PROJECT REPORT

ON

ONLINE VOTING PORTAL

FOR

CODEBROTHER INDIA

BY

HARSHADA SHRIKANT MORJE

MC21955

POST GRADUATE DEPARTMENT OF COMPUTER SCIENCE,
S.N.D.T. WOMEN'S UNIVERSITY

MASTER OF COMPUTER APPLICATION
SEM VI - (2020-2021)

CERTIFICATE

This is to certify that MS. HARSHADA SHRIKANT MORJE has completed the project on ONLINE VOTING PORTAL satisfactorily as a partial fulfillment of the Post Graduate Degree of Master Of Computer Application (MCA)

Internal Examiner :

Signature :

Name :

Date :

External Examiner :

Signature :

Name :

Date :

Head of Department :

Signature :

Name :

Date :

COMPLETION CERTIFICATE

CODEBROTHER INDIA

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Miss Harshada Shrikant Morje** has done her online internship in developing basic web applications using PHP and Bootstrap at Codebrother India, Kanpur, from 28th Jan 2021 to 28th Jun 2021.

She has worked on the project titled "Online Voting Portal". As part of the project, she has designed layouts, developed web apps.

During her internship, she has demonstrated her skills with self-motivation to learn new skills. Her performance exceeded our expectations and she was able to complete the project on time.

We wish her all the best for her upcoming career.

Akash Maurya

Project Manager

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office @codebrother.co.in

141, Malviya Vihar, Kamahi
Kanpur - 208027

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to my mentor DR. GANESH MAGAR for his valuable guidance and support in completing my project.

I would also like to express my gratitude towards him for allowing me to do a project on Online Voting Portal. This project helped me learn many new things. Without the support and suggestions from my mentor, this project would not have been completed.

I take this opportunity to thank SNDT Woman`s University for giving me chance to do this project.

Also, I would like to express my deepest gratitude and special thanks to Mr. Gaurav Maurya, Managing Director, who in spite of being extraordinarily busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization and extending during the training.

I express my deepest thanks to Mr. Akash Maurya , CEO for taking part in useful decision & giving necessary advices and guidance and arranged all facilities to make life easier. I choose this moment to acknowledge his contribution gratefully.

I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future,

Harshada S. Morje.

Place:

Date:

ABSTRACT

In this day and age of developing cutting edge innovations, the traditional voting technique can be changed to a more up to date and powerful approach termed as electronic voting system. The online voting portal gives a helpful, simple and proficient approach to cast a vote eliminating the shortcomings of traditional approach.

Online Voting Portal is the website designed to allow the members to vote. It allows the member to select the President and Vice President of his/her choice. The member can vote for the person amongst all the nominated candidates. This entire processed is based on PHP.

Further to this, another challenge is for the software developers who have to take the responsibility to develop easy, user friendly system for the same purpose. This goal can very effectively be achieved with the use of PHP software as PHP is a simple, elegant and powerful software development tool. PHP as a web development option is secure, fast and reliable that offers lots more advantages to make it accessible to people.

For the same reason and due to the high demands, we are happy to provide a well developed complete Online Voting Porting for the aspiring developers, who want to mark their worth by providing real and authentic work of the project they are assigned to.

The word "vote" means to choose from a list, to elect. The main goal of voting is to come up with President and Vice President of the people's choice. Some of the problems involved include ridging votes during election. insecure or inaccessible pulling stations. inadequate polling materials and also inexperienced personnel. This online voting portal seeks to address the above issues. lt should be noted that with this system in place, the users in this case shall be given ample time dining the voting period. They shall also be trained on how to vote online before the election time.

List of Figures and Tables

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CHAPTER 1: INTRODUCTION

1.1 Company Profile

Codebrother India is the fastest growing website designing, software development, and digital marketing services provider for small businesses in India. We help small businesses to make a presence on the web and grow.

We at Codebrother India, develop professional websites, software, mobile apps, and design attractive Logos. We continuously offering the best hosting, development, and designing services at the lowest price.

Our main objective is to provide our customers incomparable affordable cheap web hosting, logo designing, and development services and best technical support. We provide you the best web hosting at cheap prices, not cheap hosting.

We are living in the digital age, where every firm wants to develop its business in the best possible way. It is particularly true for IT firms as they strive hard to serve their clients with the most advanced and best-in-its-class IT services. Codebrother. is your one-stop solution for website design, web development, eCommerce, portal development services.

At Codebrother India, we have a team of IT experts, who strive hard to their best potential to provide you the best and the most feasible website design and web development solutions at the most effective rates.

Our Services:

Website Design and Development

- Static Website Designing
- Dynamic Website Development
- E-Commerce Website Setup
- Blog / News Website Development
- Website Redesigning

Software and Mobile App Development

- ERP Software Development
- Cloud-Based Software Development
- Android Application Development

SEO Services

- Keyword Analysis
- On-Page SEO
- Off-Page SEO
- Link Building
- Search Engine Submission
- Sitemap

E-Branding

- Facebook Page Management
- Instagram Account Management
- Graphic and Logo Designing
- Vector and 3D Logo Designing
- Social Media Posts and Cover Designing
- Business Card Designing
- Motion Video Ads
- Intro and Outro Video
- Promotional Motion Ads
- Video Ads on Demand

ANALYSIS OF ACTIVITY DONE

ORGANIZATION SELECTION

It is very important to select organization that fulfills our objectives. As it is for our internship, it is necessary to select organization where there is learning environment because as an intern our first motive is to learn how the works are carried out in the real field.

The Master computer Application of allows us to attain knowledge on various aspects of Information Technology. At the same time the internship is the one of the major highlight of the program to expose the students to the professional world. Among the various criteria and sectors provided to us in internship prerequisite statement, software Development Company was chosen. Various organizations were shortlisted and approached out of which the organization with the best lucrative offer and environment was selected.

Codebrother India. which is located Kanpur an IT company that covers software development, wired & wireless solutions, network design and implementation, e-Business applications solutions and others internet related systems and author got selected there. The company helped me gain wide experience by getting me involved in their projects.

DURATION

Start Date: JAN 28, 2021

Duration: 6 month

Position: Associate

Supervisors: MR.AKASH MAURYA

Office Hour: 10:00 am – 5:30 pm

End Date: Jun 27, 2021

ROLES AND RESPONSIBILITY

During the internship period knowledge of various platforms and programming languages are gained. The target was to deliver a fully-fledged web based system by using different tools and frameworks such as PHP and JS.

Hence, to meet that objective, this internship required the extensive preliminary studies about the core PHP before actually analysing the actual requirement of the system. The study was required not only to understand the subject under study but also to realize the solutions to the existing problems and implementing the findings from the study was another bigger challenge. Besides study of, Core PHP other major activities carried out during internship was extensive study of current online platform, presentations of study analysis and practical implementations, and most importantly the team discussions to analyse the customer change request. The regular meetings with the Supervisor and discussion with mentors helped me to wide my horizon of knowledge of the existing system and problem background. Software development is one of the major services of the Soft web Developers Company. Soft web Developers provides a flexible and scalable solutions of software (web based or desktop based) to meet our needs for small or large firm.

Software development is the collective processes involved in creating software programs, embodying all the stages throughout the systems development life cycle (SDLC). During my internship, Author worked on Online Voting Portal project which was based on PHP and JavaScript frame work.

TEAM

Author has been assigned with my senior programmer Mr. Akash for the project. He gave me introductions so that author could understand the project in short time and also assigned me task and for testing part the problem to be fixed. Without his helpful mentoring, author could not involve with the project successfully.

1.2 Existing System and Need for System

In existing system if you wish to vote for someone, then you have to go to the destination where the voting procedure is going on and then only you can vote for him or her.

