Course Code: 18CSC265J

Course Name: Software Engineering

Experiment No	1 a
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010002 RA2111042010015
Date of Experiment	27-08-2022

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Presentation	5	
2	Project Methodology	2.5	
3	Stakeholder Identification	2.5	
	Total	10	

Staff Signature with date

AIM:

This Project aims to provide a safe and secure voting system environment, where the admin can allow or restrict the voter to vote, and subsequently declare the results.

Team Members:

Sn No.	Register No	Name	Role
1.	RA2111042010007	SOURABH SHARMA	TEAM LEAD
2.	RA2111042010002	DEEPAN MAJUMDAR	MEMBER
3.	RA2111042010015	DHAWAL SAHU	MEMBER

Project Title: MINI VOTING SYSTEM

DESCRIPTION:

In this project, we have a voting machine, having 4 different options, to select.
Each voter votes one at a time and after all the voters have franchised their votes,
we shall be able to conclude the result and store in our file.
We have a complete dedicated file in which we store the list of winning party for the
respective election years.

INCORPORATE BUSINESS CASE TEMPLATE:
This Project aims to provide a safe and secure voting system environment, where the admin
can allow or restrict the voter to vote, and subsequently declare the results.

MODULES OF THE PROJECT:
- ✓ Admin Login (username and password)
- ✓ Candidate information (Name and Symbol of Party)
- ✓ User Voting (Voter Id and Voting)
- ✓ Result Declaration

EXPLANATION:
- ✓ Project is for the people to cast their votes by selecting the correct option and select their Leader.
- ✓ Each voter selects the correct option against the leader of his choice.
- ✓ It is user friendly to the common voter.
- ✓ This is a digital voting system which is accurate and transparent.
- ✓ This voting project is safe and secure.
- ✓ This project has further scope to be used in any form of voting for choosing a representative.

RESULT:
The mini voting system provides:

- ❖ Accessible & Easy to Use
- ❖ Secure
- ❖ Accurate
- ❖ Increased Turnout & Engagement
- ❖ Reduced Costs.
- ❖ No use of paper means no cutting of trees, hence environment friendly.

ONE PAGE BUSINESS CASE TEMPLATE

DATE	27-08-2022
SUBMITTED BY	SOURABH SHARMA DEEPAN MAJUMDAR DHAWAL SAHU
TITLE / ROLE	TEAM LEAD

THE PROJECT
In bullet points, describe the problem this project aims to solve or the opportunity it aims to develop.

In this project, we have a voting machine, having 4 different options, to select.
Each voter votes one at a time and after all the voters have franchised their votes,
we shall be able to conclude the result and store in our file.
We have a complete dedicated file in which we store the list of winning party for the
respective election years.

THE HISTORY
In bullet points, describe the current situation.

- Project is for the people to cast their votes by selecting the correct option and select their Leader.
- Each voter selects the correct option against the leader of his choice.
- It is user friendly to the common voter.
- This is a digital voting system which is accurate and transparent.
- This voting project is safe and secure.
- This project has further scope to be used in any form of voting for choosing a representative.

LIMITATIONS
List what could prevent the success of the project, such as the need for expensive equipment, bad weather, lack of special training, etc.

None

APPROACH/ METHODOLOGY
List what is needed to complete the project.

This Project aims to provide a safe and secure voting system environment, where the admin
can allow or restrict the voter to vote, and subsequently declare the results.

MODULES OF THE PROJECT:

- ✓ Admin Login (username and password)
- ✓ Candidate information (Name and Symbol of Party)
- ✓ User Voting (Voter Id and Voting)
- ✓ Result Declaration

BENEFITS

In bullet points, list the benefits that this project will bring to the organization.

- ❖ Accessible & Easy to Use
- ❖ Secure
- ❖ Accurate
- ❖ Increased Turnout & Engagement
- ❖ Reduced Costs.
- ❖ No use of paper means no cutting of trees, hence environment friendly.

DEPT. Of Computer Science Engineering

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC265J

Course Name: Software Engineering

Experiment No	2
Title of Experiment	*Identification of Project Methodology and Stakeholder Description template*
Name of the candidate	**SOURABH SHARMA**
Team Members	**DEEPAN MAJUMDAR** **DHAWAL SAHU**
Register Number	**RA2111042010007** **RA2111042010002** **RA2111042010015**
Date of Experiment	**27-08-2022**

Mark Split Up

S.No	Description	Maximum Mark	Mark Obtained
1	Presentation	5	
2	Project Methodology	2.5	
3	Stakeholder Identification	2.5	
	Total	**10**	

Staff Signature with date

Aim: Incorporate *Identification of Project Methodology and Stakeholder Description template*

Team Members:

Si No	Register No	Name	Role
1.	RA2111042010007	SOURABH SHARMA	TEAM LEAD
2.	RA2111042010002	DEEPAN MAJUMDAR	MEMBER
3.	RA2111042010015	DHAWAL SAHU	MEMBER

Project Title:

Project Stakeholder Name	Specific Information Needs	Project Interests	Impact on Project	Role
	Types & Frequency of Communication	*Specific Areas of Interest and Participation*	*Positive, Negative, Influencer, Supporter, Roadblock*	*Collaborator, Participant, Consultant, Information Recipient, Information Provider, Resource Investigator, Monitor, Implementor, Idea Creator, Shaper*
Individual Electorate	Consumer	To elect their candidate by casting vote	Positive: Voters plays the important role to caste the votes to whom they support.	Participant
Groups: Election commission of India	Financing, Suppliers	Conduct elections	Supporter: Election commission manages staff and EVM machine	Implementor
Organization: Electoral staff	Analysis	To help in election process	Supporter: They support in conducting free and fair election process.	Shaper
Police Administration	Control	To provide safe environment for election process	Positive: They maintain law and order near the polling area.	Resource Investigation

Local Administration: DM	Technology, Data	Providing all kinds of support and supply for election process	Influencer: They maintain electricity and supply and other IT support staff.	Monitor

Result:

Thus, the Project Methodology was identified stakeholders were described.

