Tribhuvan University

Faculty of Humanities and Social Sciences

Basic Voting System

A PROJECT REPORT

Submitted to

Department of Computer Application

Jaya Multiple Campus

Makalbari, Kathmandu

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by:

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Makalbari,

Kathmandu

Bachelor in Computer Applications (BCA)

SUPERVISOR'S RECOMMENDATION

I hereby recommend that this project prepared under my supervision by **Mingtindu Sherpa** entitled "**Basic Voting System**" in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application is recommended for that final evaluation.

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Mukti Thapa

BCA

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Kathmandu

Bachelor in Computer Applications (BCA)

LETTER OF APPROVAL

This is to certify that this project prepared by **Mingtindu Sherpa** entitled "**Basic Voting System**" in the Partial Fulfillment of requirement for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

—————————————   —————————————

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ACKNOWLEDGEMENT

ABSTRACT

The basic voting system management is a vital tool for overseeing electoral processes and ensuring the integrity of democratic procedures. The design and implementation of a voting system management rely on a Database Management System (DBMS). This system facilitates efficient management of voter registrations, candidate information, and election results. It enables tracking of voter demographics, polling station data, and ballot counts. Implemented in Visual Studio Code, the system offers a user-friendly interface for managing elections and monitoring voting activity.

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LIST OF ABBREVIATIONS

API   Application Programming Interface

BBS   Basic Banking System

CRUD   Create, Read, Update and Delete

CSS   Cascading Style Sheet

DBMS   Database Management System

DFD   Data Flow Diagram

ERD   Entity Relationship Diagram

HTML   Hypertext Markup Language

JS   JavaScript

MYSQL   Structured query Language

WBS   Work Break Down Structure

XAMPP   Cross-platform, Apache, Maria DB(MySQL), node js and Perl

CHAPTER: 1

INTRODUCTIO

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1. Introduction

Voting system is a digital tool that helps people vote online. It's made using HTML, CSS, JavaScript, and PHP. With this system, you can easily register to vote, cast your vote, and see the results. It's designed to be easy to use for everyone, whether you're voting in a school election or a big government one.

This system keeps things simple. When you visit the website, you'll find clear buttons to guide you through the voting process. Just click to register, choose your candidates, and submit your choices. Behind the scenes, the system stores your vote securely and tallies up all the votes to determine the winners. Plus, it's built to work smoothly on any device, whether you're using a computer or a smartphone. So, no matter where you are, you can participate and vote for free.

2. Problem Statement

Traditional voting methods often lead to long queues, confusion with paper ballots, and errors in manual vote counting, which can disenfranchise voters and undermine trust in the electoral process. Therefore, there is a need for a user-friendly digital voting system that ensures accessibility, accuracy, and transparency. By leveraging HTML, CSS, JavaScript, and PHP, such a system can streamline the voting process, making it easier for all citizens to participate and trust the outcome.

To address these issues, our digital voting system aims to simplify the voting process and ensure inclusivity. By providing an intuitive online platform accessible from any device, voters can easily register, cast their ballots, and track results. Through secure backend mechanisms, we prioritize accuracy and transparency in tallying votes, restoring confidence in the electoral process and empowering citizens to exercise their democratic rights with ease.

3. Objectives
    i.   To increase voter participation.

   ii.   To ensure data security.

  iii.   To enhance election integrity.

4. Scope and Limitation
1.4.1 Scope

    i.   **Voter Registration :** Manages voter registration and eligibility.

    ii.   **Ballot Generation:** Create digital ballots.

    iii.   **Vote Casting:** Keeps info about different blood types.

    iv.   **Vote Tallying:** Count and tabulated votes.

    v.   **Administration Pannel:** Allow administrative management.

1.4.2 Limitations

    i.   **Dependence on internet Access :** The online voting system relies on internet connectivity, which may not be accessible in all areas or may be prone to disruptions, potentially disenfranchising some voters.

    ii.   **Security Risks:** Despite security measures, online voting systems may still be vulnerable to hacking or cyber attacks, compromising the integrity of the voting process and undermining trust in election results.

    iii.   **Verification Challenges:** Ensuring the identity and eligibility of voters in an online environment can be more difficult compared to traditional in-person voting, leading to concerns about fraudulent voting or unauthorized access.

    iv.   **Technological Dependence:** Online voting systems require reliable technology infrastructure and may be subject to technical glitches or failures, leading to disruptions or delays in voting procedures.

5. Development Methodology

    i.   **Requirement Analysis**: The first step involves identifying the system's requirements. This includes thoroughly analyzing the voting process and understanding the needs of voters, election officials, and other stakeholders. The information gathered is used to create a detailed list of functional and non-functional requirements for the system.

    ii.   **Design:** After identifying the system's requirements, the design phase begins. This involves creating a system architecture, designing the database schema, and developing user interface wireframes. Additionally, the design phase includes selecting the technologies and tools that will be utilized to develop the system.

    iii.   **Development:** The system is developed using PHP and MYSQL as database. The development process involves creating the necessary database tables, implementing the business logic, and developing the user interface. The system is developed in iterations, with each iteration adding new functionality and features.

iv. **Testing:** Once the system is developed, it is tested to ensure that it meets the requirements and is free of bugs and errors. The testing process includes unit testing, integration testing, and system testing. The system is also tested for performance, scalability, and security.

v. **Deployment:** After testing, the system is deployed to a production environment. This involves setting up the necessary hardware an software, configuring the system, and migrating data from the old system, if applicable. The system is then made available to the end-users.

vi. **Maintenance:** Once the system is deployed, it requires ongoing maintenance and support. This involves monitoring the system for issues, performing routine maintenance tasks, and providing user support. The maintenance phase also includes making updates and enhancements to the system as needed to address changing requirements or improve performance.

