

A PROJECT REPORT ON
Blockchain-Based Online Voting System

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE

COMPUTER ENGINEERING

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ABSTRACT

A separate commission called the Election Commission of India (ECI). This commission is not favorable or does not support any political party. Security is at the heart of the electronic voting process. Hence the need to design a secure electronic voting system is very important. Usually mechanisms that ensure safety and election privacy can be time-consuming, expensive for election administrators, and inconvenient for voters. There are different levels of electronic voting security. Therefore serious precautions must be taken to keep it out of the public domain. Security must also be used for concealment voices from publicity. EVMs or Electronic Voting Machines provide the voter with a button for each option that is connected by a cable to an electronic ballot box. EVM consists of two units - control unit and electoral unit - and these two are connected by a five-meter cable. When the voter presses the button against the candidate he wishes to vote for, the machine will lock itself. The voter enters the polling station and presses the button for the candidate of his choice. At the end of the survey the chairman removes the plastic cap on the control unit and presses the CLOSE button, which prevents the EVM from receiving more votes.

Keywords : Block chain, php, verification, security.

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Chapter 1

INTRODUCTION

1.1 MOTIVATION

Electronic voting or e-voting has been used in varying forms since 1970s with fundamental benefits over paper based systems such as increased efficiency and reduced errors. However, there remain challenges to achieve wide spread adoption of such systems especially with respect to improving their resilience against potential faults. Block chain is a disruptive technology of current era and promises to improve the overall resilience of e-voting systems.

- Elections are fundamental pillar of a democratic system enabling the general public to express their views in the form of a vote.
- Due to their significance to our society, the election process should be transparent and reliable so as to ensure participants of its credibility.
- Within this context, the approach to voting has been an ever evolving domain.
- Blockchain is one of the emerging technologies with strong cryptographic foundations enabling applications to leverage these abilities to achieve resilient security solutions.

1.2 PROBLEM STATEMENT

The traditional voting system has several problems encountered when managed by an organization that has full control over the system and database, therefore the organization can tamper with the database, and when the database changes the traces can be easily eliminated. The solution is to make the database public, the database owned by many users, which is useful to compare if there are any discrepancies. The solution to the e-voting system is compatible with using blockchain technology. Blockchain technology allows in support of e-voting applications. Each voter's vote serves as a transaction that can be created into blockchain that can work to track voice counting. In this way, everyone can approve the final calculation because of the open blockchain audit trail, the vote count can be verified that no data is altered or deleted nor is there any unauthorized data entered in the blockchain.

1.3 AIM/OBJECTIVES

To develop a system which is give small contribution for a fair election. But corruption in voting system can not be completely erased through this system if there is no sincerity. To prevent prevents access to illegal voters, provides ease of use, transparency and maintains integrity of the voting process. The system also prevents multiple votes by the same person and checks eligibility of the voter.

Chapter 2

LITERATURE SURVEY

2.1 Literature Survey

Electronic voting has been an area of research focus for many years by using computing machines and equipment for casting votes and producing high quality and precise results in accordance with the sentiments of the participating voters. Initially computer counting system allowed the voter to cast vote on papers.

1. “Blockchain Based E-Voting System”

Author: Prof. Mrunal Pathak

Increasingly digital technology in the present helped many people lives. Unlike the electoral system, there are many conventional uses of paper in its implementation. The aspect of security and transparency is a threat from still widespread election with the conventional system (offline). General elections still use a centralized system, there is one organization that manages it. Some of the problems that can occur in traditional electoral systems is with an organization that has full control over the database and system, it is possible to tamper with the database of considerable opportunities. Blockchain technology is one of solutions, because it embraces a decentralized system and the entire database are owned by many users. Blockchain itself has been used in the Bitcoin system known as the decentralized Bank system. By adopting blockchain in the distribution of databases on e-voting systems can reduce one of the cheating sources of database manipulation. This research discusses the recording of voting result using blockchain algorithm from every place of election. Unlike Bitcoin with its Proof of Work, this thesis proposed a method based on a predetermined turn

on the system for each node in the built of blockchain.[1]

2. “Aadhar Based Electronic Voting System And Providing Authentication on Internet Of Things”

Author: Dr.V.Latha

A paper present the Flawless voting is ensured by Electronic voting machine. People should believe that their vote is secured and there is no malpractice. The main aim of this project is to develop a secure Electronic voting machine using Finger print identification method, for finger print accessing we use AADHAR card database. At the time of voting in the elections, the e-voting process authentication can be done using finger vein sensing, which enables the electronic ballot reset for allowing voters to cast their votes. Also the voted data and voter's details can be sent to the nearby Database Administration unit by using WIFI System. The finger print scanning is used to ensure the security to avoid fake, repeated voting etc. It also enhances the accuracy and speed of the process. The purpose of such system is to ensure that the voting rights are accessed only by a legitimate user and no one else. During elections, the thumb impression of a voter is entered as input to the system. This is then compared with the available records in the database. If the particular pattern matches with anyone in the available record, access to cast a vote is granted. But in case the pattern doesn't match with the records of the database or in case of repetition, access to cast a vote is denied or the vote gets rejected.[2]

3. “Finger Print Based Smart Voting System”

Author: Ms.Mary Varsha Peter

The main objective of this project is to enable safe and secure voting system and is to avoid misconceptions which take place in election period. Voting System helps to choose their government and also the political representatives. It also ensures that to avoid fake and repeated vote during election. In this project the finger print is given as input. All the database of the voter include their finger print, photo, mobile number etc has been stored in the MATLAB. If the finger print enrolled by the voter should be matched with the database, It enables the voter to enroll his/her vote. If the finger print doesn't match the system will lock the process. The important is that the voter can enroll their vote at their desire location. And also the number of vote enrolled should be updated

in the database administration unit every time after voting is done. The smart voting system will enhance better accuracy and high speed process. Through this voting system the disadvantages which are in the electronic voting system should be overcome.[3]

4. “RFID Based Smart Electronic Voting System for Reducing Electoral Frauds Using Arduino”

Author: Ms. A. Achammal

This paper describes the design and operation of Smart Electronic Voting Machine using Arduino UNO, RFID, to improve the election process by avoiding electoral fraud and to ensure safety, security, reliability, and smooth conduct of elections in the country. This paper talks about an innovative approach for the voting process where the device communicates with the RFID tag, which is embedded in the voter ID card. When the voter scans his card, the controller checks the ID, and if it matches, the LCD displays the result.[4]

5. “Advanced voting machine using face recognition”

Author: A Samundeeswari

This paper state that, project is advance voting machine using face recognition will provide better safe and secure voting system. During the voting session, the person and his database image matching is verified. Based on the image recognition results, the person is allowed or prohibited from voting. With this systematic verification, fake voters could be prevented. In case of fake attempts, the original voter will also be alerted via GSM message.[5]

Chapter 3

Methodology

3.1 SYSTEM ARCHITECTURE

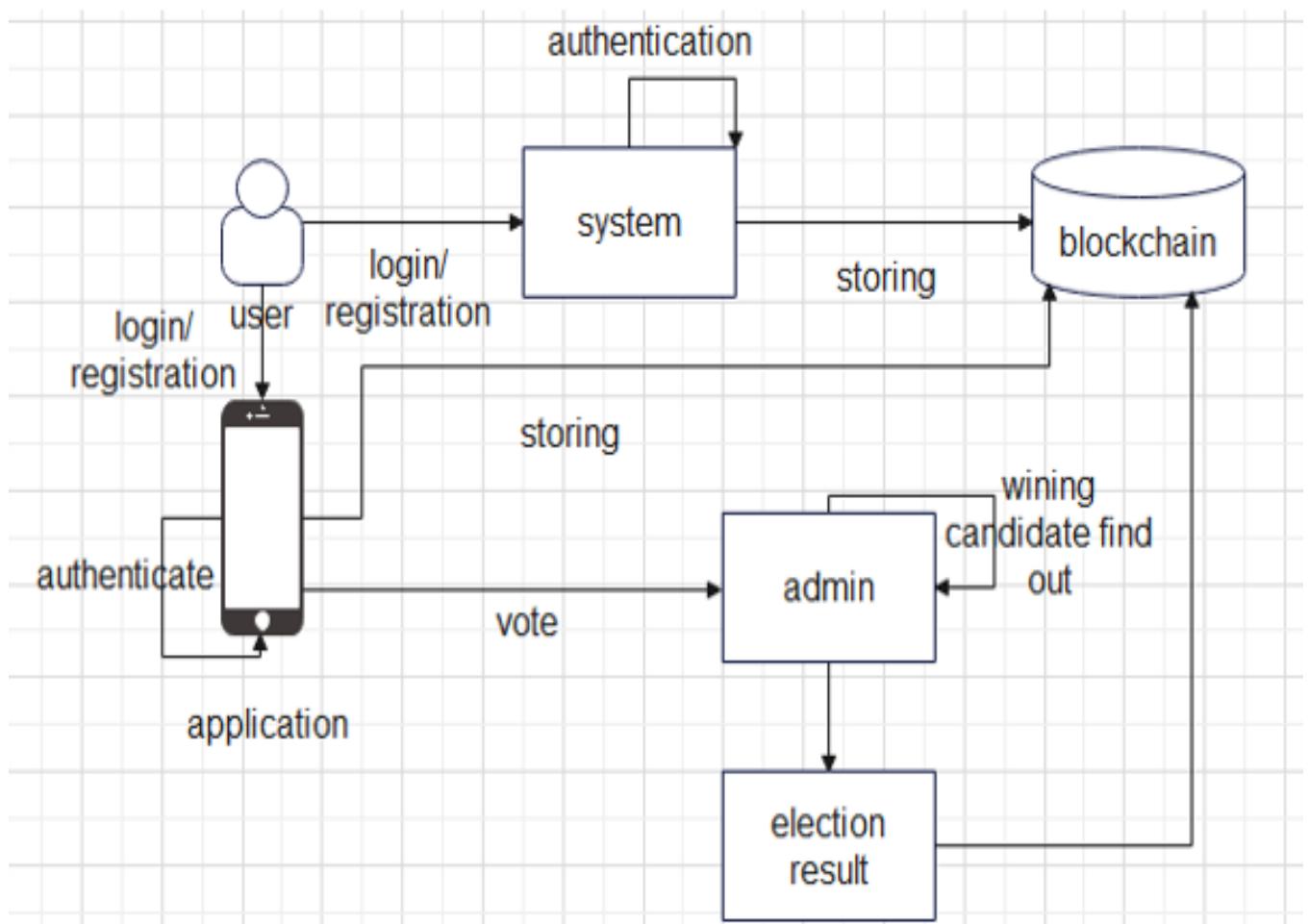


Figure 3.1: System Architecture Diagram of Project

3.2 System Architecture Description

An e voting system that uses blockchain technology completes the stage of establishing a secure and transparent environment for decisions where voters will actually want to vote only once and the vote will not be interrupted. The operation of the block chain will ensure that the votes are kept in line with them and that the situation is not deceived by any outsider. Protected electronic voting structures use a block chain which is a separate, distributed and tracking transaction record that follows peer-to-peer transactions. Each vote given will be considered a role as one job. These votes will be counted and the results will be reported immediately. Voting is a very important and important event organized in all countries by secret ballot or by ballot. Such processes have many drawbacks such as vote disruption, low turnout and so on. To overcome all this, we will introduce a series of voting programs.

The methodology for designing a secure electronic voting system involves several key components and processes to ensure the integrity, confidentiality, and transparency of the electoral process. At the core of the system are Electronic Voting Machines (EVMs), consisting of a control unit and a ballot unit connected by a five-meter cable. The control unit, managed by the polling officer, oversees the voting process, while the ballot unit allows voters to cast their votes by pressing a button corresponding to their chosen candidate.

To enhance security and transparency, the system integrates a private blockchain. Each vote is recorded as an immutable transaction on the blockchain, preventing tampering and ensuring data integrity. The backend of the system is developed using PHP, which handles server-side logic, communication between EVMs, and the blockchain. A robust database system, such as MySQL or PostgreSQL, is used to store voter information, voting results, and system logs.

Security measures are paramount. Multi-factor authentication (MFA) is employed to verify voter identity, using biometric verification (e.g., fingerprint or iris scan) and unique identification numbers (such as Aadhaar in India). All data transmitted between the EVMs and the backend server is encrypted to prevent interception and tampering. Physical security of EVMs is ensured through tamper-evident seals and robust physical locks, while software-based security measures include secure boot, code signing, and periodic security audits.

The voting process begins with pre-election setup, where the blockchain is ini-

tialized, candidates are registered, EVMs are set up, and voter data is verified for accuracy. During voting, the voter undergoes authentication, and upon successful verification, the polling officer enables the ballot unit for voting. The voter then casts their vote, which is encrypted and recorded on the blockchain.

Post-voting, the control unit is locked to prevent further votes, and the chairman finalizes the voting by pressing the CLOSE button. Votes are tallied by aggregating the blockchain records, ensuring transparency and immutability. The results are securely published, allowing for public verification through the blockchain's transparency features.