Existing system does not provide people the way in which they can get the details about the nominees as well They can't get to know the history of the people for whom they are standing in queue for giving then votes.
The problems of the existing manual system of voting include among others the following. Expensive and Time Consuming ET too Much Paper Work To Errors during data Entry le loss of registration forms

Proposed system is highly automated and greatly technical. In this system. not even you can vote via sitting at your own place but also you can learn about laws and regulations related to voting. Also not only this but you can access the profit of the nominees through which you can learn about their history. their education, arid their personal details and so on. Using this online voting android based project, end users do not faces any difficulties as because they don't have to make registration before subnitting their answers.

1.3 Scope of Work

It is focused on studying the existing system of voting and to make sure that the peoples vote is counts, for fairness In the elective positions. This is also will produce:
• Less effort and less labor intensive, as the primary cost and focus primary on creating, managing, and running a secure web voting portal.
• Increasing number of voters as individuals will find it easier and more convenient to vote, especially those not living in the complex.

1.4 Operating Environment – Hardware and Software

Hardware requirements:

Microsoft Windows XP Professional 5133/Vista SP1/Windows 7 Professional:
Processor: 800MHz Intel Pentium III or equivalent Memory: 512 MB Disk space: 750 MB of free disk space

Software requirements:
Windows 7 or higher
Notepad++ (Version 7.9.5)
OR Microsoft Visual Studio Code (Version 1.52.1)
XAMP Server 1.8.3 or higher
Web browser

1.5 Detail Description of Technology Used

HTML

HTML is an acronym which stands for **Hyper Text Markup Language** which is used for creating web pages and web applications.

Hyper Text: HyperText simply means "Text within Text." A text has a link within it, is a hypertext. Whenever you click on a link which brings you to a new webpage, you have clicked on a hypertext. HyperText is a way to link two or more web pages (HTML documents) with each other.

Markup language: A markup language is a computer language that is used to apply layout and formatting conventions to a text document. Markup language makes text more interactive and dynamic. It can turn text into images, tables, links, etc.

Web Page: A web page is a document which is commonly written in HTML and translated by a web browser. A web page can be identified by entering an URL. A Web page can be of the static or dynamic type. With the help of HTML only, we can create static web pages.

The HyperText Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

HTML is the standard markup language for documents designed to be displayed in a web browser. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. HTML elements are the building blocks of HTML pages.

The major points of HTML are given below:

- HTML stands for HyperText Markup Language.
- HTML is used to create web pages and web applications.
- HTML is widely used language on the web.
- We can create a static website by HTML only.
- Technically, HTML is a Markup language rather than a programming language.

CSS

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.

CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications. You can add new looks to your old HTML documents. You can completely change the look of your website with only a few changes in CSS code.

Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS, is a simple design language intended to simplify the process of making web pages presentable.

The major points of CSS are given below:

- CSS stands for Cascading Style Sheet.
- CSS is used to design HTML tags.
- CSS is a widely used language on the web.
- HTML, CSS and JavaScript are used for web designing. It helps the web designers to apply style on HTML tags.

These are the three major benefits of CSS:

- Solves a big problem
- Saves a lot of time - CSS style definitions are saved in external CSS files so it is possible to change the entire website by changing just one file.
- Provide more attributes

JAVASCRIPT

JavaScript (often shortened to JS) is a lightweight, interpreted, object-oriented language with first-class functions, and is best known as the scripting language for Web pages, but it's used in many non-browser environments as well. ... JavaScript can function as both a procedural and an object oriented language.

JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive. Where HTML and CSS are languages that give structure and style to web pages, JavaScript gives web pages interactive elements that engage a user.

JavaScript is a light-weight object-oriented programming language which is used by several websites for scripting the webpages. It is an interpreted, full-fledged programming language that enables dynamic interactivity on websites when applied to an HTML document. It was introduced in the year 1995 for adding programs to the webpages in the Netscape Navigator browser. Since then, it has been adopted by all other graphical web browsers. With JavaScript, users can build modern web applications to interact directly without reloading the

page every time. The traditional website uses js to provide several forms of interactivity and simplicity.

There are following features of JavaScript:

- All popular web browsers support JavaScript as they provide built-in execution environments.
- JavaScript follows the syntax and structure of the C programming language. Thus, it is a structured programming language.
- JavaScript is a weakly typed language, where certain types are implicitly cast (depending on the operation).
- JavaScript is an object-oriented programming language that uses prototypes rather than using classes for inheritance.
- It is a light-weighted and interpreted language.
- It is a case-sensitive language.
- JavaScript is supportable in several operating systems including, Windows, macOS, etc.
- It provides good control to the users over the web browsers.

PHP

PHP is an open-source, interpreted, and object-oriented scripting language that can be executed at the server-side. PHP is well suited for web development. Therefore, it is used to develop web applications (an application that executes on the server and generates the dynamic page.).

PHP was created **by** Rasmus Lerdorf in 1994 but appeared in the market in 1995**.** PHP 7.4.0 is the latest version of PHP, which was released on 28 November. Some important points need to be noticed about PHP are as followed:

- PHP stands for Hypertext Preprocessor.
- PHP is an interpreted language, i.e., there is no need for compilation.
- PHP is faster than other scripting languages, for example, ASP and JSP.
- PHP is a server-side scripting language, which is used to manage the dynamic content of the website.
- PHP can be embedded into HTML.
- PHP is an object-oriented language.

- PHP is an open-source scripting language.
- PHP is simple and easy to learn language.

PHP is a server-side scripting language, which is used to design the dynamic web applications with MySQL database.
It handles dynamic content, database as well as session tracking for the website.
You can create sessions in PHP.
It can access cookies variable and also set cookies.
It helps to encrypt the data and apply validation.

PHP supports several protocols such as HTTP, POP3, SNMP, LDAP, IMAP, and many more. Using PHP language, you can control the user to access some pages of your website.

As PHP is easy to install and set up, this is the main reason why PHP is the best language to learn. PHP can handle the forms, such as - collect the data from users using forms, save it into the database, and return useful information to the user. **For example** - Registration form.

Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Bootstrap is a HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project. As such, the primary factor is whether the developers in charge find those choices to their liking. Once added to a project, Bootstrap provides basic style definitions for all HTML elements. The result is a uniform appearance for prose, tables and form elements across web browsers. In addition, developers can take advantage of CSS classes defined in Bootstrap to further customize the appearance of their contents. For example, Bootstrap has provisioned for light- and dark-colored tables, page headings, more prominent pull quotes, and text with a highlight.

MySQL

MySQL is a relational database management system based on SQL – Structured Query Language. The application is used for a wide range of purposes, including data warehousing, e-commerce, and logging applications. The most common use for mySQL however, is for the purpose of a web database.

SQL (Structured Query Language) is used to perform operations on the records stored in the database, such as updating records, inserting records, deleting records, creating and modifying database tables, views, etc.

SQL is not a database system, but it is a query language. Suppose you want to perform the queries of SQL language on the stored data in the database. You are required to install any database management system in your systems, for example, Oracle, MySQL, MongoDB, PostgreSQL, SQL Server, DB2, etc.

SQL is a short-form of the structured query language, and it is pronounced as S-Q-L or sometimes as See-Quell. This database language is mainly designed for maintaining the data in relational database management systems. It is a special tool used by data professionals for handling structured data (data which is stored in the form of tables). It is also designed for stream processing in RDSMS.

CHAPTER 2: PROPOSED SYSTEM

2.1 Proposed System

Proposed system is highly automated and greatly technical. In this system. not even you can vote via sitting at your own place but also you can learn about laws and regulations related to voting. Also not only this but you can access the profit of the nominees through which you can learn about their history. their education, arid their personal details and so on. Using this online voting android based project, end users do not faces any difficulties as because they don't have to make registration before submitting their answers.

2.2 Objectives of System

Online voting tools and online election voting systems help you make important decisions by gathering the input of your group in a way that's systematic and verifiable. Oftentimes, these decisions are made on a yearly basis - during an event (e.g. your society's AGM) or at a particular time of the year. Or you might run ongoing polls amongst your group.

