A PROJECT REPORT

ON

HDC VOTING SYSTEM

Submitted to

Department of Management

Himalaya Darshan College

Inpartial fulfillment of the requirements for the Bachelors in Information management

Submitted by

Kajal Kumari Mehta (7-2-1073-10-2021)

Shibu Sharma (7-2-1073-25-2021)

August, 2024

ABSTRACT

The **HDC Voting System** is designed for facilitating HDC voting. The primary goal of this system is to enable voters to cast their votes online and make the better version website of HDC and view the election results of their own Faculty and semester as well.

System Overview

The system consists of two main parts: Admin and Voter sides.

User Roles:

- **Voter:** Users who participate in voting.
- **Admin:** Users who adds the candidate for election and many others.

Workflow:

1. **Candidate:**
    - The admin adds the candidate who is already the student of HDC.
2. **Dashboard:**
    - The candidate list, including their details, is visible on the dashboard for users/vote to vote and admin to delete.

ACKNOWLEDGEMENT

In this project accomplishment, we would like to express our gratitude to all our teachers and mostly to our project assigner, Mr. Nabin Ghimire. Without the proper guidance and feedback from him, it would not have been possible to work and complete the project.

In addition, we extend our sincere thanks to our friends, seniors for their contribution in this project and helping us to accomplish. We will be always looking forward to hear the comments. And, suggestions for further improvement in our project.

Kajal Kumari Mehta (7-2-1073-10-2021)

Shibu Sharma (7-2-1073-25-2021)

Table of Contents

HDC VOTING SYSTEM 1
Submitted to Department of Management 1
ABSTRACT 2
System Overview 2
ACKNOWLEDGEMENT 3
List of Abbreviations 6
List of Figures 7
List of Tables 8
CHAPTER1: INTRODUCTION 1
1.2 Problem Statement 1
1.3 Objectives 1
Scope and Limitations 1
1.4 Report Organization 2
CHAPTER2: BACKGROUND STUDY AND LITERATURE REVIEW 3
2.1 Background Study 3
2.2 Literature Review 3
- HDC Class Representative Election system:- 3
- Type form:- 3
CHAPTER3: SYSTEM ANALYSIS AND DESIGN 4
3.1 System Analysis 4
Figure1: Incremental Methodology 4
3.1.1 Requirement Identification 4
i. Functional Requirements 4
3.1.2 Feasibility analysis 6
i. Technical Feasibility 6
ii. Operational Feasibility 6
iii. Economic Feasibility 6
iv. Schedule Feasibility 7

3.1.3 Data Modeling 8
3.1.4 Process Modeling 9
3.2 System Design 10
3.2.1 Architectural Design 10
Figure7: Architectural Design 10
3.2.3 Interface Design 11
CHAPTER 4: 15
IMPLEMENTATION AND TESTING 15
4.1 Implementation 15
4.1.1 Tools Used 15
I. CASE Tools: 15
II. Programming Languages: Front-End Tools 15
Back-End Tools 15
III. Microsoft Office Package: 16
4.1.2 Implementation Details of Modules 16
- User Model:- 16
4.2 Testing 16
4.2.1 Test Cases for Unit Testing 16
4.2.2 Test Cases for System Testing 19
Chapter 5: CONCLUSION AND FUTURE RECOMMENDATIONS 20
5.1. Lesson Learnt/Outcome 20
5.2. Conclusion 20
5.3. Future Recommendations 20
REFERENCES 21

List of Abbreviations

HDC:	Himalaya Darshan College
VS Code:	Visual Studio Code
HTML:	Hypertext Markup Language
CSS:	Cascading Style Sheets
JS:	JavaScript
PHP:	Hypertext Pre-processor
DFD:	Data Flow Diagram

List of Figures

Figure1: Incremental Methodology....4
Figure2: Use Case Diagram....5
Figure3: Gantt chart....7
Figure4: ER-Diagram....8
Figure5: Context Diagram....9
Figure6: Architectural Design....11
Figure7: Admin Login Page....12
Figure8: Voter login Page....13
Figure9: Student Registration Page....14
Figure10: Free CMAT Registration page....15

List of Tables

Table1: Test 1-Login Form 18
Table2:Test2-Registration Form 19
Table3: Test 3-Candidate Application 19
Table4:TestCase4… 20

CHAPTER1: INTRODUCTION

1.1 Introduction

Voting allows individuals to express their preferences in decision-making. HDC voting systems use advanced IT to simplify voting, making it more convenient and accessible. These electronic systems enhance ease of use and implement security measures to protect vote integrity. They aim to speed up the voting process, streamline vote casting, and reduce staffing costs. Key features include accessibility, security, and convenience.

