



ELECTION MANAGEMENT SYSTEM

REPORT & USERMANUAL

CSC583 -ENTERPRISE PROGRAMMING

GROUP

CDCS2302A

PREPARED FOR

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1.0 Introduction

1.1 Project Background

The Online Student Election Management System is a web-based platform developed to transform the traditional student election process into a modern digital voting experience. This system provides a centralized solution for managing student elections, ensuring a secure, transparent, and efficient process for both students and administrators. By moving to a digital platform, the system allows for real-time access to information and immediate result generation once the voting period concludes.

The project scope is the system is built using the **MVC (Model-View-Controller)** architecture, and it utilizes **Java Servlets, JSPs, and JavaBeans**. It manages two main user roles: Administrators, responsible for election setup, candidate management, and voter eligibility, and Students, responsible for viewing profiles, reading candidate manifestos, and securely casting their votes.

1.2 Objectives

- To provide a secure and transparent platform that prevents duplicate voting and ensures data integrity.
- To automate the student registration and voting process to reduce manual workload.

1.3 Problem Statement

Inefficiency: Manual registration and paper-based voting consume more time for both administrators and students.

Human Error: Manual counting of physical ballots is highly susceptible to errors, which can lead to disputes regarding the election results.

Lack of Transparency: Students often lack a centralized way to view candidate profiles and manifestos, leading to uninformed voting.

Delayed Results: The time required to collect and count physical votes manually results in a significant delay between the end of voting and the announcement of winners.

2.0 Database Design

2.1 Entity Relationship Diagram

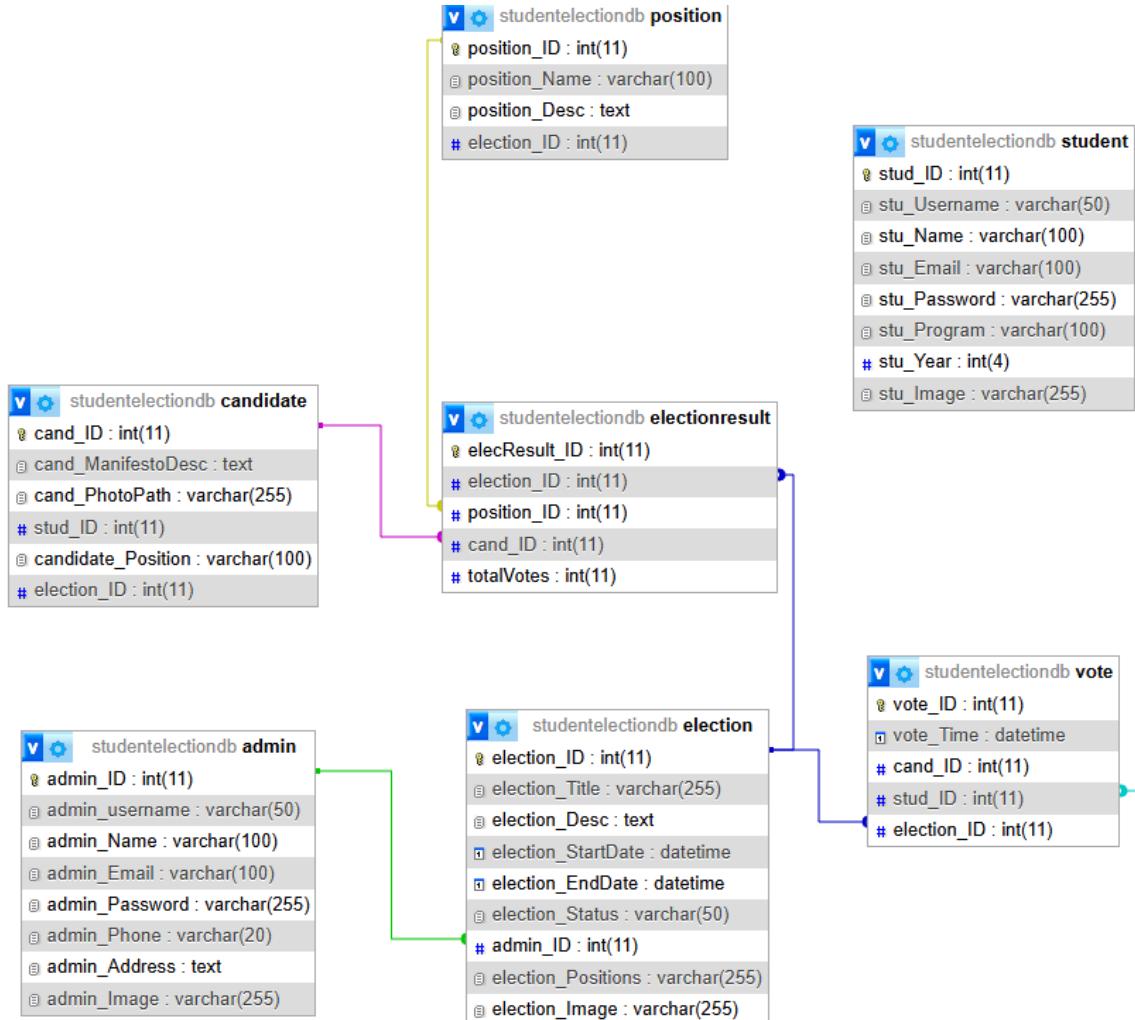


Figure 1.1 Entity Relationship Diagram (ERD)

Based on Figure 1.1, the **Online Student Election Management System** ERD has 7 tables: position, student, candidate, electionresult, admin, election, and vote. At the core of the system's management, an **Admin** can create and oversee **multiple Elections (1:M)**, while each **Election** event is subdivided into **various Positions (1:M)**, such as President or Secretary.

Within these events, a **Student** may register as a **Candidate**, creating a unique link where **one student record corresponds to exactly one campaign profile (1:1)** for a specific position and election. To prevent duplicate voting, the system utilizes a **Vote** table that records a student's unique choice, linking **one Student (1:M)** to their **recorded Votes** across different elections, though they are restricted to one vote per election. Finally, the **ElectionResult** table serves the reporting module by aggregating the **total votes (1:M)** from the transaction logs, providing a structured summary of results for every candidate within their respective positions.

1:M (One-to-Many): Admin to Election

1:M (One-to-Many): Election to Position

1:1 (One-to-One): Student to Candidate

1:M (One-to-Many): Student to Vote

1:M (One-to-Many): Candidate to ElectionResult

2.2 Data Dictionary

Table: admin

Column Name	Data Type	Key	Description
admin_ID	int(11)	PK	Unique identifier for each administrator.
admin_username	varchar(50)	-	Username used for admin login.
admin_Name	varchar(100)	-	Full name of the administrator.
admin_Email	varchar(100)	-	Contact email for the administrator.
admin_Password	varchar(255)	-	Encrypted password for secure access.
admin_Phone	varchar(20)	-	Contact phone number.
admin_Address	text	-	Physical or mailing

			address.
admin_Image	varchar(255)	-	File path or URL to the admin's profile photo.

Table: election

Column Name	Data Type	Key	Description
election_ID	int(11)	PK	Unique identifier for the election.
election_Title	varchar(255)	-	Name of the election (e.g., "Student Council 2024").
election_Desc	text	-	Detailed description of the election's purpose.
election_StartDate	datetime	-	Official date and time the voting begins.
election_EndDate	datetime	-	Official date and time the voting ends.
election_Status	varchar(50)	-	Status of the election (e.g., Active, Upcoming, Closed).
admin_ID	int(11)	FK	References the admin who created the election.
election_Postions	varchar(255)	-	Summary of positions involved in this election.
election_Image	varchar(255)	-	Promotional image or banner for the election.

Table: position

Column Name	Data Type	Key	Description
position_ID	int(11)	PK	Unique identifier for the position.
position_Name	varchar(100)	-	Name of the position (e.g., President, Secretary).
position_Desc	text	-	Responsibilities or requirements for the role.
election_ID	int(11)	FK	Links the position to a specific election.

Table: student

Column Name	Data Type	Key	Description
stud_ID	int(11)	PK	Unique student identification number.
stud_Username	varchar(50)	-	Login username for the student.
stud_Name	varchar(100)	-	Full name of the student.
stud_Email	varchar(100)	-	Student's institutional email address.
stud_Password	varchar(255)	-	Password for student portal access.
stud_Program	varchar(100)	-	Academic program/course of study.
stud_Year	int(4)	-	Current year of study (e.g., 1, 2, 3, 4).

stud_Image	varchar(255)	-	File path for the student's ID photo.
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Table: candidate

Column Name	Data Type	Key	Description
cand_ID	int(11)	PK	Unique identifier for the candidate entry.
cand_ManifestoDesc	text	-	The candidate's campaign promises and goals.
cand_PhotoPath	varchar(255)	-	Path to the candidate's campaign photo.
stud_ID	int(11)	FK	Links to the student table to identify the person.
candidatate_Postion	varchar(100)	-	Title of the position the candidate is seeking.
election_ID	int(11)	FK	Links the candidacy to a specific election event.

Table: vote

Column Name	Data Type	Key	Description
vote_ID	int(11)	PK	Unique ID for the specific vote record.
vote_Time	datetime	-	Timestamp of when the vote was cast.
cand_ID	int(11)	FK	The candidate who received the vote.

stud_ID	int(11)	FK	The student who cast the vote.
election_ID	int(11)	FK	The election in which the vote was cast.

Table: electionresult

Column Name	Data Type	Key	Description
elecResult_ID	int(11)	PK	Unique identifier for the result record.
election_ID	int(11)	FK	The election these results belong to.
position_ID	int(11)	FK	The specific position for these results.
cand_ID	int(11)	FK	The candidate associated with this tally.
totalVotes	int(11)	-	Total number of votes received by the candidate.

3.0 System Design & Storyboard

3.1 MVC Architecture

The Online Student Election Management System is developed using the **Model-View-Controller (MVC)** architecture. This separates the system into three components to handle data, the user interface, and the application logic.

3.1.1 Model (JavaBean)

The Model represents the data and the business rules of the application. In this project, **JavaBeans** are used as data containers to hold information such as candidate details and election status as it moves between the database and the interface.

(a) Package: com.mvc.bean

(b) Key Files: CandidateBean.java, ElectionBean.java, LoginBean.java, and PositionBean.java.

(c) Description: These classes contain private attributes and public getter/setter methods to ensure secure data encapsulation.

3.1.2 View (JSP)

The View is the presentation layer that the user interacts with. We use JavaServer Pages (JSP) to generate dynamic HTML content based on the data provided by the Model.

(a) Location: Web Pages folder

(b) Key Files

Admin Side: adminDashboard.jsp, adminElection.jsp, adminResult.jsp.

Student Side: studentDashboard.jsp, studentVote.jsp, studentResult.jsp.

(c) Description: These files provide the user interface for both administrators and students to perform tasks like managing elections or casting votes.

3.1.3 Controller (Servlet)

The Controller acts as the "brain" of the system, managing the communication between the View and the Model.

(a) Package: com.mvc.controller

(b) Key Files: AdminElectionCreateServlet.java, LoginServlet.java, SubmitVoteServlet.java, and LogoutServlet.java.

(c) Description: Servlets receive requests from JSPs, process the logic (such as validating login credentials or saving a vote), and then redirect the user to the appropriate page.

3.2 System Flow Diagram

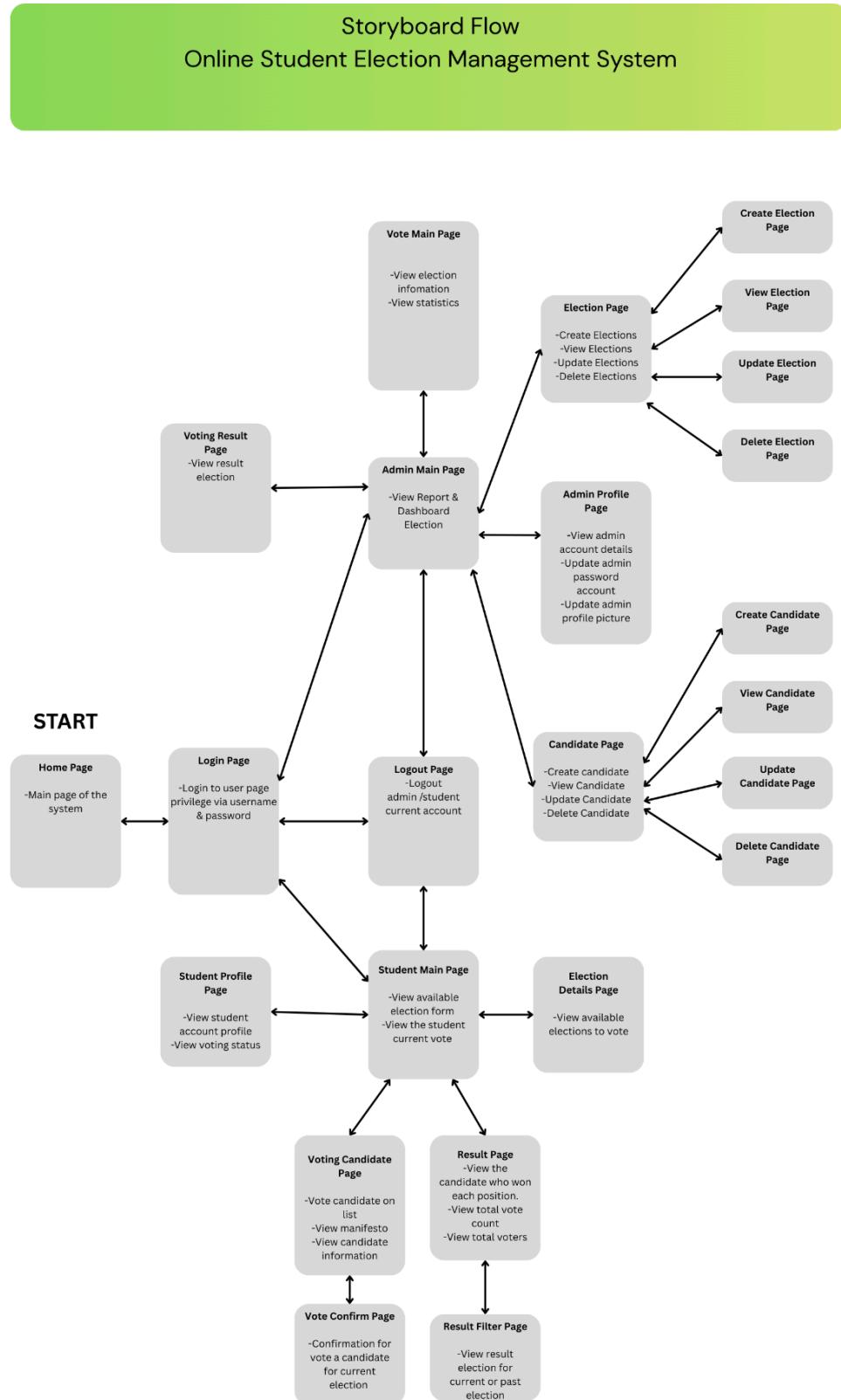
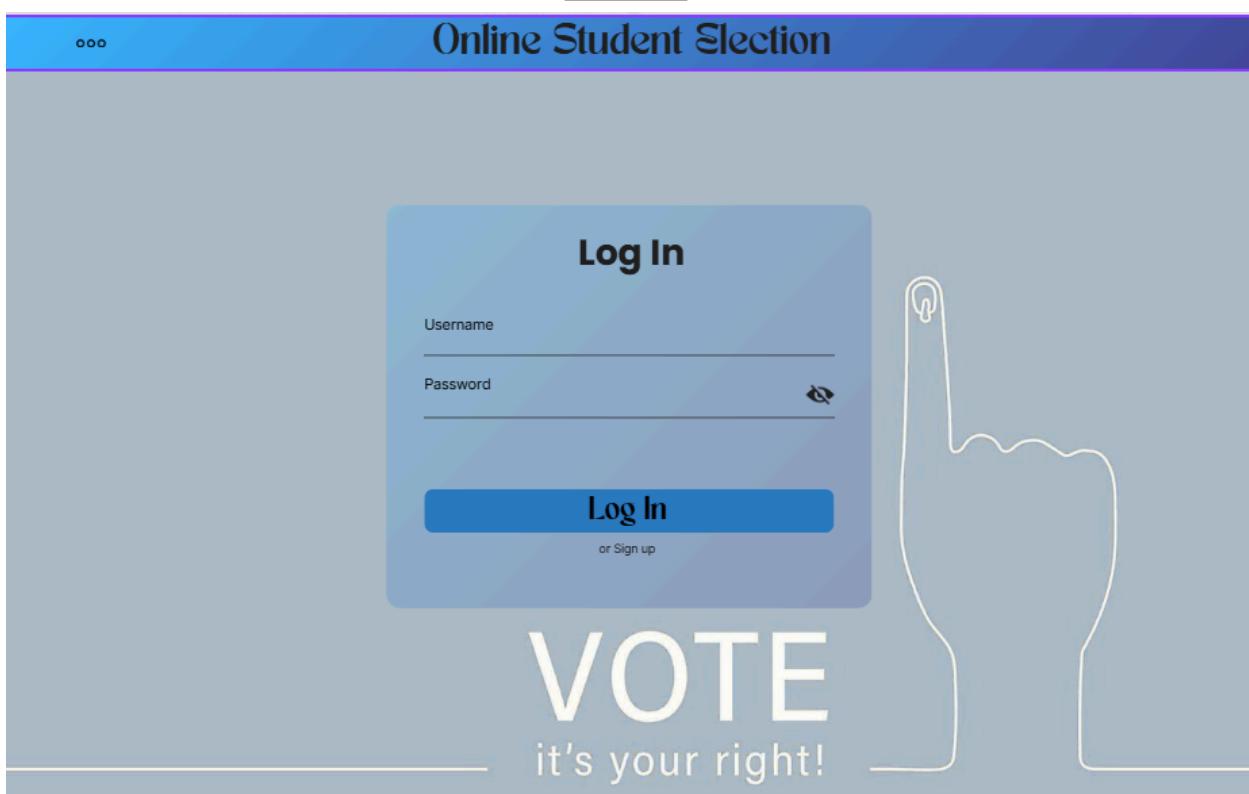


Figure 3.2 System Flow

3.3 Interface Storyboard



Login page for Admin



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [Voting Page](#)
- [Voting Results](#)
- [My Profile](#)
- [Sign Out](#)
- [Help](#)

Dashboard

Welcome, username!

Logo

Total Voters
1452

Total Candidates
12

Active Elections
1

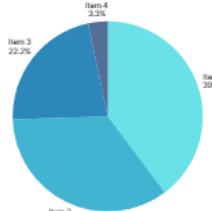
Your Profile

Vote Statistics



Bar chart showing vote distribution across 5 items.

Item	Votes
Item 1	5
Item 2	8
Item 3	15
Item 4	20
Item 5	12



Pie chart showing the percentage distribution of votes for 5 items.

