Birth Certificate Management System

A MINI-PROJECT BY:

Savitha.J.V	**230701300**
Smith.N.S	**230701323**

in partial fulfillment of the award of the degree

OF

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE, CHENNAI

An Autonomous Institute

CHENNAI

NOVEMBER 2024

BONAFIDE CERTIFICATE

Certified that this project **“UG DISSERTATION”** is the
bonafide work of **“SAVITHA J V, SMITH N S”** who carried out the project work under my supervision.

Submitted for the practical examination held on ____________________

SIGNATURE

Mr.G.SARAVANA GOKUL
Assistant Professor (SS),
Computer Science and Engineering,
Rajalakshmi Engineering College
(Autonomous),
Thandalam,Chennai-602105

SIGNATURE

Ms.V.JANANEE
Assistant Professor(SG),
Computer Science and Engineering,
Rajalakshmi Engineering College
(Autonomous),
Thandalam,Chennai-602105

INTERNAL EXAMINER

EXTERNAL EXAMINE

SAMPLE CODE

3.1 FRONTEND CODE:

```
import javax.swing.*;
import javax.swing.table.DefaultTableModel;
import java.awt.*;
import java.sql.*;

public class BirthCertificateManagement extends JFrame {
    private JTextField nameField, dobField, placeField, certNumberField;

    private Connection connection;

    public BirthCertificateManagement() {
        // Database Connection
        try {
            connection = DriverManager.getConnection("jdbc:mysql://localhost:3306/birth_certificate_db", "root", "Shalini@2005"); // Replace with your DB credentials
        } catch (SQLException e) {
            e.printStackTrace();
        }

        setTitle("Birth Certificate Management");
        setSize(500, 400);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLocationRelativeTo(null);

        // Main Panel
        JPanel panel = new JPanel();
        panel.setLayout(new GridLayout(4, 1, 10, 10));

        // Buttons for each functionality
        JButton addButton = new JButton("Add Certificate");
        addButton.setFont(new Font("Arial", Font.PLAIN, 16));
        addButton.addActionListener(e -> openAddCertificateWindow());
        panel.add(addButton);

        JButton viewButton = new JButton("View Certificates");
        viewButton.setFont(new Font("Arial", Font.PLAIN, 16));
        viewButton.addActionListener(e -> openViewCertificatesWindow());
        panel.add(viewButton);

        JButton deleteButton = new JButton("Delete Certificates");
        deleteButton.setFont(new Font("Arial", Font.PLAIN, 16));
        deleteButton.addActionListener(e -> openDeleteCertificatesWindow());
        panel.add(deleteButton);

        add(panel);
    }

    private void openAddCertificateWindow() {
        JFrame addFrame = new JFrame("Add Certificate");
        addFrame.setSize(500, 350);
        addFrame.setLocationRelativeTo(this);
        addFrame.setLayout(null);

        JLabel nameLabel = new JLabel("Name:");
        nameLabel.setFont(new Font("Arial", Font.PLAIN, 14));
        nameLabel.setBounds(20, 20, 150, 25);
        addFrame.add(nameLabel);

        nameField = new JTextField();
        nameField.setBounds(200, 20, 200, 25);
        addFrame.add(nameField);

        JLabel dobLabel = new JLabel("Date of Birth:");
        dobLabel.setFont(new Font("Arial", Font.PLAIN, 14));
        dobLabel.setBounds(20, 60, 150, 25);
        addFrame.add(dobLabel);

        dobField = new JTextField();
        dobField.setBounds(200, 60, 200, 25);
        addFrame.add(dobField);

        JLabel placeLabel = new JLabel("Place of Birth:");
        placeLabel.setFont(new Font("Arial", Font.PLAIN, 14));
        placeLabel.setBounds(20, 100, 150, 25);
        addFrame.add(placeLabel);

        placeField = new JTextField();
        placeField.setBounds(200, 100, 200, 25);
        addFrame.add(placeField);

        JLabel certNumberLabel = new JLabel("Certificate Number:");
        certNumberLabel.setFont(new Font("Arial", Font.PLAIN, 14));
        certNumberLabel.setBounds(20, 140, 150, 25);
        addFrame.add(certNumberLabel);

        certNumberField = new JTextField();
        certNumberField.setBounds(200, 140, 200, 25);
        addFrame.add(certNumberField);
        JButton saveButton = new JButton("Save");
        saveButton.setFont(new Font("Arial", Font.BOLD, 14));
        saveButton.setBounds(150, 200, 150, 30);
        saveButton.addActionListener(e -> addCertificate());
        addFrame.add(saveButton);

        addFrame.setVisible(true);
    }

    private void openViewCertificatesWindow() {
        JFrame viewFrame = new JFrame("View Certificates");