Post-election activities include a thorough audit and review of the election process, security logs, and blockchain transactions. Any security issues or irregularities identified during the audit are addressed to maintain the election's integrity and public trust. The technological infrastructure involves secure and tamper-proof EVMs, reliable networking equipment for secure communication, blockchain platforms like Ethereum or Hyperledger, and development tools for PHP and blockchain.

By implementing these comprehensive methodologies, the electronic voting system ensures voter privacy, data integrity, and overall election security, fostering a reliable and trustworthy electoral process.

Chapter 4

IMPLEMENTATION DETAILS & RESULT

4.1 INTRODUCTION

The traditional voting system has several problems encountered when managed by an organization that has full control over the system and database, therefore the organization can tamper with the database, and when the database changes the traces can be easily eliminated. The solution is to make the database public, the database owned by many users, which is useful to compare if there are any discrepancies. The solution to the e-voting system is compatible with using blockchain technology. Blockchain technology allows in support of e-voting applications. Each voter's vote serves as a transaction that can be created into blockchain that can work to track voice counting. In this way, everyone can approve the final calculation because of the open blockchain audit trail, the vote count can be verified that no data is altered or deleted nor is there any unauthorized data entered in the blockchain.

4.1.1 Project Scope

Elections are fundamental pillar of a democratic system enabling the general public to express their views in the form of a vote. Due to their significance to our society, the election process should be transparent and reliable so as to ensure participants of its credibility. Within this context, the approach to voting has been an ever evolving domain. Blockchain is one of the emerging technologies with strong cryptographic foundations enabling applications to leverage these abilities to achieve resilient security solutions.

4.1.2 User classes and characteristics

It plays a vital role in several applications such as the voting in election

4.1.3 Assumptions and Dependencies

In these Project We use Operating System as Window XP As an IDE Anaconda Software , The system is economically feasible since it would not entail additional hardware, thereby savings on the costs the manpower also involved and the occurrence of internal process deficiencies like inadequate performance indicator, inefficient controls, modeling failures and an inability to abide by the current laws.

4.2 FUNCTIONAL REQUIREMENTS

Functional Requirement defines a function of software system and how the system must behave when presented with specific inputs or conditions. These may include calculations, data manipulation and processing and other specific functionality. The functional requirements of the project are one of the most important aspects in terms of entire mechanism of modules.

4.2.1 Maintaining user

interface responsiveness: If the application needs to perform a time- consuming task, multiple threads can be used to prevent user interface from becoming unresponsive while the task is in progress. If the program is downloading information from the Internet, this will keep the user-interface running at nearly full-speed while the download is in progress.

4.2.2 Simple Multitasking

Multitasking allows to execute multiple instances of a process quit easily. The downloading routine just mentioned can be extended so that the program can transfer multiple files simultaneously and still keep the user interface well behaved. All that is needed is to create another thread for each file to download.

4.2.3 Building Multi-user Applications

Multithreading is often used when building server applications. Server applications wait for request to arrive and then establish conversations with the requester.

4.2.4 Multiprocessing

Many operating systems support machines with multiple processors. Most of these systems are unable to break a single thread of execution for execution on different processors. By breaking an application into different Threads, it is possible to make the best use of processing power.

4.2.5 System Interface

1. Secure voting
2. Database requirement
3. Notification to user

4.3 EXTERNAL INTERFACE REQUIREMENTS

4.3.1 User Interfaces

User has to interface with system to access the features and to provide easy communication with system.

4.3.2 Communication Interfaces

There is a specific network protocol as long as the performance requirement are satisfied

4.3.3 Software Quality Attributes

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive

rather than constructive. A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

4.4 USER INTERFACES

The user experience should be considered as priority in user interface. This is the way that the product will be used by users. Users should meet the exact needs they want, without confuse. Designer should clear the primary objective of developing an interactive product. It is suggested to classify the objectives in terms of usability and user experience goals. There are six goals of usability. They could make the product easy to learn and effective to use.

4.4.1 Six Usability Goals

1. Effective to use(effectiveness)
2. Efficient to use(efficiency)
3. Safe to use(safety)
4. Having good utility(utility)
5. Easy to learn(learnability)
6. Easy to remember how to use(memorability)

Effectiveness is a common goal to reach the best result of the expectation. The performance of the software is satisfactory. Efficiency is focus on the cost of computation of the software. Most users make an attention on the speed of software, they think every action should be fluent. If a lag accrued during the operation, people will think there are some problems with it. It will worsen the user experience.

4.5 NONFUNCTIONAL REQUIREMENTS

4.5.1 Usability:

The ease with which the system can be learned, managed or used. Usability gives the measure of how much user friendly the system is.

4.5.2 Reliability:

The degree to which the system must work for users. It also refers to the mean time between failures, means what can be the maximum down time.

4.5.3 Performance:

Performance specifications typically refer to response time, transaction throughput, and capacity. They deal with response time, which means the time taken by the system to load, reload, screen open and refresh times etc.

4.5.4 Scalability:

It refers to the ability of the proposed software application to increase the number of users or applications associated with the product.

4.5.5 Open standard:

It ensures the viability and future expansion of the system, all offered development tools, server software, as well as, the application are based on open templates and are available under the terms of the General Public License.

4.6 SYSTEM REQUIREMENTS

4.6.1 Database Requirements

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons

- MySQL is released under an open-source license. So you have nothing to pay to use it.

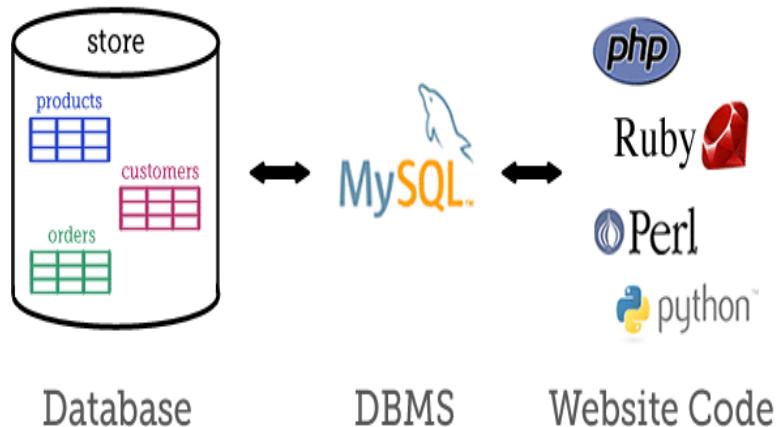


Figure 4.1: MySQL Database

- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

4.6.2 Software Requirements(Platform Choice)

- Andriod



Figure 4.2: Andriod programming language

Android development primarily revolves around the use of Java or Kotlin programming languages, both of which are officially supported by Google for building applications on the Android platform. Java, a widely adopted and versatile language, has long been the standard choice for Android development. Kotlin, introduced by JetBrains, offers modern features and seamless interoperability with Java, gradually gaining popularity among developers. These languages enable developers to create feature-rich, high-performance Android applications for a wide range of devices. From user interface design to backend functionality, they provide robust tools and libraries for efficient development, ensuring smooth user experiences across various Android devices and versions. Whether opting for the familiar syntax of Java or embracing the conciseness and modernity of Kotlin, developers have powerful languages at their disposal to craft innovative and engaging Android applications..

- **JavaScript**

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform. Javascript is the most popular programming language in the world and that makes it a programmer's great choice. Once you learnt Javascript, it helps you developing great front-end as well as back-

end softwares using different Javascript based frameworks like jQuery, Node.JS etc.

list of software requirement are as follow:

1. Operating System : Windows xp/7/8/10
2. Programming Language : Andriod
3. Software Version : 4.1
4. Tools : Andriod Studio
5. Front End : XML

4.6.3 Hardware Requirements

1. Processor - Pentium IV/Intel I3 core
2. Speed - 1.1 GHZ
3. RAM - 512 MB(min)
4. Hard disk - 20 GB
5. Keyboard - Standard Keyboard
6. Mouse - Two Or Three Button Mouse
7. Monitor - LED Monitor

4.7 ANALYSIS MODELS: SDLC Model

1. Requirement Analysis and Definition:

At this stage the system features, constraints and objectives are determined through consultation with system users. All of these will be specified in detail and function as system specifications. The way to do this is to collect the complete requirements and then analyze and define the needs that must be met by the program to be built. This phase must be done in full to be able to produce an accurate design.

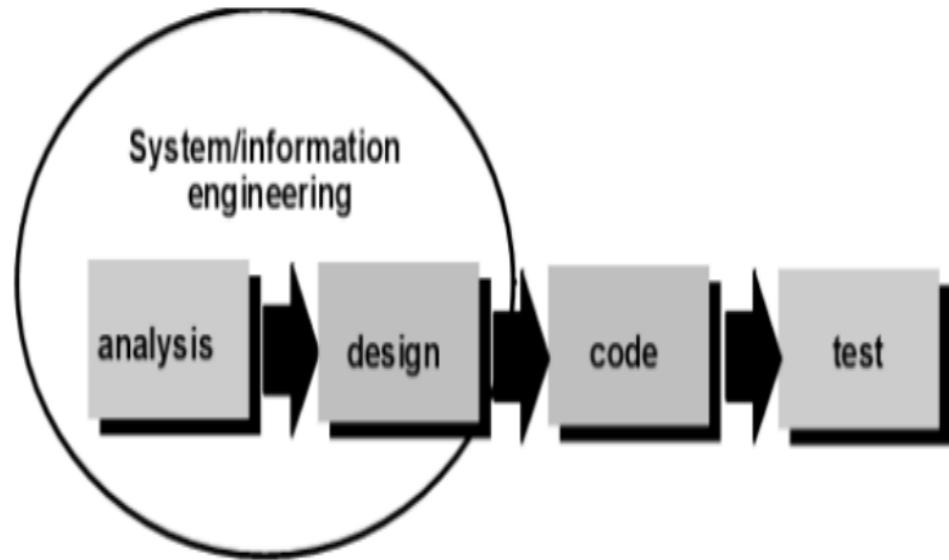


Figure 4.3: SDLC Model

2. System and Software Design:

In the System and Software Design Phase, a system architecture will be formed based on established requirements. In addition, identification and depiction of the basic abstraction of the software system and its relationships are carried out. The design is done after the complete requirements are collected in full.

3. Implementation and Unit Testing:

In this Implementation and Unit Testing phase, the results of the software design will be realized as a set of programs or program units. Program design is translated into codes using predetermined programming languages. The program built by each unit will be tested if it meets the specifications.

4. Integration and System Testing:

In this Integration and System Testing phase, each program unit will be integrated with each other and tested as a whole system to ensure that the system meets existing requirements.

5. Operation and Maintenance:

In this Operation and Maintenance stage, the system is installed and put into use. It also corrects errors that are not found at the manufacturing stage. In

this stage, system development is also carried out such as the addition of new features and functions.

4.8 TOOLS AND TECHNOLOGY USED

The Blockchain was originally named from the square and the chain, a complete trading list called a blockchain, associated with the cryptography strategy. Each square connected above the previous block. Blockchain is a scattered information base and is managed by a peer-to-peer organization. Used for storing and accessing information. Each square contains a square head and a trade. The square header corresponds to the title Hash of block block, time stamp, nonce, and Merkle root esteem. The health information posted in the forum cannot be changed. An important use of blockchain is to stay away from distractions. Blockchain is a standard trading record. Allows some people in circles to transfer information to various providers without meeting with outsiders and checking for exchanges. Perhaps instead of storing the record on a single server, it is stored on different laptops, making data no doubt difficult to edit or delete. Those well-designed brand name tags around the process that ensures any data embedded in the blockchain are important and strengthens trust among collectors.

4.8.1 Properties of Block chain

1. Blockchain as a data structure:

Blockchain contains a list of functions and sets it as a block. The design starts with a single block called the first block. As part of the exchange increase, more blocks were added. The previous block was connected to the current block. The blockchain provides this type of information structure. The blockchain is usually designed to be carefully designed and uncluttered.

