VOTING SYSTEM USING BIOMETRIC/BARCODE

UCS503 Software Engineering Project Report

Mid-Semester Evaluation

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1.Project Selection Phase

1.1 Software Bid

https://docs.google.com/document/d/1dNQ1HvhORMGqxwwGHZz_uQFHkzSL952K/edit?usp=drivesdk&ouid=106564301633396223246&rtpof=true&sd=true

1.2 Project Overview

Voting system using fingerprint/barcode Project is a application where the user is recognized by his finger pattern and barcode. Since the finger pattern of each human being is different, the voter can be easily authenticated. The system allows the voter to vote through his fingerprint and id card. Fingerprint is used to uniquely identify the user. The finger print minutiae features are different for each human being. Finger print is used as a authentication of the voters. Voter can vote the candidate only once, the system will not allow the candidate to vote for the second time. The system will allow admin to add the candidate name and candidate photo who are nominated for the election. Admin only has the right to add candidate name who are nominated. Admin will register the voter's name by verifying voters. Admin will authenticate the user by verifying the user's identity proof and then admin will register the voter. The number of candidate added to the system by the admin will be automatically deleted after the completion of the election. Admin has to add the date when the election going to end. Once the user has got the user id and password from the admin the user can login and vote for the candidate who are nominated. The system will allow the user to vote for only one candidate. The system will allow the user to vote for one time for a particular election. Admin can add any number of candidates when the new election will be announced. Admin can view the election result by using the election id. Even user can view the election result.

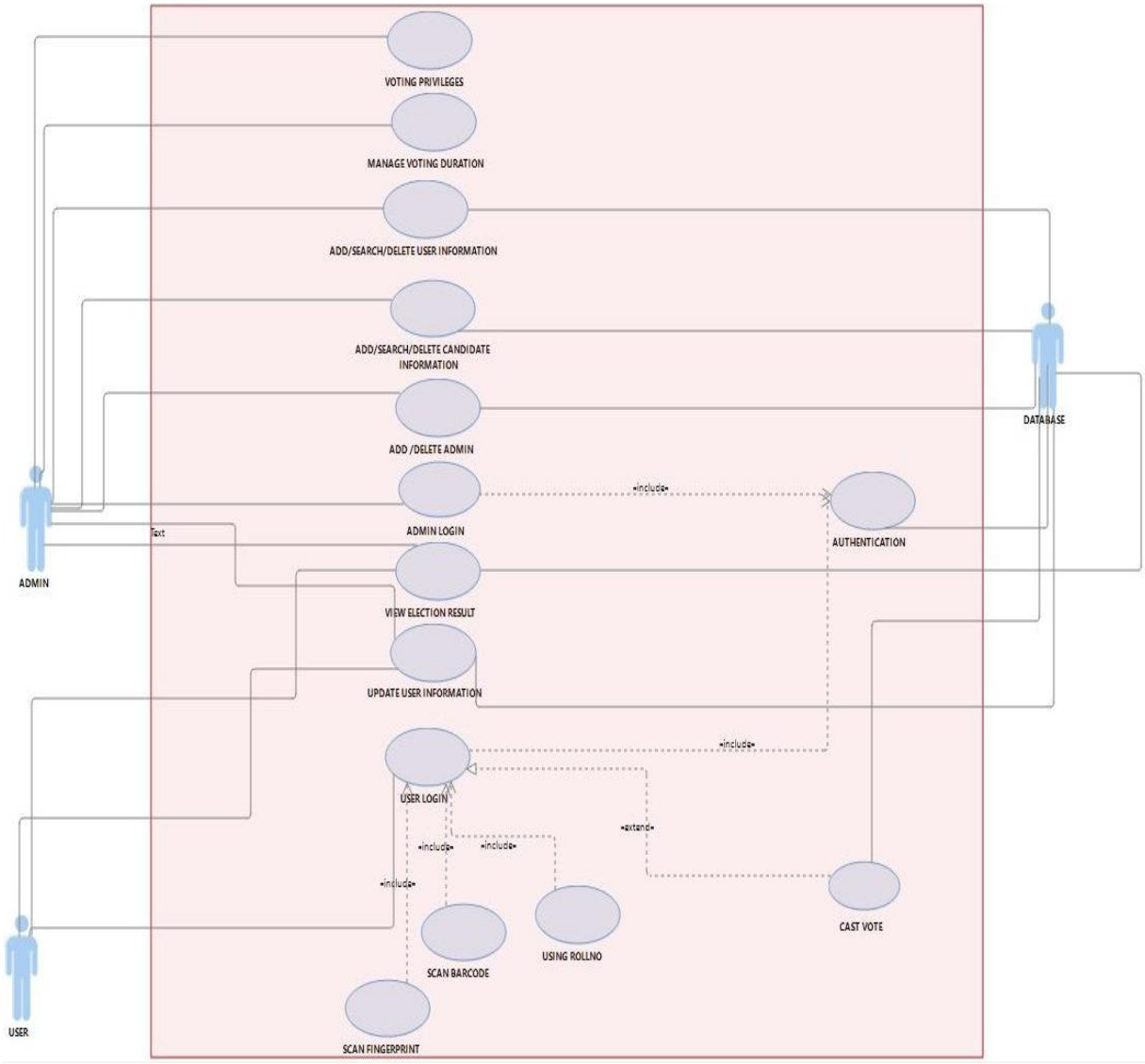
2. Analysis Phase

2.1.Use Cases

- **Login:** This module enables the user to log in to the system by scanning fingerprint/scanning barcode on user id and entering password/ entering user information and password. Admin is allowed to enter the system by entering admin id and password.
- **Registration:** In this module the admin will verify the user and register the user who will vote.
- Fingerprint Verification: - The authenticated user can vote for the candidate for one time for a particular election.
- **New Candidate:** Admin will add the number of candidates nominated for Election whenever new election is announced.
- **Result:** Admin and user can view the election result by using the election id once the election results are out.
- **Identify and authenticate card:** It must be able to authenticate the card user by matching the ID no. and the access code (which in turn may be generated using some cryptographic algorithm) against the values stored in the database.
- **View Status:** This module enables the user and admin to view the status of election.
- **User information updation :** If the user want any updation in his data then Admin has the access to update it. User can only request information updation.

2.1.1.Use Case Diagram

A use case diagram summarizes some of the relationships between use cases, actors and systems. They represent the set of actions, services, and functions that the system needs to perform. Use case diagrams are valuable for visualizing the functional requirements of a system that will translate into design choices and development priorities. As shown in the use case diagram below , the user of the user and admin will be our actor. The diagram shows all the relationships and dependencies between various processes.