Course Code: 18CSC265J Course Name: Software Engineering

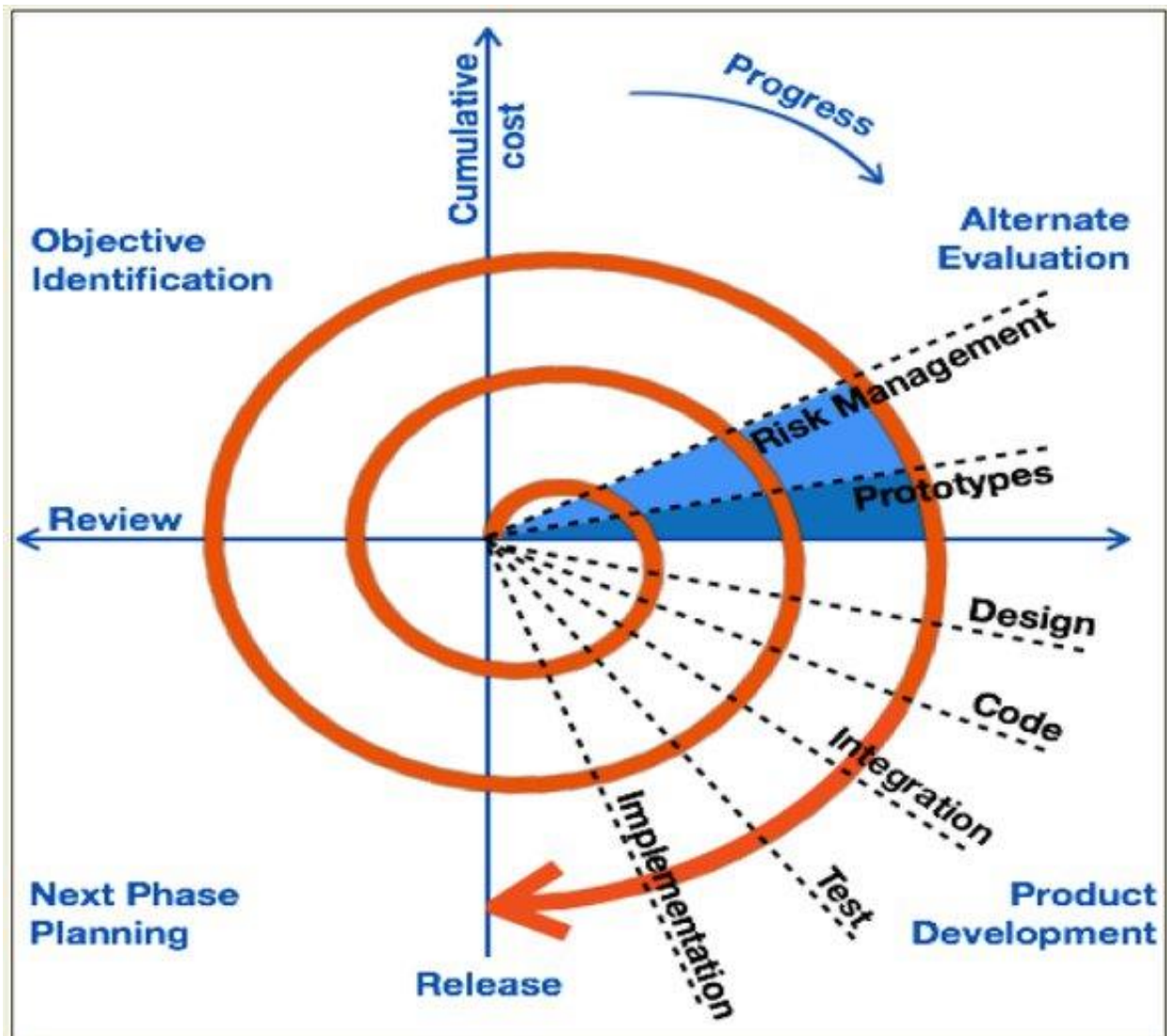| Experiment No	3
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DEEPAN MAJUMDAR DHAWAL SAHU
Register Number	RA2111042010007 RA2111042010002 RA2111042010015
Date of Experiment	27-09-2022

PROCESS MODEL
SPIRAL MODEL

Fig 4.1: Spiral Model

DISCRIPTION:

As our project is about mini voting system which involves the voters selecting their candidate and cast their vote in software. This model involves five processes (C,P,M,C,D) i.e. Communication, Planning, Modelling, Construction, Deployment.

Advantages of spiral model -

Risk Handling: The projects with many unknown risks that occur as the development proceeds, in that case, Spiral Model is the best development model to follow due to the risk analysis and risk handling at every phase.

Good for large projects: It is recommended to use the Spiral Model in large and complex projects.

Flexibility in Requirements: Change requests in the Requirements at later phase can be incorporated accurately by using this model.

Customer Satisfaction: Customer can see the development of the product at the early phase of the software development and thus, they habituated with the system by using it before completion of the total product.

Why we chose this model?

- In voting system there is a risk of misplacing the vote count so this type of model is perfect in which cost and risk analysis is important.
- Voting system contains data which has a high risk of getting hacked so changes may be required at any time.
- The spiral model is best used in large, expensive and complicated projects as voting involves large number of data to be handled.

- The project of voting system can be aborted if the risk is deemed too great.
- The final system is thoroughly evaluated and tested. Routine maintenance is carried out on a continuing basis to prevent large-scale failures and to minimize downtime.

WHY NOT V-MODEL?

- Cost of V-model is expensive.
- In V-model testing activities start with the first stage where as in our project Testing is done at the end of the engineering phase.