Item	Percentage
Item 1	3.3%
Item 2	34.8%
Item 3	22.2%
Item 4	3.3%
Item 5	33.3%

[Manage Elections](#)
[Manage Candidates](#)
[Voting Page](#)
[Voting Results](#)

Admin's dashboard



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [Voting Page](#)
- [Voting Results](#)
- [My Profile](#)
- [Sign Out](#)
- [Help](#)

Manage Election

Logo

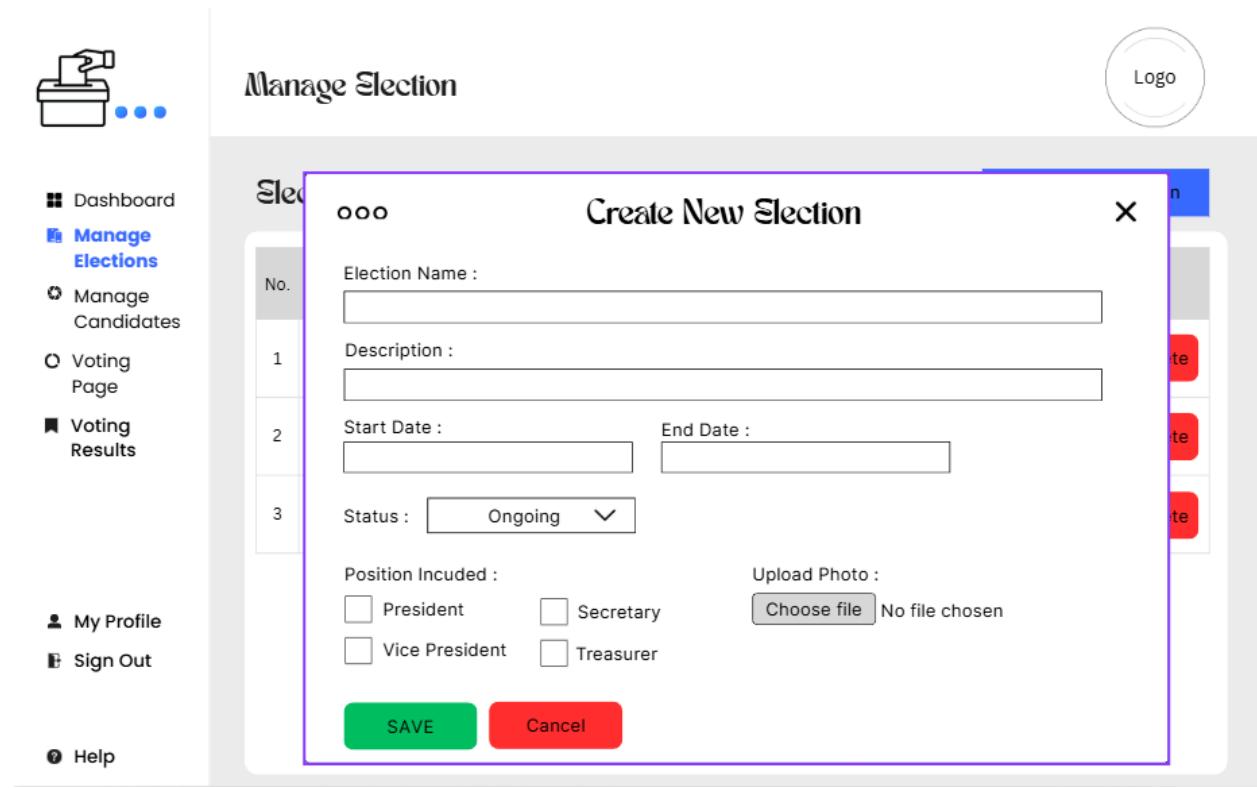
Elections List

create new election

No.	Image	Election Name	Start Date	End Date	Status	Actions
1		Student Rep Election 2025	DD/MM/YY	DD/MM/YY	Ongoing	View Delete
2		ICT Club Leadership 2025	DD/MM/YY	DD/MM/YY	Ended	View Delete
3		Hostel Seri Mulu Block 2 Election	DD/MM/YY	DD/MM/YY	Upcoming	View Delete

<< < 1 2 > >>

Manage Election page for Admin



The screenshot shows the 'Manage Election' page for an administrator. On the left, there is a sidebar with navigation links: Dashboard, Manage Elections (which is selected and highlighted in blue), Manage Candidates, Voting Page, Voting Results, My Profile, Sign Out, and Help. The main content area is titled 'Manage Election'. A modal window titled 'Create New Election' is open in the center. The modal contains fields for 'Election Name' (with a placeholder 'ooo'), 'Description' (empty), 'Start Date' (placeholder '1'), 'End Date' (placeholder '2'), 'Status' (set to 'Ongoing'), 'Position Included' (checkboxes for President, Secretary, Vice President, and Treasurer, all unselected), and an 'Upload Photo' section with a 'Choose file' button and a message 'No file chosen'. At the bottom of the modal are 'SAVE' and 'Cancel' buttons.

“Create New Election” tab when Admin presses “Create New Election” button to create a new election.



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [Voting Page](#)
- [Voting Results](#)
- [My Profile](#)
- [Sign Out](#)
- [Help](#)

View Election

Logo


Election Details

Election Name : Title of the election
Description : Description of the election
Start Date : DD/MM/YY
End Date : DD/MM/YY
Status : Ongoing



Image/poster

Position Included

1 President	(3 candidates)
2 Vice President	(2 Candidates)
3 Secretary	(2 Candidates)
4 Treasurer	(1 Candidate)

Voter Statistics

Total Registered Voters : 1450

“View Election” tab when Admin presses the view button on one of the elections in the list.



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [Voting Page](#)
- [Voting Results](#)
- [My Profile](#)
- [Sign Out](#)
- [Help](#)

Manage Candidates

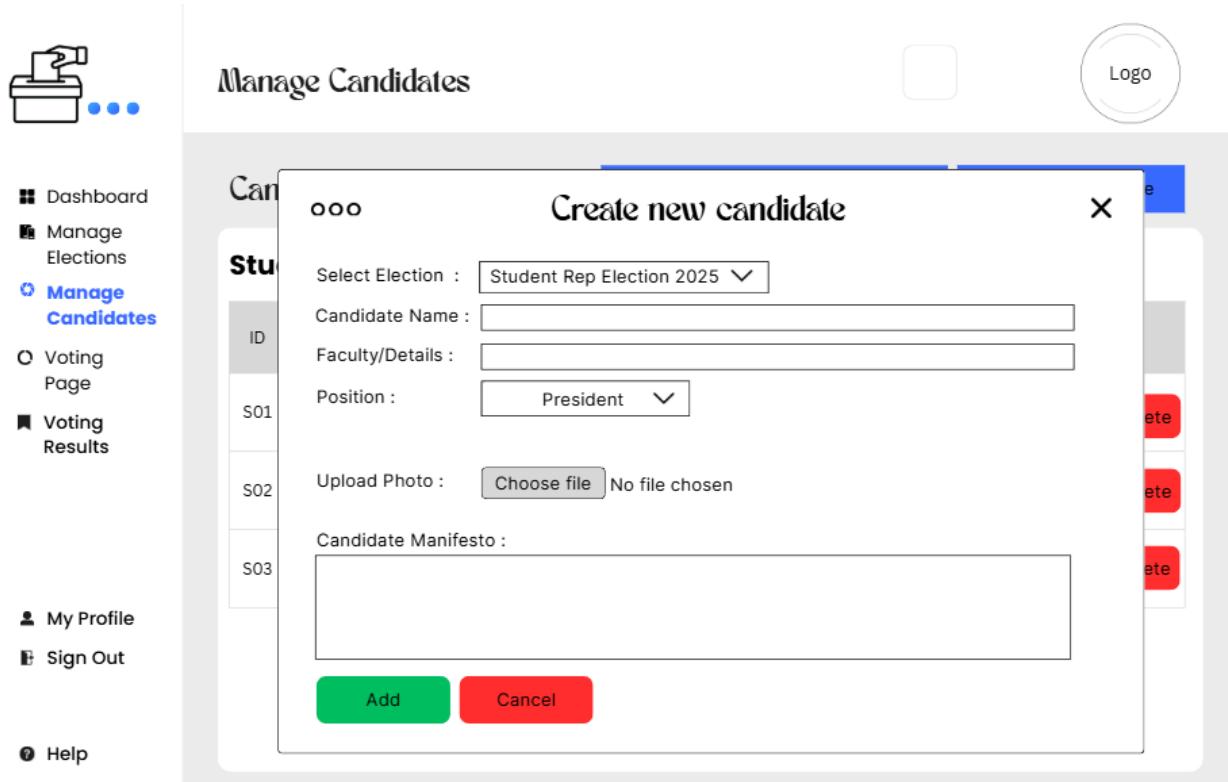
Student Rep Election 2025
Add new candidate

Student Rep Election 2025

ID	Photo	Name	Faculty	Position	Manifesto	Actions
S01		Ali bin Ahmad	Computer Science	President	"I will improve stud...	<button>Edit</button> <button>Delete</button>
S02		Siti Aminah	Science	Secretary	"My goal is to creat...	<button>Edit</button> <button>Delete</button>
S03		John Lee	Office Management	Treasurer	"I aim to improve tr...	<button>Edit</button> <button>Delete</button>

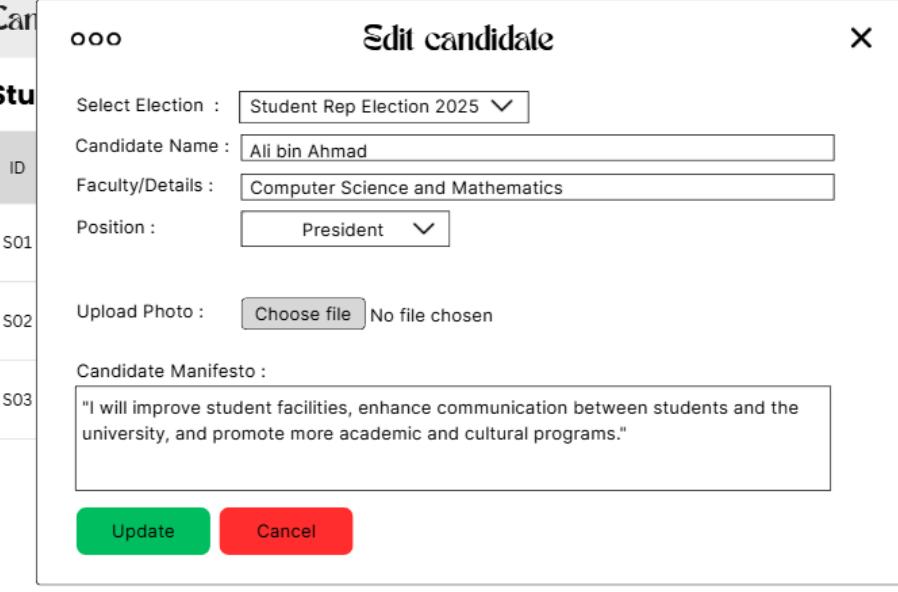
<< < 1 2 >>

Manage candidates page for Admin



The screenshot shows the 'Manage Candidates' page for an administrator. On the left, there is a sidebar with icons and menu options: Dashboard, Manage Elections, **Manage Candidates** (which is currently selected), Voting Page, Voting Results, My Profile, Sign Out, and Help. The main area displays a table of candidate entries with columns for ID (S01, S02, S03) and Faculty/Details. A modal window titled 'Create new candidate' is open in the center. It contains fields for 'Select Election' (set to 'Student Rep Election 2025'), 'Candidate Name' (empty), 'Faculty/Details' (empty), 'Position' (set to 'President'), 'Upload Photo' (button labeled 'Choose file' with 'No file chosen'), 'Candidate Manifesto' (empty text area), and two buttons at the bottom: 'Add' (green) and 'Cancel' (red).

“Create new Candidate” tab when the admin presses the “Add new candidate” button.



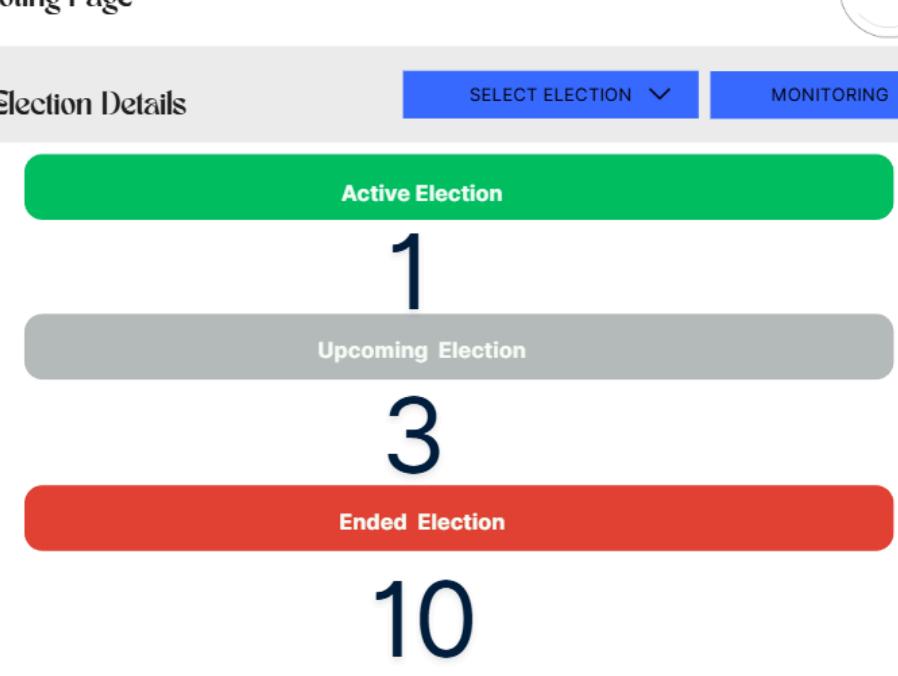
The screenshot shows a modal window titled "Edit candidate" over a "Manage Candidates" page. The modal contains fields for "Select Election" (Student Rep Election 2025), "Candidate Name" (Ali bin Ahmad), "Faculty/Details" (Computer Science and Mathematics), and "Position" (President). It also includes an "Upload Photo" section with a "Choose file" button and a placeholder "No file chosen". The "Candidate Manifesto" field contains the text: "I will improve student facilities, enhance communication between students and the university, and promote more academic and cultural programs." At the bottom are "Update" and "Cancel" buttons.

Manage Candidates

- Dashboard
- Manage Elections
- Manage Candidates**
- Voting Page
- Voting Results

- My Profile
- Sign Out
- Help

“Edit Candidate” tab when Admin presses the edit button on one of the candidates in the list.



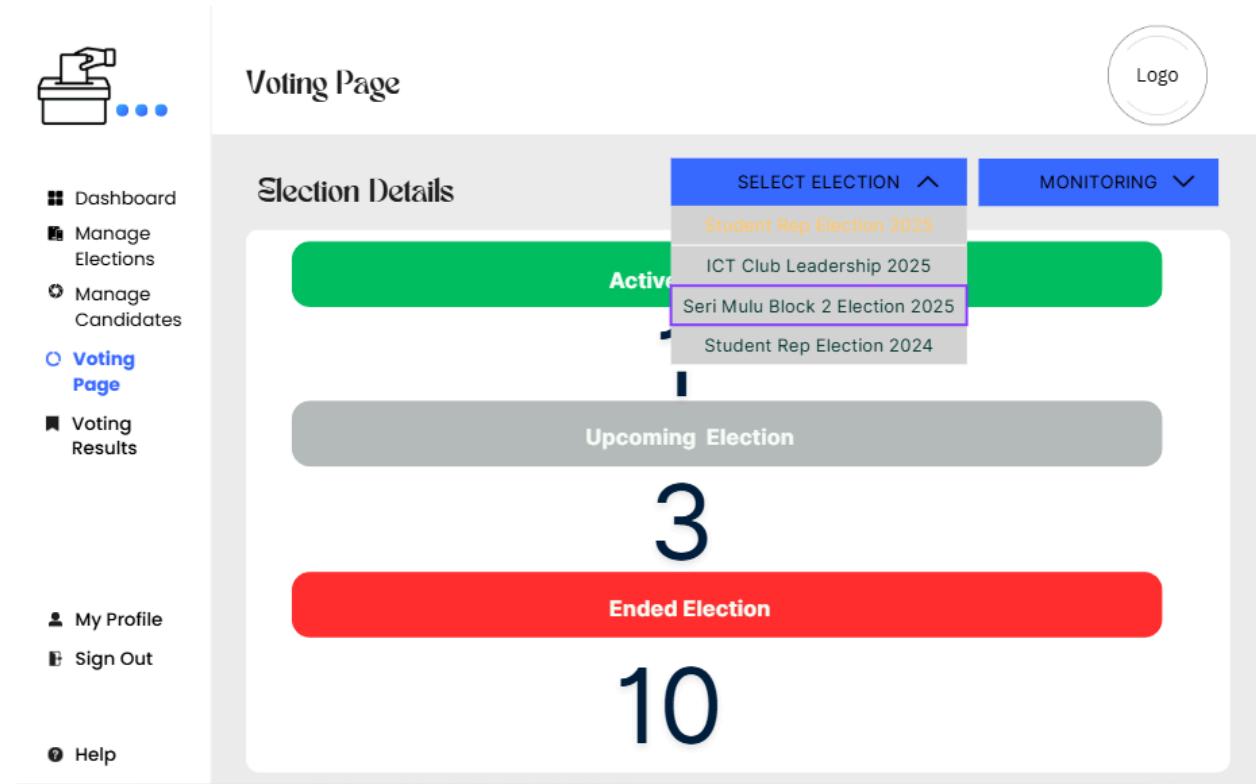
The screenshot shows a dashboard titled "Voting Page" with a "Logo" icon. It features a "Selection Details" section with "SELECT ELECTION" and "MONITORING" dropdowns. Below is a summary of election counts: "Active Election" (1), "Upcoming Election" (3), and "Ended Election" (10).

Voting Page

- Dashboard
- Manage Elections
- Manage Candidates
- Voting Page**
- Voting Results

- My Profile
- Sign Out
- Help

Voting page where Admin views election details.



The screenshot shows a web-based voting application interface. On the left, there is a sidebar with a navigation menu:

- Dashboard
- Manage Elections
- Manage Candidates
- Voting Page** (highlighted in blue)
- Voting Results
- My Profile
- Sign Out
- Help

The main content area is titled "Voting Page". It features a "Logo" placeholder at the top right. Below the title, there is a section titled "Election Details" with a "SELECT ELECTION" dropdown menu open. The dropdown contains the following options:

- Student Rep Election 2025
- ICT Club Leadership 2025
- Seri Mulu Block 2 Election 2025** (highlighted with a purple border)
- Student Rep Election 2024

Below the dropdown, there are two sections: "Upcoming Election" (containing the number 3) and "Ended Election" (containing the number 10).

Dropdown menu “SELECT ELECTION” where Admin picks which election to view.



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [**Voting Page**](#)
- [Voting Results](#)

- [My Profile](#)
- [Sign Out](#)

- [Help](#)

Voting Page

Logo
Student Rep Election 2025 ▾
MONITORING ▾

Election Details

Election Information

Election Name: Title of the election
Description: Description of the election
Start Date: 01/01/1999
End Date: 05/01/1999
Status: Ongoing / Close / Not started
Position Included: President, Secretary, Treasurer



Image/poster

Data Monitoring
Please select monitoring dropdown to show data!

Admin views election details after selecting the elections from the dropdown menu above.



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [**Voting Page**](#)
- [Voting Results](#)

- [My Profile](#)
- [Sign Out](#)

- [Help](#)

Voting Page

Logo
Student Rep Election 2025 ▾
MONITORING ▾

Election Details

Election Information

Election Name: Title of the election
Description: Description of the election
Start Date: 01/01/1999
End Date: 05/01/1999
Status: Ongoing / Close / Not started
Position Included: President, Secretary, Treasurer



Image/poster

Data Monitoring
Please select monitoring dropdown to show data!

Live Voting

Voting Statistics

Dropdown “MONITORING” where Admin can view the voting statistics and live voting.



- [Dashboard](#)
- [Manage Elections](#)
- [Manage Candidates](#)
- [**Voting Page**](#)
- [Voting Results](#)
- [My Profile](#)
- [Sign Out](#)
- [Help](#)

Voting Page



Election Details
Student Rep Election 2025
Live Voting

Election Information

Election Name: Title of the election

Description: Description of the election

Start Date: 01/01/1999

End Date: 05/01/1999

Status	President	started
	Secretary	
	Treasurer	



Image/poster

Position
^
LIVE VOTING ONGOING!
TIMELEFT: 24:59:59

No.	Candidate	Total Vote	Total Vote Percentage
1	Candidate 1	67	23%
2	Candidate 2	67	23%
3	Candidate 3	98	45%

“Live Voting” page where Admin can view the live vote percentage and Admin also can pick the positions from the dropdown menu in the “Live Voting” table.