It's a good idea to use an online voting system to:
Elect your leadership: A board of directors election is a good example, where there are multiple positions (e.g. chair, vice president, secretary, treasurer). All of which may include supporting documentation

Admit new members to your group. This helps you stick to a regular, fair process of evaluation and lets candidates know what to expect.

Gather anonymous feedback from your employees. Managers (and managers of managers) want to know how their employees truly feel about their jobs and work life. Using an online voting system with a capacity for secret balloting helps employees express their true feelings, by understanding and trusting that their feedback will be heard, but not tied directly to them.

Vote on yearly budgets. And since adjustments to your budget are often needed, an online voting system will keep voting secure and accessible - no matter where the members of your

group may happen to be.

Alter your operational procedures and bylaws. Just like leadership elections, expect group members to react strongly toward changes - no matter how minor - to organizational processes. You'll want to collect individual responses to these changes in a systematic manner.

In all of these cases, an online voting system will enable better decisions, justify those decisions, and let you share proof that these decisions were carried out in line with the standards of your group.

2.3 User Requirements

Users should be able to use the application from any Web browser supporting HTML 3.2 (or later) and cookies.

• Visitors new to the site should be able to register by themselves. Users will be differentiated by unique user identifiers.

• Site visitors should be able to purchase Card or services via the Visiting card.

• Users should be able to view a complete list of specified items available through the site.

• Users should be able to search for items by related attributes.

• Site visitors should be able to search the database using relevant keywords to identify items of interest.

• Users should be able to view the status of items they have Procced.

•Large numbers of users should be able to use the application simultaneously. The performance of the application should not degrade with an increase in the number of goods or services offered.

2.4 Software Development Model (Lifecycle Model)

Software Development life cycle (SDLC) is a spiritual model used in project management that defines the stages include in an information system development project, from an initial feasibility study to the maintenance of the completed application.

There are different software development life cycle models specify and design, which are followed during the software development phase. These models are also called "**Software Development Process Models**." Each process model follows a series of phase unique to its type to ensure success in the step of software development.

Here, are some important phases of SDLC life cycle:

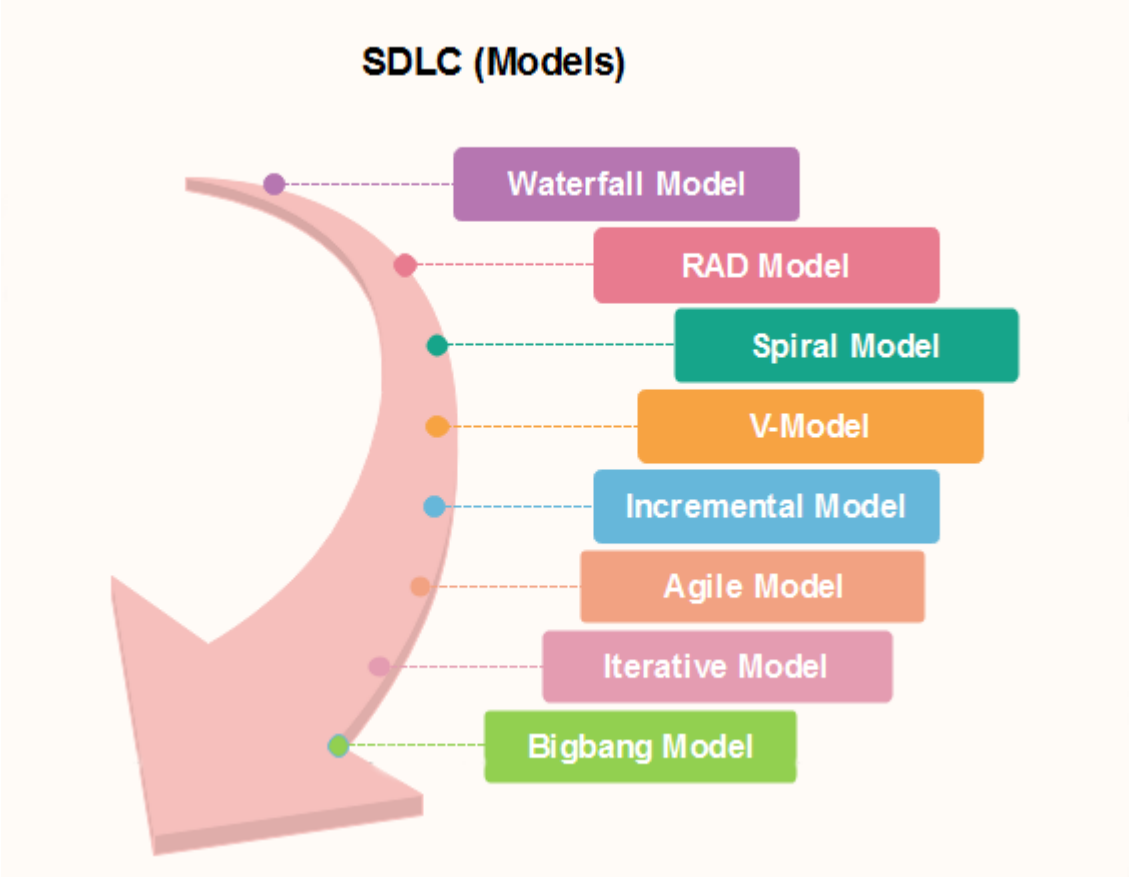


Fig 1

Agile Model

Agile methodology is a practice which promotes continues interaction of development and testing during the SDLC process of any project. In the Agile method, the entire project is divided into small incremental builds. All of these builds are provided in iterations, and each iteration lasts from one to three weeks.

Any agile software phase is characterized in a manner that addresses several key assumptions about the bulk of software projects:

It is difficult to think in advance which software requirements will persist and which will change. It is equally difficult to predict how user priorities will change as the project proceeds.

For many types of software, design and development are interleaved. That is, both activities should be performed in tandem so that design models are proven as they are created. It is difficult to think about how much design is necessary before construction is used to test the configuration.

Analysis, design, development, and testing are not as predictable (from a planning point of view) as we might like.

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like −

- Planning
- Requirements Analysis
- Design
- Coding
- Unit Testing and
- Acceptance Testing.

At the end of the iteration, a working product is displayed to the customer and important stakeholders.

Following are the Agile Manifesto principles −

Individuals and interactions − In Agile development, self-organization and motivation are important, as are interactions like co-location and pair programming.

Working software − Demo working software is considered the best means of communication with the customers to understand their requirements, instead of just depending on documentation.

Customer collaboration − As the requirements cannot be gathered completely in the beginning of the project due to various factors, continuous customer interaction is very important to get proper product requirements.

Responding to change − Agile Development is focused on quick responses to change and continuous development.

The advantages of the Agile Model are as follows −

- Is a very realistic approach to software development.
- Promotes teamwork and cross training.
- Functionality can be developed rapidly and demonstrated.
- Resource requirements are minimum.
- Suitable for fixed or changing requirements
- Delivers early partial working solutions.
- Good model for environments that change steadily.
- Minimal rules, documentation easily employed.
- Enables concurrent development and delivery within an overall planned context.
- Little or no planning required.
- Easy to manage.
- Gives flexibility to developers.

