# JAVA AWT BASED- SQL CONNECTIVITY USING JDBC

## AUTOMATED POLLING SYSTEM

## A REPORT SUBMITTED IN PARTIAL FULFULMENT OF :

***BE IV SEMESTER DATABASE MANAGEMENT SYSTEMS LAB***

## INFORMATION TECHNOLOGY


BY:

V.SREYA <1602-18-737-092>

**Department of Information Technology**

**Vasavi College of Engineering (Autonomous)**

**(Affiliated to Osmania University)**

**Ibrahimbagh, Hyderabad-31**


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# BONAFIDE CERTIFICATE

This is to certify that the project report titled "**AUTOMATED POLLING SYSTEM"** is project work submitted by Ms.V.SREYA bearing Roll.no:1602-18-737-092 who carried out this project under my supervision in the IV semester for the academic year 2019-2020.

Signature

External examiner

Signature

Internal Examiner

# ABSTRACT

An automated polling system helps in registering and certifying voters and collecting their votes. This is a computer based vote casting system that has access to the database which checks if the voter is eligible to vote or not. The database includes 5 tables for storing the information related to the system. The five tables are:

- Voters details
- Nominees details
- Admin
- Parties that are taking part.
- City

The entity ‘voter’ is related to the entity ‘city’ through the relationship ‘from’ and to entity ‘nominee’ through ‘castes_vote’. The entity ‘admin’ is associated to the entity ‘voter’ through the relationship ‘,manage’ whereas the entity ‘nominee’ is related to entity ‘party’ through the relation ‘belongs_to’. The common attributes include ID and name where Id acts as the primary key for that table and as a foreign key to some other table. Domain types used are varchar2, number and date.

This system also provides a manual choice for voters to select their candidate by going to polling booth manually. It comprises of an alarm unit which will turn ON just after the completion of polling of a single person and this process will repeat every time to ensure the voters that they had casted vote successfully.



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# INTRODUCTION

## REQUIREMENTS FOR AN AUTOMATED POLLING SYSTEM:

### ➢ Functional Requirements:

1. Mobility: The voter should not be restricted to cast his ballot at a single poll-site at his home precinct.
   • Realistic: He shall be able to vote from any poll-site within the nation.
   • Unrealistic/Expensive: He shall be able to vote from any county-controlled kiosk (situated at public places such as banks, shopping malls, etc.) within the nation. (Unrealistic because of logistical and cost issues).
   • Infeasible: He shall be able to vote from virtually anywhere using an Internet connection. (Infeasible both for technical security issues as well as social science issues).
2. Convenience: The system shall allow the voters to cast their votes quickly, in one session, and should not require many special skills or intimidate the voter (to ensure Equality of Access to Voters).
3. User-Interface: The system shall provide an easy-to-use user-interface. Also, it shall not disadvantage any candidate while displaying the choices (e.g., by requiring the user to scroll down to see the last few choices).
4. Voter Confirmation: The voter shall be able to confirm clearly how his vote is being cast, and shall be given a chance to modify his vote before he commits it.
5. To issue Receipt or not?
   • The system may issue a receipt to the voter if and only if it can be ensured that vote-coercion and vote-selling are prevented, so that he may verify his vote at any time and also contend, if necessary.
6. No Over-voting: The voter shall be prevented from choosing more than one candidate / answer.
7. Under-voting: The voter may receive a warning of not voting, but the system must not prevent under-voting.

### ➢ Security Requirements:

1. Voter Authenticity: Ensure that the voter must identify himself (with respect to the registration database) to be entitled to vote. If voting

other than at his home precinct, the voter may be asked to show some legal identification document.
2. Registration: The voter registration shall be done in person only. However, the computerized registration database shall be made available to polling-booths all around the nation.
3. Voter Anonymity: Ensure that votes must not be associated with voter identity.
4. System Integrity: Ensure that the system cannot be re-configured during operation.
5. Data Integrity: Ensure that each vote is recorded as intended and cannot be tampered with in any manner, once recorded (i.e., votes should not be modified, forged or deleted without detection).
6. Secrecy / Privacy: No one should be able to determine how any individual voted.
7. Non-coercibility and No Vote-selling: Voters should not be able to prove to others how they voted (which would facilitate vote selling or coercion).
8. Reliability: Election systems should work robustly, without loss of any votes, even in the face of numerous failures, including failures of voting machines and total loss of network communication. The system shall be developed in a manner that ensures there is no malicious code or bugs.
9. Availability: Ensure that system is protected against accidental and malicious denial of service attacks. Also, setup redundant communication paths so that availability is ensured.

- Through the project:

  The main goal to be achieved through this project was to provide an opportunity to display the details of various voters, admin, nominees, parties and cities taking part in the polling and to let a voter cast their vote to a nominee online.
  The project also ensure that the votes that are casted are confidential and are stored in the database.
  SQL particular voter, admin, nominee, party or city can be executed.

- ## Architecture and technology used:

  SQL Plus is the most basic Oracle Database utility with a basic command-line interface, commonly used by users, administrators and programmers.

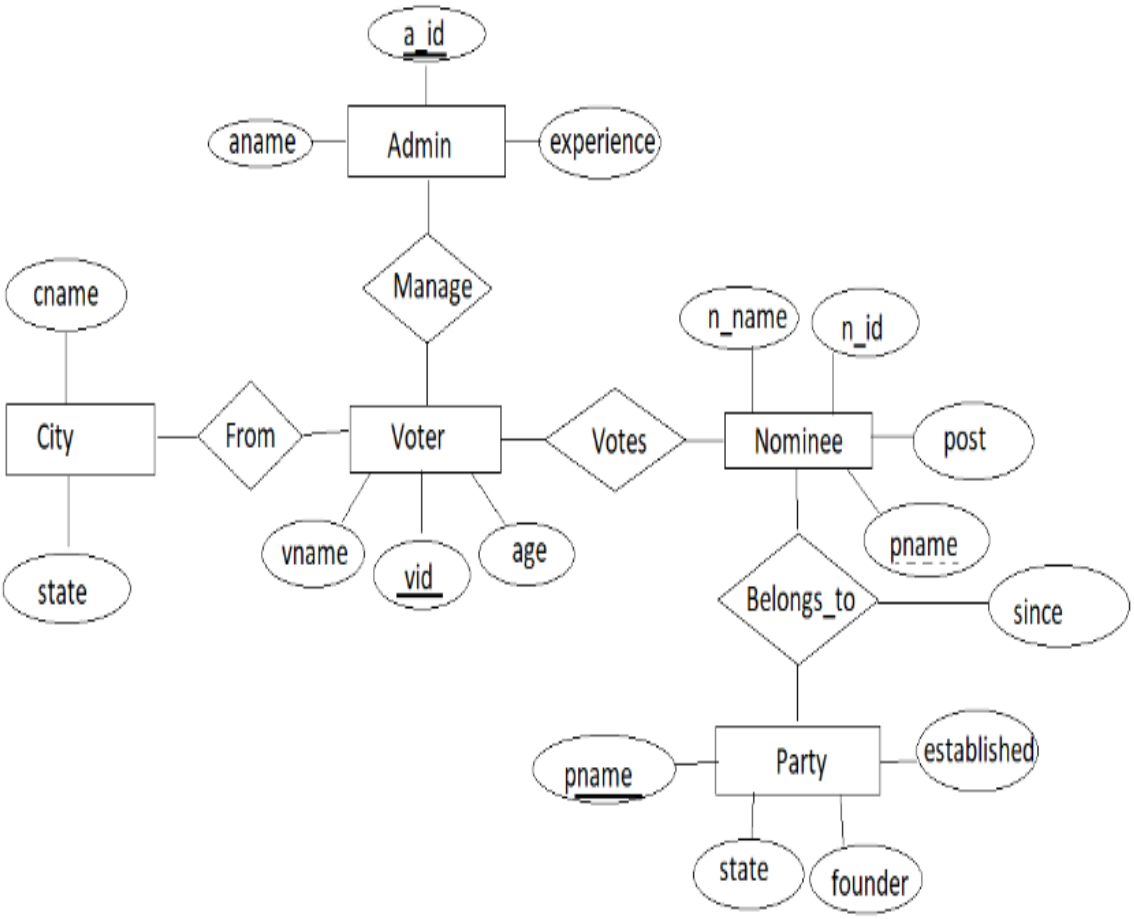
  The interface of SQL Plus is used for creating the database. DDL and DML commands are implemented for operations being executed. The details of various voters, admins, nominees, parties and cities are stored in the form of tables in the database.

  Eclipse is an integrated development environment(IDE) used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. Eclipse is written mostly in java and its primary use is for developing Java applications, but it may also be used to develop applications in other programming languages via plug-ins, including Erlang, JavaScripts etc.

  The front end application code is written in “Java” using Eclipse. The portal for front end application is designed through Eclipse, runs and has the capacity to connect with the database which has data inserted using SQL.

