SECURE E-VOTING USING ADJUSTED BLOCKCHAIN TECHNOLOGY

A PROJECT REPORT

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BONAFIDE CERTIFICATE

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ABSTRACT

Voting system is very essential for electing leaders to lead our nation. Nowadays, e-voting is developed to make easy for citizens of India to vote through online without visiting polling booth. E-voting would be the security risk that can be potentially undermine the election process. It may susceptible to a range of threats such as hacking by domestic and foreign saboteurs. In order to address this issue, our proposed system uses QR code for safe voting and block chain technologies for database security and also to track the whole voting process. Building an electronic voting system that satisfies the legal requirements of legislators has been a challenge for a long time. A distributed ledger technology is an exciting technological advancement in the information technology world. Block chain technologies offer an infinite range of applications benefiting from sharing economies. This paper aims to evaluate the application of block chain as service to implement distributed electronic voting systems. The Blockchain-Enabled E-Voting uses a digital-currency analogy where in eligible voters can cast a ballot anonymously using a computing environment. BEV employs an encrypted key, smart biometrics and tamperproof real-time personal ID verification. Blockchain enable the creation of tamper-proof audit trails for voting.

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LIST OF ABBREVIATION

ABBREVIATION	EXPLANATION
BEV	BLOCK CHAIN ENABLED E-VOTING
DRE	DIRECT RECORDING ELECTRONIC
VVPAT	VOTER VERIFICABLE PAPER ANDIT TRAIL
CBVR	CONTENT BASED VIDEO RETRIEVAL
GRU	GATED RECURRENT UNITS
IDH	DECISION DIFFIE HELLMAN
PHP	HYPERTEXT PREPROCESSOR
HTML	HYPERTEXT MARKUP LANGUAGE
CSS	CASCADING STYLE SHEET
LAMP	LINUX, APACHE, MYSQL, PHP/PERF/ PYTHON

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CHAPTER 1
INTRODUCTION

1.1NEED FOR THE STUDY

In every democracy, the security of an election is a matter of national security. The computer security field has for a decade studied the possibilities of electronic voting systems, with the goal of minimizing the cost of having a national election, while fulfilling and increasing the security conditions of an election. From the dawn of democratically electing candidates, the voting system has been based on pen and paper. Replacing the traditional pen and paper scheme with a new election system is critical to limit fraud and having the voting process traceable and verifiable. Electronic voting machines have been viewed as flawed, by the security community, primarily based on physical security concerns. Anyone with physical access to such machine can sabotage the machine, thereby affecting all votes cast on the aforementioned machine. Enter blockchain technology. A blockchain is a distributed, immutable, incontrovertible, public ledger. This new technology works through four main features: (i) The ledger exists in many different locations: No single point of failure in the maintenance of the distributed ledger. (ii) There is distributed control over who can append new transactions to the ledger. (iii) Any proposed "new block" to the ledger must reference the previous version of the ledger, creating an immutable chain from where the blockchain gets its name, and thus preventing tampering with the integrity of previous entries. (iv) A majority of the network nodes must reach a consensus before a proposed new block of entries becomes a permanent part of the ledger.

1.2 OVERVIEW OF THE PROJECT

These technological features operate through advanced cryptography, providing a security level equal and/or greater than any previously known database. The blockchain technology is therefore considered by many, including us, to be the ideal

tool, to be used to create the new modern democratic voting process. This paper evaluates the use of blockchain as a service to implement an electronic voting (e-voting) system. The paper makes the following original contributions: (i) research existing blockchain frameworks suited for constructing blockchain based e-voting system, (ii) propose a blockchain-based e-voting system that uses "permissioned blockchain" to enable liquid democracy. The system presents our blockchain based e-voting system and evaluate some of the popular blockchain frameworks for realizing the system. some of the security and legal considerations and limitations regarding designing an electronic voting system for national elections.

1.3 OBJECTIVES OF THE STUDY

This paper aims to evaluate the application of block chain as service to implement distributed electronic voting systems. The Blockchain-Enabled E-Voting uses a digital-currency analogy where in eligible voters can cast a ballot anonymously using a computing environment. BEV employs an encrypted key, smart biometrics and tamperproof real-time personal ID verification. Blockchain enable the creation of tamper-proof audit trails for voting. The idea of adapting digital voting systems to make the public electoral process cheaper, faster and easier, is a compelling one in modern society which normalizes it in the eyes of the voters, removes a certain power barrier between the voter and the elected candidate, thus making it an effective way for casting vote in this generation of technology. The paper starts by evaluating some of the popular block chain frameworks that offer block chain as a service. We then propose a novel electronic voting system based on block chain that addresses all limitations we discovered.

CHAPTER 2
LITERATURE REVIEW

[1] Secure the vote today

By Nicholas Weaver Monday, August 8, 2016, 12:42 PM

Voting systems need to convince rational losers that they lost fairly. In order to do that, it is critical to both limit fraud and have the result be easily explained. It is impossible to prevent all fraud but we must ensure that the cost of fraud scales with the size: it should take 100 times more effort to change 100 votes compared with the effort associated with changing one vote. Any voting system in which fraud is constant—that is, in which changing 100 votes takes the same effort as changing one—must be viewed as critically flawed.

Thus, the security community views electronic voting machines, usually called Direct Recording Electronic (DRE) voting machines, which do not print a paper record of the voter's vote (Voter Verifiable Paper Audit Trail or VVPAT) as fatally flawed. Anyone with physical access to a voting machine can sabotage that machine, and this sabotage can affect all votes cast with that machine (or simply turn it into a Pac-Man machine). Others have proposed building worms or viruses that can spread through all voting machines in a district. Some (now thankfully decertified) DRE systems were even worse, enabling anyone within half a mile to modify all votes.

[2]A Smart Contract for Boardroom Voting with Maximum Voter Privacy. Patrick McCorry, Siamak F. Shahandashti and Feng Hao School of Computing Science, Newcastle University UK

Despite the fact that remarkable progress has been made in recent years, Content-based Video Retrieval (CBVR) is still an appealing research topic due to increasing search demands in the Internet era of big data. This article aims to explore an efficient CBVR system by discriminately hashing videos into short binary codes. Existing video hashing methods usually encounter two weaknesses originating from

the following sources: (1) Most works adopt the separated stages method or the frame-pooling based end-to-end architecture. However, the spatial-temporal properties of videos cannot be fully explored or kept well in the follow-up hashing step. It unifies video temporal modeling and learning to hash into one step to allow for maximum retention of information. A deep metric learning objective called L2All_loss is introduced for network training by preserving intraclass similarity and inter-class separability, and a quantization loss between the real-valued outputs and the binary codes is minimized. Extensive experiments on several challenging datasets demonstrate that SPDTH can consistently outperform state-of-the-art methods. This article proposed an efficient content-based video retrieval method which has the ability to capture spatial-temporal properties of videos and generate binary codes through stacked Gated Recurrent Units (GRUs). To allow for maximum retention of video information, it unifies video temporal modeling and learning to hash into one stage. A discriminative objective function is introduced to train the network for preserving intraclass similarity and inter-class separability effectively. Experimental results on three video datasets demonstrate that this method gains better performance compared with the existing video hashing methods.

[3] A Secure and Optimally Efficient Multi-Authority Election Scheme
Ronald Cramer Rosario Gennaro Berry Schoenmaker's

In this paper we present a new multi-authority secret-ballot election scheme that guarantees privacy, universal verifiability, and robustness. It is the first scheme for which the performance is optimal in the sense that time and communication complexity is minimal both for the individual voters and the authorities. An interesting property of the scheme is that the time and communication complexity for the voter is independent of the number of authorities. A voter simply posts a single encrypted message accompanied by a compact proof that it contains a valid vote. Our result is complementary to the result by Cramer, Franklin, Schoenmaker's,

and Yung in the sense that in their scheme the work for voters is linear in the number of authorities but can be instantiated to yield information-theoretic privacy, while in our scheme the voter's effort is independent of the number of authorities but always provides computational privacy-protection. We will also point out that the majority of proposed voting schemes provide computational privacy only (often without even considering the lack of information-theoretic privacy), and that our new scheme is by far superior to those schemes.

[4] A 2-Round Anonymous Veto Protocol

Feng Hao and Piotr Zielinski Computer Laboratory, University of Cambridge, UK {feng.hao,piotr.zielinski}

The dining cryptographers' network (or DC-net) is a seminal technique devised by Chaim to solve the dining cryptographer's problem namely, how to send a Boolean-OR bit anonymously from a group of participants. In this paper, we investigate the weaknesses of DC-nets, study alternative methods and propose a new way to tackle this problem. Our protocol, Anonymous Veto Network (or AV-net), overcomes all the major limitations of DC-nets, including the complex key setup, message collisions and susceptibility to disruptions. While DCnets are unconditionally secure, AV-nets are computationally secure under the Decision Diffie-Hellman (DDH) assumption. An AV-net is more efficient than other techniques based on the same public-key primitives. It requires only two rounds of broadcast and the least computational load and bandwidth usage per participant. Furthermore, it provides the strongest protection against collusion — only full collusion can breach the anonymity of message senders.