1.2 Problem Statement

An HDC voting system allows individuals to cast their votes over the internet instead of visiting a polling station (or as per the college rule). This approach offers convenience as voters can participate from any location with an internet connection. To ensure the security and privacy of votes, the system employs robust measures such as encryption and authentication. It also includes voter verification processes to prevent fraud. This system simplifies the voting experience, enhances accessibility, and upholds fairness and transparency in elections.

1.3 Objectives

The primary goals of an HDC voting system are to simplify and enhance the convenience of voting, enabling individuals to cast their votes from any location with internet access. Key objectives include:

- **Increasing voter turnout** by eliminating obstacles such as long distances or busy schedules that may prevent people from voting in person.
- **Improving the accuracy and efficiency** of the voting process.

Scope and Limitations

The system is suitable for use in small-scale organizations where individuals can elect roles such as class monitors, group leaders, and other positions. However, there is a risk of multiple votes from a single user through the creation of multiple login accounts. Additionally, the system does not include a feature for selecting faculty members for voters.

1.4 Report Organization

The project report is organized as follows:

- **Chapter1 (Introduction):** This chapter deals with the introduction of the system with its problem statement, objectives, scope and limitation.
- **Chapter 2 (Background Study and Literature Review):** This chapter describes about the background of the car rental system and information related to the existing system.
- **Chapter3 (System Analysis and Design):** This chapter describes the functional and non-functional requirements of the system, feasibility analysis (operational, technical, economic, schedule-GANTTCHART), ER-diagramandDFDofthesystem,database schema, user interface diagrams, and architectural diagram.
- **Chapter 4 (Implementation and Testing):** Different tools including CASE Tools, documentation tools, etc., test case for unit testing and system testing are discussed in this section.
- **Chapter5 (Conclusion):** This chapter describes the conclusion, outcomes and future recommendations and the improvements or update of the project that can be done on the upcoming days.

CHAPTER2: BACKGROUND STUDY AND LITERATURE REVIEW

2.1 Background Study

Voting through paper ballots is still common but it is time-consuming, labor-intensive, and expensive. Training voters in rural areas before elections adds to the cost and effort. Although some high-density chip systems exist, they are generally only suitable for large-scale organizations.

2.2 Literature Review

The description and function of an existing HDC voting system are explained, along with the hardware and software specifications used in its development.

- **HDC Class Representative Election system:-**

  Yojana Subedi, our senior sister, has already developed a system where candidates apply for elections via a form. Once an admin approves an application, the candidate's information is displayed on the voters' dashboard, allowing voters to vote for their candidates based on their class. There was an issue in the system where, after voters cast their vote, the voting options remained available, enabling them to vote for multiple candidates.

- **Type form:-**

  Type form is an HDC voting system software that provides various features, including creating voting polls, registration forms, quiz makers, research surveys, and application forms.

CHAPTER3: SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

System analysis involves examining and understanding a system's requirements, processes, and objectives to design efficient solutions .It's essential for creating effective software and IT solutions.

