package utils;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DBConnection {

private static final String URL = "jdbc:mysql://localhost:3306/vit";

private static final String USER = "root";

private static final String PASSWORD = "Nikita1234@";

static {

try {

Class.forName("com.mysql.cj.jdbc.Driver");

} catch (ClassNotFoundException e) {

throw new ExceptionInInitializerError(e);

}

}

public static Connection get() throws SQLException {

return DriverManager.getConnection(URL, USER, PASSWORD);

}

}

package app;

import utils.DBConnection;

import java.sql.\*;

import java.util.Scanner;

public class CRUDApplication {

private final Scanner scanner = new Scanner(System.in);

public static void main(String[] args) {

CRUDApplication app = new CRUDApplication();

int n = app.promptInt("Enter number of students to insert: ");

for (int i = 0; i < n; i++) {

int id = app.promptInt("Student ID: ");

String name = app.promptString("Student name: ");

app.insertStudent(id, name);

}

app.displayAll();

app.searchById(app.promptInt("Enter SL\_NO to search: "));

app.updateStudent(app.promptInt("Enter existing ID to update: "),

app.promptInt("New ID: "),

app.promptString("New name: "));

app.displayAll();

app.addAgeColumn();

app.describeTable();

app.deleteStudent(app.promptInt("Enter student ID to delete: "));

app.displayAll();

app.scanner.close();

}

private int promptInt(String msg) {

System.out.print(msg);

return scanner.nextInt();

}

private String promptString(String msg) {

System.out.print(msg);

scanner.nextLine();

return scanner.nextLine();

}

private void insertStudent(int id, String name) {

String sql = "INSERT INTO student(s\_id, s\_name) VALUES (?, ?)";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql)) {

ps.setInt(1, id);

ps.setString(2, name);

ps.executeUpdate();

} catch (SQLException e) {

e.printStackTrace();

}

}

private void displayAll() {

String sql = "SELECT \* FROM student";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql);

ResultSet rs = ps.executeQuery()) {

ResultSetMetaData md = rs.getMetaData();

int cols = md.getColumnCount();

while (rs.next()) {

for (int i = 1; i <= cols; i++) {

System.out.print(rs.getObject(i) + "\t");

}

System.out.println();

}

} catch (SQLException e) {

e.printStackTrace();

}

}

private void searchById(int id) {

String sql = "SELECT \* FROM student WHERE s\_id = ?";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql)) {

ps.setInt(1, id);

try (ResultSet rs = ps.executeQuery()) {

boolean found = false;

while (rs.next()) {

found = true;

System.out.println(rs.getInt("s\_id") + "\t" + rs.getString("s\_name"));

}

if (!found) {

System.out.println("No record found for ID " + id);

}

}

} catch (SQLException e) {

e.printStackTrace();

}

}

private void updateStudent(int oldId, int newId, String newName) {

String sql = "UPDATE student SET s\_id = ?, s\_name = ? WHERE s\_id = ?";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql)) {

ps.setInt(1, newId);

ps.setString(2, newName);

ps.setInt(3, oldId);

ps.executeUpdate();

} catch (SQLException e) {

e.printStackTrace();

}

}

private void addAgeColumn() {

String sql = "ALTER TABLE student ADD age INT";

try (Connection conn = DBConnection.get();

Statement stmt = conn.createStatement()) {

stmt.executeUpdate(sql);

} catch (SQLException e) {

e.printStackTrace();

}

}

private void describeTable() {

String sql = "DESCRIBE student";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql);

ResultSet rs = ps.executeQuery()) {

while (rs.next()) {

System.out.printf("%s\t%s\t%s\t%s\t%s\t%s%n",

rs.getString(1),

rs.getString(2),

rs.getString(3),

rs.getString(4),

rs.getString(5),

rs.getString(6));

}

} catch (SQLException e) {

e.printStackTrace();

}

}

private void deleteStudent(int id) {

String sql = "DELETE FROM student WHERE s\_id = ?";

try (Connection conn = DBConnection.get();

PreparedStatement ps = conn.prepareStatement(sql)) {

ps.setInt(1, id);

ps.executeUpdate();

} catch (SQLException e) {

e.printStackTrace();

}

}

}