[5]Digital Voting with the use of Blockchain Technology Team Plymouth Pioneers – Plymouth University Andrew Barnes, Christopher Brake and Thomas Perry Word count: 2992

Democratic voting is a crucial and serious event in any country. The most common way in which a country votes is through a paper-based system, but is it not time to bring voting into the 21st century of modern technology? Digital voting is the use of electronic devices, such as voting machines or an internet browser, to cast votes. These are sometimes referred to as e-voting when voting using a machine in a polling station, and i-voting when using a web browser. Security of digital voting is always the biggest concern when considering to implement a digital voting system. With such monumental decisions at stake, there can be no doubt about the system's ability to secure data and defend against potential attacks. One way the security issues can be potentially solved is through the technology of blockchains. Blockchain technology originates from the underlying architectural design of the cryptocurrency bitcoin. It is a form of distributed database where records take the form of transactions, a block is a collection of these transactions. With the use of blockchains a secure and robust system for 4 digital voting can be devised. This report outlines our idea of how blockchain technology could be used to implement a secure digital voting system.

CHAPTER 3

SYSTEM STUDY

3.1 EXISTING SYSTEM

This is the current voting system used in India. In this system vote is cast using electronics ballet. In this we cast our vote in an electronics machine. This is a group of some counter and registers. This voting system is quite easy, simple. It has advantage like mobility, secure, flexibility for election commission. But in today world all people are so much busy that they don't have time to vote. This paper offers a viewpoint on either the electronic voting process. Which involves the electoral method, though not restricted to, the specific voting procedure used on polling day.

3.1.1 DISADVANTAGES

- Vulnerability to hacking:

- Voter verified paper audit trails: All fully-electronic (touch screen, DRE, internet) voting systems are subject to the limitations and risks of computer technology. This includes the inability to detect the presence of hardware and/or software that could be used, deliberately or inadvertently, to alter election outcomes.

- Susceptibility to fraud: Voting fraud is not either present everywhere or absent everywhere. Especially in our country, there have always been allegations of fraud by all the losing political parties.

- Accuracy in capturing voters' intent: If a touch screen is used in the elections, the sensors in touch screen devices can be knocked out of alignment by shock and vibration that may occur during transport.

- Malicious software programming: Any computer software is basically generated from software programming and coding. And all these software's could be tampered with by a computer programmer who knows the source code.

- Secure storage of cast votes: The votes that are cast using the electronic voting machines, are stored in a safe storage or space in the computer machine memory.

3.2 PROPOSED SYSTEM

The methodology suggested in this paper addresses the usefulness of the polling procedure, utilizing the dynamic block chain approach to hash the utility of algorithms, block formation and sealing, data collection, and outcome declaration. This paper seeks to explain the complexities of tor network security and data processing, and offers an improved description of the online voting process.
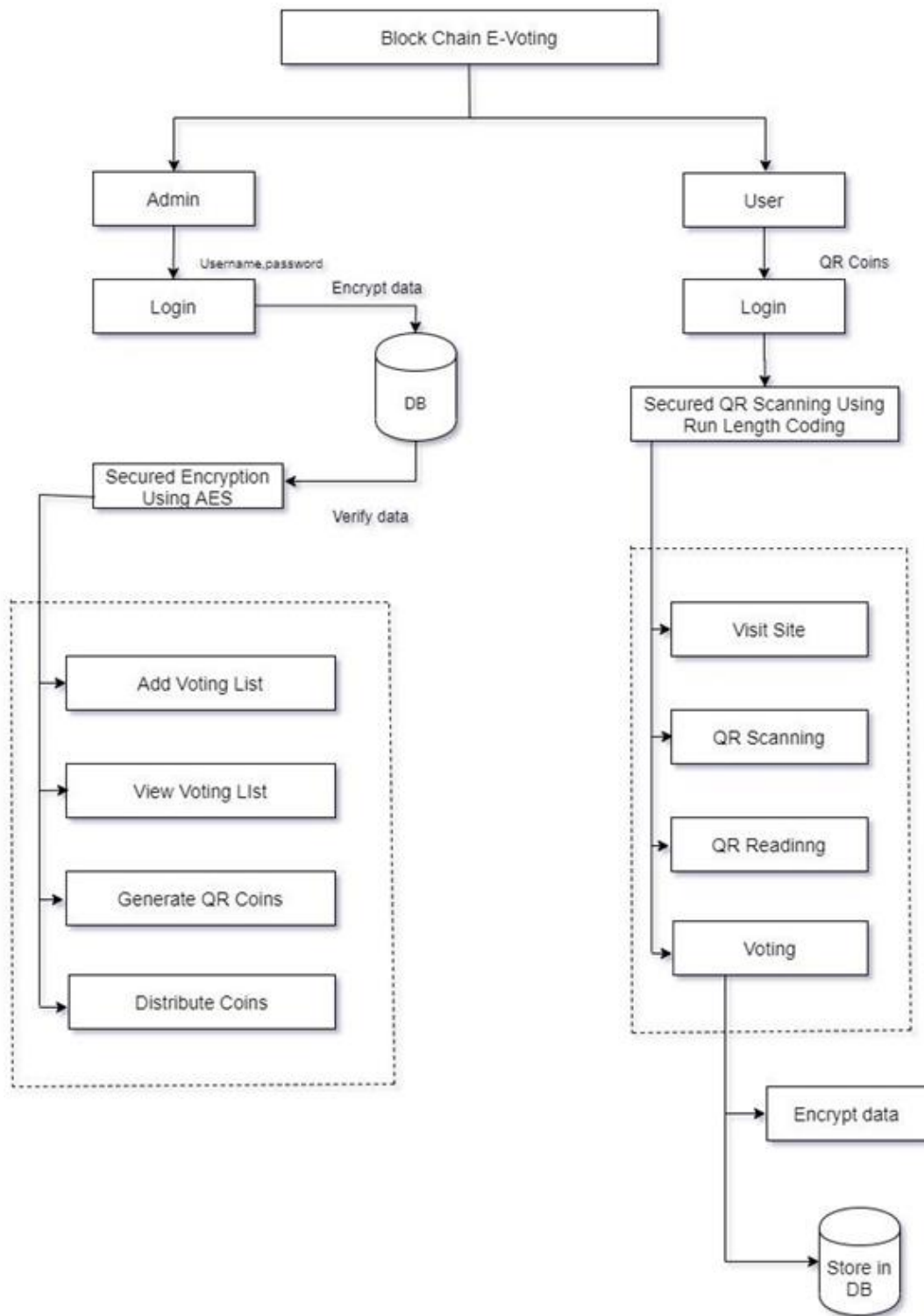
Fig: 3.2 Overall System Architecture

A. PROCESS FOR ENTIRE E-VOTING:

System modelling develop a thorough understanding of the system and recognize errors a Daw that can be identified before the system can be implemented.

B. DETEMINATION OF THE SUILABLE NETWORK TECHNOLOGIES ENSURE SECRECY, SAFETY, AND PROTECTION:

The e-voting procedure contains functions such as secrecy, security, authentication, and very capacity It is important that the key component of this architecture is constantly selected by the underlying technologies to address these challenges. The Blockchain technology was represented as tackling all of these hurdles in a client way. Admin User section with default username and password. admin can approve or deny a request for a vote by reviewing user information, and admin may even register another admin. User will QR code for authentication process. After scanning, he should enter his information and submit a report to the administrator if the account is denied for any reason that he would be told to register again by admin.

C.POLLING PROCESS:

Admin can establish an election with form of election and constituency of election. at the specified date and time all election is triggered. verified user has to login and scan his Aadhar card if election and user constituency matches user can view Election details. During voting. voters have to scan their QR Code which send through registered email, in voting page if the user's QR code scanned and verified then voters will assign their vote to the correct nominee. Throughout most of the registration process the consumer will check QR scanning voters will able to cast their votes in voting page. When the consumer finishes his or her voting process, Block chain can store votes and the elector can't be altered to abandon his votes deposited in the block chain in a pie chart obtained from the block chain, consumer may show their decision. The data was hashed using the Base64 algorithm. Admin Must publish the results of each district after the end of the electoral cycle.

D. HASHING:

Voting schemes have grown from early-day hand counting to programs that involve paper, punch card, mechanical trigger, and optical scanning machines. An online voting method that is used today offer any feature other than conventional voting This also provides improved voting system functionality over existing voting systems such as reliability, comfort, consistency, anonymity, verifiability and versatility. Yet electronic voting devices suffer from numerous drawbacks including time requiring, demanding huge amounts Paperwork, no clear part for senior officials, computer harm due to lack of care, mass editing does not encourage users to download and modify multiple different things etc. Therefore, we can avoid data loss by adopting a decentralized Blockchain-based cloud system to translate the message to 512-bit bytes, I determine the necessary number of keys, N, then I construct a 16-integer (i.e., 512-bit) sequence for each of these. I take four bytes from the message (using char Code At) for each of these integers, and left-shift them by the correct number to load them into the 32-bit integrum.