- Design:

ER DIAGRAM




- DATABASE DESIGN:

CONTENT:

- Abstract
- ER Diagram
- Logical database design – DDL commands
- Enforcing primary and foreign keys.
- DML operation and outputs.



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# ABSTRACT:

An automated polling system helps in registering and certifying voters and collecting their votes. This is a computer based vote casting system that has access to the database which checks if the voter is eligible to vote or not. The database includes 5 tables for storing the information related to the system. The five table are:

- Voters details
- Nominees details
- Admin
- Parties that are taking part.
- City

The entity ‘voter’ is related to the entity ‘city’ through the relationship ‘from’ and to entity ‘nominee’ through ‘castes_vote’. The entity ‘admin’ is associated to the entity ‘voter’ through the relationship ‘,manage’ whereas the entity ‘nominee’ is related to entity ‘party’ through the relation ‘belongs_to’. The common attributes include ID and name where Id acts as the primary key for that table and as a foreign key to some other table. Domain types used are varchar2, number and date.



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# LIST OF REQUIREMENTS:

| |
|---|
| List of parties taking part in the polling. |
| Details of the nominees and voters. |
| Details of parties. |
| Cities and constituencies involved. |

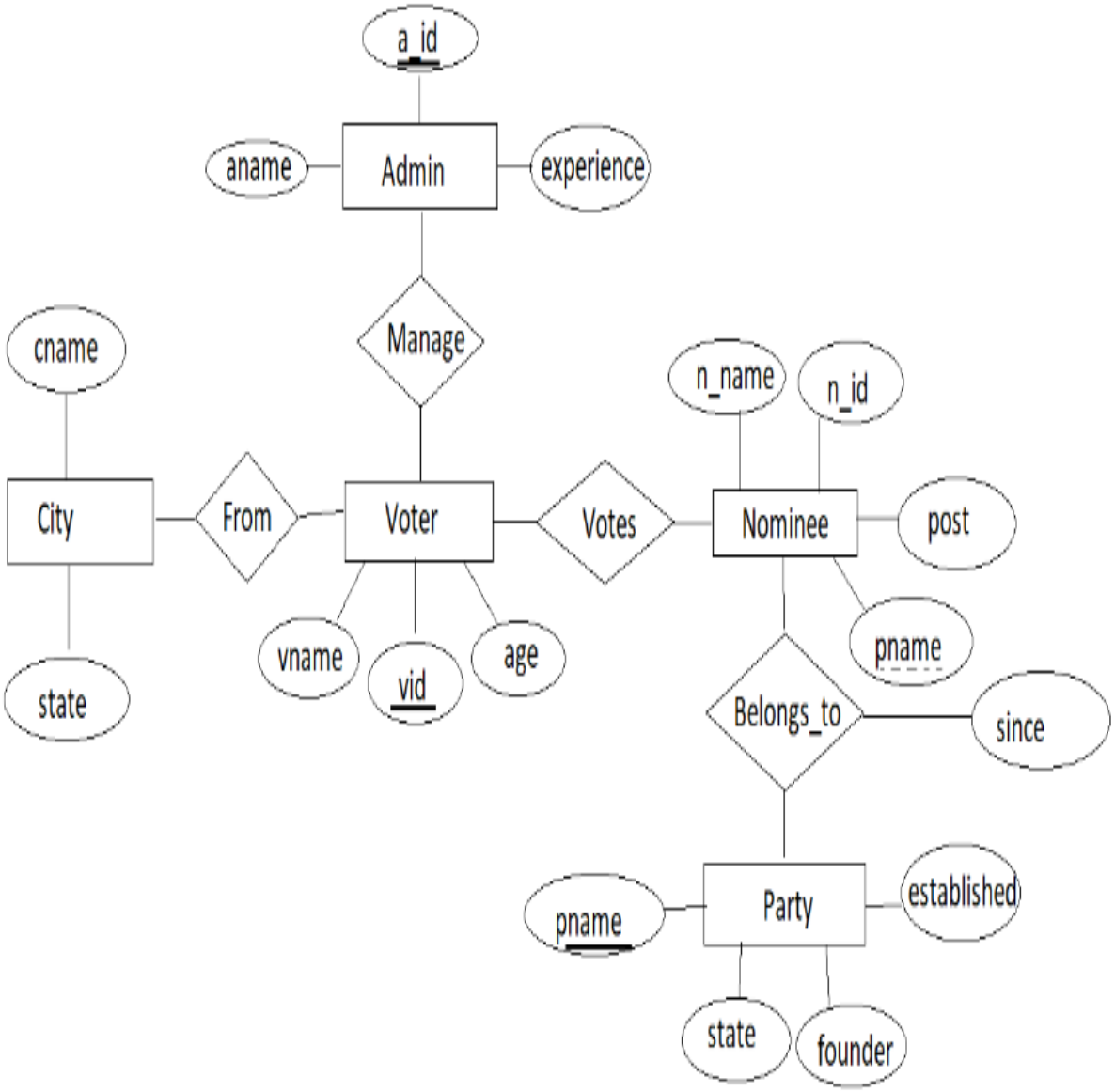
The database requires 5 table for implementation of the polling system.

The five table and their attributes are:

- Voter
  - Voter id : vid- number(5)
  - Voter name : vname- varchar2(20)
  - Age: number(5)
- Nominee
  - Nominee name : n_name- varchar2(20)
  - Nominee id : n_id- number(5)
  - Post : varchar2(20)
  - Party name : p_name- varchar2(20)
- Admin
  - Admin id : a_id- number(5)
  - Admin name : a_name- varchar2(20)
  - Experience : number(5)
- Party
  - Party name : p_name- varchar2(20)
  - State: varchar2(20)
  - Founder : varchar2(20)
  - Established : number(5)
- City
  - City name : cname- varchar2(20)
  - City state : cstate- varchar2(20)
- Belongs_to
  - Since :number(5)

The descriptive attribute ‘since’ in the table ‘belongs_to’ tell about since when the nominee belongs to the party

## ER Diagram:



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## CONSTRAINTS APPLIED:

The database has two constraints that are applied- The primary key constraint and foreign key constraint. The primary keys are:

- a_id in the admin table.
- vid in the voter table.
- pname in the party table.

The attribute pname acts as foreign in the nominee table.



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## DDL Commands:

## For creating party table:

Query: create table party(pname varchar2(20) primary key,
state varchar2(20),
founder varchar(20),
established number(5));

## For creating nominee table:

Query: create table party(n_name varchar2(20),
n_id number(5),
post varchar(20),
pname varchar2(20));

## For creating voter table:

Query: create table voter(vid number(5) primary key,
vname varchar2(20),
age number(5));

## For creating admin table:

Query: create table admin(aid number(5) primary key,
aname varchar2(20),
experience number(5));

## For creating city table:

Query: create table city(cname varchar2(20),
cstate varchar2(20));

## For creating belongs_to table:

Query: create table belongs_to(since number(5));



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```
SQL> create table party(pname varchar2(20) primary key,
  2  state varchar2(20),
  3  founder varchar2(20),
  4  established number(5));

Table created.

SQL> create table nominee(n_name varchar2(20),
  2  n_id number(5),
  3  post varchar2(20),
  4  pname varchar2(20));

Table created.

SQL> alter table nominee add foreign key(pname) references party;

Table altered.
```

```
SQL> create table voter(vid number(5),
  2  vname varchar2(20),
  3  age number(5));

Table created.

SQL> alter table voter add primary key(vid);

Table altered.

SQL> create table admin(a_id number(5) primary key,
  2  aname varchar2(20),
  3  experience number(5));

Table created.
```



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```
SQL> alter table city add(cstate varchar2(20));

Table altered.

SQL> desc city;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CNAME                                              VARCHAR2(20)
 CSTATE                                             VARCHAR2(20)

SQL> desc party;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PNAME                                     NOT NULL VARCHAR2(20)
 STATE                                              VARCHAR2(20)
 FOUNDER                                            VARCHAR2(20)
 ESTABLISHED                                        NUMBER(5)

SQL> desc nominee;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 N_NAME                                             VARCHAR2(20)
 N_ID                                               NUMBER(5)
 POST                                               VARCHAR2(20)
 PNAME                                              VARCHAR2(20)

SQL> desc admin;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 A_ID                                      NOT NULL NUMBER(5)
 ANAME                                              VARCHAR2(20)
 EXPERIENCE                                         NUMBER(5)

SQL> desc desc voter;
Usage: DESCRIBE [schema.]object[@db_link]
SQL> desc voter;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 VID                                       NOT NULL NUMBER(5)
 VNAME                                              VARCHAR2(20)
 AGE                                                NUMBER(5)
```