Voting Page



Election Details

Student Rep Election 2025 ▾ Voting Statistics ▾

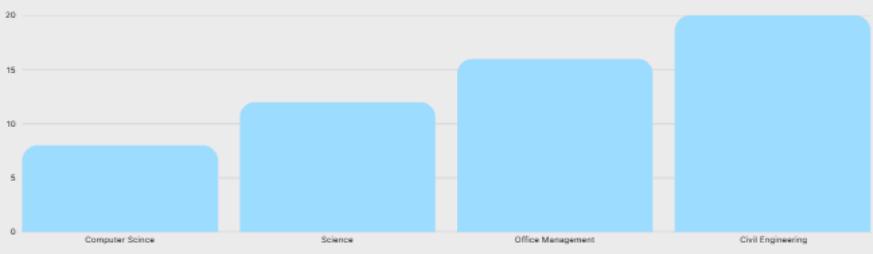
Election Information

Election Name: Title of the election
Description: Description of the election
Start Date: 01/01/1999
End Date: 02/01/1999
Status: Ongoing / Close / Not started

Image/poster



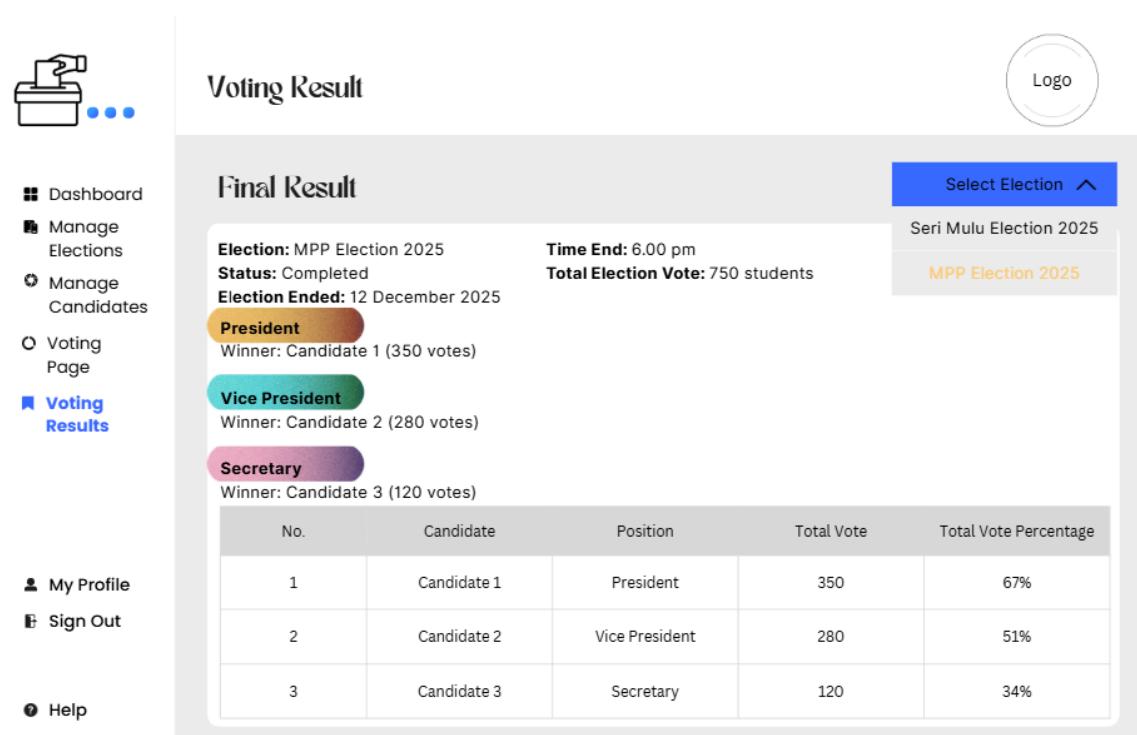
Vote Based Faculty



Faculty	Votes
Computer Science	~8
Science	~12
Office Management	~15
Civil Engineering	~18

My Profile
Sign Out
Help

“Voting Statistics” page where Admin can view the voting statistics of the election selected from the “SELECT ELECTION” dropdown menu.



Voting Result

Final Result

Select Election ▾
Seri Mulu Election 2025
MPP Election 2025

Election: MPP Election 2025 **Time End:** 6.00 pm
Status: Completed **Total Election Vote:** 750 students
Election Ended: 12 December 2025

President
Winner: Candidate 1 (350 votes)

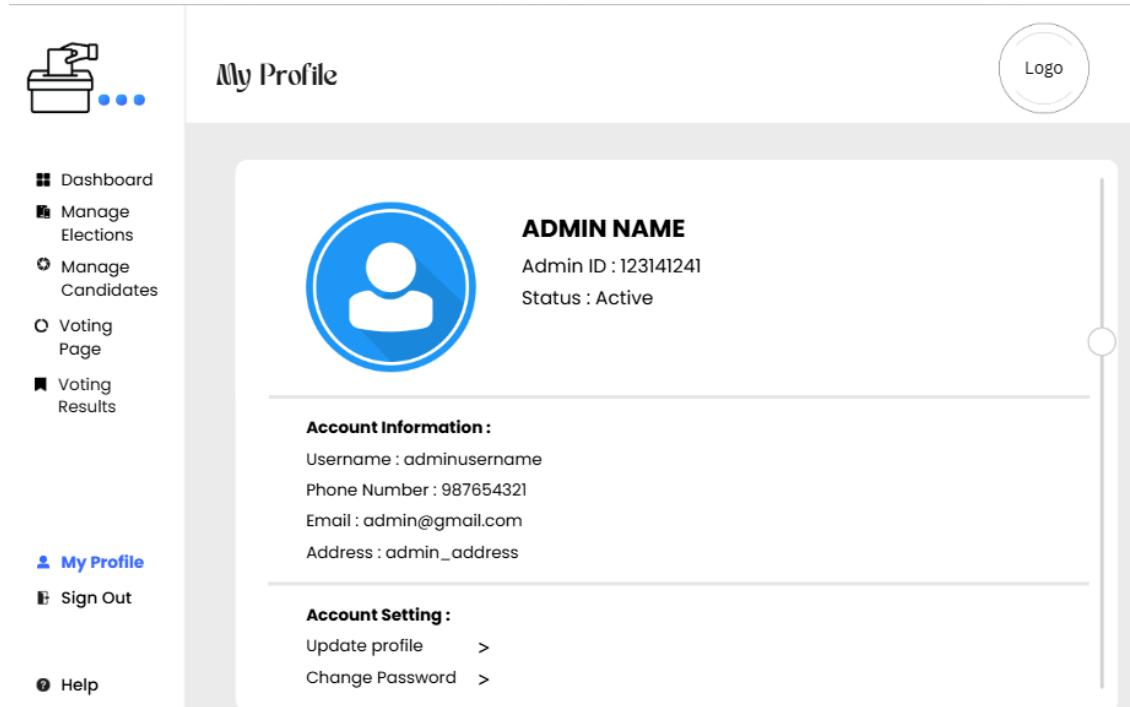
Vice President
Winner: Candidate 2 (280 votes)

Secretary
Winner: Candidate 3 (120 votes)

No.	Candidate	Position	Total Vote	Total Vote Percentage
1	Candidate 1	President	350	67%
2	Candidate 2	Vice President	280	51%
3	Candidate 3	Secretary	120	34%

Dashboard
Manage Elections
Manage Candidates
Voting Page
Voting Results (Selected)
My Profile
Sign Out
Help

“Voting Results” page where Admin views the results of elections which is picked at the “Select Election” dropdown.



My Profile

Logo

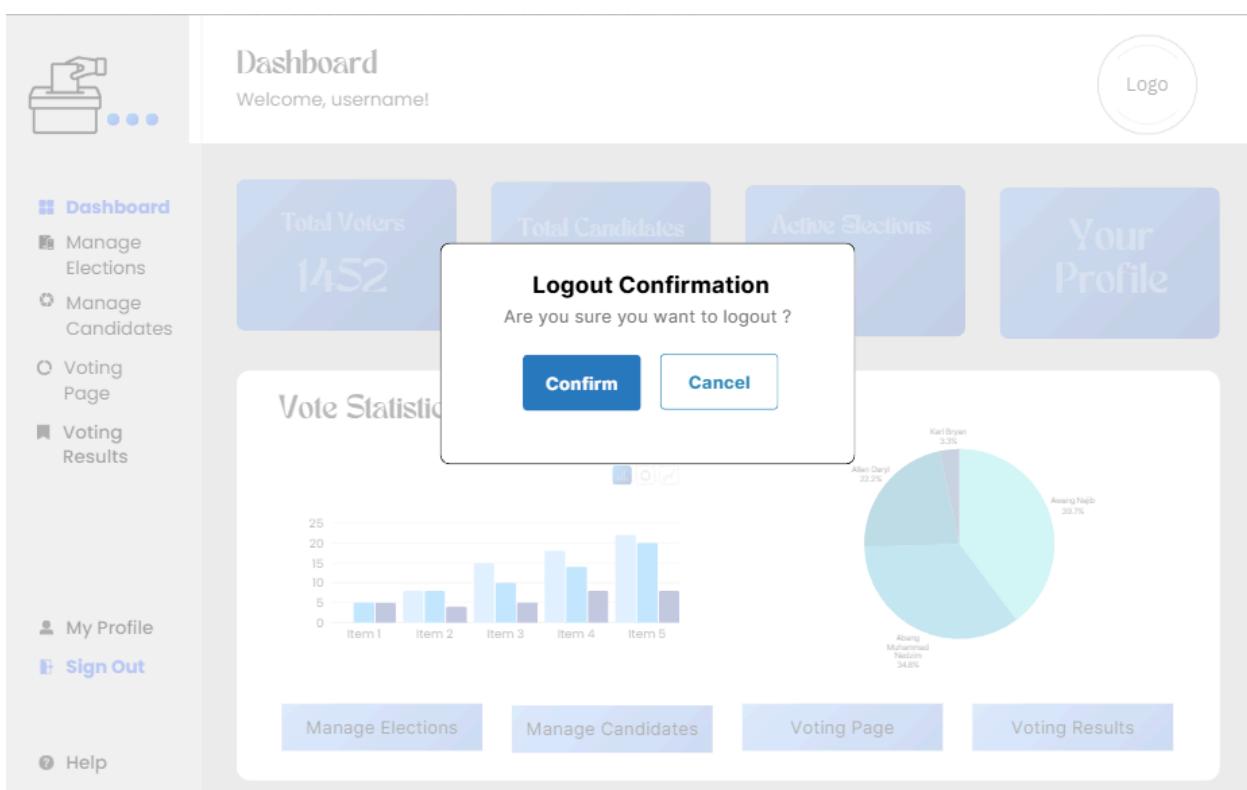
ADMIN NAME
Admin ID : 123141241
Status : Active

Account Information :
Username : adminusername
Phone Number : 987654321
Email : admin@gmail.com
Address : admin_address

Account Setting :
Update profile >
Change Password >

Dashboard
Manage Elections
Manage Candidates
Voting Page
Voting Results
My Profile (Selected)
Sign Out
Help

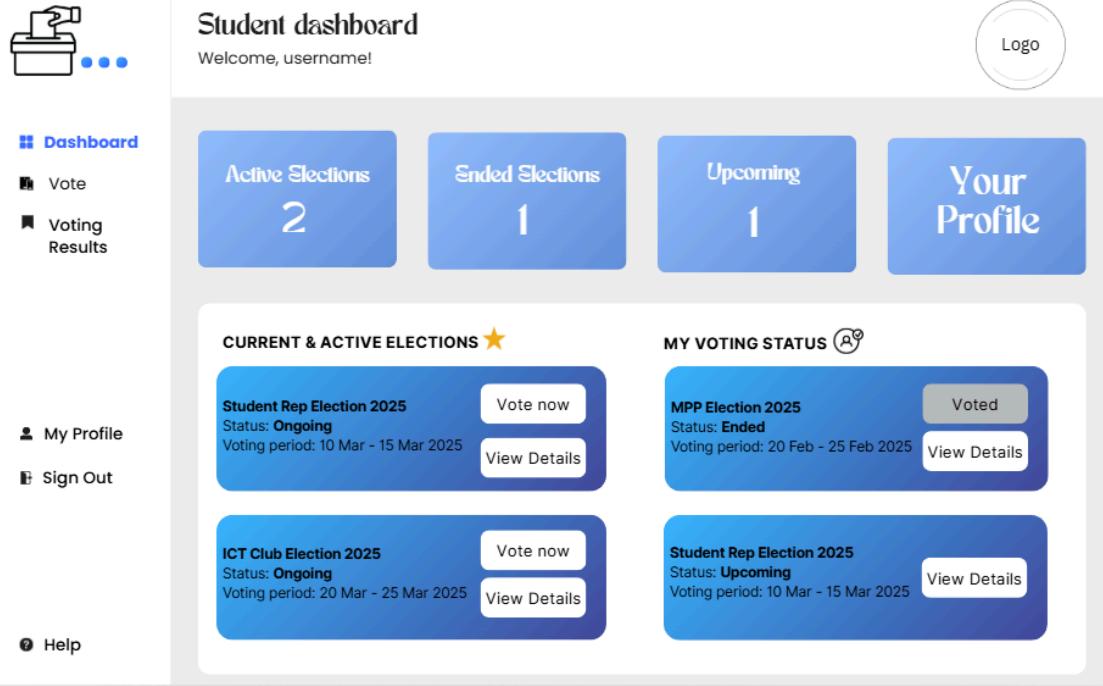
“My Profile” page where Admin can view their profile as well as update their profile and change their password.



The screenshot shows a web-based dashboard for managing elections. On the left is a sidebar with navigation links: Dashboard, Manage Elections, Manage Candidates, Voting Page, Voting Results, My Profile, Sign Out, and Help. The main area has a "Dashboard" header and a welcome message "Welcome, username!". It features several cards: "Total Voters" (1452), "Total Candidates", "Active Elections", and "Your Profile". Below these are sections for "Vote Statistics" (a bar chart) and "Voting Results" (a pie chart). A central modal dialog box is displayed with the title "Logout Confirmation" and the question "Are you sure you want to logout ?" It contains two buttons: "Confirm" (blue) and "Cancel" (white). At the bottom of the page are buttons for "Manage Elections", "Manage Candidates", "Voting Page", and "Voting Results".

Confirmation message pops up when Admin presses the “Sign Out” page.

STUDENT



The dashboard features a sidebar with icons for Dashboard, Vote, Voting Results, My Profile, Sign Out, and Help. The main area displays a "Student dashboard" header with a welcome message. It includes a "Logo" placeholder and four blue cards for Active Elections (2), Ended Elections (1), Upcoming (1), and Your Profile. Below these are sections for Current & Active Elections (Student Rep Election 2025, ICT Club Election 2025) and My Voting Status (MPP Election 2025, Student Rep Election 2025).

Student dashboard
Welcome, username!

Logo

Dashboard

Vote

Voting Results

My Profile

Sign Out

Help

Student dashboard
Welcome, username!

Active Elections 2

Ended Elections 1

Upcoming 1

Your Profile

CURRENT & ACTIVE ELECTIONS ★

Student Rep Election 2025
Status: **Ongoing**
Voting period: 10 Mar - 15 Mar 2025

ICT Club Election 2025
Status: **Ongoing**
Voting period: 20 Mar - 25 Mar 2025

Vote now

View Details

View Details

MY VOTING STATUS 🗳️

MPP Election 2025
Status: **Ended**
Voting period: 20 Feb - 25 Feb 2025

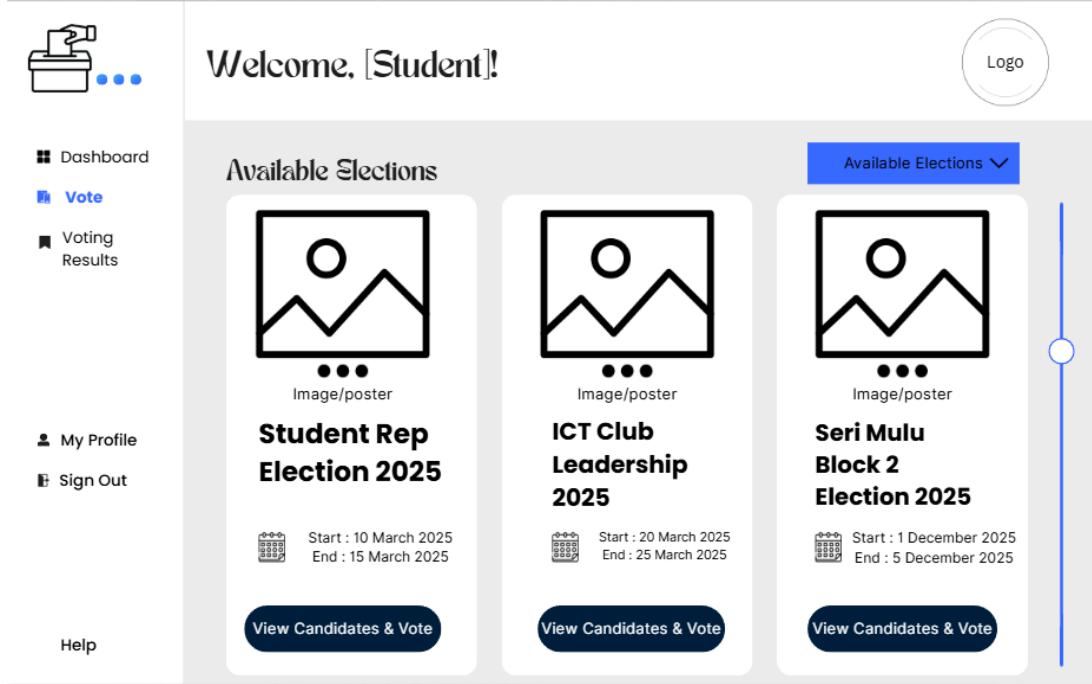
Student Rep Election 2025
Status: **Upcoming**
Voting period: 10 Mar - 15 Mar 2025

Voted

View Details

View Details

Home dashboard where students can see information about elections such as “Active”, “Ended” and “Upcoming” elections as well as their voting status.