2. Decentralized:

Shared Organization; framework collection makes it seem like a fragmentation and one of the key features of an amazing blockchain development. Anyone can store the app and, later, access the app via the web without the need for

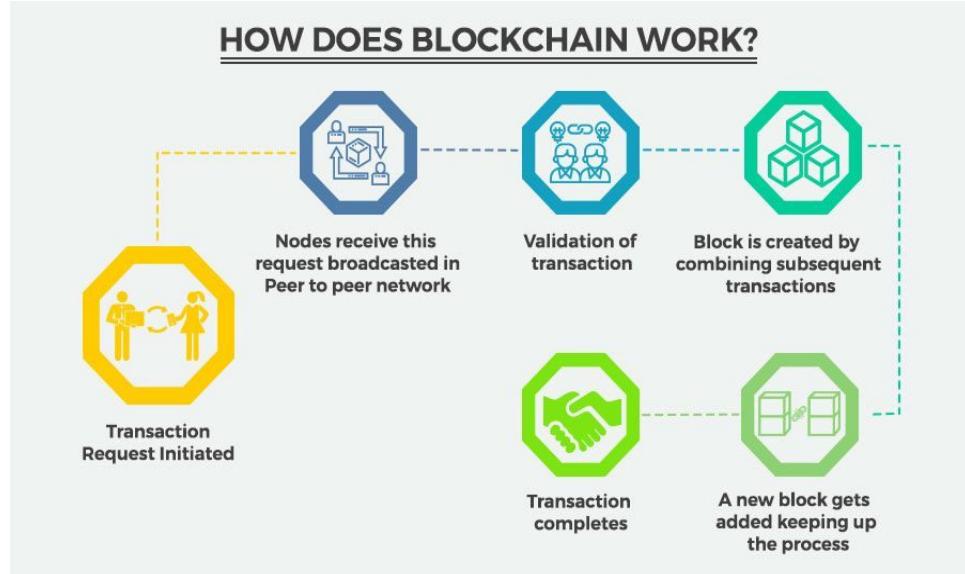


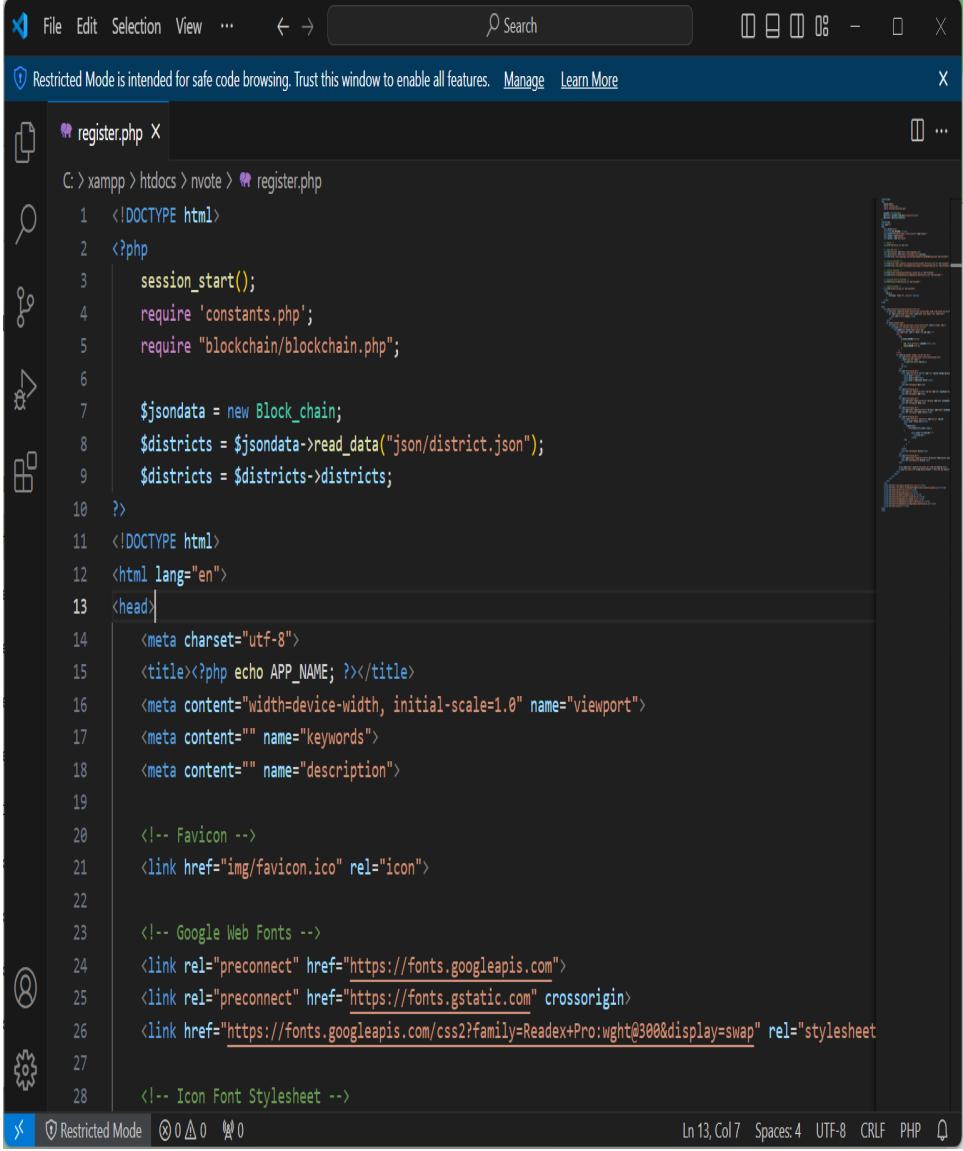
Figure 4.4: Blockchain Technology

external support. Keep any exchanges such as securities, records, contracts, computer asset.etc, and in the future access the exchange with the help of a secret key.

3. Consistency:

Consistency is the way in which a blockchain framework can allow and trust trading before they add to the chain. Work violates one of the agreed terms, at which point the exchange will appear to be invalid. The chains of the block are passed on to a show-based show, which may be a small permit or authorization. The community agreement stipulates that anyone can try to combine trade and have an interest in the agreement. In license-based shows, nodes must be authorized and monitored in order to contribute to or facilitate exchanges in the series.

4.9 Login Code



The screenshot shows a code editor window with the file 'register.php' open. The code is a PHP script that includes session_start(), requires constants.php and blockchain/blockchain.php, and initializes a Block_chain object to read district data from json/district.json. It then defines a head section with meta tags for charset, title (containing APP_NAME), viewport, keywords, and description. It also includes links for a favicon and Google Web Fonts, and an icon font stylesheet.

```
<!DOCTYPE html>
<?php
session_start();
require 'constants.php';
require "blockchain/blockchain.php";

$jsondata = new Block_chain;
$districts = $jsondata->read_data("json/district.json");
$districts = $districts->districts;
?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>?php echo APP_NAME; ?</title>
<meta content="width=device-width, initial-scale=1.0" name="viewport">
<meta content="" name="keywords">
<meta content="" name="description">
<!-- Favicon -->
<link href="img/favicon.ico" rel="icon">

<!-- Google Web Fonts -->
<link rel="preconnect" href="https://fonts.googleapis.com">
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
<link href="https://fonts.googleapis.com/css2?family=Readex+Pro:wght@300&display=swap" rel="stylesheet">
<!-- Icon Font Stylesheet -->
```

Figure 4.5: E Voting System

4.10 Login Output

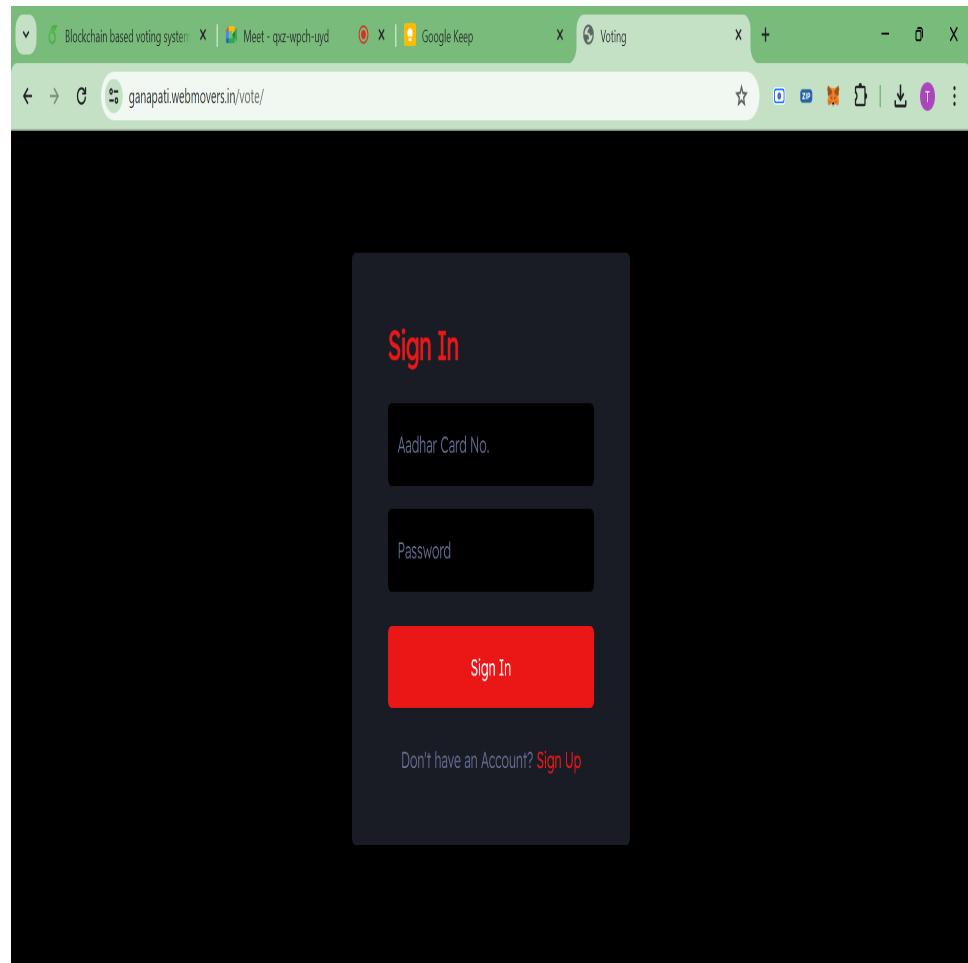
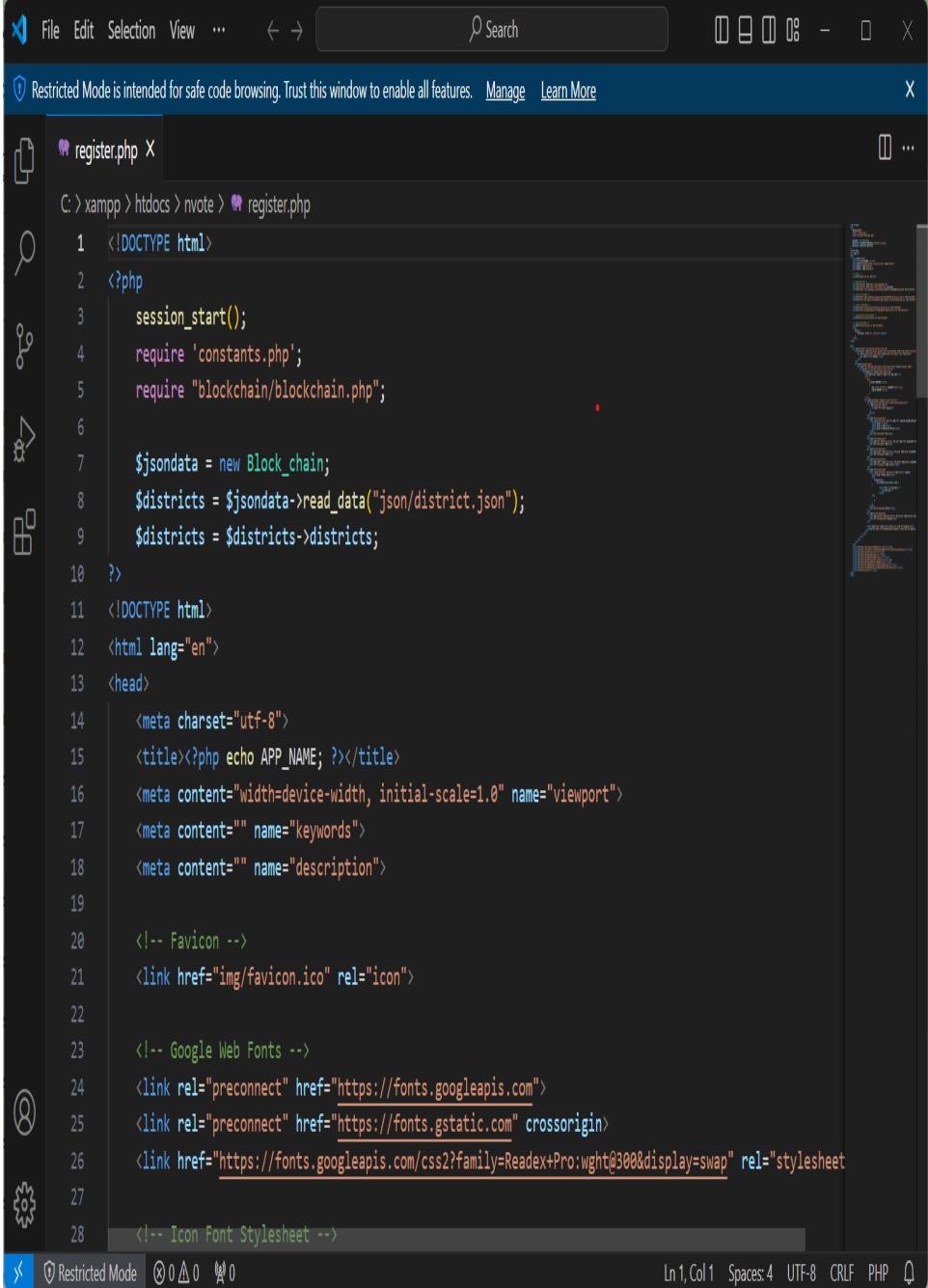