3.2.1 ADVANTAGES

- Secured Login makes our application Secure and Safe.
- QR OTP code generation replaces traditional Login format.
- Database Encryption and Decryption to protect the data owner's Privacy and File manager using **Base64 Crypto Algorithm.**
- Block chain technology is used for database security and safe voting process

CHAPTER 4
SYSTEM REQUIREMENTS

4.1 HARDWARE REQUIREMENTS

- Processor   : i3 Processor
- RAM   : 1.00 GB
- Hard disk   : 500 GB
- Main Memory   : 1 GB
- Monitor   : LED Monitor

4.2 SOFTWARE REQUIREMENTS

- Operating system   : Windows 7
- Front End   : HTML, CSS, PHP
- Back End   : My SQL
- Webserver   : Apache

SOFTWARE DESCRIPTION

4.3.1 PHP:

PHP: Hypertext Preprocessor (the name is a recursive acronym) is a widely used, general-purpose scripting language that was originally designed for web development to produce dynamic web pages. For this purpose, PHP code is embedded into the HTML source document and interpreted by a web server with a PHP processor module, which generates the web page document. As a general-purpose programming language, PHP code is processed by an interpreter application in command-line mode performing desired operating system operations and producing program output on its standard output channel. It may also function as a graphical application. PHP is available as a processor for most modern web servers and as standalone interpreter on most operating systems and computing platforms.

Hypertext refers to files linked together using hyperlinks, such as HTML (Hypertext Markup Language) files. Preprocessing is executing instructions that modify the output. Below is a demonstration of the difference between HTML and PHP files.
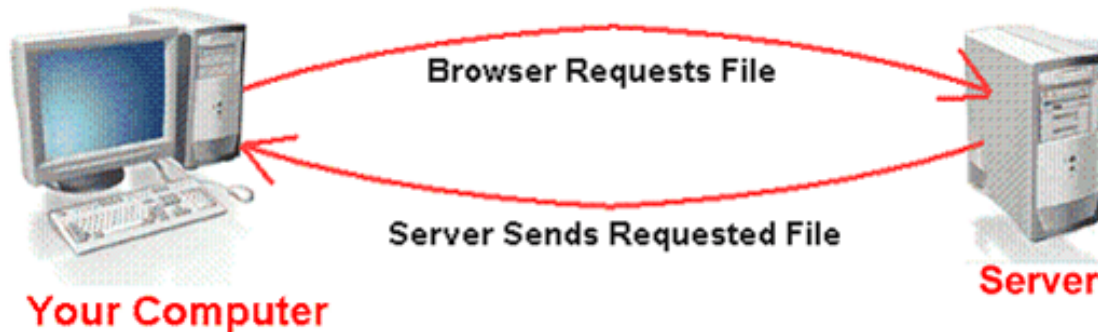
Accessing an HTML Page

Fig:4.3.1 A

1. Your browser sends a request to that web page's server (computer) for the file (HTML or image) you wish to view.
2. The web server (computer) sends the file requested back to your computer.
3. Your browser displays the file appropriately.
4. If you request a PHP file (ends with ".php"), the server handles it differently.
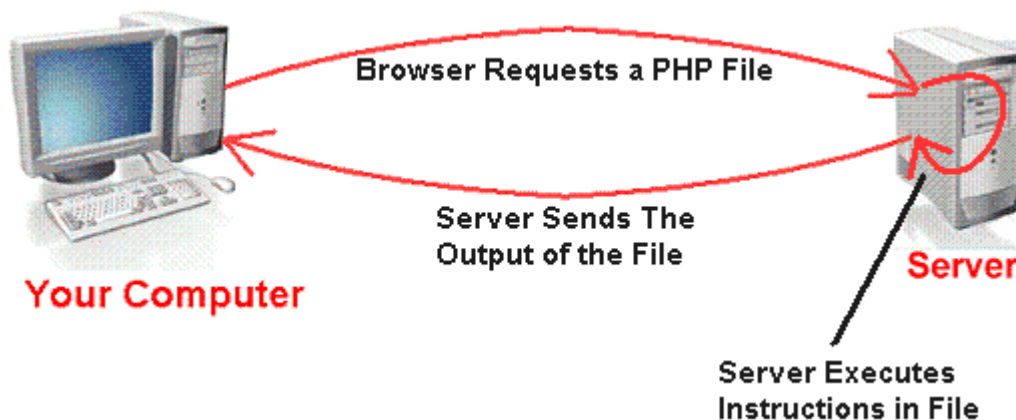
Accessing a PHP Page

Fig: 4.3.1 B

5 Your browser sends a request to that web page's server for the PHP file you wish to view.

6 The web server calls PHP to interpret and perform the operations called for in the PHP script.

7 The web server sends the output of the PHP program back to your computer.

8 Your browser displays the output appropriately.

Security

The PHP interpreter only executes PHP code within its delimiters. Anything outside its delimiters is not processed by PHP (although non-PHP text is still subject to control structures described within PHP code). The most common delimiters are <?php to open and ?> to close PHP sections. <script language="php"> and </script> delimiters are also available, as are the shortened forms <? Or<?= (which is used to echo back a string or variable) and ?> as well as ASP-style short forms <% or <%= and %>. While short delimiters are used, they make script files less portable as support for them can be disabled in the PHP configuration, and so they are discouraged. The purpose of all these delimiters is to separate PHP code from non-PHP code, including HTML.

4.3.2 MY SQL:

The MySQL database has become the world's most popular open-source database because of its consistent fast performance, high reliability and ease of use. It's used on every continent -- Yes, even Antarctica! -- by individual Web developers as well as many of the world's largest and fastest-growing organizations to save time and money powering their high-volume Web sites, business-critical systems and packaged software -- including industry leaders such as Yahoo!, Alcatel-Lucent, Google, Nokia, YouTube, and Zappos.com.

Not only is MySQL the world's most popular open-source database, it's also become the database of choice for a new generation of applications built on the LAMP stack (Linux, Apache, MySQL, PHP / Perl / Python.) MySQL runs on more

than 20 platforms including Linux, Windows, Mac OS, Solaris, HP-UX, IBM AIX, giving you the kind of flexibility that puts you in control.

Whether you're new to database technology or an experienced developer or DBA, MySQL offers a comprehensive range of certified software, support, training and consulting to make you successful.

4.3.3 HTML:

HTML, which stands for Hypertext Markup Language, is the predominant markup language for web pages. HTML is the basic building-blocks of webpage. HTML is written in the form of HTML elements consisting of tags, enclosed in angle brackets (like <html>), within the web page content. HTML tags normally come in pairs like <h1> and </h1>. The first tag in a pair is the start tag, the second tag is the end tag (they are also called opening tags and closing tags).

The purpose of a web browser is to read HTML documents and compose them into visual or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page. HTML elements form the building blocks of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts in languages such as JavaScript which affect the behavior of HTML webpage.

There are several types of markup elements used in HTML.

Structural markup describes the purpose of text. For example, <h2>Golf</h2> establishes "Golf" as a second-level heading, which would be rendered in a browser in a manner similar to the "HTML markup" title at the start of this section. Structural markup does not denote any specific rendering, but most web browsers have default styles for element formatting. Text may be further styled with Cascading (CSS).

Presentational markup describes the appearance of the text, regardless of its purpose. For example, boldface indicates that visual output devices should

render "boldface" in bold text, but gives little indication what devices which are unable to do this (such as aural devices that read the text aloud) should do. In the case of both bold and <i>italic</i>, there are other elements that may have equivalent visual renderings but which are more semantic in nature, such as strong text andemphasis text respectively. It is easier to see how an aural user agent should interpret the latter two elements. However, they are not equivalent to their presentational counterparts: it would be undesirable for a screen-reader to emphasize the name of a book, for instance, but on a screen such a name would be italicized. Most presentational markup elements have become deprecated under the HTML 4.0 specification, in favor of CSS based styling.
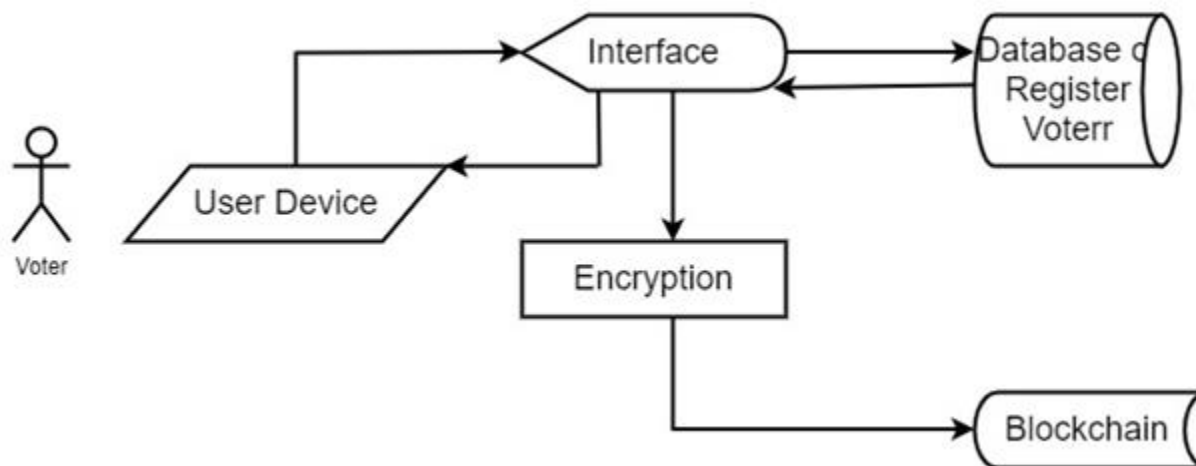
DFD