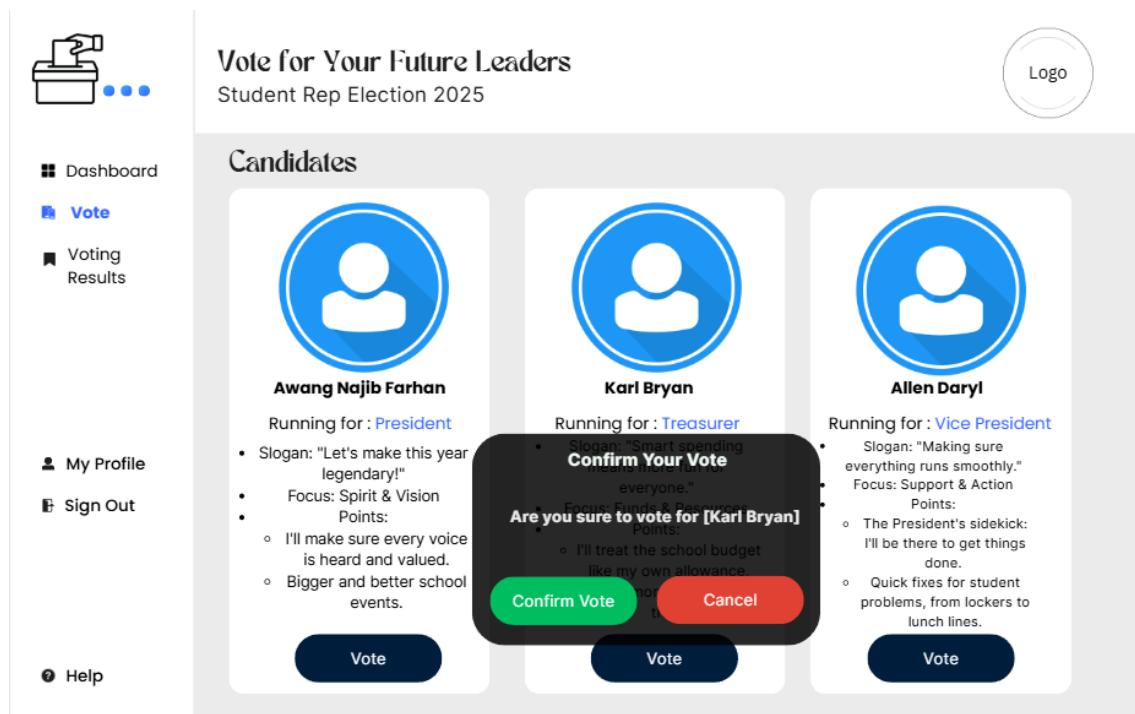


The screenshot shows a user interface for a voting application. On the left, a sidebar contains icons for Dashboard, Vote (highlighted in blue), Voting Results, My Profile, and Sign Out, along with a Help link. The main area features a welcome message "Welcome, [Student]!" and a circular "Logo" placeholder. The central part is titled "Available Elections" and lists three election entries:

- Student Rep Election 2025**: Starts: 10 March 2025, Ends: 15 March 2025. Includes an "Image/poster" thumbnail, three dots, and a "View Candidates & Vote" button.
- ICT Club Leadership 2025**: Starts: 20 March 2025, Ends: 25 March 2025. Includes an "Image/poster" thumbnail, three dots, and a "View Candidates & Vote" button.
- Seri Mulu Block 2 Election 2025**: Starts: 1 December 2025, Ends: 5 December 2025. Includes an "Image/poster" thumbnail, three dots, and a "View Candidates & Vote" button.

A vertical blue line with a circular marker is positioned on the right side of the main content area.

“Vote” page where students can view and choose which elections are available to vote in.



Vote for Your Future Leaders
Student Rep Election 2025

Candidates

Awang Najib Farhan

Running for : President

- Slogan: "Let's make this year legendary!"
- Focus: Spirit & Vision
- Points:
 - I'll make sure every voice is heard and valued.
 - Bigger and better school events.

Vote

Karl Bryan

Running for : Treasurer

Slogan: "Smart spending for everyone."

Focus: Funds & Resources

Points:

- I'll treat the school budget like my own allowance.

Are you sure to vote for [Karl Bryan]

Confirm Vote **Cancel**

Vote

Allen Daryl

Running for : Vice President

Slogan: "Making sure everything runs smoothly."

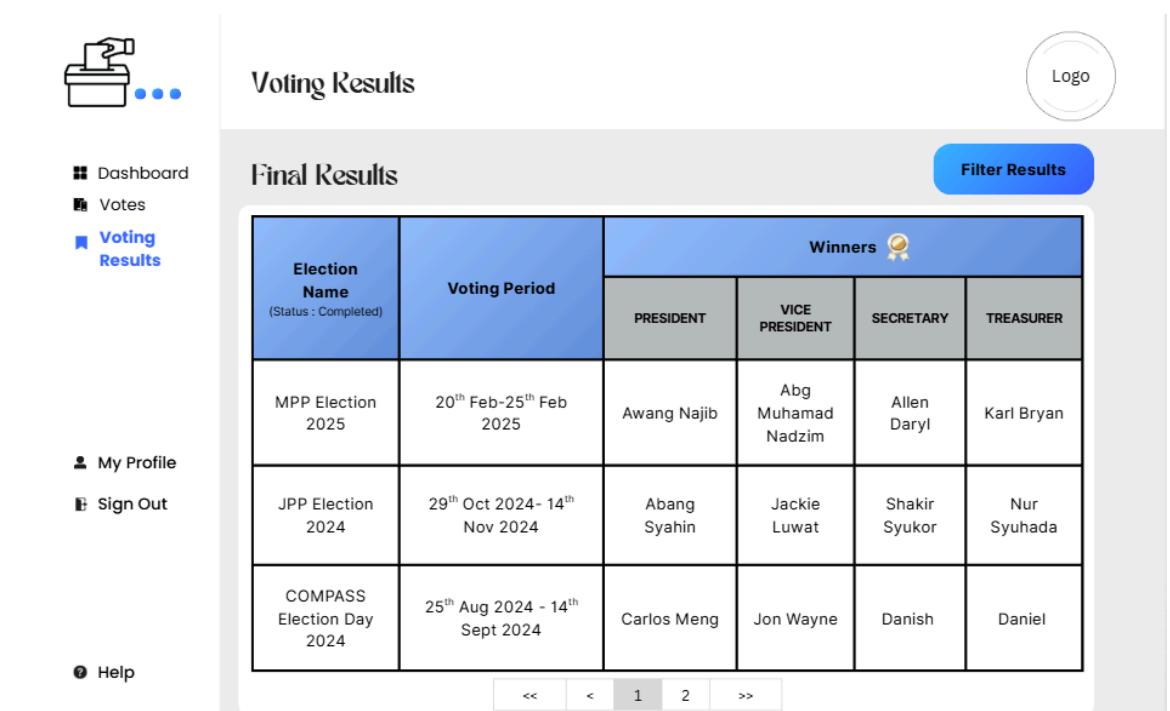
Focus: Support & Action

Points:

- The President's sidekick: I'll be there to get things done.
- Quick fixes for student problems, from lockers to lunch lines.

Vote

When students pick the available elections to vote, they are brought to the candidates page. When they press the “Vote” button on the candidate they want to vote for, a confirmation message will pop up asking if the student wants to confirm their vote for that candidate.



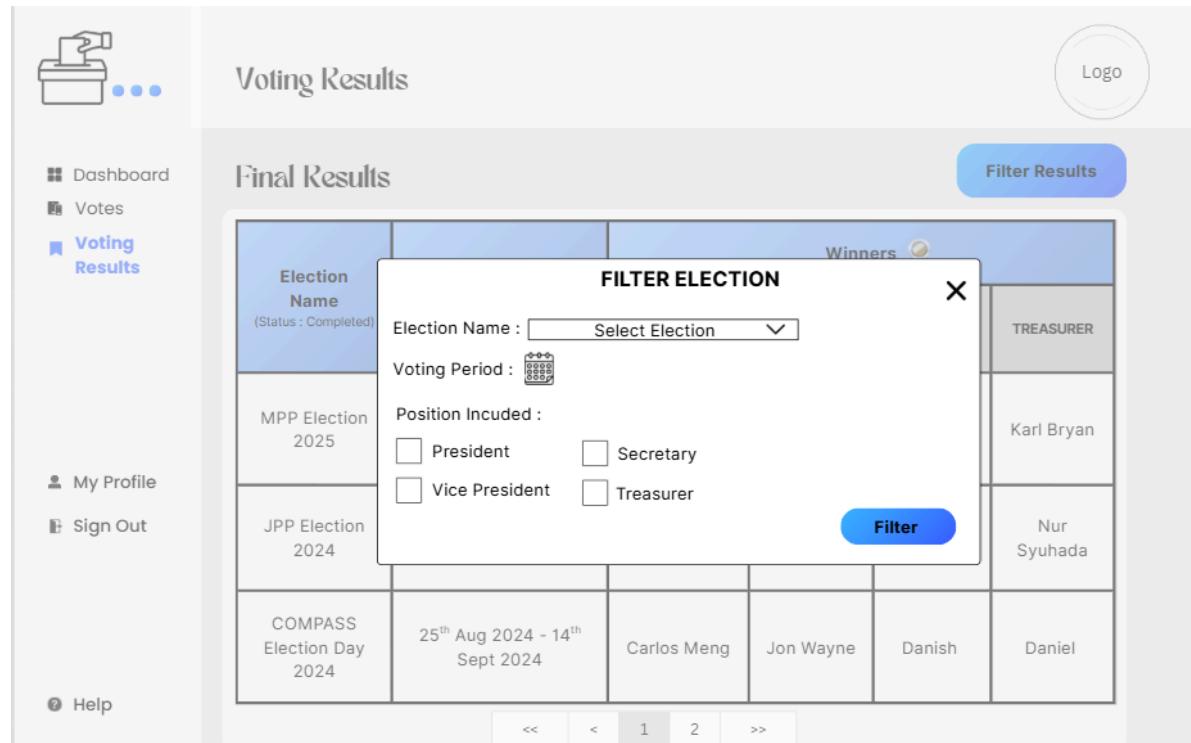
Voting Results

Final Results

Election Name (Status : Completed)	Voting Period	Winners 🏆			
		PRESIDENT	VICE PRESIDENT	SECRETARY	TREASURER
MPP Election 2025	20 th Feb-25 th Feb 2025	Awang Najib	Abg Muhammad Nadzim	Allen Daryl	Karl Bryan
JPP Election 2024	29 th Oct 2024- 14 th Nov 2024	Abang Syahin	Jackie Luwat	Shakir Syukor	Nur Syuhada
COMPASS Election Day 2024	25 th Aug 2024 - 14 th Sept 2024	Carlos Meng	Jon Wayne	Danish	Daniel

<< < 1 2 > >>

“Voting Results” page where students can view the final results of past elections made in the system.



Voting Results

Final Results

FILTER ELECTION

Election Name :

Voting Period :

Position Included :

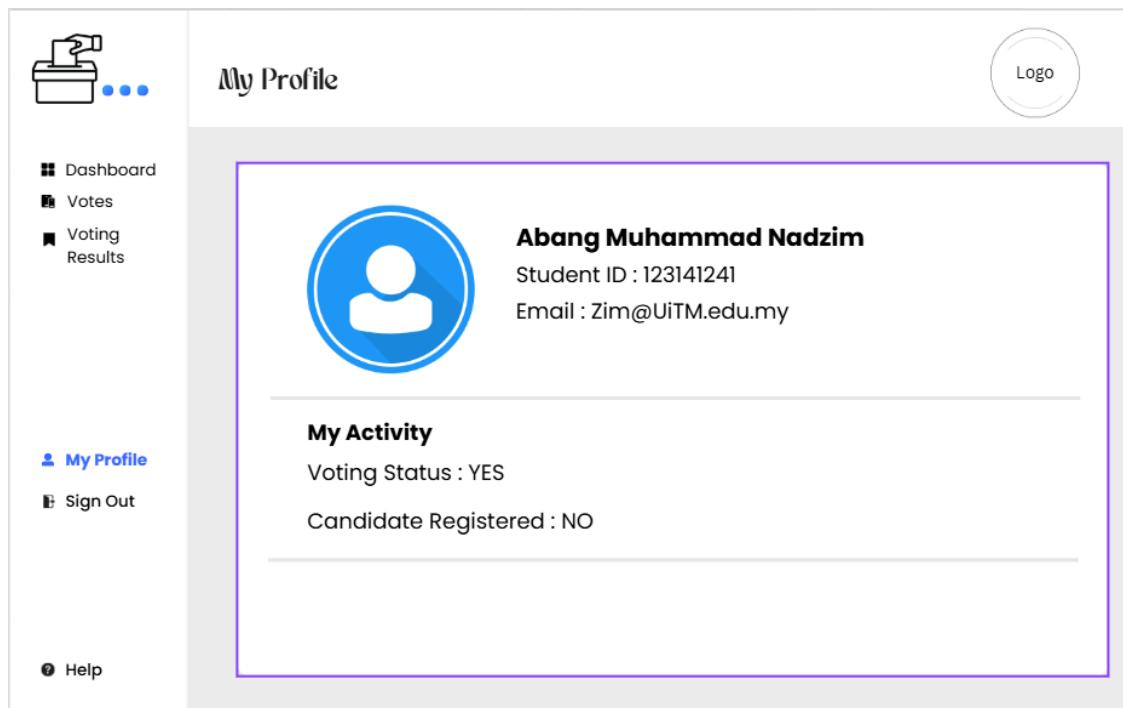
<input type="checkbox"/> President	<input type="checkbox"/> Secretary
<input type="checkbox"/> Vice President	<input type="checkbox"/> Treasurer

Filter

Election Name (Status : Completed)	Voting Period	Winners 🏆			
		TREASURER			
MPP Election 2025		Karl Bryan			
JPP Election 2024			Nur Syuhada		
COMPASS Election Day 2024	25 th Aug 2024 - 14 th Sept 2024	Carlos Meng	Jon Wayne	Danish	Daniel

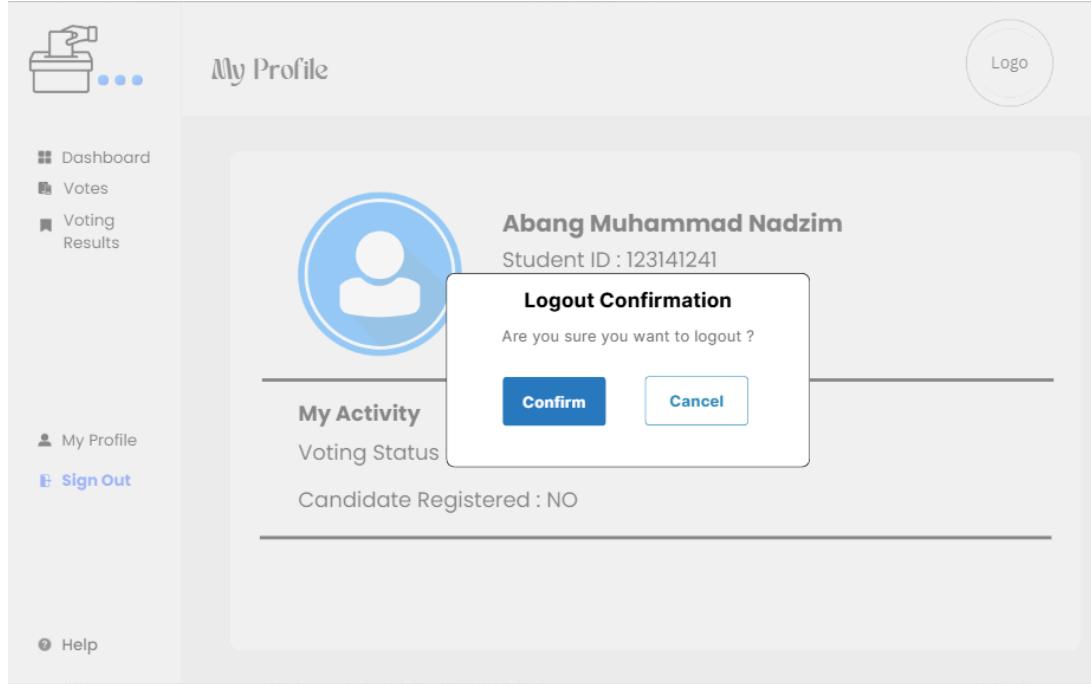
<< < 1 2 > >>

Students can filter election results by pressing the “Filter Results” button.



The screenshot shows the "My Profile" page of a voting application. On the left, there's a sidebar with icons for Dashboard, Votes, Voting Results, My Profile (which is highlighted in blue), Sign Out, and Help. The main content area has a header "My Profile" and a circular profile picture placeholder. Below it, the student's name is displayed as "Abang Muhammad Nadzim" with their Student ID (123141241) and Email (Zim@UiTM.edu.my). A section titled "My Activity" shows "Voting Status : YES" and "Candidate Registered : NO".

“My Profile” page where students can view their profile and their activity, which is “Voting Status” and “Candidate Registered”



A pop-up message confirming the student if they want to log out from the system when they press the “Sign Out” button.

4.0 User Manual

4.1 Setup

4.1.1 System Requirements

Java Development Kit (JDK): Version 8 or higher is required to run and compile the Java code.

NetBeans IDE: The primary environment used for development and execution.

MySQL Server & XAMPP: Required to host the studentelectiondb database.

4.1.2 Database Configuration

1. Open phpMyAdmin via the XAMPP control panel.
2. Create a new database named studentelectiondb.
3. Import the provided SQL script (e.g., studentelectiondb.sql) to generate the tables (admin, student, election, etc.).

4.1.3 Project Configuration in NetBeans

1. **Open Project:** Launch NetBeans and go to File > Open Project, then select the project folder.
2. **Add Libraries:** *Right-click on the project in the project pane.
 - Select **Properties > Libraries**
 - Ensure the **MySQL JDBC Driver** is included. If not, click **Add JAR/Folder** and locate your driver file.
3. **Connection Settings:** Open the database connection class and verify the database URL, username, and password match the local MySQL settings.