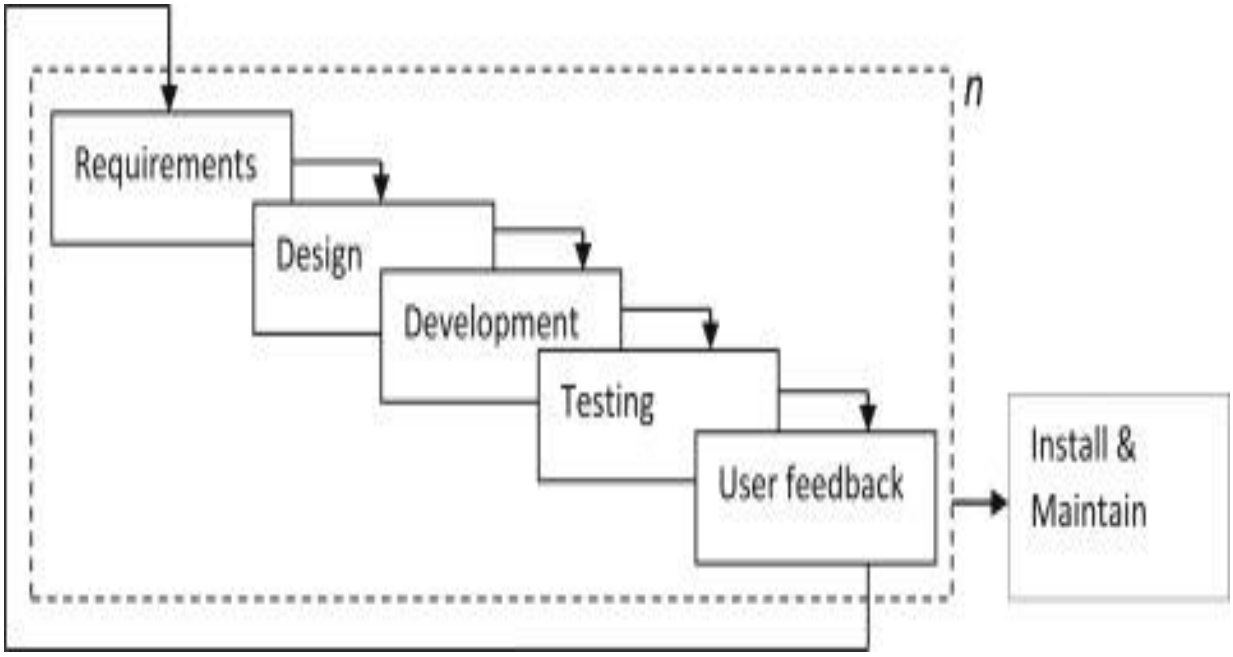

Figure1: Incremental Methodology

3.1.1 Requirement Identification

The requirement that is essential for the development of the proposed system is functional and non-functional requirements .Its various parameters are based on a feasibility study and so on.

i. Functional Requirements

- Add for program.
- Add for student.
- Add for candidate.
- Start or Place a vote and view the results.

USECASE DIAGRAM

Figure2: Use Case Diagram

ii. Non-functional Requirements

It defines the criteria according to which the system must work.

- **Usability:** The website should be easy to use and navigate, with a clear and simple interface that is accessible to all users.
- **Performance**: The website should load quickly and respond promptly to user actions.
- **Security**: The website should have basic authentication and access controls to ensure that only authorized users can access the system as the admin performs the many actions i.e. add program, student and candidate.
- **Reliability:** The website should be stable and reliable, with minimal errors or downtime.

3.1.2 Feasibility analysis

Feasibility study means to analyze and evaluate the proposed project that indicates if a project is viable or not. It estimates the existing business environment, problems and opportunities, and resources which will ultimately lead success of project.

i. **Technical Feasibility**

The HDC voting system is technically feasible as the requirements for the development of system is easily accessible. The required hardware and software (PHP, MySQL, JS, HTML, CSS) for the system is also available

ii. **Operational Feasibility**

The HDC voting system will be easy to operate as the working process of the system is similar to other system and is user-friendly. So, the system is operationally feasible.

iii. **Economic Feasibility**

The HDC voting system is economically feasible and cost effective. All the tools and technologies required to build this project is available and free.

iv. **Schedule Feasibility**

Schedule feasibility shows that if the project can be completed in a given time or not.