Fig:4.3.3

CHAPTER 5

SYSTEM DESIGN

Design is the process of translating requirements defined during analysis into several designs' activities for Voter requirements. The designer selects requirements needed to implement the system in this phase; the design of the database also takes place. After identifying the problem, limitations are opportunities to improve the efficiency system. A detail design of the proposed system is done. In database design several objectives are considered such as,

- Controlled Redundancy
- Data Independence
- More Information at low cost
- Accuracy and Integrity
- Recovery and Failure
- Security
- Performance

5.1 INPUT DESIGN:

Input design is the process of converting Voter oriented inputs to a computer-based format. The quality of the system input determines the quality of system output. Input design determines the format and validation criteria for data entering to the system.

Input design is a part of the overall system design, which requires very careful attention. If the data going into the system is incorrect then the processing and output will magnify these errors. Input can be categorized as internal, external, operational, computerized and interactive. The analysis phase should consider the impact of the inputs on the system as a whole and on the other systems.

The main objectives considered during input design are nature of input processing, Flexibility and thoroughness of validation rules, Handling of priorities within the input documents, Screen design to ensure accuracy and efficiency of input Relationship with files relationship with files. Careful design of the input also involves attention to error handling, controls, batching and validation procedures. Here the inputs are designed is such a way that

Occurrence of errors is minimized to its maximum. The inputs entered by the customers are checked at the client end and then fielded to the database. Any abnormality found in the inputs are checked and handled effectively. Input design features can ensure the reliability of a system and produce results from accurate data or they can result in the production of erroneous information. The features of input screens are: Well defined messages and prompts, Clear labels for menus items and fields, Clutter free screens.

5.2 OUTPUT DESIGN:

Output generally refers to the results and information that are generated by the system. For many end Voters, output is the main reason for developing the system and the basis on which they will evaluate the usefulness of the application. Most End Voter will noticeably operate the information system or enter data through workstation, but they will use the output from the system. When designing output, system analyst must accomplish the following: Determine what information to present Decide where to display, print the information and select the output medium.

5.3 DATABASE DESIGN:

Database design deals with the table structure and organization. The purpose of the database is to enable easy Oracle of information for the Voter. This process consists of deciding which tables to create and what columns they will contain as well as the relationships between tables. A database is an integrated collection of Voter related data stored with minimum redundancy, serves many Voters/application quickly and efficiently. A database system is basically a

computerized record keeping system, i.e., it is a computerized system whose overall purpose is to maintain information and make that information available on demand. DBMS is collections or inter related data and set of programs that allow several Voters to Oracle and manipulate the data. Its main purpose is to provide Voters with an abstract view of the data, i.e. the system hides certain details of how the data is stored and maintained.

Database Design

Database Name: E-voting

Table structure for table admin

Field	Type	Null	Default
aid	int(11)	Yes	NULL
username	varchar(23)	Yes	NULL
password	varchar(23)	Yes	NULL

Table:5.3.1

Table structure for table allocate party

Field	Type	Null	Default
party_id	int(11)	Yes	NULL
cid	int(11)	Yes	NULL
party	varchar(233)	Yes	NULL
symbol	varchar(255)	Yes	NULL

Table:5.3.2

Table structure for table block status

Field	Type	Null	Default
id	int(11)	Yes	NULL
U id	int(11)	Yes	NULL
stage1	int(11)	Yes	NULL
stage2	int(11)	Yes	NULL
stage3	int(11)	Yes	NULL
stage4	int(11)	Yes	NULL
stage5	int(11)	Yes	NULL
stage6	int(11)	Yes	NULL

Table structure for table candidate

Field	Type	Null	Default
cid	int(11)	Yes	NULL
name	varchar(233)	Yes	NULL
fname	varchar(233)	Yes	NULL
age	varchar(23)	Yes	NULL
dob	varchar(233)	Yes	NULL
gender	varchar(233)	Yes	NULL
gname	varchar(233)	Yes	NULL
qualification	varchar(233)	Yes	NULL
pre_address	varchar(233)	Yes	NULL
per_address	varchar(233)	Yes	NULL
city	varchar(233)	Yes	NULL
state	varchar(233)	Yes	NULL
pincode	varchar(233)	Yes	NULL
photo	varchar(255)	Yes	NULL
status	int(11)	Yes	NULL
mobile	varchar(23)	Yes	NULL
election	varchar(225)	Yes	NULL

Table:5.3.4

Table structure for table election

Field	Type	Null	Default
ele_id	int(11)	Yes	NULL
ename	varchar(233)	Yes	NULL
date	varchar(233)	Yes	NULL
eplace	varchar(233)	Yes	NULL
state	varchar(233)	Yes	NULL
time	varchar(233)	Yes	NULL

Table:5.3.5

Table structure for table party

Field	Type	Null	Default

pid	int(11)	Yes	NULL
party_name	varchar(233)	Yes	NULL
status	int(11)	Yes	NULL

Table:5.3.6

Table structure for table QR-coin

Field	Type	Null	Default
qr_id	int(11)	Yes	NULL
uid	int(11)	Yes	NULL
eid	int(11)	Yes	NULL
otp	int(11)	Yes	NULL
status	int(11)	Yes	NULL

Table:5.3.7

Table structure for table vote

Field	Type	Null	Default
vote_id	int(11)	Yes	NULL
vid	int(11)	Yes	NULL
eid	int(11)	Yes	NULL
cid	int(11)	Yes	NULL

Table:5.3.8

CHAPTER 6

6.1 SYSTEM MAINTENANCE

The results obtained from the evaluation process help the organization to determine whether its information systems are effective and efficient or otherwise. The process of monitoring, evaluating, and modifying of existing information systems to make required or desirable improvements may be termed as System Maintenance. System maintenance is an ongoing activity, which covers a wide variety of activities, including removing program and design errors, updating documentation and test data and updating user support. System Maintenance planning begins early in the acquisition process with development of a maintenance concept. Maintenance planning is conducted to evolve and establish requirements and tasks to be accomplished for achieving, restoring, and maintaining operational capability for the life of the system. For a system to be sustained throughout its system life cycle, the maintenance process has to be executed concurrently with the operations process

6.2 CORRECTIVE MAINTENANCE

This type of maintenance implies removing errors in a program, which might have crept in the system due to faulty design or wrong assumptions. Thus, in corrective maintenance, processing or performance failures are repaired. Corrective maintenance is initiated when an additional problem is discovered during a separate work order. For example, during an emergency repair, as part of a routine inspection, or in the process of conducting preventive maintenance, a technician spots another issue that needs corrected before other problems occur. Corrective maintenance can be defined as a maintenance task performed to identify, isolate, and rectify a fault so that the failed equipment, machine, or asset can be restored to an operational condition within the tolerances or limits established for in-service operations.

6.3 ADAPTIVE MAINTENANCE

Adaptive maintenance is the implementation of changes in a part of the system, which has been affected by a change that occurred in some other part of the system. Modification of a software product performed after delivery to keep a software product usable in a changed or changing environment. Use the adaptive correction strategy to shift your business departments around, increasing emphasis on more profitable segments while divesting from less profitable ones. Upgrade existing business segments or introduce new ones to address the changing tides of business. Pay attention to macroeconomic impacts - such as commodity costs, discretionary spending and government regulations - to make sure that you stay ahead of the curve. Most failures in the tech industry, in particular, stem from favoring a corrective strategy over an adaptive one, in which executives put off costly upgrades in favor or quarter-to-quarter earnings. This strategy can cost your company dearly when a competitor comes out of left field with a new technology which suddenly renders yours obsolete.