4.2 Step-by-step Model Guide

Student Page

4.2.1 Homepage

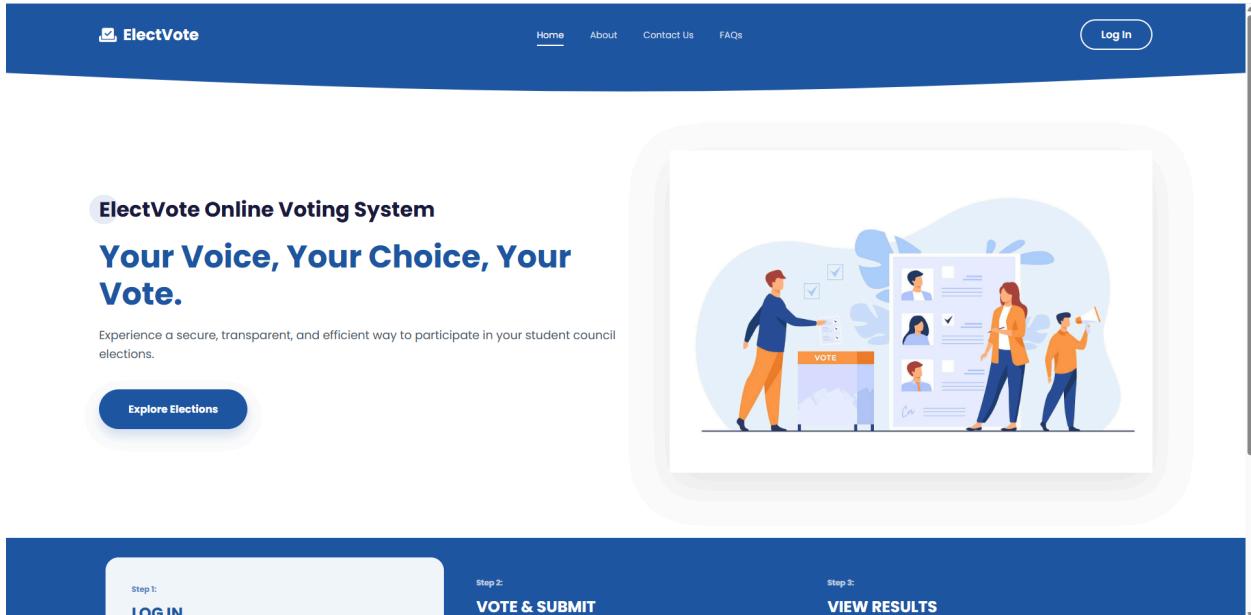


Figure 4.2.1.1 Homepage interface

Description: Click ‘Login’ to use the ElectVote Online Voting System

4.2.2 Student Login Page

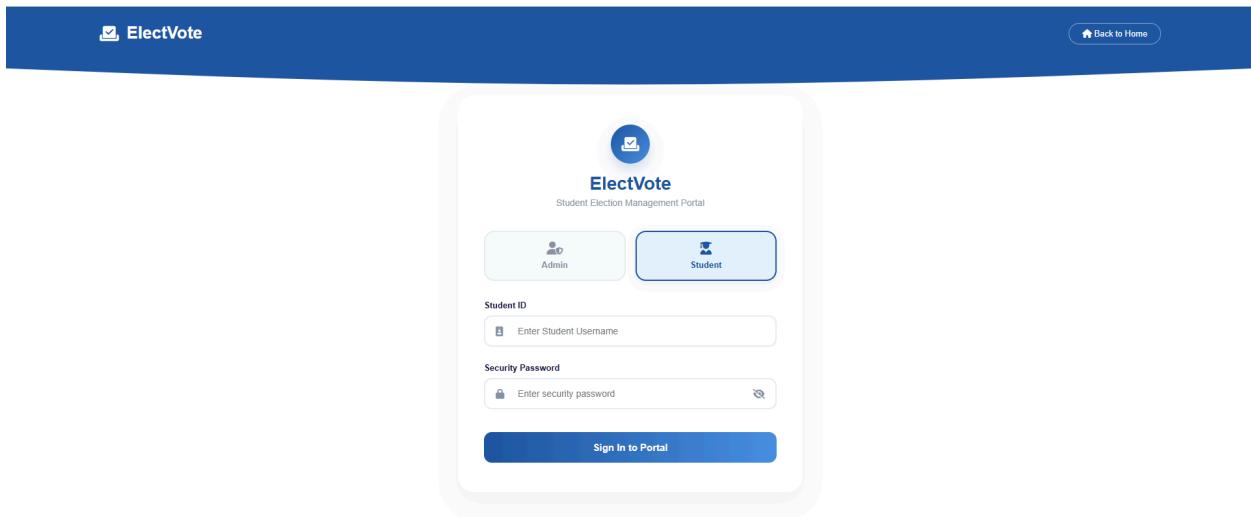


Figure 4.2.2.1 Login page interface

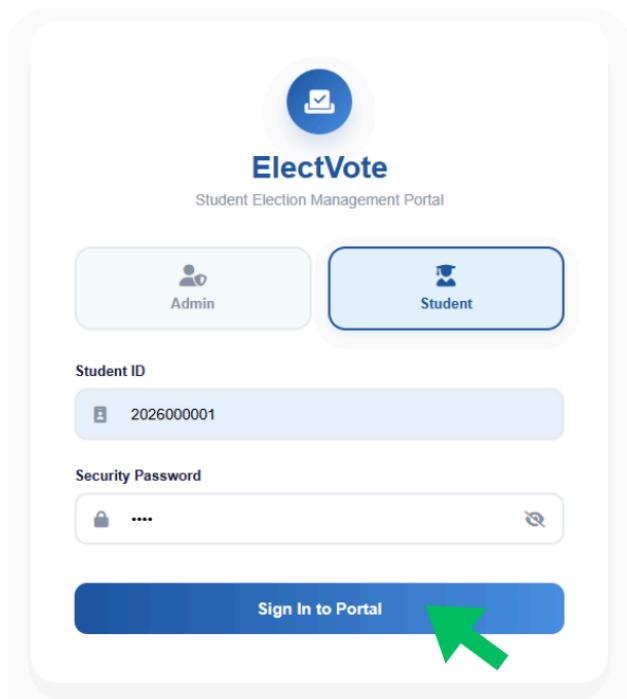


Figure 4.2.2.2 Login page interface

Description: The student must fill in their details and click ‘Sign In to Portal’ to redirect to the Dashboard

4.2.3 Student Dashboard

Figure 4.2.3.1 Dashboard interface

Description: On this page,

4.2.4 Student Navigation Bar



Figure 4.2.4.1 Student Navigation Bar

Description: The navigation on the left-hand side of the main dashboard. This sidebar is the central hub for managing the entire election lifecycle. There were 3 **Primary Navigation** (core tasks), and the bottom two are **User/Account Actions** (personal settings). Below are shown the seven navigation menu items:

1. **Dashboard:** This page provides real time active election counts and list of elections.
2. **Vote Now:** On this page, students can cast their votes on the selected election.
3. **Voting Results:** On this page, students can view the results of ended election.

4. My Profile: Manage your personal information. Update your name, email address, or change your password.

5. Sign Out: Securely end your session.

4.2.5 Voting Page

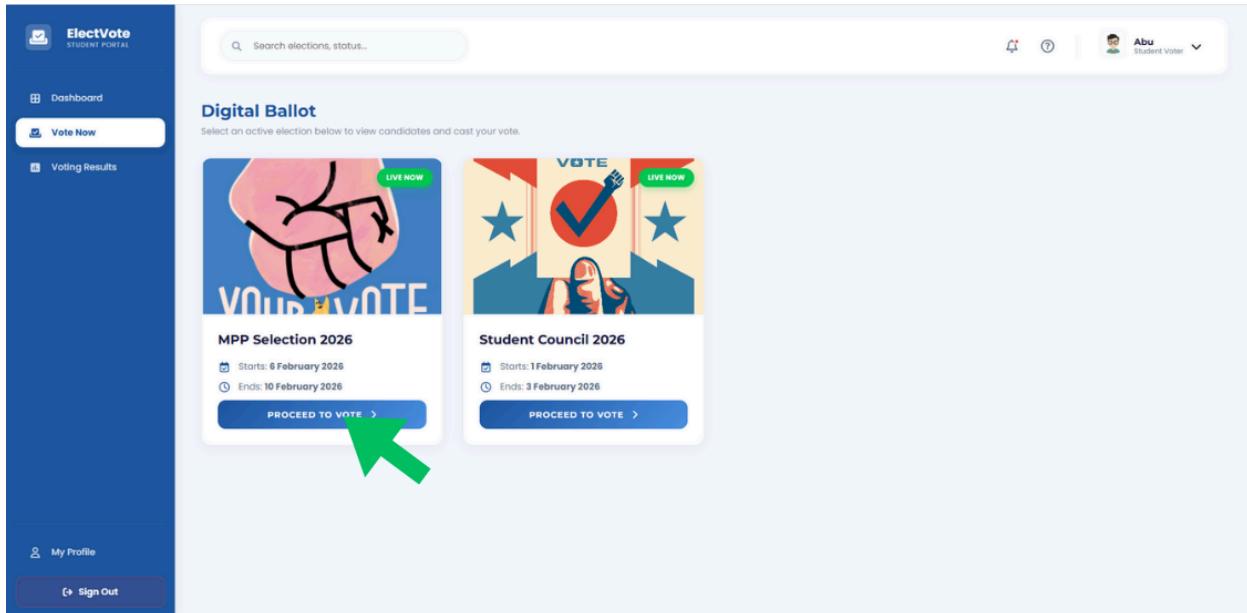


Figure 4.2.5.1 Voting page Interface

Description: On this page, students can view and cast a vote by clicking on ‘Proceed to Vote’ button on their selected election.

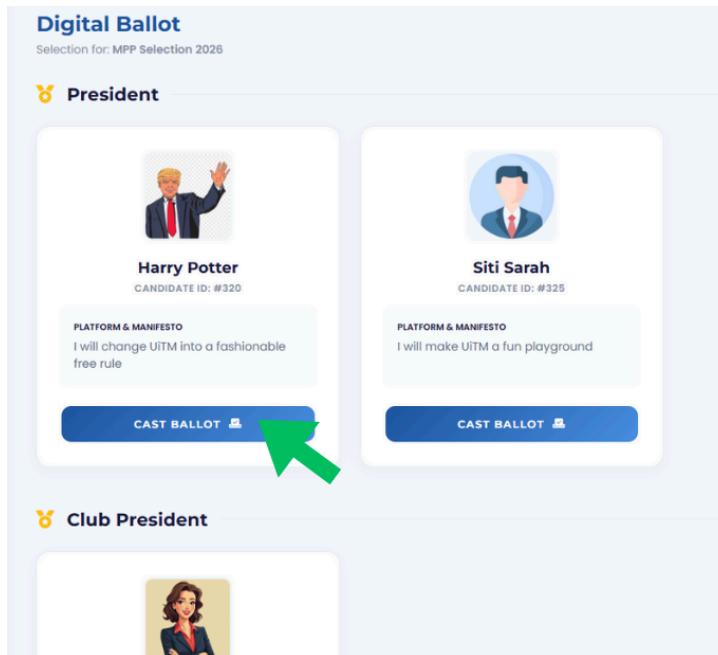


Figure 4.2.5.2 Voting Page Interface

Description: Here, students can choose their candidate for each category in the election. By clicking on the 'Cast Ballot' button.

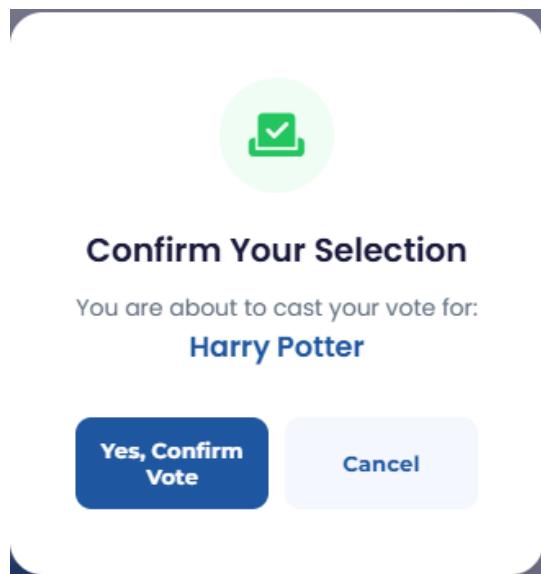


Figure 4.2.5.3 Voting Page Interface

Description: After clicking on the 'Cast Ballot' button, a confirmation message will appear to confirm the vote for each candidate.

4.2.6 Voting Results Page

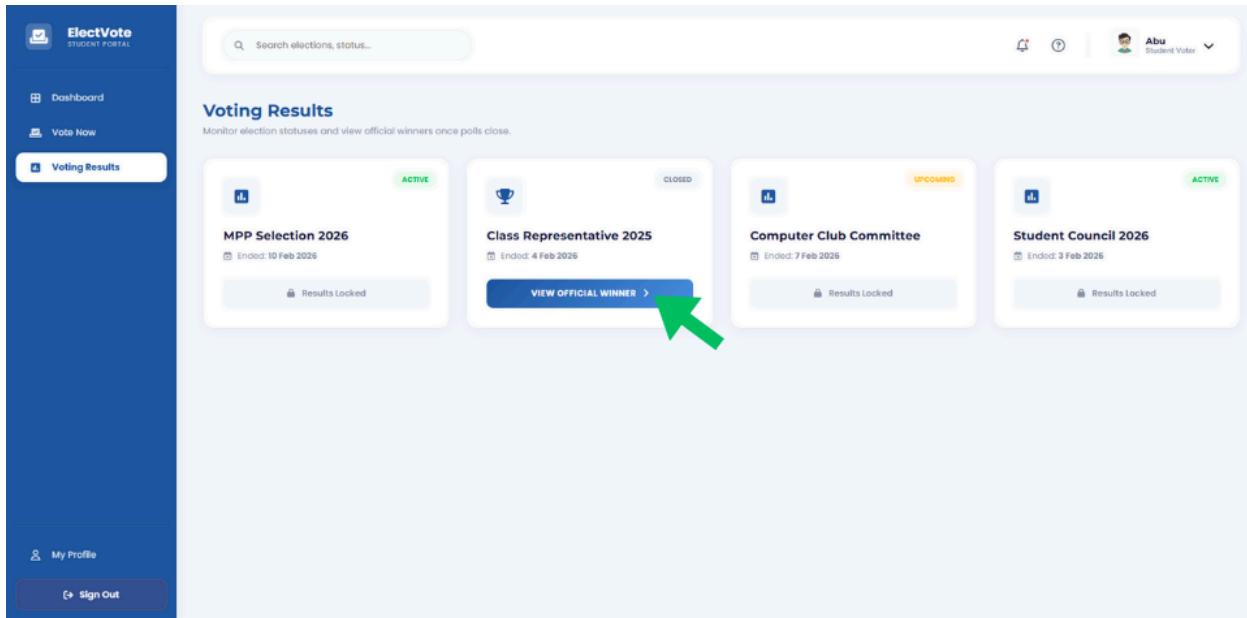


Figure 4.2.6.1 Voting result interface

Description: On this page, students can view the results of the election. By clicking on the ‘View Official Winner’ button will direct to the winners page.

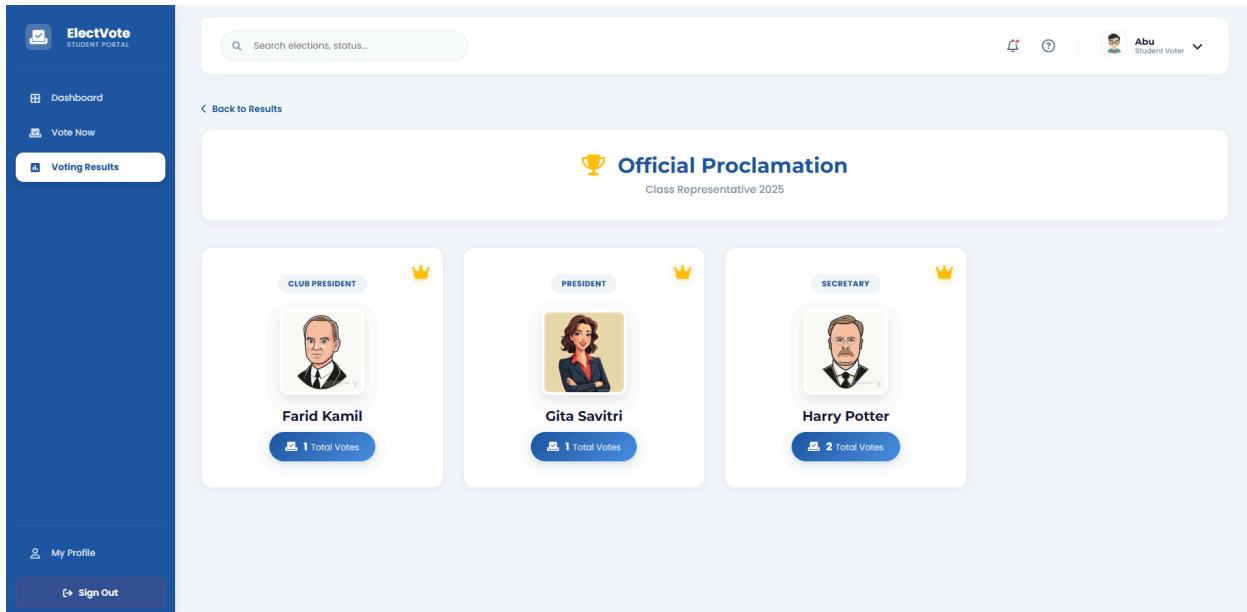


Figure 4.2.6.2 Voting result interface

Description: On this page, the winners for each category will appear here.

4.2.7 Student Profile Page

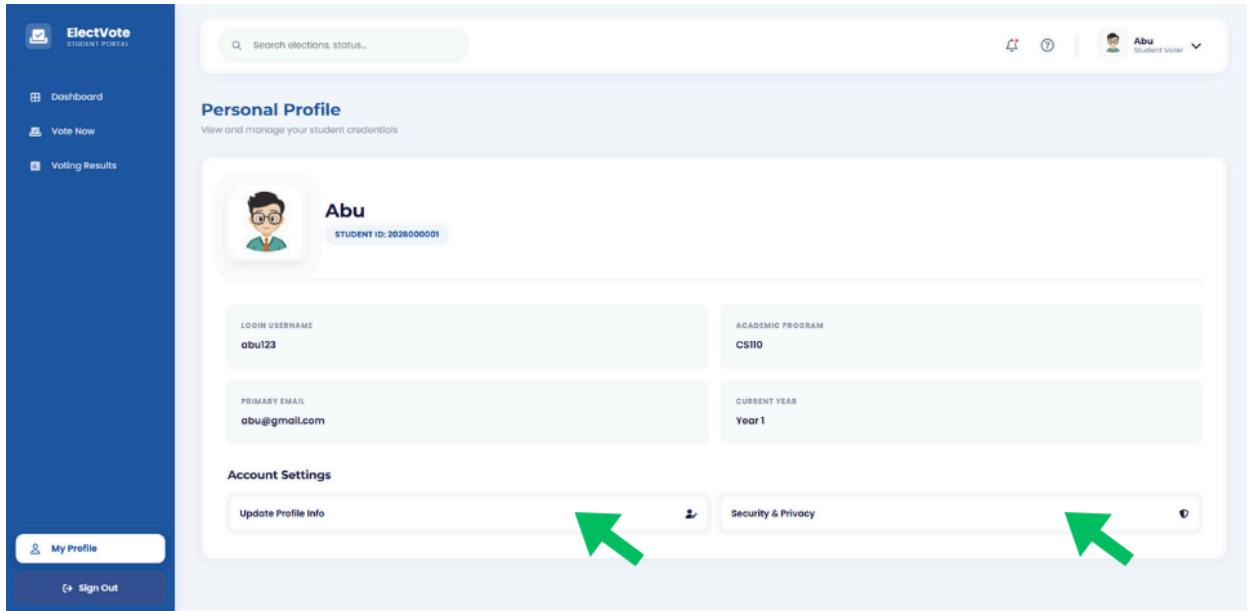
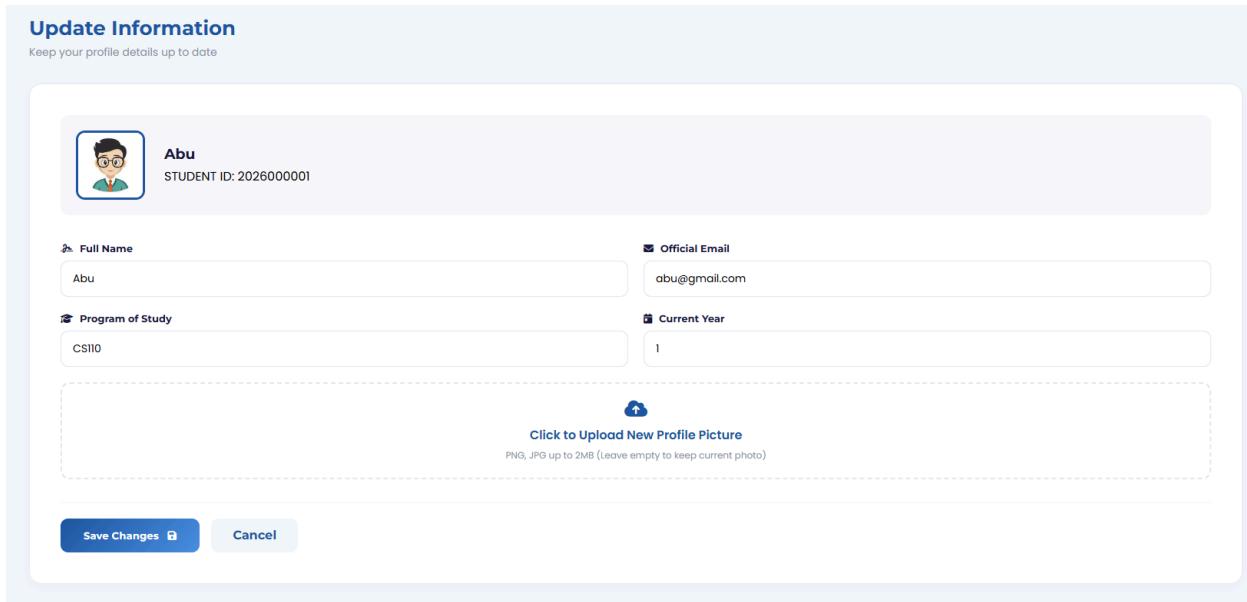


Figure 4.2.7.1 Student Profile Interface

Description: On this page, students can update their personal information and update their password.