The disadvantages of the Agile Model are as follows −

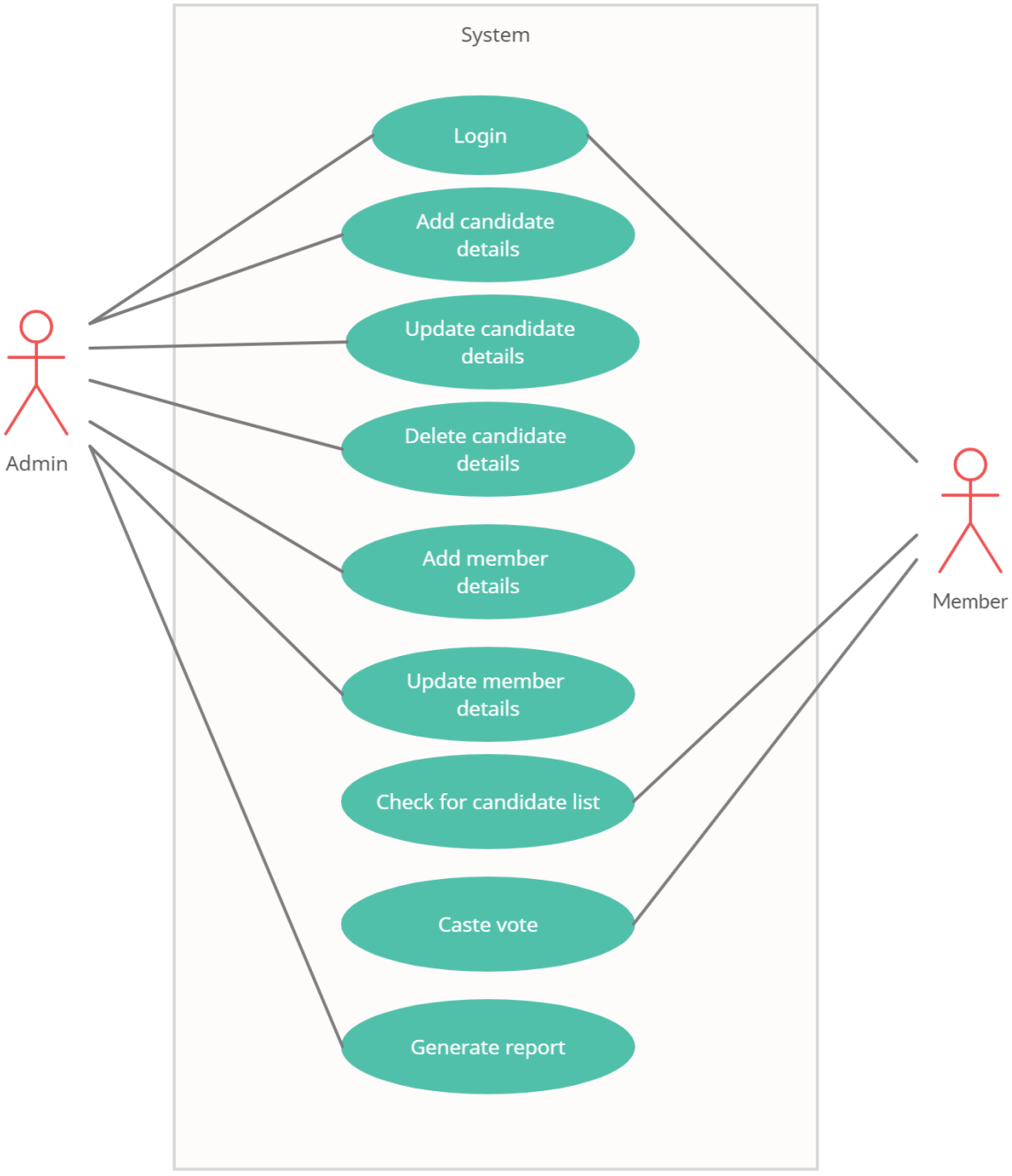
- Not suitable for handling complex dependencies.
- More risk of sustainability, maintainability and extensibility.
- An overall plan, an agile leader and agile PM practice is a must without which it will not work.
- Strict delivery management dictates the scope, functionality to be delivered, and adjustments to meet the deadlines.
- Depends heavily on customer interaction, so if customer is not clear, team can be driven in the wrong direction.
- There is a very high individual dependency, since there is minimum documentation generated.
- Transfer of technology to new team members may be quite challenging due to lack of documentation.

CHAPTER 3: ANALYSIS & DESIGN

3.1 Use Case Diagrams

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

Fig 3.1



3.2 Activity diagrams

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. Activity diagram is basically **a flowchart to represent the flow from one activity to another activity**. The activity can be described as an operation of the system. The control flow is drawn from one operation to another.