Result: Thus, we got the appropriate model for mini voting system

Course Code: 18CSC265J Course Name: Software Engineering

Experiment No	4
Title of Experiment	SOFTWARE MODEL
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	12/09/2022

LAB 4: PROJECT PLAN WITH EFFORT ESTIMATION

PROJECT PLAN

Roles & Responsibilities

DHAWAL SAHU	Resource Investigator/Software Planer	• Look over the entire quality of the deliverables • Design, implement and manage software programs • Write and implement efficient code
SOURABH SHARMA	Facilitator/Software Developer	• Participate in building the models and apps
		• Design the web pages and dynamic environment
DEEPAN MAJUMDAR	Specialist/Software Modifier	• Execute tests on software usability • Review software requirements • Analyse test results on database impacts, errors or bugs.

Estimation of Project Effort:

The estimation technique to be used is Three Point Analysis (TPA).

Three-point estimation is the estimation method based on statistical data. In this, tasks are broken down into subtasks & three types of estimation are done on these sub pieces.

Information Domain Description:

Optimistic Estimate (O): Estimate for all favorable conditions with no risks or changes.

Pessimistic Estimate (P): Estimate for all unfavorable conditions with all negative risks occurring and no mitigation of negative risks.

Most Likely Estimate (M): Estimate for both favorable and unfavorable conditions, with some risks occurring.

COCOMO MODEL:

The Constructive Cost Model known as the COCOMO Model, has been designed in 1981 by Barry Boehm, to give an estimate of number of man months it will take to develop a software product. The model also estimates the development schedule for the project in months and gives us a schedule distribution for all the major phases of a project.

The COCOMO models are developed for three classes of software projects. They are as follows:

Organic Projects - These are relatively small and simple software projects in which small teams with good application experience work towards a set of less than rigid requirements.

Semi – Detached Projects – These are intermediate size software projects in which teams with mixed experience levels must meet a mix of rigid and less than rigid requirement.

Embedded Projects – These are software projects that must be developed within a set of tight hardware, software and operational constraints.

IDENTIFIER	EFFORT ADJUSTMENT FACTOR	RANGE
RELY	Required Reliability	0.75 – 1.40
DATA	Database Size	0.94 – 1.16
CPLX	Product Complexity	0.70 – 1.65
TIME	Execution Time Constraint	1.00 – 1.66
STOR	Main Storage Constraint	1.00 – 1.56
VIRT	Virtual Machine Volatility	0.87 – 1.30
TURN	Computer Turnaround Time	0.87 – 1.15
ACAP	Analyst Capability	1.46 – 0.71

AEXP	Applications Experience	1.29 – 0.82
PCAP	Programmer Capability	1.42 – 0.70
VEXP	Virtual Machine Experience	1.21 – 0.90
LEXP	Language Experience	1.14 – 0.95
MODP	Use of Modern Practices	1.24 – 0.82
TOOL	Use of Software Tools	1.24 – 0.83
SCED	Required Development Schedule	1.23 – 1.10

The equations as they are modified for the organic projects are as follows:

$Effort = 3.2 * EAF * (Size) \wedge 1.05$

$Time = 2.5 * (Effort) \wedge 0.38$ where Effort = number of staff months (PM)

EAF = effort adjustment factor

Size = number of lines of code for completed product.

It is measures in KLOC (thousands of lines of code)

Time = total number of months

With the help of above stated values, the EAF for the **MINI VOTING SYSTEM** is calculated as EAF = 0.45. Also, by estimating the size of the project we have the value 3.0.

Since we already have the formulae for Effort and Time, we can calculate the values as follows:

$Effort = 3.2 * 0.45 * 3.0 \wedge 1.05 = 4.56$ staff months

Time = 2.5 * 4.56 ^ 0.38 = 4.44 months (development time)

The Effort Adjustment Factor mentioned above is the product of 15 adjustment parameters. Each adjustment parameter is categorized as very low, low, nominal, high or very high. Each adjustment factor along with the range of values it lies within is shown in the following table:

The adjustment factors for the Mini voting system are as follows:

- · RELY as nominal with a value of 1.00
- · DATA as nominal with a value of 1.00
- · CPLX as low with a value of 0.75
- · TIME as nominal with a value of 1.00
- · STOR as low with a value of 1.00
- · VIRT as nominal with a value of 1.03
- · TURN as low with a value of 0.88
- · ACAP as high with a value of 0.9
- · AEXP as nominal with a value of 0.9
- · PCAP as nominal with a value of 0.9
- · VEXP as nominal with a value of 1.00
- · LEXP as nominal with a value of 1.00
- · TOOL as high with a value of 0.9
- · SCED as nominal with a value of 1.00

Experiment 4

Software Engineering [Cost Estimation of the Project]

Assuming average **KLOC** to be **100**.

Since it can be either **semi-detached** or **embedded** model, as it manages the **database** in **real time**.

Basic Model (approximate cost estimation)

[E] = Effort Applied = a[KLOC]^b

[D] = Development time = c[KLOC]^d

[P] = people-required = [E] / [D]

Basic Model	[E] Effort Applied	[D] Development Time	[P] People Required
Organic Model	302.14	21.89	13.8
Semi-Detached Model	521.34	3.57	146.033
Embedded Model	904.27	8.83	102.40

Calculations : Basic Model
 Kloc :100
Organic:

Effort applied(E)=a_b[kloc]^b_b

$$=2.4*100^{1.05}$$

$$=302.14$$

Development time(D)=$c_b[E]^{d_b}$

= 2.5*302.14^0.38

=21.89

People required(P)=E/D

=13.8

Semi detached:

Effort applied(E)=$a_b[kloc]^{b_b}$

=3.0*100^1.12

=521.34

Development time(D)=$c_b[E]^{d_b}$

= 2.5*521.34^0.35

=3.57

People required(P)=E/D

146.033

Embedded :

Effort applied(E)=$a_b[kloc]^{b_b}$

=3.6*100^1.2

=904.27

Development time(D)=$c_b[E]^{d_b}$

= 2.5*904.27^0.32

=8.83

People required(P)=E/D

=102.4088

Team Members :

DHAWAL SAHU (RA2111042010015)