USE CASE DIAGRAM

2.1.2 Use Case Templates

Table 1: Use Case Table for Registration:

1. Use Case Title	Registration
2. Abbreviated Title	Registration
3. Use Case Id	1
4. Actors	User
5. Description Through this Registration button the user can REGISTER Themselves into the system and can generate their own login id and Password.	
5.1. Pre-Conditions: USER must be the student of the institute or the admin and must have the unique id.	
5.2. Task Sequence: 1. Click on register button 2. Fill out the required information. 3. On clicking the Register Button, the USER will be moved on to the dashboard screen.	
5.3. Post Conditions: 1. User can vote their respective candidate 2. User can update its information	
6. Modification History: NONE	
7. Author: EKTA RAI	

Normal Scenario for Registration:

1.(SR) The web app will ask USER to “GET STARTED”.
2.(SR)The web app will direct user to registration page.
3.(AA) User will enter required details.
4.(AA) User clicks on register button.
5.(SR) The web app will direct user to dashboard screen.

Table 2: Use Case Table for Login Through biometric:

1. Use Case Title	Login through biometric
2. Abbreviated Title	Login through biometric
3. Use Case Id	2
4. Actors	User
5. Description By clicking the login button opens a login window in which a user scan their biometric	
5.1. Pre-Conditions: USER must be the student of the institute or the admin and must have the unique id.	
5.2. Task Sequence: 1. Click on Login button . 2. User need to scan thier biometric which he/she has entered while registering into the system. 3. On clicking the Login Button, the USER will be moved on to the dashboard screen.	
5.3. Post Conditions: 1.User can vote their respective candidate 2.User can update its information	
6. Modification History: NONE	
7. Author: BHAVIKA GOEL	

Normal Scenario for Login:

1.(SR) The web app will ask USER to “LOGIN”.
2.(SR) User will scan its card and clicks on LOGIN BUTTON.
3.(SR) The web app will direct user to dashboard screen.
ALTERNATE FLOW: -
3(SA) If mail or password doesn’t match, the user will be asked to enter valid id or password.

Table 3: Use Case Table for Login through fingerprint:

1.Use Case Title	Login through fingerprint
2.Abbreviated Title	Login through fingerprint
3.Use Case Id	3
4.Actors	User
5.Description By clicking the login button opens a login window in which a user scan their its fingerprint.	
5.1 Pre-Conditions: USER must be the student of the institute or the admin and must have the unique id.	
5.2. Task Sequence: 1.Click on Login button . 2.User need to scan their fingerprint which he/she has entered while registering into the system. 3.On clicking the Login Button, the USER will be moved on to the dashboard screen.	
5.3. Post Conditions: 1.User can vote their respective candidate 2.User can update its information	
6.Modification History: NONE	
7.Author: JASHANPREET	

Normal Scenario for Login:

1.(SR) The web app will ask USER to “LOGIN”.
2.(SR) User will scan their fingerprint and clicks on LOGIN BUTTON.
3.(SR) The web app will direct user to dashboard screen.
ALTERNATE FLOW: -
3(SA) If mail or password doesn’t match, the user will be asked to enter valid id or password.

Table 4: Use Case Table for Login Through manual entry :

1.Use Case Title	Login
2.Abbreviated Title	Login
3.Use Case Id	4
4.Actors	User,admin
5.Description By clicking the login button opens a login window using login id and password	
5.1 Pre-Conditions: USER must be the student of the institute or the admin and must have the unique id.	
5.2. Task Sequence: 4. Click on Login button . 5. User need to enter the email Id and password which he/she has entered while registering into the system. 6. On clicking the Login Button, the USER will be moved on to the dashboard screen.	
5.3. Post Conditions: 1.User can vote their respective candidate 2.User can update its information	
6.Modification History: NONE	
7.Author: HARSHILL	

Normal Scenario for Login:

1.(SR) The web app will ask USER to “LOGIN”.
2.(SR) User will enter the valid mail id, password and clicks on LOGIN BUTTON.
3.(SR) The web app will direct user to dashboard screen.
ALTERNATE FLOW: -
3(SA) If mail or password doesn’t match, the user will be asked to enter valid id or password.

Table 5: Use Case Table for Viewing Results:

1. Use Case Title	View Results
2. Abbreviated Title	View Results
3. Use Case Id	5
4. Actors	User, Admin
5. Description By clicking on the USERS TAB (i.e., in the left panel on the dashboard screen) will show Name and user_id of all the permissible user of the store.	
5.1. Pre-Conditions: USER must be logged in(session).	
5.2. Task Sequence: 1. Click on USERS TAB. 2. On clicking the USERS TAB, system will show all the winner.	
5.3. Post Conditions: 1. USER can add new user by clicking on new user button. 2. User can perform some actions on other users like edit or delete their details.	
6. 6. Modification History: NONE	
7. 7. Author: EKTA RAI	

Normal Scenario for Viewing Registered Users:

1.(AA) User will click on “USERS TAB”.
2.(SR) The web app will show real time monitoring of winner.
3.(AA) User can edit or delete their details

Table 6: Use Case Table for Updating User information:

1. Use Case Title	Update student list
2. Abbreviated Title	Update student list
3. Use Case Id	6
4. Actors	User
5. Description :System offers the updation of user personal details in the database	
5.1. Pre-Conditions: USER must be logged in(session).	
5.2. Task Sequence: 1. Click on UPDATE TAB. 2. Fill the user form with all the necessary details. 3. Click on save button.	
5.3. Post Conditions: 1. USER can Edit or Delete entry by clicking on respective Edit/Delete button. 2. Database shall be updated.	
6. Modification History: NONE	
7. Author: EKTA RAI	

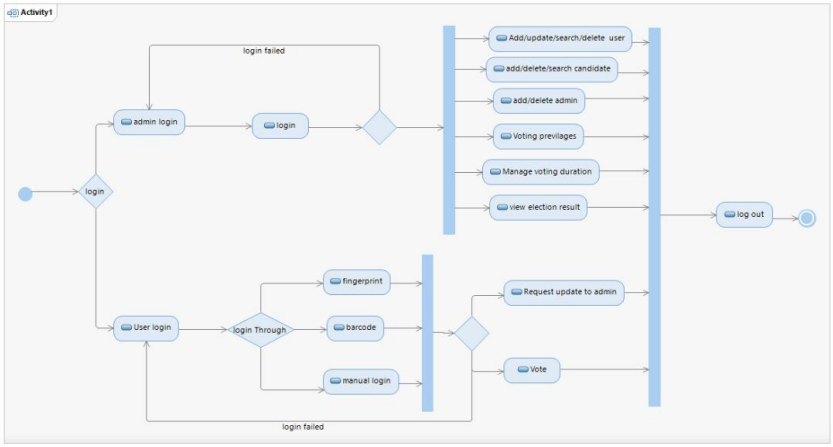
Normal Scenario for Updating User list:

