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# **Software Requirements Specification**

## **for**

### **E-Voting System using block chaining**

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## Revision History

NAME	DATE	REASON FOR CHANGE	VERSION

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to describe the behavior of an e-voting System, named *“E-Voting System using block chaining”*.

This system provides an online tool for the clients to vote. In this system there will be two main pages to be able to access: Admin page and Voting Page. From the Admin page administrator will be able to design the voting application. From the Voting page clients will be able to open their election pages and vote for the candidates. According to the login credentials, system will determine if the user is Administrator or the user and open the pages given access to the user credentials.

## 1.2 Document Conventions

- Entire document should be justified.
- Convention for Main title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 14
- Convention for Sub title
  - Font face: Times New Roman
  - Font style: Bold
  - Font Size: 12
- Convention for body
  - Font face: Times New Roman
  - Font Size: 12

## 1.3 Intended Audience and Reading Suggestions

This document is prepared for the project managers, developers, and testers. In remaining parts of the document, overall description of the platform, external interface requirements, system features, and nonfunctional requirements will be explained respectively and all the abbreviations used in SRS is in glossary.

**Project Manager:** A project manager is a person who has the overall responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of a project.

**User:** a person who uses or operates something.

**Documentation writer:** A **document writer**, also referred to as a technical **writer**, works for corporations to provide **documentation** for their products and services. Their **writing** is usually factual in nature and often highly technical.

**Tester:** Person who has been asked to test a particular product.

**Developer:** A programmer or more recently a coder, is a person who creates computer software.

## 1.4 Scope

The main scope of this software is to be able to show the usability of the Block chaining and how it can be applied to an online voting tool. Additionally, there will be maintenance processes applied to improve the efficiency of Web services.

The e-voting system to be discussed makes up a relatively small part of the whole election process. From a technical viewpoint the elections are made up of the following components:

- registration of candidates,
- preparation of polling list,
- Cast Vote,
- Counting of votes.

Other components such as auditing, reviewing of complaints and other supporting activities could be mentioned.

The e-voting system that will be developed assumes: Voter lists have been prepared and are available in a database. User are assigned “User” type and Administrators are assigned “Admin” type. The candidate lists have been prepared and are available in a suitable format and lastly, e-votes are counted separately and are later added to the rest of the votes.

The online e-voting system is made up from: voter lists (including the polling division and constituency assigned to the voter), candidate lists (by constituencies), expressed will of the voters.

The output is made up from: Summarized voting result of e-voters and list of voters who used e-voting.

## 1.5 Reference

1. <https://www.blockchain-council.org/blockchain/top-countries-that-conducted-elections-on-the-blockchain/>
2. <https://www.economist.com/sites/default/files/plymouth.pdf>
3. <https://www.nytimes.com/2018/06/27/business/dealbook/blockchains-guide-information.html>
4. <https://www.ibm.com/blogs/blockchain/2019/07/the-new-york-times-ibm-explore-blockchain-as-a-means-to-verify-trustworthiness-in-digital-media/>
5. [https://www.researchgate.net/publication/329400689\\_E-Voting\\_on\\_the\\_Blockchain](https://www.researchgate.net/publication/329400689_E-Voting_on_the_Blockchain)
6. <https://www.netguru.com/blog/python-blockchain>
7. <https://flask.palletsprojects.com/en/1.1.x/>
8. <https://docs.python.org/3/>
9. <https://www.w3schools.com>

## 2 Overall

### 2.1 Product Perspective

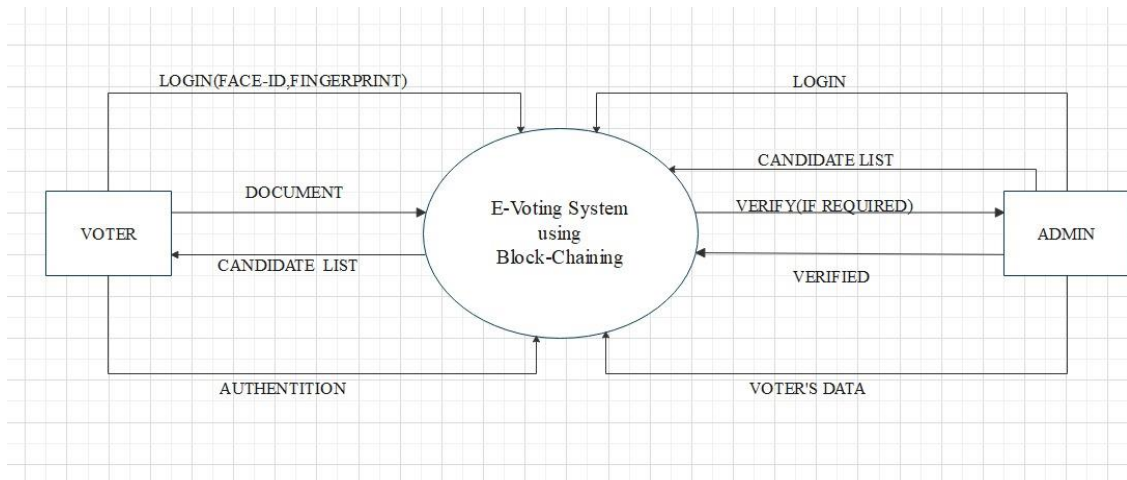
The current Voting system has flaws it is electoral voting machine not digital voting machine, current system of EVM requires a lot of man power, devices and physical security. The blockchain serves as a public ledger of transactions which cannot be reversed. The all-important consensus of transaction (i.e. legitimate votes) is achieved through 'miners' agreeing to validate new records being added. Whenever a new insertion is to be made e.g. votes, then a new transaction record is created by a voter adding details of their cast vote to the blockchain. Should it be deemed a valid transaction then the new vote is added to the end of the blockchain and remains there forever. What is neat about this solution is the fact that no centralized authority is needed to approve the votes but rather a majority consensus. Here everyone agrees on the final tally as they can count the votes themselves & because of the blockchain audit trail, anyone can verify that no votes were tampered with and no illegitimate votes were inserted. This paper discusses the application of blockchain to voting.