6.4 PERFECTIVE MAINTENANCE

Perfective maintenance mainly deals with implementing new or changed user requirements. Perfective maintenance involves making functional enhancements to the system in addition to the activities to increase the system's performance even when the changes have not been suggested by faults. This includes enhancing both the function and efficiency of the code and changing the functionalities of the system as per the users' changing needs. Examples of perfective maintenance include modifying the payroll program to incorporate a new union settlement and adding a new report in the sales analysis system

6.5 IMPLEMENTATION MODULES

6.5.1 USER

1. Visit Site
2. Apply Candidate
3. QR Scanning
4. QR Reading
5. Polling
6. Database cryptography

6.5.2 ADMIN

1. Manage Voter Details
2. Generate QR Coin
3. Manage Candidate details

6.6 MODULE DESCRIPTION

USER MODULES

Visit Site

  The user first visits the site where they have to cast the vote.

Apply Candidate

  In this module, public users who are willing to apply for candidate can apply here by providing required details. All applied candidate can be elected as candidate. Admin only approve candidate.

QR Scanning

  After the QR Coin is generated, the user can view the site only at the particular date and time and only at this time the user can view and access the site and the user can scan QR.

QR Reading

  In this project we can read our QR code by browsing and add QR image into

our QR reader. We have alternative QR reading technology by using the scanner. Once we scan the QR and submit it into the QR reader the scanned image will be retrieved and the user can see the information provided in the decrypted QR. After scanned the QR and the information provided in the image will be decrypted.

Polling

 After the QR is scanned, the user can poll votes. The user can view to whom they want to vote and poll accordingly and the voting details are viewed with database security using Encryption process. The voting process is now more secured.

Database cryptography

 In this module, when all the votes are collected, they are stored in database after QR scanning. Each vote is scanned and stored in database after encryption so that authentication becomes even more secure. For this database security, Blockchain technology is used.

ADMIN MODULES

Manage Voter Details

 In this module, the user can add voter list and the admin only can access voter details and can update the voter details as and when necessary.

Generate QR Coin

 After adding the details, QR Coin is generated and distributed to the particular user. Only that particular user can view the details and at particular date and time. Only with that QR Coin only the user can cast votes.

Manage Candidate details

 In this modules, all applied candidate details will be managed. Admin can approve only particular candidate. And Party symbols will be allocated by admin to approved candidates.

CHAPTER 7

IMPLEMENTATION AND TESTING

Testing is a process of executing a program with the intent of finding an error. Testing is a crucial element of software quality assurance and presents ultimate review of specification, design and coding. System Testing is an important phase. Testing represents an interesting anomaly for the software. Thus, a series of testing are performed for the proposed system before the system is ready for user acceptance testing.

A good test case is one that has a high probability of finding an as undiscovered error. A successful test is one that uncovers an as undiscovered error.

7.1 Testing Objectives:

- ➢ Testing is a process of executing a program with the intent of finding an error
- ➢ A good test case is one that has a probability of finding an as yet undiscovered error
- ➢ A successful test is one that uncovers an undiscovered error

7.2 Testing Principles:

- ➢ All tests should be traceable to end user requirements
- ➢ Tests should be planned long before testing begins
- ➢ Testing should begin on a small scale and progress towards testing in large
- ➢ Exhaustive testing is not possible
- ➢ To be most effective testing should be conducted by a independent third party.
- ➢ The primary objective for test case design is to derive a set of tests that has the highest livelihood for uncovering defects in software.
- ➢ To accomplish this objective two different categories of test case design techniques are used. They are

7.3 Unit Testing:

Unit testing is essential for the verification of the code produced during the coding phase and hence the goal is to test the internal logic of the modules. Using the detailed design description as a guide, important paths are tested to uncover errors within the boundary of the modules. These tests were carried out during the programming stage itself. All units of Vienna SQL were successfully tested.

7.3.1 Integration Testing:

Integration testing focuses on unit tested modules and build the program structure that is dictated by the design phase.

7.3.2 System Testing:

System testing tests the integration of each module in the system. It also tests to find discrepancies between the system and it is original objective, current specification and system documentation. The primary concern is the compatibility of individual modules. Entire system is working properly or not will be tested here, and specified path ODBC connection will correct or not, and giving output or not are tested here these verifications and validations are done by giving input values to the system and by comparing with expected output. Top-down testing implementing here.

7.3.3 Acceptance Testing:

This testing is done to verify the readiness of the system for the implementation. Acceptance testing begins when the system is complete. Its purpose is to provide the end user with the confidence that the system is ready for use. It involves planning and execution of functional tests, performance tests and stress tests in order to demonstrate that the implemented system satisfies its requirements.

Tools to special importance during acceptance testing include:

Test coverage Analyzer – records the control paths followed for each test case.

Timing Analyzer – also called a profiler, reports the time spent in various regions of the code are areas to concentrate on to improve system performance.

Coding standards – static analyzers and standard checkers are used to inspect code for deviations from standards and guidelines.

7.4 Test Cases:

Test cases are derived to ensure that all statements in the program have been executed at least once during testing and that all logical conditions have been executed. Using White-Box testing methods, the software engineer can drive test cases that

➢ Guarantee that logical decisions on their true and false sides.

➢ Exercise all logical decisions on their true and false sides.

➢ Execute all loops at their boundaries and within their operational bounds.

➢ Exercise internal data structure to assure their validity.

➢ The test case specification for system testing has to be submitted for review before system testing commences.

CHAPTER 8

CONCLUSION AND FUTURE ENHANCEMENT

E-Voting system is efficient adheres to voting protocol, simple & easy to maintain. It maintains details of voting, voters, candidate & election. It decreased false voting & it has increased voting percentage. Since E-Voting relates to the Internet, there is a possibility of more attackers. Another issue with E-voting is educating the voters. We cannot consider that all the users are having computer knowledge and they will use the E-voting systems easily. Designed E-Voting System must be easy to use. We should consider the fact that a large portion of the voting public has a very little knowledge about the computers. Voting through QR Coin Scanning has been implemented successfully. All votes have been implemented in encryption format. To avoid issues like hacking, we used block chain technology.

APPENDICES

A.SOURCE CODE

HOME PAGE

```html
<!-- DEVELOPED BY WEB ROBO -->
<!-- structure of php -->
<!Doctype html>
<head>
<title>WEB ROBO</title>
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css">
<script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
<!-- Popper JS -->
<script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script>
<!-- Latest compiled JavaScript -->
```

```html
<script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js"></script>
</head>
<body style="background:#dcd5bc">
<?php
include_once('auth.php');
include 'config/db_connection.php';
?>
<!-- wrapper starts-->
<div class="container">
<div class="row">
<div class="col-lg-12">
<div id="header">
<h1 style="background:midnightblue;color:white;font-size:26px;padding:30px;font-family:elephant"> Block Chain Enabled E-Voting </h1>
</div>
<div id="content" style="background:white;margin-top:-10px;margin-bottom:60px;height:500px">
<a href="candidate_application_form.php" class="btn" style="float:right;margin:20px;background:darkgreen;color:white;">Candidate Application</a>
<a href="admin/index.php" class="btn " style="float:right;margin:20px;background:maroon;color:white;">Admin Login</a>
</div>
<div style="height:50px;background:black">
</div>
</div>
<div id="footer">
</div>
</div>
```

</div>

<!-- wrapper ends-->

</body>

Candidate application

<!-- DEVELOPED BY WEB ROBO -->

<!-- structure of php -->

<!Doctype html>

<head>

<title>WEB ROBO</title>

<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.4.1/css/bootstrap.min.css">

<script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>

<!-- Popper JS -->

<script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/popper.min.js"></script

<!-- Latest compiled JavaScript -->

<script
src="https://maxcdn.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js"></script>

</head>

<body style="background:#dcd5bc">

<?php

include_once('auth.php');

include 'config/db_connection.php';