1. (AA) The user will click on User tab.
2. (SR) The web application will show the form to add new user.
3. (AA) The user will fill the user details.
4. (AA) The user will click the save button

2.2Activity diagram and Swimlane Diagrams

Activity diagram

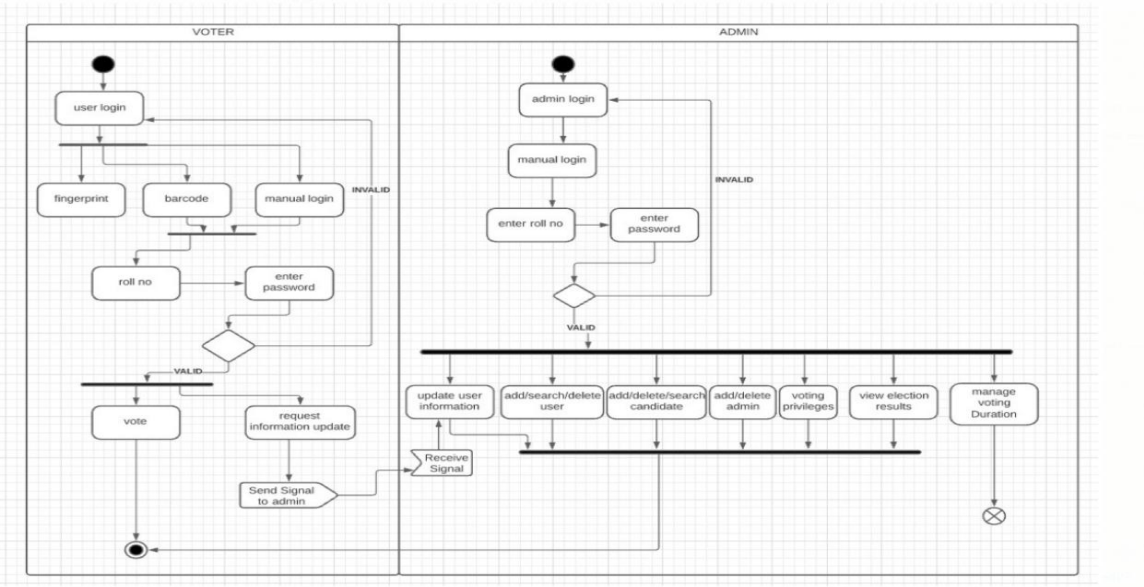
The main purpose of the activity diagram is to capture the dynamic behavior of the system. It shows the message flow from one activity to other. It is basically a flow chart to represent the flow from one activity to another. The main difference between a flow chart and a activity diagram is that the latter couldn't show parallelism between different activities



ACTIVITY DIAGRAM

Swimlane diagram

A swimlane diagram is a type of flowchart that delineates who does what in a process. It shows connections, communication and handoffs between these lanes, and it can serve to highlight waste, redundancy and inefficiency in a process



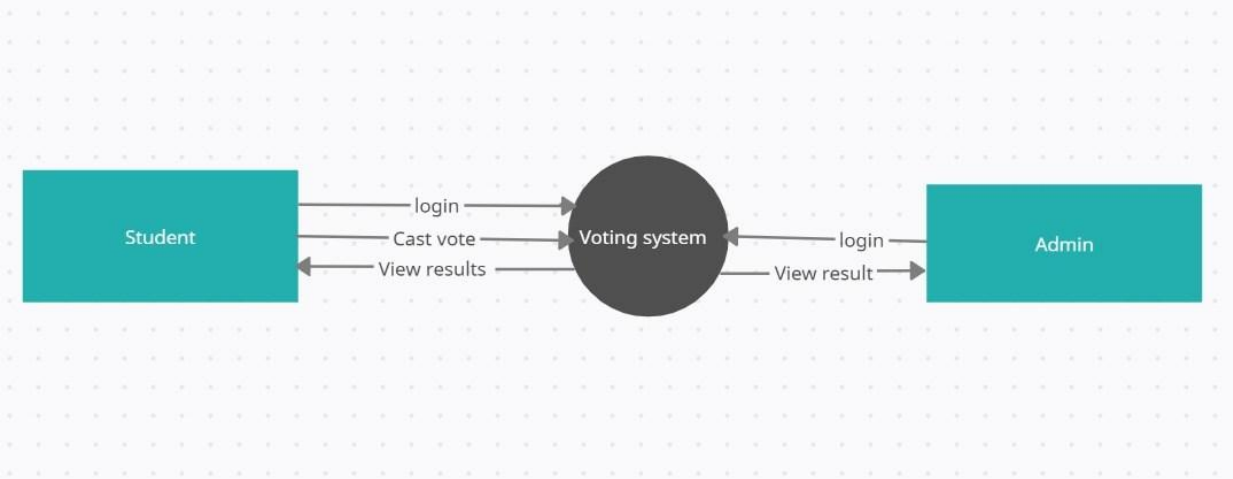
SWIMLANE DIAGRAM

2.3Data Flow Diagrams (DFDs)

The main purpose of data flow diagrams is to provide a graphical representation of how information moves between processes in a system. They are used for visualization of data processing and show what kind of information will be input and output from the system, where the data will come from and go to, and where the data will be stored. DFD can be drawn to represent the system of different levels of abstraction. Higher-level DFD are partitioned into low levels- showing more information and functional elements.