Throughout the project, an agile methodology can be used, which involves working in short iterations, frequent feedback, and continuous improvement. This approach allows for greater flexibility and adaptability to changing requirements and ensures that the final product meets the needs of the stakeholders.

CHAPTER: 2

BACKGROUND STUDY AND LITERATURE REVIEW

2.1 Background Study

A background study for a Blood Bank Management System involves looking into how blood banks currently operate, understanding the challenges they face, and exploring the technology they use.

This study includes examining any existing systems, talking to people involved in the process like administrators and donors, and considering factors like regulating healthcare trends. It's looking into what problems exist, and what opportunities there are for improvement. By understanding the current situation and the needs of users, the goal is to lay the groundwork for a new system that can better manage donor information, blood inventory, and requests while addressing any existing issues.

2.2 Literature Review

The first paper titled "A Comprehensive Study on Blood Donation and Transfusion" provides an overview of the current status of blood donation and transfusion [1]. The study highlights the increasing demand for blood and the challenges faced by blood banks in meeting this demand. The paper also discusses the importance of donor recruitment, and the proper storage and handling of blood products.

The second paper titled "Blood Bank Management System" provides an overview of a software system that manages the blood inventory and donor information for a blood bank [2]. The study highlights the importance of technology in blood banks and how a software system can help streamline processes and reduce errors. The paper also discusses the challenges faced by blood banks, such as the shortage of blood supply and the need for proper testing and screening of donors.

The second paper titled "Design and Development of Automated Blood Bank Management System" presents a system that manages the process of blood donation, transfusion, and inventory management[3]. The system provides a platform for blood banks to manage their operations digitally, eliminating the need for manual recordkeeping. The study highlights the importance of automation in blood banks, which can enhance efficiency, reduce errors, and minimize the risk of transmission of infectious diseases.

CHAPTER: 3

SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

3.1.1 Requirement Analysis

It involves ensuring the system to help manage blood donations, keep track of inventory, and make the process easy and secure for donors and administrations.

i.   **Functional Requirement**

- The interface shall be intuitive and user-friendly.
- The admin shall record candidate and elections.
- The user shall vote for favourite .
- The admin shall manage the information of

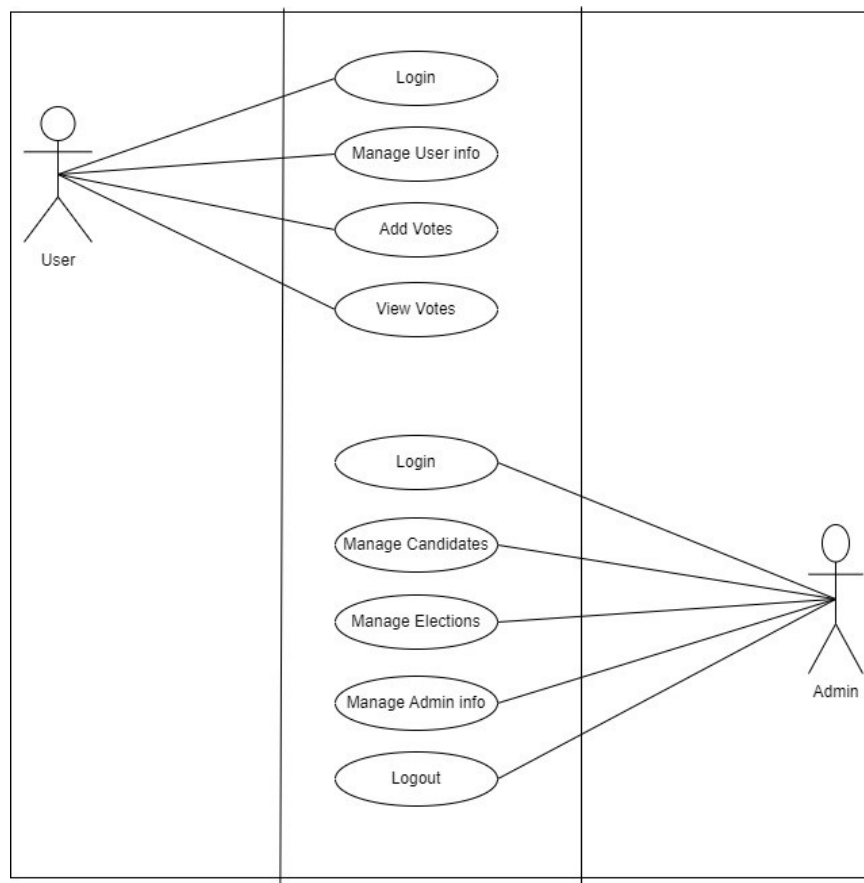candidates and election

- . USE CASE DIAGRAM

Figure 3.1.1: Use Case Diagram of Basic Voting System

ii.   Non Functional Requirement

- The system should be able to handle an increase in the number of simultaneous users during peak times, such as election campaigns.
- The system should be available 24/7 for all the users.
- The system should be responsive and minimal latency.
- The system should encrypt sensitive candidates information to ensure data confidentiality.