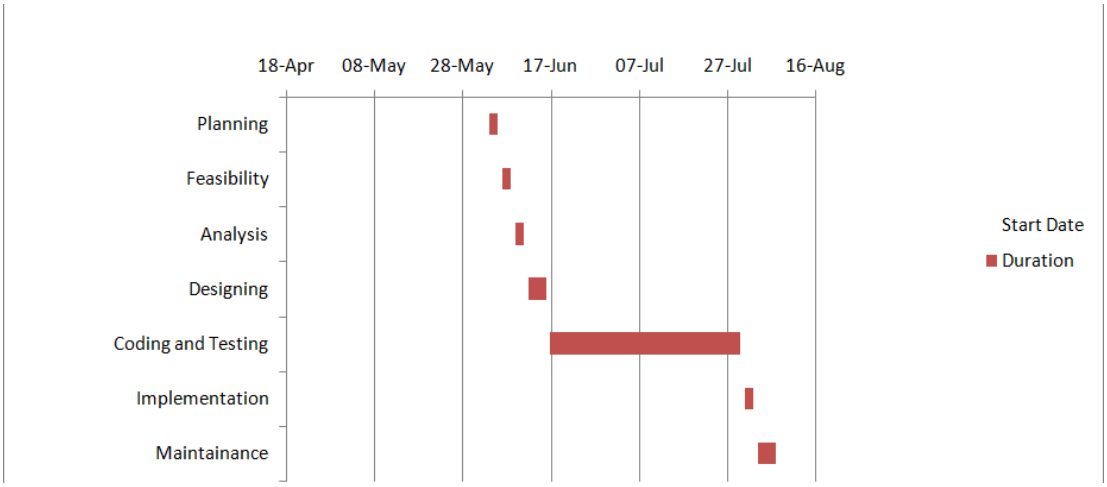

Figure3: Gantt chart of HDC Voting System

3.1.3 Data Modeling

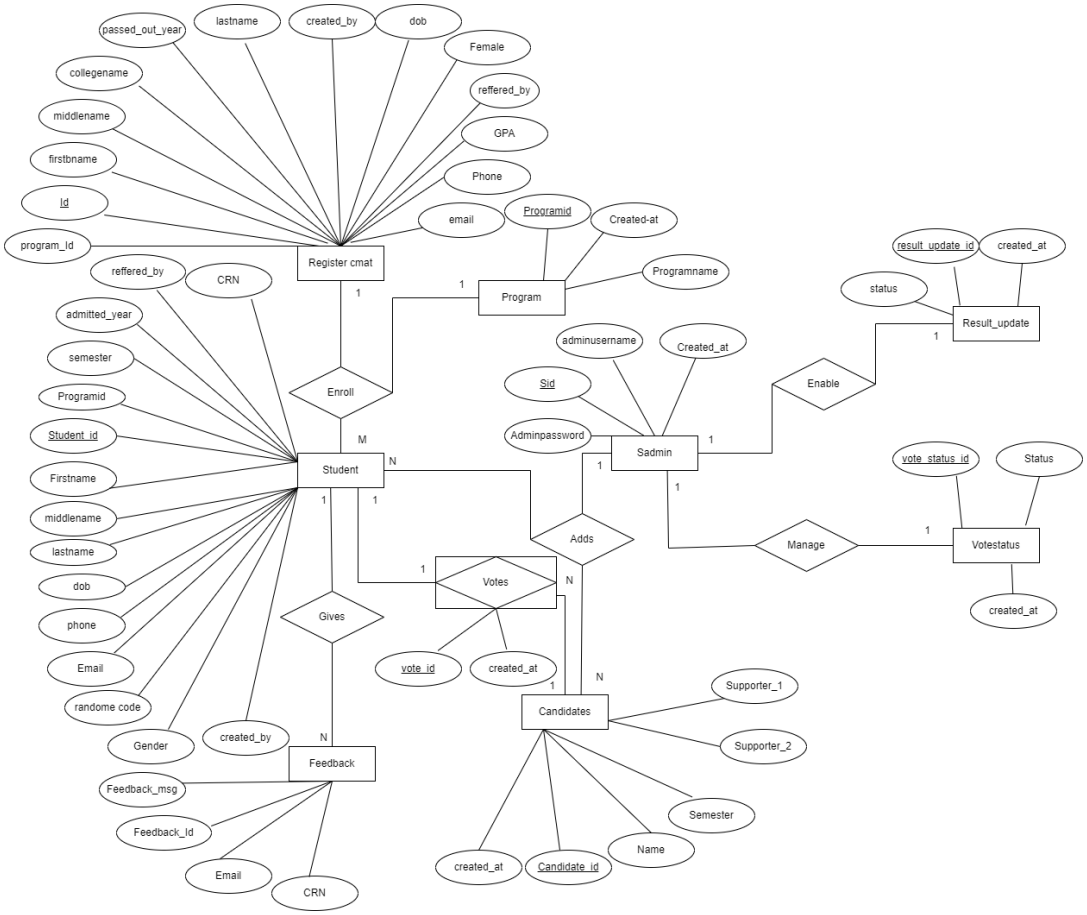

Figure4: ER-Diagram

In the above ER-diagram, there are total of 9 entities:

Register_cmat,Student,Feedback,program,vote,candidate,Sadmin,Result_update,Votestatus.