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## DML Commands:

```
SQL> insert into nominee values('&n_name',&n_id,'&post','&pname');
Enter value for n_name: Amit shah
Enter value for n_id: 1001
Enter value for post: president
Enter value for pname: BJP
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Amit shah',1001,'president','BJP')

1 row created.

SQL> /
Enter value for n_name: Uddhav Thackeray
Enter value for n_id: 1002
Enter value for post: Chair person
Enter value for pname: Shiv Sena
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Uddhav Thackeray',1002,'Chair person','Shiv Sena')

1 row created.
```

```
SQL> /
Enter value for n_name: Sonia Gandhi
Enter value for n_id: President
Enter value for post: 1001
Enter value for pname: kd
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Sonia Gandhi',President,'1001','kd')
insert into nominee values('Sonia Gandhi',President,'1001','kd')
                                          *
ERROR at line 1:
ORA-00984: column not allowed here


SQL> /
Enter value for n_name: Sonia Gandhi
Enter value for n_id: 1003
Enter value for post: President
Enter value for pname: Congress
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Sonia Gandhi',1003,'President','Congress')

1 row created.

SQL> /
Enter value for n_name: Chandra Babu Naidu
Enter value for n_id: 1004
Enter value for post: president
Enter value for pname: TDP
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Chandra Babu Naidu',1004,'president','TDP')

1 row created.
```



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```
SQL> insert into nominee values('&n_name',&n_id,'&post','&pname');
Enter value for n_name: Supriya Sule
Enter value for n_id: 1005
Enter value for post: LokSabha leader
Enter value for pname: Rashtrawadi congress
old   1: insert into nominee values('&n_name',&n_id,'&post','&pname')
new   1: insert into nominee values('Supriya Sule',1005,'LokSabha leader','Rashtrawadi congress')

1 row created.
```



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```
SQL> select * from party;

PNAME                STATE                FOUNDER              ESTABLISHED
-------------------- -------------------- -------------------- -----------
BJP                  all                  AtalBihariVajpayee          1980
Shiv Sena            Maharashtra          Bal Thackeray               1966
Congress             all                  Dadabhai Naoroji            1885
TDP                  Andhra Pradesh       NT Rama Rao                 1982
Rashtrawadi congress all                  Sharadh Pawar               1999

SQL> select * from nominee;

N_NAME                    N_ID POST                 PNAME
-------------------- ---------- -------------------- --------------------
Amit shah                 1001 president            BJP
Uddhav Thackeray          1002 Chair person         Shiv Sena
Sonia Gandhi              1003 President            Congress
Chandra Babu Naidu        1004 president            TDP
Supriya Sule              1005 LokSabha leader      Rashtrawadi congress

SQL> select * from voter;

       VID VNAME                          AGE
---------- -------------------- ----------
      2001 Ayesha                         21
      2002 Rivaah                         27
      2003 Mayank                         19
      2004 Vivaan                         18
      2005 Manik                          19

SQL> select * from admin;

      A_ID ANAME                EXPERIENCE
---------- -------------------- ----------
      3001 Parth                         6
      3002 Abhishek                      2
      3003 Moksh                         5
      3004 Ansh                          5
      3005 Aniketh                      10

SQL> select * from city;

CNAME                CSTATE
-------------------- --------------------
Pune                 Maharashtra
Hyderabad            Telangana
Kinwat               Maharashtra
chandigarh           Punjab
Bengaluru            Karnataka
```



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```
SQL> desc belongs_to;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 SINCE                                              NUMBER(5)

SQL> insert into belongs_to values(&since);
Enter value for since: 1990
old   1: insert into belongs_to values(&since)
new   1: insert into belongs_to values(1990)

1 row created.

SQL> /
Enter value for since: 1966
old   1: insert into belongs_to values(&since)
new   1: insert into belongs_to values(1966)

1 row created.

SQL> /
Enter value for since: 1885
old   1: insert into belongs_to values(&since)
new   1: insert into belongs_to values(1885)

1 row created.

SQL> /
Enter value for since: 1982
old   1: insert into belongs_to values(&since)
new   1: insert into belongs_to values(1982)

1 row created.

SQL> /
Enter value for since: 1999
old   1: insert into belongs_to values(&since)
new   1: insert into belongs_to values(1999)

1 row created.
```



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# Implementation

- Front end programs:

1) Insert a voter:

```
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.sql.*;
public class insertVoter extends Panel{
	/**
	 *
	 */
	private static final long serialVersionUID = 1L;
	Button insertVoterButton;
	TextField vid,vname,age;
	TextArea errorText;
	Connection connection;
	Statement statement;
	public insertVoter()
	{
		try
		{
			Class.forName("oracle.jdbc.driver.OracleDriver");
		}
		catch(Exception e)
		{
```

```
                System.err.println("Unable to find and load driver");
                System.exit(1);
            }
            connectToDB();
        }
        public void connectToDB()
        {
            try
            {

        connection=DriverManager.getConnection("jdbc:oracle:thin:@loc
alhost:1521:orcl","sreya","sreya");
                statement=connection.createStatement();
            }
            catch(SQLException connectException)
            {
                System.out.println(connectException.getMessage());
                System.out.println(connectException.getSQLState());

        System.out.println(connectException.getErrorCode());
                System.exit(1);
            }
        }
        public void buildGUI()
        {
            insertVoterButton = new Button("Submit");
```

```
insertVoterButton.addActionListener(new ActionListener()
{
	public void actionPerformed(ActionEvent e)
	{
		try
		{
			Statement statement =
connection.createStatement();
			String query="INSERT INTO voter
VALUES("+vid.getText()+","+"'"+vname.getText()+"',"+""+age.getText()+"
)";
			int i=statement.executeUpdate(query);

	errorText.append("\nInserted"+i+"rows.");
		}
		catch(SQLException insertException)
		{
			displaySQLErrors(insertException);
		}
	}
}
		);
vid=new TextField(20);
vname=new TextField(20);
age=new TextField(20);
errorText=new TextArea(10,80);
```



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```
        errorText.setEditable(false);
        Panel first=new Panel();
        first.setLayout(new GridLayout(6,2));
        first.add(new Label("VOTER ID:"));
        first.add(vid);
        first.add(new Label("VOTER NAME:"));
        first.add(vname);
        first.add(new Label("VOTER AGE:"));
        first.add(age);
        first.setBounds(300,150,350,150);
        Panel second=new Panel(new GridLayout(6,1));
        second.add(insertVoterButton);
        second.setBounds(200,350,350,150);
        Panel third=new Panel();
        third.add(errorText);
        third.setBounds(200,500,700,600);
        setLayout(null);
        add(first);
        add(second);
        add(third);
        setSize(500,600);
        setVisible(true);

    }
    private void displaySQLErrors(SQLException e)
```



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```
        {
                errorText.append("\nSQLException:"+e.getMessage()+"\n");
                errorText.append("SQLState: "+e.getSQLState()+"\n");
                errorText.append("VoterError: "+e.getErrorCode()+"\n");
        }
        public static void main(String[] args)
        {
                insertVoter voter=new insertVoter();
                voter.buildGUI();
        }
}
```

2) Delete a voter:

```
import java.awt.Button;
import java.awt.FlowLayout;
import java.awt.GridLayout;
import java.awt.Label;
import java.awt.List;
import java.awt.Panel;
import java.awt.TextArea;
import java.awt.TextField;
import java.awt.event.*;
import java.sql.*;
public class deleteVoter extends Panel
{
    /**
     *
     */
    private static final long serialVersionUID = 1L;
    Button deleteVoterButton;
    List voterIDList;
```

```
TextField vid, vname,age;
TextArea errorText;
Connection connection;
Statement statement;
ResultSet rs;

public deleteVoter()
{

        try
        {
                Class.forName("oracle.jdbc.driver.OracleDriver");
        }
        catch (Exception e)
        {
                System.err.println("Unable to find and load driver");
                System.exit(1);
        }
        connectToDB();
}

public void connectToDB()
{

        try
        {
                connection
=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:or
cl","sreya","sreya");

                statement = connection.createStatement();

        }
        catch (SQLException connectException)
        {
                System.out.println(connectException.getMessage());
```

```
                    System.out.println(connectException.getSQLState());

        System.out.println(connectException.getErrorCode());
                    System.exit(1);
                }

        }
        private void loadProvider()
        {
                try
                {
                    rs = statement.executeQuery("SELECT * FROM
    voter");
                    while (rs.next())
                    {
                        voterIDList.add(rs.getString("VID"));
                    }
                }
                catch (SQLException e)
                {
                    displaySQLErrors(e);
                }
        }

        public void buildGUI()
        {
                voterIDList = new List(10);
                loadProvider();
                add(voterIDList);


        voterIDList.addItemListener(new ItemListener()
        {
                public void itemStateChanged(ItemEvent e)
                {
                    try
```

```
                    {
                        rs = statement.executeQuery("SELECT * FROM
voter");

