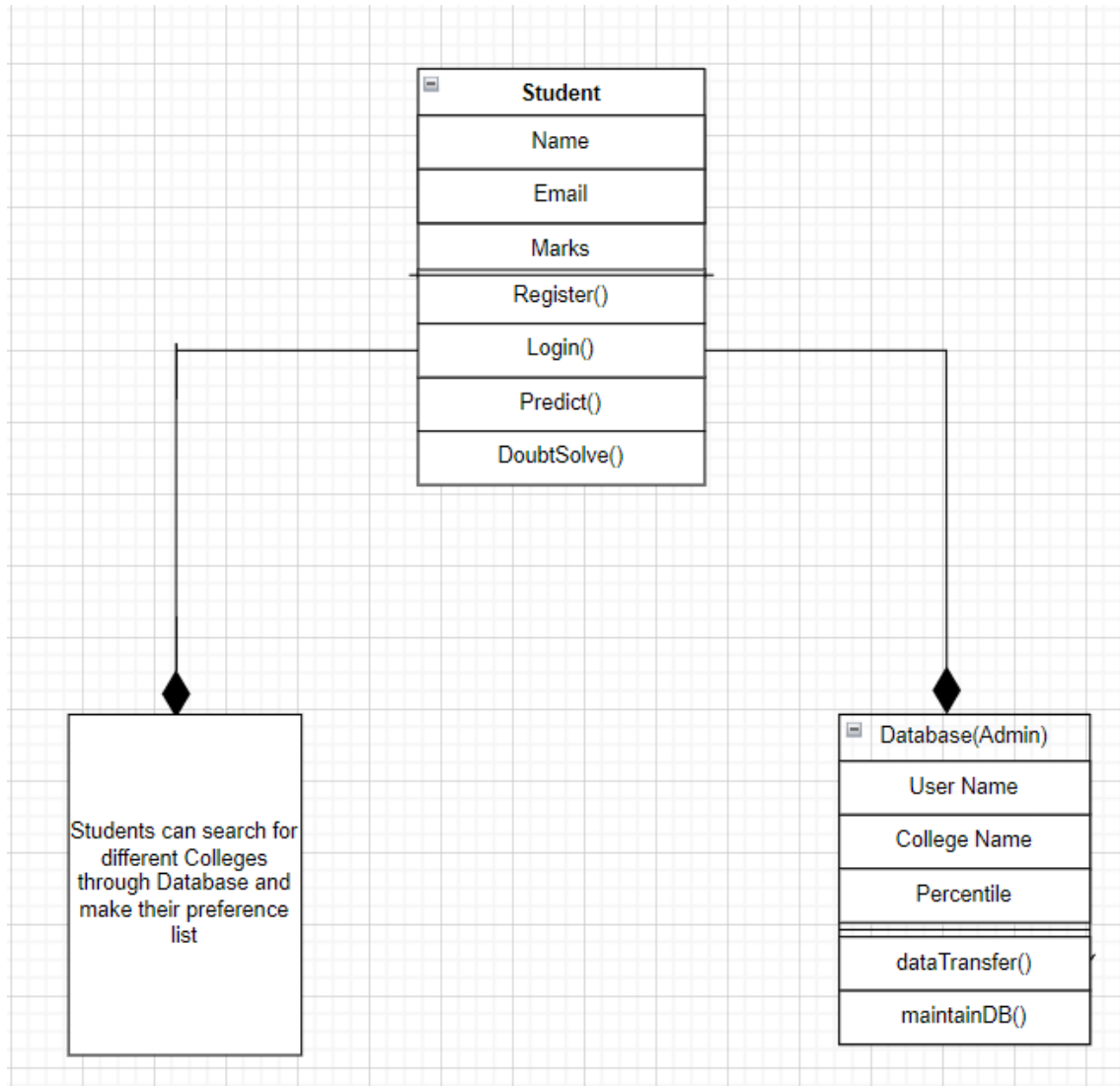


Fig 3

A class diagram for SimpliAdmission represents the classes involved in the app's functionality and the relationships between them

By describing these elements of the class diagram for the admission guidance app, you can provide a comprehensive overview of the app's functionality and how the different classes and relationships are organized.

