“College Voting System”

Submitted in partial fulfilment of the requirements of the degree

B.Tech.

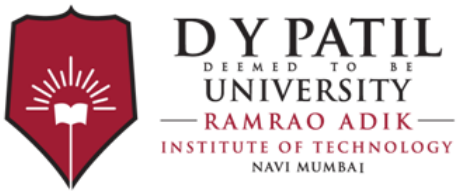
(Computer Engineering)

By

Shabbir Talib 20CE1095
Jay Dandekar 20CE1103
Deyush Kulkarni 20CE1008
Atharva Hirve 20CE1086

Supervisor

Mrs. Tabassum Maktum



Department of Computer Engineering
Ramrao Adik Institute of Technology,
Sector 7, Nerul, Navi Mumbai
(Under the ambit of D. Y. Patil Deemed to be University)
November 2022

Ramrao Adik Institute of Technology
(Under the ambit of D. Y. Patil Deemed to be University)
Dr. D. Y. Patil Vidyanagar, Sector 7, Nerul, Navi Mumbai 400 706.

Certificate

This is to certify that, the Mini Project – III entitled

"College Voting System"

is a bonafide work done by

and is submitted in the partial fulfillment of the requirement for the degree of

Shabbir Talib 20CE1095
Jay Dandekar 20CE1103
Deyush Kulkarni 20CE1008
Atharva Hirve 20CE1086

B. Tech. in Computer Engineering
to the
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Supervisor

Mrs. Tabassum Maktum

Mini Project Coordinator	Head of Department	Principal
Mrs.Tabassum Maktum	**Dr. A.V. Vidhate**	**Dr. Mukesh D. Patil**

Mini Project - III Approval

This Mini Project - III entitled “College Voting System” by Shabbir Talib 20CE1095, Jay Dandekar 20CE1103, Deyush Kulkarni 20CE1008, Atharva Hirve 20CE1086 is approved in the partial fulfilment of the requirement for the degree of B. Tech. in Computer Engineering

Examiners

1……
(Internal Examiner Name & Sign)

2……
(External Examiner name & Sign)

Date:

Place:

Abstract

In the present day and age digitization of day to day yet critical tasks are becoming highly popular and thus has now become a necessity for the efficient, smooth yet secure way of completing tasks, the need to automate tasks at hand spans across large number of domains that include daily human tasks, education, employment and many more. In this system, we have tried to narrow down on a topic that has the potential to be automated in terms of being secure, reducing human and other machinery resources, minimising operational and management costs and being user-friendly simultaneously. The proposed system is aimed at providing voting facilities to college committees and transition the current brick and mortar way of functioning. The system also offers events and news hosting enabling the system to be a one-stop go for all committee and college/university extra circular activities including assistance to members in order to keep track of different events, seminars and workshops happening. The proposed system will in short prove to be a new breath of air in the current voting processes employed in educational institutional setups and enable the encouragement of democratic environments for the would-be generation of tomorrow.

Content

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Chapter 1

Introduction

1.1 Overview

The world today is in a continuous process of changing and evolving in various aspects where technology in a very broader sense has now become the focal point of this change and revolution. Technology can be narrowed down to digitisation and computerization of key events and activities of the society and community in general. However, optimum application of available resources and technologies is a critical task and thus as college students, we were inclined to this particular system chosen. Colleges and universities across the globe have different types of student committees that undergo annual voting process to elect members. It is necessary to conduct a fair and efficient voting process in order to have a satisfactory outcome. The e-voting system aims to eliminate the bottlenecks evident in the manual voting system such as:

- Lengthy registration process
- Unnecessary transportation
- Election violence
- Massive amount of the votes to be calculated
- Nefarious practices
- Non-streamlined processing

The system also prioritizes to provide a streamlined and secure election automated system that is advantageous to all stakeholders involved and in the process ensure easier access for numerous committees, aid and assist to host events and display other important notices/ news items and increase morale through the encouragement of students, committee members and faculty by facilitating effective communication as it acts as a one-stop and multipurpose solution for voting and associated activities. To guarantee security, the organization can overlook the system.

1.2 Motivation

There has been a visible and drastic change when it comes to functioning of colleges and universities across the globe. This transformation has only accelerated since the pandemic caused a disruption increasing the need for these institutions to overcome and challenges and adapt to remote working processes. The operational processes have thus been modified to make systems faster, secure and with minimum human touch points allowing the proposed system's features to be used and accessed remotely. This is where the proposed system fits-in allowing colleges and universities to conduct committee voting in addition to other enlisted features.

The motivation behind choosing the college voting system is:

- Uniform election process automation for educational institutions.
- Encouragement of communication by enabling access to different committees and societies.
- Updates regarding the different events and seminars hosted by the university and or committees.
- Development of services enabling smooth transitions regarding memberships and other activities.
- Automation of resources booking and handling for efficient committee functioning.
- Encouragement to marketing through promotions of elections, events and competitions.
- Management of accesses provided to the administration, committees and users.

1.3 Objectives

The primary objectives of our web-application would be to provide:

- Provides streamlined and secure election automated system.
- Ensure easier access to different committees.
- Host events and other important news items.
- Organization can overlook the system.
- Facilitate faster communication between stakeholders.
- Offers one-person one-vote feature to block vote duplication
- Automated process to manage student details for committees
- Automated process to handle committee functions
- Efficient ways of handling committees verifications for membership
- Efficient ways of handling events verifications for payment

Chapter 2

Literature Survey

2.1 Survey of Existing System

Democratic spirit has been enabled in the formative years of undergraduate as well as postgraduate studies. College voting for committees is not a new concept in general as annual elections have been conducted by educational institutions throughout. The study of methodologies and techniques used till date offer insights into the overall working of the college/university and decide upon functionalities to be added in order to strengthen and modernize the system.

Democratic means of Elections:

- Voting was done using voting booths where in-person attendance was required to cast a vote in the age before computers in democratic elections.
- Nowadays, in place of pen and paper-based voting systems, democratic elections have employed using EVM's.
- However, even though EVM's are fairly reputable, its security has been called into question time and again.
- Automated computer-based voting systems can replace EVM's for democratic elections but proves to be tedious.

Voting in Colleges:

- Voting in colleges and universities is on a limited scale in terms number of votes.
- Colleges and universities largely employ old and outdated methods for voting.
- These orthodox processes require time and manpower on a larger scale.
- EVM's cannot be employed for university elections as they are expensive, complex to maintain and deploy.
- Also, EVM's potential would be underutilised on voting systems for colleges and universities.

Existing systems in different universities and colleges:

1) Email based voting systems: Voting in IIT-Bombay conducted via distribution of election forms shared on registered emails.
2) Ballot based voting systems: Voting in many colleges involving international institutions such as TU Berlin are still based on ballot voting.
3) Schedule based voting systems: Voting in colleges such as Punyashloka Ahilyabai University, Solapur, Maharashtra schedule elections on defined time and updating notices on official websites which may go unnoticed thus hampering the democratic college spirit of the college.
4) Blockchain based voting systems: IIT-Kanpur is trying to implement blockchain technology in democratic elections but again, its potential would be wasted on college elections.

So far, we have looked at the most popular yet generic methods of college committee voting. To summarise the above written contents, the historic methods of conducting such processes have been identified and it is not the incapability to design and execute a system such as the proposed system in this report but the possible lack of resources and personnel directed towards designing and building of an integrated system that provides not only an secure voting platform but consists of other added functionalities that have been listed in this report.

Existing system in RAIT:

RAIT has numerous committees which belong to technical and non-technical domains. These committees are extremely active in terms of conducting seminars, workshops, events and programs of all kinds of domains including annual committee voting. With the introduction of Google forms each and every committee utilised this feature and transitioned to an automated voting system.

Committees such as RAIT ACM have recently conducted their core committee voting on their website on http://rait.acm.org/Election/index.php

Announcements for voting results and all upcoming events were promoted In-person and through common Notice boards. All the Committee and Candidate details were conveyed to the voters through their respective websites, social media pages and in-person orientation programmes. Conduction of voting was a tedious for all the stakeholders involved in the voting procedure.

However, students and members at RAIT do believe that there are possible improvements to the current way of working methodology and the need for an integrated platform that covers all aspects is very much in demand.

The intended solution of this particular proposed system tries to address this very problem through an automated and dynamic manner.

2.2 Limitations of Existing System

2.2.1 Gist of survey analysis:

By looking at the current systems for college voting, our team was able to devise a way for tackling problems faced by these current systems. Today's systems for college voting services lack an organizational overlooking for educational universities specifically for college management as well as college fraternities.

2.2.2How far is the problem from being made into a solved complete problem:

As of today, the current college voting systems are not centralised and not promoting overall communication between fraternities, administration and the college students. The systems are either obsolete in matters of automation or coordination regarding extra-curricular activities. The systems of today are still based on ballot boxing or have been automated in some manner but not in a concise and conclusive manner.
There is no universal system which can be referred and accessed by all relative entities for college fraternities' activities; prominent among which is college voting process.

2.2.3 Observations of the analysis of all above points and improvement possibilities:

For this, such centralisation-oriented systems need to possess an administrative-based system for managing universities extracurricular activities and prominently college voting processes. Events logs and verifications will can be also provided to avoid malpractices and other nefarious activities which may hamper the college spirit. Election promotions along with results can be incorporated thus rounding up the election processes as whole.
Competitions announcements, results and promotions for various fraternities can be enabled in the system. Overall, an one stop solution for administration, fraternities and students can be provided through a singular system. All of these facilities combined would prove to be a greater effort and a significant step towards solving the problem.