?>

<!-- wrapper starts-->

<div class="container" >

<div class="row" style="background:white;">

<div class="col-lg-12">

<div id="header">

```html
<h1 style="background:midnightblue;color:white;font-size:26px;padding:30px;font-family:elephant"> Block Chain Enabled E-Voting </h1>
</div>
<div class="" style="margin-top:50px;padding:0px 20px">
<form>
<span style="margin-bottom:10px"><center><h1>Candidate Application</h1></center></span>
<div class="form-row">
<div class="form-group col-md-6">
<label for="inputEmail4">Name</label>
<input type="text" class="form-control"  placeholder="Name">
</div>
<div class="form-group col-md-6">
<label for="inputPassword4">First Name</label>
<input type="firstname" class="form-control"  placeholder="First Name">
</div>
</div>
<div class="form-row">
<div class="form-group col-md-4">
<label for="inputAddress">Age</label>
<input type="text" class="form-control" placeholder="Enter Your age">
</div>
<div class="form-group col-md-4">
<label for="inputAddress">DOB</label>
<input type="date" class="form-control" placeholder="Date of Birth">
</div>
<div class="form-group col-md-4">
<label for="inputState">Gender</label>
<select id="inputState" class="form-control">
<option selected>Choose...</option>
<option>Male</option>
```

```html
<option>Female</option>
</select>
</div>
</div>
<div class="form-row">
<div class="form-group col-md-6">
<label for="inputAddress">Father Name/Mother Name/Husband Name</label>
<input type="text" class="form-control" id="inputAddress" placeholder="Enter Name">
</div>
<div class="form-group col-md-6">
<label for="inputAddress">Qualification</label>
<input type="text" class="form-control" placeholder="Qualification">
</div>
</div>
<div class="form-group">
<label for="inputAddress">Present Address</label>
<input type="text" class="form-control" id="inputAddress" placeholder="1234 Main St">
</div>
<div class="form-group">
<label for="inputAddress2">Permanent Address </label>
<input type="text" class="form-control" id="inputAddress2" placeholder="Apartment, studio, or floor">
</div>
<div class="form-row">
<div class="form-group col-md-6">
<label for="inputCity">City</label>
<input type="text" class="form-control" id="inputCity">
</div>
<div class="form-group col-md-4">
<label for="inputState">State</label>
```

```html
<select id="inputState" class="form-control">
<option selected>Choose...</option>
<option>...</option>
</select>
</div>
<div class="form-group col-md-2">
<label for="inputZip">PinCode</label>
<input type="text" class="form-control">
</div>
</div>
<div class="custom-file" style="margin-bottom:20px">
<input type="file" class="custom-file-input" id="customFileLang" lang="es">
<label class="custom-file-label" for="customFileLang">upload your image</label>
</div>
<button type="submit" class="btnbtn-primary">Submit</button>
</form>
</div>
<br/>
<div style="height:50px;background:black">
</div>
</div>
<div id="footer">
</div>
</div>
</div>
<!-- wrapper ends-->
</body>
```

Candidate detail

```php
<?phpob_start(); ?>
<!DOCTYPE html>
```

```html
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="">
<meta name="author" content="">
<title> QR Code Generation || Admin </title>
<link rel="shortcut icon" href="../images/favicon.ico" />
<!-- Bootstrap core CSS -->
<link href="assets/css/bootstrap.css" rel="stylesheet">
<link href="assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color        :        #000000;
}
</style>
</head>
<body>
<?phpinclude_once("../config/db_connection.php"); ?>
<nav class="navbarnavbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
<div class="navbar-header">
<button type="button" class="navbar-toggle" id="collapse-btn" data-toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
```

```
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<ul class="navnavbar-navnavbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="staff.php">Staff Detail</a></li>
<li class="text-center "><a href="quest_bank.php">Question Bank</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>
</ul>
</div><!-- /.navbar-collapse -->
</div><!-- /.container -->
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<div class="panel-heading hidden-xs">
<imgsrc="images/user.png" alt="">
Staff Detail
<span class="span-crumb pull-right mtop10">
</span>
</div>
<div class="col-lg-12 col-md-12 col-sm-12 col-xs-12 bg-white">
<!-- /.panel-heading -->
<div class="col-md-5 mtop20 pbot20">
<div class="row">
</div>
</div>
<div class="col-md-3 mtop20 pbot20">
</div>
```

Candidate voter list

```
<?phpob_start(); ?>
```

```html
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="">
<meta name="author" content="">
<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/4.7.0/css/font-awesome.min.css">
<title> QR Code Generation || Admin </title>
<link rel="shortcut icon" href="../images/favicon.ico" />
<!-- Bootstrap core CSS -->
<link href="assets/css/bootstrap.css" rel="stylesheet">
<link href="assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color        :        #000000;
}
</style>
<style>
body {font-family: Arial, Helvetica, sans-serif;}
* {box-sizing: border-box;}
.input-container {
display: -ms-flexbox; /* IE10 */
display: flex;
width: 100%;
margin-bottom: 15px;
}
.icon {
padding: 10px;
background: dodgerblue;
```

```
color: white;
min-width: 50px;
text-align: center;
}
.input-field {
width: 100%;
padding: 10px;
outline: none;
}
.input-field:focus {
border: 2px solid dodgerblue;
}
/* Set a style for the submit button */
.btn {
background-color: dodgerblue;
color: white;
padding: 15px 20px;
border: none;
cursor: pointer;
width: 100%;
opacity: 0.9;
}
.btn:hover {
opacity: 1;
}
</style>
</head>
<body>
<?phpinclude_once("../config/db_connection.php"); ?>
<nav class="navbarnavbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
```

```html
<div class="navbar-header">
<button type="button" class="navbar-toggle" id="collapse-btn" data-toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<ul class="navnavbar-navnavbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="candidate_detail.php">Candidate Detail</a></li>
<li class="text-center "><a href="candidate_schedule.php">Election Schedule</a></li>
<li class="text-center "><a href="candidate_voter_list.php">Voter List</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>
</ul>
</div><!-- /.navbar-collapse -->
</div><!-- /.container -->
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<div class="panel-heading hidden-xs">
<imgsrc="images/user.png" alt="">
Candidate Detail
<span class="span-crumb pull-right mtop10">
```

```html
</span>
</div>
<!-- /.panel-heading -->
<span style="padding:20px 20px;text-align:center;"><h2>Add Voter List
</h2></span>
<form action="/action_page.php" style="max-width:500px;margin:auto">
<div class="input-container">
<i class="fa fa-user icon"></i>
<input class="input-field" type="text" placeholder="Username" name="usrnm">
</div>
<div class="input-container">
<i class="fa fa-envelope icon"></i>
<input class="input-field" type="text" placeholder="Email" name="email">
</div>
<div class="input-container">
<i class="fa fa-map-marker icon"></i>
<textarea rows="4" cols="50" class="input-field" type="text"
placeholder="Address" name="address"></textarea>
</div>
<div class="input-container">
<i class="fa fa-calender icon"></i>
<input class="input-field" type="date" placeholder="DOB" name="dob">
</div>
<div class="input-container">
<i class="fa fa-phone icon"></i>
<input class="input-field" type="text" placeholder="Mobile" name="mobile">
</div>
<button type="submit" class="btn">Register</button>
</form>
<br/><br/>
</div>
```

```
</div><!-- col-main-7 -->
</div><!-- /.panel -->
</div><!-- /.col-lg-12 -->
</div><!-- /.row -->
</div><!-- ./container -->
<?php
include_once("modal_delete.php");
?>
<!-- JavaScript -->
<script src="assets/js/jquery-1.10.2.js"></script>
<script src="assets/js/bootstrap.js"></script>
<script src="assets/js/delete.js"></script>
</body>
</html>
```

Vote

```
<?php ob_start(); ?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="">
<meta name="author" content="">
<title> QR Code Generation || Admin </title>
<link rel="shortcut icon" href="images/favicon.ico" />
<!-- Bootstrap core CSS -->
<link href="admin/assets/css/bootstrap.css" rel="stylesheet">
<link href="admin/assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color        :        #000000;
```

```
}
</style>
</head>
<body>
<?php include "admin/dbcc.php"; ?>
<nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
<div class="navbar-header">
<button type="button" class="navbar-toggle" id="collapse-btn" data-
toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<!--<ul class="nav navbar-nav navbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="candidate_detail.php">Candidate
Detail</a></li>
<li class="text-center "><a href="candidate_schedule.php">Election
Schedule</a></li>
<li class="text-center "><a href="approved_candidate.php">Approved
Candidate</a></li>
<li class="text-center "><a href="voter.php">Voter List</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>
</ul>
</div> <!-- /.navbar-collapse -->
</div>  <!-- /.container -->
```

```html
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<form action="#" method="post">
<div class="panel-heading hidden-xs">
<img src="images/user.png" alt="">
Vote
<span class="span-crumb pull-right mtop10">
</span>
</div>
<?php
session_start();
$vid=$_SESSION['vid'];
$eid=$_SESSION['eid'];
$cid=$_REQUEST['cid'];
$select=mysql_query("select * from condidate where cid=$cid");
$row=mysql_fetch_array($select);
$select1=mysql_query("select * from allocate_party where cid=$cid");
$row1=mysql_fetch_array($select1);
?>
<input type="hidden" name="vid" value="<?php echo $vid; ?>">
<input type="hidden" name="eid" value="<?php echo $eid; ?>">
<input type="hidden" name="cid" value="<?php echo $cid; ?>">
<div class="col-lg-12 col-md-12 col-sm-12 col-xs-12 bg-white">
<!-- /.panel-heading -->
<div class="col-md-4 mtop20 pbot20">
<div class="row">
<img src="admin/images/party/<?php echo $row1['symbol'] ?>" height="300"
width="300px">
```

```html
</div>
</div>
<div class="col-md-8 mtop20 pbot20">
<h2 style="margin-top:47px;font-size:20px;margin-left:18px"><?php echo $row1['party'] ?></h2>
<button style="margin-top: 147px;padding: 10px 40px;margin-left:40px" class="btn btn-danger btn-view mtop2" role="button" onclick="goBack()">Back</button>
<input type="submit" name="s1" style="margin-top: 147px;padding: 10px 60px;margin-left:40px;float:right" class="btn btn-success btn-view mtop2" role="button" value="Confirm">
</div>
<br/>
<!-- /.table-responsive -->
</div>
</form>
<?php
if(isset($_POST['s1']))
{
extract($_POST);
$insert=mysql_query("insert into vote (vid,cid,eid) values ('$vid','$cid','$eid') ");
if($insert)
{
$check=mysql_query("update block_status set stage4='1' where uid='$vid' ");
$check=mysql_query("update qr_coin set status='1' where uid='$vid' and eid='$eid'");
echo "<script>alert('Your vote has been submitted successfully')
window.location='loader.php?uid=$vid'</script>";
}
}
?>
<!-- /.panel-body -->
```

```
</div> <!-- col-main-7 -->
</div><!-- /.panel -->
</div><!-- /.col-lg-12 -->
</div><!-- /.row -->
</div> <!-- ./container -->
<?php
//include_once("modal_delete.php");
?>
<!-- JavaScript -->
<script>
function goBack() {
window.history.go(-1);
}
</script>
<script src="assets/js/jquery-1.10.2.js"></script>
<script src="assets/js/bootstrap.js"></script>
<script src="assets/js/delete.js"></script>
<script>
$(function(){
/**
* function to filter the data using D-Code,D-Name,D-Qual,D-Specs
**/
$("#filter-user").keyup(function(){
var current_query = $("#filter-user").val().toLowerCase();
if(current_query!=""){
$("#user-area tr").hide();
$("#user-area tr").each(function(){
var keyword1 = $(this).attr("datakeyword1");
var keyword2 = $(this).attr("datakeyword2");
var keyword3 = $(this).attr("datakeyword3");
```

```
if(keyword1.indexOf(current_query) >=0 || keyword2.indexOf(current_query) >=0
|| keyword3.indexOf(current_query) >=0){

$(this).show();

}

});

}else{

$("#user-area tr").show();

}

}); /*** end of filtering user **/

});

</script>

</body>

</html>
```