Update Information	
Keep your profile details up to date	
 Abu STUDENT ID: 202600001	
Full Name <input type="text" value="Abu"/>	Official Email <input type="text" value="abu@gmail.com"/>
Program of Study <input type="text" value="CS110"/>	Current Year <input type="text" value="1"/>
Click to Upload New Profile Picture <small>PNG, JPG up to 2MB (Leave empty to keep current photo)</small>	
Save Changes Cancel	

Figure 4.2.7.2 Student Profile Interface

Description: Here students can update their name, email, program of study, current year of study and their new profile picture.

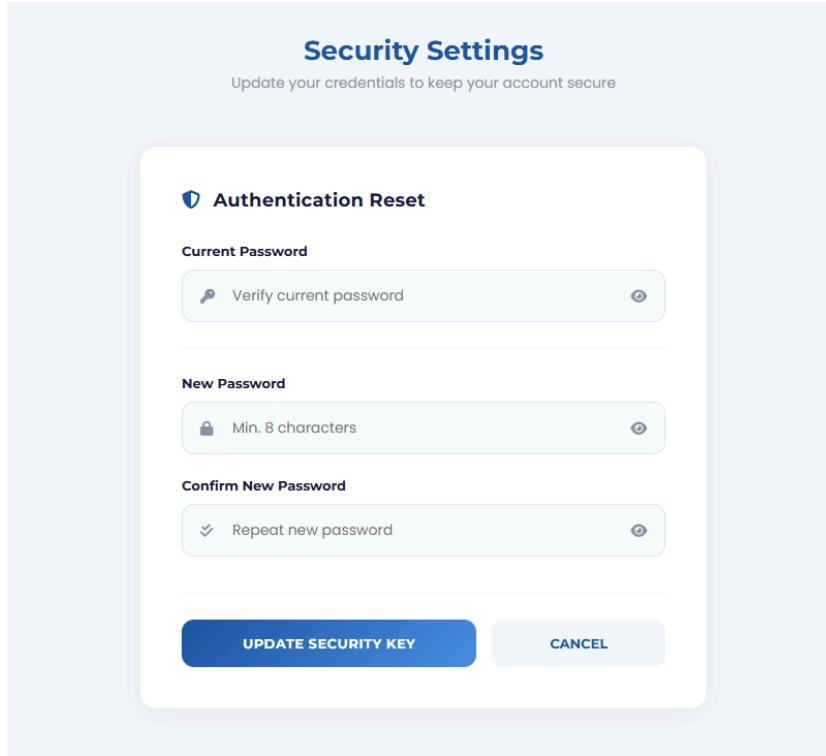


Figure 4.2.7.3 Student Profile Interface

Description: This page is where students can update their new password. It will ask for the new password twice to confirm the update.

4.2.8 Student Logout

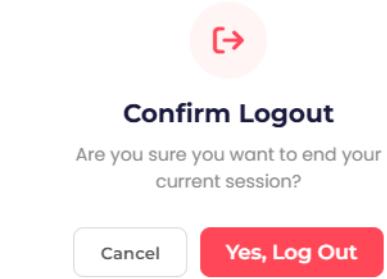


Figure 4.2.8.1 Student Logout

Description: Securely end the student session.

Admin Page

4.2.6 Login Admin

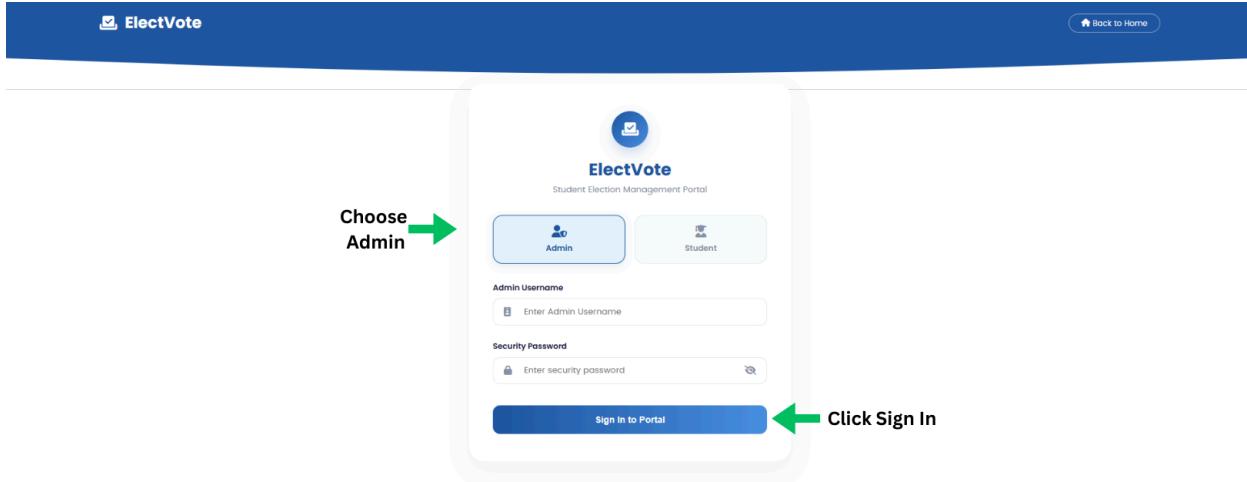


Figure 4.2.0 Login Admin

Description:

Choose the admin button and fill in the admin details. Click sign in button, and it will head to the Admin Dashboard.

4.2.7 Admin Dashboard

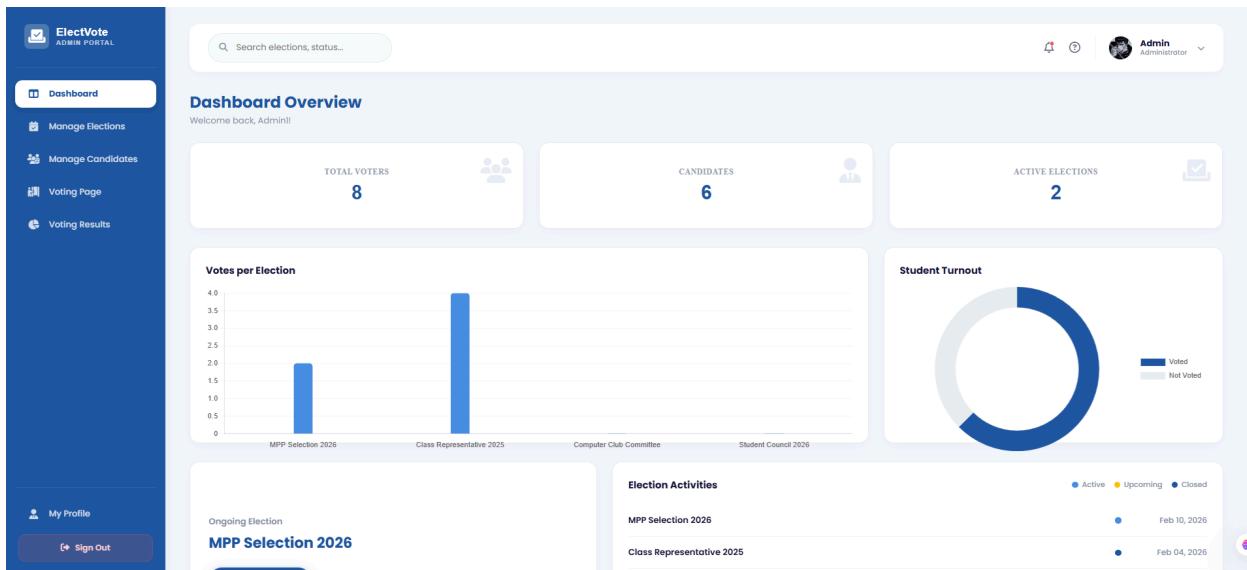


Figure 4.2.1 Main Dashboard

Description:

Figure 4.2.1 shows the main Admin dashboard, which displays election statistics with the provided Admin Navigation Bar.

4.2.8 Admin Navigation Bar

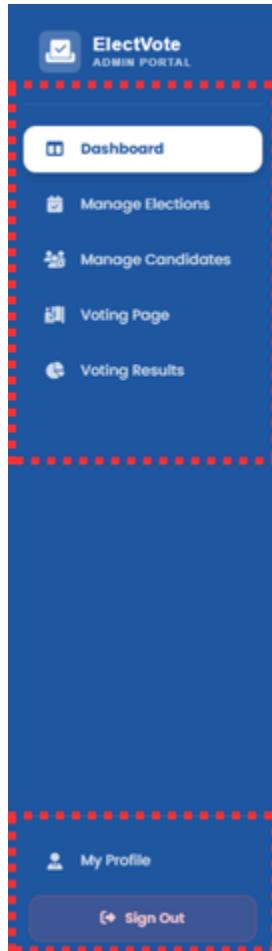


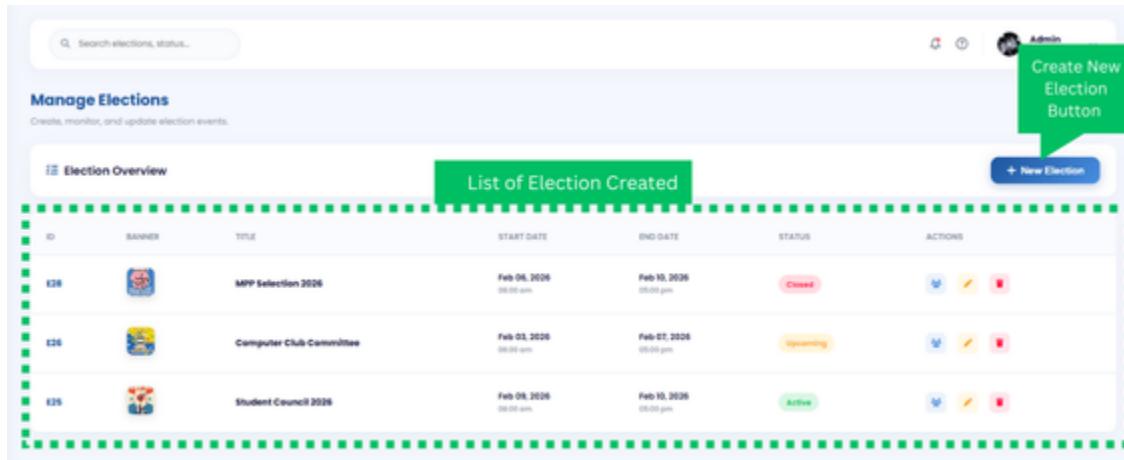
Figure 4.2.2 Admin Navigation Bar

Description:

Figure 4.2.2 shows the navigation on the left-hand side of the main dashboard. This sidebar is the central hub for managing the entire election lifecycle. There were five **Primary Navigation** (core tasks), and the bottom two are **User/Account Actions** (personal settings). Below are shown the seven navigation menu items:

1. **Dashboard:** This page provides real-time statistics, active election counts, and high-level summaries of platform activity.
2. **Manage Elections:** Here you can create new elections, set start/end dates, and configure specific voting rules.
3. **Manage Candidates:** Use this to add, edit, or remove candidates. You can upload candidate photos and bios and assign them to specific elections.
4. **Voting Page:** This allows you to view the voting interface exactly as a voter would see it, ensuring everything is formatted correctly before going live.
5. **Voting Results:** Once voting begins, you can monitor live counts (if enabled) or generate final, audited reports after the election concludes.
6. **My Profile:** Manage your personal information. Update your name, email address, or change your administrative password.
7. **Sign Out:** Securely end your session. We recommend signing out whenever you leave your workstation to maintain the integrity of the voting data.

4.2.9 Manage Election Page



The screenshot shows a web-based application for managing elections. At the top right, there is a user icon labeled 'Admin' and a green button labeled 'Create New Election Button'. A green callout box points to this button. Below the header is a search bar with placeholder text 'Search elections, status...'. The main area is titled 'List of Election Created' and contains a table with three rows of data. The columns are labeled 'ID', 'BANNER', 'TITLE', 'START DATE', 'END DATE', 'STATUS', and 'ACTIONS'. The first row shows an ID of E28, a banner thumbnail, a title of 'MPP Selection 2026', a start date of Feb 06, 2026 at 08:00 am, an end date of Feb 10, 2026 at 05:00 pm, and a status of 'Closed'. The second row shows an ID of E26, a banner thumbnail, a title of 'Computer Club Committee', a start date of Feb 03, 2026 at 08:00 am, an end date of Feb 07, 2026 at 05:00 pm, and a status of 'Upcoming'. The third row shows an ID of E25, a banner thumbnail, a title of 'Student Council 2026', a start date of Feb 08, 2026 at 08:00 am, an end date of Feb 10, 2026 at 05:00 pm, and a status of 'Active'. Each row has a set of four small icons under the 'ACTIONS' column.

ID	BANNER	TITLE	START DATE	END DATE	STATUS	ACTIONS
E28		MPP Selection 2026	Feb 06, 2026 08:00 am	Feb 10, 2026 05:00 pm	Closed	
E26		Computer Club Committee	Feb 03, 2026 08:00 am	Feb 07, 2026 05:00 pm	Upcoming	
E25		Student Council 2026	Feb 08, 2026 08:00 am	Feb 10, 2026 05:00 pm	Active	

Figure 4.2.3 Manage Elections Page

Description:

Figure 4.2.3 shows pages to manage the creation of an election. It displays all the elections that we can create, edit, and delete.

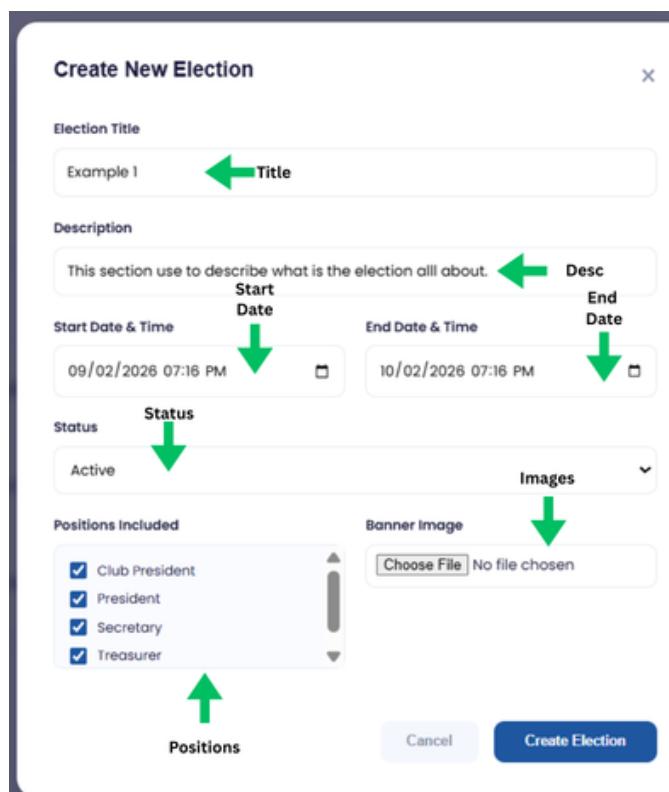
Steps to create an election:

1. Click the button "+ New Election" on the top right to create a new election.



Figure 4.2.4 New election creation button

2. Fill in the form for election information like Election Title, Description, Start Date, End Date, Status, Positions, and Images. Once finished, click the "Create Election" button.



The screenshot shows the "Create New Election" dialog box. Several fields are annotated with green arrows:

- A green arrow points to the "Title" field, which contains the placeholder "Example 1".
- A green arrow points to the "Desc" (Description) field, which contains the placeholder "This section use to describe what is the election all about.".
- A green arrow points to the "Start Date" field, which displays "09/02/2026 07:16 PM".
- A green arrow points to the "End Date" field, which displays "10/02/2026 07:16 PM".
- A green arrow points to the "Status" dropdown menu, which is set to "Active".
- A green arrow points to the "Images" section, which includes a "Choose File" button and a placeholder "No file chosen".
- A green arrow points to the "Positions Included" section, which lists four positions with checkboxes: Club President, President, Secretary, and Treasurer. All checkboxes are checked.
- A green arrow points to the "Positions" label at the bottom left of the form.

Figure 4.2.5 Fill In Election Form

3. The election that just been created will appear at the top of the list.



ID	BANNER	TITLE	START DATE	END DATE	STATUS	ACTIONS
E31		Example 1	Feb 09, 2026 08:00 am	Feb 10, 2026 05:00 pm	Active	 
E28		MPP Selection 2026	Feb 06, 2026 08:00 am	Feb 10, 2026 05:00 pm	Closed	 
E26		Computer Club Committee	Feb 03, 2026 08:00 am	Feb 07, 2026 05:00 pm	Upcoming	 
E25		Student Council 2026	Feb 09, 2026 08:00 am	Feb 10, 2026 05:00 pm	Active	 

Figure 4.2.6 List of created elections

The system also provides an add candidate button, edit button, and a delete button beside the list of each elections. Click the first button to add a candidate, the second button to edit, and the third button to delete elections

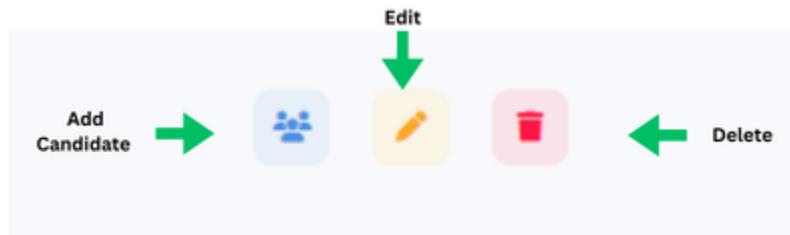
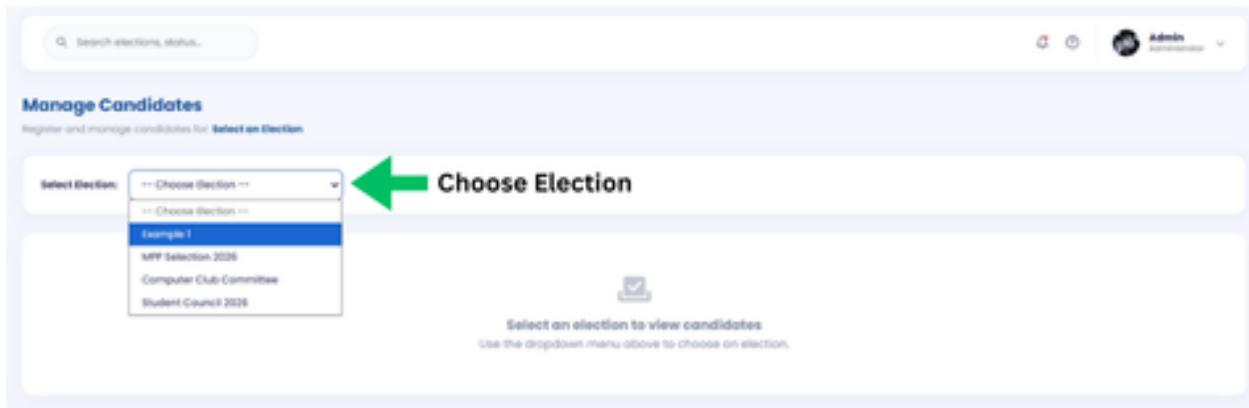


Figure 4.2.7 Three Functional Buttons

4.2.10 Manage Candidates Page



Q Search elections, status...

Admin Administrator

Manage Candidates

Select an election for **Select an election**

Choose Election

Select an election to view candidates
Use the dropdown menu above to choose an election.

ELECTION
Example 1
MPP Selection 2026
Computer Club Committee
Student Council 2026

Figure 4.2.8 Manage Candidates Page

Description:

Figure 4.2.8 shows the manage candidate page where the user can add a candidate for each election and position. Click and choose the election from the dropdown menu. The election candidate will appear in the space provided.