3.1.4 Process Modeling

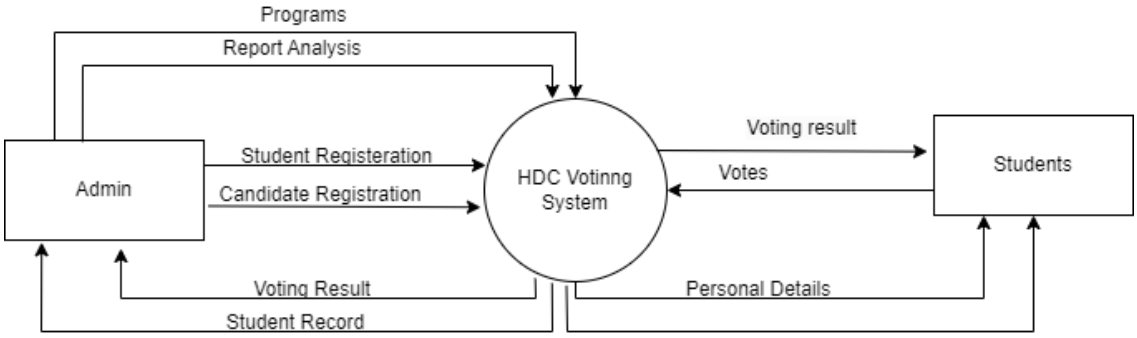

Figure5: Context Diagram

A context diagram depicts the system as a single entity and shows its interactions with external entities such as users and other systems. It provides a broad overview of the system's boundaries and interactions with the external environment.

3.2 System Design

System design is the process of defining the architecture, interfaces, and data for a system to meet specific requirements.

3.2.1 Architectural Design

Architectural design is the process of defining the hardware and software components and their interfaces to create the framework for system development.

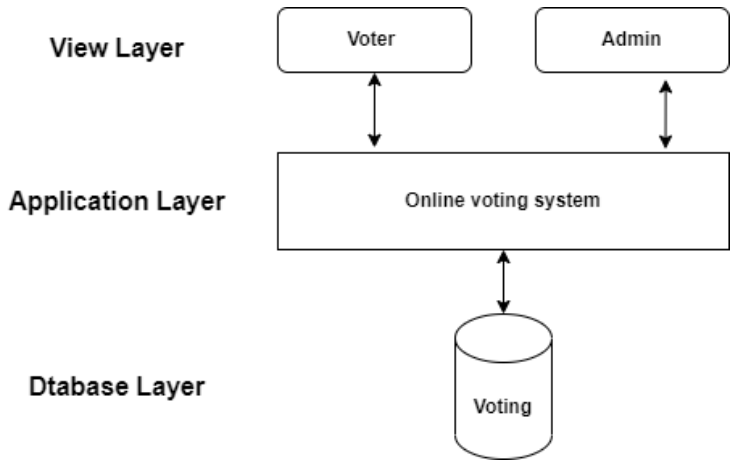

Figure7: Architectural Design

3.2.3 Interface Design

User Interface (UI) refers to the visual and interactive elements of software or a website that users interact with. The interface of all major pages of this system is shown below.

- **Admin Login Page:**

  This is the page where the admin enters the pre-set information for the username and password i.e. admin@gmail.com and admin123 respectively.

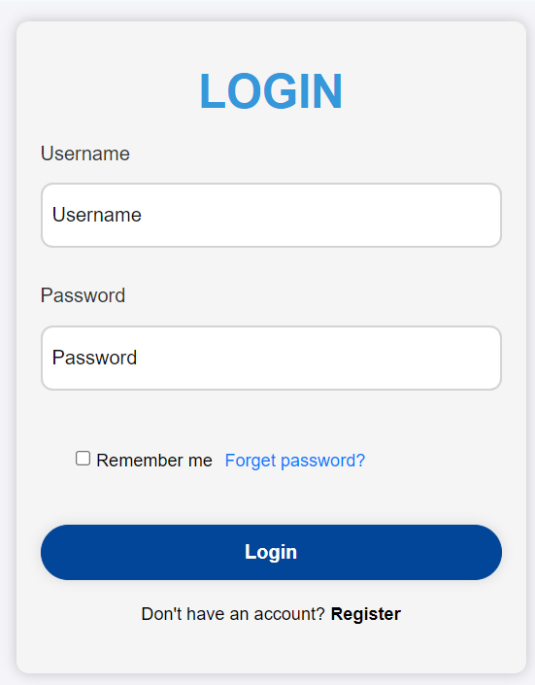

Figure 8: Admin Login page

- **Voter Login Page:**

  This is the page where the voter enters the CRN and Random Code for login to his/her dashboard which is generated automatically and provided by the admin.