2.3.1. DFD 0

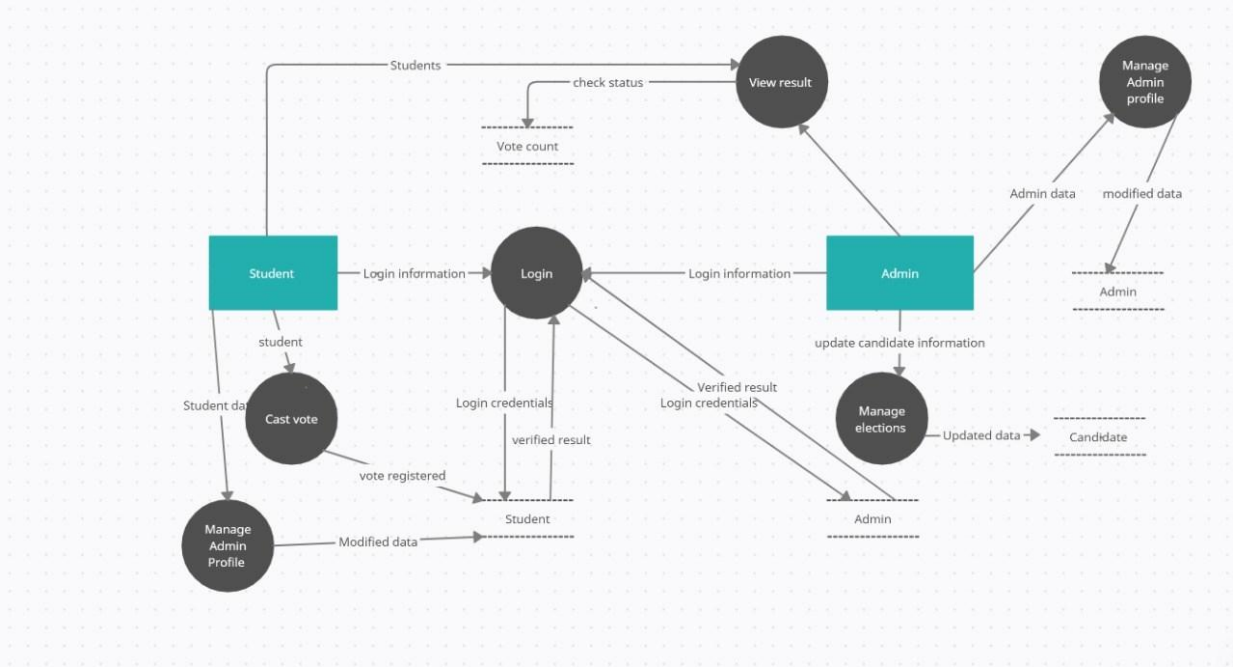
It is also known as a context diagram. It is designed to be an abstraction view, showing the system as a single process with its relationship with external entities.
Shows the zero level dfd of voting management system ,where we have elaborated the high level process of voting.It is a basic overview of the whole voting management system.



DFD-0

2.3.2. DFD1

In level-1 DFD the context diagram is decomposed into multiple bubbles/processes.
Shows the first level dfd of voting management system shows how the system is divided into subsystems,each of which deals with one or more of the data flows to or from an external agents,and which together provide all the functionality of system as whole



DFD -1

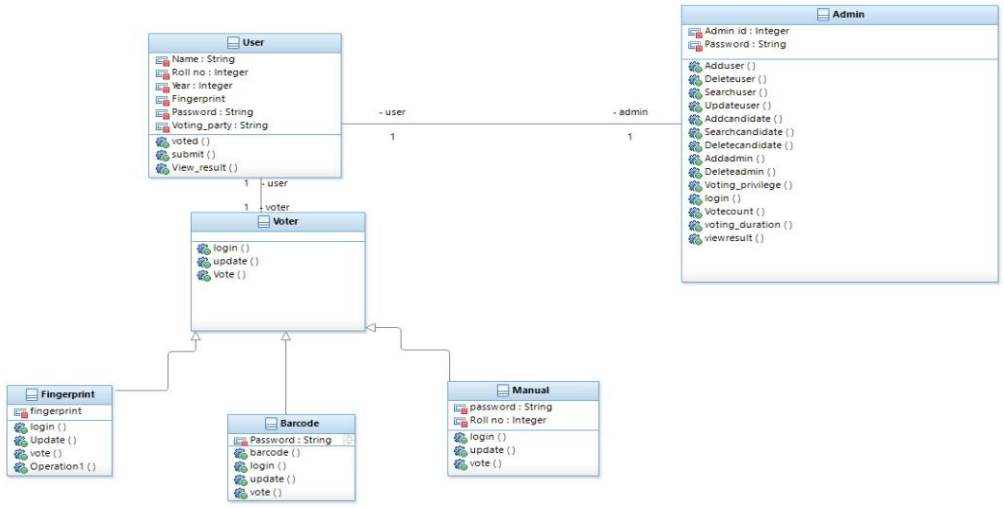
2.4 Software Requirement Specification (SRS)

https://drive.google.com/file/d/1dZdk38LhlCGeUT0r99DAKitWVabsJyLB/view?usp=drivesdk

3.Design Phase

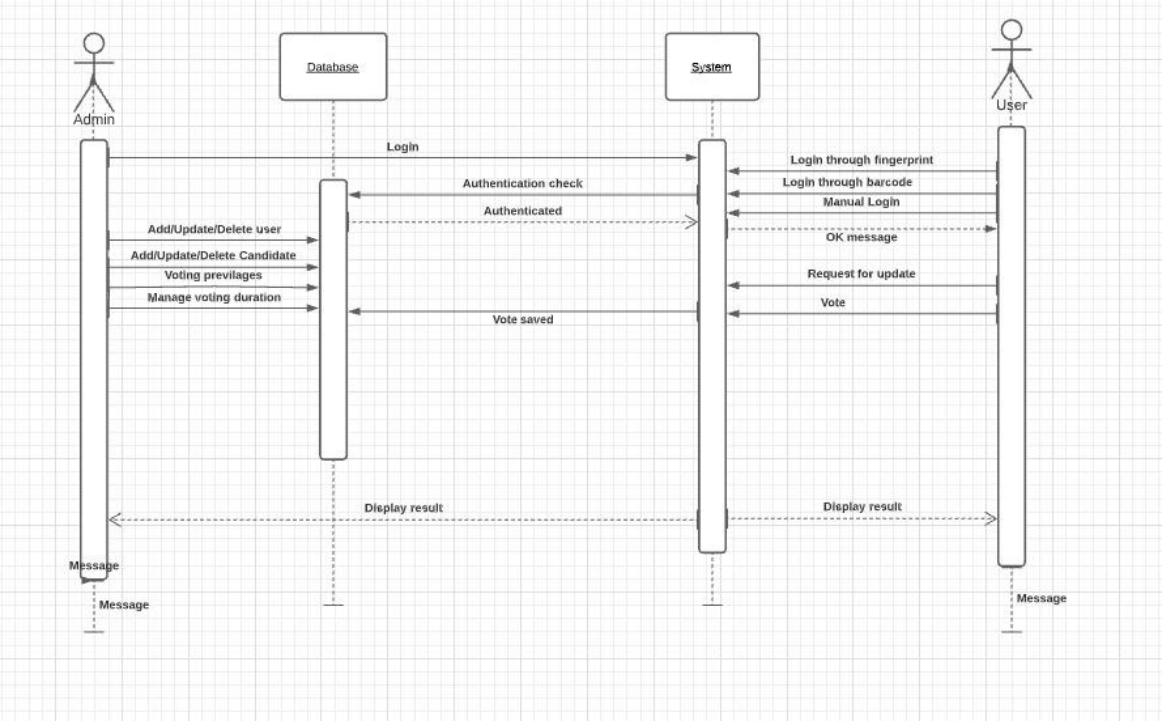
3.1 Class Diagram

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application. Class Diagram describes the attributes and operations of a class and also the constraints imposed on the system. They are used for modelling of object-oriented systems.