### 4.3 Functional Modeling

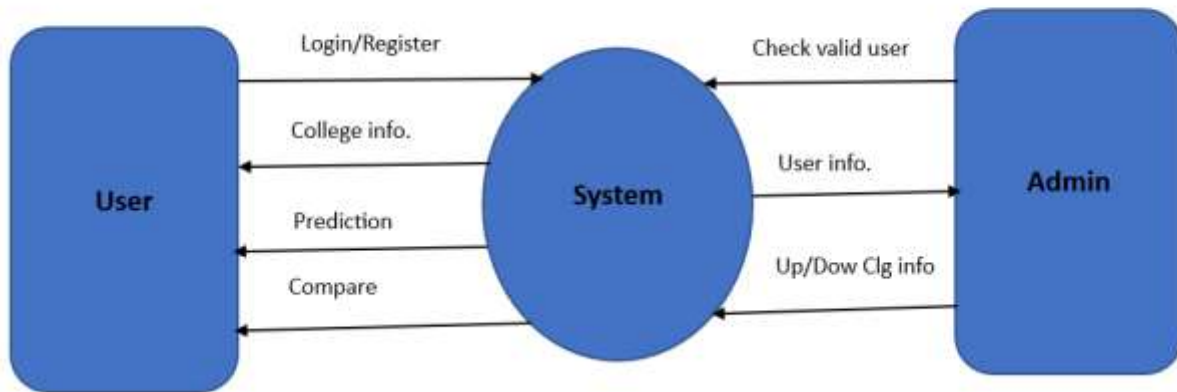


Fig 4

### 4.4 TimeLine Chart

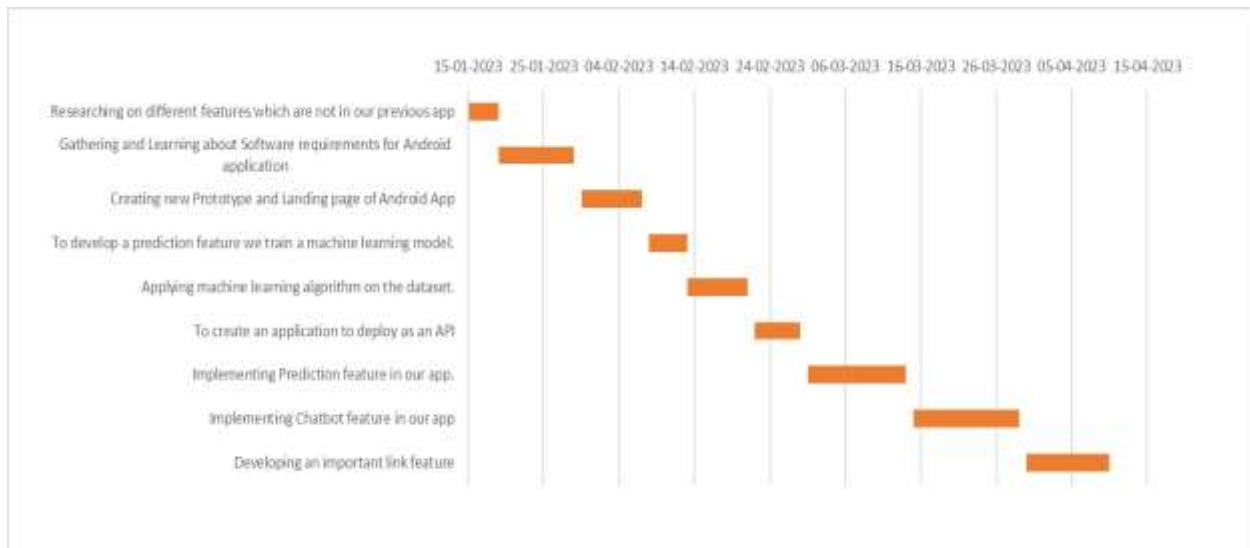


Fig 5

## **5. DESIGN**

### **5.1 Architectural Design**

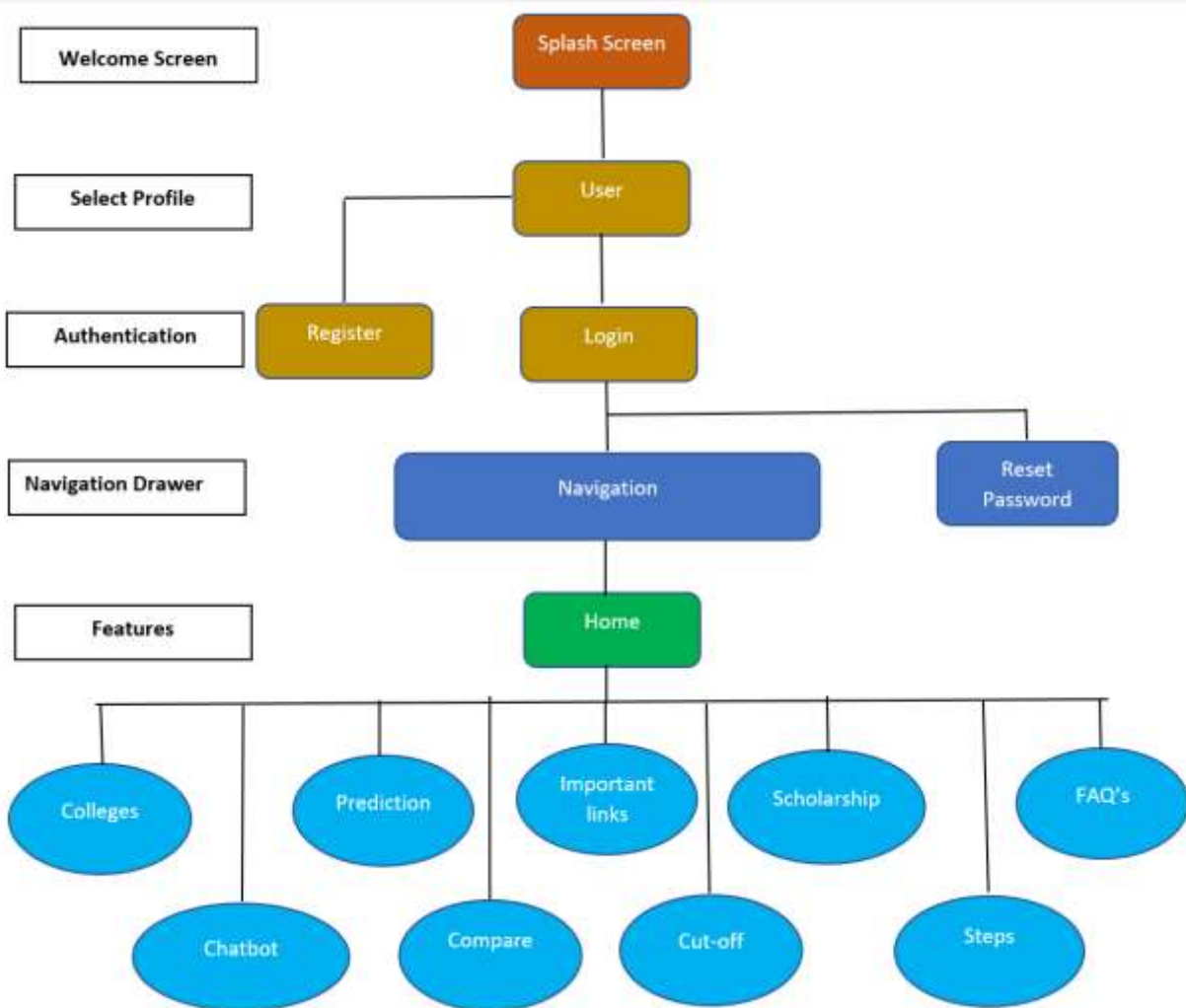


Fig 6

#### **Description :**

1. Our app starts with a splash screen, also known as a welcome screen. This screen is typically the first thing that users see when they open our app. It includes a logo, with animation to make the user experience more engaging.
2. From the splash screen, users can choose to either login, register, reset their password, or perform other actions related to account management. These options may be presented as buttons or links that are easy to click or tap.