Check.php

```php
<?php
include 'admin/dbcc.php';
$otp=$_REQUEST['data'];
$check=mysql_query("select * from qr_coin where otp='$otp' and status='0'");
$row=mysql_fetch_array($check);
$n=mysql_num_rows($check);
if($n==1)
{
session_start();
$_SESSION['vid']=$row['uid'];
$_SESSION['eid']=$row['eid'];
$vid=$_SESSION['vid'];
$update=mysql_query("update block_status set stage3='1' where uid='$vid'");
header("location:candidate_list.php");
}
else
{
```

```php
echo "<script>alert('Your voting period has been expired. Check your otp or you
have voted already')
window.location='index.php'</script>";
}
?>
```

Candidate List

```php
<?php ob_start(); ?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="">
<meta name="author" content="">
<title> QR Code Generation || Admin </title>
<link rel="shortcut icon" href="images/favicon.ico" />
<!-- Bootstrap core CSS -->
<link href="admin/assets/css/bootstrap.css" rel="stylesheet">
<link href="admin/assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color          :       #000000;
}
</style>
</head>
<body>
<?php include "admin/dbcc.php"; ?>
<nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
<div class="navbar-header">
```

```html
<button type="button" class="navbar-toggle" id="collapse-btn" data-toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<ul class="nav navbar-nav navbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="candidate_application_form.php">candidate application form</a></li>
<!-- <li class="text-center "><a href="candidate_schedule.php">Election Schedule</a></li>
<li class="text-center "><a href="approved_candidate.php">Approved Candidate</a></li>
<li class="text-center "><a href="voter.php">Voter List</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>  -->
</ul>
</div> <!-- /.navbar-collapse -->
</div>  <!-- /.container -->
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<div class="panel-heading hidden-xs">
<img src="images/user.png" alt="">
candidate List
```

```html
<span class="span-crumb pull-right mtop10">
</span>
</div>
<div class="col-lg-12 col-md-12 col-sm-12 col-xs-12 bg-white">
<!-- /.panel-heading -->
<div class="col-md-5 mtop20 pbot20">
<div class="row">
</div>
</div>
<div class="col-md-3 mtop20 pbot20">
</div>
<div class="table-responsive">
<table class="table table-striped table-bordered table-hover" id="dataTables-example">
<thead class="thead">
<tr>
<td> Photo</td>
<td> candidate Name </td>
<td> Symbol </td>
<td> Party Name </td>
<td> Vote </td>
</tr>
</thead>
<tbody id="user-area">
<?php
session_start();
$vid=$_SESSION['vid'];
$eid=$_SESSION['eid'];
$date=date("Y-m-d");
$select=mysql_query("select * from allocate_party");
while($row=mysql_fetch_array($select))
```

```php
{
$cid=$row['cid'];
$select1=mysql_query("SELECT * FROM election e, condidate c WHERE
e.ename = c.election AND e.date = '$date' AND e.eplace = c.city AND cid=$cid");
$fetch=mysql_fetch_array($select1);
?>
<tr class="odd gradeX">
<td><img src="candidate/<?php echo $fetch['photo'] ?>" width="50"
height="50"></td>
<td><?php echo $fetch['name'] ?></td>
<td><img src="admin/images/party/<?php echo $row['symbol'] ?>" width="50"
height="50"></td>
<td><?php echo $row['party'] ?></td>
<td><a href="vote.php?cid=<?php echo $row['cid'] ?>" class="btn btn-primary
btn-view mtop2" role="button" data-toggle="modal">
Vote
</a></td>
</tr>
<?php } ?>
</tbody>
</table>
</table>
</div><br/>
<!-- /.table-responsive -->
</div><!-- /.panel-body -->
</div> <!-- col-main-7 -->
</div><!-- /.panel -->
</div><!-- /.col-lg-12 -->
</div><!-- /.row -->
</div> <!-- ./container -->
<?php
//include_once("modal_delete.php");
```

```
?>
<!-- JavaScript -->
<script src="assets/js/jquery-1.10.2.js"></script>
<script src="assets/js/bootstrap.js"></script>
<script src="assets/js/delete.js"></script>
<script>
$(function(){
/**
* function to filter the data using D-Code,D-Name,D-Qual,D-Specs
**/
$("#filter-user").keyup(function(){
var current_query = $("#filter-user").val().toLowerCase();
if(current_query!=""){
$("#user-area tr").hide();
$("#user-area tr").each(function(){
var keyword1 = $(this).attr("datakeyword1");
var keyword2 = $(this).attr("datakeyword2");
var keyword3 = $(this).attr("datakeyword3");
if(keyword1.indexOf(current_query) >=0 || keyword2.indexOf(current_query) >=0
|| keyword3.indexOf(current_query) >=0){
$(this).show();
}
});
}else{
$("#user-area tr").show();
}
}); /*** end of filtering user **/
});
</script>
</body>
</html>
```

Generate QR Coin

```php
<?php ob_start(); ?>
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta name="description" content="">
<meta name="author" content="">
<title> QR Code Generation || Admin </title>
<link rel="shortcut icon" href="../images/favicon.ico" />
<!-- Bootstrap core CSS -->
<link href="assets/css/bootstrap.css" rel="stylesheet">
<link href="assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color        :        #000000;
}
</style>
</head>
<body>
<?php include_once("dbcc.php"); ?>
<nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
<div class="navbar-header">
<button type="button" class="navbar-toggle" id="collapse-btn" data-toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
```

```html
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<ul class="nav navbar-nav navbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="candidate_detail.php">Candidate Detail</a></li>
<li class="text-center "><a href="candidate_schedule.php">Election Schedule</a></li>
<li class="text-center "><a href="approved_candidate.php">Approved Candidate</a></li>
<li class="text-center "><a href="voter.php">Voter List</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>
</ul>
</div> <!-- /.navbar-collapse -->
</div>  <!-- /.container -->
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<div class="panel-heading hidden-xs">
<img src="images/user.png" alt="">
Generate Coin
<span class="span-crumb pull-right mtop10">
</span>
</div>
<div class="col-lg-12 col-md-12 col-sm-12 col-xs-12 bg-white">
<!-- /.panel-heading -->
<br/><br/>
```

```php
<center>
<div class="part"><br/><br/><br/>
<div class="inner_part">
<center>
<?php
$data=$_REQUEST['data'];
$qry1=mysql_query("select * from qr_coin where qr_id='$data'");
$row1=mysql_fetch_array($qry1);
$vid=$row1['uid'];
$qry=mysql_query("select * from voter where vid='$vid'");
$row=mysql_fetch_array($qry);
$photo=$row['photo'];
if($row['photo']=="")
{
echo '<img src="images/dummy.png" />';
}
else
{
?>
<img class="round" src="images/voter/<?php echo $photo; ?>" />
<?php
}
echo "<br/>";
echo "<span  class='clr'>".$row['name']."</span> ";
echo "<br><br>";
$qr=$data.".png"; ?>
<img src="../temp/<?php echo $qr; ?>" />
</center>
</div>
</div><br>
```

```php
<a href="sms.php?vid=<?php echo $vid; ?>&data=<?php echo $data;?>"
class="btn btn-success">Send</a>
```