2.2.4 Observations on the technologies and methodologies that you feel are performing better:

Most colleges are now switching on to web-based prerogatives in order to enable easy access to extracurricular activities. Some universities are utilising automated email systems to enable voting processes promotions and results. Technologies and state-of-the-art ideas have been and still are being developed but when the idea reaches to a broad basis and real-time implementation view, it is often observed that difficulties arise in terms of a cost standpoint, resource availability, practicality and durability of the solution offered in terms of whether or not it will stand the test of time when applied across a wide range by related organizations and industries. Hence, an concrete step towards this issue which can cover all of the problems in and beyond the extracurricular spectrum is yet to be designed.

Chapter 3

Proposed System

3.1 Problem Statement

The application developed by our team will solve the problems of communication between the administration, committees and the students regarding college voting processes for different committees as well as creating a coordinated, controlled and flexible environment about the college voting system and other extracurricular activities. Students of the respective committees will be able to vote in online automated elections for their desired candidate thus establishing an environment of communication and security with regards to the voting spirits. Administration will be able to manage the functionalities of committees, students and event organisers. Committees will be able to communicate with students in order for voting processes and events thus helping to build rapport and foster relationships between these two entities.

Through this, our system aims to create an environment which will be interactive and helpful for all the parties involved along with being controlled and moderated thus achieving a balance for overall growth.

3.1.1 Features of College Voting System:

1) Voting:
   1. Overview of Election Process
   2. Promotion of Candidates
   3. Candidates Details
   4. One-Person One-Vote
   5. Results

2) Events:
   1. Overview of Events
   2. Events Details
   3. Events Relevance
   4. Events Requirements

3) User Profile:
   1. Overview of Profile
   2. Profile Details
   3. Personalized Experience
   4. Profile Update

The lack of uniform voting system for different committees and fraternities makes it difficult for colleges and universities to ensure fair and free elections. Less control over election processes can lead to more malpractices in the election processes. Also, events and other important seminars and workshops may go unnoticed. It may also lead to wastages of resources such as paper, cash, manpower, etc.

3.2 Proposed methodology / Techniques

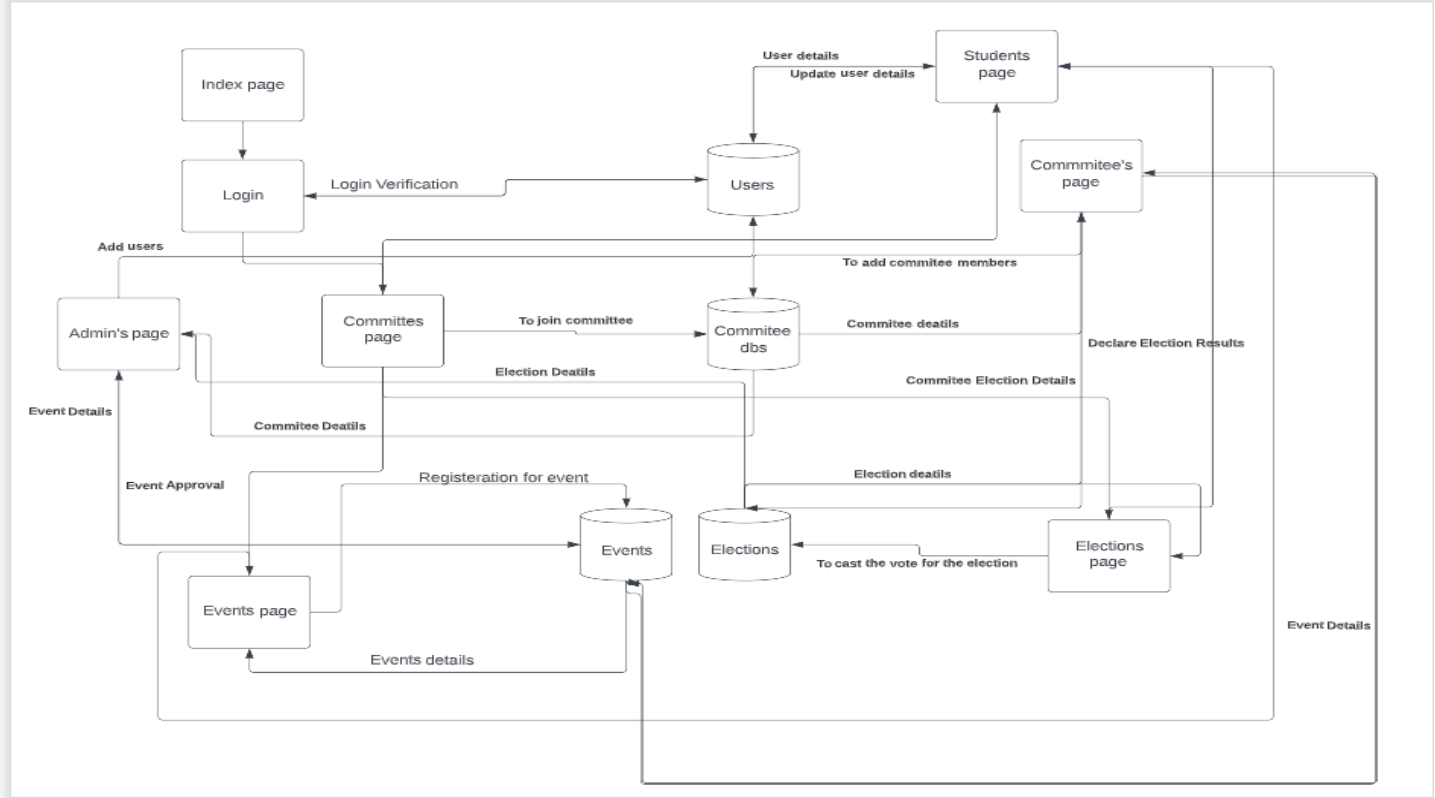

Figure 3.2(a) System Architecture

The above System Architecture consists of the following data tables:

- Users
- Elections
- Events
- Committee databases (i.e., SUC, IEEE, ACM, etc)

The Different User types and their access to database are:

- Admin: The Admin has access to all the system databases but their editing access is limited. They have access to the Users table to view the different users and add/ remove users to the system.
- Student: The student has access to view their account details and edit some aspects of their info (i.e.
  password). They have access to the committee's database to request membership to the different committees they want to join. They get access to the elections database to cast their vote for the different elections being held.

- Committee: The different committees have access to the user table to get their basic info and edit their info. They have access to the committee's database to view an overview of all members in their respective committee and who are requesting to join their committee and can approve the request and a make them a member of the committee. They have access to the Events database to create events and get info on the people registering for their event. They have access to the Elections database to create their election and upon completion declare the winner of the election.

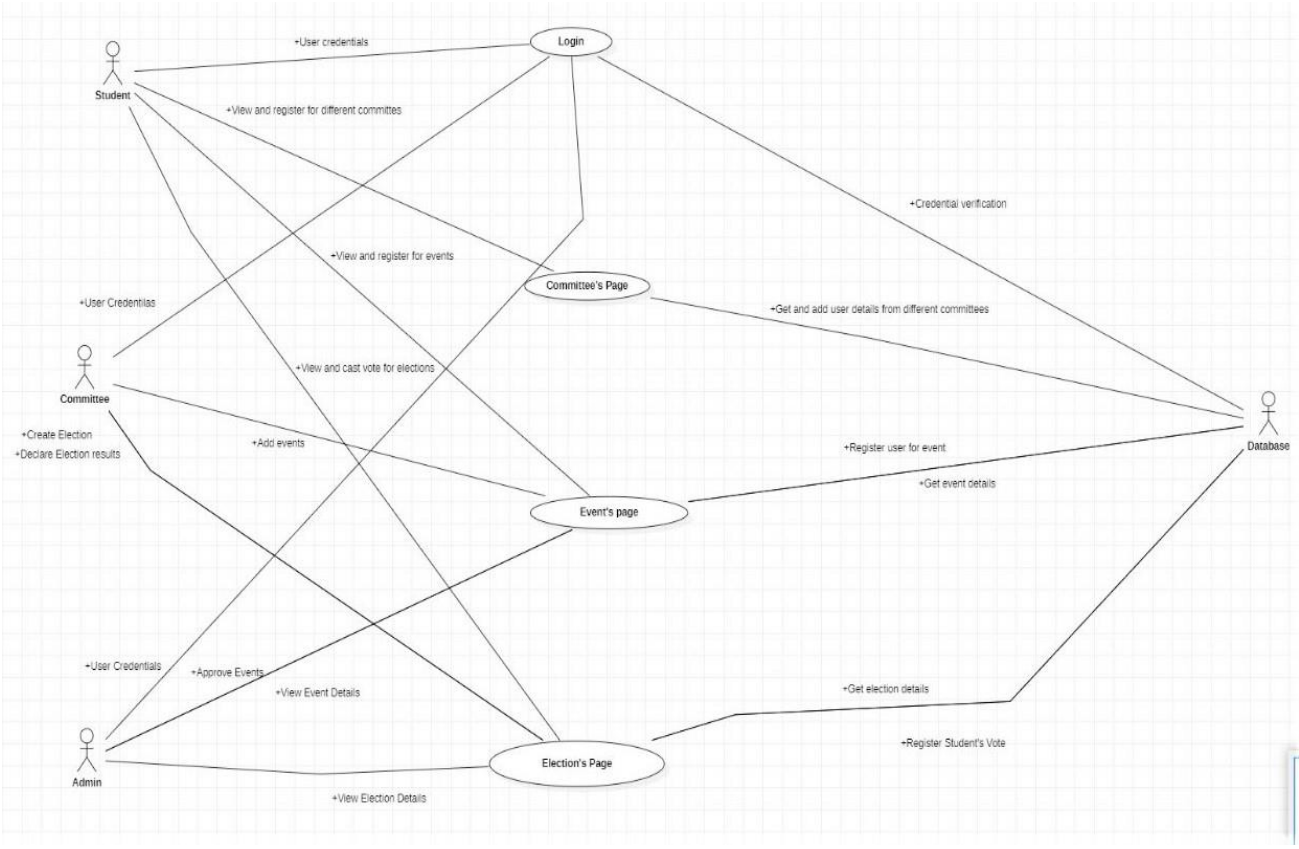

Figure 3.2(b) Use Case Diagram

The above use case diagram helps to identify the different users, interfaces and their communication with the database.

