MODULE 7 ASSESSMENT

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.\*;

import java.sql.\*;

import java.io.\*;

// Patient class for OOP demonstration

class Patient {

private int id;

private String name;

private String serviceType;

private String dateTime;

private double cost;

public Patient(int id, String name, String serviceType, String dateTime, double cost) {

this.id = id;

this.name = name;

this.serviceType = serviceType;

this.dateTime = dateTime;

this.cost = cost;

}

public int getId() { return id; }

public String getName() { return name; }

public String getServiceType() { return serviceType; }

public String getDateTime() { return dateTime; }

public double getCost() { return cost; }

}

public class DentalClinicSystem extends JFrame {

private JTextField nameField, serviceField, dateField, costField, medsField, insuranceField;

private JTextArea outputArea;

Connection conn;

public DentalClinicSystem() {

setTitle("SmileCare Dental Services");

setSize(600, 500);

setDefaultCloseOperation(EXIT\_ON\_CLOSE);

setLayout(new BorderLayout());

// Form Panel

JPanel formPanel = new JPanel(new GridLayout(7, 2));

formPanel.add(new JLabel("Patient Name:"));

nameField = new JTextField();

formPanel.add(nameField);

formPanel.add(new JLabel("Service Type:"));

serviceField = new JTextField();

formPanel.add(serviceField);

formPanel.add(new JLabel("Preferred Date/Time:"));

dateField = new JTextField();

formPanel.add(dateField);

formPanel.add(new JLabel("Estimated Cost:"));

costField = new JTextField();

formPanel.add(costField);

formPanel.add(new JLabel("Medications Cost:"));

medsField = new JTextField();

formPanel.add(medsField);

formPanel.add(new JLabel("Insurance Discount (%):"));

insuranceField = new JTextField();

formPanel.add(insuranceField);

JButton bookButton = new JButton("Book Appointment & Generate Bill");

formPanel.add(bookButton);

add(formPanel, BorderLayout.NORTH);

// Output Panel

outputArea = new JTextArea();

add(new JScrollPane(outputArea), BorderLayout.CENTER);

// Database connection

try {

conn = DriverManager.getConnection("jdbc:sqlite:dental\_clinic.db");

Statement stmt = conn.createStatement();

stmt.execute("CREATE TABLE IF NOT EXISTS appointments (id INTEGER PRIMARY KEY AUTOINCREMENT, name TEXT, service TEXT, datetime TEXT, cost REAL, total REAL)");

} catch (Exception e) {

JOptionPane.showMessageDialog(this, "Database Error: " + e.getMessage());

}

// Action Listener

bookButton.addActionListener(new ActionListener() {

public void actionPerformed(ActionEvent ae) {

try {

String name = nameField.getText();

String service = serviceField.getText();

String datetime = dateField.getText();

double baseCost = Double.parseDouble(costField.getText());

double meds = Double.parseDouble(medsField.getText());

double discount = Double.parseDouble(insuranceField.getText());

double tax = 0.05 \* baseCost;

double total = baseCost + meds + tax;

total = total - (total \* discount / 100);

// Save to DB

PreparedStatement ps = conn.prepareStatement("INSERT INTO appointments (name, service, datetime, cost, total) VALUES (?,?,?,?,?)");

ps.setString(1, name);

ps.setString(2, service);

ps.setString(3, datetime);

ps.setDouble(4, baseCost);

ps.setDouble(5, total);

ps.executeUpdate();

// Generate Invoice

String invoice = "--- SmileCare Dental Services Invoice ---\n";

invoice += "Patient: " + name + "\n";

invoice += "Service: " + service + "\n";

invoice += "Date/Time: " + datetime + "\n";

invoice += "Base Cost: Rs." + baseCost + "\n";

invoice += "Medications: Rs." + meds + "\n";

invoice += "Tax (5%): Rs." + tax + "\n";

invoice += "Insurance Discount: " + discount + "%\n";

invoice += "TOTAL: Rs." + total + "\n";

invoice += "-----------------------------------------\n";

outputArea.setText(invoice);

// Save invoice to file

try (FileWriter fw = new FileWriter(name + "\_invoice.txt")) {

fw.write(invoice);

}

} catch (Exception ex) {

JOptionPane.showMessageDialog(DentalClinicSystem.this, "Error: " + ex.getMessage());

}

}

});

}

public static void main(String[] args) {

SwingUtilities.invokeLater(() -> new DentalClinicSystem().setVisible(true));

}

}