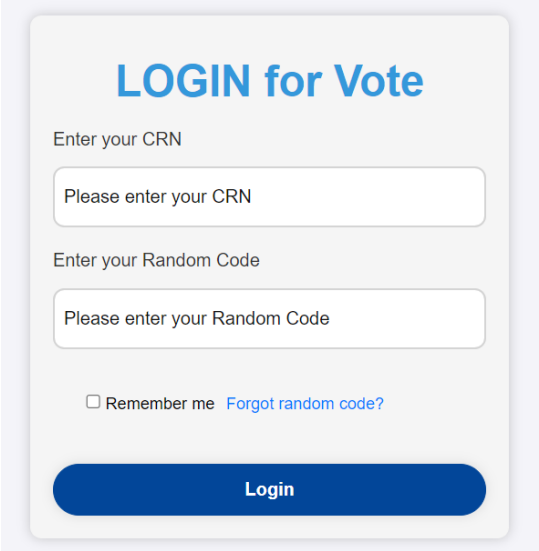

Figure 9: Voter Login page

- **Student Registration Page**

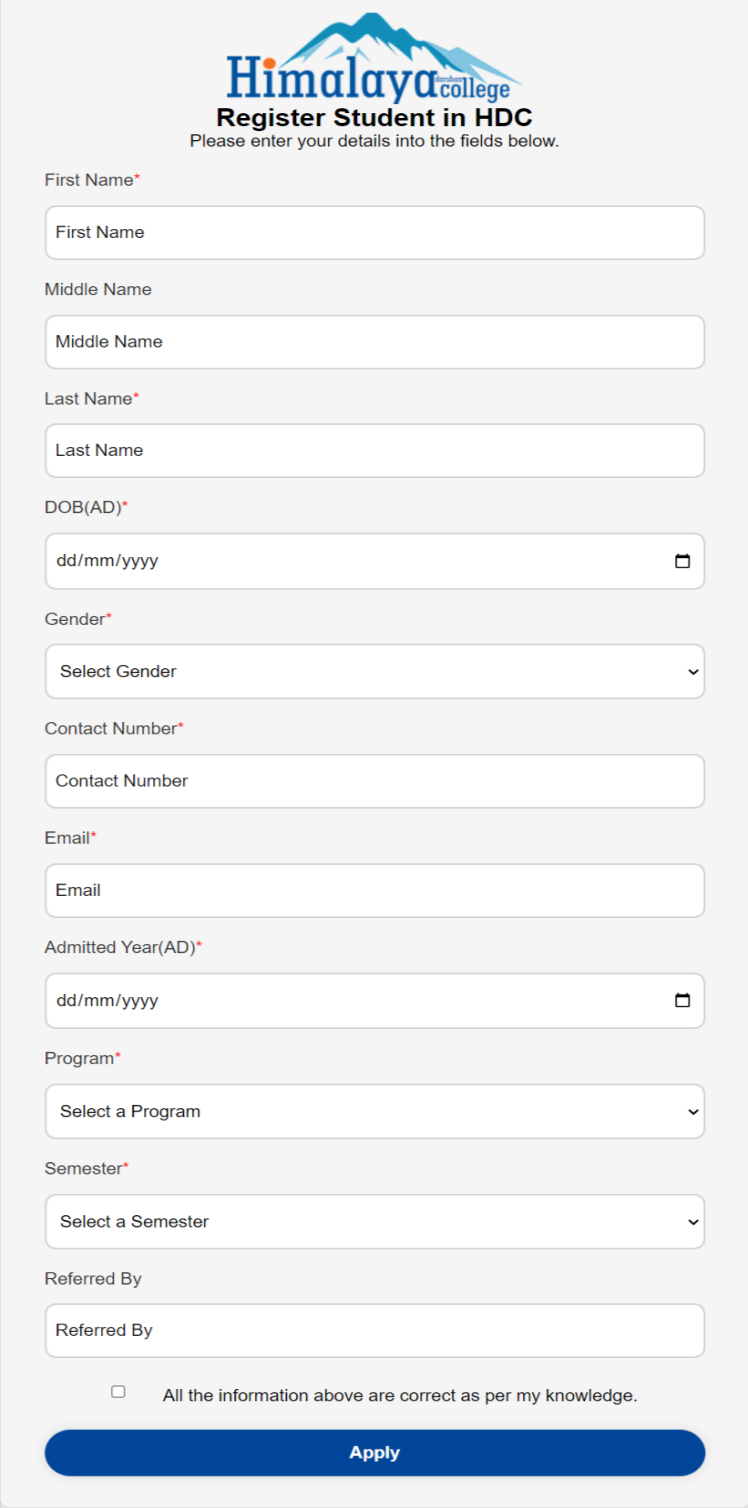

Figure 10: Student Registration page

- **Free CMAT Registration Page**

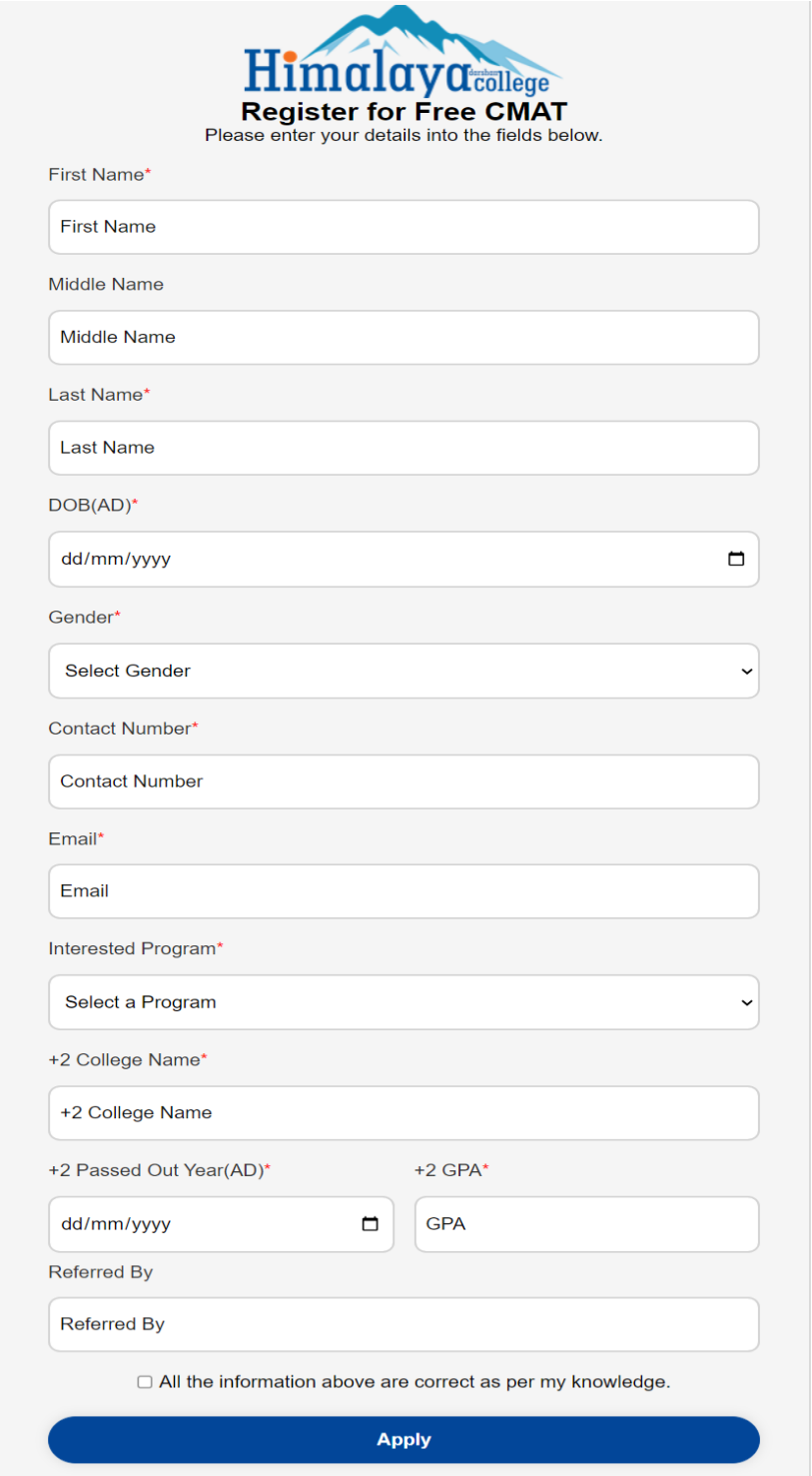

Figure 11: Free CMAT Registration page

CHAPTER 4:
IMPLEMENTATION AND TESTING

4.1 Implementation

4.1.1 Tools Used

The tools that are used in order to make the HDC Voting System are:

I. CASE Tools:

- Draw.io: It is proprietary software for making diagrams and charts. The software let us choose for man automatic layout. They have a large selection of shapes and hundreds of visual elements to help in making our diagrams.
- VS Code: VS Code is the most popular source code editor. The functioning of the HDC Voting System is only possible through the lines of codes and VS Code is the platform for writing these codes.