SOURABH SHARMA (RA2111042010007)

DEEPAN MAJUMDAR (RA2111042010002)

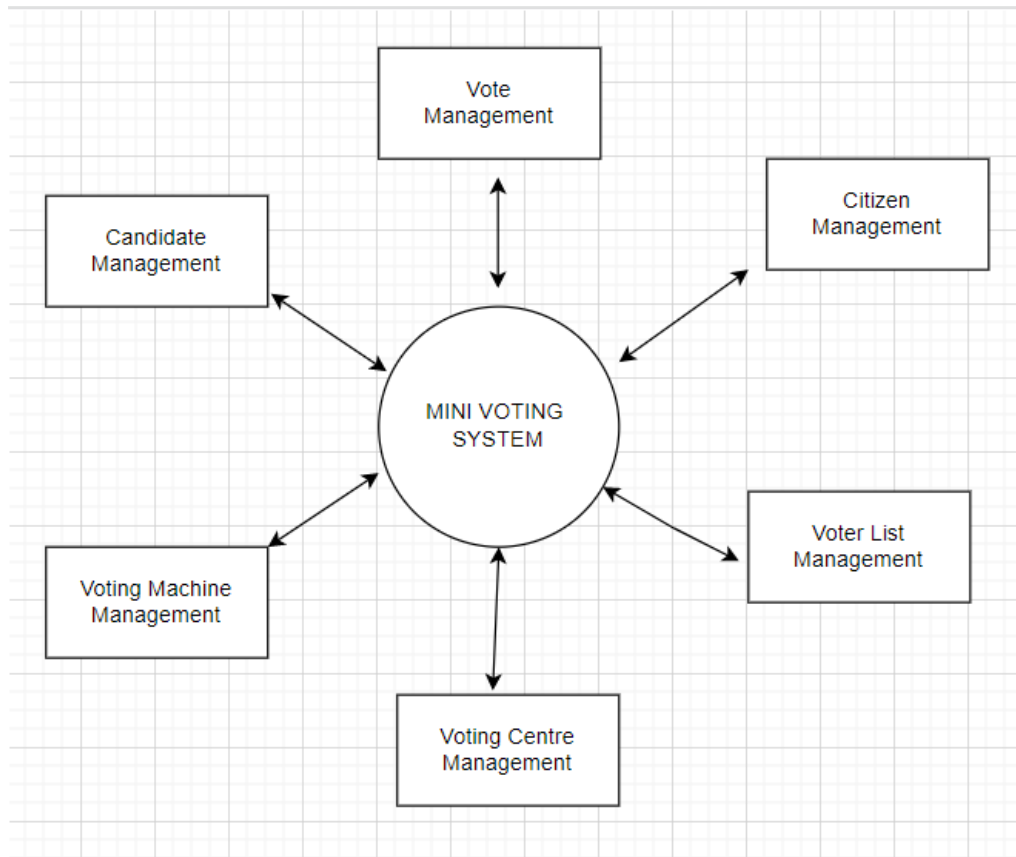# DEPT. Of Computer Science Engineering

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC265J

Course Name: Software Engineering

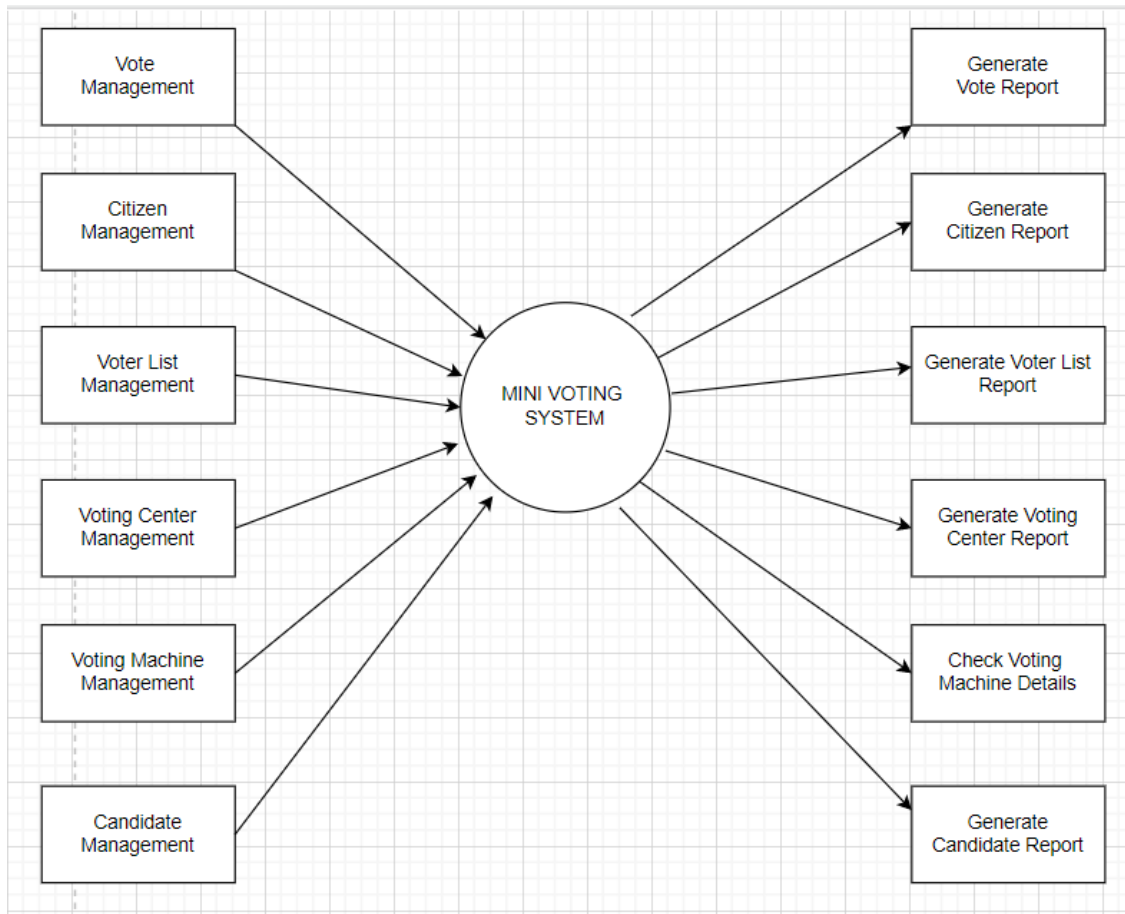|	
Experiment No	5
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	22/09/2022