                        while (rs.next())
                        {

   if(rs.getString("VID").equals(voterIDList.getSelectedItem()))
                            break;
                        }
                        if (!rs.isAfterLast())
                        {
                            vid.setText(rs.getString("VID"));
                            vname.setText(rs.getString("VNAME"));
                            age.setText(rs.getString("AGE"));
                        }
                    }
                    catch (SQLException selectException)
                    {
                        displaySQLErrors(selectException);
                    }
                }
    });
    deleteVoterButton = new Button("Delete voter");
    deleteVoterButton.addActionListener(new ActionListener()

    {
        public void actionPerformed(ActionEvent e)
        {
            try
            {
                Statement statement =
connection.createStatement();
                int i = statement.executeUpdate("DELETE
FROM voter WHERE VID = "+ voterIDList.getSelectedItem());
```



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```
                        errorText.append("\nDeleted " + i + " rows");
                        vid.setText(null);
                        vname.setText(null);
                        age.setText(null);
                        voterIDList.removeAll();
                        loadProvider();
                }
                catch (SQLException insertException)
                {
                        displaySQLErrors(insertException);
                }
        }
});

vid = new TextField(15);
vname = new TextField(15);
age = new TextField(15);
errorText = new TextArea(10, 40);
errorText.setEditable(false);

Panel first = new Panel();
first.setLayout(new GridLayout(5,2));
first.add(new Label("Voter ID:"));
first.add(vid);
vid.setEditable(false);
first.add(new Label("Voter Name:"));
first.add(vname);
vname.setEditable(false);
first.add(new Label("Voter Age:"));
first.add(age);
age.setEditable(false);
Panel second = new Panel(new GridLayout(5, 1));
second.add(deleteVoterButton);

Panel third = new Panel();
```



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```
        third.add(errorText);

        add(first);
        add(second);
        add(third);

        setSize(500, 600);
        setLayout(new FlowLayout());
        setVisible(true);

        }
        private void displaySQLErrors(SQLException e)
        {
                errorText.append("\nSQLException: " + e.getMessage() +
    "\n");
                errorText.append("SQLState: " + e.getSQLState() + "\n");
                errorText.append("VendorError: " + e.getErrorCode() +
    "\n");
        }

        public static void main(String[] args)
        {
                deleteVoter del = new deleteVoter();
                del.buildGUI();
        }
    }
```

3) Update a voter:

```
    import java.awt.event.*;
    import java.sql.*;
    public class updateVoter extends Panel
    {
        Button updateVoterButton;
        List voterIDList;
        TextField vidText,vnameText, vageText;
        TextArea errorText;
```

```
Connection connection;
Statement statement;
ResultSet rs;

public updateVoter()
{
        try
        {
                Class.forName("oracle.jdbc.driver.OracleDriver");
        }
        catch (Exception e)
        {
                System.err.println('Unable to find and load driver");
                System.exit(1);
        }
        connectToDB();
}
public void connectToDB()
{

        try
        {
                connection
=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:or
cl","sreya","sreya");

                statement = connection.createStatement();

        }
        catch (SQLException connectException)
        {
                System.out.println(connectException.getMessage());
                System.out.println(connectException.getSQLState());

System.out.println(connectException.getErrorCode());
                System.exit(1);
```



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```
                }

        }
        private void loadProvider()
        {
                try
                {
                        rs = statement.executeQuery("SELECT VID FROM
    voter");
                        while (rs.next())
                        {
                                voterIDList.add(rs.getString("VID"));
                        }
                }

                catch (SQLException e)

                private void loadProvider()
                {
                try
                {
                        rs = statement.executeQuery("SELECT VID FROM
    voter");
                        while (rs.next())
                        {
                                voterIDList.add(rs.getString("VID"));
                        }
                }

                catch (SQLException e)
                {
                        displaySQLErrors(e);
                }
        }

        public void buildGUI()
```

```
        {
                voterIDList = new List(10);
                loadProvider();
                add(voterIDList);
                voterIDList.addItemListener(new ItemListener()
                {
                        public void itemStateChanged(ItemEvent e)
                        {
                                try
                                {
                                        rs = statement.executeQuery("SELECT *
FROM voter");

                                        while (rs.next())
                                        {
                                                if
(rs.getString("VID").equals(voterIDList.getSelectedItem()))
                                                break;
                                        }
                                        if (!rs.isAfterLast())
                                        {

    vidText.setText(rs.getString("VID"));

    vnameText.setText(rs.getString("VNAME"));

    vageText.setText(rs.getString("VAGE"));

                                        }
                                }
                                catch (SQLException selectException)
                                {
                                        displaySQLErrors(selectException);
                                }
                        }
                });
```

```
            updateVoterButton = new Button(“Modify");
            updateVoterButton.addActionListener(new ActionListener()
            {
                  public void actionPerformed(ActionEvent e)
                  {
                        try
                        {
                              Statement statement =
connection.createStatement();
                              int i =
statement.executeUpdate("UPDATE voter"+ "SET vname='" +
vnameText.getText() + ","+ "vage='" + vageText.getText() +" WHERE
VID ="+ voterIDList.getSelectedItem());

                              errorText.append("\nUpdated " + i + "
rows ");
                              voterIDList.removeAll();
                              loadProvider();
                        }
                        catch (SQLException insertException)
                        {
                              displaySQLErrors(insertException);
                        }
                  }
            });
            vidText = new TextField(15);
            vidText.setEditable(false);
            vnameText = new TextField(15);
            vageText = new TextField(15);
            errorText = new TextArea(10, 40);
            errorText.setEditable(false);

            Panel first = new Panel();
            first.setLayout(new GridLayout(5, 2));
            first.add(new Label("Voter ID:"));
            first.add(vidText);
```

```
                first.add(new Label("Voter Name:"));
                first.add(vnameText);
                first.add(new Label("Voter Age:"));
                first.add(vageText);
                Panel second = new Panel(new GridLayout(5, 1));
                second.add(updateVoterButton);

                Panel third = new Panel();
                third.add(errorText);

                add(first);
                add(second);
                add(third);

                setSize(500, 600);
                setLayout(new FlowLayout());
                setVisible(true);

        }
        private void displaySQLErrors(SQLException e)
        {
                errorText.append("\nSQLException: " + e.getMessage() +
"\n");
                errorText.append("SQLState: " + e.getSQLState() + "\n");
                errorText.append("VendorError: " + e.getErrorCode() +
"\n");
        }

        public static void main(String[] args)
        {
                updateVoter uv = new updateVoter();

                uv.buildGUI();
        }
}
```

4) Main method



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```
import java.awt.*;
import java.awt.event.*;


class OnlinePollingSystem extends Frame implements ActionListener
{
        String msg = "";
        Label ll,l2;
        CardLayout cardLO;
        insertVoter inv;
        updateVoter upv;
        deleteVoter delv;
        insertAdmin ina;
        updateAdmin upa;
        deleteAdmin dela;
        insertNominee inn;
        updateNominee upn;
        deleteNominee deln;
        insertCity inc;
        updateCity upc;
        deleteCity delc;
        insertParty inp;
        updateParty upp;
```



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```
deleteParty delp;
Panel home,welcome;

OnlinePollingSystem()
{
        cardLO = new CardLayout();
        home = new Panel();
        home.setLayout(cardLO);
        ll = new Label();
        l2 =new Label();
        ll.setAlignment(Label.CENTER);
        l2.setAlignment(Label.CENTER);
        ll.setText("Welcome to Online Online Polling
System");
        l2.setText("All @rights are reserved");
        welcome = new Panel();
        welcome.add(ll);
        welcome.add(l2);
        inv = new insertVoter();
        inv.buildGUI();
        upv = new updateVoter();
        upv.buildGUI();
```

```
delv = new deleteVoter();
delv.buildGUI();
ina = new insertAdmin();
ina.buildGUI();
upa= new updateAdmin();
upa.buildGUI();
dela = new deleteAdmin();
dela.buildGUI();
inn = new insertNominee();
inn.buildGUI();
upn = new updateNominee();
upn.buildGUI();
deln = new deleteNominee();
deln.buildGUI();
inc = new insertCity();
inc.buildGUI();
upc = new updateCity();
upc.buildGUI();
delc = new deleteCity();
delc.buildGUI();
inp = new insertParty();
inp.buildGUI();
```

```
                upp = new updateParty();
                upp.buildGUI();
                delp =  new deleteParty();
                delp.buildGUI();
                //add all the panels to the home panel which has a
        cardlayout
                home.add(welcome, "Welcome");
                home.add(inv, "insertVoter");
                home.add(upv, "updateVoter");
                home.add(delv, "deleteVoter");
                home.add(ina, "insertAdmin");
                home.add(upa, "updateAdmin");
                home.add(dela, "deleteAdmin");
                home.add(inn, "insertNominee");
                home.add(upn, "updateNominee");
                home.add(deln, "deleteNominee");
                home.add(inc, "insertCity");
                home.add(upc, "updateCity");
                home.add(delc, "deleteCity");
                home.add(inp, "insertParty");
                home.add(upp, "updateParty");
                home.add(delp, "deleteParty");
```

```
                    // add home panel to main frame
                    add(home);

                    // create menu bar and add it to frame
                    MenuBar mbar = new MenuBar();
                    setMenuBar(mbar);

                    // create the menu items and add it to Menu
                    Menu voter = new Menu("Voter");
                    MenuItem item1, item2, item3;
                    voter.add(item1 = new MenuItem("Insert Voter"));
                    voter.add(item2 = new MenuItem("View Voter"));
                    voter.add(item3 = new MenuItem("Delete Voter"));
                    mbar.add(voter);

                    Menu nominee = new Menu("Nominee");
                    MenuItem item4, item5, item6;
                    nominee.add(item4 = new MenuItem("Insert
Nominee"));
                    nominee.add(item5 = new MenuItem("View
Nominee"));
```