3. Once users have logged in, registered, or reset their password, they will be directed to the home screen or dashboard. This screen typically displays important information or features that users need to access quickly. For example, a dashboard for a fitness app might show the user's progress towards their fitness goals, while a dashboard for a social media app might show the user's feed or notifications.
4. Users can then navigate to other parts of the app by clicking or tapping on various sections. The navigation is intuitive and easy to use, so that users can find what they need quickly and efficiently.
5. Colleges - This section is dedicated to providing extensive information about different colleges and universities.
6. Compare - Students can use this section to compare two colleges based on factors like location, tuition fees, and availability of different branches.
7. Scholarships - This section contains detailed information about the various scholarships offered by universities, along with the necessary documents.
8. Chatbot - A chatbot feature is available to assist users with any queries regarding the app or the admission process.
9. Prediction - The app also features a college prediction tool, which allows users to input their percentile and branch preference to get a predicted college result.
10. Steps - The application process can be daunting, but the Steps section contains all the necessary information about each stage of the process.
11. FAQ - Frequently asked questions by students about the admission process have been addressed in this section, providing clarity and reducing confusion.
12. User Profile - Users can find their information listed in this section, making it easy to access all relevant material in one place.
13. About Us - The About Us section provides basic information about the SimpliAdmission app.

## 5.2 User Interface Design



## **6. IMPLEMENTATION**

### **6.1 Algorithms / Methods Used**

When building a decision tree, nodes are separated into sub-nodes according to a specified attribute's threshold value. The initial node is selected from the training set and is then divided into two subsets based on the best attribute and threshold value. Subsequently, the same criteria are used to split the subsets further. This process continues until the last sub-set in the tree is considered pure or the maximum number of leaves for that particular growing tree is reached.

