American International University-Bangladesh (AIUB)

Course Name: Software Requirement and Engineering

Section: B

Project Title: Digital Online Electronic Voting App

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1. PROBLEM DOMAIN

1.1 Background to the Problem

A public election system constitutes the backbone of a democracy where the people have to elect their state's leader. As we all know Election uses a manual election system, which causes several kinds of problems. Due to this paper ballot-based election system, some problems are faced by voters before or during elections and others are faced by the administration before and after the voting.

Many e-voting solutions lack transparency for voters and even for election administrators. If not carefully planned and designed, the introduction of e-voting can undermine confidence in the whole electoral process. So, to avoid this circumstance, we are organizing to open arrange apps in an internet system, which includes methods like registration of voters, vote casting, vote counting, and pronouncing results etc would constitute a great arrangement to replace current system. So electronic voting technology intends to speed the counting of votes, decrease the cost of paying staff to count votes physically and can provide progressed availability for disabled voters. Moreover Results can be detailed and distributed quicker.

1.2 Solution to the Problem

We are going to introduce a web-based online electronic voting app which will be able to process data with computer software and record voting data. In this app, voter can easily cast his vote. Due to the requirement, Admin can manage all those things like manage voter, voter authentication, add manager and staffs, add election etc. For the secrecy of the vote, Admin will avoid any connection between the voter's identity and the vote cast in this app. In this way, This app can be more secure for all users. This online voting app can increase accessibility, for example with internet voting as well for housebound voters and voters from abroad. In this way, This online voting app can Reduce the spoilt of ballot papers, can warn voters about any invalid votes and voter can cast vote only for one times. To Compared to postal voting, Internet voting can reduce the incidence of vote-selling and family voting by allowing multiple voting. So our main goal is to create a high quality and user friendly online voting app where voters can easily cast his vote from wherever there is an Internet connection.

2. SOLUTION DESCRIPTION

2.1 System Features

In this Online Voting App, there are four types of users who will use this system:

1. Voter:
    - Voter Can Register and login with his own voter ID card.
    - Voter can view candidates.
    - Voter can cast a vote
    - Voter can provide and scan fingerprint for casting vote in this app.

2. Admin: Admin can alter each thing. Additionally can maintain the entire system and delete something in case he will find any offensive.
    - Admin can maintain the entire system.
    - Modify candidate's Information.
    - Modify Election authority Information.
    - Modify Electoral Information.
    - Add voting time duration.

3. Election Authority: They can verify single-vote verification, which ensures members don't inadvertently vote more than once
    - Verify/edit results
    - Generate Reports of election
    - Generate result transcript
    - Authorize result of elections.

4. Candidate:
    - Register for his Nomination
    - Login profile with username and password.
    - View update of voting result.

2.2 Functional Requirements: A Functional Requirement (FR) is a description of the service that the software must offer.

Our system :

Electronic Voting Machine (also known as EVM):

• Can store voters information

• Can observe voters status

• Can check room availability for waiting

• Can generate list for the voters from the system

• Can calculate total voters and votes.

• Can cancel the appointment request from users.

• Can reschedule any appointment.

• Can consider the special needs .

• Can check voter identity.

• Can check voter ID Card Number.

2.3 Non-Functional Requirement: Non-functional requirements are focused on the system's operation rather than its behavior

Compliance: Our application complies with software standards, it's less likely to contain bugs, security weaknesses, and design flaws.

Privacy: Privacy software can built to protect the privacy of its users. The software typically works in conjunction with Internet usage to control or limit the amount of information made available to third parties. The software can apply encryption or filtering of various kinds.

Quality: It's very important factor for a software. It helps identify errors and flaws in the software code and design throughout the development process to prevent loss of time and money.

Reliability: It is an important non-functional requirement for most software. Itis usually defined as the probability that our software will operate without failure for a specified number of uses (transactions) or for a specified period of time

Response time: It refers to the amount of time Application Server takes to return the results of a request to the user**.** System good and fast response is most important for software. We will try to keep the response time very fast.