Different users are defined as:

- Admin: The Admin has access to interfaces namely login, events page and elections page to manage details and maintenance of these facilities. The admin will be possessing explicit authority over approving details such as credentials and ensuring smooth functioning of the entire system.
- Student: The student has access to all the interfaces to verify themselves through the login interface and perform their activities through other interfaces such as casting votes via the election interface for example.

- Committee: The different committees have access to all the interfaces to verify themselves through the login interface and perform their activities through other interfaces such as adding events via the events interface facilities for example.

All interfaces will be connected to the database for dynamic communication regarding credential verifications, registrations, votes count managing and maintaining other important details.

Different interfaces are defined as:

- Login: The login interface will be referring to the database for verification of credentials whenever any user would like to access the system so as to maintain security and ensure no breaches in system functioning.
- Committee Page: The committee interface will be referring to the database for verification of details during the performing of committee facilities through the interface.
- Events Page: The events interface will be referring to the database for verification of details such as the registration of new participants for the events and providing event details during the performing of event facilities through the interface.
- Election Page: The election interface will be referring to the database for verification of details such as registering of votes and getting election details as well as ensuring the one-vote-only policy during the performing of committee facilities through the interface.

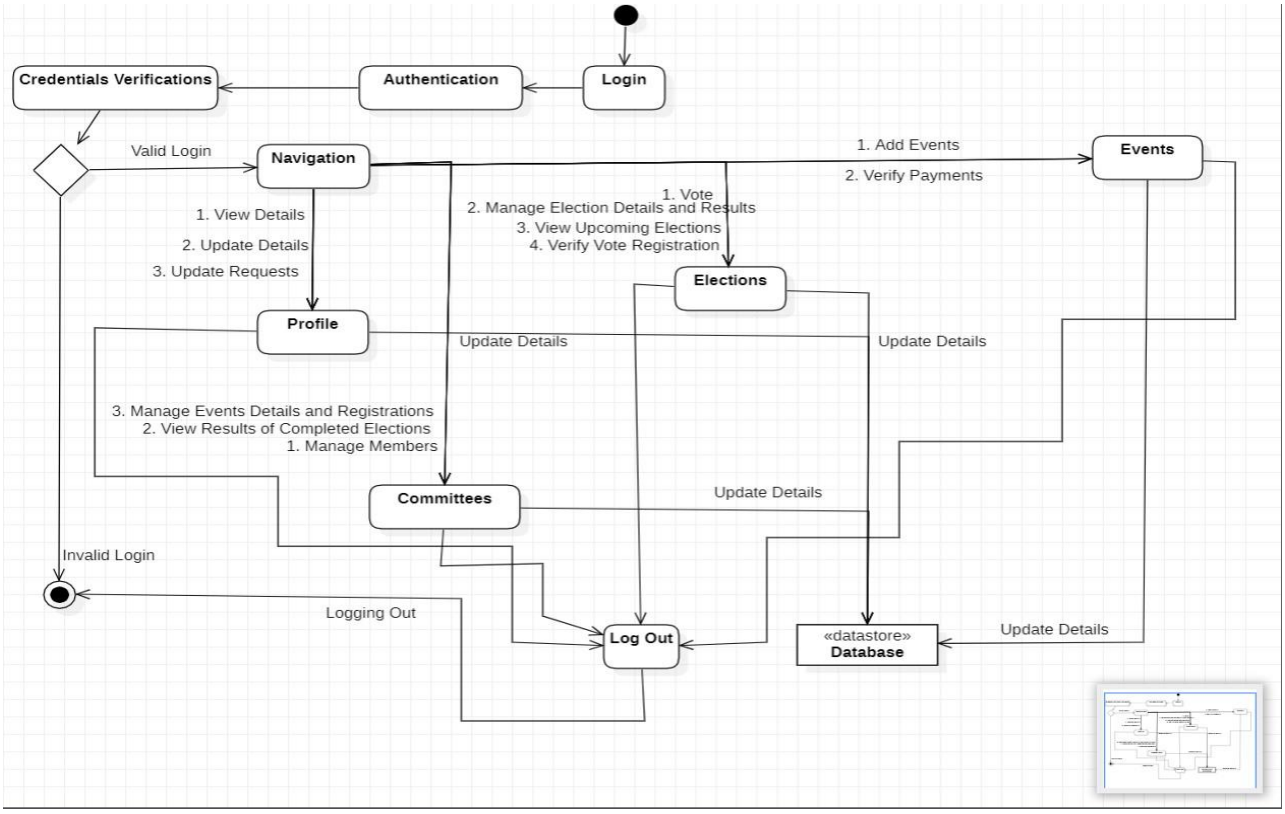

Figure 3.2(c) Activity Diagram

The above activity diagram helps to identify the different users, interfaces and their communication with the database. The activity diagram showcases different activities the user will be able to perform in respect to the facilities provided.

The above activity consists of the following actions as seen from initial to final states marked by circular entities:

- Login
- Authentication
- Navigation
- Elections
- Events
- Committee
- Profile
- Logout

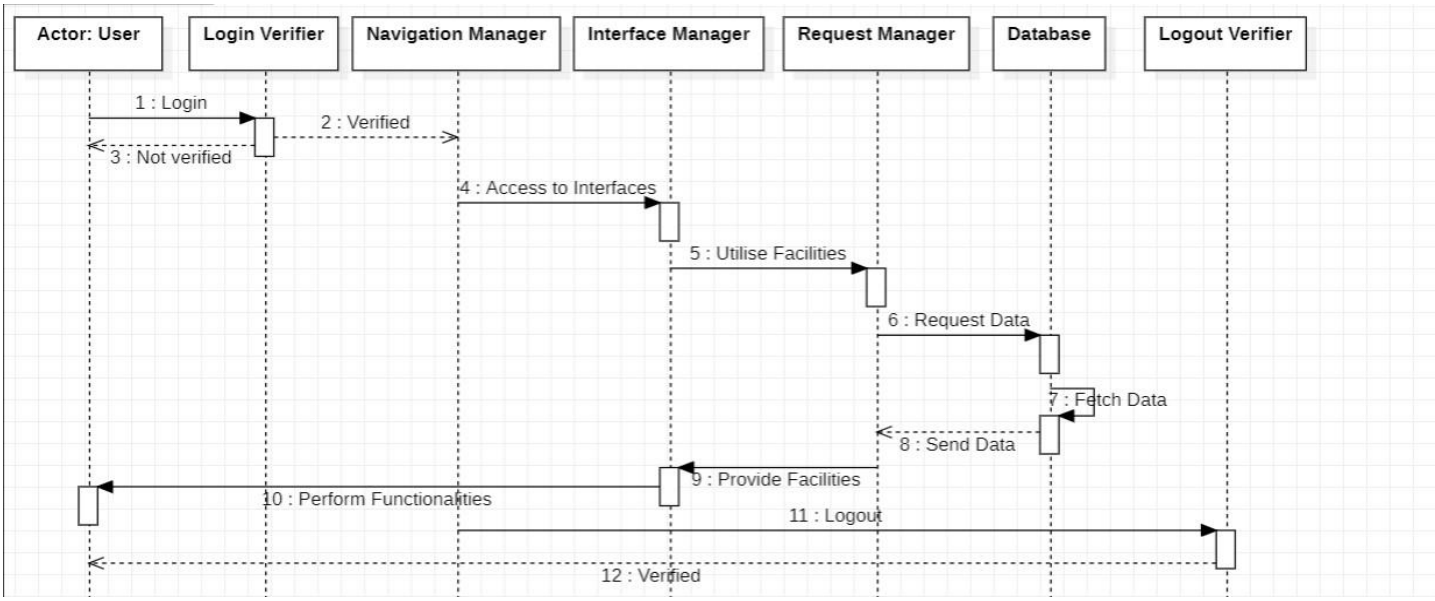

Figure 3.2(d) Sequence Diagram

Above sequence diagram for the system put forward represents the steps and sequence of processes involved and the corresponding order in which they should be carried out in order fulfil the tasks and functionalities that have been mentioned. The starting point here is the user and could be any individual trying to access the features and thus the need to validate and check their credentials arises. Once the validation is successful, next order will be followed. If not, the process stops right there. Post successful verification, user can navigate through the numerous interfaces the system will have and can explore all aspects and use/utilise the functionalities. This sequence of events will involve navigation managing, interface managing, request manager for access to data for further operations such as voting and viewing committee events etc. The labelled, directed arrows throughout enlist the activities that will happen in an if-else manner, the end point being the logout option to exit the system.

3.3 System Design

In our system, database connectivity and backend development will be playing an important role in the primary design. Some amount of frontend development with good GUI interfacing will be required for the interactive web-pages. Our system design will thus involve mostly dynamic pages along with some interactive widgets such as feedback button and trip feedback parameters. All of these features will provide for the system design to be unique and give the system an altogether varied interface for the end user.