Figure 4.6: E Voting Login System

4.11 signup code



```
1 <!DOCTYPE html>
2 <?php
3     session_start();
4     require 'constants.php';
5     require "blockchain/blockchain.php";
6
7     $jsondata = new Block_chain;
8     $districts = $jsondata->read_data("json/district.json");
9     $districts = $districts->districts;
10    ?
11 <!DOCTYPE html>
12 <html lang="en">
13 <head>
14     <meta charset="utf-8">
15     <title><?php echo APP_NAME; ?></title>
16     <meta content="width=device-width, initial-scale=1.0" name="viewport">
17     <meta content="" name="keywords">
18     <meta content="" name="description">
19
20     <!-- Favicon -->
21     <link href="img/favicon.ico" rel="icon">
22
23     <!-- Google Web Fonts -->
24     <link rel="preconnect" href="https://fonts.googleapis.com">
25     <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
26     <link href="https://fonts.googleapis.com/css2?family=Readex+Pro:wght@300&display=swap" rel="stylesheet">
27
28     <!-- Icon Font Stylesheet -->
```

Figure 4.7: Login : E Voting System

4.12 signup output

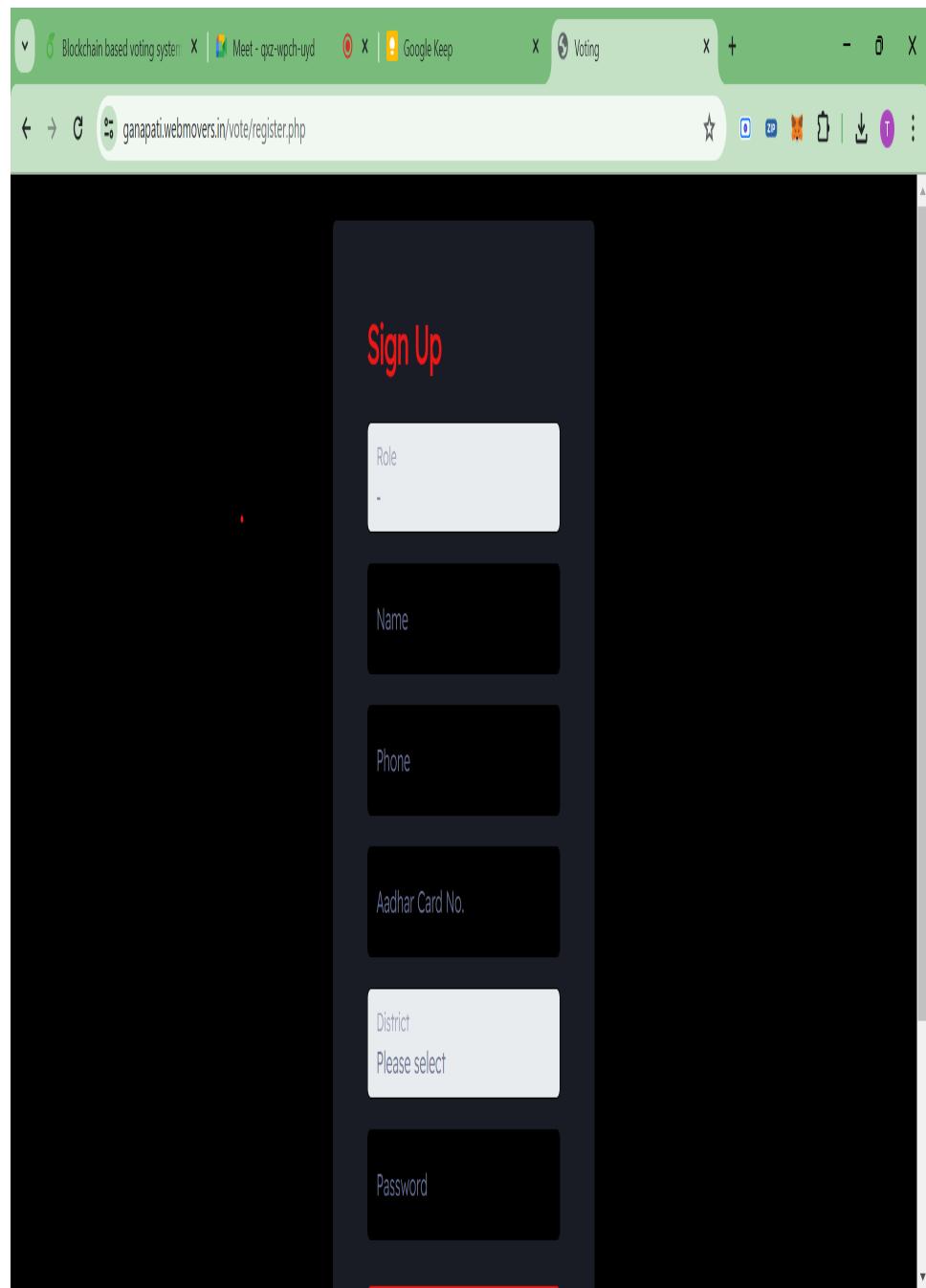


Figure 4.8: Sign Up As

4.13 Election code

The screenshot shows a code editor with a dark theme. The top bar includes standard file operations like File, Edit, Selection, View, and a search bar. A message at the top left says "Restricted Mode is intended for safe code browsing. Trust this window to enable all features." with links to "Manage" and "Learn More". The main area displays a PHP script for a web application. The code includes session handling, JSON data reading from files like json/user.json and json/candidate.json, and rendering a table of candidates. The code editor has various icons on the left for navigation and file operations.

```
<?php
session_start();
require 'constants.php';
require "blockchain/blockchain.php";

if(isset($_SESSION['userdata']) && !empty($_SESSION['userdata']))
{
    $jsondata = new Block_chain;
    $user = $jsondata->read_row_data("json/user.json", $_SESSION['Userdata']->id);
    if($user->name != "")
    {
        $candidates = $jsondata->read_data("json/candidate.json");
        $votes = $jsondata->read_data("json/vote.json");

        require "include/header.php";
    }
}
<div class="container-fluid pt-4 px-4">
    <div class="row g-4">
        <div class="col-sm-12 col-xl-12">
            <div class="bg-secondary rounded h-100 p-4">
                <h6 class="mb-4">All Candidate List</h6>
                <table class="table">
                    <thead>
                        <tr>
                            <th scope="col" width="5%">#</th>
                            <th scope="col" width="10%">Symbol</th>
                            <th scope="col" width="25%">Name</th>
                            <th scope="col" width="15%">Email</th>

```

Figure 4.9: Code for Election creation

4.14 Election creation output

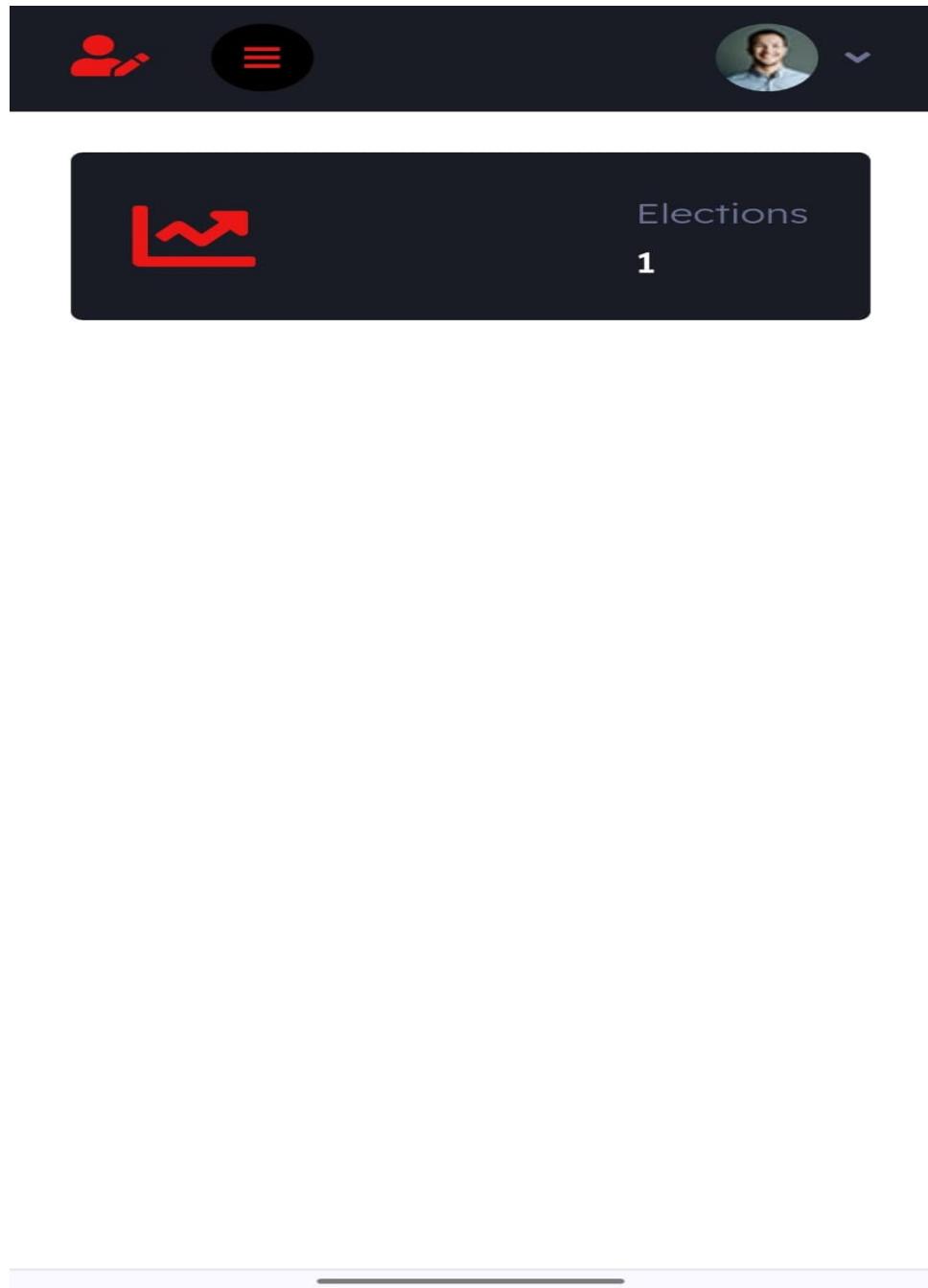


Figure 4.10: List of Elections

4.15 candidate creation code



The screenshot shows a code editor window with the following details:

- Title Bar:** File Edit Selection View ... Search
- Message Bar:** Restricted Mode is intended for safe code browsing. Trust this window to enable all features. Manage Learn More
- File List:** register.php, see_candidates.php, elections.php (the active tab)
- Code Area:**

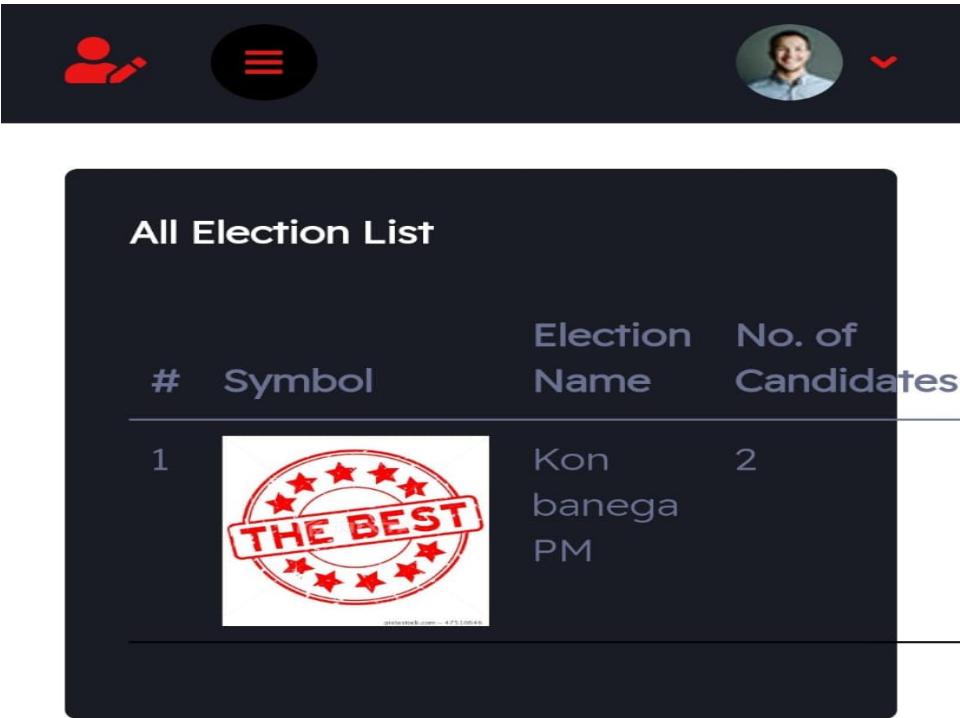
```

1 <?php
2     session_start();
3     require 'constants.php';
4     require "blockchain/blockchain.php";
5
6     if(isset($_SESSION['userdata']) && !empty($_SESSION['userdata']))
7     {
8         $jsondata = new Block_chain;
9         $user = $jsondata->read_row_data("json/user.json", $_SESSION['userdata']->id);
10        if($user->name != "")
11        {
12            $elections = $jsondata->read_data("json/election.json");
13
14            require "include/header.php";
15        }
16        <div class="container-fluid pt-4 px-4">
17            <div class="row g-4">
18                <div class="col-sm-12 col-xl-12">
19                    <div class="bg-secondary rounded h-100 p-4">
20                        <h6 class="mb-4">Election List</h6>
21                        <a href="election.php" style="float: right;">New Election</a><br><br>
22                        <div class="table-responsive">
23                            <table class="table">
24                                <thead>
25                                    <tr>
26                                        <th scope="col" width="5%">#</th>
27                                        <th scope="col" width="10%">Symbol</th>
28                                        <th scope="col" width="20%">Election Name</th>