### 2.2 Features

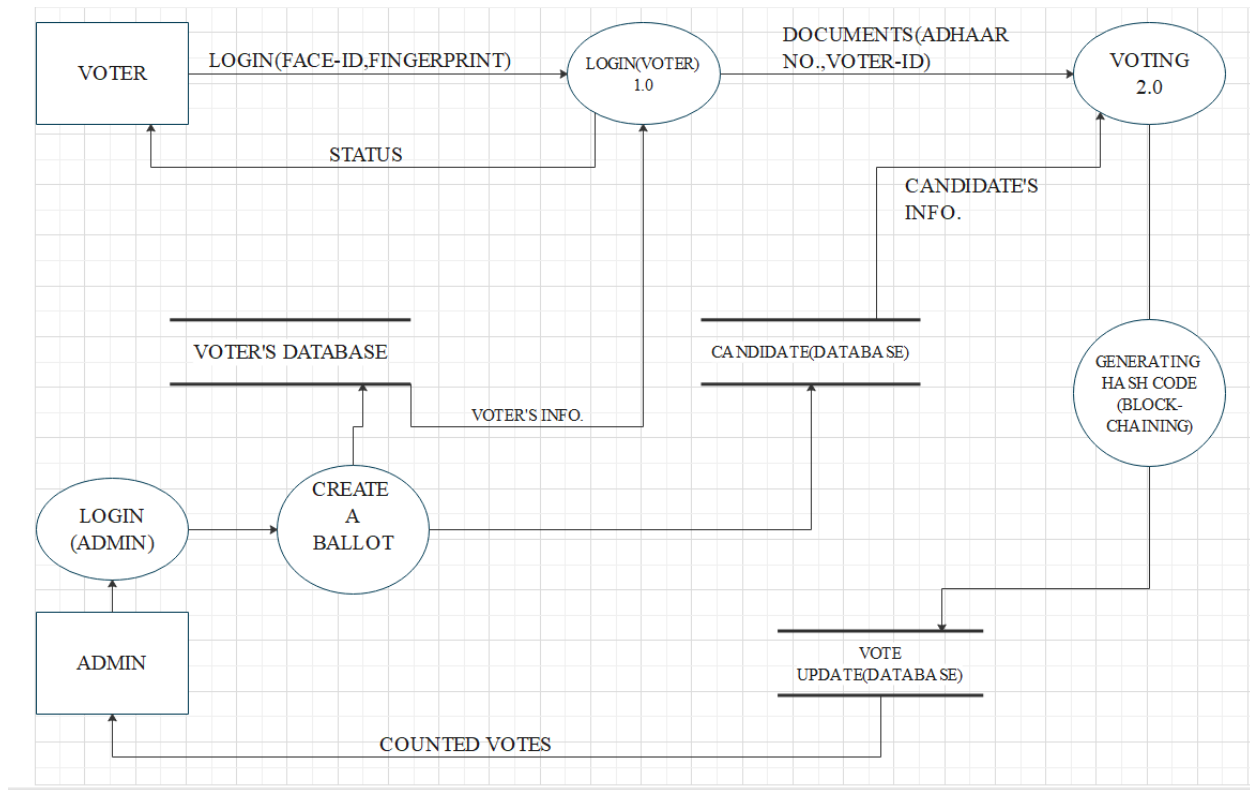
1. A login page is required to validate the user
2. Administrator can create an Election Page.
3. Administrator can create a ballot.
4. Administrator will be able to add the list of the users for voting.
5. Administrator will be able to send and establish encryption with Web Services.
6. Users will choose the election to vote.
7. Users will view the submitted vote.
8. The system will allow Administrator to Tally votes.
9. The system must use few and reliable resources. It must be fast.
10. The system maintenance must be very easy.
11. The machine can run on any machine with the same rights and permissions setup as the other systems on the network.
12. Aadhar card and Voter id fields are required to be able to login.
13. Login instructions will be explained in this help link.
14. Administrator will need to have Admin links available from this page.
15. Administrator will have a link to the voting form from this page.
16. Administrator will have a link to create or modify an election.
17. Administrator will have a link to Tally and to decrypt votes from this form.
18. Administrator will need to have a link for the Admin help menu.
19. Administrator will need to have a link for creating new candidate from the Admin pages.
20. Administrator will be able to create a new election and edit that later.
21. Once election fields are populated, candidate list and posting election details buttons will be enabled to be able to create the election forms for voting.
22. Administrator will be able to add a new ballot into the system.
23. Save the new created ballot to be able to use in the other elections.
24. Once election is created or opened, adding users' buttons will be enabled.
25. Created output and encryption details will be displayed on a text window.

26. Created Election Form, candidate list will be sent to the Web Server to Post the Election.
27. If required Administrator should be able to return to the main menu page.
28. Voter Details will be entered.
29. Candidate chosen will be displayed with the candidate list details. If the voters decide to change for any reason before submitting the vote it cannot be updated.
30. Submit vote button will be available for user to submit vote details.
31. Log the messages after each system is loaded and store them in a text file.
32. Unique Election ID will be displayed
33. Administrator will have access to the Tally Votes page via a link from the administrator's page to open the form.
34. Election will be opened from the elections XML list.
35. Unique election ID will be displayed.
36. Election and ballot details will be displayed in a text field.

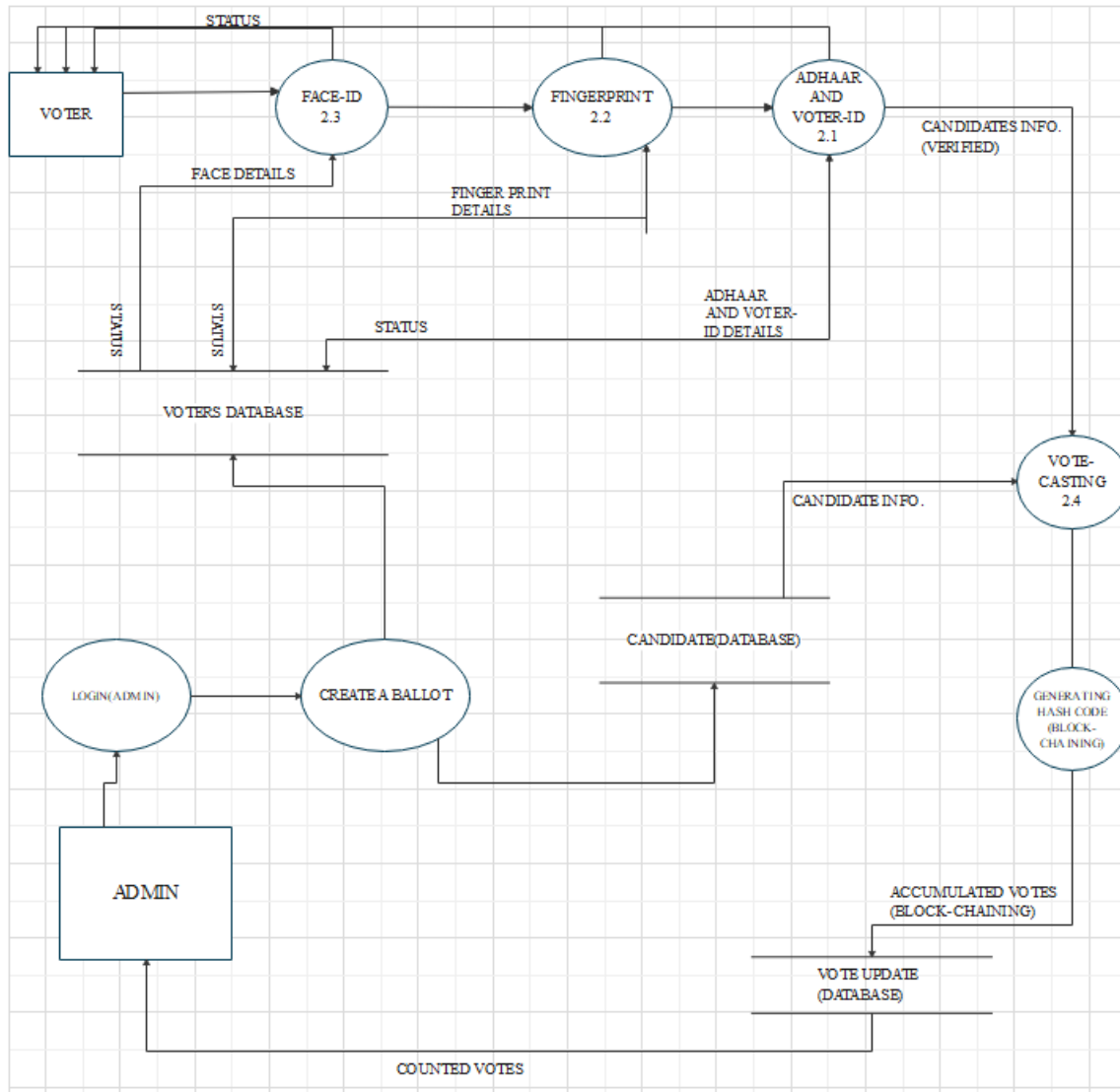
#### Data Flow Diagram #0:



## Data Flow Diagram #1:



## Data Flow Diagram #2:





## 2.3 User Classes and Characteristics

In our system we have only two user classes which are as:

- I. Admin
- ii. Employees

From above listed category of user we can see that all are from technical background or we can say that they have some knowledge of computer uses. Each user will use the product for different purpose. Thus, while designing the software one can assume that each user type has the following characteristics:

- The user is computer-literate and has little or no difficulty in using this product.
- In order to use the biometric in this software it is not required that a user be aware of the internal working of a biometric but he/she is expected to know what happens when the user sits in front of the webcam.