</center>

`<br/><br/>`

</div><!-- /.panel-body -->

</div> <!-- col-main-7 -->

</div><!-- /.panel -->

</div><!-- /.col-lg-12 -->

</div><!-- /.row -->

</div> <!-- ./container -->

```php
<?php
include_once("modal_delete.php");
?>
```

`<!-- JavaScript -->`

```html
<script src="assets/js/jquery-1.10.2.js"></script>
<script src="assets/js/bootstrap.js"></script>
<script src="assets/js/delete.js"></script>
```

</body>

</html>

Voter List

```php
<?php ob_start(); ?>
```

`<!DOCTYPE html>`

`<html lang="en">`

`<head>`

`<meta charset="utf-8">`

`<meta name="viewport" content="width=device-width, initial-scale=1.0">`

`<meta name="description" content="">`

`<meta name="author" content="">`

`<title> QR Code Generation || Admin </title>`

`<link rel="shortcut icon" href="../images/favicon.ico" />`

`<!-- Bootstrap core CSS -->`

```html
<link href="assets/css/bootstrap.css" rel="stylesheet">
<link href="assets/css/mobile.css" rel="stylesheet">
<style>
#brand:hover{
color          :        #000000;
}
</style>
</head>
<body>
<?php include "dbcc.php"; ?>
<nav class="navbar navbar-inverse navbar-fixed-top" role="navigation">
<div class="container" id="menu">
<div class="navbar-header">
<button type="button" class="navbar-toggle" id="collapse-btn" data-toggle="collapse" data-target=".navbar-ex1-collapse">
<span class="sr-only">Toggle navigation</span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<a class="navbar-brand col-lg-12" id="brand" style="color:black;">
<span style="font-family:elephant">Block Chain Enabled E-Voting</span>
</a>
</div>
<div class="collapse navbar-collapse navbar-ex1-collapse">
<ul class="nav navbar-nav navbar-right admin-ul" id="collapse-ul">
<li class="text-center current"><a href="candidate_detail.php">Candidate Detail</a></li>
<li class="text-center "><a href="candidate_schedule.php">Election Schedule</a></li>
<li class="text-center "><a href="approved_candidate.php">Approved Candidate</a></li>
```

```html
<li class="text-center "><a href="voter.php">Voter List</a></li>
<li class="text-center"><a href="index.php"> Logout </a></li>
</ul>
</div> <!-- /.navbar-collapse -->
</div>  <!-- /.container -->
</nav>
<div class="container">
<div class="row-fluid mtop120">
<div class="col-lg-12 ">
<div class="panel panel-default bg-white">
<div class="panel-heading hidden-xs">
<img src="images/user.png" alt="">
```
Voter Detail
```html
<span class="span-crumb pull-right mtop10">
</span>
</div>
<div class="col-lg-12 col-md-12 col-sm-12 col-xs-12 bg-white">
<!-- /.panel-heading -->
<div class="col-md-5 mtop20 pbot20">
<div class="row">
</div>
</div>
<div class="col-md-3 mtop20 pbot20">
</div>
<div class="table-responsive">
<table class="table table-striped table-bordered table-hover" id="dataTables-example">
<thead class="thead">
<a style="float:right" href="candidate_voter_list.php" class="btn btn-primary btn-view mtop2" role="button" >
```
Add Voter

```
</a>
<tr>
<td> Image</td>
<td> Voter Name </td>
<td> Father Name </td>
<td> Gender </td>
<td> Date of birth </td>
<td>address</td>
<td> voter id </td>
<td> Generate QR Coin </td>
<td> Edit </td>
<td> Delete </td>
</tr>
</thead>
<tbody id="user-area">
<?php
$select=mysql_query("select * from voter");
while($row=mysql_fetch_array($select))
{
?>
<tr class="odd gradeX">
<td><img src="images/voter/<?php echo $row['photo'] ?>" width="50"
height="50"></td>
<td><?php echo $row['name'] ?></td>
<td><?php echo $row['father_name'] ?></td>
<td><?php echo $row['gender'] ?></td>
<td><?php echo $row['dob'] ?></td>
<td><?php echo $row['address'] ?></td>
<td><?php echo $row['voter_id'] ?></td>
<td>
```

```php
<a href="generate.php?vid=<?php echo $row['vid']; ?>" class="btn btn-primary
btn-view mtop2" role="button" >
Generate QR coin
</a>
</td>
<td class="center last-col">
<a href="edit_voter.php?vid=<?php echo $row['vid'] ?>" class="btn btn-success
btn-view mtop2" role="button" >
Edit
</a>
</td>
<td>
<a href="delete_voter.php?vid=<?php echo $row['vid'] ?>"class="btn btn-danger
btn-view mtop2" role="button" >
Delete
</a> </td>
</tr>
<?php } ?>
</tbody>
</table>
</table>
</div><br/>
<!-- /.table-responsive -->
</div><!-- /.panel-body -->
</div> <!-- col-main-7 -->
</div><!-- /.panel -->
</div><!-- /.col-lg-12 -->
</div><!-- /.row -->
</div> <!-- ./container -->
<?php
include_once("modal_delete.php");
?>
```

```html
<!-- JavaScript -->
<script src="assets/js/jquery-1.10.2.js"></script>
<script src="assets/js/bootstrap.js"></script>
<script src="assets/js/delete.js"></script>
<script>
$(function(){
/**
* function to filter the data using D-Code,D-Name,D-Qual,D-Specs
**/
 $("#filter-user").keyup(function(){
var current_query = $("#filter-user").val().toLowerCase();
 if(current_query!=""){
$("#user-area tr").hide();
 $("#user-area tr").each(function(){
var keyword1 = $(this).attr("datakeyword1");
var keyword2 = $(this).attr("datakeyword2");
var keyword3 = $(this).attr("datakeyword3");
if(keyword1.indexOf(current_query) >=0 || keyword2.indexOf(current_query) >=0
|| keyword3.indexOf(current_query) >=0){
$(this).show();
}
});
}else{
$("#user-area tr").show();
}
}); /*** end of filtering user **/
});
</script>
</body>
</html>
```

B. SCREENSHOTS

B.1.**Home page**

B.2.Candidate application

B.3.Admin Login

B.4. View applied candidates

B.5. Single view

B.6. Election schedule

Block Chain Enabled E-Voting

Candidate Detail   Election Schedule   Approved Candidate   Voter List   Logout

Election Schedule

Phase-wise polling constituencies in each state

Add schedule

Election name	Election Date	Election place	District	Edit	Delete
thaluk	2020-03-19	srirangam	Tamil Nadu	Edit	Delete
MLA	2020-03-12	trichy	Tamil Nadu	Edit	Delete
thaluk	2020-03-07	salem	salem	Edit	Delete

B.7. View Election schedule

Block Chain Enabled E-Voting

Candidate Detail   Election Schedule   Approved Candidate   Voter List   Logout

Approved candidate Detail

Image	candidate Name	Qualification	DOB	Mobile	City	Age	Address	Allocate Party
	mani	msc	2020-03-12	5345434567	srirangam	23	trichy	All India Anna Dravida Munnetra Kazhagam (AIADMK)
	vaishu	bsc	1995-03-19	5345434567	srirangam	26	trichy	Vivasayi Anbhu Katchi

B.8 Allocate party

Candidate Detail

Add Voter List

suren

photo | Browse... | x-Dec.-2-Trust-Me-Im-A-Doctor - Copy.jpg

Arun

Gender | Male

DOB | 01 / 05 / 1994

srirangam

Trichy

Submit Query

B.9. Add Voters

B.10 View Voters

B.11. Generate QR coin

B.12.View QR

Block Chain Enabled E-Voting

candidate List

Photo	candidate Name	Symbol	Party Name	Vote
	mani		All India Anna Dravida Munnetra Kazhagam (AIADMK)	Vote
	vaishu		Vivasayi Anbhu Katchi	Vote

B.13.View Candidates

Block Chain Enabled E-Voting

Vote

All India Anna Dravida Munnetra Kazhagam (AIADMK)

Back   Confirm

B.14.Confirm vote

Decrypting Data

B.15.Decrypting vote

B.16.Voted successfully

B.17.Home page when no election schedule

BLOCKCHAIN SECURED DATA

1	2	3	4	5	6
Generate Coin	Send QR coin	Verify QR Coin	Confirm Candidate	Vote data encrypting	Success
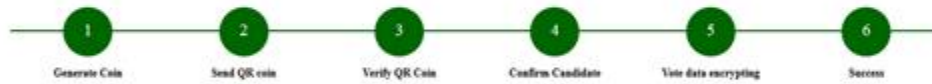
B.18 Block chain status

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