```
- Bottom Status Bar:** Restricted Mode, Line 1, Column 1, Tab Size: 4, UTF-8, CRLF, PHP, Save

Figure 4.11: candidate creation

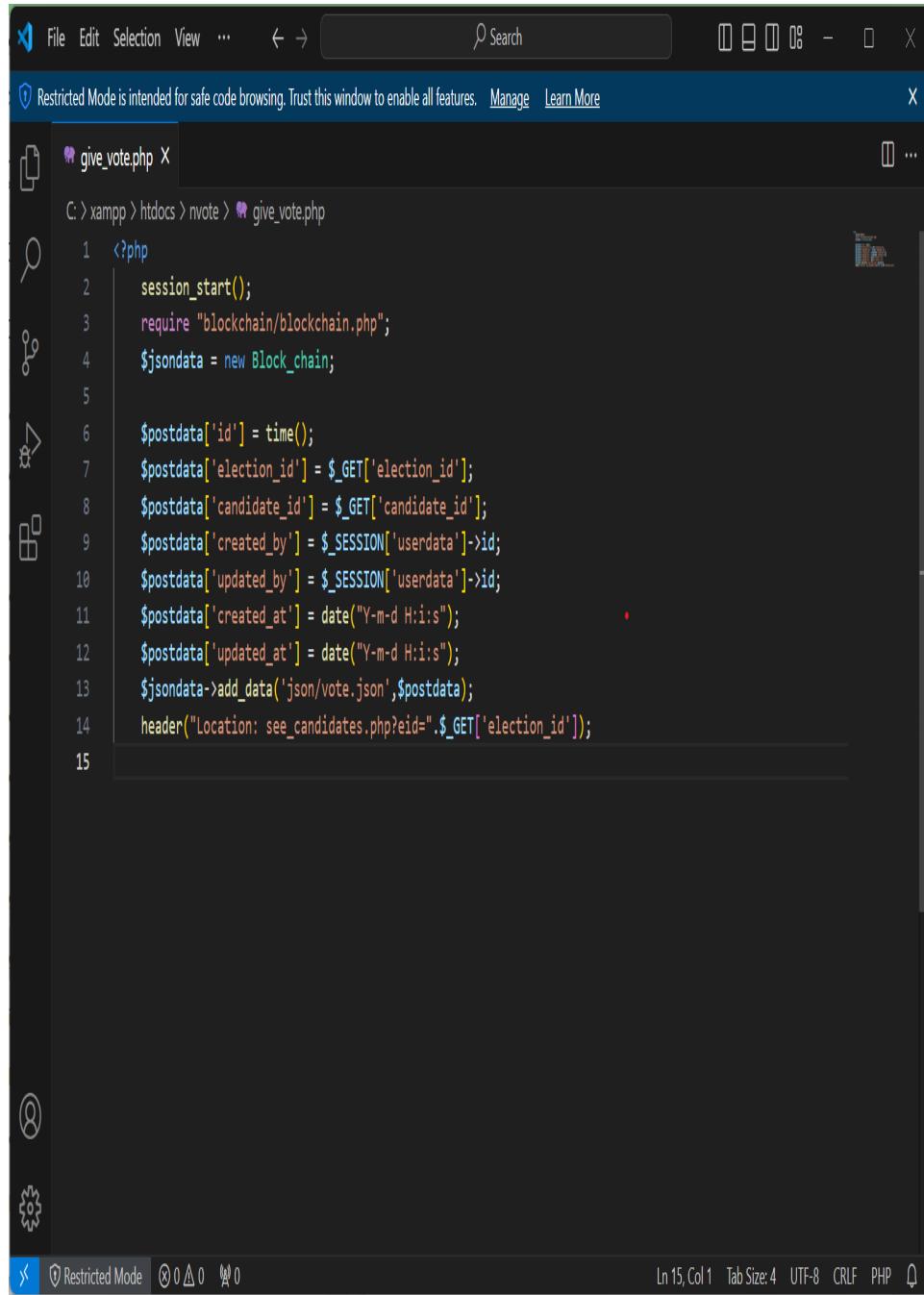
4.16 Election candidate creation



#	Symbol	Election Name	No. of Candidates
1		Kon banega PM	2

Figure 4.12: Election Candidate

4.17 Candidate list



The screenshot shows a code editor window with the following details:

- Title Bar:** File Edit Selection View ... Search
- Message Bar:** Restricted Mode is intended for safe code browsing. Trust this window to enable all features. Manage Learn More
- File Path:** C:\xampp\htdocs\nvote\give_vote.php
- Code Content:**

```
1 <?php
2 session_start();
3 require "blockchain/blockchain.php";
4 $jsondata = new Block_chain;
5
6 $postdata['id'] = time();
7 $postdata['election_id'] = $_GET['election_id'];
8 $postdata['candidate_id'] = $_GET['candidate_id'];
9 $postdata['created_by'] = $_SESSION['userdata']->id;
10 $postdata['updated_by'] = $_SESSION['userdata']->id;
11 $postdata['created_at'] = date("Y-m-d H:i:s");
12 $postdata['updated_at'] = date("Y-m-d H:i:s");
13 $jsondata->add_data('json/vote.json',$postdata);
14 header("Location: see_candidates.php?eid=".$_GET['election_id']);
15
```
- Status Bar:** Ln 15, Col 1 Tab Size: 4 UTF-8 CRLF PHP

Figure 4.13: Creation

4.18 Candidate list

#	Symbol	Name	Email
1		Tejas Pandit	shrigondekar...
2		Harshal Modi	hh@gmail.com

Figure 4.14: List of elections Candidates

Chapter 5

SYSTEM MODEL

- **Register and Login:** Here we are allowing user to register first to our system which will be a security protocol used by us.
- **Dataset Creation and Trained:** This module is based on block chain where we create the dataset for system and trained the system and create model for analyzing the voter information.
- **vote Apply:** voter can cast a vote by selecting the candidate.
- **Processing:** Here we will do the process of voting and save it with the dataset trained model.
- **Display:** System will will display the vote is successfully placed or not.

Chapter 6

SYSTEM DESIGN

6.1 Data Flow Diagrams

A data flow diagram (DFD) is a graphical or visual representation using a standardized set of symbols and notations to describe a business's operations through data movement. They are often elements of a formal methodology such as Structured Systems Analysis and Design Methods.

The objective of a DFD is to show the scope and boundaries of a system as a whole. It may be used as a communication tool between a system analyst and any person who plays a part in the order that acts as a starting point for redesigning a system. The DFD is also called as a data flow graph or bubble chart.

DFD 0, also called context diagram of the result management system. As the bubbles are decomposed into less and less abstract bubbles, the corresponding data flow may also be needed to be decomposed.

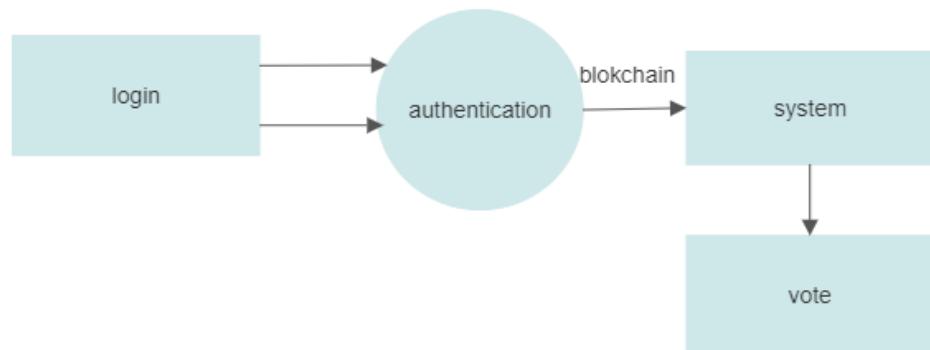


Figure 6.1: DFD 0 Diagram

DFD 1, a context diagram is decomposed into multiple bubbles/processes. In this level, we highlight the main objectives of the system and breakdown the high-level process of 0-level DFD into subprocesses.

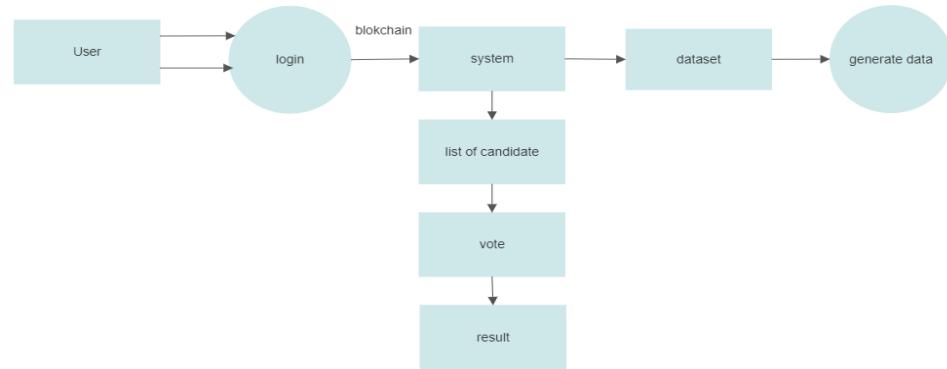


Figure 6.2: DFD 1 Diagram

DFD 2 goes one process deeper into parts of 1-level DFD. It can be used to project or record the specific/necessary detail about the system's functioning.

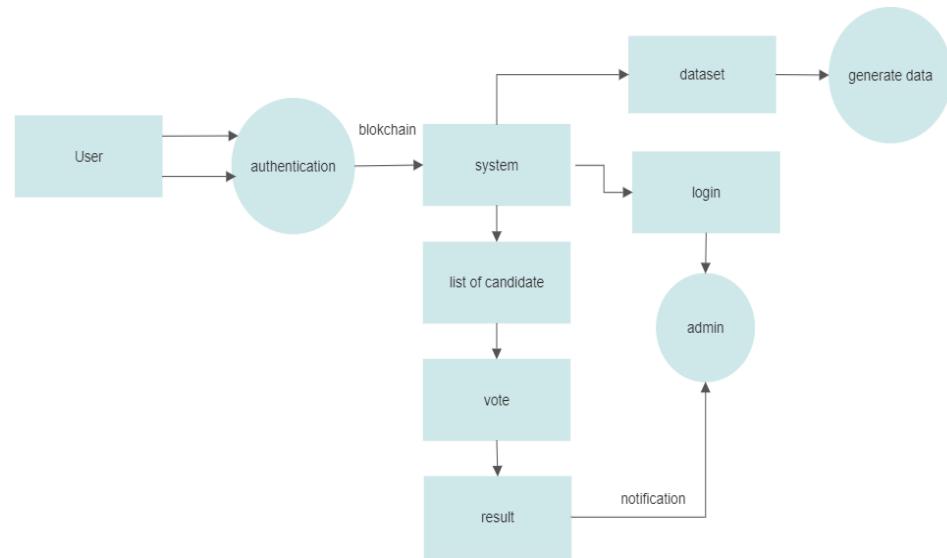


Figure 6.3: DFD 2 Diagram

6.2 ER Diagrams

An entity relationship diagram (ERD), also known as an entity relationship model, is a graphical representation that depicts relationships among people, objects, places, concepts or events within an information technology (IT) system.

Depending on the scale of change, it can be risky to alter a database structure directly in a DBMS. To avoid ruining the data in a production database, it is important to plan out the changes carefully. ERD is a tool that helps. By drawing ER diagrams to visualize database design ideas, you have a chance to identify the mistakes and design flaws, and to make corrections before executing the changes in the database.