3.2 Sequence Diagram

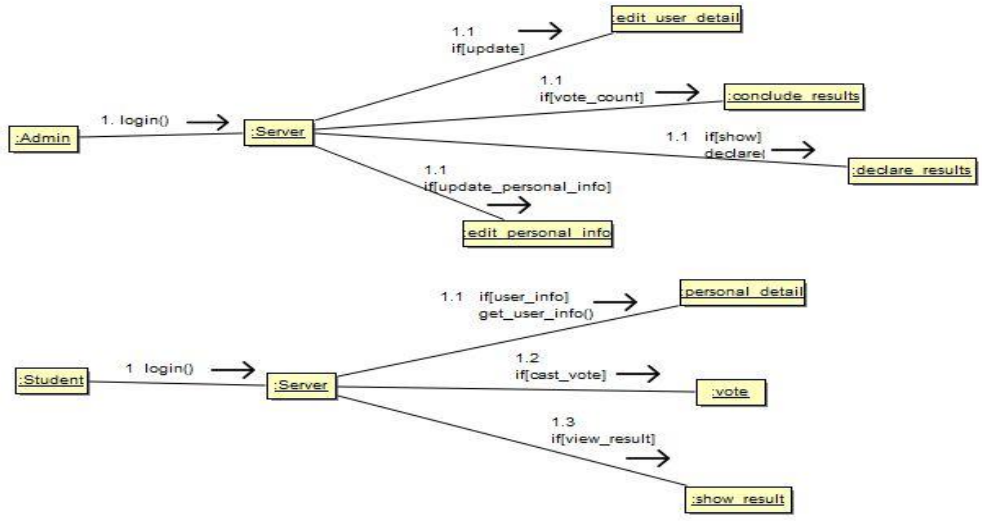
A Sequence Diagram depicts the interaction between the objects in a sequential order i.e., the order in which these interactions take place. They describe how and in what order the objects in a system function. These diagrams are widely used by business and software developers to document and understand requirements for new and existing systems.



SEQUENCE DIAGRAM

3.3 Collaboration Diagram

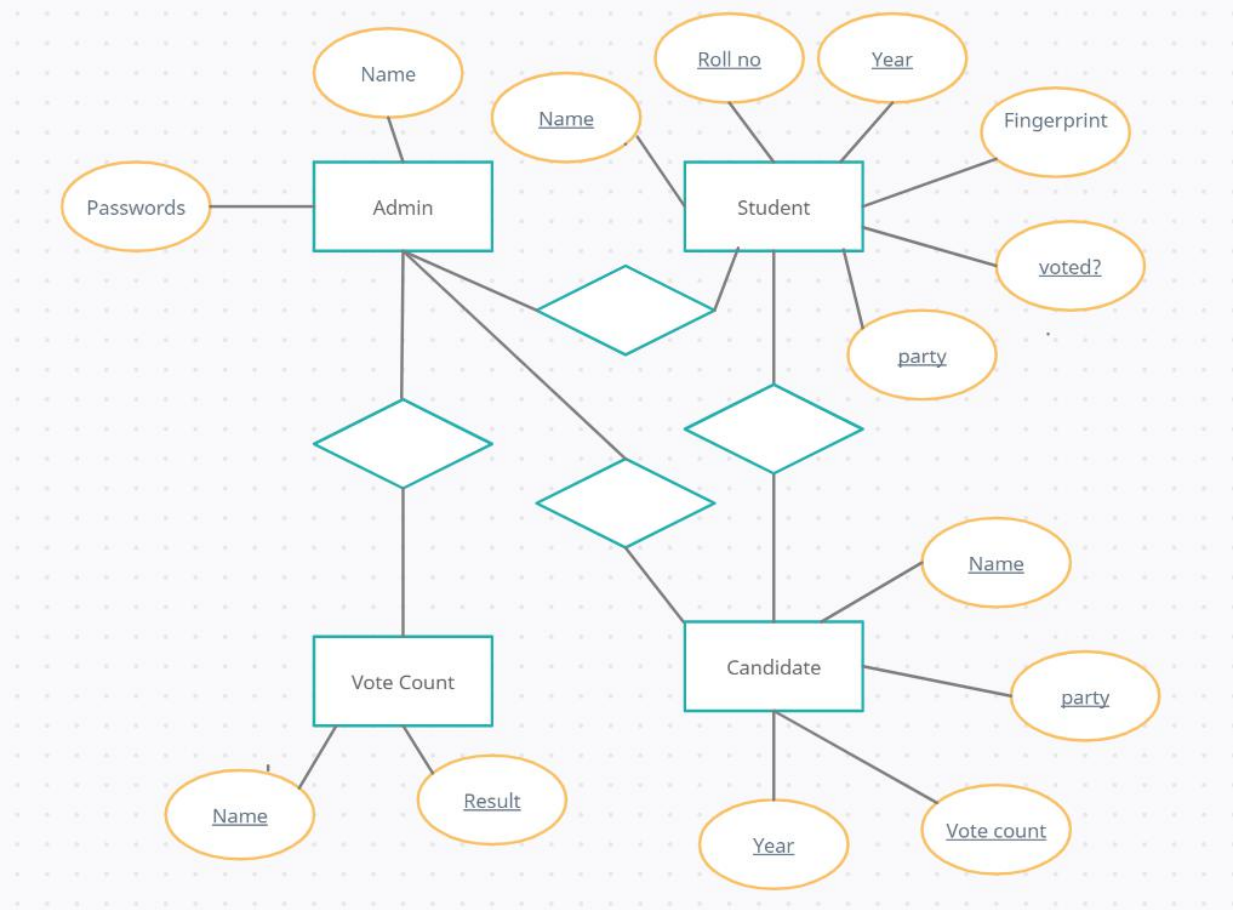
The collaboration diagram is used to show the relationship between objects in a system. Though the sequence and collaboration diagram represent the same information but they do it differently