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```
                nominee.add(item6 = new MenuItem("Delete
    Nominee"));
                mbar.add(nominee);

                Menu admin = new Menu("Admin");
                MenuItem item7, item8, item9;
                admin.add(item7 = new MenuItem("Insert Admin"));
                admin.add(item8 = new MenuItem("View Admin"));
                admin.add(item9 = new MenuItem("Delete Admin"));
                mbar.add(admin);

                Menu party = new Menu("Party");
                MenuItem item10, item11, item12;
                party.add(item10 = new MenuItem("Insert Party"));
                party.add(item11 = new MenuItem("View Party"));
                party.add(item12 = new MenuItem("Delete Party"));
                mbar.add(party);

                Menu city = new Menu("City");
                MenuItem item13, item14, item15;
                city.add(item13 = new MenuItem("Insert City"));
                city.add(item14 = new MenuItem("View City"));
```

```
city.add(item15 = new MenuItem("Delete City"));
mbar.add(city);

// register listeners
item1.addActionListener(this);
item2.addActionListener(this);
item3.addActionListener(this);
item4.addActionListener(this);
item5.addActionListener(this);
item6.addActionListener(this);
item7.addActionListener(this);
item8.addActionListener(this);
item9.addActionListener(this);
item10.addActionListener(this);
item11.addActionListener(this);
item12.addActionListener(this);
item13.addActionListener(this);
item14.addActionListener(this);
item15.addActionListener(this);

addWindowListener(new WindowAdapter(){
        public void windowClosing(WindowEvent we)
```

```
                {
                        System.exit(0);
                }
            });

            //Frame properties
            setTitle("Online Polling System");
            Color clr = new Color(50, 150, 100);
            setBackground(clr);
            setFont(new Font("SansSerif",
Font.CENTER_BASELINE, 18));
            setSize(900, 1000);

            setVisible(true);

        }

        public void actionPerformed(ActionEvent ae)
        {
            String arg = ae.getActionCommand();
            if(arg.equals("Insert Voter"))
            {
```

```
                cardLO.show(home, "insertVoter");
        }

            else if(arg.equals("View Voter"))
            {

                cardLO.show(home, "updateVoter");
            }

            else if(arg.equals("Delete Voter"))
            {

                cardLO.show(home, "deleteVoter");
            }
            else if(arg.equals("Insert Nominee"))
            {

                 cardLO.show(home, "insertNominee");
            }
            else if(arg.equals("View Nominee"))
            {
```

```
            cardLO.show(home, "updateNominee");
        }
        else if(arg.equals("Delete Nominee"))
        {

            cardLO.show(home, "deleteNominee");
        }
        else if(arg.equals("Insert Admin"))
        {

            cardLO.show(home, "insertAdmin");

        }
        else if(arg.equals("View Admin"))
        {

            cardLO.show(home, "updateAdmin");

        }
        else if(arg.equals("Delete Admin"))
        {
```

```
            cardLO.show(home, "deleteAdmin");
        }
        else if(arg.equals("Insert Party"))
        {

            cardLO.show(home, "insertParty");
        }
        else if(arg.equals("View Party"))
        {

            cardLO.show(home, "updateParty");
        }
        else if(arg.equals("Delete Party"))
        {

            cardLO.show(home, "deleteParty");
        }
       else if(arg.equals("Insert City"))
        {

            cardLO.show(home, "insertCity");
        }
```

```
                else if(arg.equals("View City"))
                {

                        cardLO.show(home, "updateCity");
                }
                else
                {

                        cardLO.show(home, "deleteCity");
                }
        }
        public static void main(String ... args)
        {
                new OnlinePollingSystem();
        }
}
```

## Connectivity with the Database:

Java Database Connectivity (JDBC) is an application programming interface (API) for the programming language Java, which defines how a client may access a database. It is a Java-based data access technology used for Java database connectivity. It is part of the Java Standard Edition platform, from Oracle Corporation. It provides methods to query and update data in a database and is oriented towards relational databases.

Block of code for JAVA- SQL connectivity with JDBC:

```
public void connectToDB()
	{
		try
		{

	connection=DriverManager.getConnection("jdbc:oracle:thin:@localhost:
1521:orcl","sreya","sreya");
			statement=connection.createStatement();
		}
		catch(SQLException connectException)
		{
			System.out.println(connectException.getMessage());
			System.out.println(connectException.getSQLState());
			System.out.println(connectException.getErrorCode());
			System.exit(1);
		}
	}
```

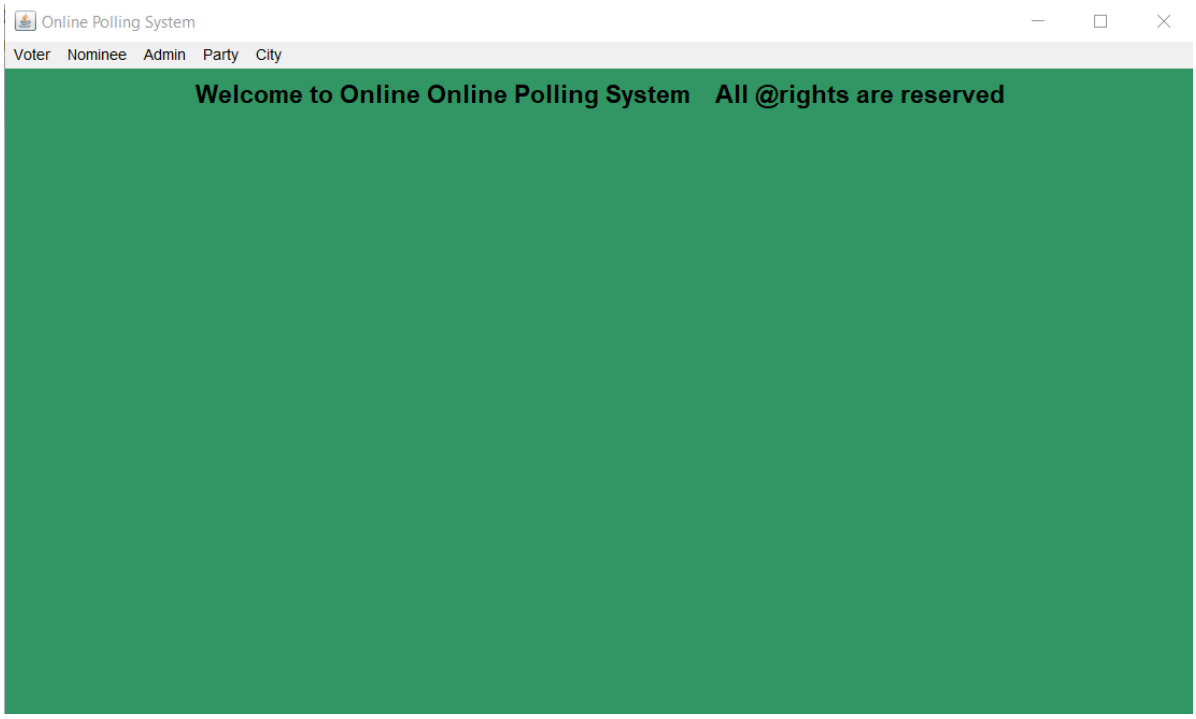
GITHUB LINK:

https://github.com/sreya177/dbms-assignment-2.git

# TESTING

The program runs for execution of three basic operations of insertion, update and delete on 5 different table. Along with this, it also has a output column which gives the information about how many rows have been edited. Errors, syntactical or exceptional will be shown if occurred.

HOME PAGE:



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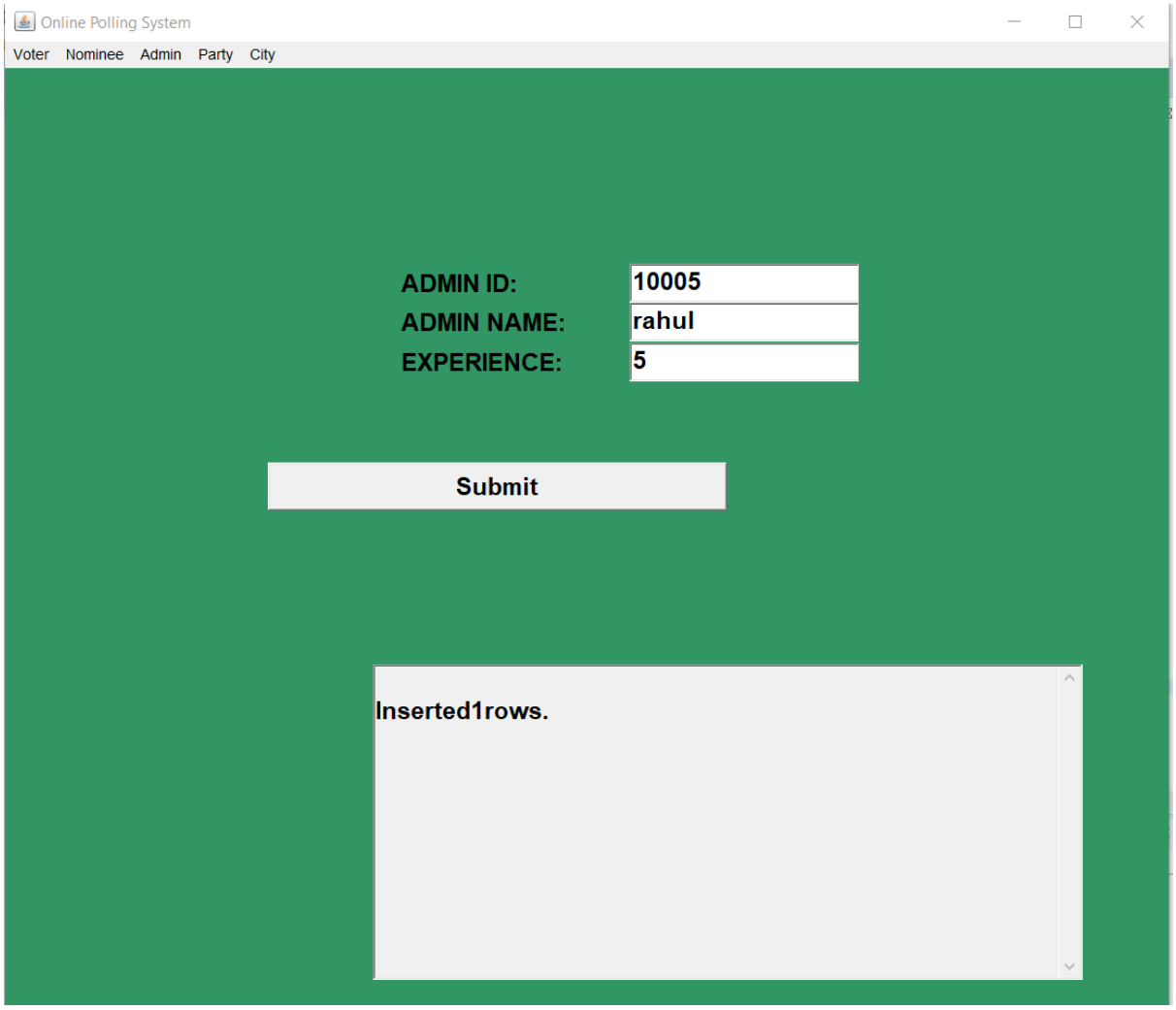
## INSERT:




```
SQL> select * from admin;

      A_ID ANAME                EXPERIENCE
---------- -------------------- ----------
     10005 rahul                         5
      3001 parth                         6
      3002 abhishek                      2
      3003 moksh                         5
      3004 ansh                          5
        12 rick                          4
         1 abc                           3

7 rows selected.
```



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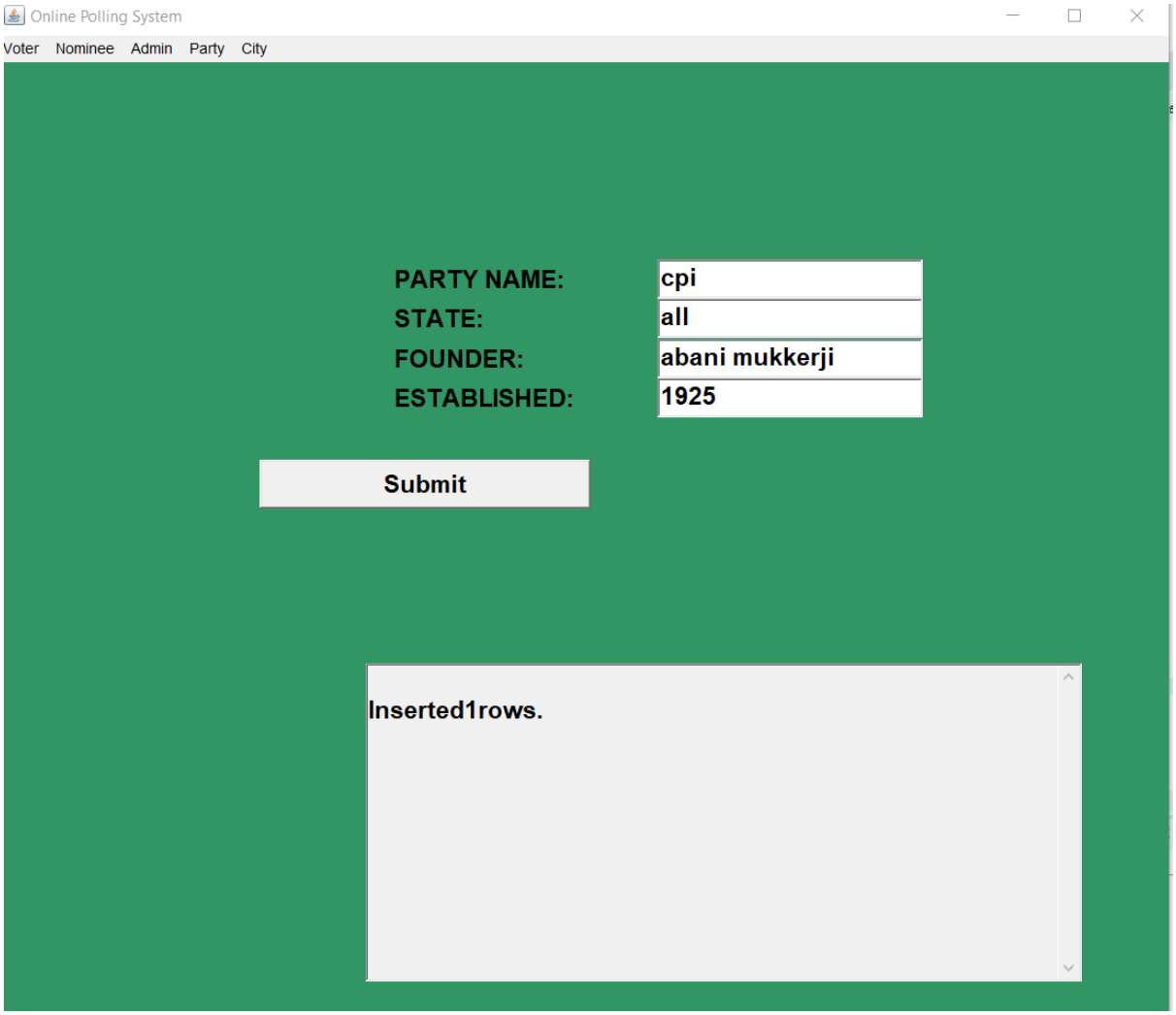
Automated Polling System




```
SQL> select * from party;

PNAME                STATE                FOUNDER              ESTABLISHED
-------------------- -------------------- -------------------- -----------
cpi                  all                  abani mukkerji              1925
bjp                  all                  atal bajpayee               1980
shiv sena            maharashtra          bal thackray                1966
congress             all                  dadabhai naoroji            1885
tdp                  ap                   ntr                         1982
tyr                  ap                   vb                          1997
ewkn                 wjdn                 kcn                          345
ria                  ts                   andy                        2002