ZERO LEVEL DATA FLOW DIAGRAM OF MINI VOTING SYSTEM
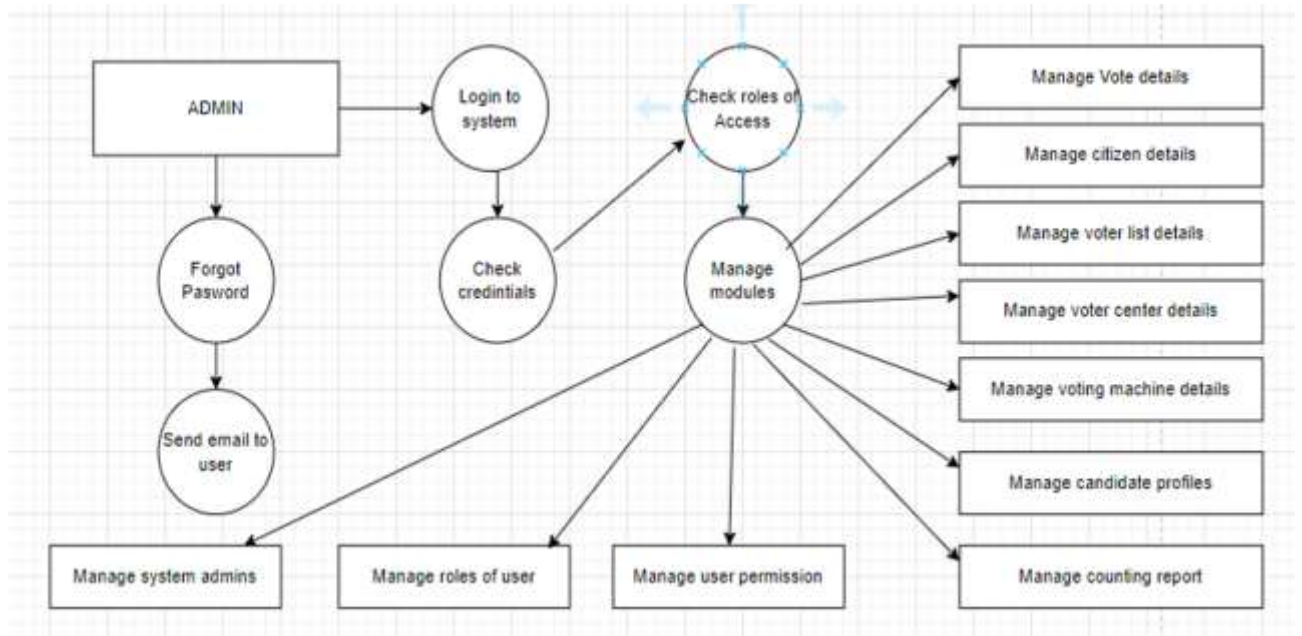
(0 LEVEL DFD)

FIRST LEVEL DATA FLOW DIAGRAM OF MINI VOTING SYSTEM

(1st LEVEL DFD)

Vote Management		Generate Vote Report
Citizen Management		Generate Citizen Report
Voter List Management	MINI VOTING SYSTEM	Generate Voter List Report
Voting Center Management		Generate Voting Center Report
Voting Machine Management		Check Voting Machine Details
Candidate Management		Generate Candidate Report

SECOND LEVEL DATA FLOW DIAGRAM OF MINI VOTING SYSTEM

(2nd LEVEL DFD)

RESULT:

DFD Diagrams of level 0,1 & 2 for Mini Voting System have been

Plotted.