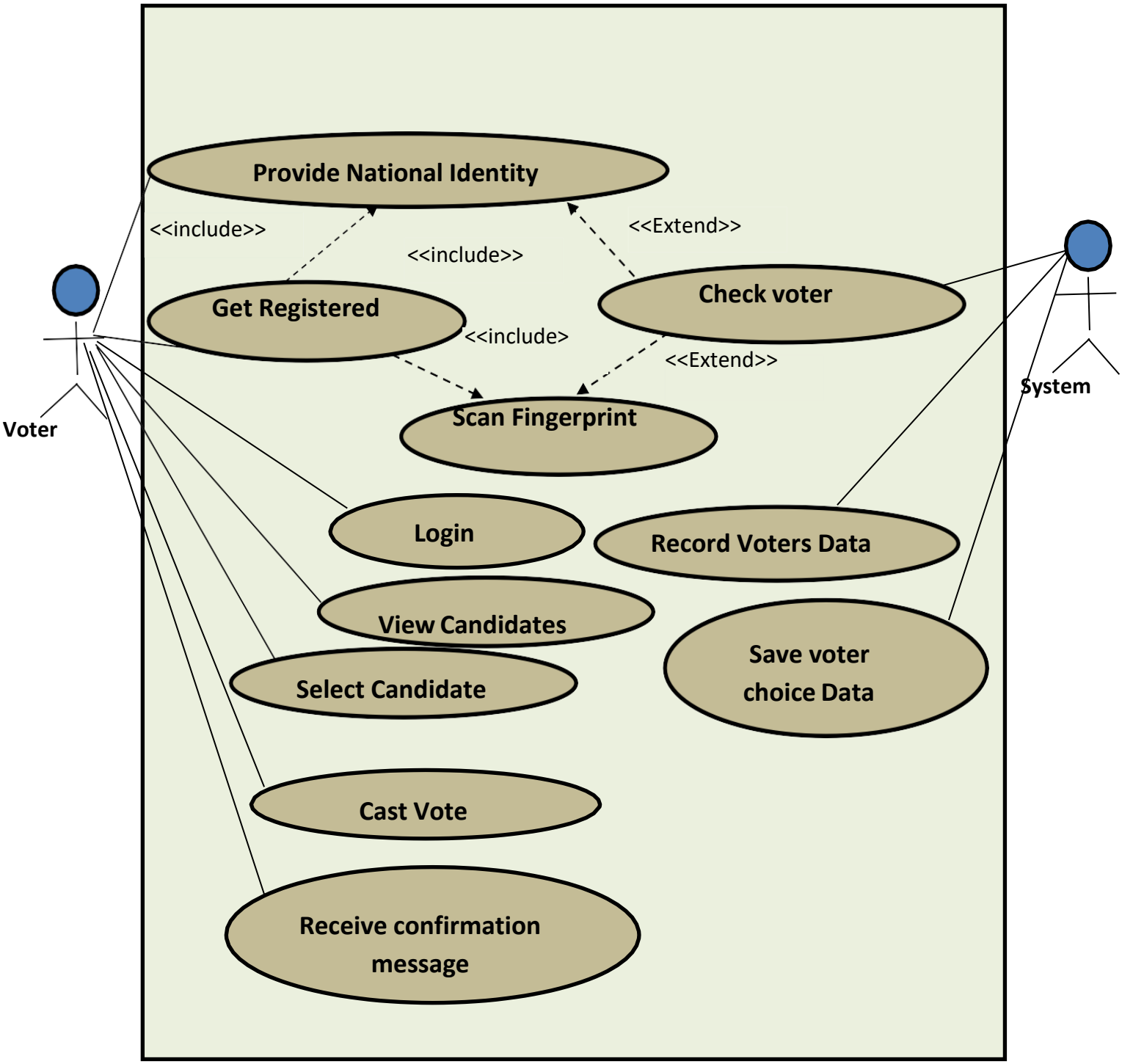
Scalability: Scalability is the measure of a system's ability to increase or decrease in performance and cost in response to changes in application and system processing demands. It is very important requirement for software system.