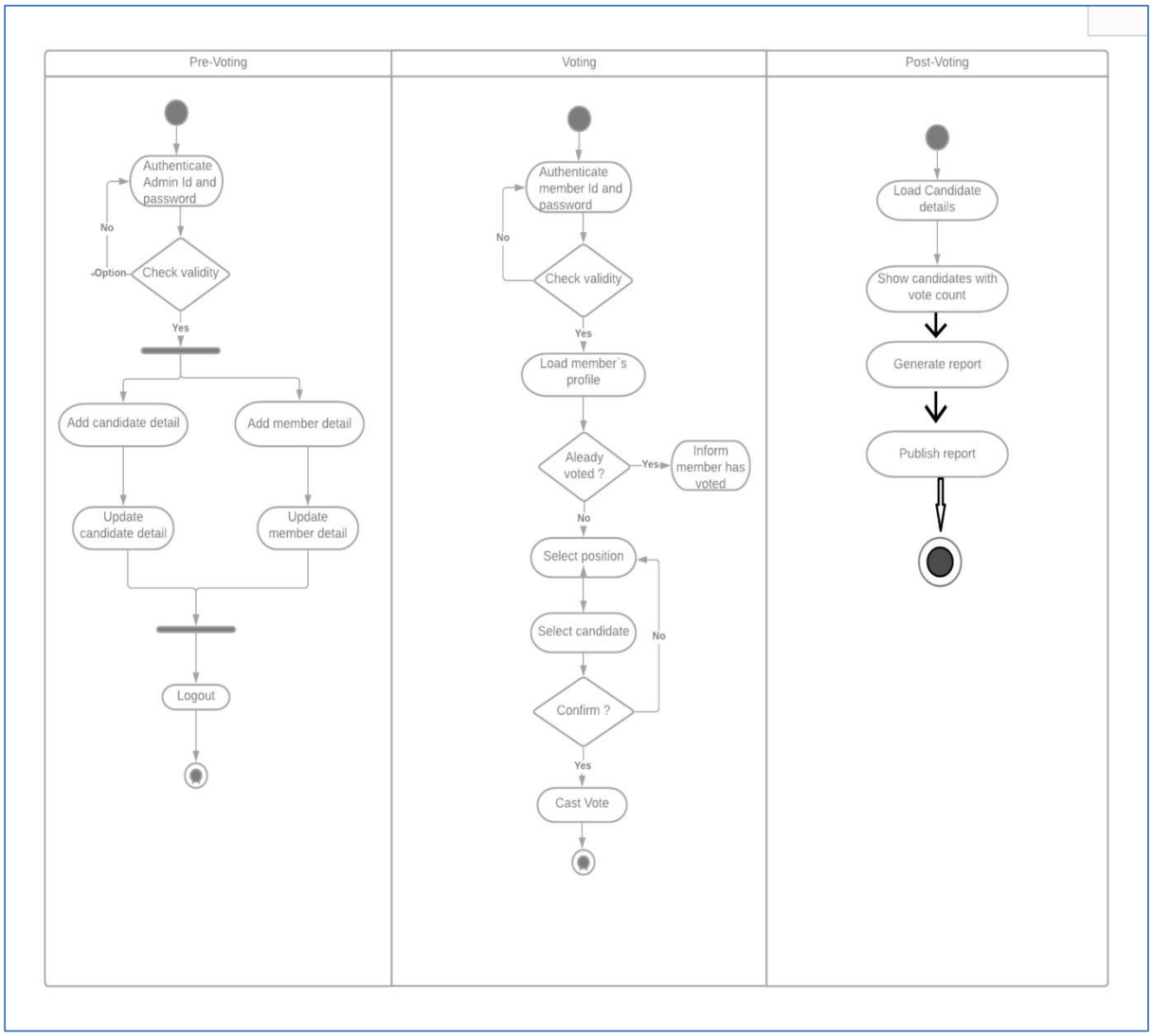


Fig 3.2

3.3 Sequence Diagrams

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

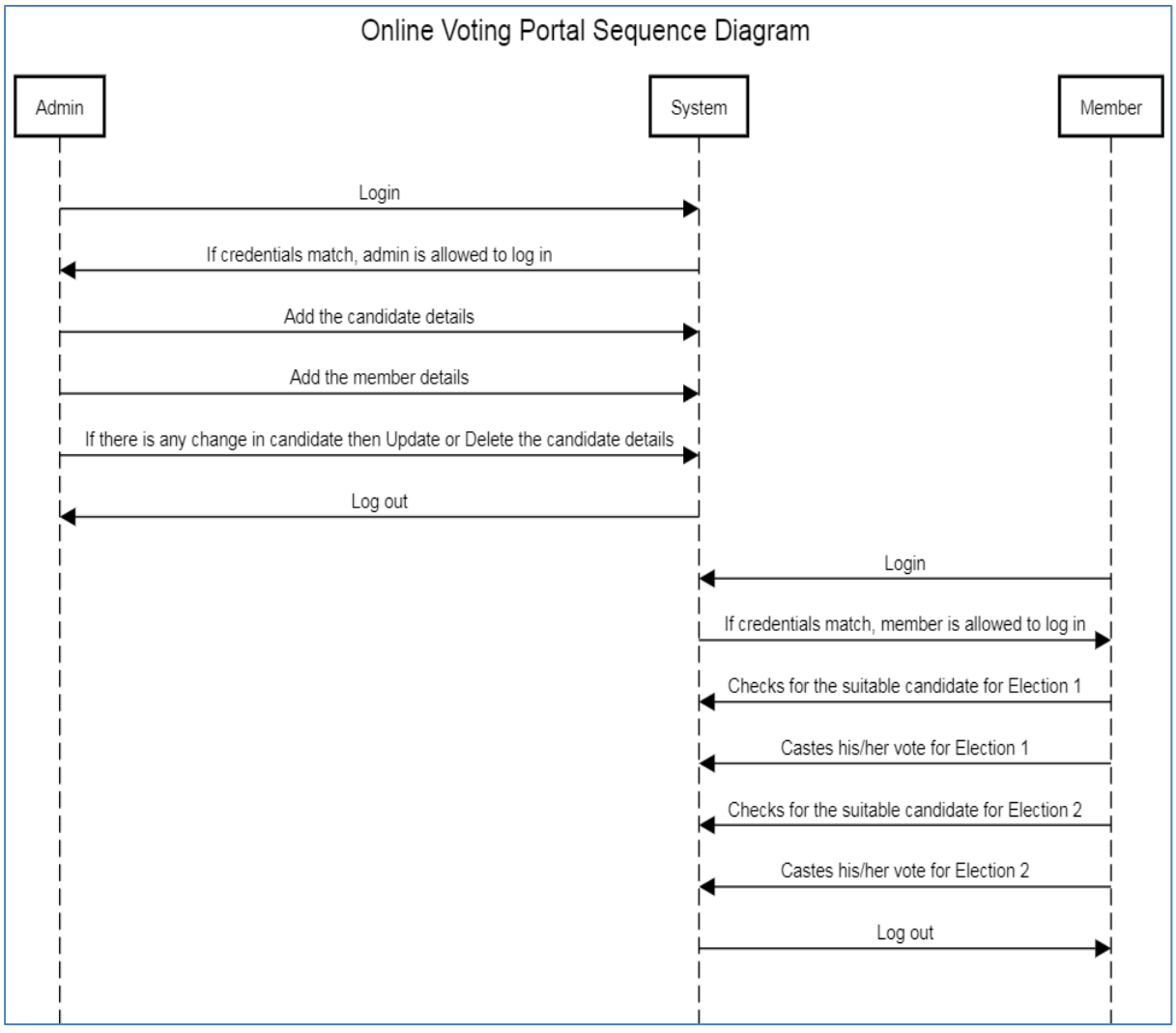


Fig 3.3

3.4 Class diagram

A class diagram in the Unified Modeling Language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations, and the relationships among objects.

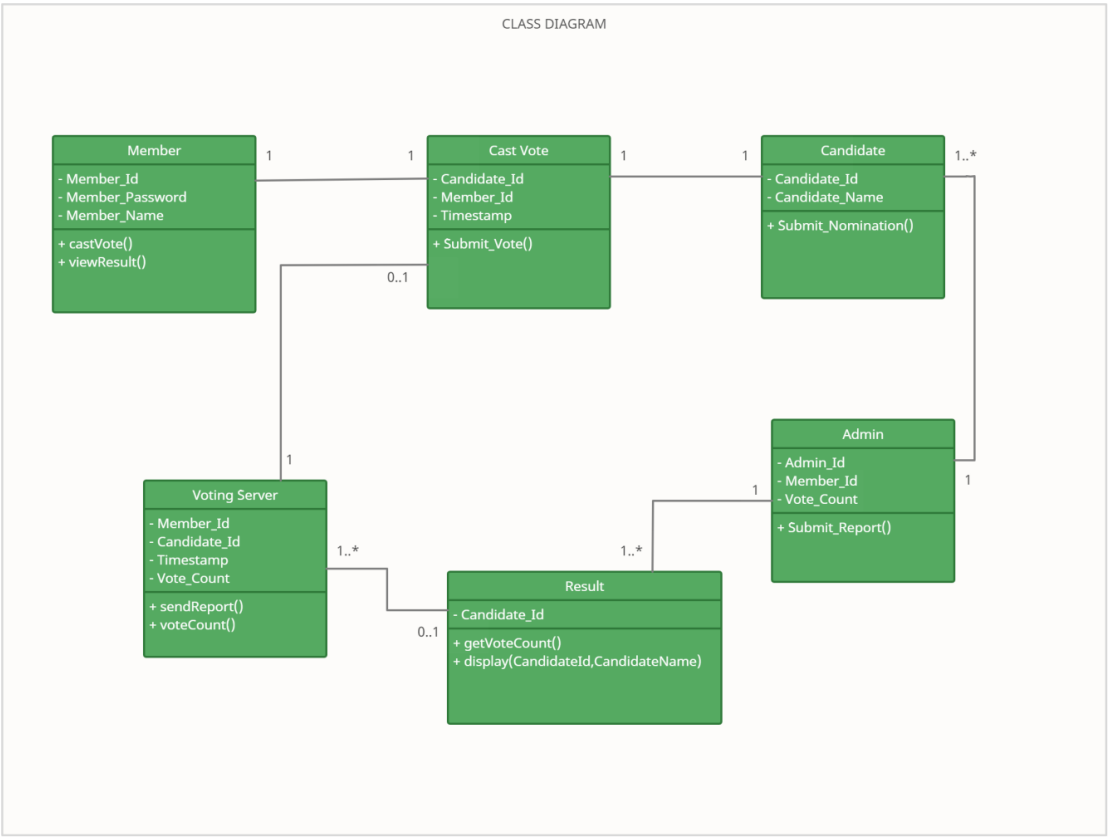


Fig 3.4

3.5 Object diagrams

Object diagrams **represent an instance of a class diagram**. ... Object diagrams also represent the static view of a system but this static view is a snapshot of the system at a particular moment. Object diagrams are used to render a set of objects and their relationships as an instance.