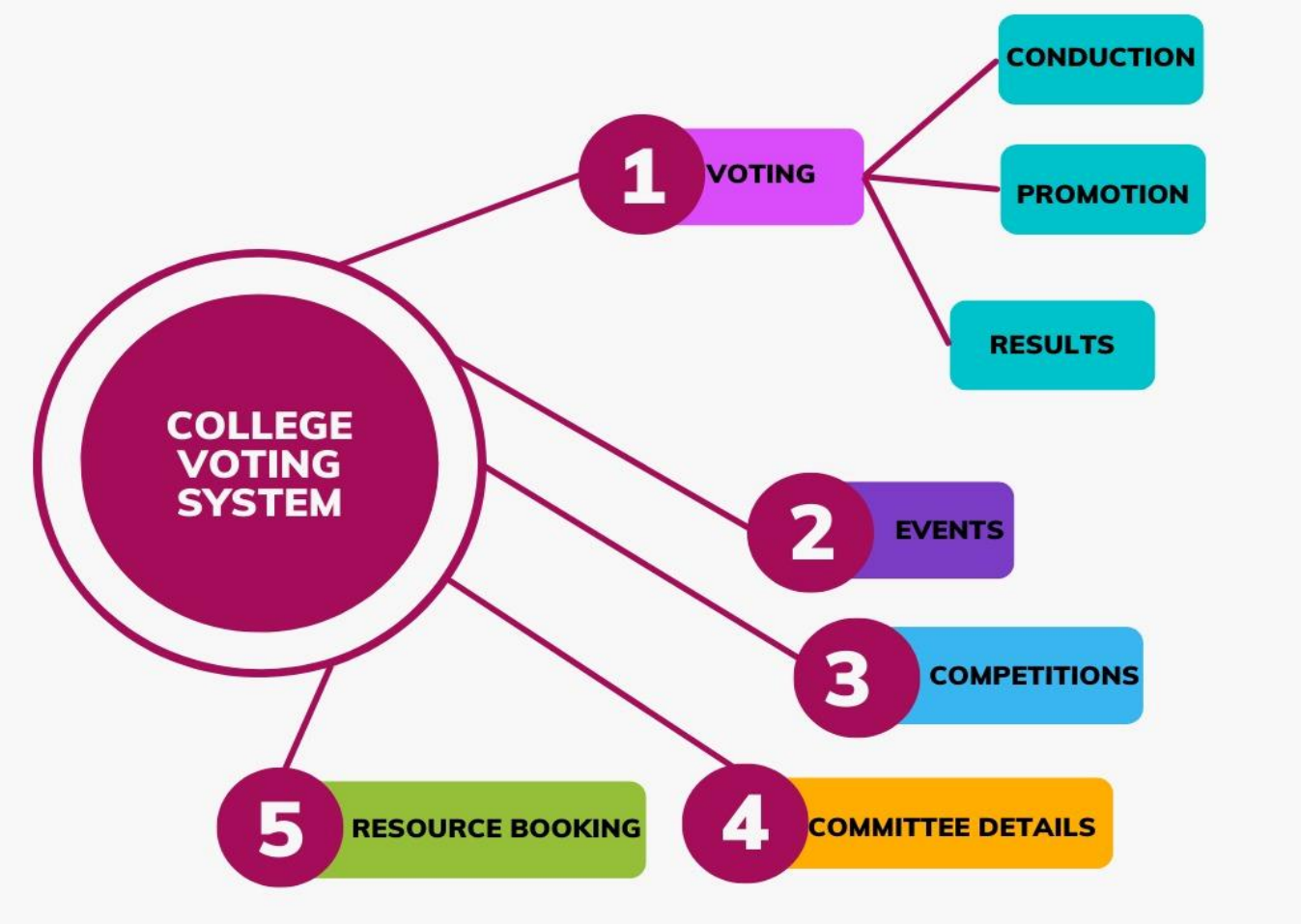

Figure 3.2 (a) Features of Proposed System

DESCRIPTION OF ALGORITHM

- STEP 1: Open website homepage.
- STEP 2: Access menu and determine your choice.
- STEP 3: Enter user credentials for logging in.
- STEP 4: Choose the functionality you want to access and utilise.
- STEP 5: Upon performing desired actions and updating information the user can choose to leave by logging out.
- STEP 6: For first time users, the option to request for account option will be provided.

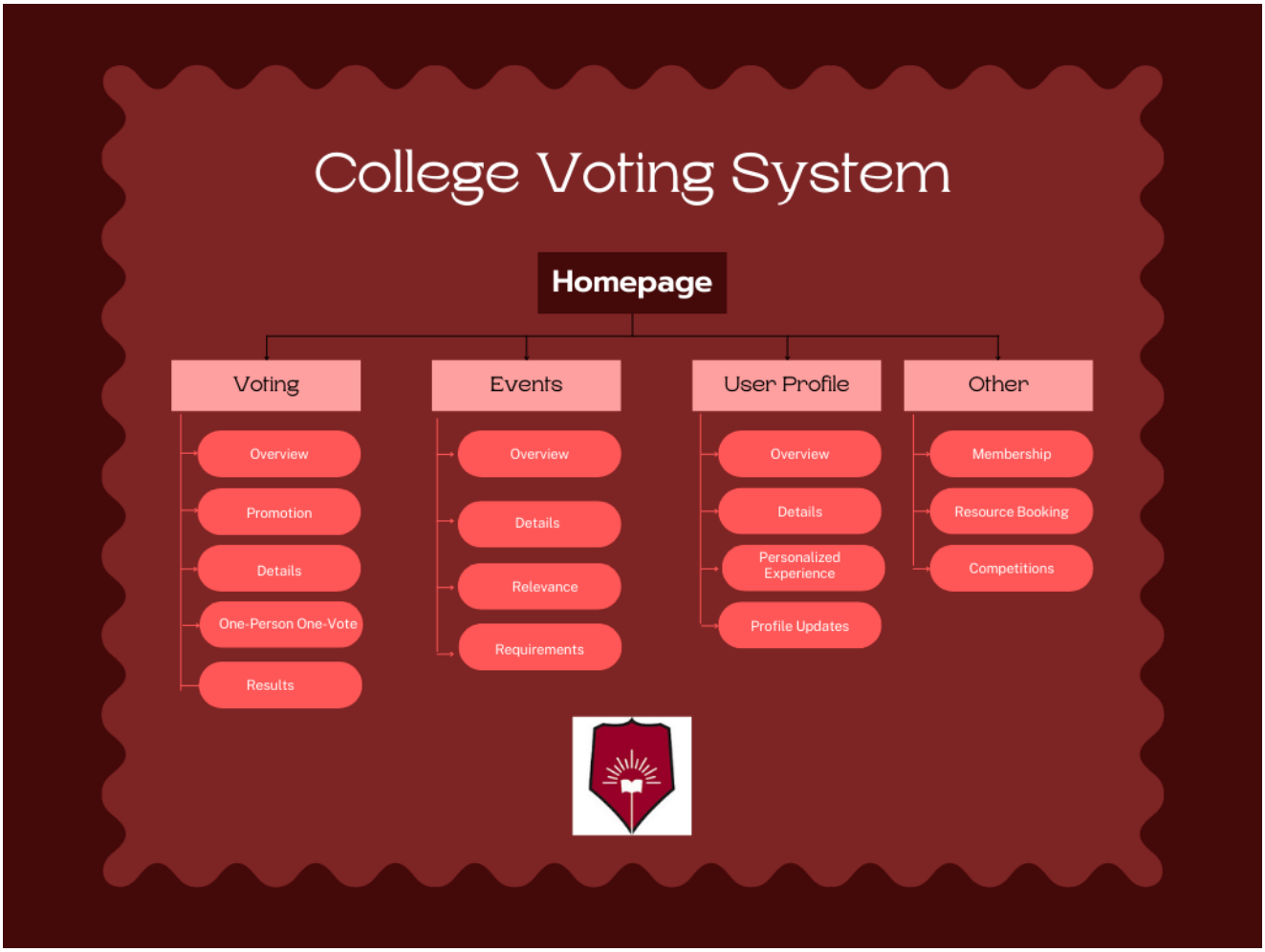

Figure 3.3(b) Flowchart and Structure for Proposed System

3.4 Details of Hardware and Software Requirements

The technologies which will be used by us during the course of the development of this application will be:

1. HTML
2. CSS
3. JavaScript
4. PHP
5. XAMPP
6. MySQL
7. Bootstrap

Hardware used in the procedure of creating the application:

1. Microsoft Windows 7/8/10 (32 or 64 bit)
2. 2 GB RAM minimum, 8 GB recommended
3. 2 GB of available disk space minimum, 4 GB recommended
4. 1280 x 800 minimum screen resolution