COLLABORATION DIAGRAM

3.4 Database Design : ER Diagram

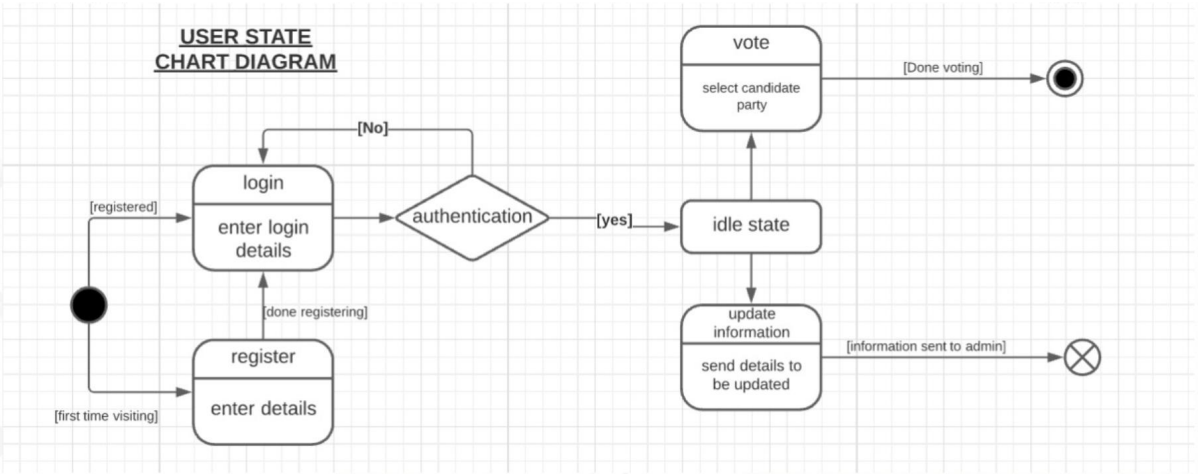
ER model is used to model the logical view of the system from data perspective which consists of Entity, Entity Type, Entity Set.

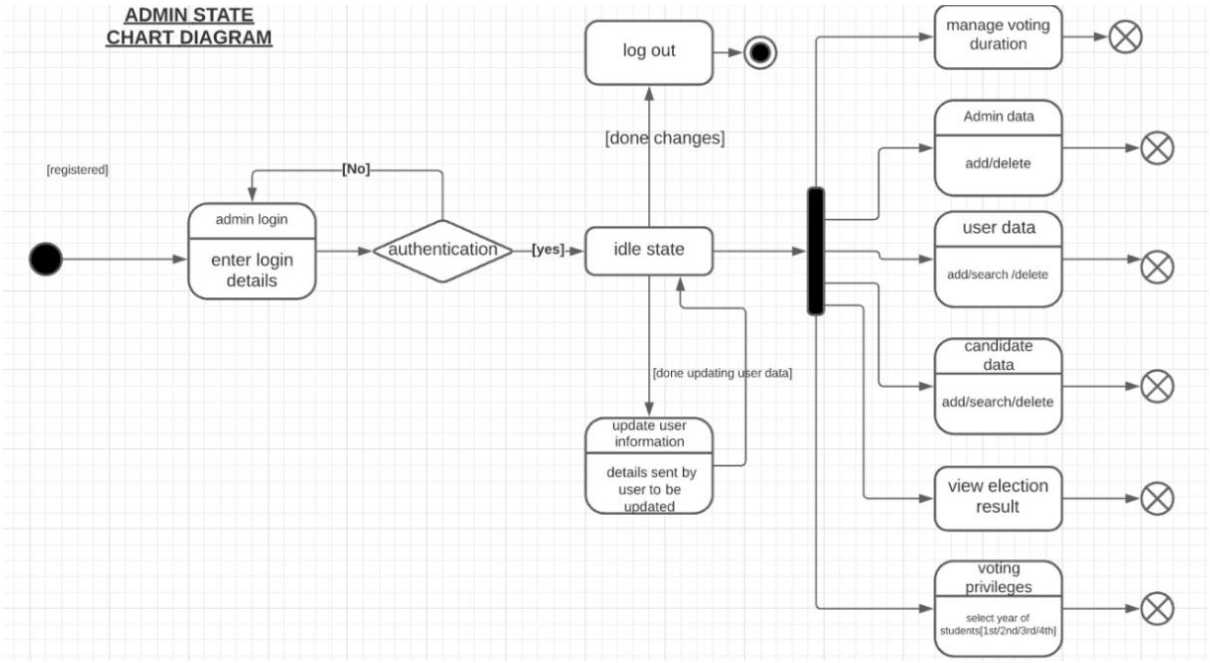


ER DIAGRAM

3.5 State Chart diagram

Statechart diagrams are used to model the states and also the events operating on the system. When implementing a system, it is very important to clarify different states of an object during its life time and Statechart diagrams are used for this purpose. When these states and events are identified, they are used to model it and these models are used during the implementation of the system.

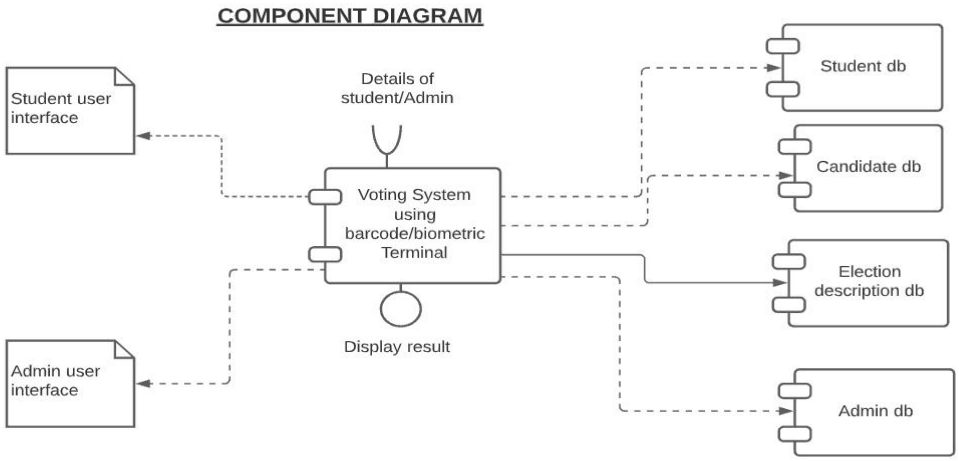




4.Implementation

4.1 Component Diagram

Component diagrams are different in terms of nature and behavior. Component diagrams are used to model the physical aspects of a system.Physical aspects are the elements such as executables, libraries, files, documents, etc. which reside in a node.