## 2.4 Operating Environment

- **SOFTWARE**

All the credentials will reside at the server system while the real-time task is shown on both server and user system.

- **Front-end:** React Native, JavaScript, Bootstrap
- **Back-end:** Flask

- **HARDWARE**

Any Operating System with good internet connectivity and security.

## 2.5 Design and Implementation Constraints

Voting system will be an online application and it can run from a machine that has an internet access. For the web services setup, .Net Framework 2.0 and SQL 2005 or more required. Internet connectivity is required. The online e-voting application needs to be designed for a non-technical user. It should have specific instructions online. Non-technical users will be involved in testing to make sure that they can complete the process without any problems. Database access and web services access are required.

## 2.6 Online User Documentation and Help System Requirements

Voting system user guide will be there along with software. Initial version will have WhatsApp and Instagram support.

## 2.7 Assumptions and Dependencies

The software should be developed on Python3. It should run on any environment machine. The Web Service is implemented as Flask Web Service hosted on python anywhere server. This way the whole e-voting solution will be online based. It will require customer's registration and login. A MySQL/PostgreSQL Server database is used to store and retrieve election data. Login details and some efficiency improvements are also done by storing the data in MySQL/PostgreSQL Server. Voters details and Candidate details are already available to Admin.

# 3 System Feature

## 3.1 System features of Admin:

### 3.1.1 Description and Priority

The login form is used by the Admin. This module has the highest priority when compared to all the other modules. This model allows the admin to enter his username and password in order to make use of the software.

### **3.1.2 Stimulus/Response Sequences**

This module has text boxes where the user can enter his username name and password. If the necessary information is not provided or if invalid inputs are given by the user then the system will pop a message box.

### **3.1.3 Functional Requirements**

1. Have this username and password field limited to 15 characters entry.
2. Administrator should be able to access to the voting link from the admin page.
3. Administrator will need to access to the Election creation link.
4. Administrator will need to access to the modification link.
5. Administrator will need to have access to tally the votes.
6. Administrator will need a link for the help menu.
7. Administrator will need a link for creating new candidate list in the Administrator page.
8. Administrator will need a button to be able to use for a new election creation.
9. Due to the spam and hackers, a random number generator will be used and this number will be displayed on an image for uses to type in for an additional validation. Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) will be used for this.
10. Administrator will need to have access to e-voting administrative pages.
11. New button will generate a new election ID by using the web services.
12. Get election ID details from the existing election xml files.
13. Election Administrator and Title name maximum 50 characters.
14. Candidate list creation button will be enabled after Election details are collected.
15. Posting election details button will be enabled after Ballot details are collected.
16. Candidate list creation button will be enabled after Election details are collected.
17. Adding new users' button will be enabled after Election details are entered.
18. Open a ballot builder form.
19. A Ballot ID will be assigned for the new ballot we will be creating.
20. Add choices for the answers or options to be chosen for the issue or question.
21. Display the view of the ballot on a separate text window.
22. Open an existing created ballot from the candidate list folder of the web server.
23. Enable save new ballot button after the details are entered.
24. This help link will open another form which explains login page access details.
25. Enter new username into the text box that has 30-character limitations.
26. Display user details and election details on an xml format on a separate text box.
27. Election created will be processed and including ballot details info will be put into the database.
28. Back to the main page is required as Administrator might need to access to another form. He might try to access voting pages for testing from the menu.
29. Connect to the elections folder where all the elections are saved on an xml format.
30. Update candidates list according to the selected issue or problem.
31. Each time selected item has changed, voting display box will need to be updated according to the selections.
32. All buttons on this form including the Submit vote button needs to be enabled.
33. Election ID will be passed and displayed on the submitted vote form.
34. Last voter's submitted votes' details will be displayed on a text box or a list box.
35. Administrator will have an access to the Tally Votes form from the admin page. When the link is clicked Tally Votes Form will be displayed.

### **3.2 System features of User:**

#### **3.2.1 Description and Priority**

The login form is used by the User. This module has the highest priority when compared to all the other modules. This model allows the User to enter and cast vote.

#### **3.2.2 Stimulus/Response Sequences**

This module has text boxes where the user can enter his Aadhar card and Voter id. If the necessary information is not provided or if invalid inputs are given by the user then the system will pop a message box.

#### **3.2.3 Functional Requirements**

1. Two boxes to enter Aadhar id and voter id
2. Face id for verification.
3. Finger print for verification.
4. User can choose their candidate.
5. Conformation window will pop up
6. After user logs in, user opens the election form.
7. Display e-voting details for the user.
8. At the end of the voting process a Thank you message will be displayed to the user.
9. Face-id and fingerprint is optional for disabled person but they have to submit their medical certificate.
10. Due to the spam and hackers, a random number generator will be used and this number will be displayed on an image for uses to type in for an additional validation. Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) will be used for this.
11. Voter name will be displayed on the submitted vote page.

## **4 External Interfaces Requirements**

### **4.1 User Interfaces**

It will have a login screen. Login screen will have additional Completely Automated Public Turing test to tell Computers and Humans Apart (CAPTCHA) based security check to minimize the spam and attacks to the pages.

Admin logins will be connected to the Administrator pages where they can access Election, Candidate list, and Tally and help menus for e-voting.

### **4.2 Hardware Interfaces**

As this application can be accessed via internet, only web server is required as a hardware interface to be able to run it. It is assumed that web server is in a secure environment with necessary firewall and network setting done.

### **4.3 Software Interfaces**

IIS needs to be installed on the web server.

### **4.4 Communications Interfaces**

None.

## **5 Other Nonfunctional Requirements**

### **5.1 Nonfunctional Requirements**

#### **1. Usability**

It is expected that the user should be able to vote easily online. Administration of the page also should be user friendly. Provide step by step guide for both admin and users. User should complete voting in a few minutes. Provide an online help. Provide also a quick guide for users.

#### **2. Reliability**

The system should be reliable. Security is a major concern for an e-voting system. Process used in this system should be secure enough to be able to meet the requirements mentioned for e-voting. It requires database connections and network connections. Changes can be done in the databases to store the votes. All changes need to be confirmed and if the transfer is complete the confirmation should be displayed. The changes should be monitored.

#### **3. Performance**

There might be many users accessing to the web server simultaneously. As an online e-voting tool performance shouldn't be affected much and response time for submitted page should be less than a minute.