Stability: It means a state or quality of being stable. We will stability testing in our software which involves ascertaining a software application's capacity to execute or accomplish tasks within defined conditions or duration. We will measure the system stability by analyzing the impact of change in a software system for every element of the system.

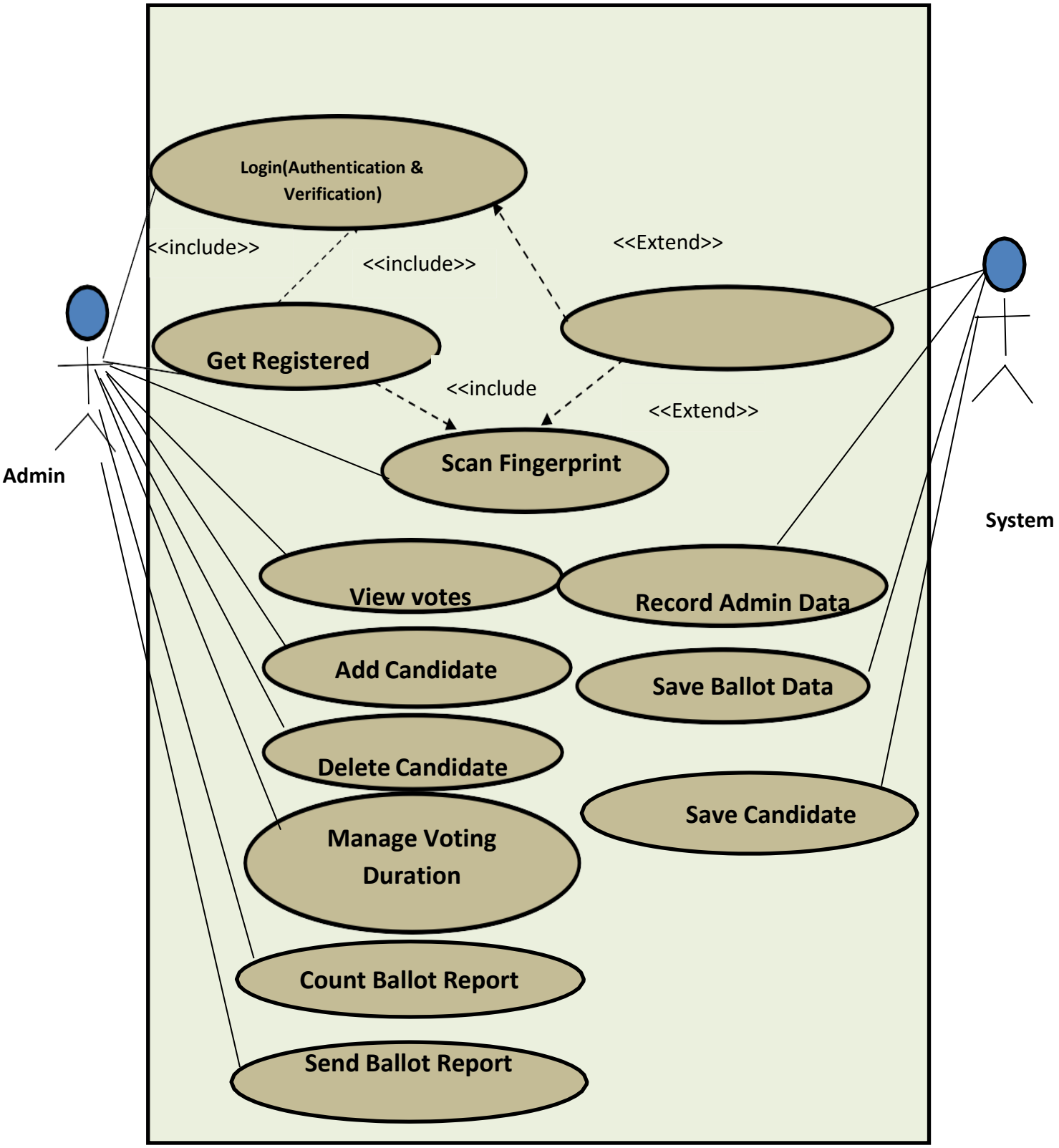
2.4 UML Diagrams

Use-Case Diagram:

Voter Panel:



Admin Panel:


Login(Authentication & Verification)
<<include>>
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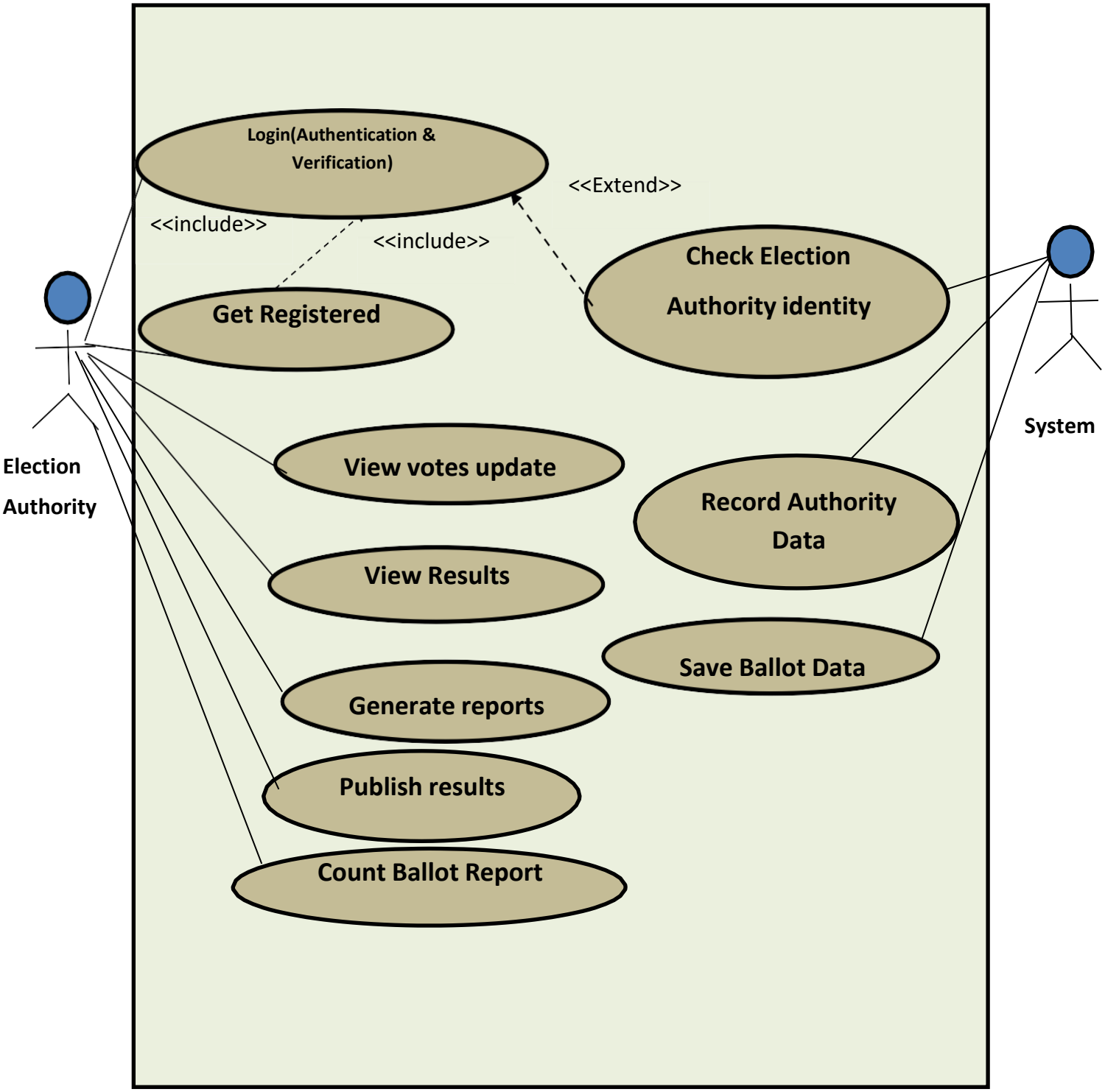
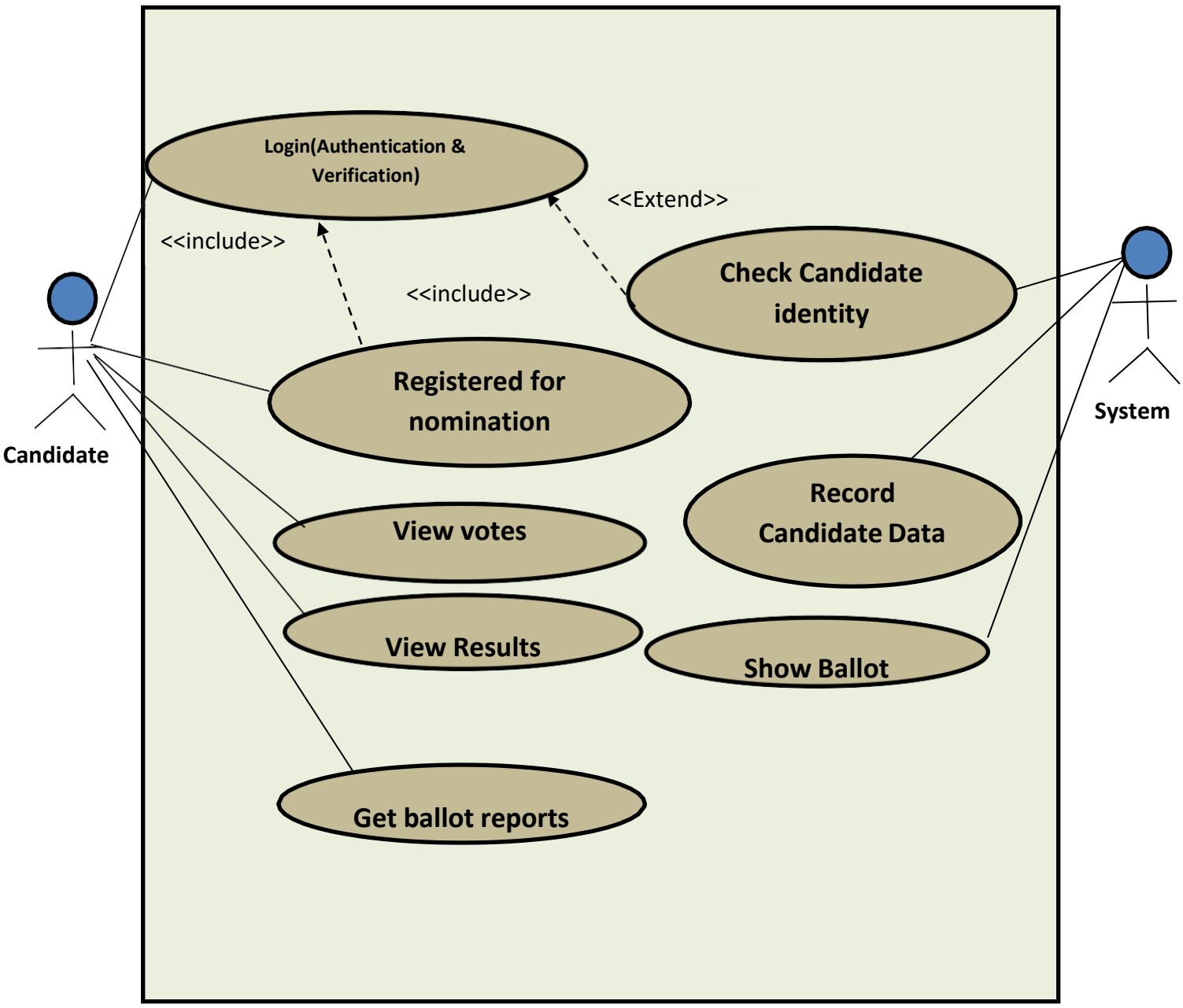
Get Registered
<<include
<<Extend>>
Scan Fingerprint
Admin
System
View votes
Record Admin Data
Add Candidate
Save Ballot Data
Delete Candidate
Save Candidate
Manage Voting Duration
Count Ballot Report
Send Ballot Report