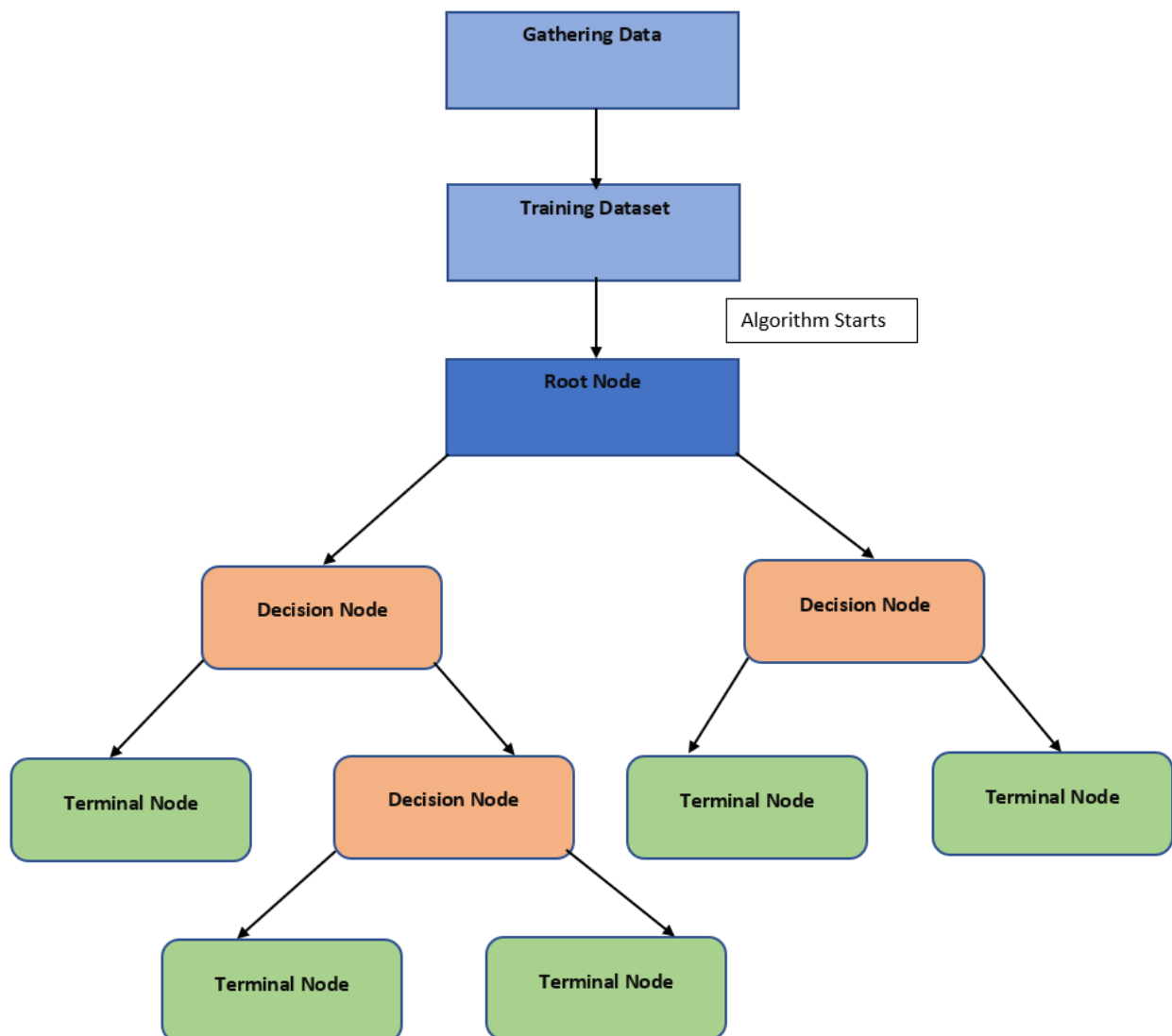


Fig 7

Suppose there is a student who wants to take admission in Engineering College. So, to solve this problem, the decision tree starts with the root node. As the root node taking input as training dataset. Then root node splits further into the next decision node on the basis of input percentile and one leaf node based on the corresponding labels. Continue this process until a stage is reached where you cannot further classify the nodes and called the final node as a leaf node.

CART algorithm uses Gini Impurity to split the dataset into a decision tree. It does that by searching for the best homogeneity for the sub nodes, with the help of the Gini index criterion.

The degree of the Gini index varies from 0 to 1,

Where 0 depicts that all the elements are allied to a certain class, or only one class exists there.

The Gini index of value 1 signifies that all the elements are randomly distributed across various classes, and

A value of 0.5 denotes the elements are uniformly distributed into some classes. Mathematically, we can write Gini Impurity as follows:

$$\text{Gini impurity} = 1 - \sum (p_i^2)$$

where  $p_i$  is the probability of an object **being classified to a particular class**

## 6.2 Working of the project

ML MODEL:

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.05, random_state=36)
clfdt = DecisionTreeClassifier()
clfdt.fit(X_train,y_train)
```

This above code represents a basic workflow for building and evaluating a decision tree classifier model. By splitting the data into training and testing sets, we evaluated the performance of the model on college cap round. The DecisionTreeClassifier is a simple but effective algorithm for classification tasks and is a good starting point for building more complex models.



So, here we are splitting our data into training and testing sets using the `train_test_split` function from `scikit-learn` with a test size of 0.05 (i.e., 5% of the data will be used for testing) and a random state of 36. Then, we are initializing a `DecisionTreeClassifier` and fitting it on the training data using the `fit` method. Finally, we are predicting the labels for the test data using the `predict` method.

#### APPLICATION PROGRAM INTERFACE :

```
def predict():
    df1=pd.read_csv("capround_dataset.csv")
    df=df1.copy()
    colg=np.unique(df['College'])

    code=[]
    for i in range(len(colg)):
        code.append(i+1)

    percentile = request.form.get('percentile')

    input_query = ([percentile])

    userpredtdt = model.predict([input_query])

