

Electronic Voting System

Introduction

XYZ Automations Ltd focuses on automating various systems that have been working manually since years.

XYZ Automations Ltd has recently planned to develop “Electronic Voting System” - application to automate the process of planning and managing the voting system, as well as the actual voting activity.

Scope and Overview

The scope of the Electronic Voting System (EVS) will be to provide the functionality as described in Functional Requirements below. The system will be developed on a Unix environment using CPP Programming, File IO, Data Structures, Templates, STL etc.

Functional Requirements

The users of the Electronic Voting System are:

1. Administrator – Adds/Edits/Deletes/View election details and candidate details.
2. Electoral officer – Generates voter_id
3. User (voter) – Cast vote and View election results.

Administrator

- ✓ The admin should be able to add election details
- ✓ The admin should be able to add party details
- ✓ The admin should be able to add candidate details
- ✓ The admin should be able to view voters" requests for voter_id and send approval to electoral officer
- ✓ The admin should be able to view election details
- ✓ The admin should be able to view party details
- ✓ The admin should be able to view candidate details
- ✓ The admin should be able to view election results

Electoral Officer

- ✓ The electoral officer should be able to view voters requests from admin
- ✓ The electoral officer should be able to generate voter_id for users (voters)

Voter

- ✓ The user should be able to register to the EVS to get user_id
- ✓ The user should be able to request for voter-id to admin using his unique user-id
- ✓ The user should be able to view his voter-id generated by electoral officer
- ✓ The user should be able to view election schedules
- ✓ The user should be able to cast the vote by using his/her voter_id
- ✓ The user should be able to view election results

Detailed Specifications

Administrator

The Administrative User should be able to do the following operations once he has logged in with his unique user id and password.

- Add Election Details
- Add Party Details
- Add Candidate Details
- View Voter's request for voter_id
- View Election Details
- View Party Details.
- View Candidate Details
- View Election Results

Add Election Details:

As part of this operation, the admin should have the ability to add election details into the system and get confirmation on successful entry.

Election Details include:

- Name
- ElectionDate
- Voting Time (8.00 am to 5.00 pm)
- District
- Constituency

Add Party Details:

As part of this operation, the admin should have the ability to add Party details into the system and get confirmation on successful entry.

Party Details include:

- Party Name
- Party Leader
- Party Symbol

Add Candidate Details: As part of this operation, the admin should have the ability to add Candidate details into the system and get confirmation on successful entry.

Candidate Details include:

- ✓ Candidate ID
- ✓ Candidate Name

- ✓ DOB
- ✓ Election Name
- ✓ Party Name
- ✓ District
- ✓ Constituency
- ✓ Address
- ✓ Phone No
- ✓ Email Id

Please note that the candidate ID should be auto generated.

View Voter"s request for voterId:

As part of this operation, after admin logins, he should be able to see all requests for voter ids".

View Election Details:

As part of this operation, the admin should be able to view election details.

View Party Details:

As part of this operation, the admin should be able to view party details.

View Candidate Details:

As part of this operation, the admin should be able to view candidate details.

View Election Results:

As part of this operation, the admin should be able to view election results.

Quit Session:

As part of this operation, admin should have the ability to quit the session completely.

Electoral Officer

The Electoral Officer should be able to do the following operations once he has logged in with his unique UserID and password.

- View voter Id request.
- Generate voter Id"s

View voter Id request: As part of this operation, after electoral officer logins, he should be able to see all voter"s requests got from admin.

Generate Voter ID: As part of this operation, the Electoral Officer should have the ability to view the list of voters in his respective constituency with the following details:

- UserID
- Voter ID
- First Name
- Last Name
- DOB
- Age
- Gender
- Password

- Address
- Phone No
- Constituency

and an option to either “Accept ” or “Reject” for each user.

On **accept**, the voter-Id gets auto generated and stored in the respective voter’s details file.

Follow the below procedure to generate the Voter ID.