Chapter 4
Results and Discussion

Home Page

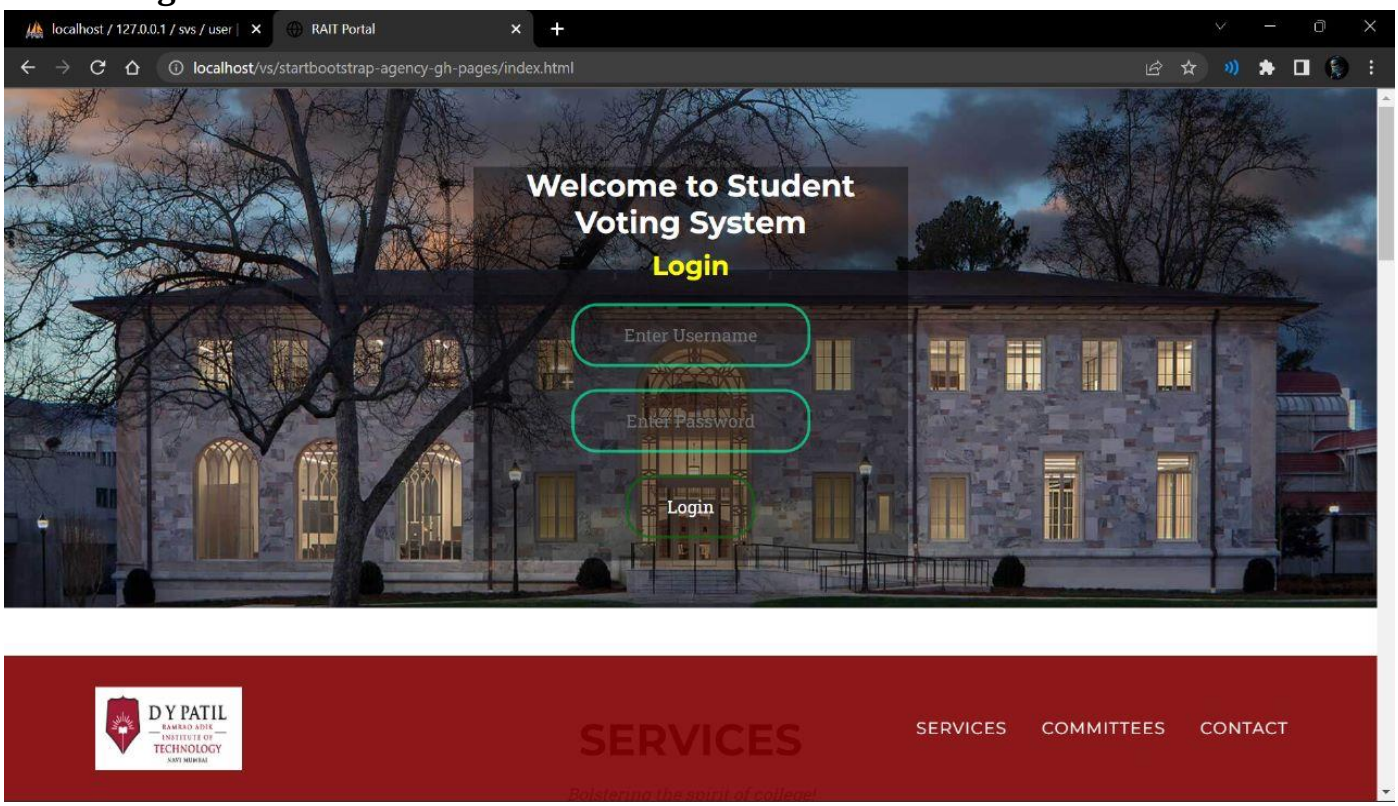

Figure 4.3(a) Home Page

The home page will be first screen when the website is searched up. It's the page through which the user can navigate to other pages (i.e., signup, login, contact us) and acts as a navigation map through the website functionalities we have a navbar which contains the fields such as committees, events and elections. From here, the user will be able to access the committees to view the committee details. The user will be able to access the events details by clicking on the events icon on the navbar. The user will also be able to access the election main page to view ongoing elections as well as view results of previous elections.

Committees Page

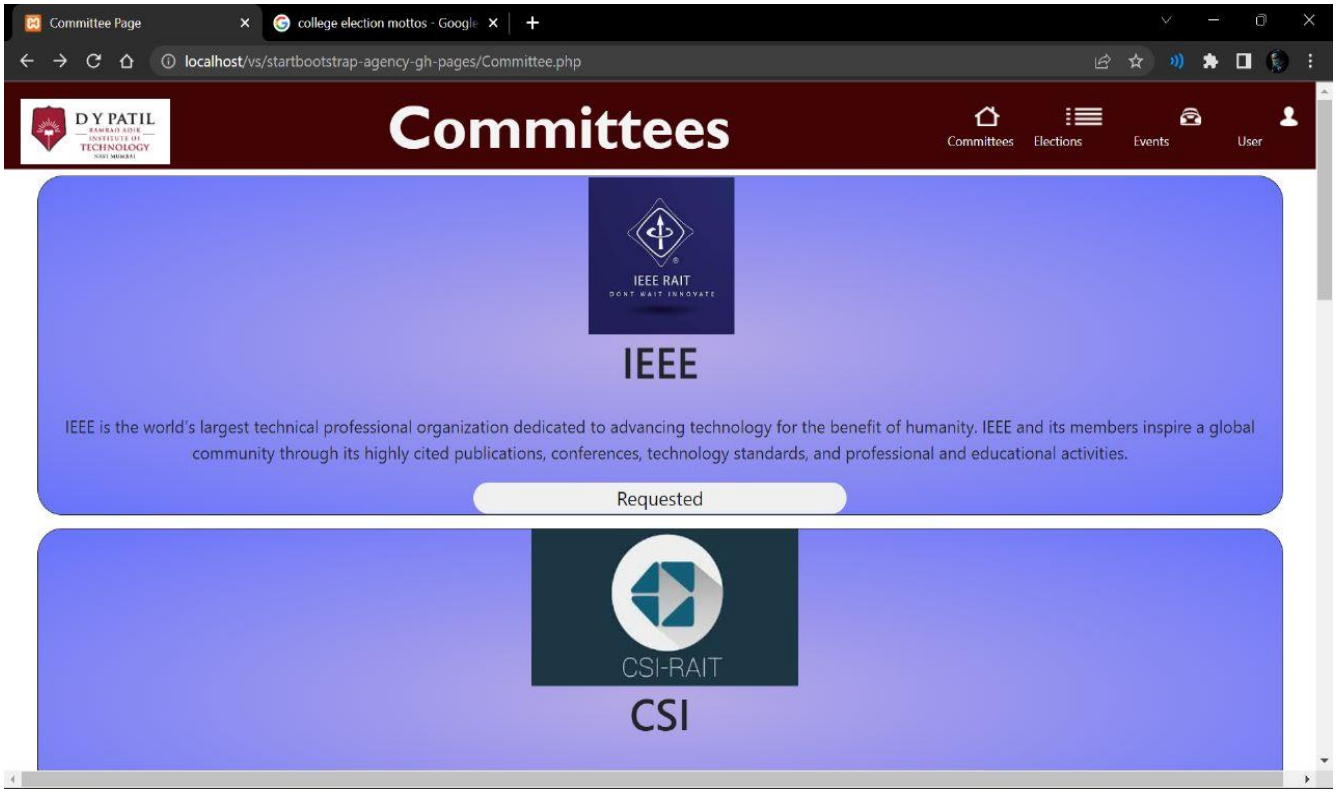

Figure 4.3(b) Committee Page

The committee navigation page will be useful for the user to navigate through different committees and their details and select the type of committee they would like to enrol in. From here, the user will be able to access the committees to view the committee details such as their events and other details. The user will be able to access the details button of each committee listed in the university to also be redirected to their official sites. The user will also be able to access the enrolment facility to request membership for any particular committee they have not registered previously.

Election Page

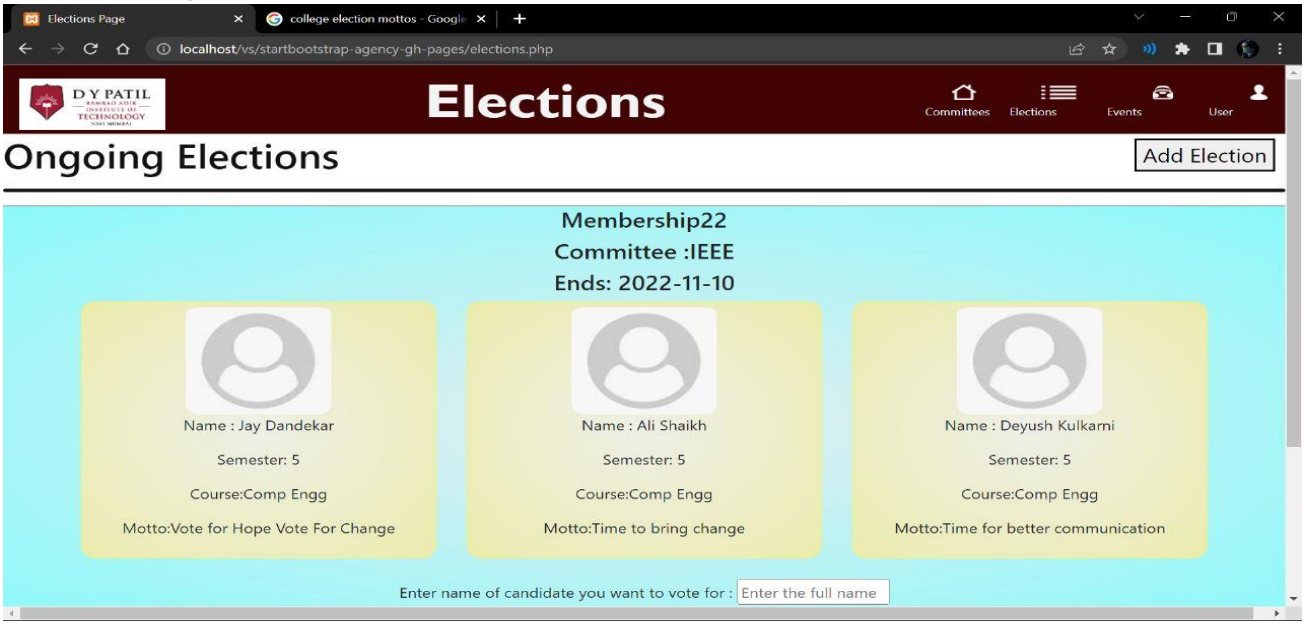

Figure 4.3(c) Election Page

The election page will be useful for the voters to view their candidates' relative details and vote for their desired candidate. Also, details regarding the election such election deadlines as well as committees is provided. The election page enables one-vote only policy thus reducing nefarious activities in voting. From here, the user will be able to access the results of previous elections. The user will be able to access the details of different candidates of each committee listed in the university. The user will also be able to access the election processes thus ensuring an automated process thus eliminating the requirement of other resources and wastage.