3.1.2 Feasibility Analysis

i.   **Technical Feasibility:** Evaluate the availability of suitable technology for developing the system.

ii.   **Operational Feasibility:** Evaluate the practicality of implementing the system within the organization's operations.

iii. **Economic Feasibility:** Evaluation and effectiveness of the system is the most frequently used technique to check either the system is economically feasible or not. Cost benefit analysis is to determine the benefits and savings that are expected from the system and is compared with costs.

iv.   **Schedule Feasibility Study**

Gantt chart is used to demonstrate the schedule feasibility.

Table 1: Gantt chart Table of Basic Voting System

Task Name	Start Date	Days to Complete
Proposal	16 March	10 Days
Analysis	26 March	7 Days
Design	6 April	10 Days
Implementation	16 April	13 Days
Testing	26 April	8 Days
Document	5 May	7 Days

Gantt Chart

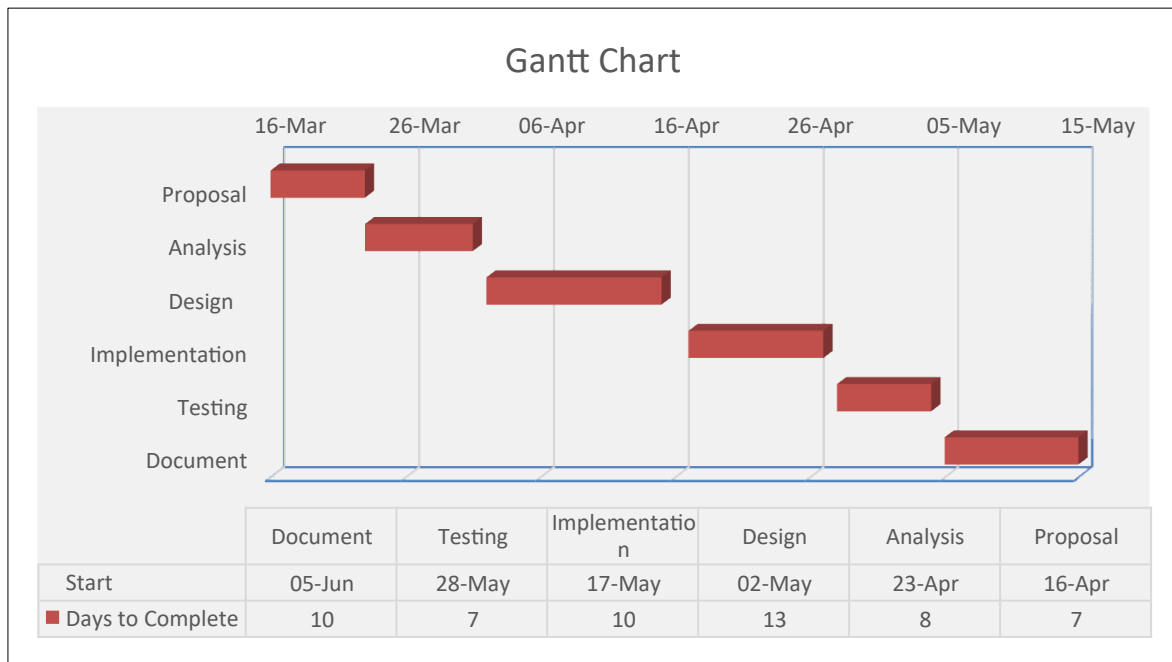|	Document	Testing	Implementation	Design	Analysis	Proposal
Start	05-Jun	28-May	17-May	02-May	23-Apr	16-Apr
■ Days to Complete	10	7	10	13	8	7