8 rows selected.
```



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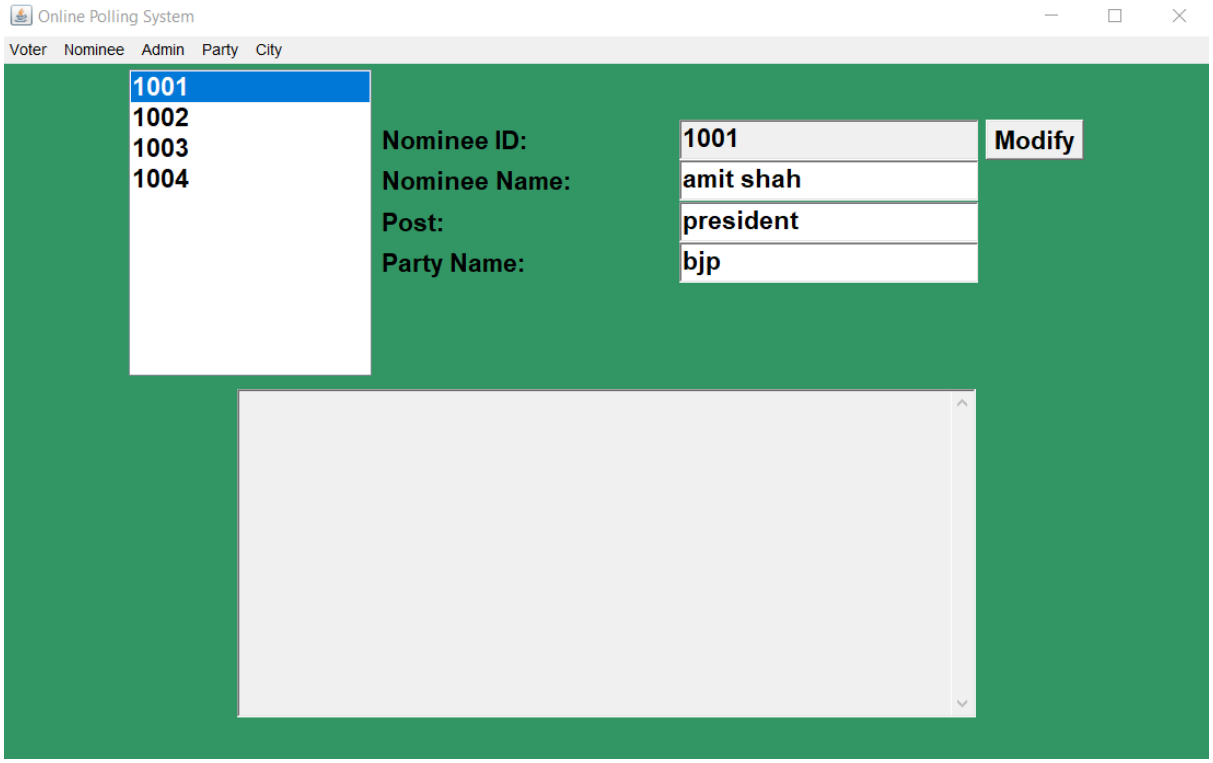
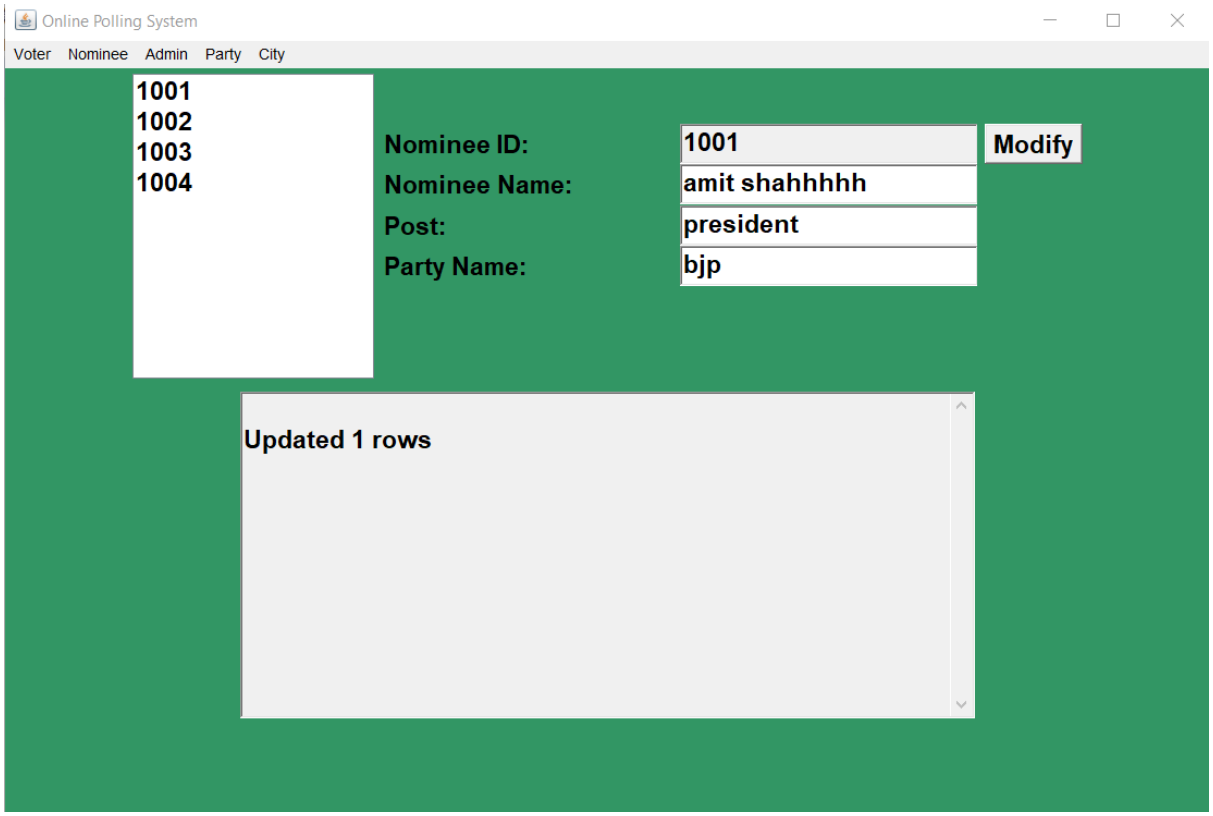
## UPDATE:



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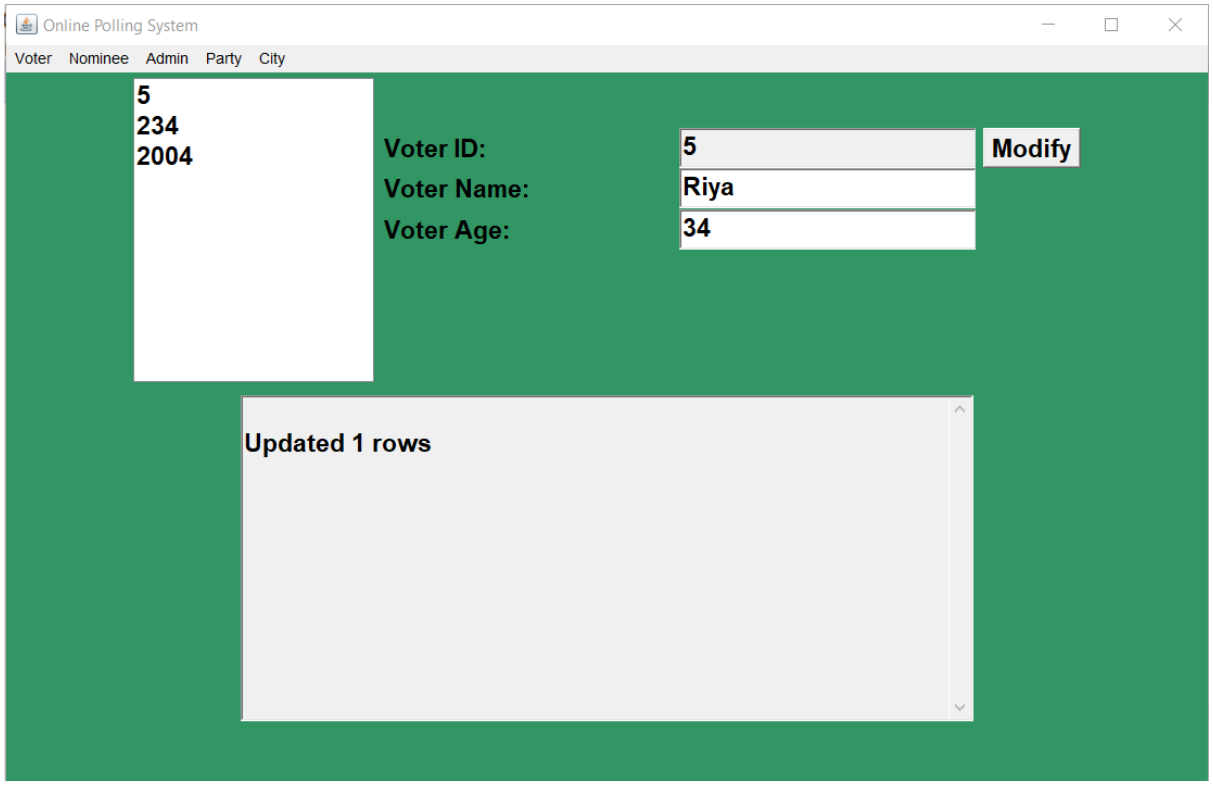
```
SQL> select * from nominee;

N_NAME                    N_ID POST                PNAME
------------------- ---------- -------------------- --------------------
amit shahhhh              1001 president            bjp
uddhar thakrey            1002 chair person         shiv sena
soniya gandhi             1003 president            congress
chandrababu naidu         1004 president            tdp
```