Create candidate steps:

1. Click the “+Add Candidate” button to create a candidate for the selected elections.

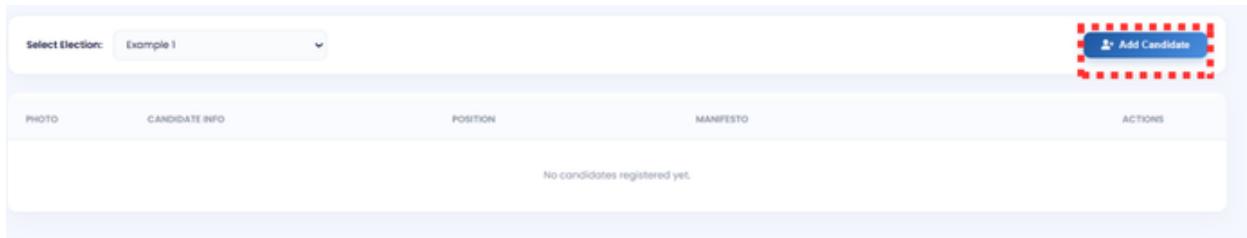
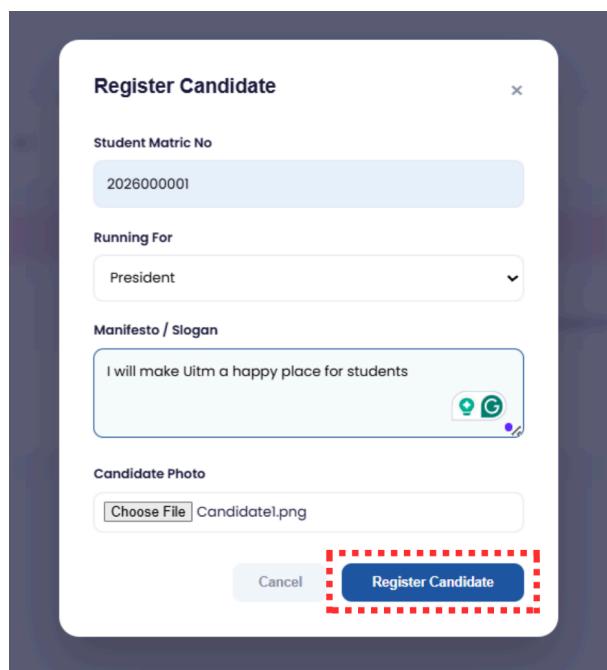


Figure 4.2.9 Add Candidate Button

2. Fill in the candidate form to insert the existing student id, positions, manifesto, and photos. Click the “Register Candidate” button to create a candidate in the current elections.



A screenshot of a modal window titled "Register Candidate". The form contains the following fields:

- Student Matric No: 2026000001
- Running For: President (selected from a dropdown menu)
- Manifesto / Slogan: "I will make Uitm a happy place for students" (with a text area and three small circular icons at the bottom right)
- Candidate Photo: A file input field showing "Candidate1.png" and a "Choose File" button.

At the bottom of the modal, there are two buttons: "Cancel" and "Register Candidate", with "Register Candidate" also highlighted with a red dashed border.

Figure 4.2.10 Register Candidate

3. Once created, it will appear on the top of the candidate lists.

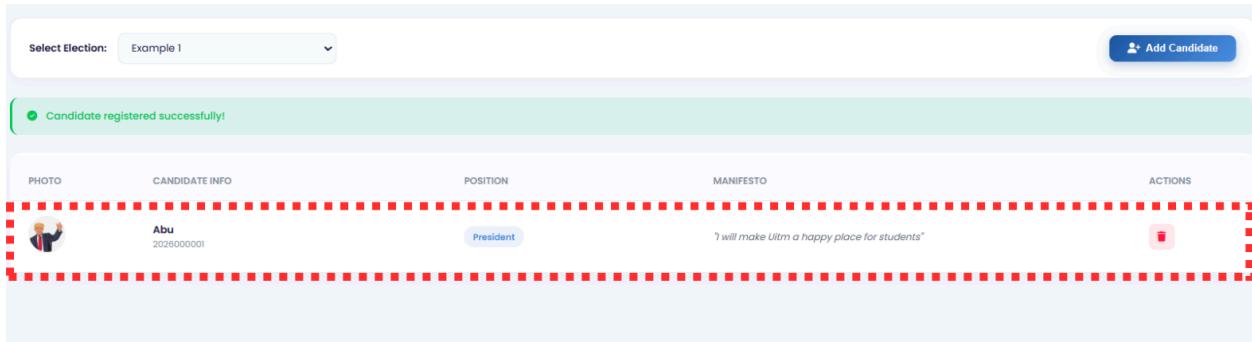


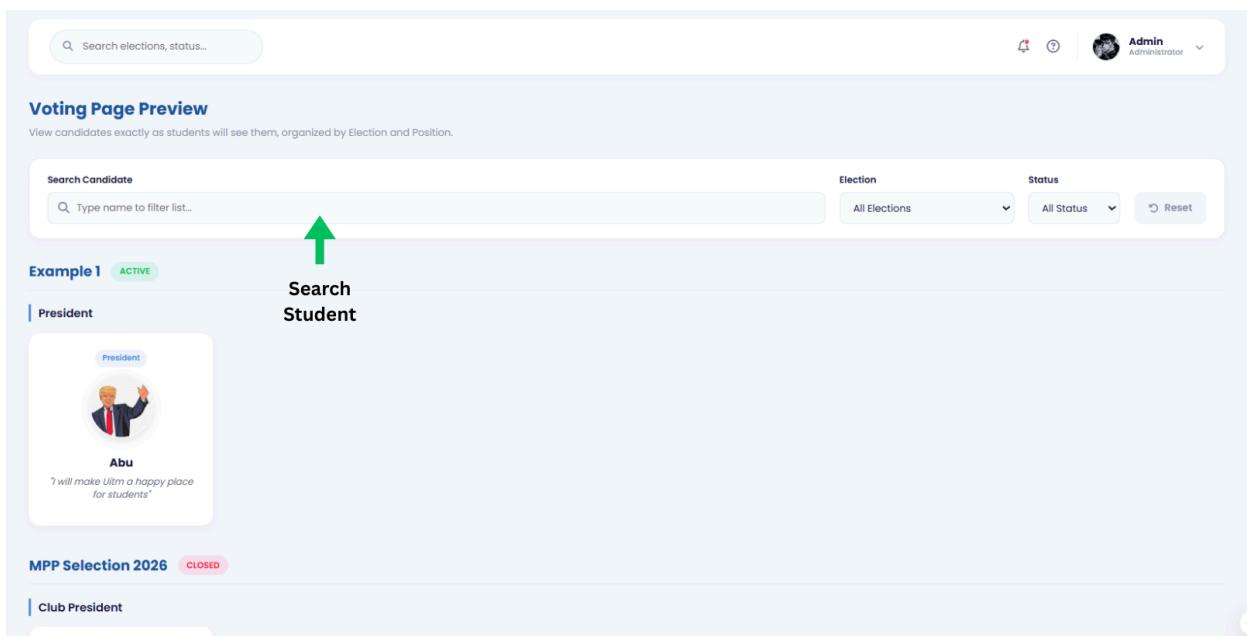
Figure 2.4.11 Candidate List

There are also a delete button on the right hand side near the created candidate for admin to delete the candidate.



Figure 2.4.12 Delete Candidate Button

4.2.11 Voting Page



The screenshot shows the 'Voting Page Preview' section. At the top, there is a search bar labeled 'Search elections, status...' and a user profile for 'Admin Administrator'. Below the search bar, the title 'Voting Page Preview' is displayed, followed by the sub-instruction 'View candidates exactly as students will see them, organized by Election and Position.' A green arrow points from the text 'Search Student' to the search bar. The interface includes a 'Search Candidate' input field with placeholder text 'Type name to filter list...', and dropdown menus for 'Election' (set to 'All Elections') and 'Status' (set to 'All Status'). There is also a 'Reset' button. The main content area displays two election entries: 'Example 1 ACTIVE' (President position) and 'MPP Selection 2026 CLOSED' (Club President position). Each entry shows a candidate profile with a photo, name ('Abu'), and a quote: 'I will make Ultron a happy place for students.'

Figure 2.4.13 Voting Page



This screenshot is similar to Figure 2.4.13 but with specific UI elements highlighted by red dashed boxes. The 'Election' dropdown menu, the 'Status' dropdown menu, and the 'Reset' button are all enclosed in red dashed rectangles.

Figure 2.4.15 Filter Button

Description:

Figure 2.4.13 shows the Voting Page Preview that allows administrators to view candidate profiles exactly as they appear to students. It ensures that all the names, positions, and candidate details are correctly configured before or during an active election. Based on Figure 2.4.14, there is also a search bar to search students based on their name, where they can filter through the type of elections and status. There is also a reset button to reset the filter searching.

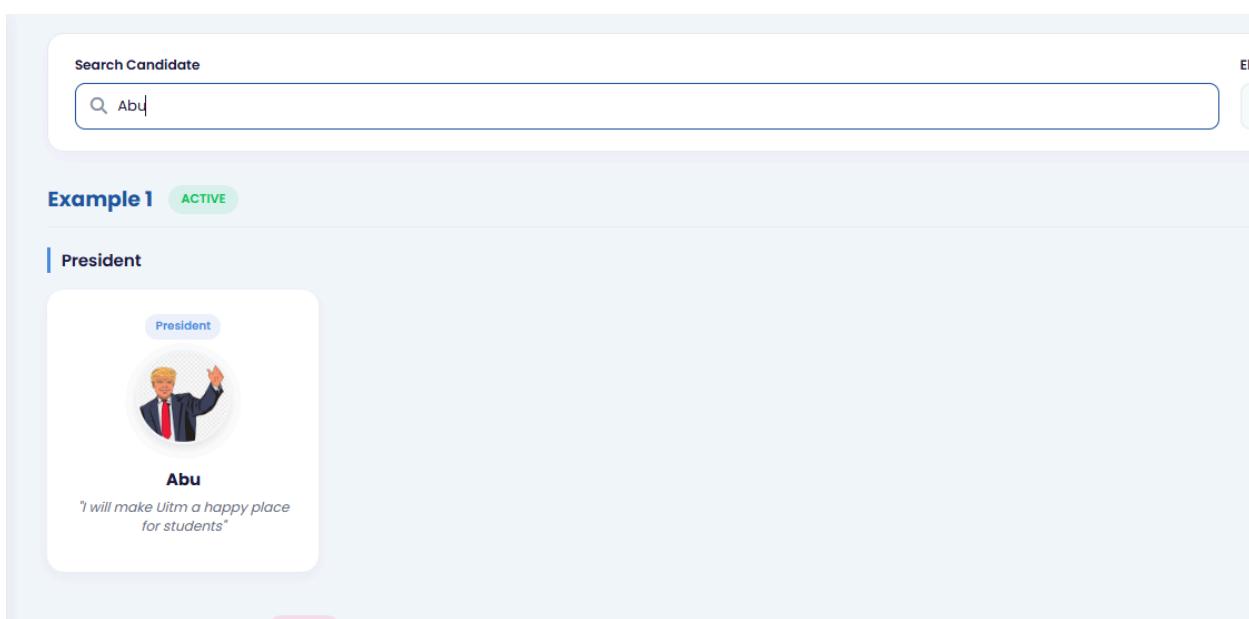


Figure 2.4.16 Search Candidate

Description:

In Figure 2.4.16, enter a name in the search bar, and the candidate names appear in the list of elections.

4.2.12 Voting Result Page

Search elections, status...

Voting Results
View live vote counts, finalize outcomes, and export reports.

Select Election: -- View All Elections --

Example 1 ACTIVE

President

Abu
0 VOTES

MPP Selection 2026 CLOSED

Club President

Figure 2.4.17 Voting Result Page

Description:

The Voting Results interface is designed for real-time monitoring and post-election auditing. Choose the election on the dropdown bar to display the result in real-time.

Steps to Generate Result:

1. Choose the election that has closed (Status: Closed). The generate button will appear only for closed-status elections. Click the “Generate Result” button.

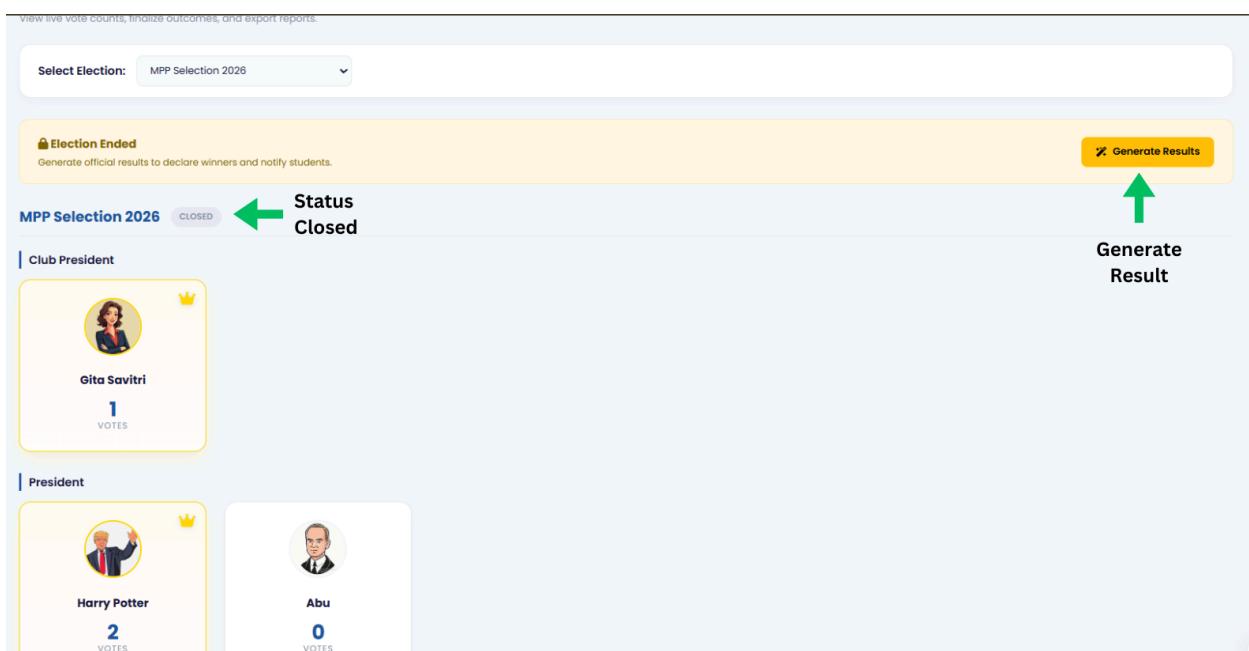


Figure 2.4.18 Generate Result

2. Once we click generate result, the notifications appear successful generated and the student can see the final result of the election in the student pages. The new two-button “Download PDF” and “Reset” will appear. Click download pdf to download the result.

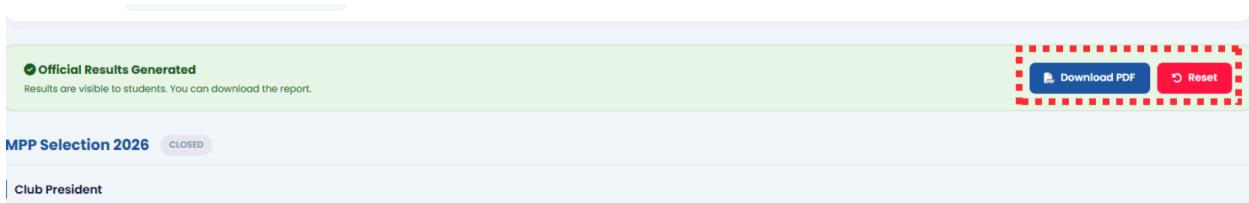


Figure 2.4.19 Generate Result

-
3. Click the “Reset” button to delete the final election result. The confirmation windows appeared. Click the “Ok” button. After the deletion, the student now can no longer see the final result.