#### **4. Supportability**

Version 1.0.0.0 is the first version of the e-voting system. Future release features will be considered during the design. Phone support can be provided with all dial in details in the initial version release. In the future versions this can be improved by supporting an online chat facility. Future enhancements or improvements can be considered during the design and development.

### **5.2 Safety**

Web server should be secure. Regular backups should be in place.

### **5.3 Security**

Customer's voting is secure. Customer's registration information is confidential.

## Glossary

SOFTWARE – E-Voting Online Application using Block chaining .

CAPTCHA - Completely Automated Public Turing test to tell Computers and Humans Apart.

## Appendix B: Analysis Models

Data dictionary for the process in level 1 DFD: -

**Name:** login (Voter)

**Input:** login credentials (Face-ID, fingerprint)

**Output:** \_\_\_\_\_

**Description:**

Process number	Process name	Description
1.0	Login (voter)	IF face-ID, fingerprint matches then Submit your Aadhar number and voter ID For verification Else Print the message “invalid entry!”

**Name:** Voting

**Input:** documents of the voter (Aadhar number, voter ID)

**Output:** \_\_\_\_\_

**Description:**

Process number	Process name	Description
2.0	Voting	If Aadhar no. and voter ID are verified then you can vote to the particular candidate Else Print the message “Verification failed !”

Data dictionary for the data-bases in the level 1 DFD: -

**Name:** Vote – update (Database)

**Input:** No. of votes to particular candidates

**Output:** Counted number of votes

**Description:**

This database collects the no. of votes given by the voters to the particular candidate.

**Name:** Voter's Database

**Input:** Aadhar no, voter ID, face-ID, fingerprint

**Output:** \_\_\_\_\_

**Description:**

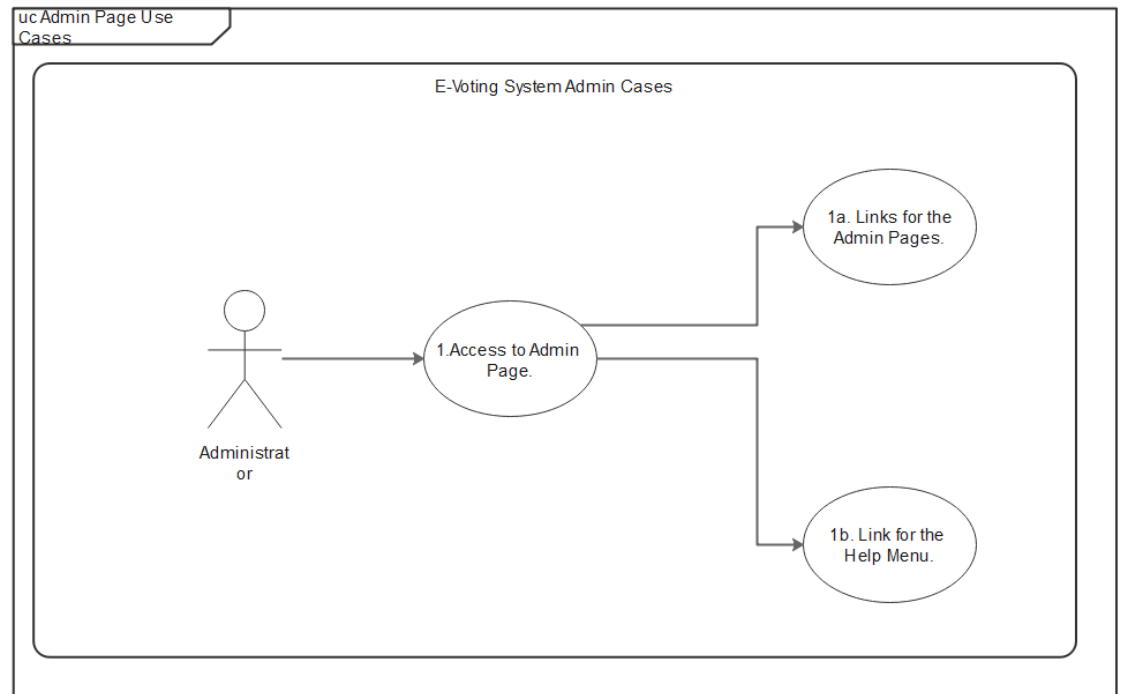
It checks voters' detail and passes the status accordingly.

**Data dictionary for the data flows in level 1 DFD: -**

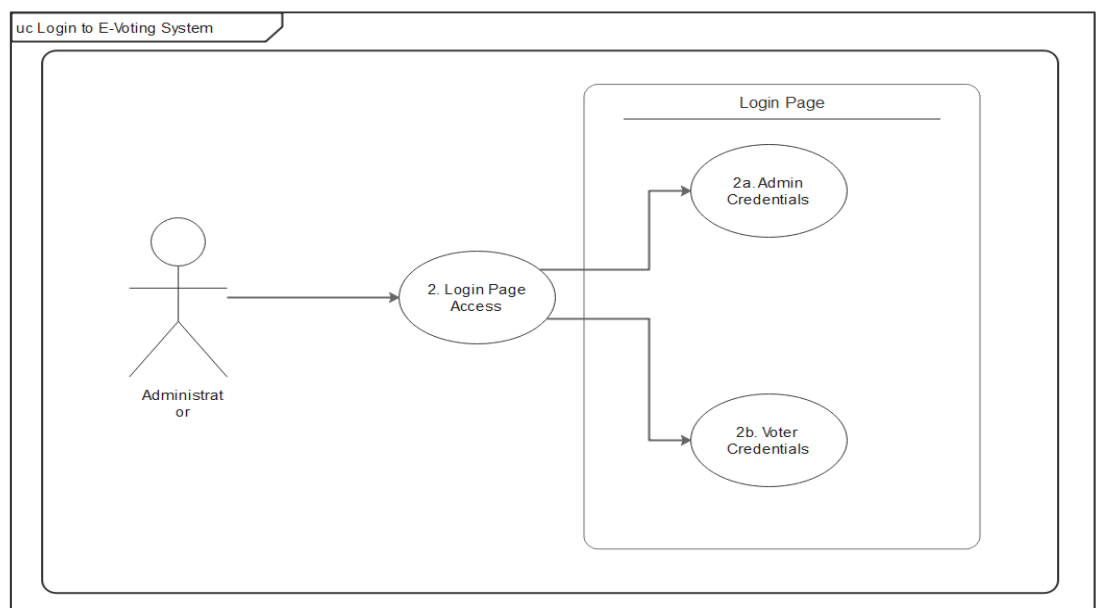
Name	Input type	Description
Login (face-ID, fingerprint)	face-ID, fingerprint	Login details of the voter, it is required for successful login.
Documents (Aadhar no., vote rid)	Aadhar no., vote rid	Valid Aadhar number and voter id required for the voter to vote.