Events Page

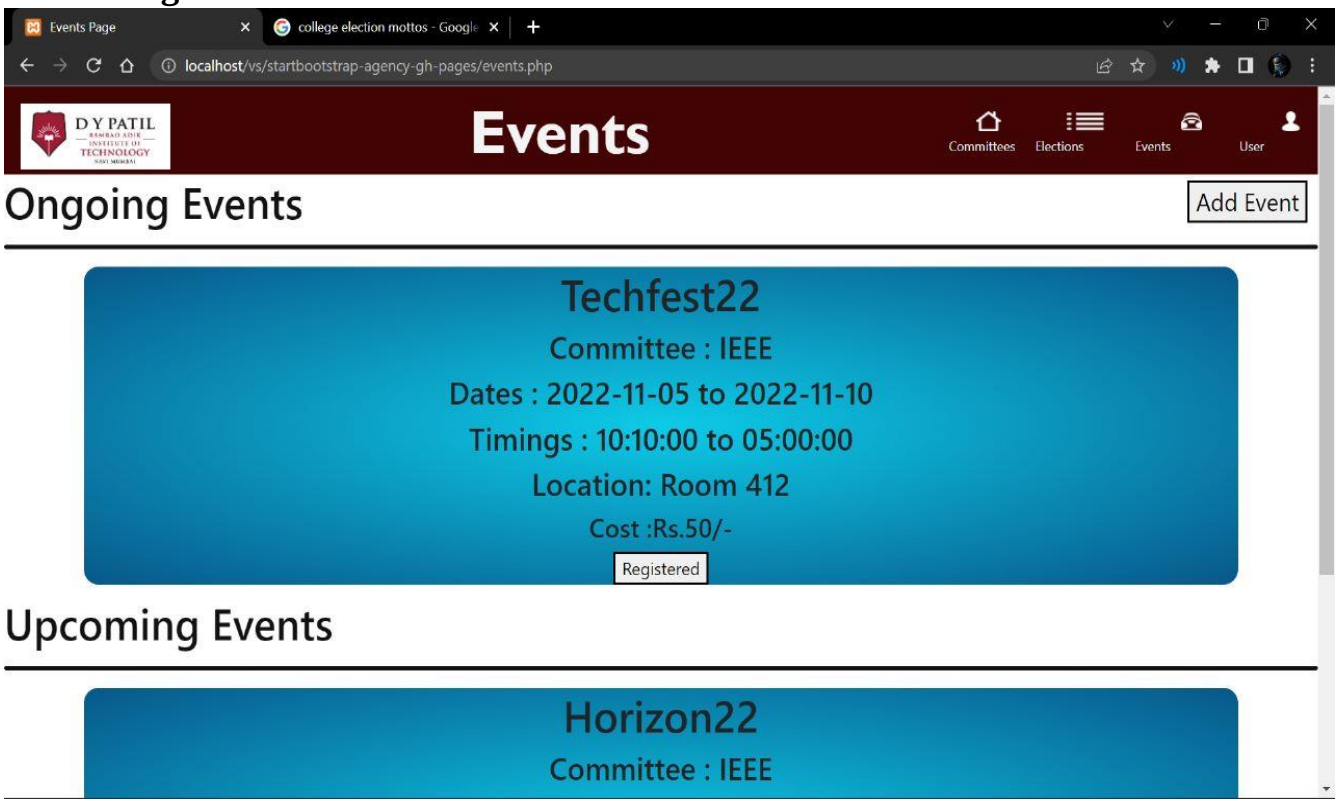

Figure 4.3(d) Events Page

This page allows any committee to enrol their events, promote their events and display relevant details to the interested students using the services provided by the site. The students who are interested can register and view which events they have registered for. From here, the user will be able to access the events of different committees. The user will be able to access the details of upcoming events as well as ongoing events as well as completed events. The user will also be able to access the details such as cost pricing, location and dates and other such details.

Profile Page for Students

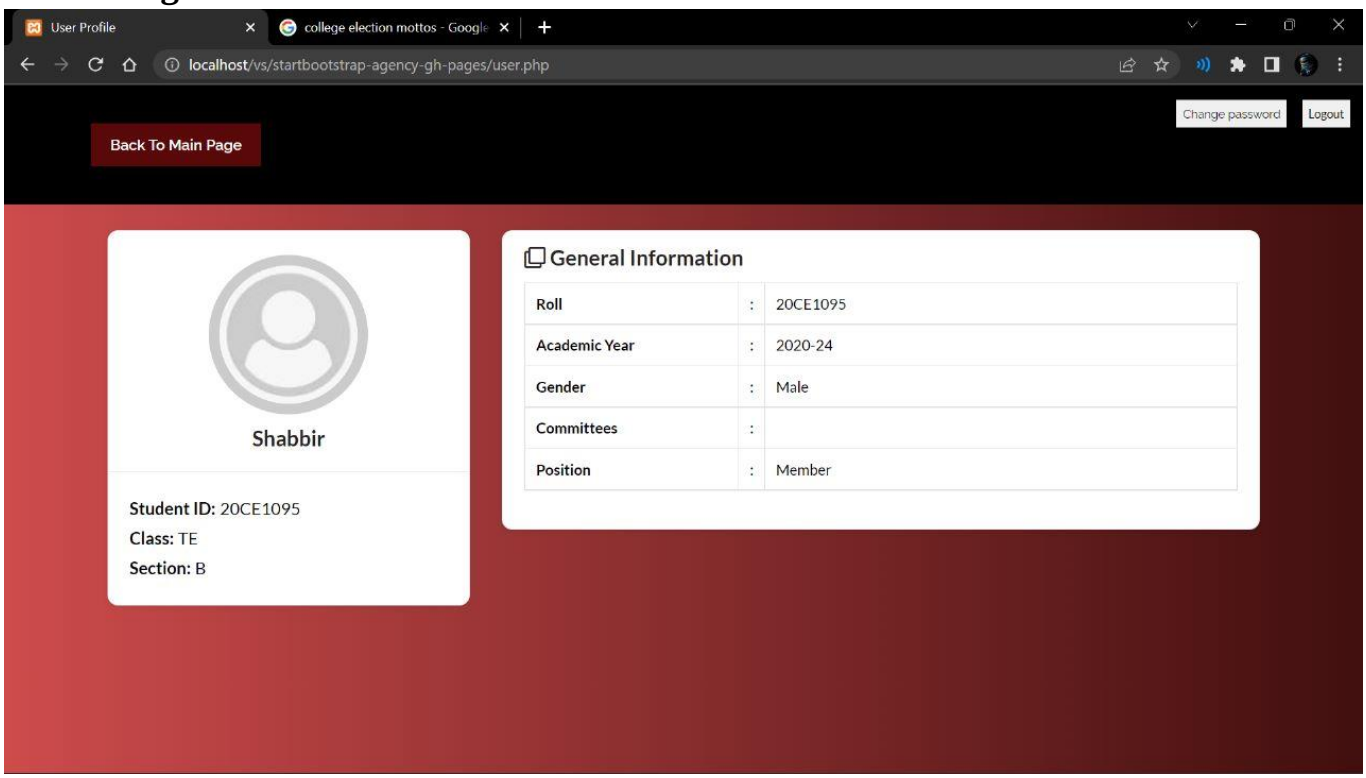

Figure 4.3(e) Profile Page for Students

This page allows the students to view their profiles and view their details such as list of enrolled committees and henceforth. From here, the user will be able to access their profile details which will be dynamically unique to every student user. The student will be also able to upload their identification image as well as update their details.