Election Authority Panel:

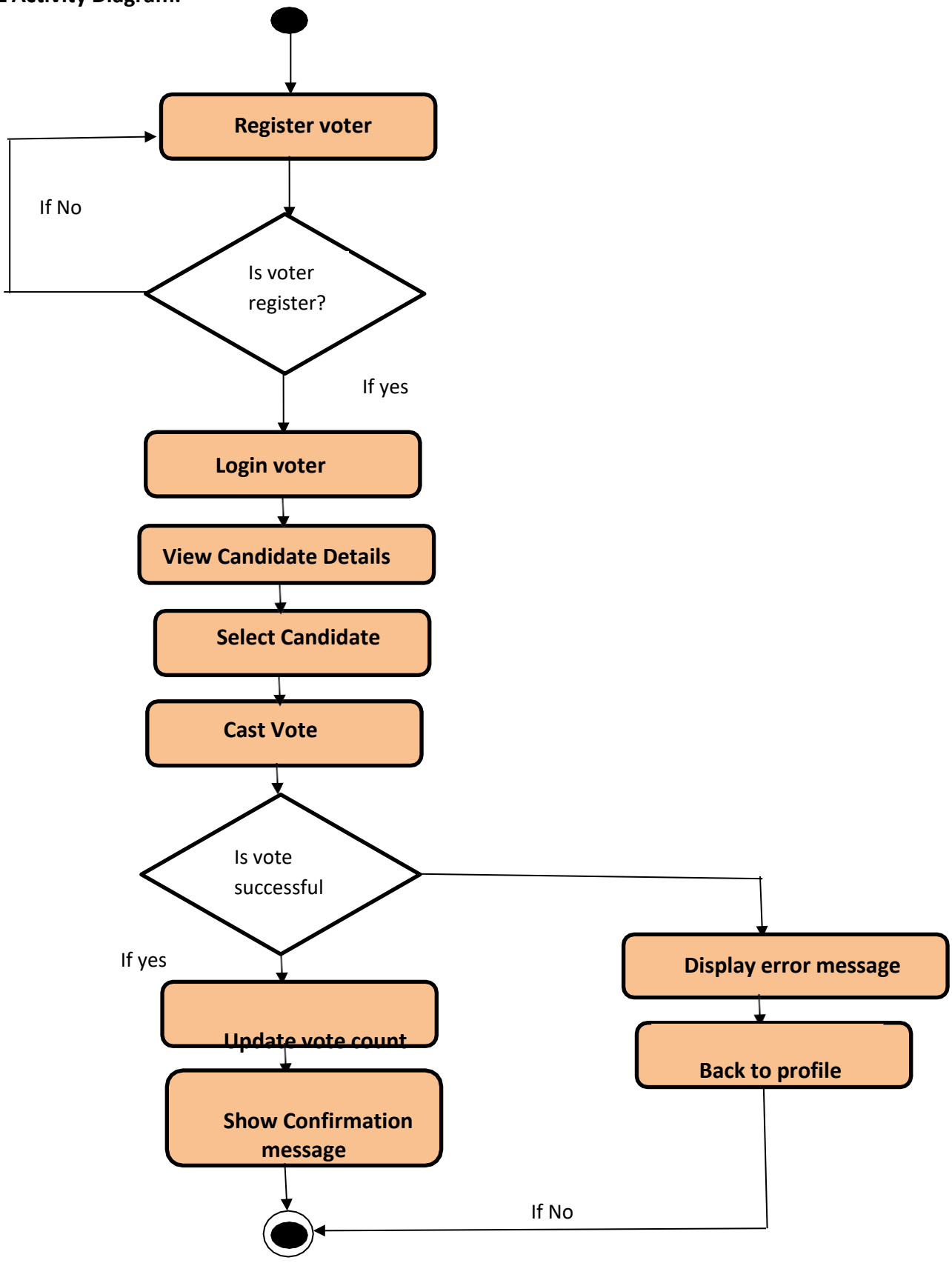


Candidate Panel:

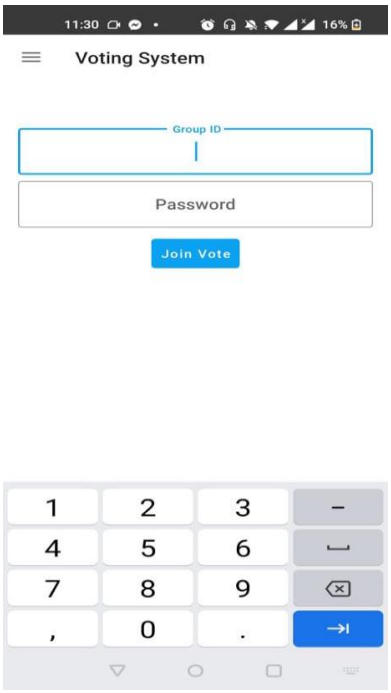


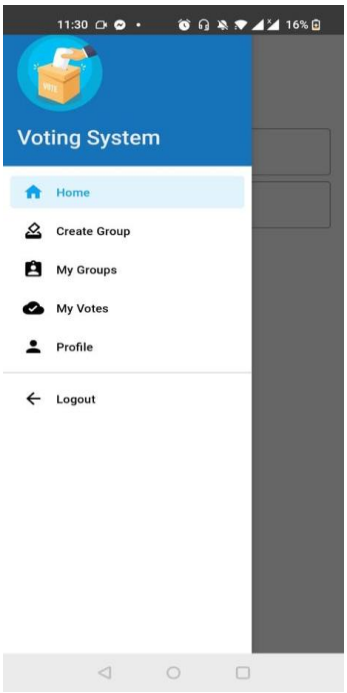
Voter

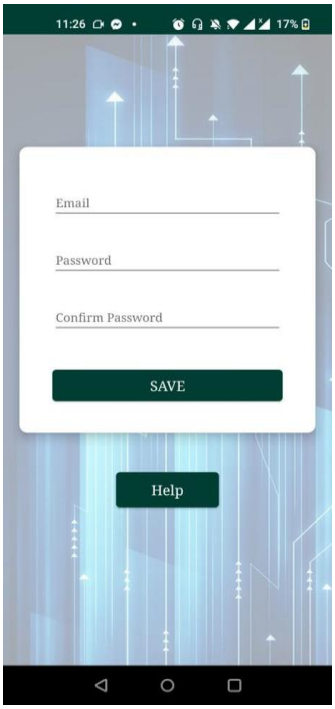
UML Activity Diagram:



3. UI (User Interfaces)







4. Social Impact

Our Digital Online Electronic voting app will allow people in today's mobile and digitally advanced society to participate in the democratic process over the internet. This online voting app will offer the highest levels of transparency, control, security and efficiency of election processes. This voting app will provide society people or voters with a comfortable and secure voting experience and allow election organizers to save resources in planning their next election. For organize an election, planning postal or ballot box elections is a high costs process. Paper-based election voting is cost-intensive and burdensome for the environment. People can get opportunity to give their vote within a short time with internetaccess in this online voting app. By eliminating the use of physical post and manual vote counting we can avoid result-distorting mistakes such as loss of voting documents and miscounted votes. This online voting allows to access results shortly after the election.