        viewFrame.setSize(800, 500);
        viewFrame.setLocationRelativeTo(this);

        DefaultTableModel tableModel = new DefaultTableModel(new String[]{"Serial",
"Name", "Date of Birth", "Place of Birth", "Certificate Number"}, 0);
        JTable table = new JTable(tableModel);
        JScrollPane scrollPane = new JScrollPane(table);

        JButton refreshButton = new JButton("Refresh");
        refreshButton.setFont(new Font("Arial", Font.PLAIN, 14));
        refreshButton.addActionListener(e -> loadCertificates(tableModel));

        viewFrame.setLayout(new BorderLayout());
        viewFrame.add(scrollPane, BorderLayout.CENTER);
        viewFrame.add(refreshButton, BorderLayout.SOUTH);

        loadCertificates(tableModel);
        viewFrame.setVisible(true);
    }

    private void openDeleteCertificatesWindow() {
        JFrame deleteFrame = new JFrame("Delete Certificates");
        deleteFrame.setSize(800, 500);
        deleteFrame.setLocationRelativeTo(this);

        DefaultTableModel tableModel = new DefaultTableModel(new String[]{"Serial",
"Name", "Date of Birth", "Place of Birth", "Certificate Number"}, 0);
        JTable table = new JTable(tableModel);
        JScrollPane scrollPane = new JScrollPane(table);

        JButton deleteButton = new JButton("Delete");
        deleteButton.setFont(new Font("Arial", Font.PLAIN, 14));
        deleteButton.addActionListener(e -> deleteCertificate(table, tableModel));

        deleteFrame.setLayout(new BorderLayout());
        deleteFrame.add(scrollPane, BorderLayout.CENTER);
        deleteFrame.add(deleteButton, BorderLayout.SOUTH);

        loadCertificates(tableModel);
        deleteFrame.setVisible(true);
    }

    private void addCertificate() {
        try {
            PreparedStatement ps = connection.prepareStatement(
                    "INSERT INTO birth_certificates (name, date_of_birth, place_of_birth,
certificate_number) VALUES (?, ?, ?, ?)"
            );
            ps.setString(1, nameField.getText());
            ps.setString(2, dobField.getText());
            ps.setString(3, placeField.getText());
            ps.setString(4, certNumberField.getText());
            ps.executeUpdate();
            JOptionPane.showMessageDialog(this, "Certificate added successfully.");
        } catch (SQLException ex) {
            ex.printStackTrace();
            JOptionPane.showMessageDialog(this, "Error adding certificate.");
        }
    }

    private void loadCertificates(DefaultTableModel tableModel) {
        tableModel.setRowCount(0); // Clear existing rows
        try {
            Statement stmt = connection.createStatement();
            ResultSet rs = stmt.executeQuery("SELECT * FROM birth_certificates");
            int serial = 1; // Start serial numbers from 1
            while (rs.next()) {
                tableModel.addRow(new Object[]{
                        serial++,
                        rs.getString("name"),
                        rs.getString("date_of_birth"),
                        rs.getString("place_of_birth"),
                        rs.getString("certificate_number")
                });
            }
        } catch (SQLException ex) {
            ex.printStackTrace();
            JOptionPane.showMessageDialog(this, "Error fetching certificates.");
        }
    }

    private void deleteCertificate(JTable table, DefaultTableModel tableModel) {
        int selectedRow = table.getSelectedRow();
        if (selectedRow != -1) {
            String certNumber = tableModel.getValueAt(selectedRow, 4).toString();
            try {
                PreparedStatement ps = connection.prepareStatement("DELETE FROM
birth_certificates WHERE certificate_number = ?");
                ps.setString(1, certNumber);
                ps.executeUpdate();
                loadCertificates(tableModel); // Refresh the table with reordered serial numbers
                JOptionPane.showMessageDialog(this, "Certificate deleted successfully.");
            } catch (SQLException ex) {
                ex.printStackTrace();
                JOptionPane.showMessageDialog(this, "Error deleting certificate.");
            }
        } else {
            JOptionPane.showMessageDialog(this, "Select a certificate to delete.");
        }
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(() -> {
            BirthCertificateManagement app = new BirthCertificateManagement();
            app.setVisible(true);
        });
    }
}
```