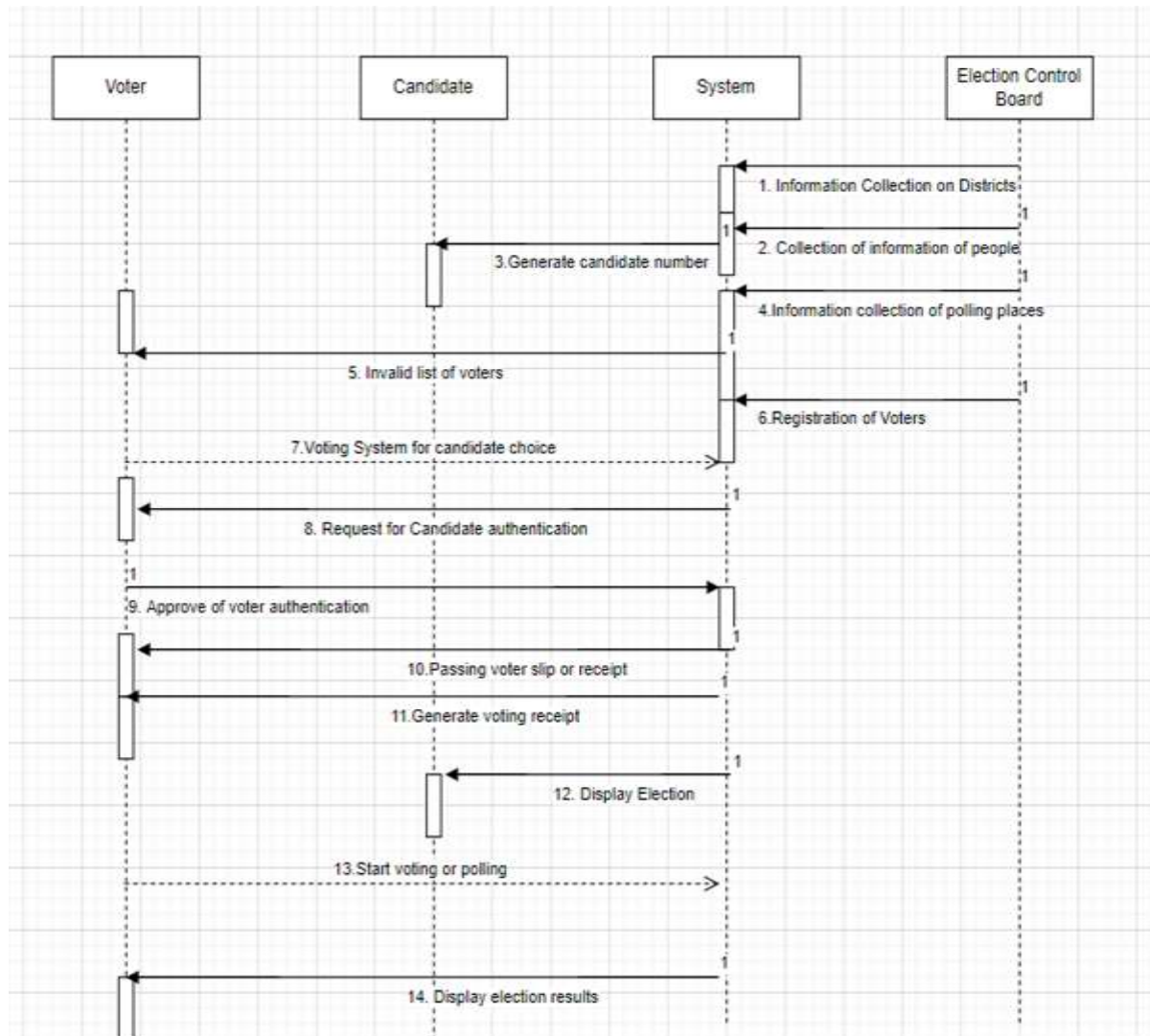# DEPT. Of Computer Science Engineering

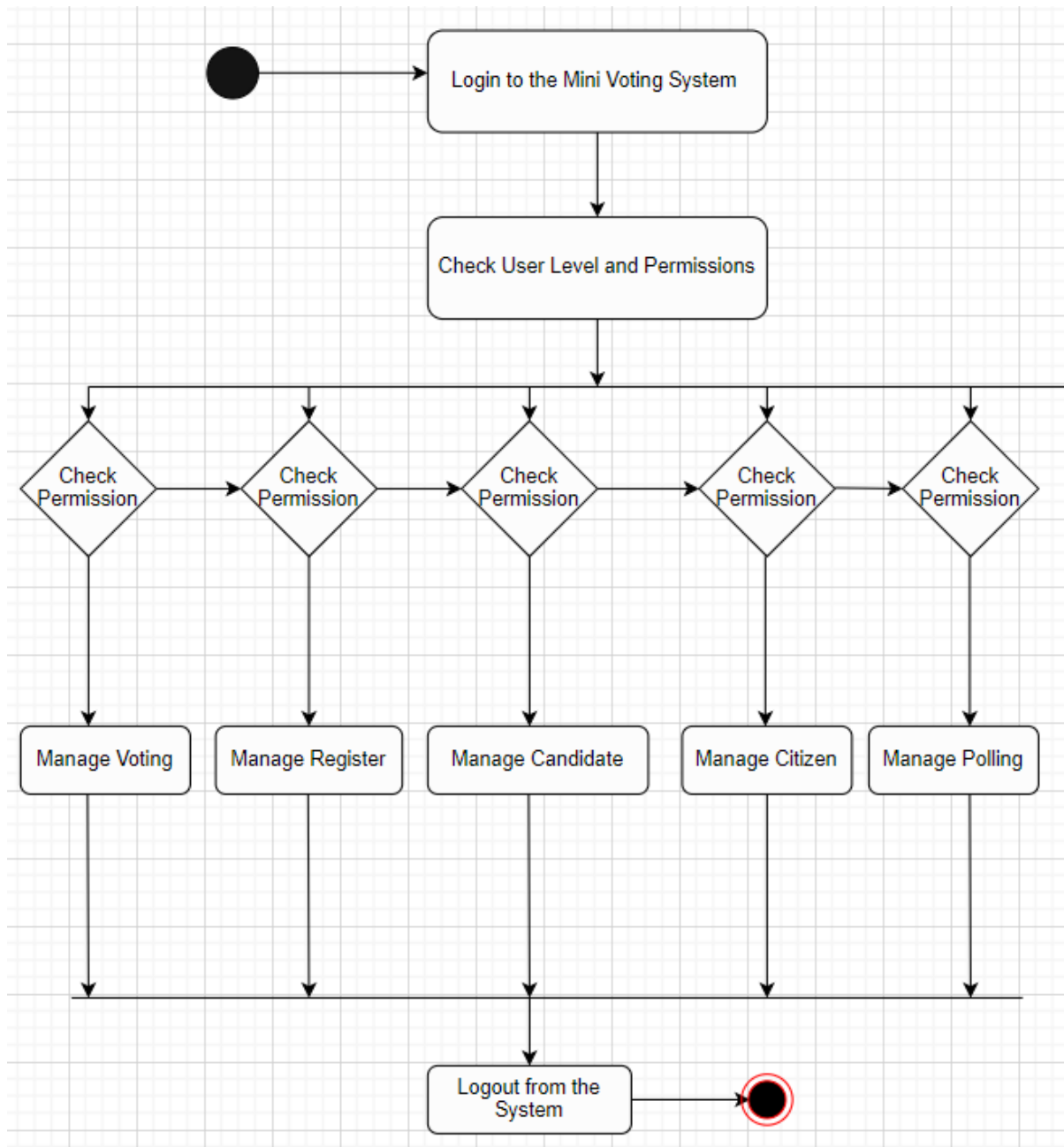# SRM IST, Kattankulathur – 603 203

Course Code: 18CSC265J

Course Name: Software Engineering

Experiment No	6
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	29/09/2022

SEQUENTIAL DIAGRAM FOR MINI VOTING SYSTEM

COLLABORATION DIAGRAM FOR MINI VOTING SYSTEM

RESULT:

The Sequential and Collaboration Diagrams for Mini Voting System have been Plotted**.**

Course Code: 18CSC265J
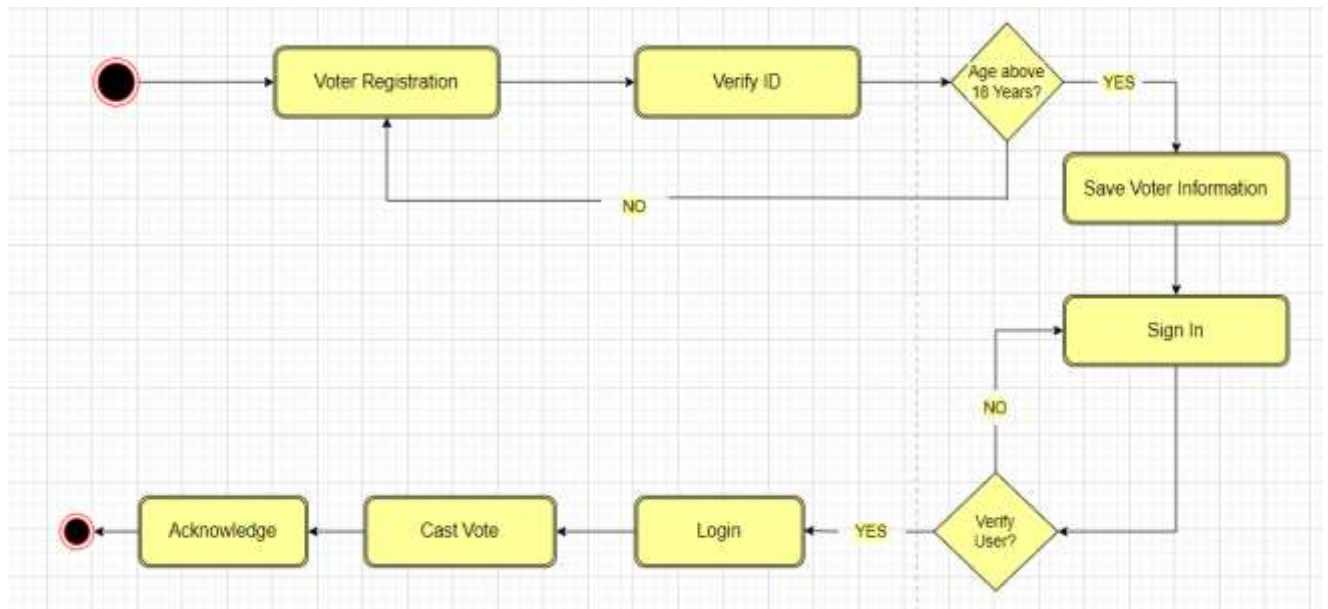
Course Name: Software Engineering

Experiment No	7
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	29/09/2022

STATE CHART DIAGRAM FOR MINI VOTING SYSTEM

USER CASE DIAGRAM FOR MINI VOTING SYSTEM

RESULT:

The State Chart and the User Case Diagrams for Mini Voting System have been

Plotted**.**

DEPT. Of Computer Science Engineering

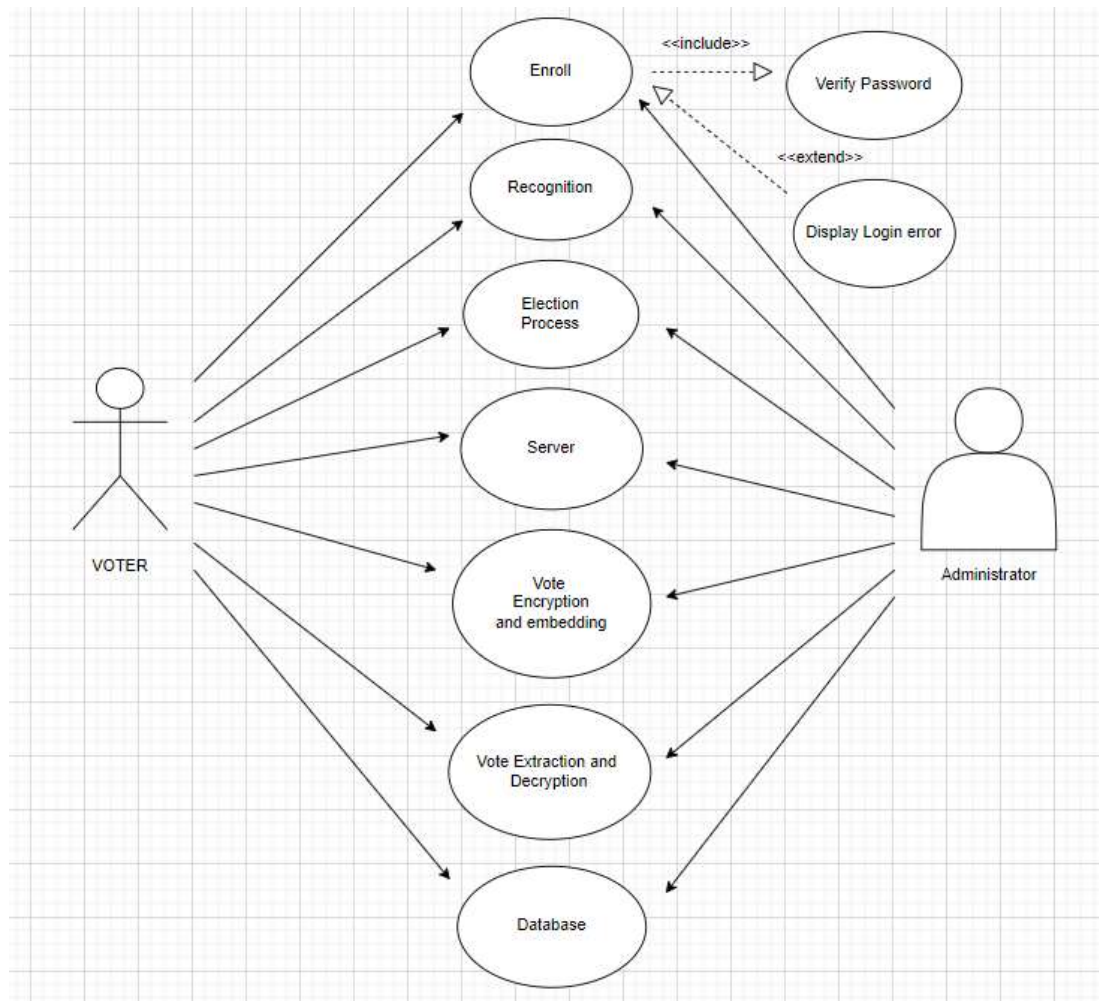# SRM IST, Kattankulathur – 603 203

Course Code: 18CSC265J

Course Name: Software Engineering

Experiment No	8
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	21/10/2022

Fast, Secured and Accessibile Voting System

Lets make voting nad elections easy fot you. this is designed to ensure a secure voting session

REGISTER AS VOTER

How it works

It is very easy to use with these 3 steps

1

Sign up
Create an acount on the platform to vote

2

VOTE
Vote for your preffered Candidate

3
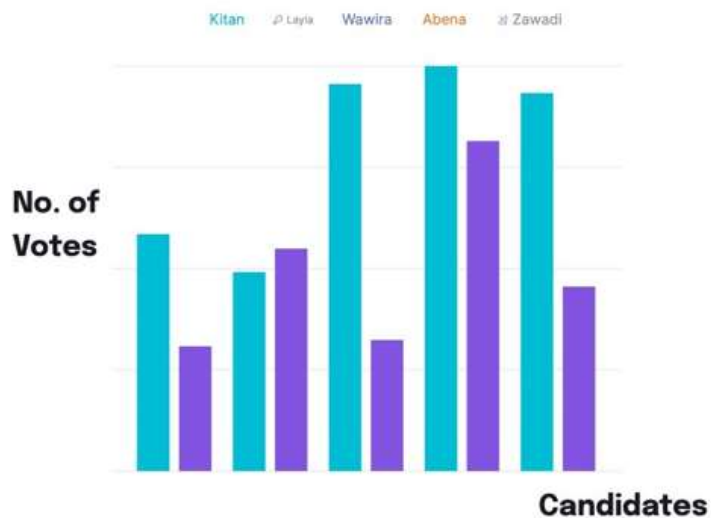
Election Results
View election result of different candidates

WELCOME BACK!

Welcome back to the women techsters University voting platform, Sign in to vote in your preffered candidate.

Student ID No.

Password

☐ Remember Password

Forgot Password?

Login

VIEW LIVE RESULT

View live results of the election instantly on our home page without logging in.
You can also check out the electoral candidate page via link below
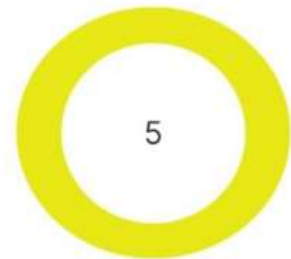
View Candidates Profile

Kitan   ♀ Layla   Wawira   Abena   ⌀ Zawadi

No. of Votes

Candidates

MONITOR THE VOTING PROCESS

Track the number of votes and voters with our real time counter

500

Number of
registers

480

Total number of
votes

5

Number of registered
candidates

Electoral Candidates

Meet the 2022 Electoral candidates, These five candidates have been verified by the electoral board

Donald Trump
Software developer

View details

Joe Walsh
Data science

View details

Elizabeth warren
Product manager

View details

Joe Biden
Cyber Security

View details

Bill weld
Product design

View details

THANK YOU

YOUR SUBMISSION HAS BEEN RECIEVED, WE WILL BE IN TOUCH AND CONNECT YOU SOON.

RESULT:

The User Interface Diagrams for Mini Voting System have been Plotted.

DEPT. Of Computer Science Engineering

SRM IST, Kattankulathur – 603 203

Course Code: 18CSC265J

Course Name: Software Engineering

Experiment No	9
Title of Experiment	MINI VOTING SYSTEM
Name of the candidate	SOURABH SHARMA
Team Members	DHAWAL SAHU DEEPAN MAJUMDAR
Register Number	RA2111042010007 RA2111042010015 RA2111042010002
Date of Experiment	04/11/2022

Created by: Sourabh Sharma, Dhawal Sahu, Deepan majumdar	Date of Creation: 04/11/2022

Module: Admin

Test Case:	Test Steps:	Expected Results:
1.	Verify the username and password for getting administrator authentication.	None
2.	Username- Valid, Password- Valid	Gives user authentication and shows the admin page.
3.	Username- Valid, Password- Invalid	Displays error message stating incorrect username or password.

Module: Vote

Test Steps:	Expected Results:
Edit/Add Vote	**Edit/Add Vote**
Voter casts online vote	Display the casted vote on the private server.
Enter vote >- select candidate >- vote casted >- yes, no	Display the casted vote on the private server.
Add candidate list/delete candidate list	The category will add/delete/change candidate list

Module: Election results		
Test Case:	**Test Steps:**	**Expected Results:**
1.	Number of votes per candidate.	Displays Bar graph of votes per candidate.
2.	Number of votes and voters with our real time counter	Representation of number of registers, total number of votes and registered candidates.
3.	Candidates rank and there details on the basis of votes they get.	Displays candidates Name, photo and designation according to the rank or vote they get.

RESULT: The Test case module for Mini Voting System have been plotted.