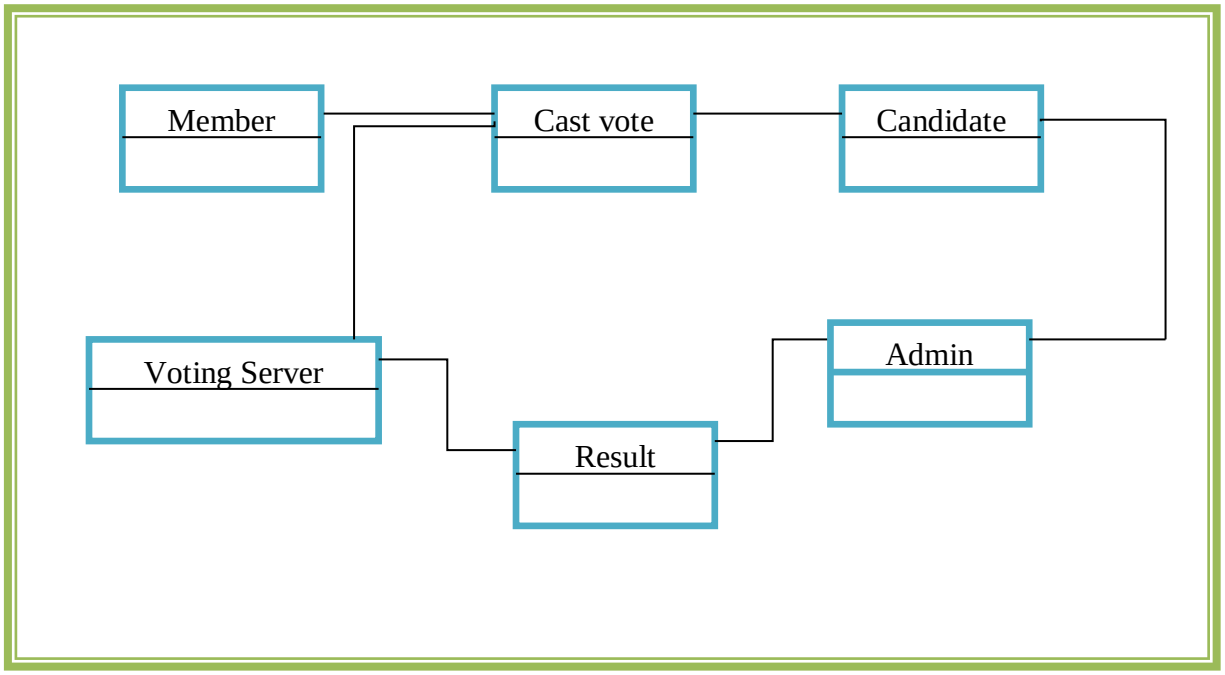


Fig 3.5

3.6 ERD

An entity–relationship model describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types and specifies relationships that can exist between entities.

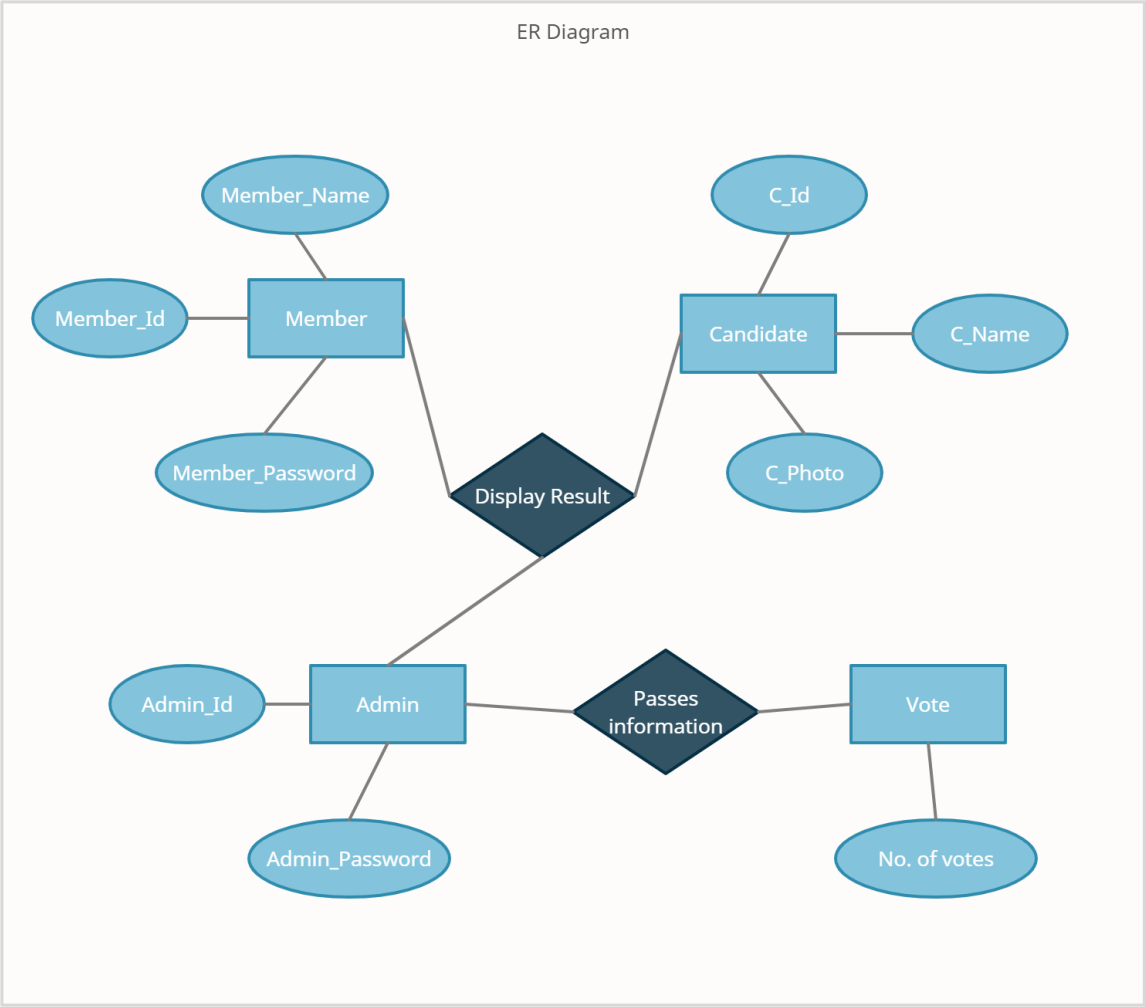


Fig 3.6

3.7 Web Site Map Diagram

Sitemaps are organized lists or flow chart diagrams that shows connections between web pages, web page trees, and website content. A visual sitemap is a very effective method for both planning and communicating ideas about a website's structure.

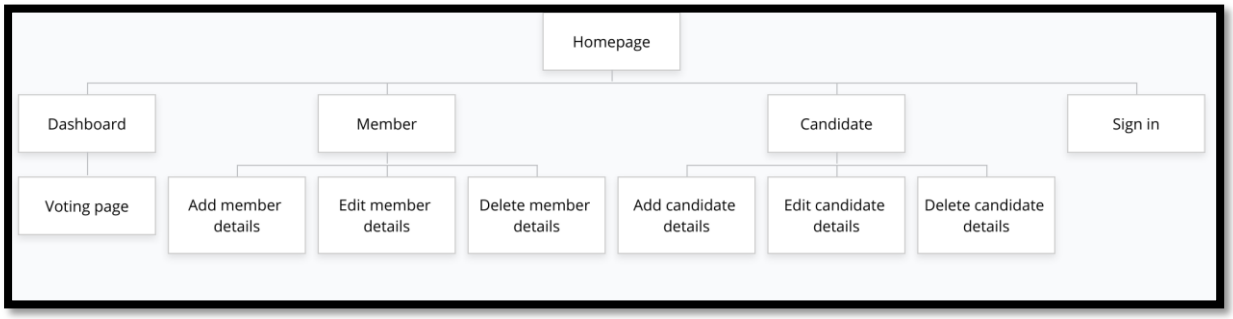


Fig 3.7

3.8 User Interface Design

User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. UI brings together concepts from interaction design, visual design, and information architecture.