COMPONENT DIAGRAM

4.2 Deplyoment Diagram

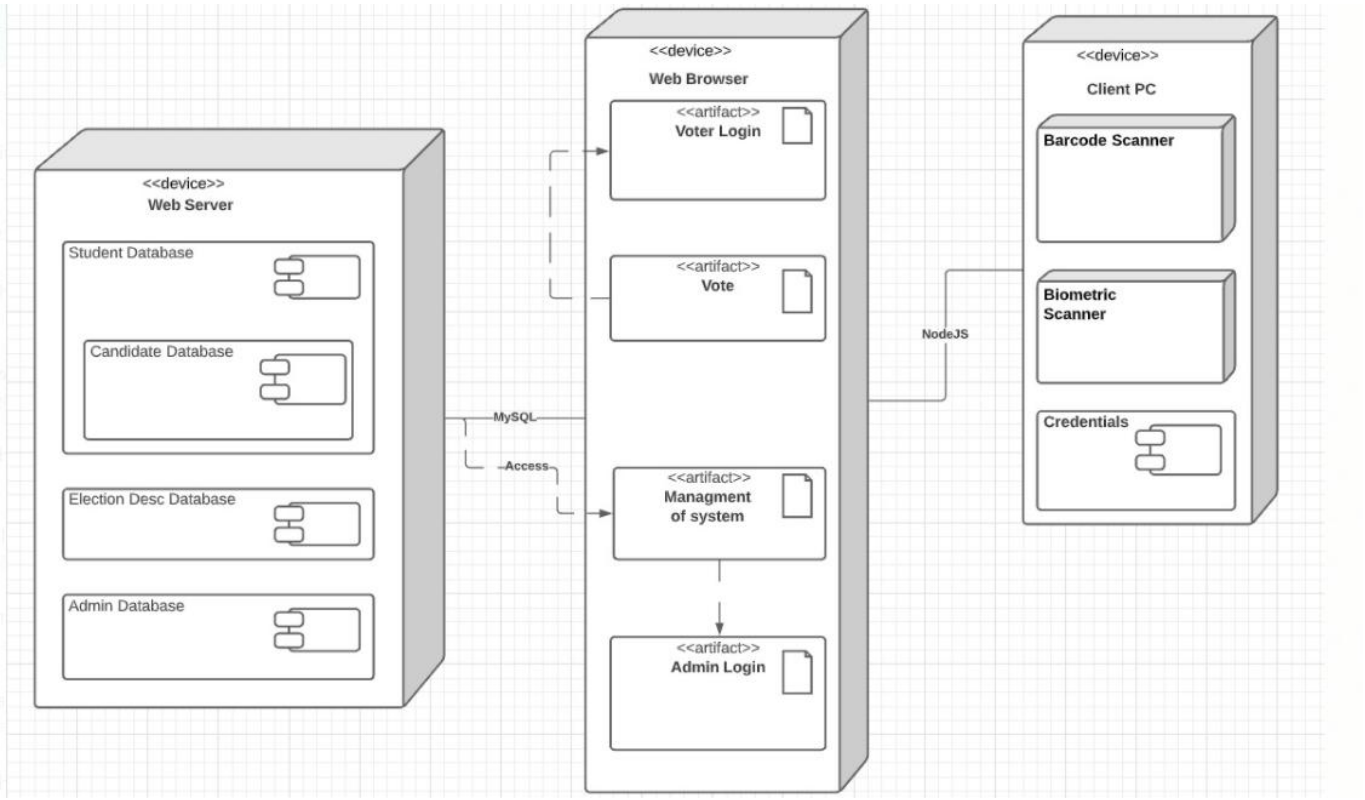
Deployment diagrams are used for describing the hardware components, where software components are deployed. Component diagrams and deployment diagrams are closely related.

The purpose of deployment diagrams can be described as −

Visualize the hardware topology of a system.

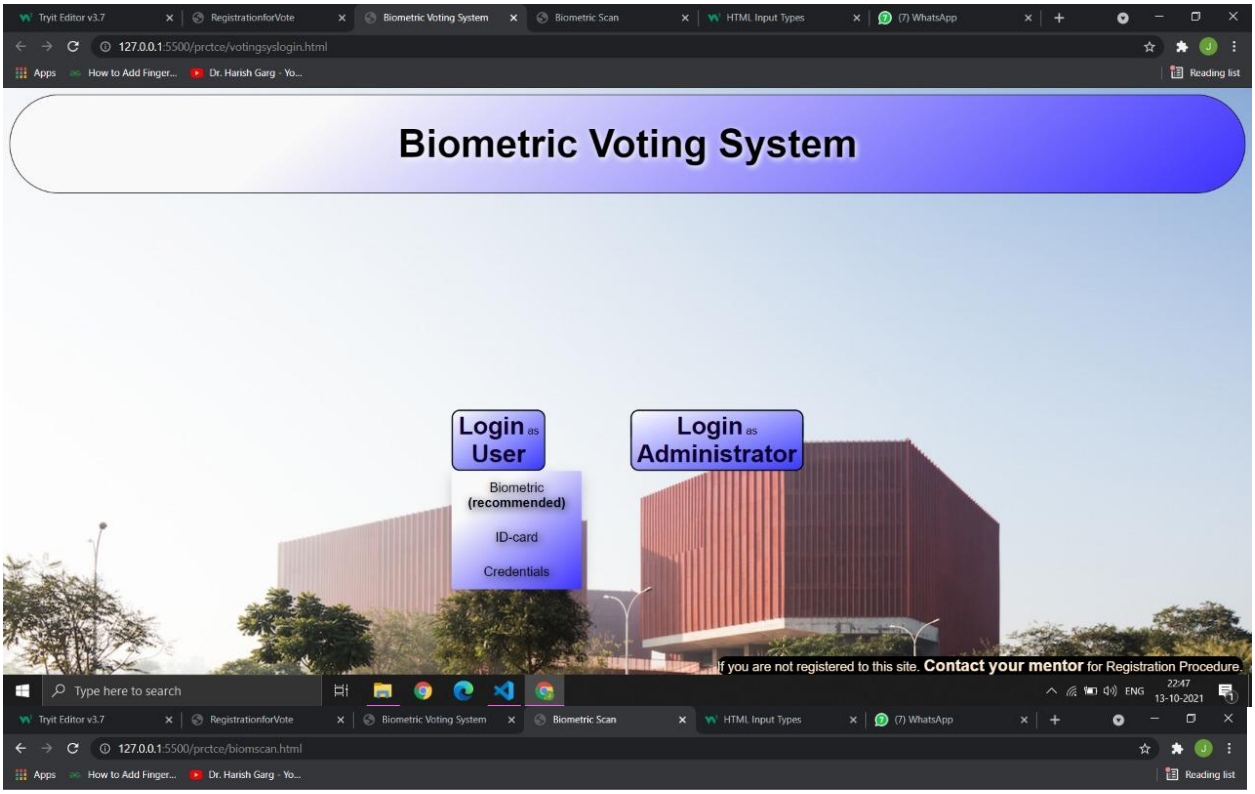
Describe the hardware components used to deploy software components.