## Use Case Diagrams:

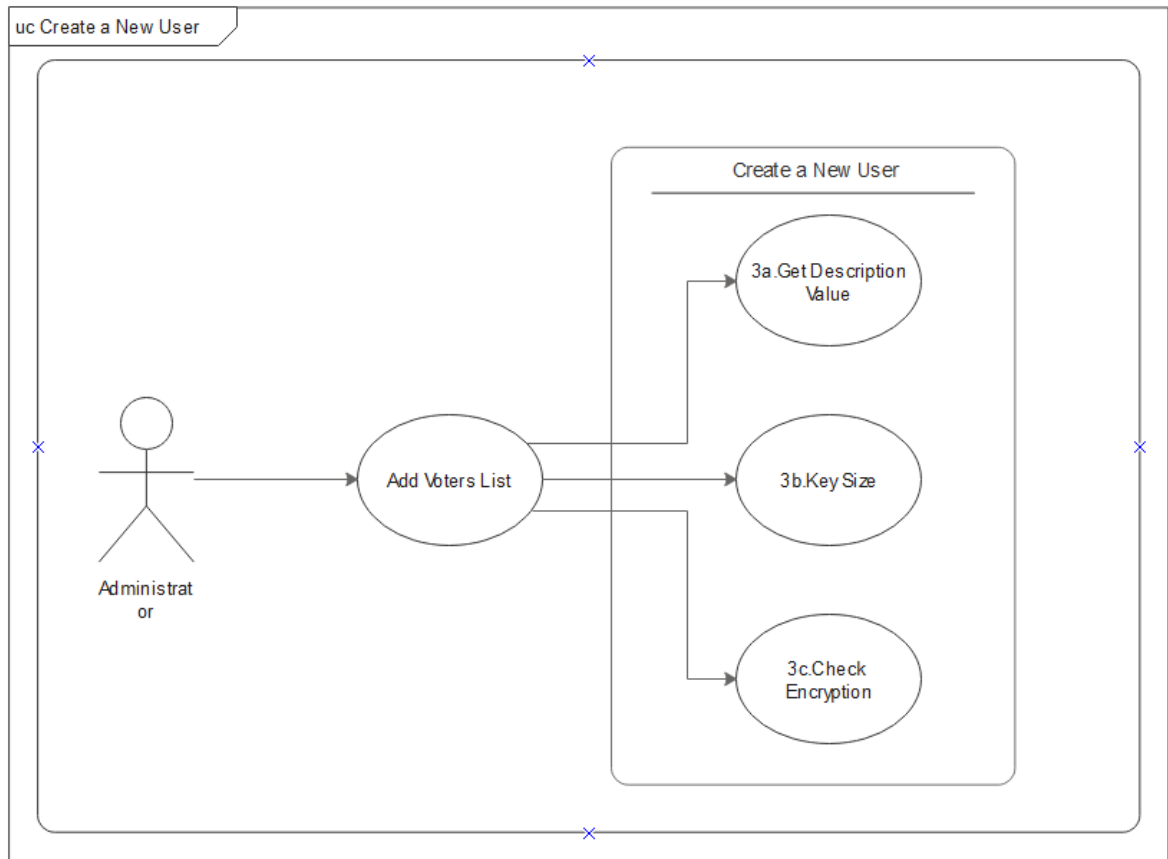
### Use Case Diagram #1:



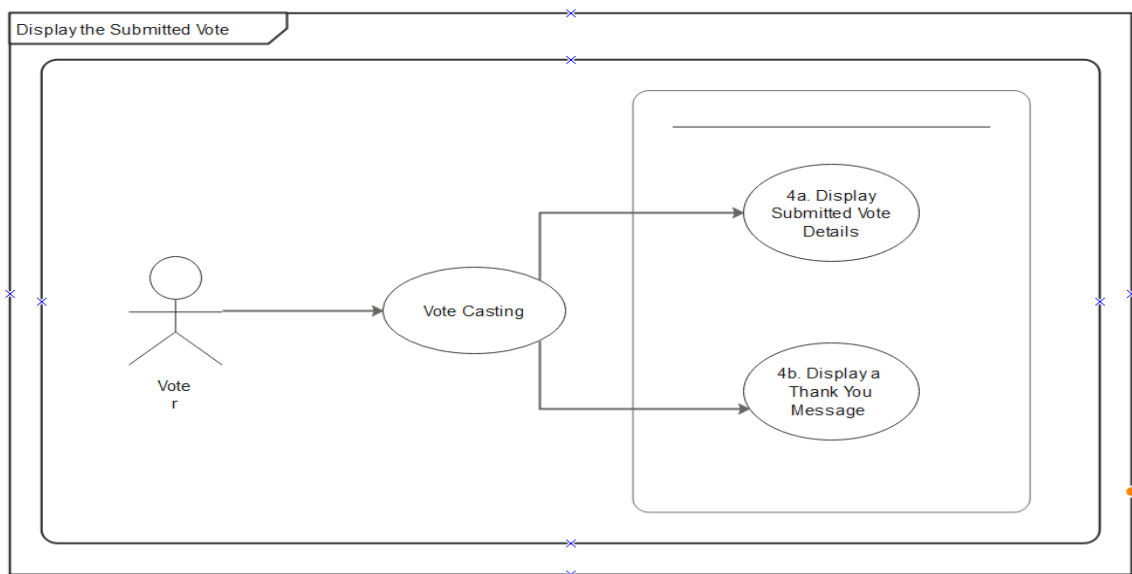
### Use Case Diagram #2:



### Use Case Diagram #3:

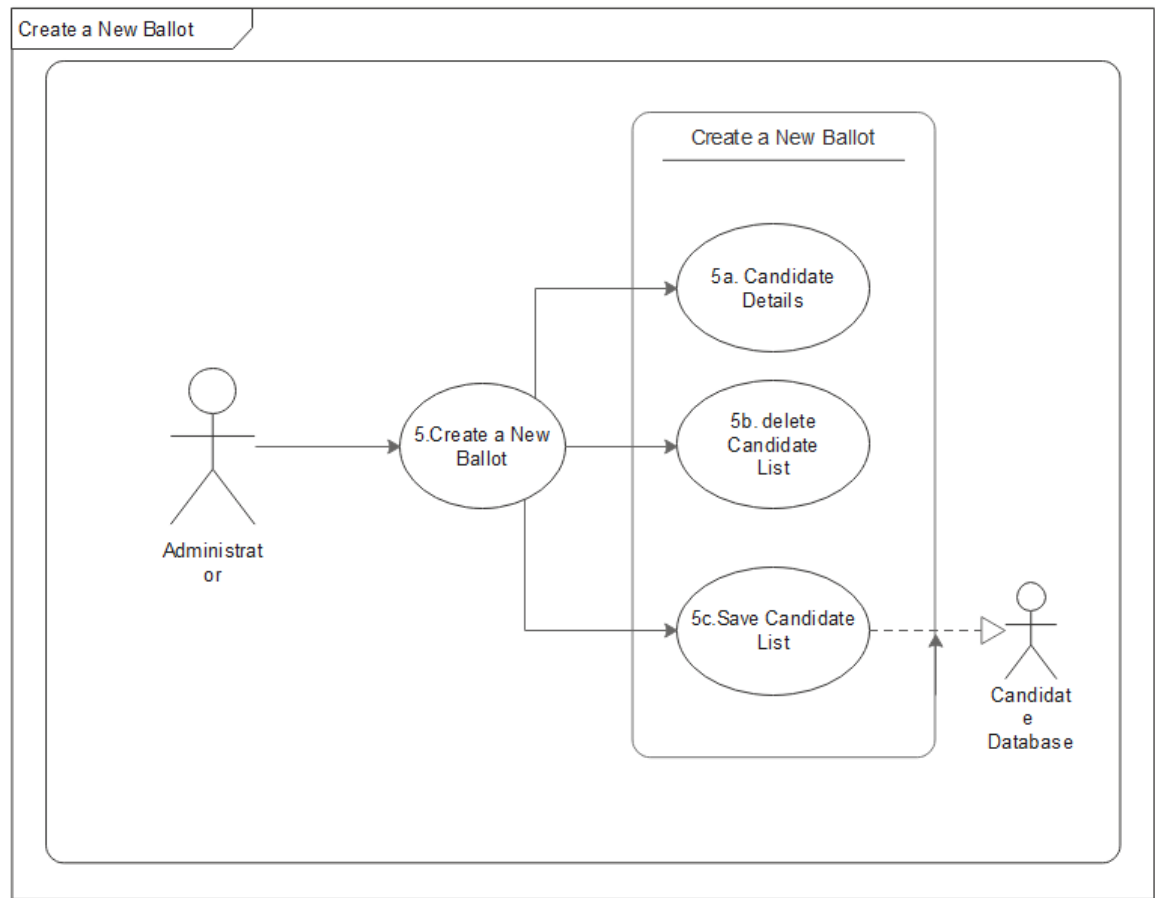


### Use Case Diagram #4:

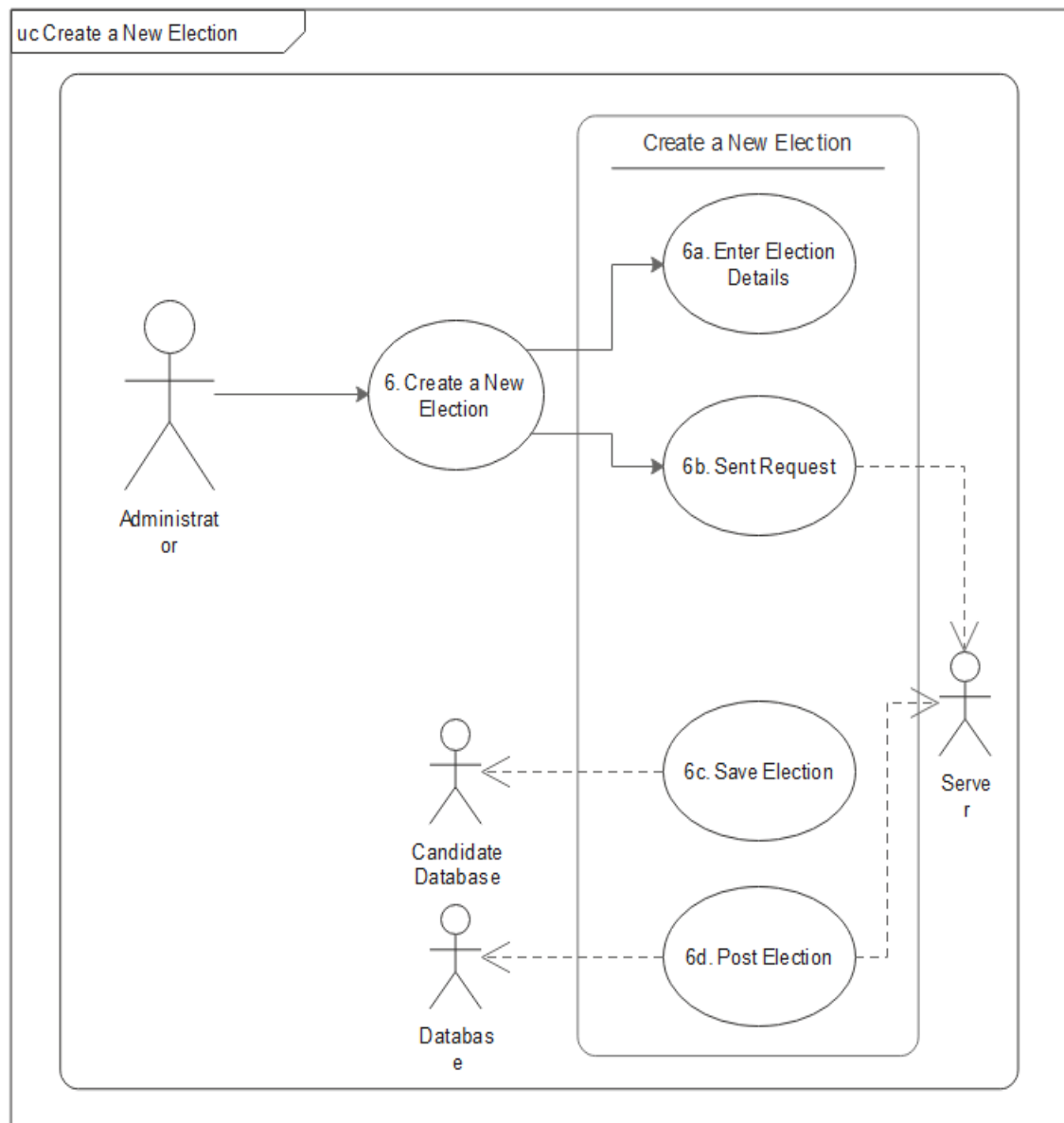




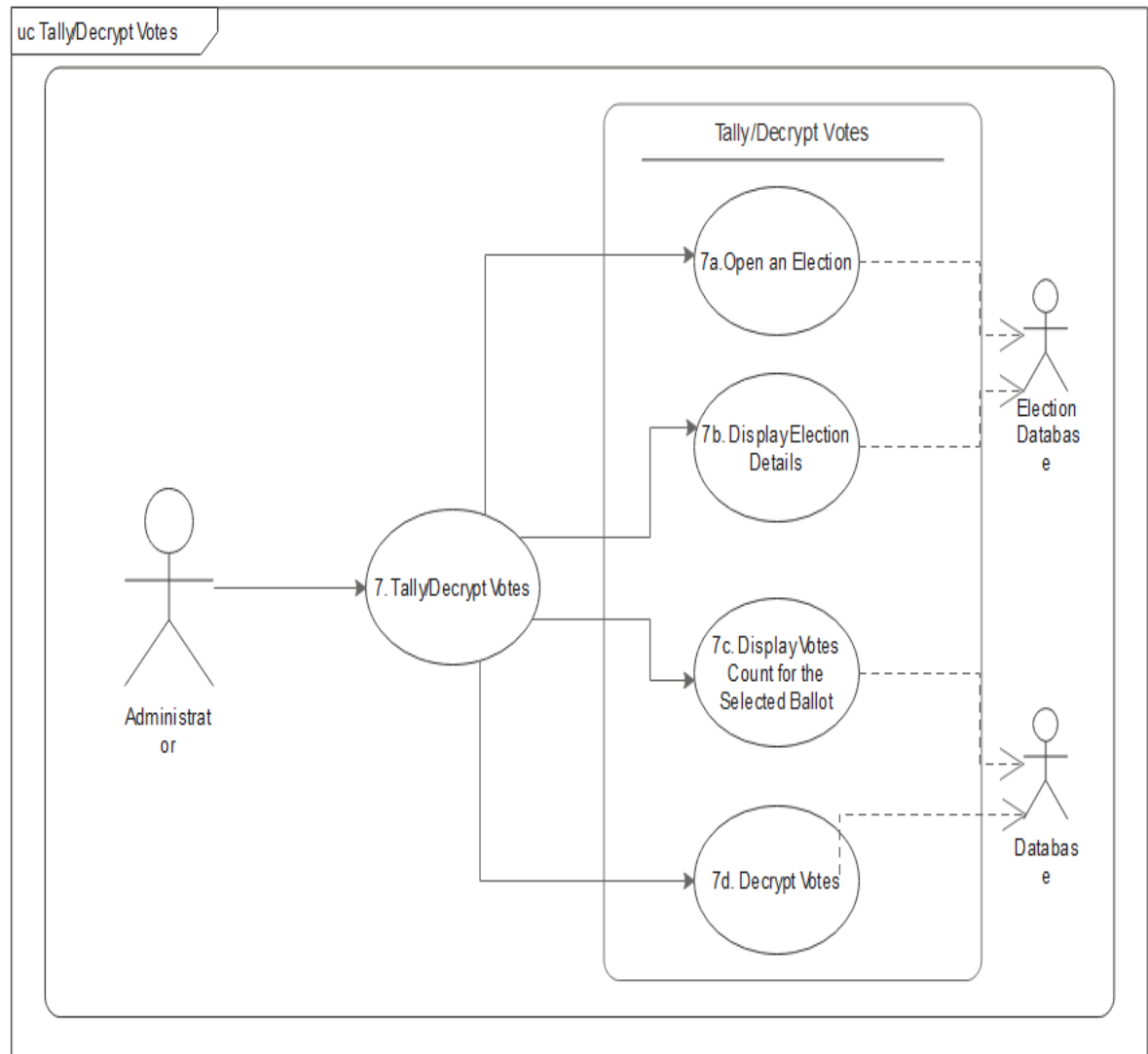
### Use Case Diagram #5:



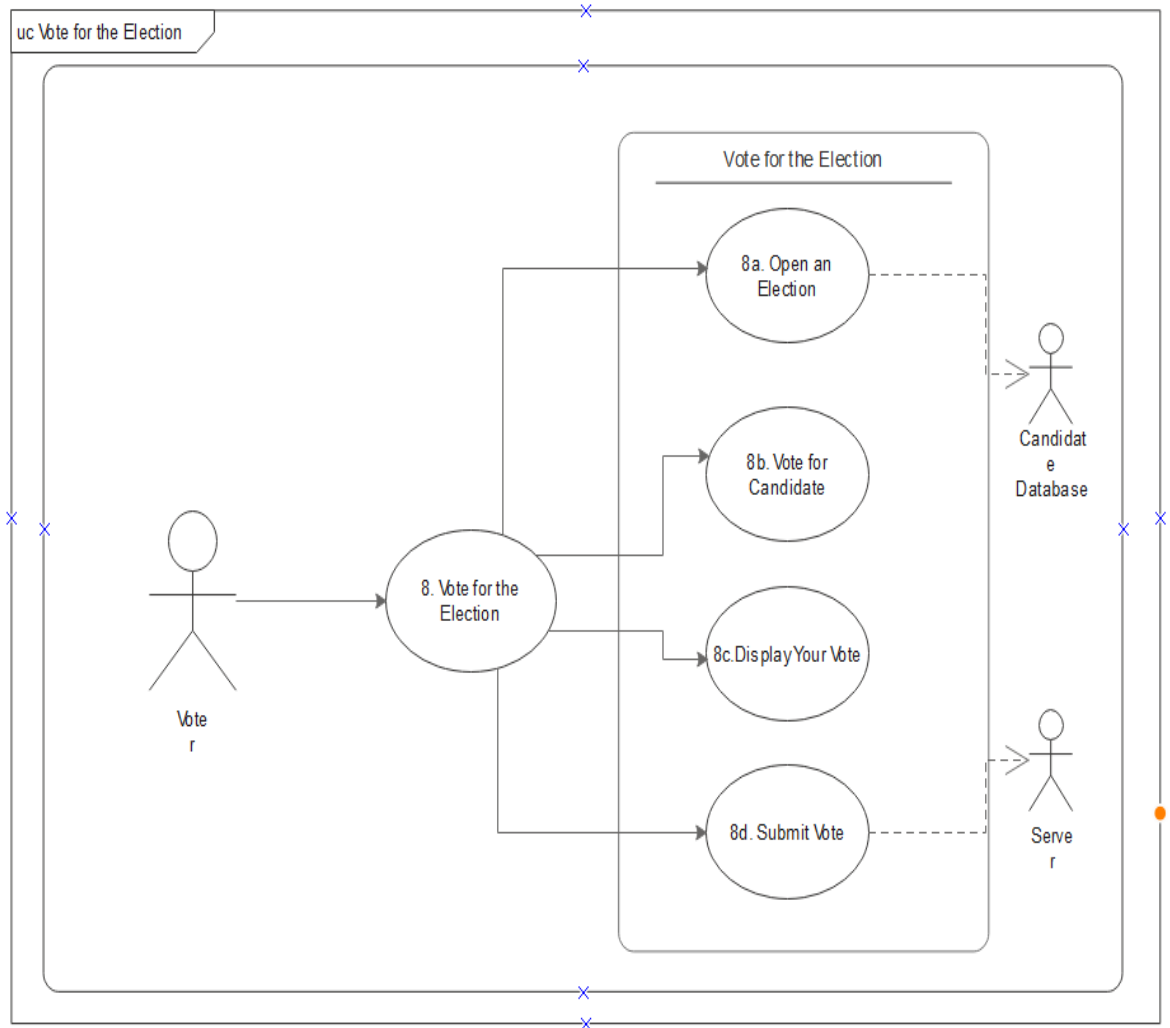
## Use Case Diagram #6:



### Use Case Diagram #7:



### Use Case Diagram #8:



## Use Cases:

Use Case ID:	1		
Use Case Name:	Access to Admin Page		
Created By:	Chirag	Last Updated By:	NIL
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Administrator
Secondary Actors:	N/A
Description:	This use case describes how to access to the Admin page.
Trigger:	Administrator requires managing the Election pages.
Preconditions:	Actor Network is idle. Actor internet is idle. Actor Database is idle.
Postconditions:	Administrator will have an admin page to be able to connect and manage.
Normal Flow:	Administrator logs in and connects to the Administrator page where he will have access to create a new election, modify an election, voting, tally and/or decrypt the votes. Connect to the network via actor network. Connect to the database via actor database.
Exceptions:	When there is a network problem create an error and report it. When there is a database connectivity problem report the problem via Error Messaging Technique.
Special Requirements:	Only certain users can have access to this page. It will require administrator privileges to open it.
Assumptions:	Server or desktop using online e-voting has a network and internet connection.
Notes and Issues:	Any internet connection or network connection issue will cause access problems.

<b>Use Case ID:</b>	<b>2</b>		
<b>Use Case Name:</b>	<b>Login Page access</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Users
Secondary Actors:	Network, Database, Error Messages.
Description:	This use case describes how to access to the e-voting system.
Trigger:	Login credentials will be required to login to the e-voting system.
Preconditions:	Actor Network is Idle. Machine running the online e-voting tool. The database connection is idle. Internet connection is idle.
Postconditions:	Internet connection is idle.
Normal Flow:	User enters username and the password. The username and password are assigned and given to the users earlier. According to the username, system will connect the user to the Administrator page or directly to the voting page. If user is the administrator, he will be connected to the admin page and will have access to the admin links.
Exceptions:	Invalid data entry needs to be reported in the error logs with the Error Messages.
Special Requirements:	Login credentials are valid and confirmed before the entry.
Assumptions:	Username and password are given to the users earlier.
Notes and Issues:	Invalid usernames and passwords will not be logged in and will have error pages displayed.