Figure 3.2: Gantt chart of Basic Voting System
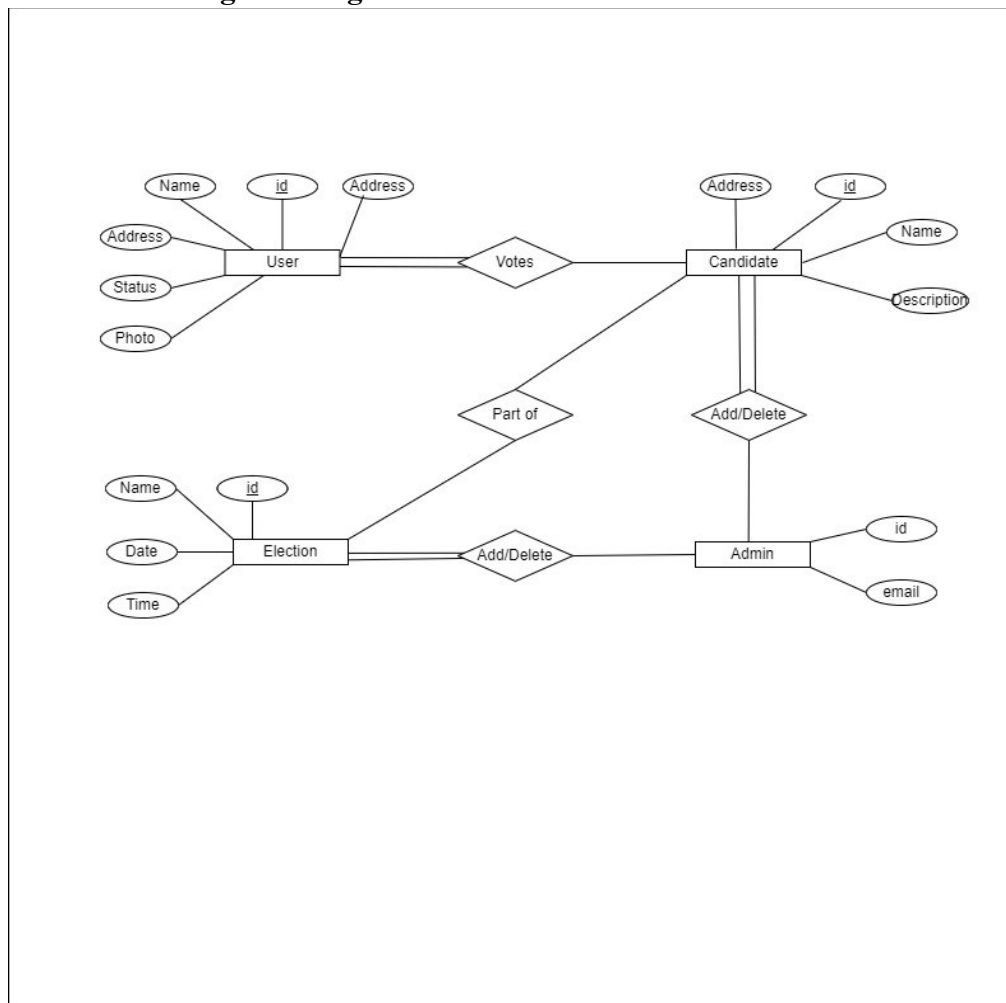
3.1.3 Data Modeling ER-Diagram

8

Figure 3.3: ER Diagram of Basic Voting System

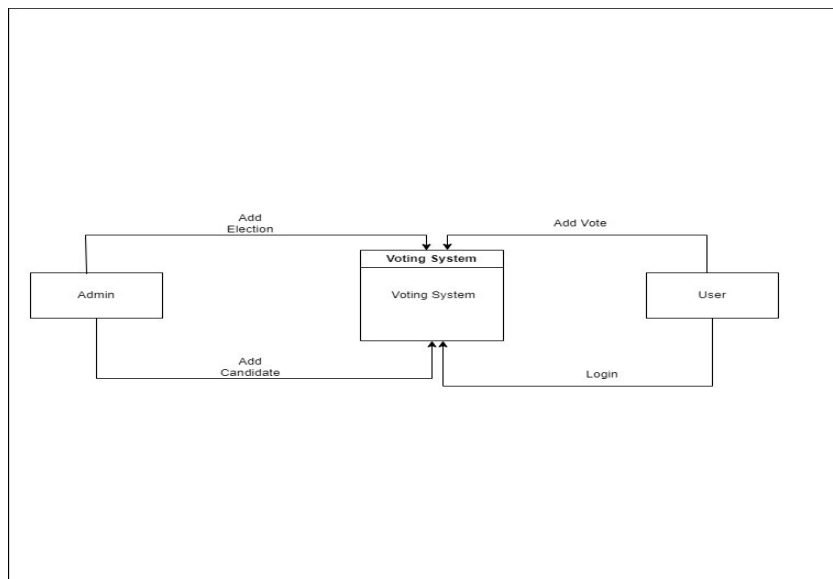### 3.1.4 Process Modeling (DFD)