Profile Page for Committees

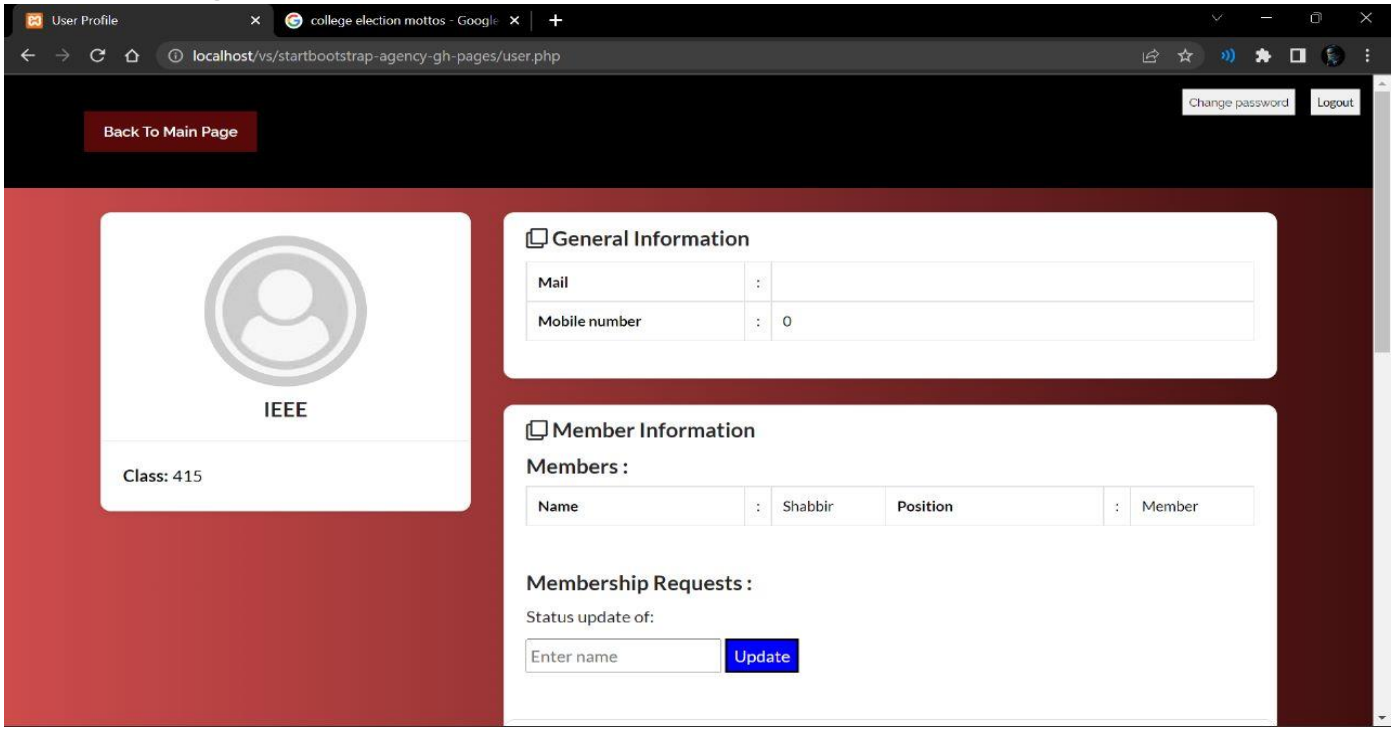

Figure 4.3(f) Profile Page for Committee

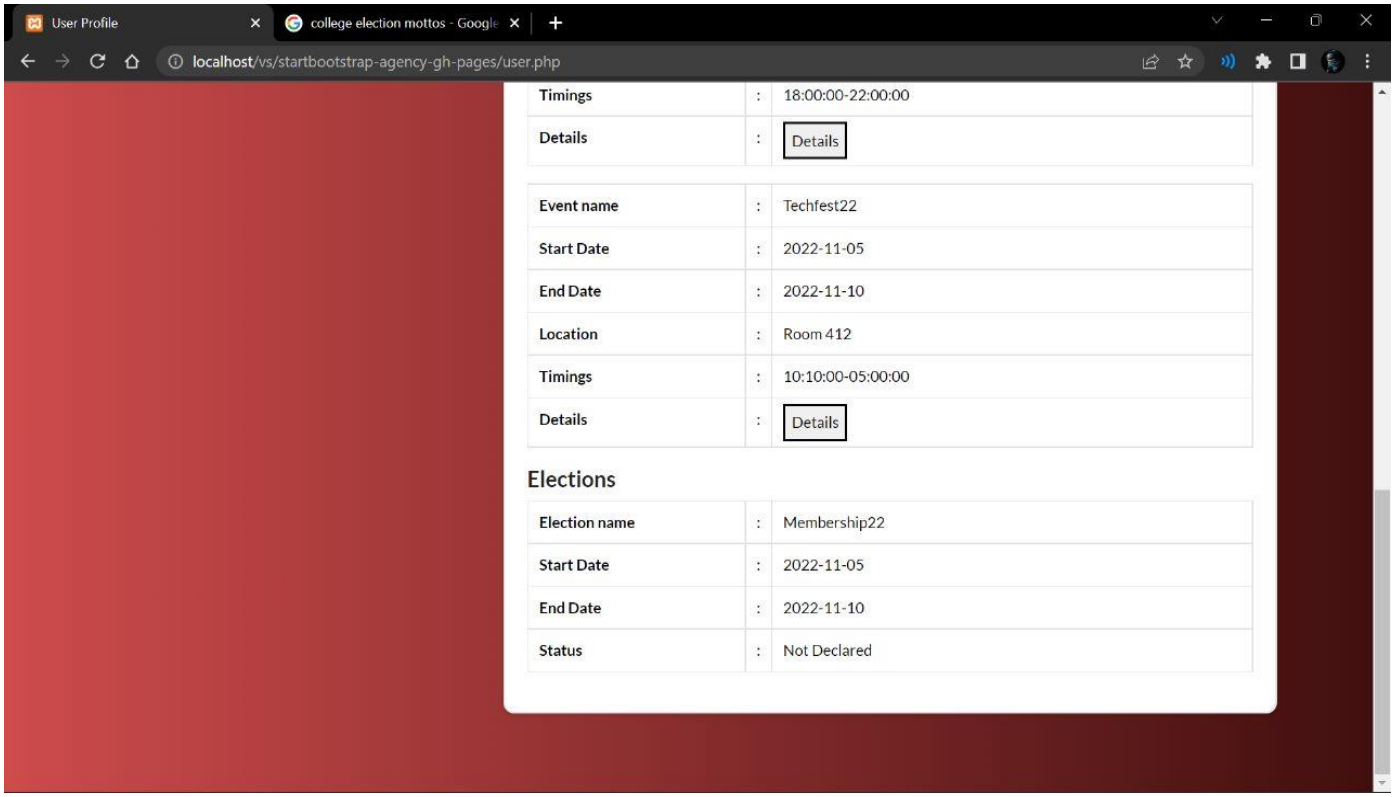

Figure 4.3(g) Profile Page for Committee

This page allows the committees to view their profiles and view their details such as list of enrolled events and update the members list by accepting or rejecting membership requests from students. From here, the committee admin will be able to access their event details which will be dynamically unique to every committee. The committee admin will be also able to update their election details such as status. The committee admin will be able to manage most of the functionalities and responsibilities of the committees eliminating the need of relying on external obsolete means of resources.

Profile Page for Admin

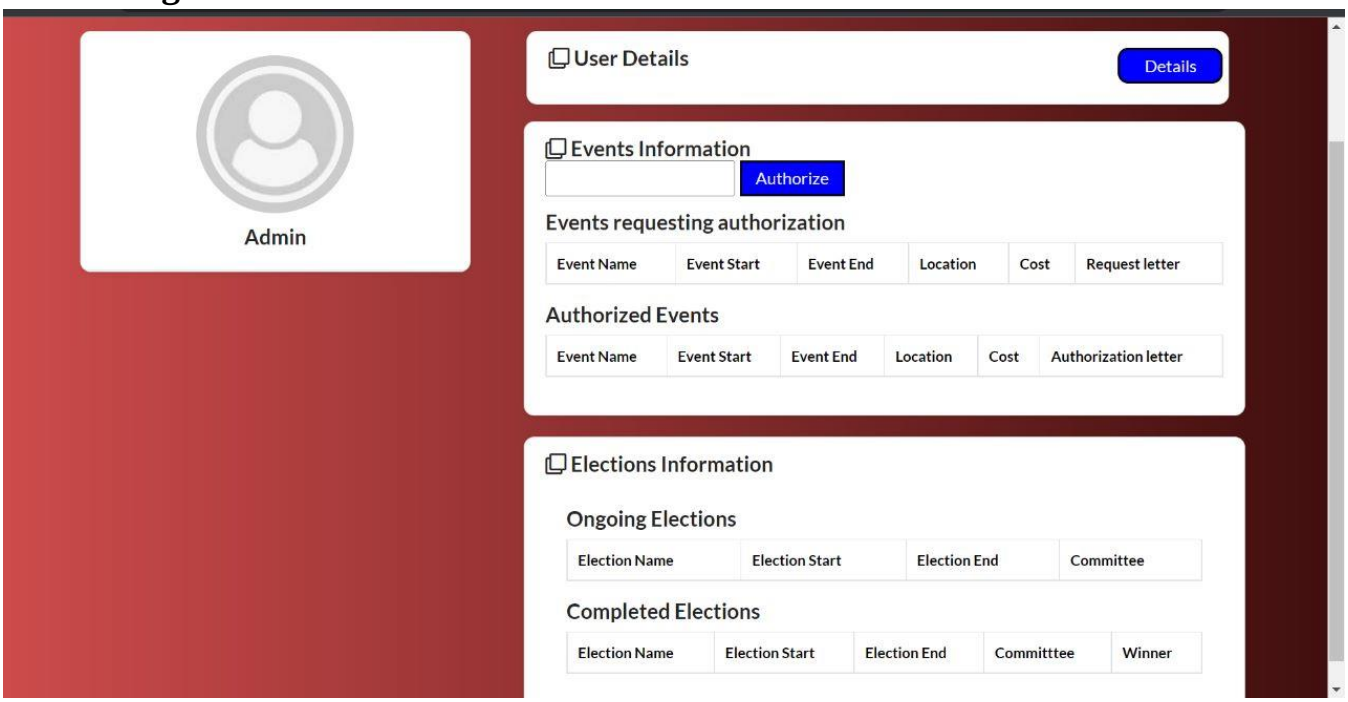

Figure 4.3(h) Profile Page for Admin

This page allows the administration to view their profiles and view their details such as list of enrolled events, manage elections information as well as user details. From here, the admin will be able to access their event details which will be categorized into authorized events and requested events. The admin will be also able to update their election details such as status and manage statuses such as ongoing or completed. The admin will be able view user details and will be granted exclusive authority to manage all the aspects of the system.

Chapter 5
Conclusion and Future Work

In conclusion, our team feels that this is a project worth doing as it will help eliminate most of the problems faced by the college voting systems and help creating altogether different dynamic to the existing systems present in the modern times. The different features provided by our application will help to create a system that enforces restrained as well as interactive college voting facilities. This project aims to eliminate problems faced by the current voting systems in educational facilities and increase efficiency. The functionalities in this application are to create a system that enforces simple and interactive college voting facilities.

This project aims to eliminate problems faced by most college voting processes and reduce redundancy and obsolete functioning. It aims to give the college or university an over viewing authority to manage different aspects of different chapters. Different events as well as seminars and workshops will be displayed in one space thus enabling one-space news portal regarding chapter activities acting as an one-stop destination system for all chapters and committee's activities.