<b>Use Case ID:</b>	<b>3</b>		
<b>Use Case Name:</b>	<b>Add User</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Administrator
Secondary Actors:	N/A
Description:	This use case describes how add a user from the Admin page for voters.
Trigger:	Administrator requires managing the users for security reasons.
Preconditions:	Actor Network is idle. Actor internet is idle. Actor Database is idle.
Postconditions:	Administrator will have an admin page to be able to connect and manage users.
Normal Flow:	Administrator logs in and connects to the Administrator page where he will have access to create a new election. In the new election page, he will have the option to add the users. Connect to the network via actor network. Connect to the database via actor database.
Exceptions:	When there is a network problem create an error and report it. When there is a permissions issue or other issues to assign the certificates for the users, report the issue with an error message.
Special Requirements:	Only certain users can have access to this page. It will require administrator privileges to open it.
Assumptions:	Server or desktop using online e-voting has a network and internet connection. User encryption keys are created prior and installed on the server by the Administrator.
Notes and Issues:	Any internet connection or network connection issue will cause access problems. Any missing public keys for the users will cause issues to upload the certificates.

<b>Use Case ID:</b>	<b>4a – 4b</b>		
<b>Use Case Name:</b>	<b>Display Submitted Vote Details and Thank you message</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Voter
Secondary Actors:	Web Server
Description:	This use case defines accessing to the summary page after voting.
Trigger:	User would like to get the summary of the voting on the results page.
Preconditions:	Actor Network is idle. Actor internet is idle. Actor user has access to the voting pages.
Postconditions:	None.
Normal Flow:	Actor user uses the login page to access voting form. Voter does the voting, finishes and clicks submit button. A message shows up the successful submission. Then there will be a button provided to check the voting details sent.
Exceptions:	When there is a network problem create an error. If the voting didn't go successfully, display a message on the check status page for the user.
Special Requirements:	Users using the voting form will have access to this page after submitting the vote. Prior to submission this button will be disabled.
Assumptions:	Server or desktop using online e-voting has a network and internet connection. User submitted the vote to view the vote summary page.
Notes and Issues:	Any internet connection or network connection issue will cause access problems.



<b>Use Case ID:</b>	<b>5</b>		
<b>Use Case Name:</b>	<b>Create a new ballot</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Administrator
Secondary Actors:	Ballot XML File
Description:	This use case describes how to create a new ballot.
Trigger:	Administrator requires managing the ballot creation pages.
Preconditions:	Actor Network is idle. Actor internet is idle. Actor Database is idle. Actor Ballot XML File can be saved to the default folder.
Postconditions:	None.
Normal Flow:	Administrator logs in and connects to the Administrator page where he will have access to create a new ballot. Ballot creation pages will be accessible from the election creation pages as well. After filling out the necessary fields in the form, Administrator will be able to save the ballot on the default folder where you will have access to add the ballots for the elections.
Exceptions:	Creating the ballots will require both DB access and directory access to be able to write the data into XML. DB will be used just to store the ballots information.
Special Requirements:	Only administrators can have access to this page. It will require administrator privileges to open it.
Assumptions:	Default XML folder is setup and accessible. Database credentials were setup by the Admin on the web server.
Notes and Issues:	Any internet connection or network connection issue will cause access problems to be able to create new ballots.

<b>Use Case ID:</b>	<b>6</b>		
<b>Use Case Name:</b>	<b>Create a new Election</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Administrator
Secondary Actors:	Database
Description:	This use case describes the process for creating an election page.
Trigger:	Administrator will need to have a page to be able to create, modify and post the elections.
Preconditions:	Actor internet is idle. Default directory for saving the elections are accessible. PTC web Services are active on the web server.
Postconditions:	Elections created are posted to be able to use for voting.
Normal Flow:	Administrator will have access to the admin page where he will have a link for creating a new election page. Election pages can be a newly created one or an existing one. Ballots will be added from this page. Voters' list needs to be entered by using this page as well. If the voter's encryption is enabled, necessary certificate will be loaded for the username entered.
Exceptions:	When there is a network or internet connectivity problem create an error. Ballots folder, elections folder and the database connection errors will be displayed.
Special Requirements:	Only Administrators can create the new elections.
Assumptions:	Server or desktop using online e-voting has a network and internet connection.
Notes and Issues:	Any internet connection or network connection issue will cause access problems. Accessing problems to the default folder will cause issues to save the elections.

<b>Use Case ID:</b>	<b>7</b>		
<b>Use Case Name:</b>	<b>Tally / Decrypt Votes</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Administrator
Secondary Actors:	Election XML File, Database
Description:	This use case defines accessing to the Tally / decrypt votes pages.
Trigger:	Administrator requires managing the Tally / Decrypt Votes pages. Administration group will be the only group who would access to this data.
Preconditions:	Actor Network is idle. Actor internet is idle. Admin credentials are setup.
Postconditions:	None.
Normal Flow:	Administrator logs in and connects to the Administrator page where he will have access to tally and/or decrypt the votes. Database connection will be required to be able to pull the data from the database. Database settings will be done from the settings files. The certificate detail for users will be pulled from the certificates list to be able to decrypt the vote details. Each user's certificate will be pulled according to the username used to login. It is important to keep it the same when connected to the voting page. This can be transferred from the login to the voting page. Tally will be accurate if the voting is done successfully.
Exceptions:	When there is a network problem create an error and report it. Database access errors will be reported.
Special Requirements:	Only certain users can have access to this page. This data is the most crucial data and it is important to have a limited access.
Assumptions:	Server or desktop using online e-voting has a network and internet connection.
Notes and Issues:	Any internet connection or network connection issue will cause access problems.

<b>Use Case ID:</b>	<b>8</b>		
<b>Use Case Name:</b>	<b>Vote for the Election</b>		
Created By:	Chirag	Last Updated By:	Chirag
Date Created:	29/09/2020	Date Last Updated:	29/09/2020

Primary Actors:	Voter
Secondary Actors:	PTC web Services, database, Election XML File
Description:	This use case describes how to access to the Admin page.
Trigger:	Voter will need to login to the Voter form for voting process.
Preconditions:	Actor Network is idle. Actor internet is idle. Actor Database is idle. Voter has username and password assigned.
Postconditions:	Submitted votes button is available for the voter to view the submitted vote summary.
Normal Flow:	Voter logs in and connects to the Administrator page where he will have access to vote. Connect to this via actor internet. Connect to the database via actor database. User will choose the election from the list and open the election. After the election is chosen, user will highlight the ballot and choices to submit his/her votes.
Special Requirements:	Any user that has login credentials setup by the admin will have access to the voting page.
Assumptions:	Voter has internet connection and user credentials setup.
Notes and Issues:	Any internet connection or network connection issue will cause access problems to the e-voting system.

## Appendix C: Issues List

NILL

## Contribution

S. No	Name	Roll No	Contribution
1	Chirag	101918004	Use Case Table, Overall Description, System Features
2	Anuj Agarwal	101918005	Data dictionary, External Interface Requirements
3	Kulpreet Singh	101918013	DFD, Other Nonfunctional Requirements
4	Kabir Watts	101918017	User cases Diagram, Introduction

GitHub - <https://github.com/chiragarora01/Voting-app>