Figure 3.4: Level 0 DFD of Basic Voting System
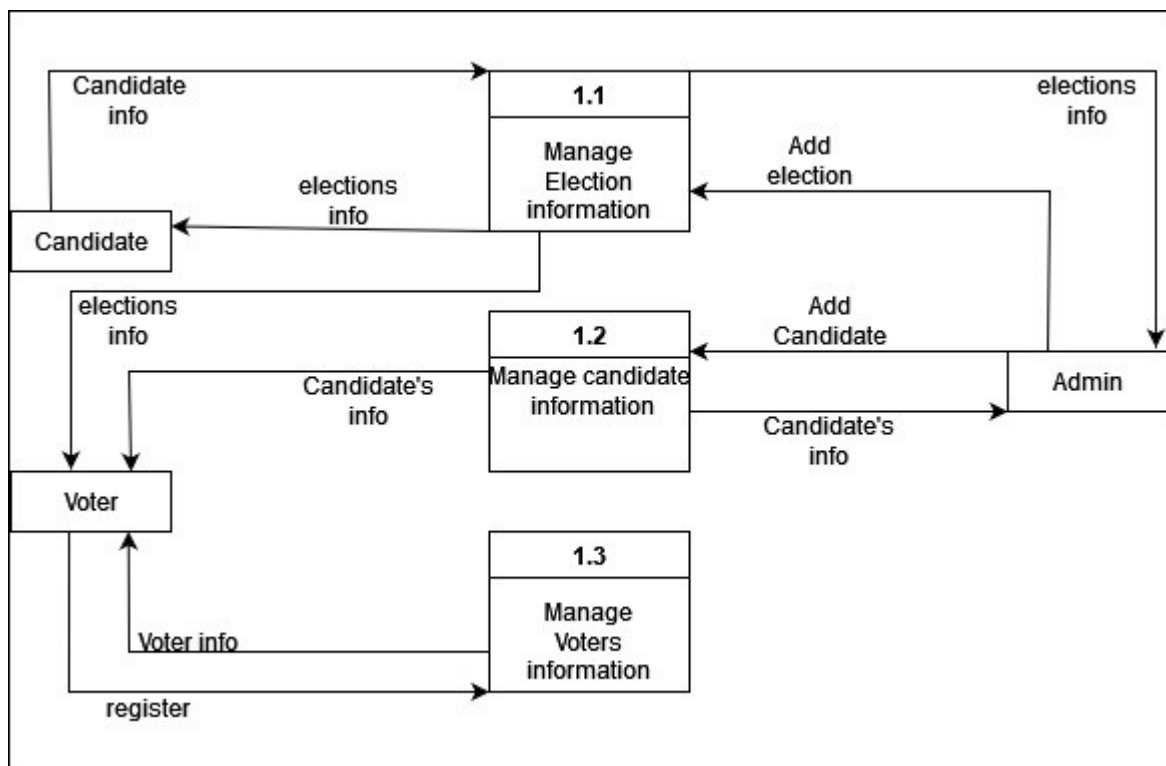
Level 1 DFD:

Figure 3.5: Level 1 DFD for Basic Voting System

3.2. System Design

To realize the different functional requirement of the system in graphical form, different design diagram of the system has been prepared which are as follows:
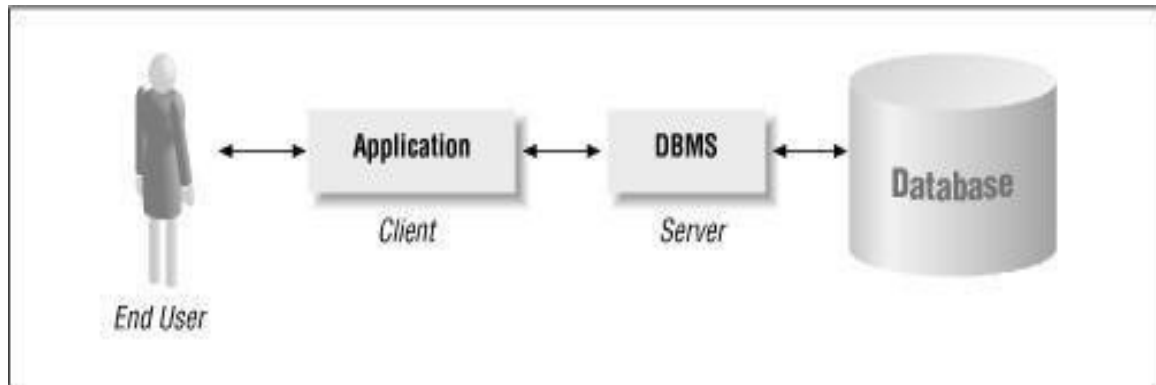
3.2.1 Architectural Design

Figure 3.6: Architectural Design of Blood Bank Management System

The Three-tier architecture is divided into three parts:

1. **Presentation Tier :**

   Occupies the top level and display information related to services available on a website. This tier communicates with other tiers by sending results to the browser and other tiers in the network.

2. **Application Tier:**

   Also called the middle tier, logic tier, business logic or logic tier, this tier is pulled from the presentation tier. It controls application functionality by in this tier is kept independent of application severs or business logic.

3. **Data Tier:**

   Database servers where information is stored and retrieved. Data in this tier is kept independent of application severs or business logic.