II. Programming Languages:

Front-End Tools

- HTML: HTML is the markup language that we use to structure and give meaning to our web content, for example defining paragraphs, headings, and data tables, or embedding images and videos in the page.
- CSS: CSS is a language of style rules that we use to apply styling to our HTML content, for example setting background colors and fonts, and laying out our content in multiple columns.
- JS: JS is a scripting language that enables you to create dynamically updating content, control multimedia, animate images, and pretty much everything else.

Back-End Tools

- Php: Php is server-side scripting language used for the back-end and for making dynamic web pages.
- MySQL: MySQL is a popular open source database that stores data of the system.

III. Microsoft Office Package:

We used MS Word for project documentation and MS PowerPoint to create and present slides, both part of the Microsoft Office Suite.

4.1.2 Implementation Details of Modules

- **Admin Model:-**

  The admin model of this system consists of the following functions:

  1. Login into the system
  2. Add program, students and candidates
  3. Update/Delete existing program, student or candidate.
  4. Start/End vote
  5. Hide/Show the results
  6. Check Feedback

- **User Model:-**

  The user models of this system consist of the following functions:

  1. Login into the system
  2. Place vote
  3. View result
  4. Provide Feedbacks

4.2 Testing

Testing is the phase where each module and the entire system are checked for correct output, and any errors found are corrected or updated.

4.2.1 Test Cases for Unit Testing

Some of the unit testing conducted areas follows:

Table1: Test 1-Login Form

TestCase1	Description	Expected Results	Test result
1	Enter a valid username and password	Should redirect to the main page	Successful
2	Invalid details	Should display error	Successful

Table2: Test 2- Registration Form

Testcase2	Description	Expected Result	Test Result
1	Enter correct and validate details of the Students	Registered into the database successfully	Successful
2	Enter the invalid details of Student	Display Error	Successful

Table3: Test 3-Candidate Form

TestCase3	Description	Expected Result	Test Result
1	Add Candidate	If the candidate is the Student of HDC, s/he can be candidate else show error	Successful

Table4: Test 4-Program Form

TestCase4	Description	Expected Result	Test Result
1	Add Program	If the program doesn't already exists then show error else add sucessfully	Successful

4.2.2 Test Cases for System Testing

Table4: Test4

S .No	Description	Expected Result	Test Result
1	Enter Vote to interested candidate	Vote Successful	Pass
2	Go to a different page after login	Successfully able to change the page	Pass
3	Update candidate information	Able to display candidate information on user dashboard	Pass
4	Select a candidate to place a vote	The user should be able to place a vote by choosing their candidates	Pass
5	Sharing feedback	The user provide the feedback using the feedback form.	Pass

Chapter 5: CONCLUSION AND FUTURE RECOMMENDATIONS

5.1. Lesson Learnt/Outcome

While working on this project, we improved our programming skills in HTML, CSS, PHP, and JS. It taught us the importance of cooperation and coordination with team members and the supervisor. Additionally, we learned valuable lessons in time management to meet the project deadline.

5.2. Conclusion

After analyzing the positive aspects, we concluded that this system, with enhanced security features, can be used by schools, colleges, and offices for various voting purposes. It aims to eliminate the need for in-person voting with ballots, and view results easily on .

5.3. Future Recommendations

To enhance this system, we should first improve security. Users must be login by the CRN and receive a unique Random code after registration by admin. We can add features for adding semesters, latest notices and so on.

5.4 Additional Features

This system overall focuses on the enhancement of the Website of HDC i.e. https://himalayacollege.edu.np/

We can additionally add more features to the page as per the requirement of the college.

REFERENCES

1. YojanaSubedi,HDCClassRepresentativevotingsystem,2022
2. https://stackoverflow.com/
3. https://www.typeform.com/