Results can also be verified by the election authority after the election by using this app. This can help society people to save time and reduce cost. It is also very important to Social media marketing. It is the use of social media platforms to connect with people of society to this Online voting app. Publicity at social media about a new lunched software has a great good impact. So that time, when a company choose this online voting app company will select which platform will best for their work promoting. Since social arrangeis huge issue presently in days.

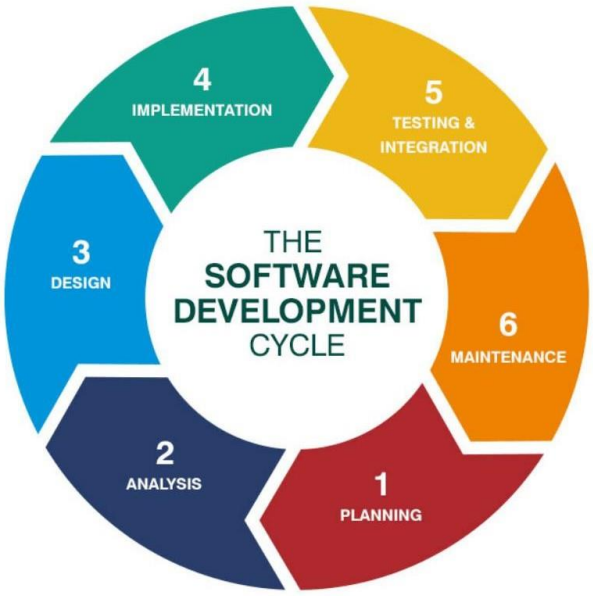
5. Development Plan

Projects have deadlines to hit, budgets to stick to, and requirements to meet. For developing the project plan, we use agile project planning. Agile project management is designed to be flexible enough to handle projects with potentially moving, changing andevolving requirements. Agile planning gives an agile team a clear picture of the goals of their project.

We use Scrum agile development methodology to development this Online Voting Softwarebased on an iterative and incremental processes. Scrum is adaptable, fast, flexible and effective agile framework that is designed to deliver value to the user throughout the development of the project.

The primary objective of Scrum is to satisfy the user's need through an environment of transparency in communication, collective responsibility and continuous progress. The development starts from a general idea of what needs to be built, elaborating a list of characteristics ordered by priority (product backlog) that the owner of the product wants toobtain.

Stages of the Software Development Lifecycle:



Requirement analysis is the most important and fundamental stage in SDLC. Planning for the quality assurance requirements and identification of the risks associated with the project is also done in the planning stage.
Once the system is deployed, and our users start using the developed system, following 3 activities occur

- Bug fixing – bugs are reported because of some scenarios which are not tested at all
- Upgrade – Upgrading the application to the newer versions of the Software
- Enhancement – Adding some new features into the existing software

The main focus of this SDLC phase is to ensure that needs continue to be met and that the system continues to perform as per the specification mentioned in the first phase.
In agile scrum model advancement, System owner donate necessities for his framework that need. At that point Developer begin working as they arrange for. After each sprint one meeting happen. After total each sprint engineer provide upgrade their work to client and entire group and after each sprint client can change their necessity additionally can include modern.

Challenges Of E-voting: In the context of e-voting , special attention should be given to the process guaranteeing a free and secret vote. only entitled voters are allowed to cast a vote and this requires that every voter be authenticated by using personal identification or fingerprint or by the use of digital signature and their right to vote verified.In order to prevent multiple votes being cast or other misuse,a record must be made and checked in order to establish whether he or she has already cast a vote.

Conclusion: This Online Voting system will manage the Voter's information by which voter can login and use his voting rights. The system will incorporate all features of Voting system. It provides the tools for maintaining voter's vote to every party and it count total no. of votes of every party .By online voting system percentage of voting is increases. It decreases the cost and time of voting process. It is very easy to use and it is vary less time consuming.