```
SQL> select * from voter;

       VID VNAME                          AGE
---------- -------------------- ----------
      2001 Anjali                         18
         5 Riya                           34
      2004 vivaan                         18
       234 ophelia                        20
```



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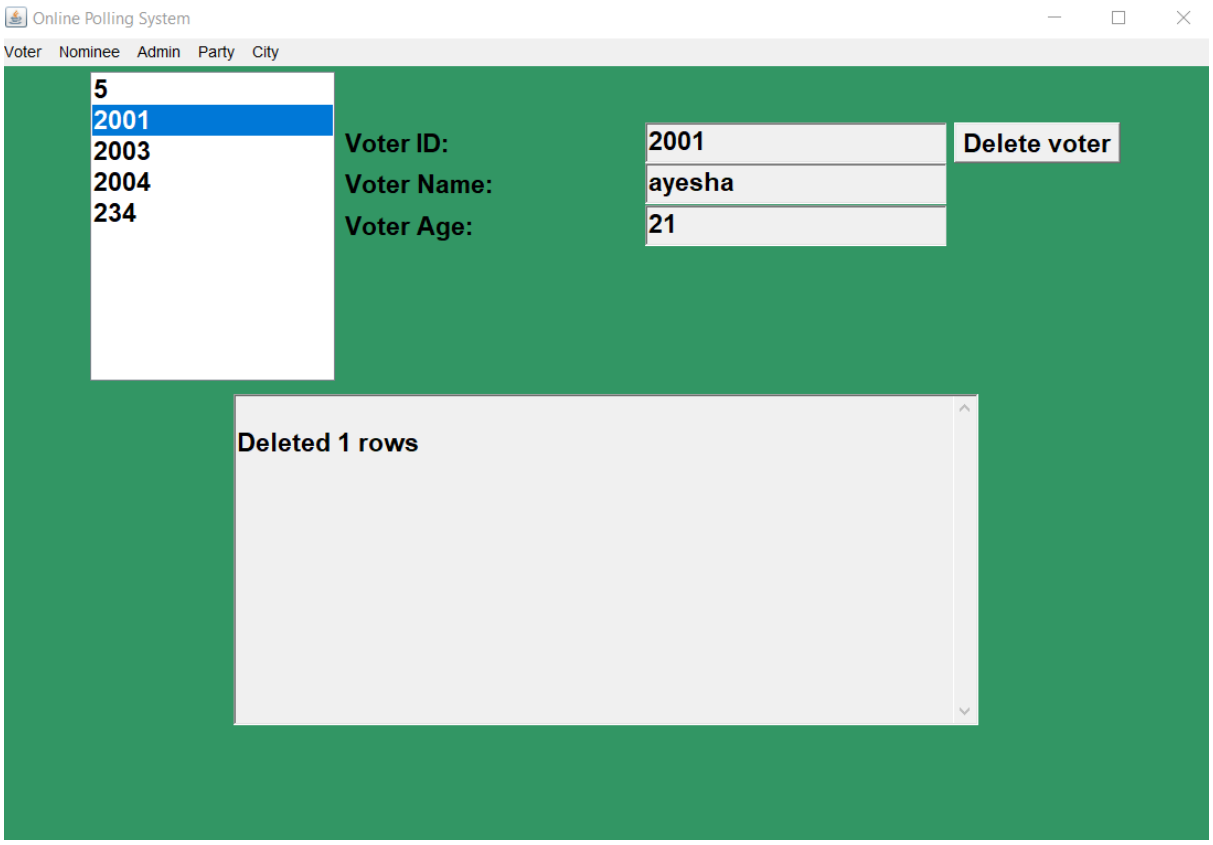
## DELETE:




```
SQL> select * from voter;

       VID VNAME                          AGE
---------- -------------------- ----------
         5 rty                            34
      2003 mayank                         19
      2004 vivaan                         18
       234 ophelia                        20
```



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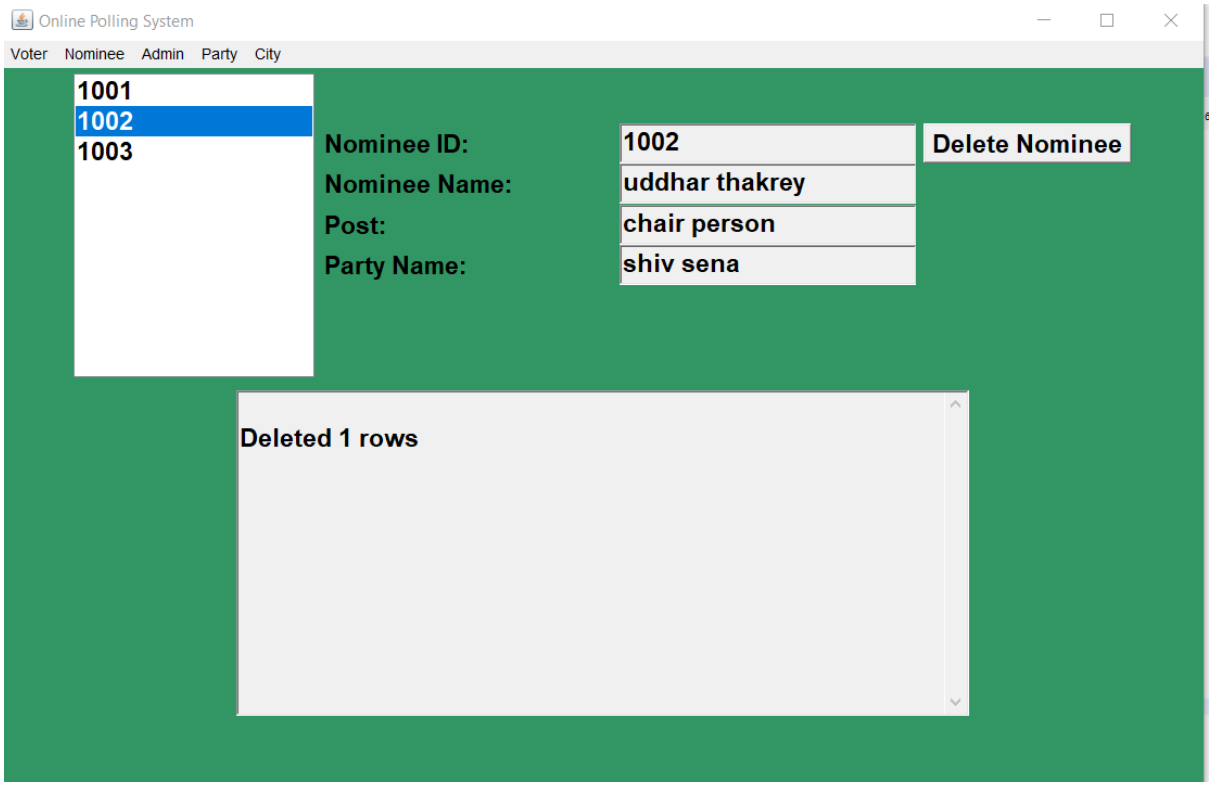
Automated Polling System




```
SQL> select * from nominee;

N_NAME                    N_ID POST                PNAME
------------------- ---------- -------------------- --------------------
amit shahhhhh             1001 president            bjp
soniya gandhi             1003 president            congress
```



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# RESULTS

The DML commands, Insert, update and delete for one of the tables in given below:

For voters table: (in java, as per the application)

Insert: INSERT INTO voter VALUES(" +vidText.getText() + "," + "'" + vnameText.getText() + "','"+"'"+vageText.getText()+")";

Update: "UPDATE voter"+ "SET vname='" + vnameText.getText() + ","+ "vage='" + vageText.getText() +" WHERE VID ="+ voterIDList.getSelectedItem();

Delete: DELETE FROM voter WHERE VID = "+ providerIDList.getSelectedItem();



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# DISCUSSIONS

The application “Automated polling system” helps to caste votes to a party’s nominee as per a voter’s wish, online. Since the practise in person to person, on individual basis. A voter can cast a vote only once he/she enters his/her voter ID. This would help in removing multiple time voting.

The volunteers or admins can give their names as well through the same application. The voting details, timing cities they are taking place; everything is provided at a just click away.

The votes casted by the voter and highly secure and maintained anonymously. The data entered is stored into the database immediately to avoid loss or tampering or data.

The update choice is only provided to corresponding city coordinator who is given the access to the database.

The future works associated with the project can be imposing biometric face authentication to get an access to the voting system. Linking voter card with voters phone number so that he/she can be provided with a one time password through SMS at the time of voting. This OTP can be used as an alternative for face auth.



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# REFERENCES

1. https://www.ijitee.org/wp-content/uploads/papers/v8i11/J98880881019.pdf
2. https://en.wikipedia.org/wiki/Electronic_voting
3. https://github.com/sreya177/dbms-assignment-1.git