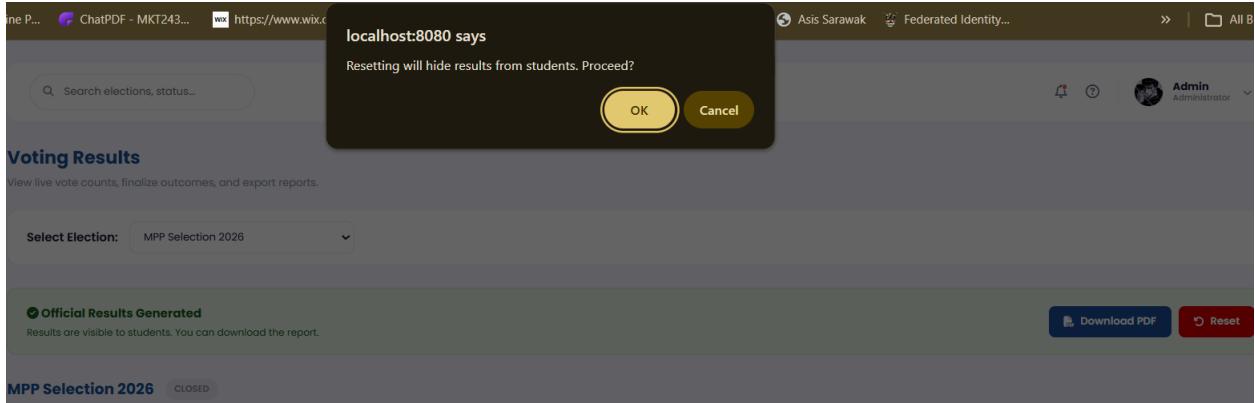


Figure 2.4.20 Reset Result

4. The “Generate Result” appears again after reset.

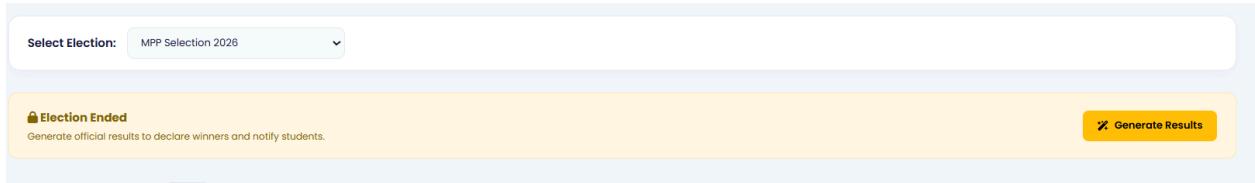


Figure 2.4.21 Generate Result Button

4.2.13 Admin Profile Page

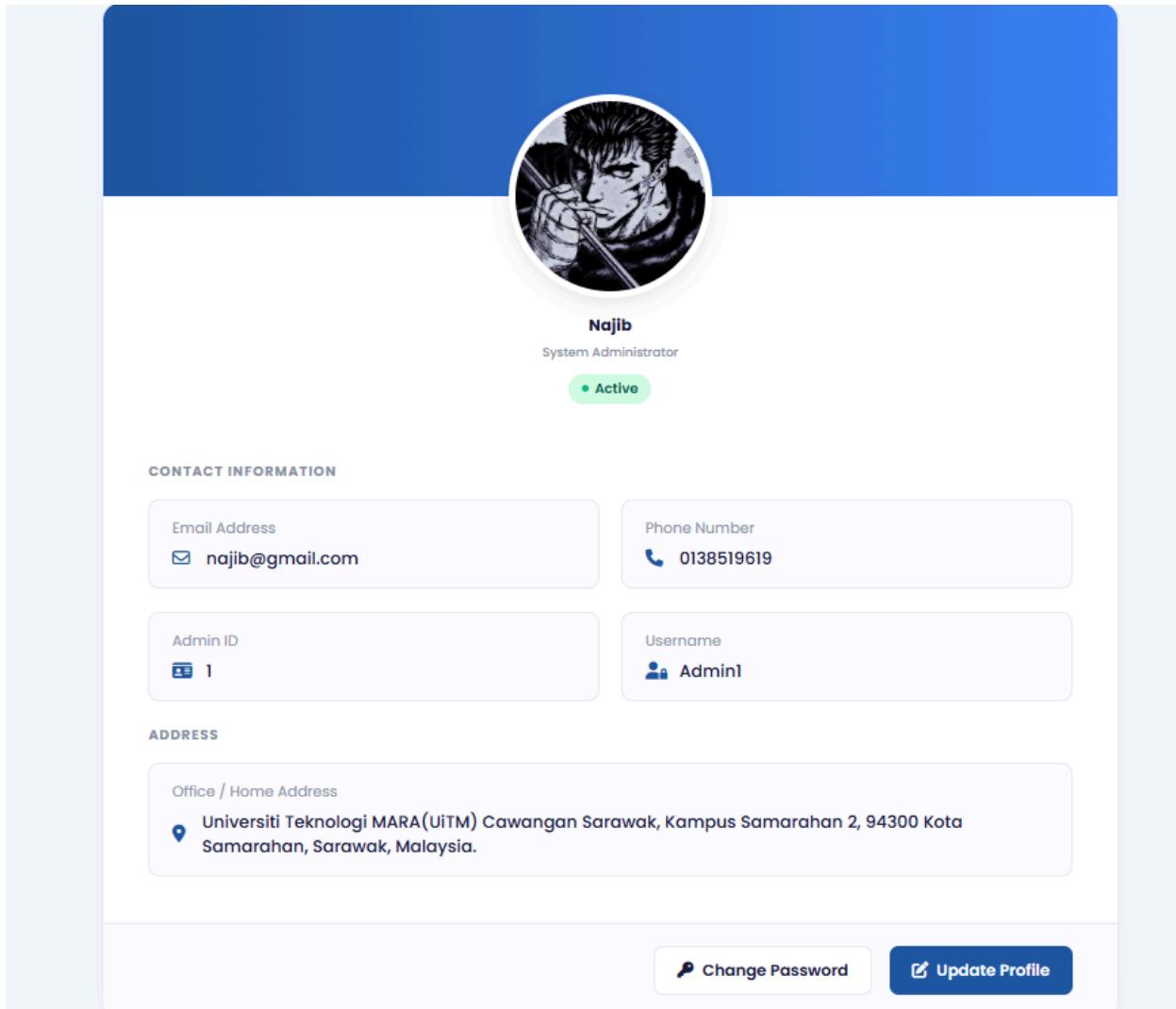


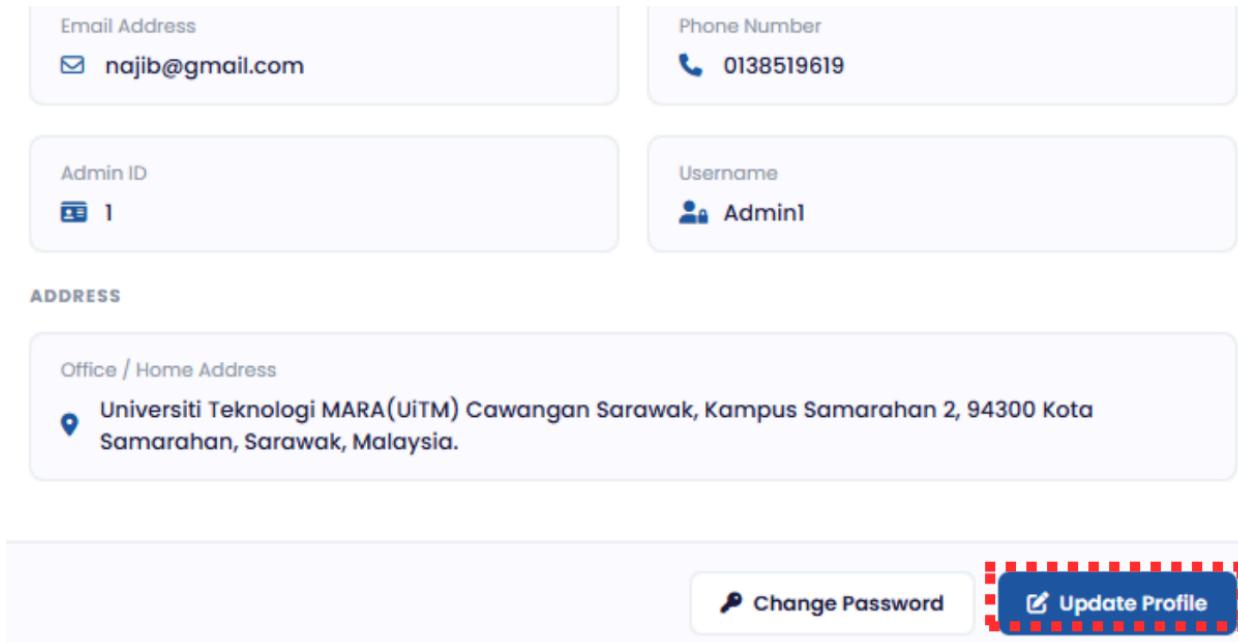
Figure 2.4.22 Admin Profile

Description:

The **My Profile** page is the personal management area for administrators to maintain their credentials and professional information within the ElectVote system.

Update Profile Steps:

1. Click the “Update Profile” button.



The screenshot shows a user interface for updating an admin profile. At the top, there are four input fields: Email Address (najib@gmail.com), Phone Number (0138519619), Admin ID (1), and Username (Admin1). Below these, there is a section labeled ADDRESS containing an address field: Office / Home Address (Universiti Teknologi MARA (UiTM) Cawangan Sarawak, Kampus Samarahan 2, 94300 Kota Samarahan, Sarawak, Malaysia). At the bottom right, there are two buttons: Change Password (disabled) and Update Profile (highlighted with a red dashed border).

Figure 2.4.23 Update Admin Profile

2. By clicking **Update Profile**, the Administrator enters an edit mode where they can:

- **Change Profile Photo:** Upload a new image in JPG or PNG format.
- **Edit Fields:** Update your **Full Name**, **Email Address**, **Phone Number**, and **Address**.
- **Read-Only Info:** Note that **Admin ID** (e.g., 1) is a permanent system value and cannot be changed.

Once finished, click the “Save Changes” button to save the details

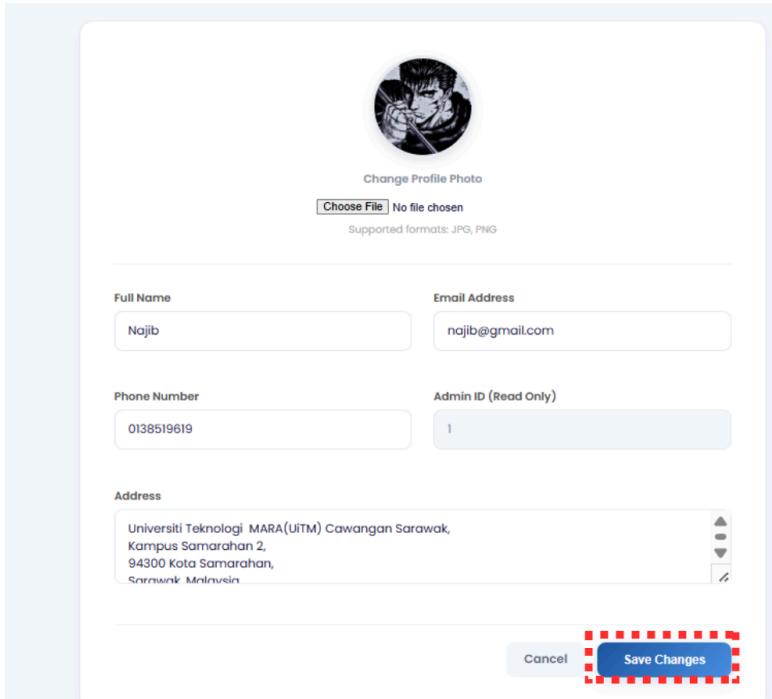


Figure 2.4.24 Edit Admin Profile

3. After that, it will appear green notifications that show the profile was successfully updated.

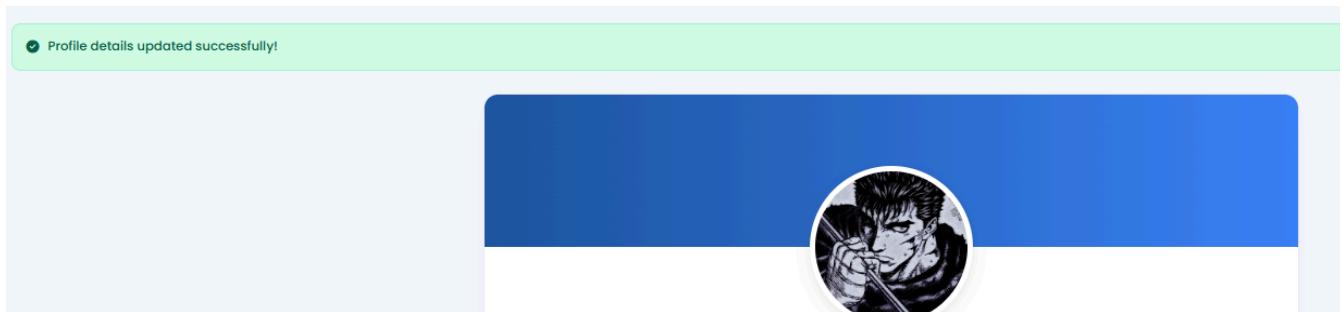
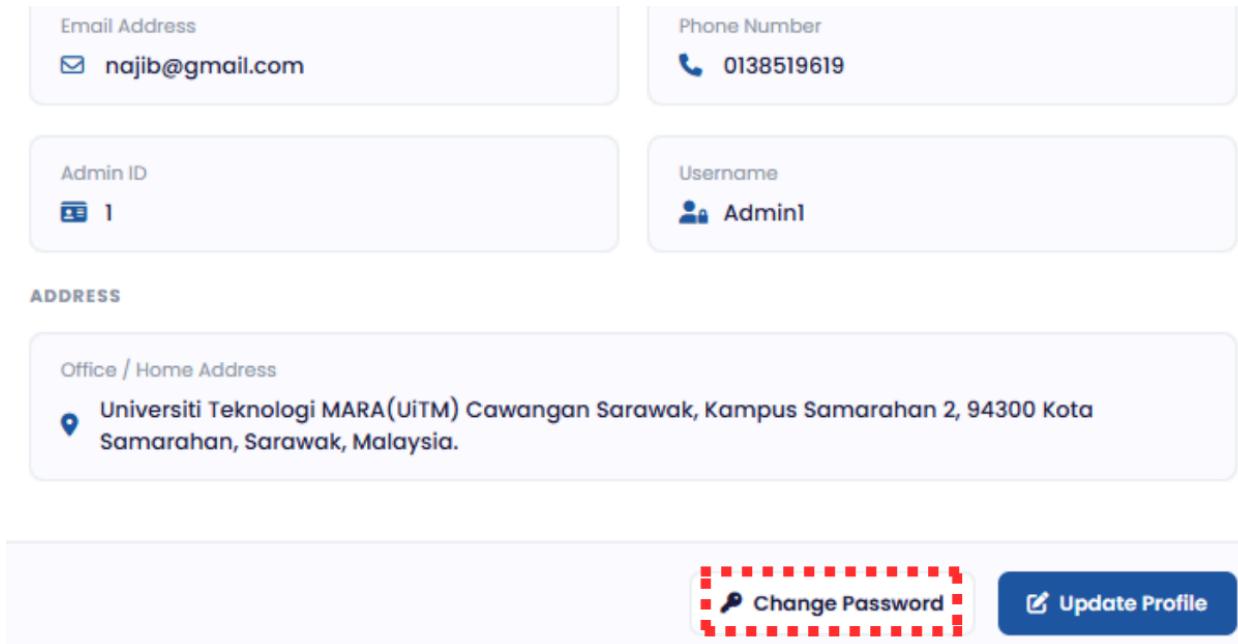


Figure 2.4.25 Success Notifications

Change Password Steps:

1. Click the “Change Password” button.



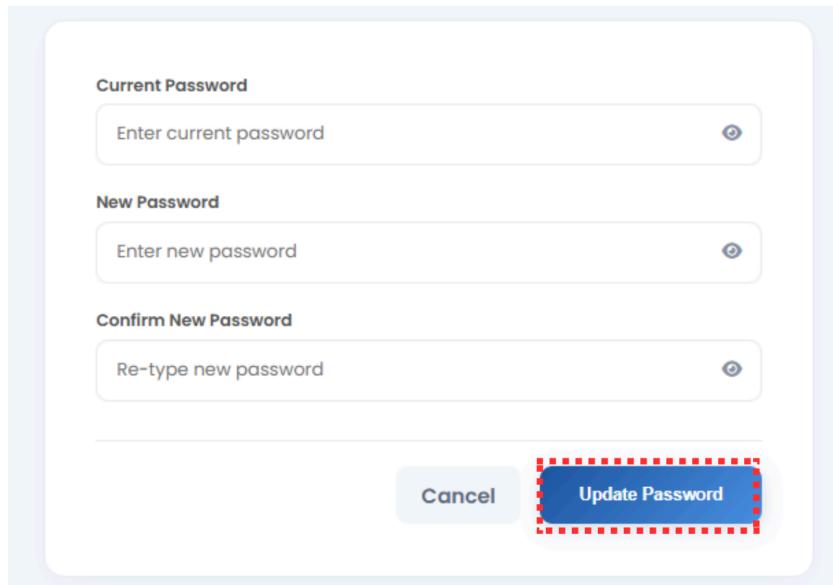
The screenshot shows a user profile page with the following fields:

- Email Address: **najib@gmail.com**
- Phone Number: **0138519619**
- Admin ID: **1**
- Username: **Admin1**
- ADDRESS:
Office / Home Address: **Universiti Teknologi MARA(UiTM) Cawangan Sarawak, Kampus Samarahan 2, 94300 Kota Samarahan, Sarawak, Malaysia.**

At the bottom right, there are two buttons: **Change Password** (highlighted with a red dashed border) and **Update Profile**.

Figure 2.4.26 Change Password Button

2. Insert the old password in the first form and the new password in the second and third rows. Click the “Update Password” button.



The screenshot shows a password update form with the following fields:

- Current Password: **Enter current password**
- New Password: **Enter new password**
- Confirm New Password: **Re-type new password**

At the bottom, there are two buttons: **Cancel** and **Update Password** (highlighted with a red dashed border).

Figure 2.4.27 Update Password Button

3. Then, the notifications will appear successfully updated.



Figure 2.4.28 The Successful Notifications

4.2.14 Admin Logout

Logout Steps:

1. Click the "Sign Out" button in the last list of the navigation sidebar.

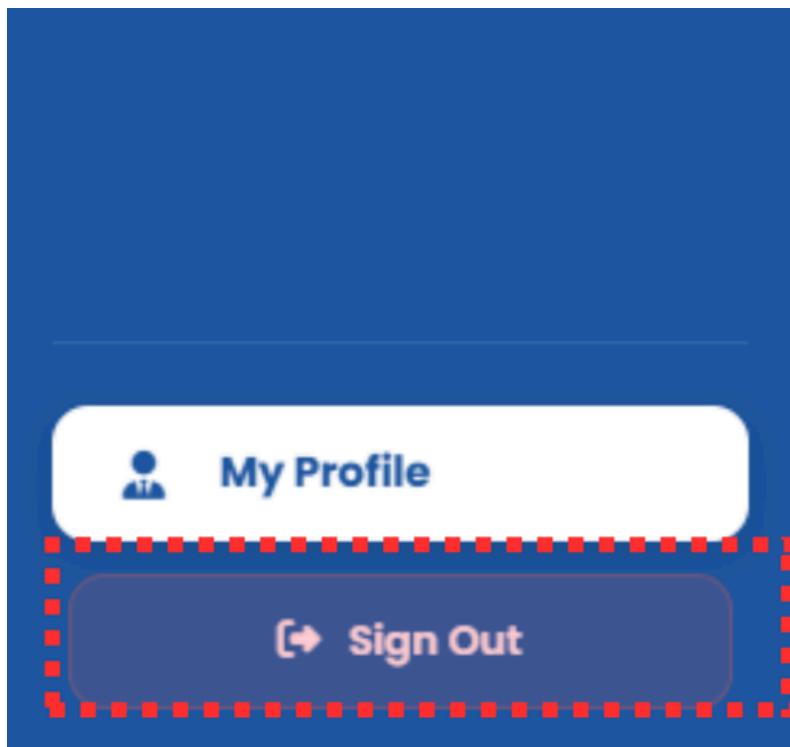


Figure 2.4.29 Sign Out Button

-
2. Click the “Yes, Log out “ button to end the session.

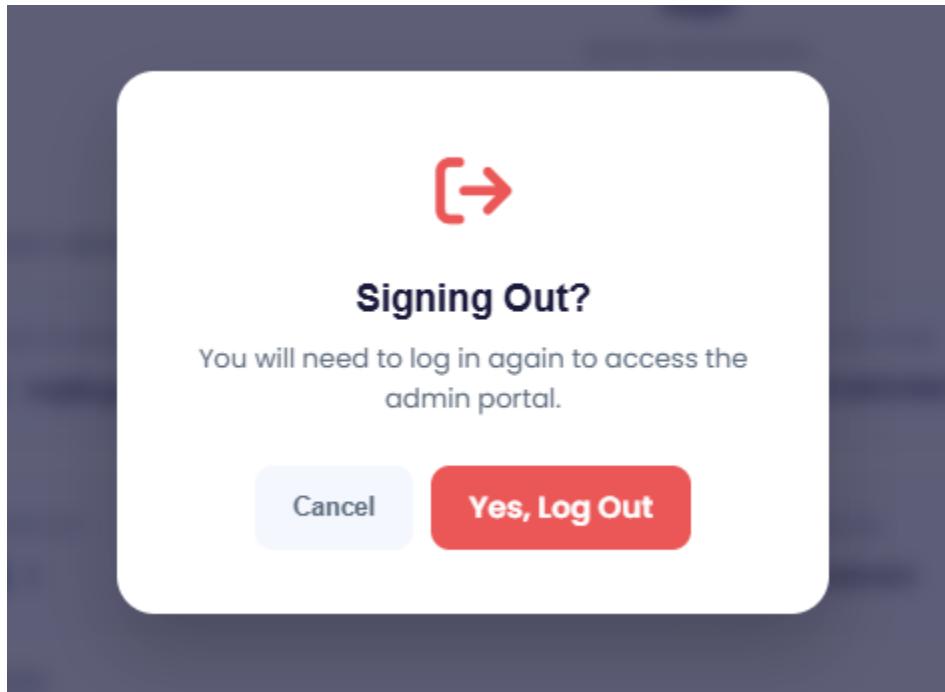


Figure 2.4.30 Log out Button

5.0 Conclusions

The Online Student Election Management System has successfully achieved the goals set at the beginning of this project. By moving from a paper-based process to a digital platform, we have eliminated common issues like counting mistakes, slow registration, and the lack of clear information about candidates. This transition ensures that the entire election process is now faster, more transparent, and much more efficient for everyone involved.

From a technical standpoint, the system is built using the **Model-View-Controller (MVC)** framework, which keeps the code organized and easy to manage. We used JavaBeans to hold data, JSPs to create the user interface, and Servlets to handle the system's logic. Additionally, our database uses a 7-table structure to ensure that all information is stored safely and that every student can only vote once, which maintains the honesty of the election results.

In conclusion, this system is an easy-to-use tool for student elections because it reduces the hard work for administrators and gives students a secure way to see results and cast their votes instantly. In the future, we hope to improve the system further by adding extra security layers and making the design work even better on mobile devices.

6.0 References

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