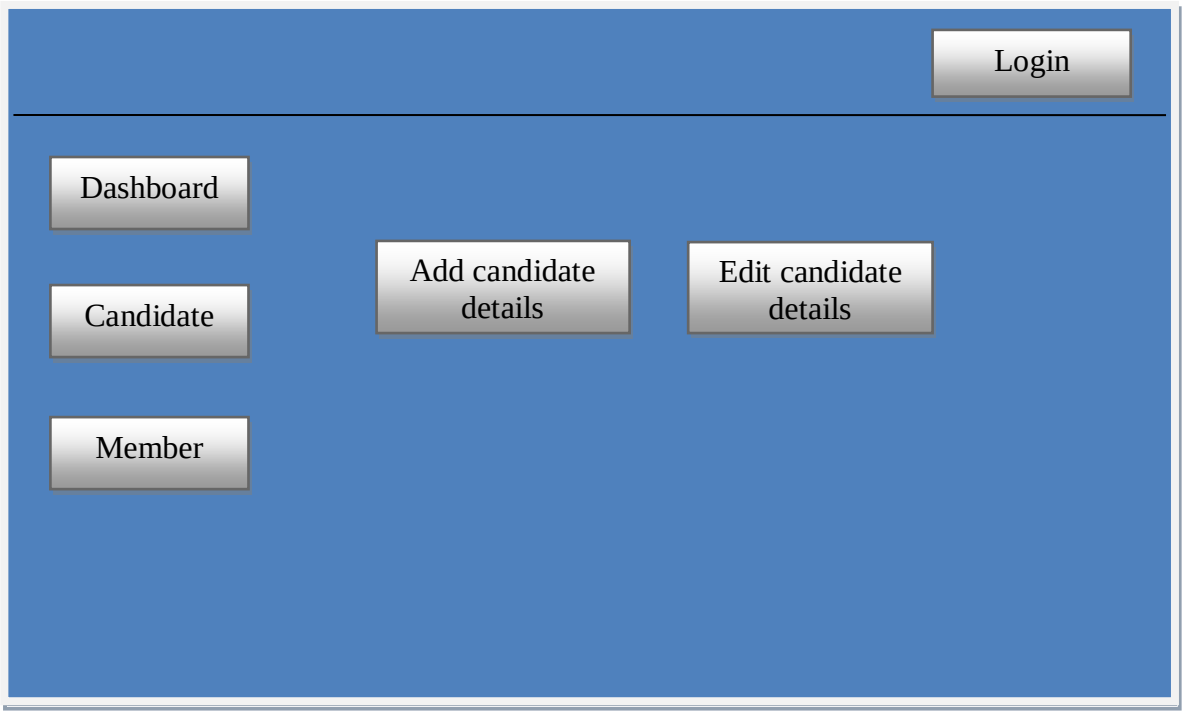


Fig 3.8

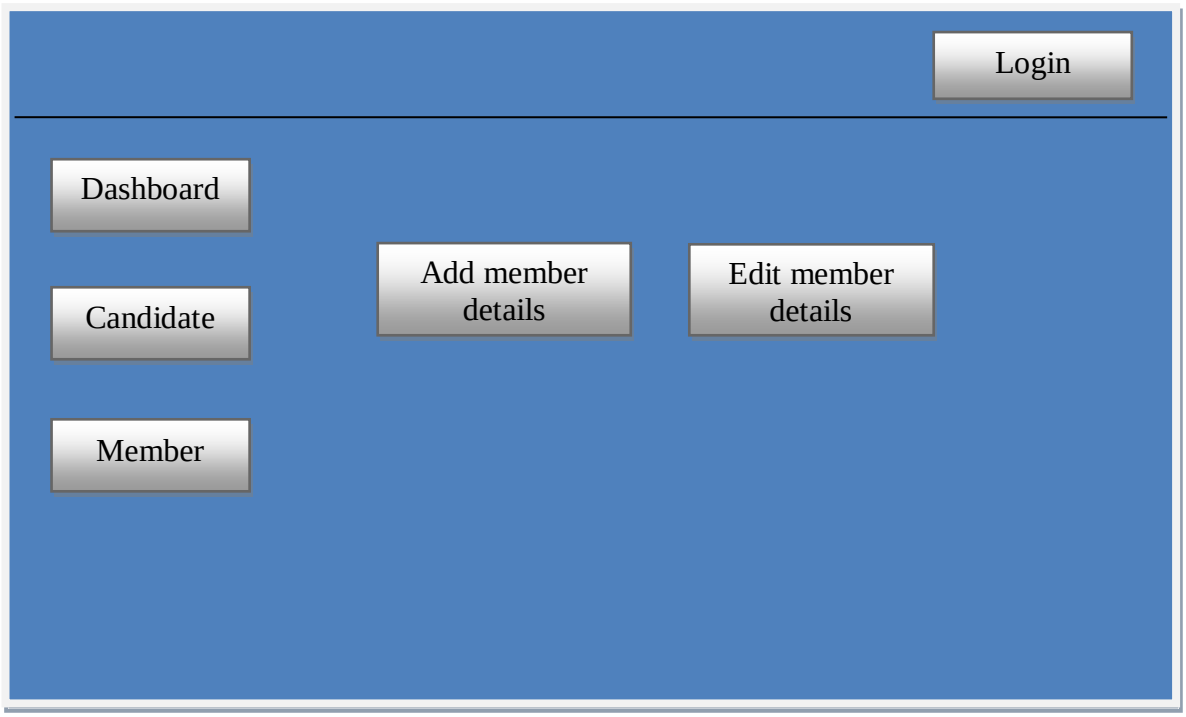


Fig 3.9

3.9 Test Plans and Test cases

What is Unit Testing?

Unit testing is a type of software testing where individual units or components of a software are tested. The purpose is to validate that each unit of the software code performs as expected. Unit Testing is done during the development (coding phase) of an application by the developers. Unit Tests isolate a section of code and verify its correctness. A unit may be an individual function, method, procedure, module, or object.

In SDLC, STLC, V Model, Unit testing is first level of testing done before integration testing. Unit testing is a WhiteBox testing technique that is usually performed by the developer. Though, in a practical world due to time crunch or reluctance of developers to tests, QA engineers also do unit testing.

Why Unit Testing?

Unit Testing is important because software developers sometimes try saving time doing minimal unit testing and this is myth because inappropriate unit testing leads to high cost Defect fixing during System Testing, Integration Testing and even Beta Testing after application is built. If proper unit testing is done in early development, then it saves time and money in the end.

Here, are the key reasons to perform unit testing in software engineering:

1. Unit tests help to fix bugs early in the development cycle and save costs.
2. It helps the developers to understand the testing code base and enables them to make changes quickly
3. Good unit tests serve as project documentation
4. Unit tests help with code re-use. Migrate both your code **and** your tests to your new project. Tweak the code until the tests run again.

How to do Unit Testing

In order **to do Unit Testing**, developers write a section of code to test a specific function in software application. Developers can also isolate this function to test more rigorously which reveals unnecessary dependencies between function being tested and other units so the dependencies can be eliminated. Developers generally use UnitTest framework to develop automated test cases for unit testing.

Unit Testing is of two types

- Manual
- Automated

Unit testing is commonly automated but may still be performed manually. Software Engineering does not favor one over the other but automation is preferred. A manual approach to unit testing may employ a step-by-step instructional document.

Under the automated approach-

- A developer writes a section of code in the application just to test the function. They would later comment out and finally remove the test code when the application is deployed.
- A developer could also isolate the function to test it more rigorously. This is a more thorough unit testing practice that involves copy and paste of code to its own testing environment than its natural environment. Isolating the code helps in revealing unnecessary dependencies between the code being tested and other units or data **spaces** in the product. These dependencies can then be eliminated.
- A coder generally uses a UnitTest Framework to develop automated test cases. Using an automation framework, the developer codes criteria into the test to verify the correctness of the code. During execution of the test cases, the framework logs failing test cases. Many frameworks will also automatically flag and report, in summary, these failed test cases. Depending on the severity of a failure, the framework may halt subsequent testing.
- The workflow of Unit Testing is 1) Create Test Cases 2) Review/Rework 3) Baseline 4) Execute Test Cases.