Describe the runtime processing nodes.



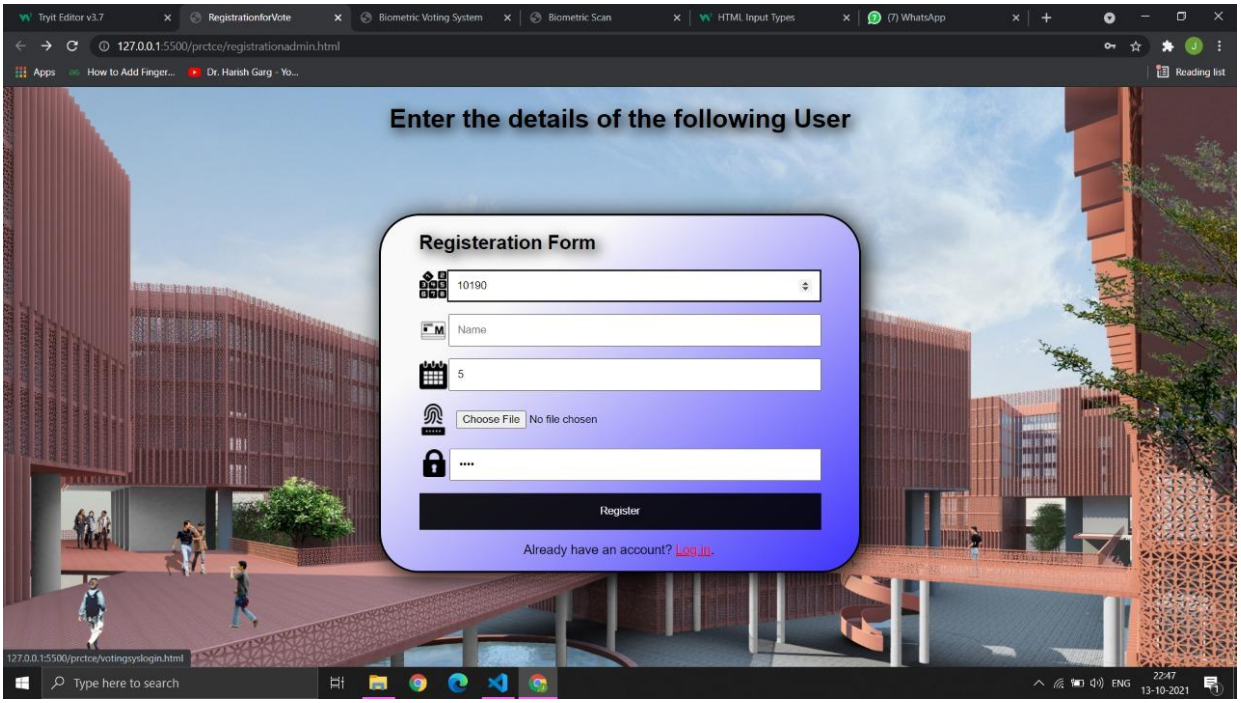
DEPLYOMENT DIAGRAM

4.3 Screen Shots



Please Get Your Biometric Scanned From the Scanner on your right

If any trouble try another Login method.



Server link

http://softwareengineeringlab.s3-website.ap-south-1.amazonaws.com/

5 Testing

5.1 TEST PLAN

The system type that is going to be tested is a Node.js,mysql,html and css application, which is hosted on amazon aws. The aim of the test is simple, i.e., the team will test the working of some modules, their function and some of the related performance. If any of the issue is detected will be reported back to the team immediately.

In our report the testing type used is 'Specific Test Plans'. The modules and the areas that the team is going to test are-

- Login through id
- Login through fingerprint
- Login through Biometric
- Registration
- Update information
- View result

The resources that we are going to use are-

- amazon aws
- Windows

The activities are scheduled such that overall mechanism of the stated modules is measured.

- First,Authentication is implemented to test the system against invalid login
- The registration is used by the user to enter details if any of the left blank an error message will be displayed

In the above process the requests and responses are checked thoroughly and any error is noted.
The results of the testing will tell the development team about the performance of the system, how secure it is, and any errors that emerged during test runs.

5.2 TEST CASES

Table 1: Test Case Table for Registration:

Test Case #: 1		Test Case Name: To Register a user		
System: Voting system using biometric/barcode/Manual enter		Subsystem: Registration		
Designed By: JASHANPREET		Design Date: 12/10/2021		
Executed By: JASHANPREEET		Execution Date:03/12/2021		
Short Description: Test the Register Page service.				
Pre-conditions: USER must be login page				
Step	Action	Expected System Response	Pass/Fail	Comment
1.	Click the Register Button	The system Displays the Registration Page to Fill Out the Details.	Pass	
2.	Enter all the important details except one	The system will display error message “please fill out this field”	Pass	
3.	Enter all details And click register Button	The system will display dashboard		
Post-conditions: 1. USER get registered in database 2. User will be redirected to the user login page				

Table 2: Test Case Table for Admin Login through manual entry :

Test Case #: 2		Test Case Name: Admin Login Page		
System: Voting system using biometric/barcode/Manual enter		Subsystem: Login		
Designed By: JASHANPREET		Design Date: 12/10/2021		
Executed By: JASHANPREET		Execution Date:03/12/2021		
Short Description: Test the Admin Login Page service.				
Pre-conditions: Admin should know the predefined password,admin no and name				
Step	Action	Expected System Response	Pass/Fail	Comment
1.	Click the Login Button	The system Displays the Login Page to Fill Out the Details.		
2.	Enter valid Name, no and password	The system will display dashboard		
3.	Enter invalid Name	The system Display the error message “Please enter valid details”		
4	Enter invalid password	The system Display the error message “Please enter valid details”		
5.	Enter invalid no	The system Display the error message “Please enter valid details”		
Post-conditions: 1.Admin will be redirected to the display dashboard				

5.3 Test Reports

The following results are based upon Test Case- 1