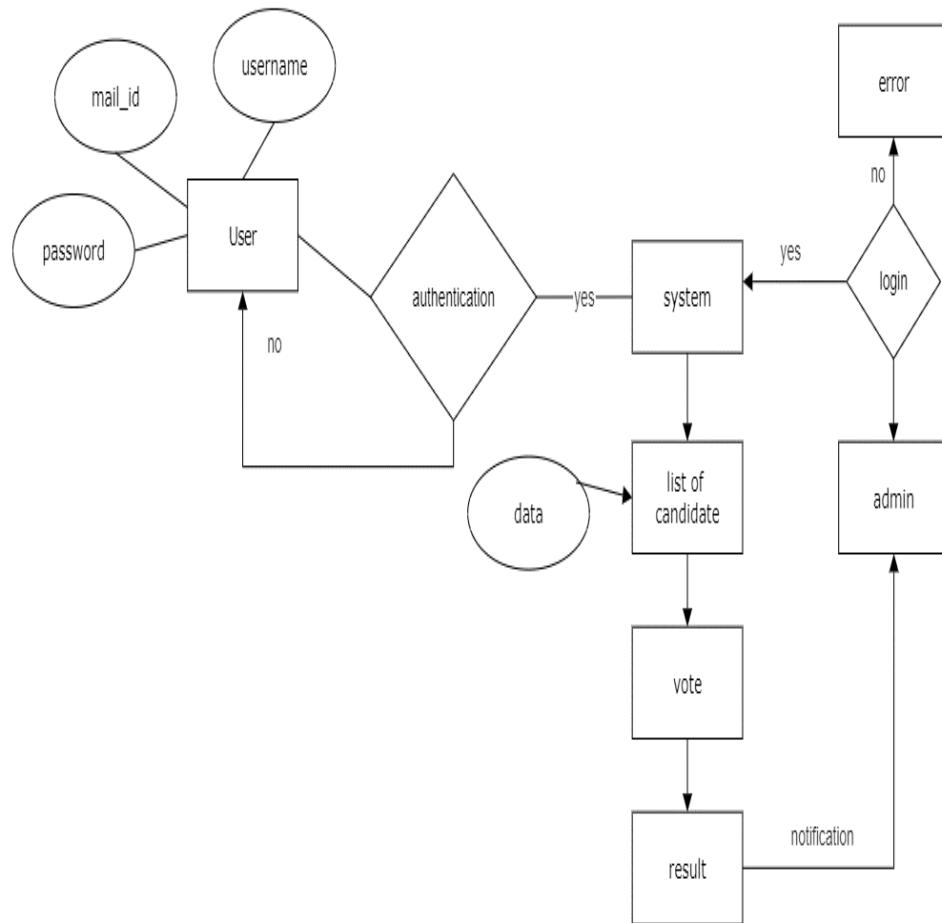


Figure 6.4: ER Diagram

6.3 UML Diagram

6.3.1 Activity Diagram

Use cases show what your system should do. Activity diagrams allow you to specify how your system will accomplish its goals. Activity diagrams show high-level actions chained together to represent a process occurring in your system. An activity diagram is essentially a flowchart, showing flow of control from activity to activity. Unlike a traditional flowchart, an activity diagram shows concurrency as well as branches of control. Activity diagrams focus on the dynamic flow of a system.

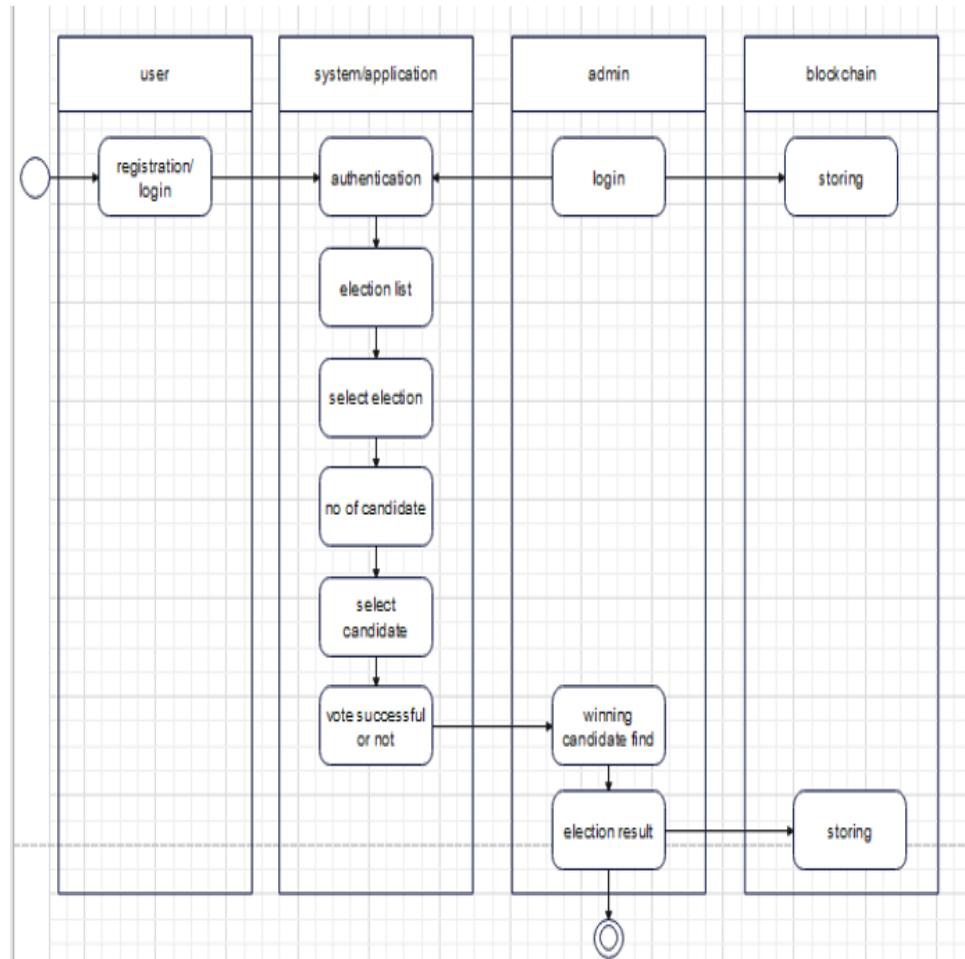


Figure 6.5: Activity Diagram of e-Tendering System

6.3.2 Sequence Diagram

The sequence diagram is used primarily to show the interactions between objects in the sequential order that those interactions occur. Developers typically think sequence diagrams were meant exclusively for them. However, an organization's business staff can find sequence diagrams useful to communicate how the business currently works by showing how various business objects interact. Sequence diagrams illustrate how objects interact with each other. They focus on message sequences, that is, how messages are sent and received between a number of objects. The main purpose of sequence diagram is to show the order of events between the parts of system that are involved in particular interaction.

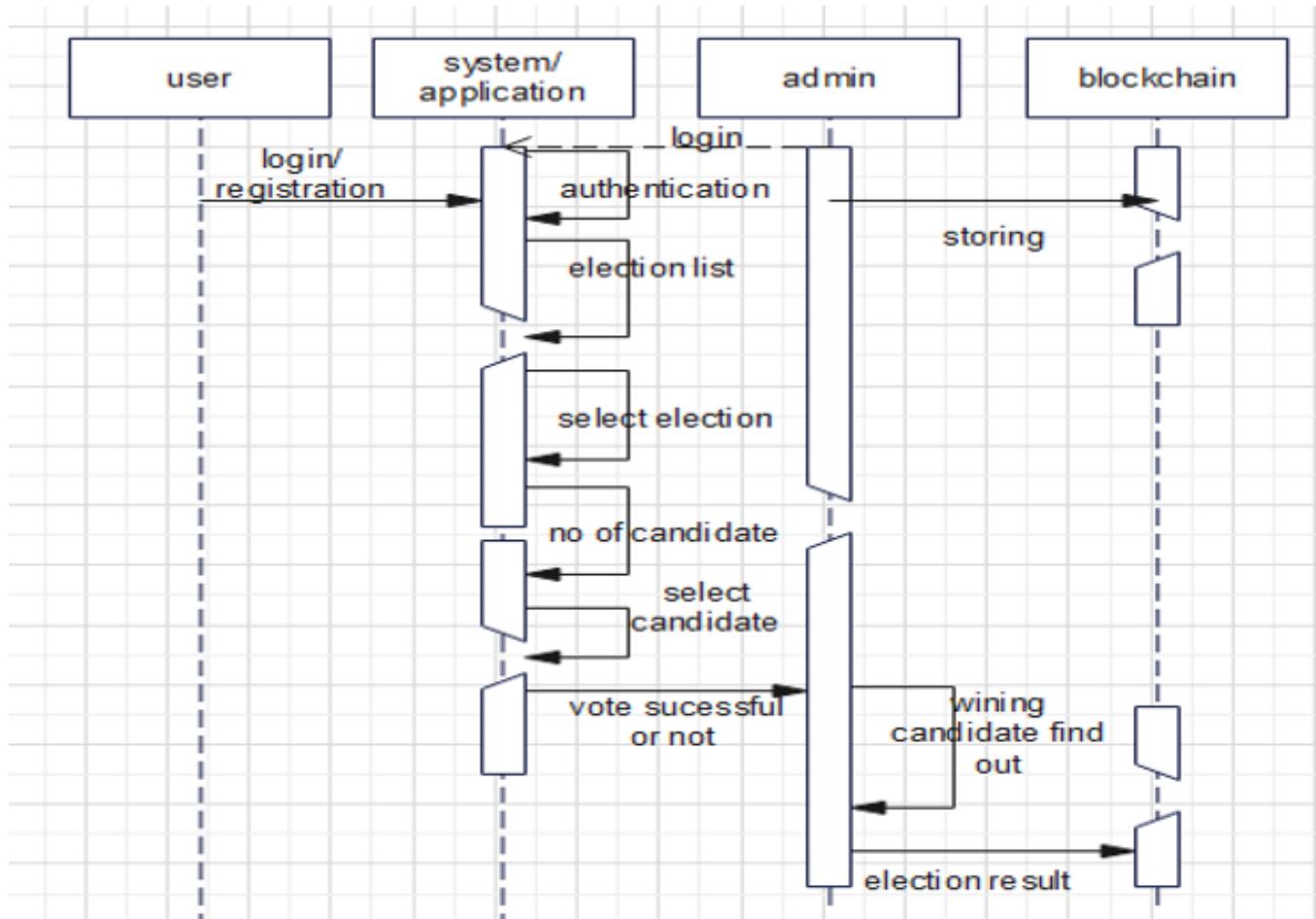


Figure 6.6: Sequence Diagram

6.3.3 Use Case Diagram

Four modeling elements make up the use case diagram; these are:

- **Actors:** Actors refer to a type of users, users are people who use the system. In this case student, teacher developer are the users of the framework and application
- **Use cases:** A use case defines behavioral features of a system. Each use case is named using a verb phrase that express a goal of the system. The name may appear inside or outside the ellipse.
- **Associations:** An association is a relationship between an actor and a use case. The relationship is represented by a line between an actor and a use case.
- **The include relationship:** It is analogous to a call between objects. One use case requires some type of behavior which is fully defined in another use case.

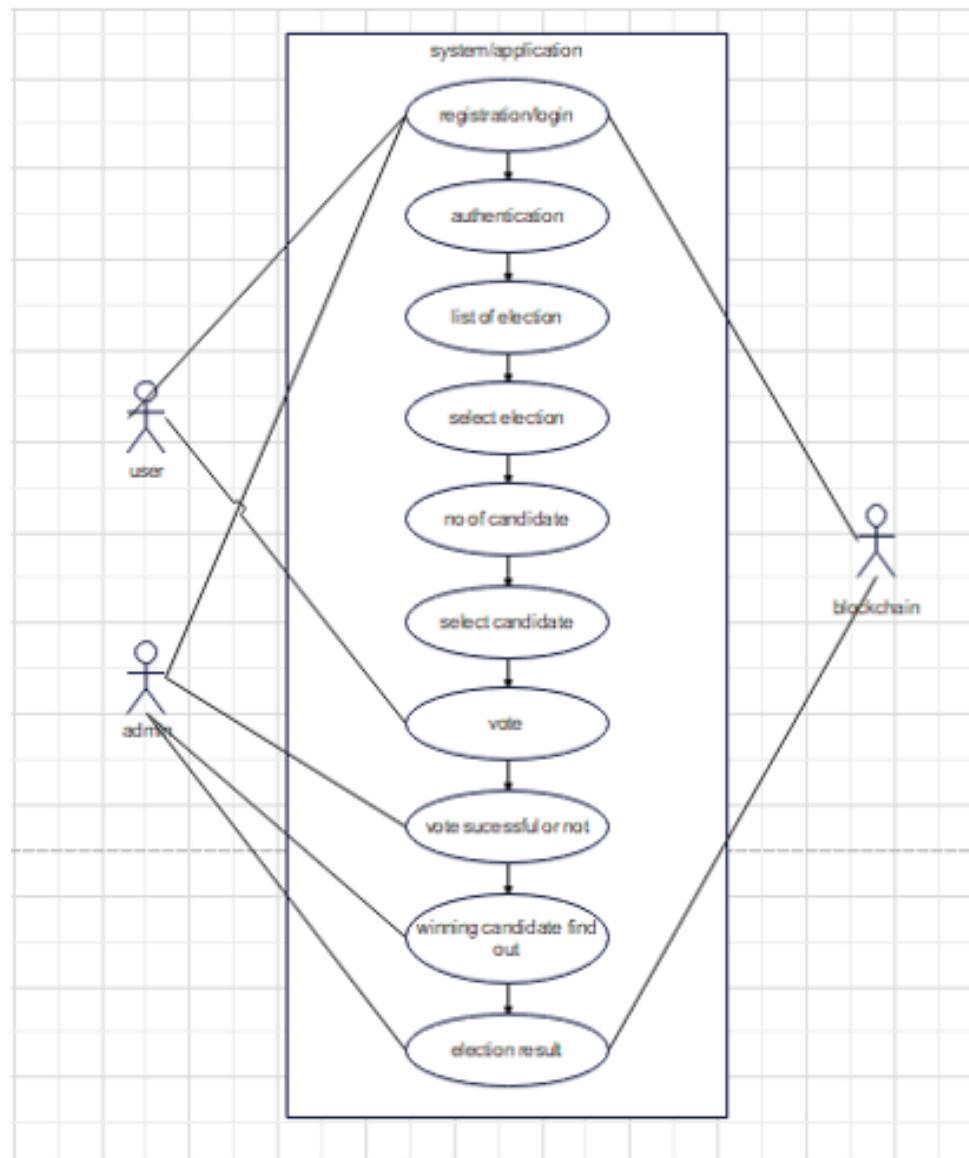


Figure 6.7: Usecase Diagram

6.3.4 Class Diagram

The class diagram shows the building blocks of any object oriented system. Class diagram depicts a static view of the model or part of the model, describing what attributes and behavior it has rather than detailing the methods of achieving operations. Class diagrams are most useful in illustrating relationships between classes and interfaces. Generalizations, aggregations, and associations are all valuable in reflecting interface, composition or usage and connections respectively.