Step 1: Extract and concatenate the first character from both the First name and last name.

Step 2: To the string generated in Step 1, add the first character of Day of the passed date of birth.

Step 3: To the string generated in Step 2, add number of characters of the first name and number of characters in last name.

Step 4: To the string generated till Step 3, add the Sum of digits in month part, day path and year part separately. Return the resultant string from this method. [Example. If the first name is “John”, second name is “Smith”, Date of birth is “06/21/1999”. Total number of characters in first name is 4 [John: 4] and last name is 5 [Smith: 5], the Month is 06, so sum of digits is 6 [0+6=6], Sum of digits in Day is 3 [2+1=3] and year part is 28 [1+9+9+9=28] then the Voter ID will be: “**JSM456328**”.

Quit Session

As part of this operation, the Electoral Officer should have the ability to quit the session completely, with all the sessions inactivated.

User Module

The Voter should be able to do the following operations.

- User Registration
- Request for voter ID
- View voter ID.
- View Election Schedules
- Cast Vote
- View Election Results.

User Registration:

As part of this operation, an unregistered user should be able to register into the system with the following details.

Registration details include (all mandatory):

- User ID
- First Name
- Last Name
- DOB
- Age
- Gender
- Password
- Address
- Phone No
- District
- Constituency
- Password

When the registration is complete, a unique User ID (numeric) will be auto generated and displayed to the user.

Request for Voter Id: As part of this operation, a registered user can request to admin for voter Id.

View Voter Id: Displays voter id if already generated.

View Election schedule: As part of this operation, the user (voter) should be able to view election schedules.

Cast Vote: To cast a vote, the user should have already received a valid voter id.

The user (voter) should have the ability to cast their vote for an election declared on a date, to one of the contesting parties in their constituency.

NOTE: Once when a vote has already been casted by a user for an election date, he should be blocked from casting the vote on the same election date.

View Election Results: As part of this operation, the user (voter) should have the ability to view the election results, with the following details by picking an ElectionDate or ConstituencyName from the respective lists.

- ElectionDate
- CountingDate
- ConstituencyName (when searched by "ConstituencyName") / NoOfConstituencies (when searched by "ElectionDate")
- NoOfCandidates
- CandidateName
- PartyName
- NoOfVotes

NOTE: 1. The ElectionDate list should have max 10 (recent) election dates for which, counting has already being done.

2. The election results should be displayed in a sorted order (descending) based on NoOfVotes

Quit Session: As part of this operation, the user (voter) should have the ability to quit the session completely.

Data Organization

User Information

Field Name	Data Type	Description
<i>UserID</i>	CHAR*	It will be a numeric value sequentially generated by the system and need not be passed from the client. It will be added by the system whenever a new user gets registered.
<i>VoterID</i>	Int	Auto generated and added to the system as soon as an Electoral Officer accepts the credentials entered by the user/or null
<i>Password</i>	CHAR*	Encrypted Password
<i>First Name</i>	Char*	First Name of user
<i>Last Name</i>	Char*	Last Name of user
<i>DOB</i>	Char*	DOB of user
<i>Age</i>	Int	Age of user

<i>Gender</i>	Char*	Gender of user
<i>Address</i>	Char*	Address of user
<i>PhoneNo</i>	Char*	Phone No of user
<i>Constituency</i>	Char*	Constituency the user belongs to
<i>District</i>	Char*	District the user belongs to

Credentials

Field Name	Data Type	Description
<i>UserType</i>	Char	A-Administrator E-Electoral Officer
<i>UserID</i>	Char*	User Identification
<i>Password</i>	Char*	Password

Election Information

Field Name	Data Type	Description
<i>ElectionName</i>	Char*	The unique election should be given from the end user
<i>ElectionDate</i>	Char*	Date of Election
<i>VotingTime</i>	Char*	Start and End time of voting .Ex: (8.00 am to 5.00 pm)

Please note that the application should validate the inputs with all the possible validations. Pls. discuss with your mentor for any queries.