Future Scope:

- Competitions
- Resource Booking

Chapter 6
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   University of Calabar

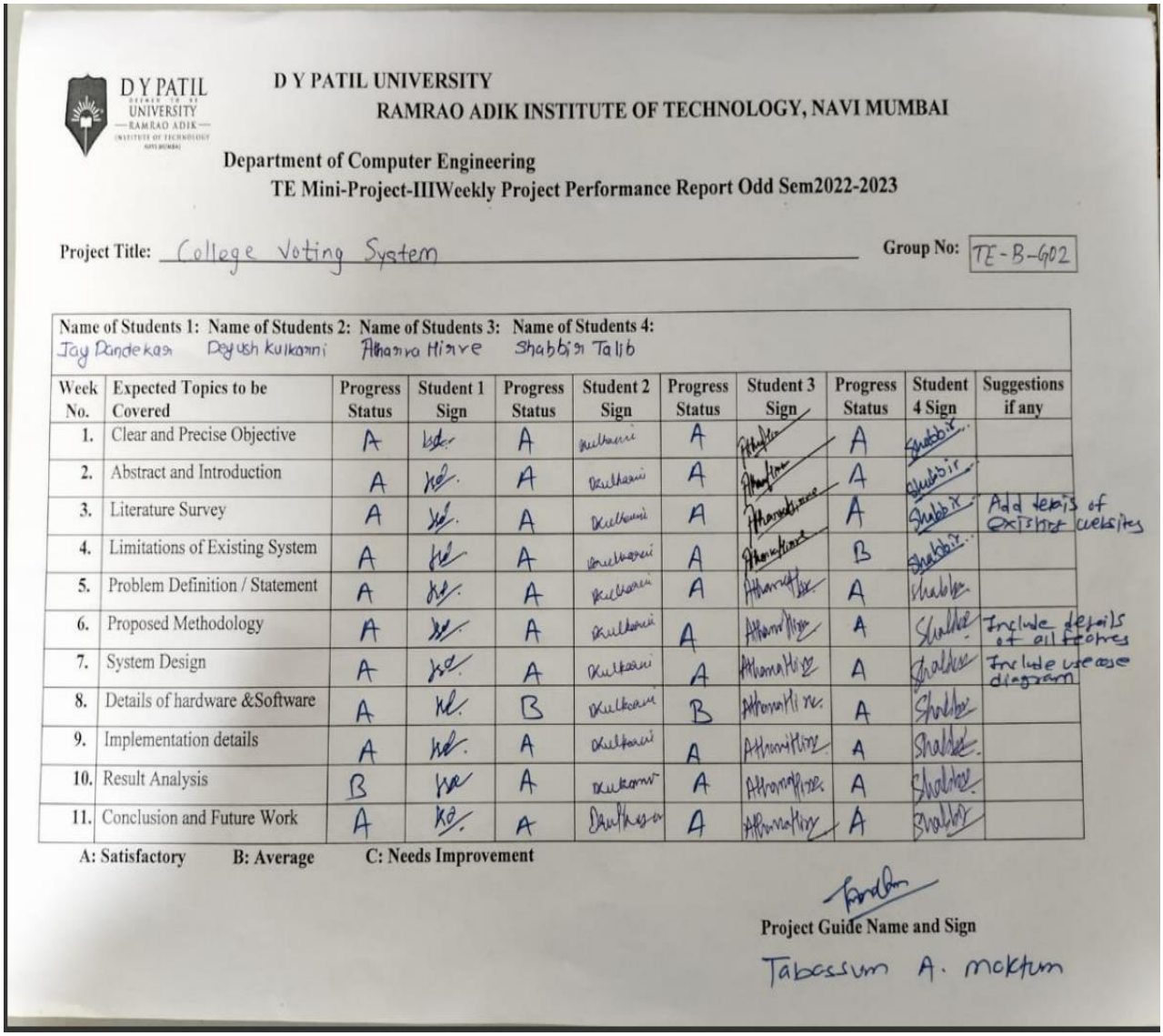
Chapter 7
Appendices

7.1 Weekly Progress Report

TE Project Weekly Project Performance Report Odd Sem 2022-2023

Project Title: College Voting System

Group No: TE-B-G02



D Y PATIL UNIVERSITY
RAMRAO ADIK INSTITUTE OF TECHNOLOGY, NAVI MUMBAI

Department of Computer Engineering
TE Mini-Project-IIIWeekly Project Performance Report Odd Sem2022-2023

Project Title: College Voting System Group No: TE-B-G02

Name of Students 1: Jay Pandekar Name of Students 2: Dayush Kulkarni Name of Students 3: Atharva Hirve Name of Students 4: Shabbir Talib

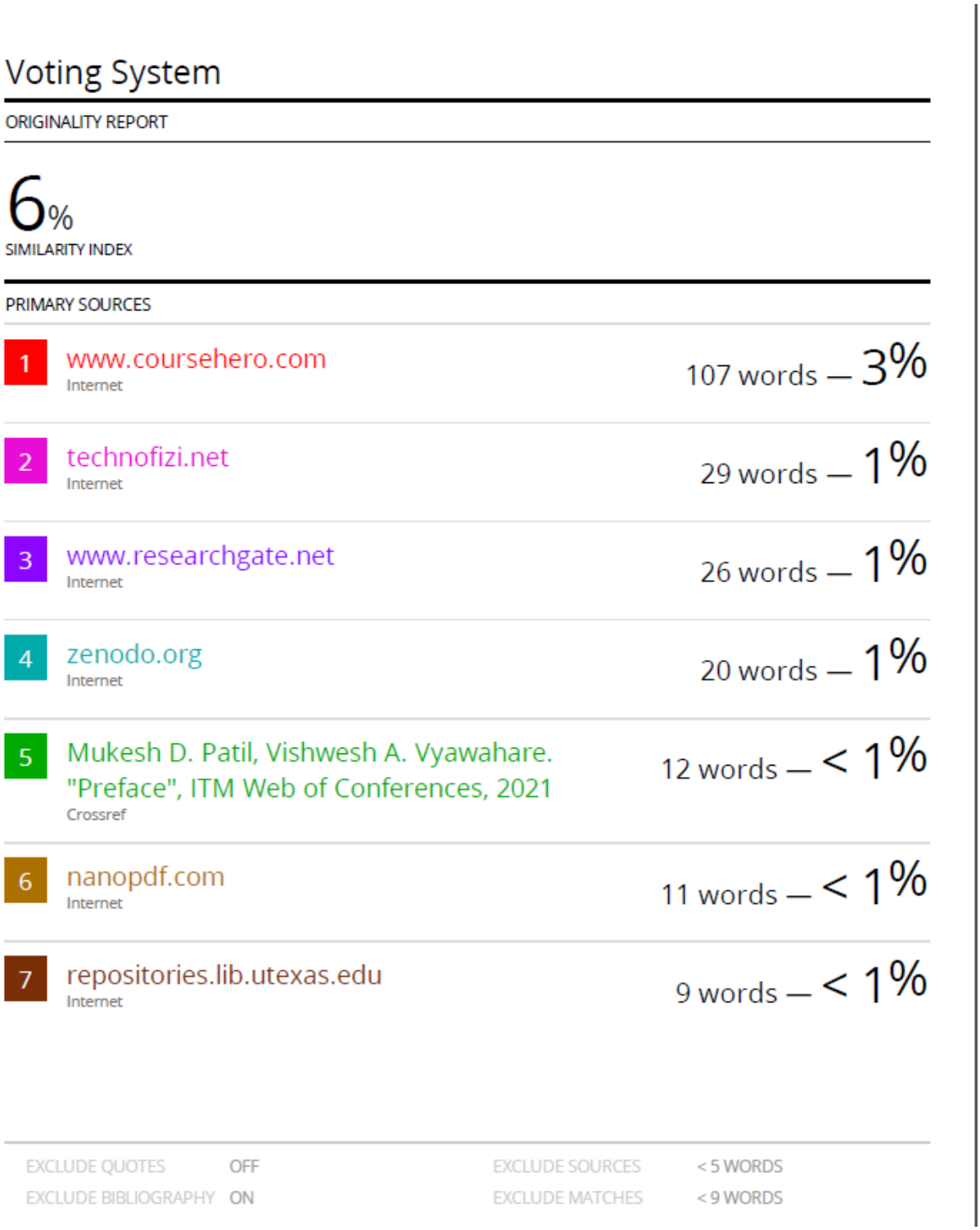
Week No.	Expected Topics to be Covered	Progress Status	Student 1 Sign	Progress Status	Student 2 Sign	Progress Status	Student 3 Sign	Progress Status	Student 4 Sign	Suggestions if any
1.	Clear and Precise Objective	A		A		A		A		
2.	Abstract and Introduction	A		A		A		A		
3.	Literature Survey	A		A		A		A		Add details of existing websites
4.	Limitations of Existing System	A		A		A		B		
5.	Problem Definition / Statement	A		A		A		A		
6.	Proposed Methodology	A		A		A		A		Include details of all figures
7.	System Design	A		A		A		A		Include use case diagram
8.	Details of hardware &Software	A		B		B		A		
9.	Implementation details	A		A		A		A		
10.	Result Analysis	B		A		A		A		
11.	Conclusion and Future Work	A		A		A		A		

A: Satisfactory B: Average C: Needs Improvement

Project Guide Name and Sign

Tabassum A. Maktum

7.2 Plagiarism Report



Voting System

ORIGINALITY REPORT

6%
SIMILARITY INDEX

PRIMARY SOURCES

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4	zenodo.org Internet	20 words — 1%
5	Mukesh D. Patil, Vishwesh A. Vyawahare. "Preface", ITM Web of Conferences, 2021 Crossref	12 words — < 1%
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Acknowledgement

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Mr. Shabbir Talib
Mr. Jay Dandekar
Mr. Deyush Kulkarni
Mr. Atharva Hirve