The Figure 6.2 illustrates aggregation relationships between classes. The lighter aggregation indicates that the class ObjectExplorer used ThumbNail, but does not necessarily contain an instance of it. The strong, composite aggregations by the other connectors indicate ownership or containment of the source classes by the target. Class, for example Video Player values will be contained in Table Of Contents.

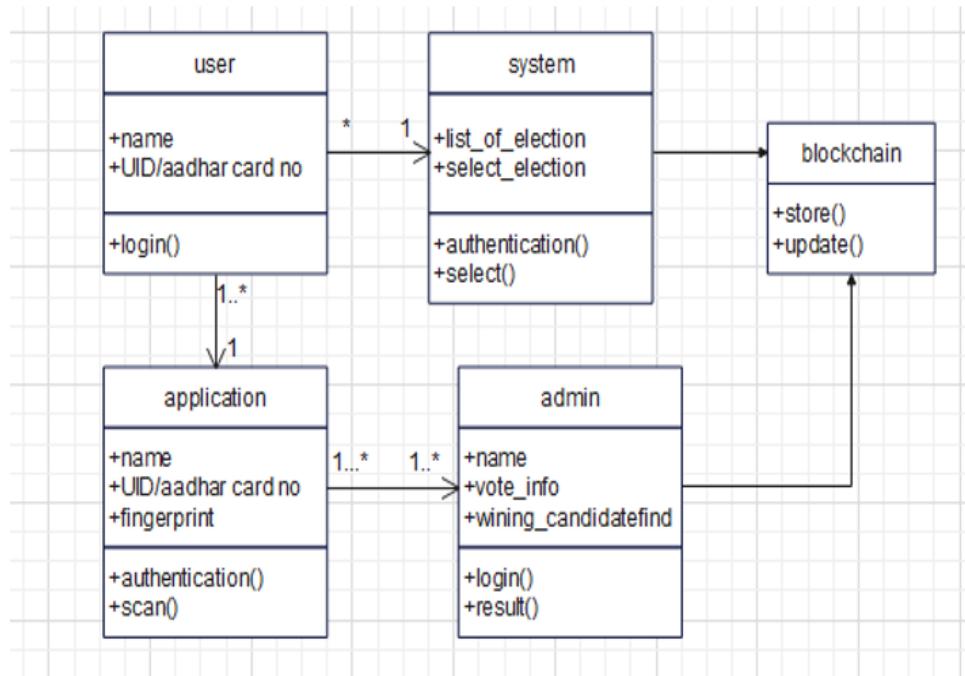


Figure 6.8: Class diagram

Chapter 7

RISK MANAGEMENT

7.1 Risk Management w.r.t. NP Hard analysis

- Np Hard Problem : In our project we have face issued like syntax errors , code error which is easy solvable.
- NP Complete Problem : Problem we face during processing on SVM for accuracy so we used XGB Classifier as a alternative solution.

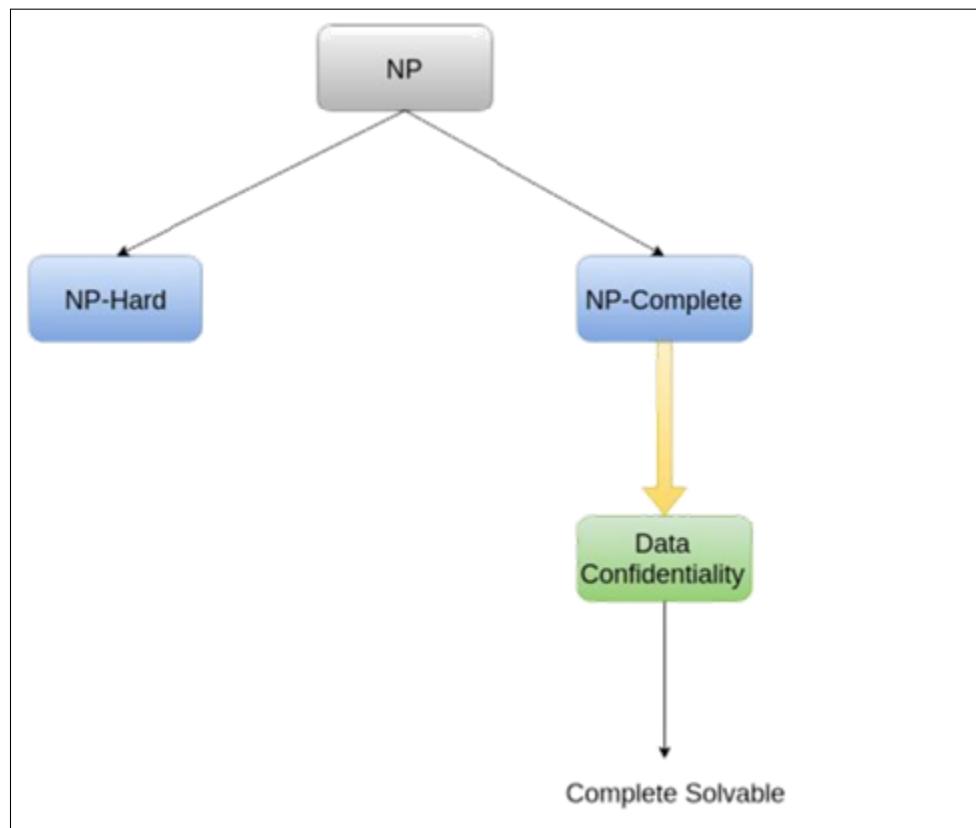


Figure 7.1: NP-hard and NP-complete

7.2 Feasibility

The feasibility of the project is analysed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential. Dimensions of Software Feasibility are as follows:

- Technology:
 - Is project technically feasible?
 - Is it within state of art?
 - Can defect be reduced to a level matching application's need?
- Finance:
 - Is it financially feasible?
 - Can development be completed at a cost the software organization and its client or market can afford?
- Time:
 - Will project's time to market beat competition?
- Resources:
 - Does the organization have resources needed to success?

Two key considerations involved in the feasibility analysis are:

1. Technical Feasibility.
2. Cost Feasibility.

7.2.1 Technical Feasibility

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system. Technical feasibility assessment can be done through following ways: 1) NP-Complete. 2) NP-Hard. 3) Satisfiability.

7.2.2 Cost Feasibility

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system is well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

Chapter 8

SOFTWARE TESTING

8.1 Introduction

Software testing is an activity aimed at evaluating an attribute or capability of a program or system and determining that it meets its required results. It is more than just running a program with the intention of finding faults. Every project is new with different parameters. No single yardstick maybe applicable in all circumstances. This is a unique and critical area with altogether different problems. Although critical to software quality and widely deployed by programs and testers. Software testing still remains an art, due to limited understanding of principles of software. The difficulty stems from complexity of software. The purpose of software testing can be quality assurance, verification and validation or reliability estimation. Software testing is a trade-off between budget, time and quality. In this chapter there is relevant explanation on testing strategies used to test the system, and test cases.

8.2 Types of Testing

Testing Strategy used for testing the system are as follows,

1. Manual Testing
2. Automated Testing
3. Unit Testing
4. Integration Testing
5. Regression Testing

8.2.1 Manual Testing

Manual and Automated test are the types of software testing. We are doing a manual test for testing our system that is without using any automated tool or any script. In this type tester takes over the role of an end user and test the software to identify any unexpected behavior or bug. There are different stages for manual testing like unit testing, integration testing, system testing and user acceptance testing. Testers use test plan, test cases or test scenario to test the software to ensure the completeness of a testing. Manual testing also includes exploratory testing as a testers explore the software to identify the errors in it.

8.3 Test cases

Table 8.1: Test cases

Task	Description	Action
001	System accessible to the user	User should open System from PC
002	Login page	The login page is displayed on System
003	New Registration	new user register with name, email ID and password
004	user Login	user should log in first by entering a username and password
005	Authentication	if username and password are valid then only system will display the page of E- VOTING SYSTEM. system
006	Dataset	we create the dataset for system and trained the system and create model for analyzing the voter information.
007	Apply vote	voter can cast a vote by selecting the candidate.
008	Processing	Here we will do the process of voting and save it with the dataset trained model.
009	Display	System will display the vote is successfully placed or not.

8.4 Test Results

Table 8.3: Test Results

Test ID	Description	Expected Result	Actual Result	Status
001	To check whether user successfully connected in network	User should successfully connected in network	User has successfully connected in network	PASS
002	User Login	User should Login in system	User has logged in system	PASS
003	Data store in database	System should store values in database	System has store values in database	PASS
004	Incorrect Data	If user gives wrong values ,system should show error	System has shown error	PASS
005	System performance	System should perform as per requirements	System able perform as per requirements	PASS
006	Connection to network data protocol	System should able to connect to network protocol	System is connected to network protocol	PASS
007	Delay time management	System should give quick response to	System is giving quick response to	PASS
008	Notification to user on display	System should able to give notification to user on display	System is giving notification to user on display	PASS
009	System Accuracy	System should performance features with accuracy	System able to perform features with accuracy	PASS
010	System output test System	should give all the output as per programming	System is give all the output as per programming	PASS

Chapter 9

CONCLUSION & FUTURE WORK

9.1 Conclusion

Corruption can be minimized through honesty and sincerity. This system is a small contribution for a fair election. But corruption in voting system can not be completely erased through this system if there is no sincerity. The new system prevents access to illegal voters, provides ease of use, transparency and maintains integrity of the voting process. The system also prevents multiple votes by the same person and checks eligibility of the voter. Some of these advantages are lesser cost, faster tabulation of results, improved accessibility, greater accuracy, and lower risk of human and mechanical errors.

9.2 Future Work

The future scope of this system is promising and multifaceted. As technology continues to advance, there is potential to further enhance the security and reliability of the voting process. Future developments could include the integration of blockchain technology to create an immutable and transparent ledger of votes, ensuring even greater trust in the electoral outcomes. Additionally, the system could incorporate biometric authentication methods, such as fingerprint or facial recognition, to further prevent voter fraud and ensure that each vote is cast by a legitimate and unique individual. There is also the possibility of expanding the system to support remote voting, enabling citizens to vote securely from anywhere in the world, thereby increasing voter turnout and making the process more accessible. Moreover, continuous improvements

in user interface design and accessibility features could make the system more user-friendly for people with disabilities. With ongoing research and development, this system can adapt to new challenges and technological advancements, ensuring that it remains a robust tool for conducting fair and efficient elections.

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10. A. Samundeeswari, P. Parthasarathy, K. Ragul, K. Raguram, "Advanced Voting Machine Using Face Recognition," International Journal of Creative Research Thoughts (IJCRT), 2020. Available Online: www.ijcrt.org. [Accessed 13 October 2019].