Unit Testing Techniques

The Unit Testing Techniques are mainly categorized into three parts which are Black box testing that involves testing of user interface along with input and output, White box testing that involves testing the functional behaviour of the software application and Gray box testing that is used to execute test suites, test methods, test cases and performing risk analysis. Code coverage techniques used in Unit Testing are listed below:

- Statement Coverage
- Decision Coverage
- Branch Coverage
- Condition Coverage
- Finite State Machine Coverage

Unit Testing Advantage

- Developers looking to learn what functionality is provided by a unit and how to use it can look at the unit tests to gain a basic understanding of the unit API.

- Unit testing allows the programmer to refactor code at a later date, and make sure the module still works correctly (i.e. Regression testing). The procedure is to write test cases for all functions and methods so that whenever a change causes a fault, it can be quickly identified and fixed.
- Due to the modular nature of the unit testing, we can test parts of the project without waiting for others to be completed.

Unit Testing Disadvantages

- Unit testing can't be expected to catch every error in a program. It is not possible to evaluate all execution paths even in the most trivial programs
- Unit testing by its very nature focuses on a unit of code. Hence it can't catch integration errors or broad system level errors.

It's recommended unit testing be used in conjunction with other testing activities.

What is Integration Testing?

INTEGRATION TESTING is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by different programmers. The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated

Integration Testing focuses on checking data communication amongst these modules. Hence it is also termed as '**I & T**' (Integration and Testing), '**String Testing**' and sometimes '**Thread Testing**'.

Why do Integration Testing?

Although each software module is unit tested, defects still exist for various reasons like

- A Module, in general, is designed by an individual software developer whose understanding and programming logic may differ from other programmers. Integration Testing becomes necessary to verify the software modules work in unity

- At the time of module development, there are wide chances of change in requirements by the clients. These new requirements may not be unit tested and hence system integration Testing becomes necessary.
- Interfaces of the software modules with the database could be erroneous
- External Hardware interfaces, if any, could be erroneous

Example of Integration Test Case

Integration Test Case differs from other test cases in the sense it focuses mainly on the interfaces & flow of data/information between the modules**.** Here priority is to be given for the integrating links rather than the unit functions which are already tested.

Sample Integration Test Cases for the following scenario: Application has 3 modules say 'Login Page', 'Mailbox' and 'Delete emails' and each of them is integrated logically.

Here do not concentrate much on the Login Page testing as it's already been done in Unit Testing. But check how it's linked to the Mail Box Page.

Similarly Mail Box: Check its integration to the Delete Mails Module.

Test Case ID	**Test Case Objective**	**Test Case Description**	**Expected Result**
1	Check the interface link between the Login and Mailbox module	Enter login credentials and click on the Login button	To be directed to the Mail Box
2	Check the interface link between the Mailbox and Delete Mails Module	From Mailbox select the email and click a delete button	Selected email should appear in the Deleted/Trash folder

How to do Integration Testing?

The Integration test procedure irrespective of the Software testing strategies (discussed above):

1. Prepare the Integration Tests Plan
2. Design the Test Scenarios, Cases, and Scripts.

3. Executing the test Cases followed by reporting the defects.
4. Tracking & re-testing the defects.
5. Steps 3 and 4 are repeated until the completion of Integration is successful.

Test Cases

This section includes test cases of all the available functions in web side of Online Voting Portal.

a) Unit Testing These are unit testing between developer and Supervisor
b) Test Cases for Web Users These are the test cases for web users.

1 Unit Testing (Supervisor & Developer)

Index	Title	Description	Tester Name	Developer Name
1	Customer Sign Up & Log In	Customer sign up and login I have made by using reference from my pass web programing class assignment. This sign up and login connection I showed to my supervisor on submission of milestone 2, it works as expected.	No problem it works fine.	No problem
2	Forms	This ONLINE VOTING PORTAL website contains up to 7 form, for different functions, Form List: 1) Sign Up & Login 2) Candidate Voting Form 3) Contact Details	Validate the forms, and put every single details in the form to make user understand what they should take note. For example, below phone number column put small note to inform user that it should be remembered to proceed with sms process.	I have done validation for some columns, but the details I have put perfectly on all the forms.
4	Admin Approval	Don't make voter think they are not safe, provide details such as in progress to show them the order is on process.	Don't make customer think they are not safe, provide details such as in progress to show them the	The approval details is important because, as a customer who make the payment

			order is on process.	will need notification on every step we have done.

Profile :

Index	Test Case	Test Data	State	Test Input Values	Expected Result
1.	Contact No should accept only 0-9 values	Characters except 0-9 numbers	Invalid	'sfr'	Enter numeric values only
		Numbers between 0-9	Valid	7030888907	Input is accepted
2	Username accept only string	Characters except	valid	'String'	Input values is accepted
		Numbers not Accept	Invalid	79793709	Enter string values
3	Name	Numbers not Accept	Invalid	priti79	Enter String values
		Character except	Valid	'hello'	Input is accepted
4	Email	Character and numbers or special character is accepted	valid	'hello27@gmail.com'	Input values accepted
5	Zipcode	Characters except	Invalid	'hello'	Enter numerical values only
		Numbers accepts	valid	400120	Input is accepted

Add details:

Index	Test Case	Test Data	State	Test Input Values	Expected Result
1.	The Textbox Should contain only A-Z / a-z	Number or any other Special characters	Invalid	‘1238as’	This textbox only accept alphabetical characters
		Alphabets between A-Z & a-z	Valid	shreya	Input is accepted
2	The textbox should content only 2 digit	Number	valid	‘1238’	Input is accepted
		Alphabets between A-Z & a-z	Invalid	shreya	This textbox only accept alphabetical characters

Drawbacks and Limitations

Though the software presents a broad range of options to its users some intricate options could not be covered into it; partly because of logistic and partly due to lack of sophistication. Time was also a major constraint this it was not possible to make the software fool proof and dynamic.

Considerable efforts have made the software easy to operate even for people who are not great with computers but it can be a little overwhelming at the first instance

The user is provided help at each step for his convenience in working with the software

List of drawbacks and limitations:

1) Website Design This website was design using basic html coding and CSS, so that it looks very simple. Most of the websites now using wordpress and also many another sites to develop a website.

2) Picture Upload In my system when candidate`s information is added, they can only upload their picture once. They cannot update their picture later.

3) Login: Any other person can login on the behalf of the member.

Proposed Enhancements

In short ,it can be summarised that the future scope of the project and the enhancements to be done maybe some of the following:

- Host the software as a cloud based including more facilities
- Integrate more functionality
- Reduce overload of database queries
- Implement backup mechanism on regular basis

1) Website Design The design of the website will upgraded into new themes and background, which makes customer catchier so that there will be many site visitor and make them buy the product. In page navigation set perfectly, to make customer easily navigate to the subpages easily

2) Picture Upload Change the card update process such as Facebook profile creating, so that customer will be able to easily update any of their information privately including their profile pictures and so on.

3)Login otp should be generated to allow the member to vote

The above mentioned points are Enhancements which can be done to increase the applicability and the usage of this project.

Conclusions

This Online Voting system will manage the Voter's information by which voter can login and use hi`s voting rights. The system will incorporate all features of Voting system It provides the tools for maintaining voter's vote to every party and it count told no. of votes for every position. There is a database which is maintained by the Admin where all the names voter with complete information is stored.

In the user, all the registered members who are above 18 years, when he/she want to vote by his/her Id and password and can vote for one position for single time. Voting details are stored in database and the result is displayed by calculation By Online voting system, percentage of voting increases. It decreases the cost and time of voting process. It is very easy in debug.

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THANK
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