3.2.2 System Flowchart

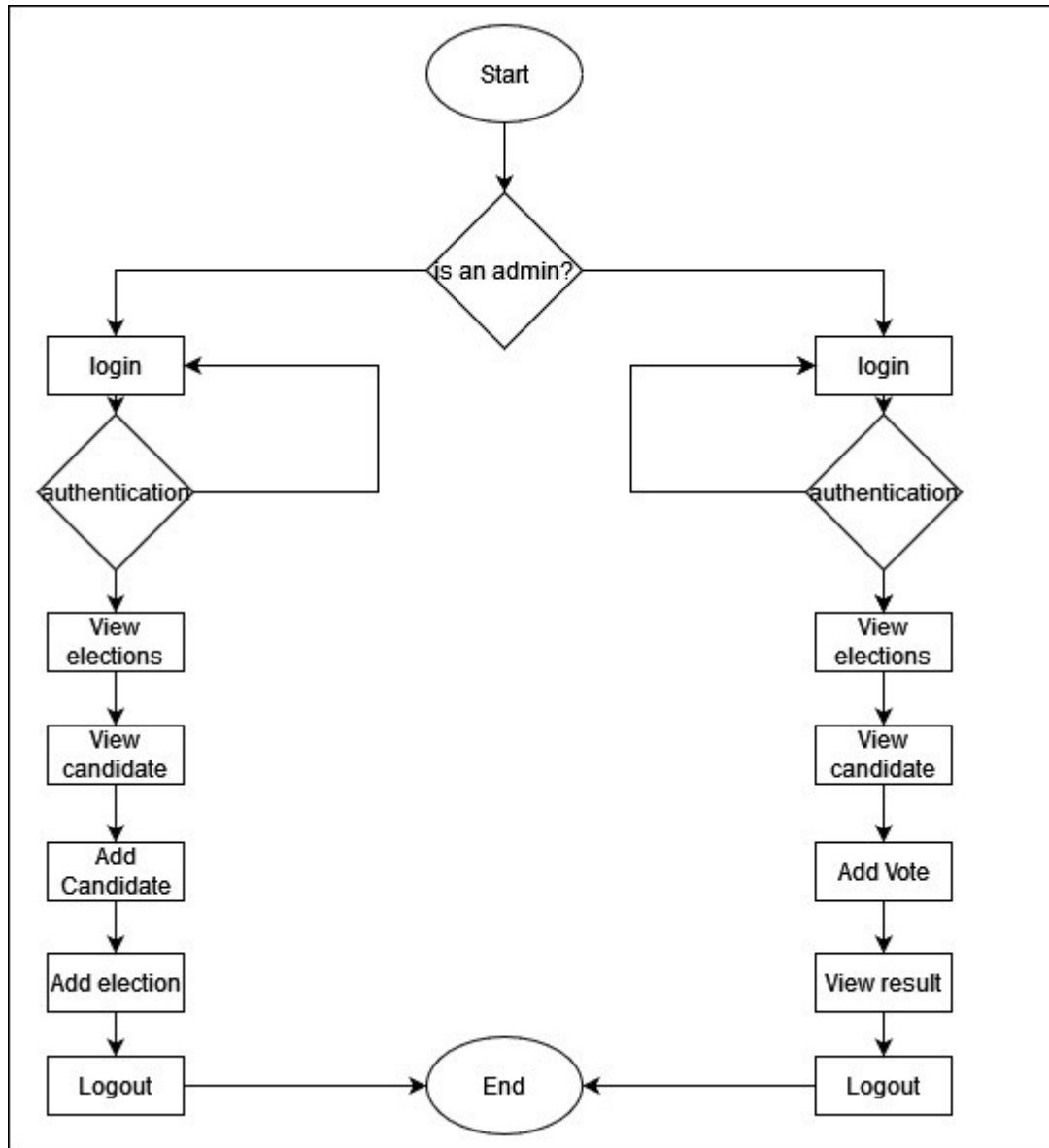

Figure 3.7: Flow chart of Blood Bank Management System

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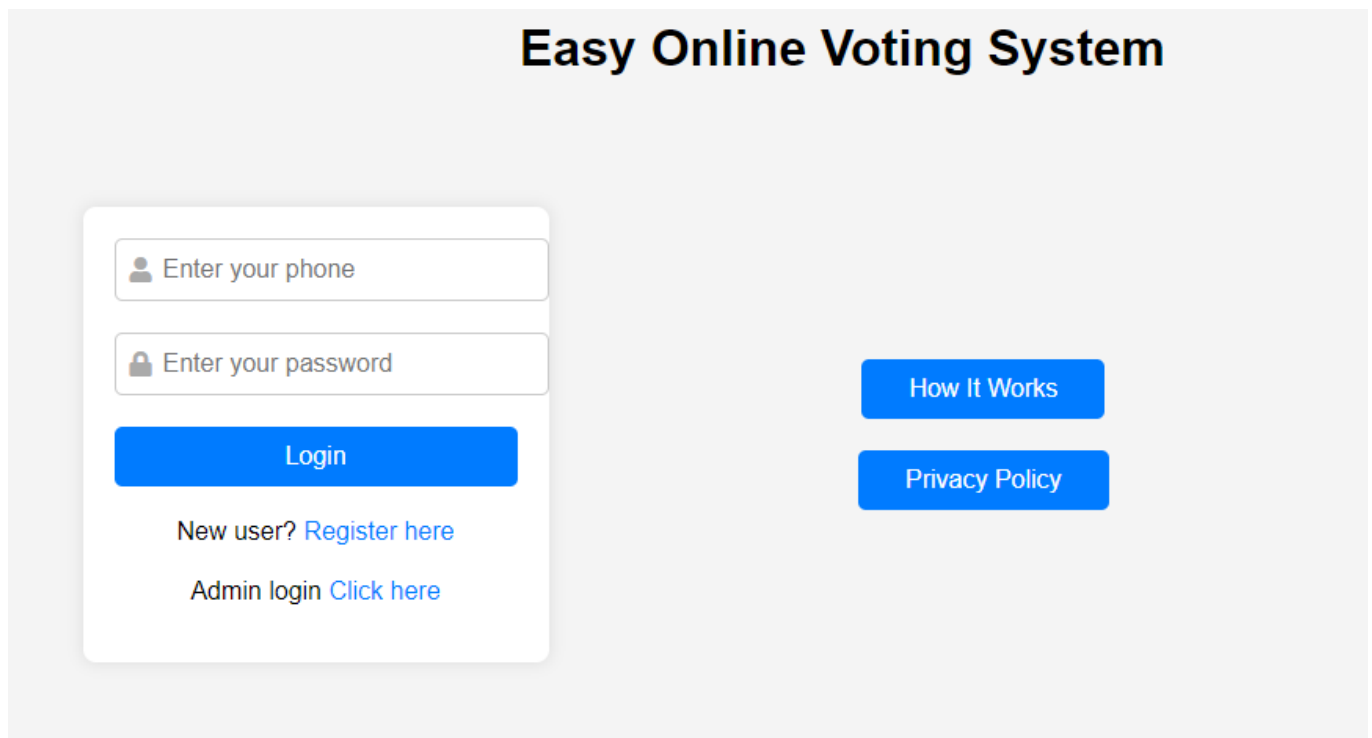### 3.2.3. Interface Design (UI Interface / Interface Structure Diagrams)
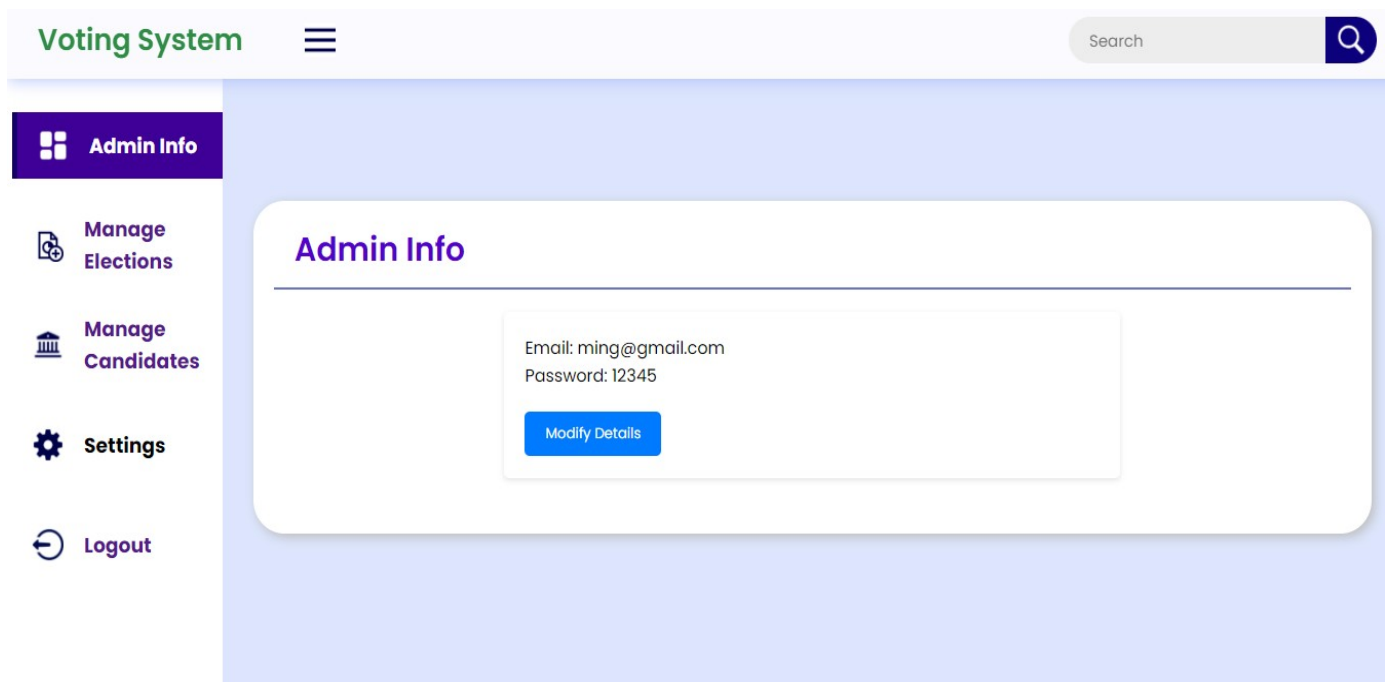

Figure 3.8: Home page of BVS

Figure 3.9: Admin Panel of BVS

Figure 3.10: Dashboard of BVS

CHAPTER: 4

IMPLEMENTATION AND TESTING

4.1. Implementation

4.1.1. Tools Used (CASE tools, Programming language, Database

platforms) Following are the tools and framework used for accomplishment of

this project. **Front End Tools**

In Basic Voting System, html is used for creating different webpage and sites.
It is used to create and structure sections, headings, links, paragraphs using various tags and elements. We also define headers, paragraphs, links, and images of sponsor management system by using html.