Annexure A

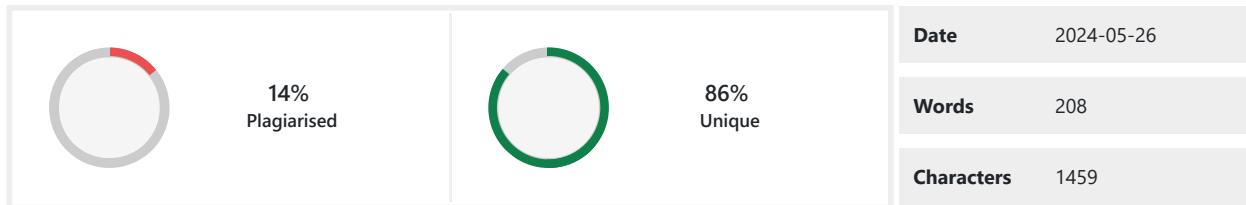
Weekly Report

Sr. No	Task Name	Begin date	End date	Remarks
1	Selecting project domain	15 th Aug 2023	20 Aug 2023	Done
2	Understanding project need	21 st Aug 2023	25 Aug 2023	Done
3	Understanding pre requisites	26 Aug 2023	30 Aug 2023	Done
4	Information Gathering	1 st Sep 2023	15 Sep 2023	Done
5	Literature Survey	16 th Sep 2023	15 Sep 2023	Done
6	Refine Project Scope	16 Sep 2023	18 Sep 2023	Done
7	Concept Development	19 Sep 2023	20 Sep 2023	Done
8	Planning and Scheduling	21 Sep 2023	23 Sep 2023	Done
9	Requirement's analysis	24 Sep 2023	25 Sep 2023	Done
10	Risk identification and monitoring	26 Sep 2023	27 Sep 2023	Done
11	Design and modeling	28 Sep 2023	15 Oct 2023	Done
12	Design review and refinement	16 Oct 2023	20 Oct 2023	Done
13	GUI design	21 st Oct 2023	20 Nov 2023	Done
14	Implementation	21 st Nov 2023	15 Feb 2024	Done
15	Review and suggestions for Implementation	15 th Feb 2024	20 th Mar 2024	Done
16	Outcome assessment	21 st Mar 2024	30 th Mar 2024	Done
17	Testing and Quality Assurance	1 st Apr 2024	7 th Apr 2024	Done
18	Review and suggestions for Testing and QA	8 th Apr 2024	12 th Apr 2024	Done
20	Refined QA activities	13 th Apr 2024	17 th Apr 2024	

Figure 9.1: Weekly Reoprt

Annexure B
Plagiarism Report

PLAGIARISM SCAN REPORT



Content Checked For Plagiarism

A separate commission called the Election Commission of India (ECI). This commission is not favorable or does not support any political party. Security is at the heart of the electronic voting process. Hence the need to design a secure electronic voting system is very important. Usually mechanisms that ensure safety and election privacy can be time-consuming, expensive for election administrators, and inconvenient for voters. There are different levels of electronic voting security. Therefore serious precautions must be taken to keep it out of the public domain. Security must also be used for concealment voices from publicity. EVMs or Electronic Voting Machines provide the voter with a button for each option that is connected by a cable to an electronic ballot box. **EVM consists of two units - control unit and electoral unit** - and these two are connected by a five-meter cable. When the voter presses the button against the candidate he wishes to vote for, the machine will lock itself. The voter enters the polling station and presses the button for the candidate of his choice. At the end of the survey the chairman removes the plastic cap on the control unit and presses the CLOSE button, which prevents the EVM from receiving more votes

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Annexure C
Paper Publication 2024

Blockchain-Based Online Voting System

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Abstract-

Building a secure electronic voting system that offers the fairness and privacy of current voting schemes, while providing the transparency and flexibility offered by electronic systems has been a challenge for a long time. In this work-in-progress paper, we evaluate an application of blockchain as a service to implement distributed electronic voting systems. The paper proposes a novel electronic voting system based on blockchain that addresses some of the limitations in existing systems and evaluates some of the popular blockchain frameworks for the purpose of constructing a blockchain-based e-voting system. In particular, we evaluate the potential of distributed ledger technologies through the description of a case study; namely, the process of an election, and the implementation of a blockchain-based application, which improves the security and decreases the cost of hosting a nationwide election.

Key Words: Blockchain, Electronic Voting System and Evoting.



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INTRODUCTION

The use of technology has become important at this point in helping to meet human needs. Due to the increasing use of technology, new challenges are brought in the process of democracy as most people today don't trust their governments, making elections is very important in modern democracy. Elections have a great importance in determining who will rule a nation or an organization or it can be said as it is an event that decides the fate of any nation. In modern democracy, elections are very important but large sections of society around the world do not trust their election system which is a major concern for democracy. Even the world's largest democracies like India, United States, still suffer from a flawed electoral system. Vote rigging, hacking of EVM (Electronic voting machine), election manipulation, and polling booth capturing are the major issues in the current voting system.

The blockchain is said as emerging, decentralized, and distributed technology that promises to enhance different aspects of many industries. Expanding e-voting into blockchain technology could be the solution to eliminate the present concerns in e-voting system. There is no doubt that the ever changing concept of the blockchain, which is the backbone of the famous cryptocurrency Bitcoin has triggered the start of a new era in the Internet and the online services. While most people focus only on bitcoin and other cryptocurrencies; there are in fact, many operations, both administrative and fintech that can only be done online/offline can now safely be moved to the Internet as online services because of immutability of blockchain. What makes blockchain a powerful tool is its smart contracts and many features which overcomes traditional systems.

Smart contracts are meaningful pieces of codes, to be integrated in the blockchain and executed as scheduled in every step of blockchain updates. E-voting, is another trending, yet critical, topic related to the online services. The blockchain with the smart contracts, emerges as a good candidate to use in developments of safer, cheaper, more secure, more transparent, and easier-to-use e-voting systems.

1. PURPOSE

Elections are fundamental pillar of a democratic system enabling the general public to express their views in the form of a vote. Due to their significance to our society, the election process should be transparent and reliable so as to ensure participants of its credibility. Within this context, the approach to voting has been an ever evolving domain. Blockchain is one of the emerging technologies with strong cryptographic foundations enabling applications to leverage these abilities to achieve resilient security solutions.

EXISTING SYSTEM

1. Electronic voting has been an area of research focus for many years by using computing machines and equipment for casting votes and producing high quality and precise results in accordance with the sentiments of the participating voters.
2. Initially computer counting system allowed the voter to cast vote on papers.
3. If the voting system is well understood by the voters, the system's usability can be increased remarkably.

OBJECTIVE OF SYSTEM

1. Secure E Voting System
2. To make such a system which will be easy to use and more user friendly for our customer.
3. Centralized management system
4. To build an online system this would enable voters to cast their votes on chosen candidates.
5. Study and implement a security method to be used to ensure that votes being cast in the system will not be compromised and any outside attack.

LITERATURE SURVEY

“A Visionary Approach to Smart Voting System” a paper of Rohit Sroa. A paper state that with the emergence of COVID-19 as a global pandemic, the need for an online voting system is becoming appallingly evident in India. Unfortunately, India still suffers from a flawed electoral system in today's scenario. Ballot rigging, hacking of the EVM (Electronic voting machine), election manipulation, and polling booth capturing are the significant issues in this voting system. To avert such a costly predicament in the future, many countries are currently experimenting with blockchain-based voting systems. However, there are also significant drawbacks to this method. Consequently, our paper proposes a novel online voting system based on hash graph technology. The hash graph encryption method is a superior version of blockchain encryption and eradicates a few drawbacks of blockchain. This system preserves participant's anonymity while still being open to public inspection. Voters are authenticated using their Voter Id, Aadhaar Card Number, and face recognition. Furthermore, JWT Authentication is implemented to enhance the security of the login portal. Additionally, the voters can also assure their cast vote using the highly encrypted unique ID generated by our system. Besides that, the voter data is stored in a highly secured database. Furthermore, homomorphic encryption is used to store the votes and assist in counting the vote securely. Finally, it is also equipped with a chatbot that works as a support to the voters. In conclusion, this paper presents an in-depth evaluation of the scheme that successfully demonstrates its effectiveness in achieving an end-to-end verifiable online voting system.

“Aadhar Based Electronic Voting System And Providing Authentication on Internet Of Things” is a paper of Dr.V.Latha. A paper present the Flawless voting is ensured by Electronic voting machine. People should believe that their vote is secured and there is no malpractice. The main aim of this project is to develop a secure Electronic voting machine using Finger print identification method, for finger print accessing we use AADHAR card database. At the time of voting in the elections, the e-voting process authentication can be done using finger vein sensing, which enables the electronic ballot reset for allowing voters to cast their votes. Also the voted data and voter's details can be sent to the nearby Database Administration unit by using WIFI System. The finger print scanning is used to ensure the security to avoid fake, repeated voting etc. It also enhances the accuracy and speed of the process. The purpose of such system is to ensure that the voting rights are accessed only by a legitimate user and no one else. During elections, the thumb impression of a voter is entered as input to the system. This is then compared with the available records in the database. If the particular pattern matches with anyone in the available record, access to cast a vote is granted. But in case the pattern

doesn't match with the records of the database or in case of repetition, access to cast a vote is denied or the vote gets rejected.

"Finger Print Based Smart Voting System" is a paper of Ms.Mary Varsha Peter. It state that, The main objective of this project is to enable safe and secure voting system and is to avoid misconceptions which take place in election period. Voting System helps to choose their government and also the political representatives. It also ensures that to avoid fake and repeated vote during election. In this project the finger print is given as input. All the database of the voter include their finger print, photo, mobile number etc has been stored in the MATLAB. If the finger print enrolled by the voter should be matched with the database, It enables the voter to enroll his/her vote. If the finger print doesn't match the system will lock the process. The important is that the voter can enroll their vote at their desire location. And also the number of vote enrolled should be updated in the database administration unit every time after voting is done. The smart voting system will enhance better accuracy and high speed process. Through this voting system the disadvantages which are in the electronic voting system should be overcome.

PROPOSED SYSTEM

Our Indian government gave us right to elect their desired leader. For controlling and conducting this election process, the government formed a separate commission named Election Commission of India. This commission should not support and favorable to any of the political leader or the party and also it work as per the rules given in law. The election commission will follow the technique named Electronic Voting Machine in which the voter should produce the election id card provided by the commission and it has been verified with the official database list. After this process only, the voter can poll their vote. This will not leads to time consuming and less man power. But in our project, it has less manual power and time consuming. Also it is safer than the old voting process. The disadvantages in EVM is that the counting of vote and result display will take number of days and also the candidate should enroll their vote at their allocated location only. This makes less accuracy of voting. But our project enable the candidate can enroll their vote at their desired location or at from working place. So this leads 100% accuracy of voting.

SYSTEM ARCHITECTURE

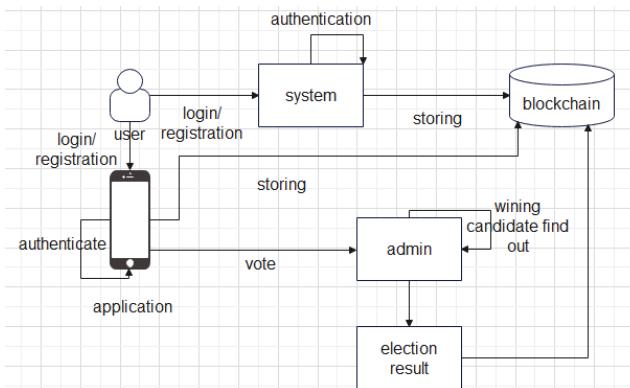


Fig -1: System Architecture Diagram

IMPLEMENTATION DETAILS

Election is the one of the most important thing which binding our nation together to elect our leader till the next election. In the previous system, the polling officer is the in-charge of the control of the election process until the close button is pressed. In this process it will consume more manual work and it is not secure. The discrepancy should be noticed only through the balloting unit during the counting of votes. The problem associated with this electronic voting machine is that during election time the candidate should go to their allocated location for enroll their vote. Due this problem many of them were didn't like to vote. This create many malpractice during election.

ADVANTAGES

- Providing the preventive measures system for voting.

- It completely rules out the chance of invalid votes.
- Its use results in reduction of polling time.
- Results in fewer problems in electoral preparations, law and order candidates' expenditure.
- It is capable of saving considerable printing stationery and transport of large volumes of electoral material.

APPLICATION

To develop a secured electronic voting system using fingerprint biometric techniques that would tackle all the drawbacks presented in this project and satisfy e-voting functional and security requirements towards achieving credible elections at all levels.

MATHEMATICAL MODEL

System Description:

$$S = (I, O, F)$$

Where,

S: System.

I = {UI, AD, FS} are set of Inputs

Where,

UI: User Id Login

AD: Aadhar Data

FS: Finger print Scan

F = {A, P} are set of Function

Where,

A: Authentication

P: processing

O = {N, U} are set of Output

Where,

N: Notification

V: Vote

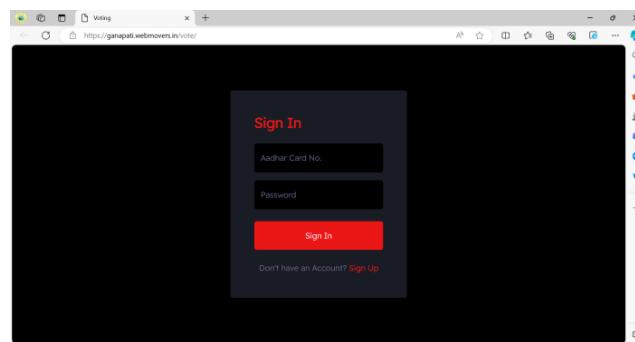
Success Conditions:

Proper database, Scanning

Failure Conditions:

No database, internet connection

RESULT



The screenshots illustrate the workflow of a web-based voting system. The first screen shows the sign-up process where users input their personal information. The second screen is the user's dashboard, providing a quick overview and access to different sections. The third screen allows users to initiate a new election, specifying the election name and the number of candidates involved. The fourth and fifth screens show the resulting election lists, detailing the specific entries and their status.

CONCLUSION

Hence in the proposed framework, we have tried to build a secure voting system that is free from unauthorized access while casting votes by the voters. The server aspects of the proposed system have such distribution of authority that server does not enable to manipulate the votes. It is expected that the proposed voting system will increase the transparency and reliability of the existing electoral system

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Annexure A
Certificate of Paper Publication 2024

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