    return jsonify({'You have chance to get admission in ' :
colg[code.index(userpredtdt[0])])})
```

(note: here we are importing the above ml model)

Here, the function `predict()` reads a CSV file of college cap round data into a pandas DataFrame, copies it to another DataFrame, and creates a list of unique college names and assigns them codes.

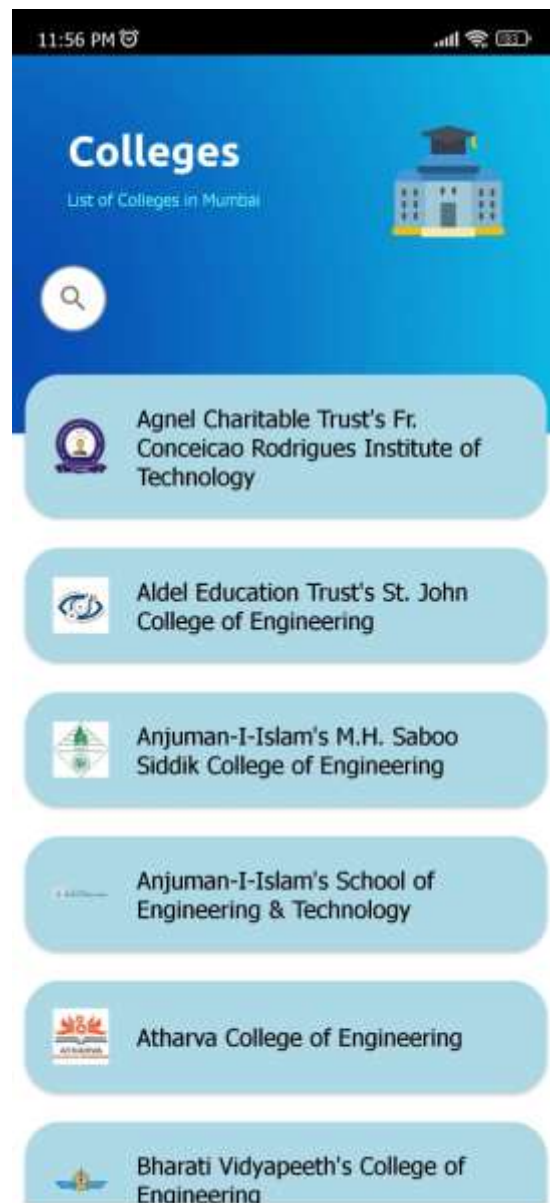
Then, we are getting a percentile value from a user and storing it in percentile.

After that, we are creating an input\_query list with a single element that contains the percentile value.

Next, we are using the model variable to make a prediction based on the input\_query and storing it in userpredtdt.

Finally, we are returning a JSON object which will be fetched in college prediction section, that includes a message indicating the college that the user has a chance to get admission to, based on the predicted value and the colg list.

## **7. RESULT ANALYSIS AND DISCUSSION**





Enter Your percentile  
93.6

Computer Engineering

PREDICT

Atharva Educational  
Trust's Atharva College of  
Engineering

Note: Prediction is based on previous year MHT-CET cap-round 1 data





How to Fill MH CET Application Form  
Candidates should follow the following steps to fill the application form. Here, we have mentioned step by step procedure for How to Fill MH CET Application Form:

Step-1: Online Registration

Step-2: Fill Details

Step-3: Upload Scanned Images

Step-4: Fee Payment

Step-5: Print Confirmation Page

11:56 PM



## Atharva College of Engineering

 1999

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 [ace@atharvacoe.ac.in](mailto:ace@atharvacoe.ac.in)

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 02240294949 CALL

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 133824

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 un-aided

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 <https://atharvacoe.ac.in/>


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 Malad Marve Road, Shri Sevantilal Khandwala Marg, Chardon Naka, Malad West


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## Compare

Compare Colleges using search option



Colleges list 1:



**Government Polytechnic, Mumbai**


Fee : 38100

Courses offered : Civil Engineering, Computer Engineering, Electrical Engineering, Electronics Engineering, Instrumentation Engineering, Leather Goods Manufacturing, Leather Technology, Mechanical Engineering, Rubber Technology and Information Technology

Type : aided

Establishment Year : 1960

Colleges list 2:



**Jawahar Education Society's Annasaheb Chudaman Patil College of Engineering**

Fee : 103743

Courses offered : Mechanical Engineering, Computer Engineering, Electronics & Telecommunication Engineering, Electrical Engineering, Information Technology, Electronics Engineering, Instrumentation Engineering

Type : un-aided

Establishment Year : 1992

## **8. CONCLUSION & FUTURE SCOPE**

### **Conclusion:**

Presently, a considerable number of people rely on their mobile devices and the internet. Nevertheless, upon examining several research papers, it has been revealed that only a handful of apps exist that centralize all the relevant information pertaining to college admissions. Consequently, this has caused bewilderment among both students and parents regarding the admissions procedure, and there are very few applications that offer such services without requiring an internet connection.

SimpliAdmission is an app for streamlining the admissions process for prospective students. The purpose of our application is to guide and assist undergrads in selecting their ideal college from a list of possibilities.

### **Future Scope:**

The future scope of SimpliAdmission could be expanded in various ways. Here are some potential areas for future development:

**Integration with More Colleges and Universities:** Currently, SimpliAdmission provides information and resources for a select group of colleges and university. However, the app could be expanded to include a wider range of institutions.

Overall, the future scope of SimpliAdmission is vast, with many potential areas for expansion and development. As technology advances and user needs evolve, the app could continue to adapt and grow to meet the needs of its users.

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