CSS

In Basic Voting System, CSS is used for designing different tags of html. It is also used to design different component by the help of class and id. Different CSS are used such as inline CSS, internal CSS, and external CSS to design this system. It is used for defining the styles for web pages. By using CSS, we can control the text color, font style, the spacing between paragraphs, sizing of columns, layout designs, and many more.

Back End Tools

PHP

In Basic Voting System, PHP is used for the backend purpose and for making dynamic web pages. It is used for server side scripting purpose to add connectivity to the database and also used to encrypt the data, validate the user data, Confirm user to go to certain pages, login pages. It also includes add, update and delete the data from the database.

Server

APACHE SERVER

In Basic Voting System, apache server is used to run php files and creating fast and dynamic web pages.

Database

MYSQL

MySQL is use for storing all the information required to the database in Basic Voting System. It is used for performing CRUD operation such as create, delete and update data from the database as requested by the user.

Documentation

Tools MS Office

This is used for writing and editing the documentation of Basic Voting System Management System.

Draw.io

This is used to generate diagrams for system analysis and design of Basic Voting System. Diagrams were created using this tool in order to save time since all components are available with drag and drop functions.

4.2. Testing

System testing is done by giving different training and testing datasets. This test is done to evaluate whether the system is providing accurate summary or not. During the phase of the development of the system, our system is tested time and again. The series of testing conducted are as follow:

4.2.1 Test Cases for Unit Testing (Manual Testing)
Table 2: Test Case for User of Blood Bank Management System

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Fail
U_OP1	Open Application	http://localhost/bbms/index.php	Open application	As expected	Pass
U_Req_2	Request for blood	Name : Ram Address : Mulpani Age : 32 Email: ram123@gmail.com Moblie number: 9844675241 City: Kathmandu Blood Group : A+	Send blood request	As expected	Pass

Table 3: Test case for the Admin login of Blood Bank Management System

ID	Test Case Description	Test Data	Expected Result	Actual Result	Pass/Faill
U_OP1	Open Application	http://localhost/bbms/admin-home.php	Home page of Blood Bank management system	As expected	Pass
U_LOG_2	Admin enters a wrong username or password	Username : admin Password: 13165	Login failed	As expected	Pass
U_LOG_3	Admin enters a correct username or password	Username : admin Password: admin	Login Successful	As expected	Pass

4.2.2. System Testing

Table 4: Test case for the request blood of Blood Bank Management System

Test Case 1	Request Success
Test Data	Name : Ram Address : Mulpani Age : 32 Email: ram123@gmail.com Moblie number: 9844675241 City: Kathmandu Blood Group : A+
Expected Result	Request successful
Test Result	As expected

CHAPTER: 5

CONCLUSION AND FUTURE RECOMMENDATION

5.1. Lesson Learnt / Outcome

Every project makes us to learn and gain the knowledge in different aspects. In the following project, I have learned lots of problem-solving skills and finding the solution on my own, proper use of guidelines, communication and writing skills.

Problem Solving Skills

From this project, I have learned lots of problem-solving skills and also learned to recognize different errors that occurred in this system and solve it.

Writing Skills

I have also learned how to prepare proposal and documentation related with project and also learned to use different case tools for use case diagram, schema diagram, data flow diagram, and ER- diagram and so on.

Manage time

The most important lesson learnt was management of time according to the complexity of the system components i.e. know which components to prioritize.

5.2. Conclusion

The Voting System is designed to ensure that the voting process is smooth, secure, and meets the needs of voters and election officials. The system enables polling stations to manage voter information and ballot records efficiently. It provides various reports that can be generated based on voter demographics, ballot counts, providing valuable insights into the voting process and enabling continuous improvement.

Overall, the Voting System is an essential tool for managing elections and improving the efficiency and transparency of the electoral process. The system can be enhanced by adding new features like integration with voter registration systems, a mobile application for remote voting, analytics and reporting, and an online platform for voter information and registration. These enhancements can help in increasing voter participation, ensuring accurate election results.

5.3. Future Recommendations

The development project could have been more efficiently handled with regards to design and development. The documentation process might have been better programming the project prior to any documentation. The system can be updated based on the user's requirements and recommendation. The page load and server load speed might be improved.

Some of the future recommendation for this system are:

- Adding the feature of payment system.
- The blood bank management system can be integrated with other hospital management systems to provide a seamless experience for the hospital staff.
- Blood donors can schedule time and date for donating blood.

REFERENCES

[1] "Voting System using Database Security" by John Doe1, Jane Smith2, Alex Johnson3, Dr. Emily Thompson (2023)

[2] "A Study on Voting System Management" by S. Patel, R. Gupta, and A. Sharma, Department of Computer Science, XYZ University, ABC City, State, Country

[3] "A Research Paper on Voting Management System" by Dev Patel, Mia Johnson, Jack Brown, Prof. Sarah White, Department of Political Science, PQR University, XYZ City, Country