**Practical 10: JDBC**

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1. **Develop a java application to accept employee information and store in Employee(empid, name, dept and salary) table. Also provide following functionality.** 
   1. **Add new employee**
   2. **Update employee details (base on empid)**
   3. **Delete employee**
   4. **Display all employee**
   5. **Display maximum and minimum salary employee details**
   6. **Display employee information according to their department(Group by)**

Code

import java.sql.\*;

public class EmployeeDBMS {

    static final String JDBC\_DRIVER = "com.mysql.jdbc.Driver";

    static final String DB\_URL = "jdbc:mysql://localhost:3306/ma065";

    static final String USER = "root";

    static final String PASS = "savan";

    public static void main(String[] args) {

        Connection conn = null;

        Statement stmt = null;

        ResultSet rs = null;

        try {

            Class.forName(JDBC\_DRIVER);

            conn = DriverManager.getConnection(DB\_URL, USER, PASS);

            stmt = conn.createStatement();

String sql = "CREATE TABLE IF NOT EXISTS Employee " +"(empid INTEGER not NULL, "

+" name VARCHAR(255), " +" dept VARCHAR(255), "+" salary INTEGER, "

+ "PRIMARY KEY ( empid ))";

stmt.executeUpdate(sql);

stmt.close();

while (true) {

    System.out.println("\nEmployee Management System");

    System.out.println(" ---------------------- ");

    System.out.println("1. Add new employee");

    System.out.println("2. Update employee details");

    System.out.println("3. Delete employee");

    System.out.println("4. Display all employee");

    System.out.println("5. Display maximum and minimum salary employee details");

    System.out.println("6. Display employee information according to their department(Group by)");

    System.out.println("0. Exit");

    int option = Integer.parseInt(System.console().readLine("Enter option: "));

    switch (option) {

        case 0:

            System.out.println("Goodbye!");

            System.exit(0);

            break;

        case 1:

            int empid = Integer.parseInt(System.console().readLine("Enter employee ID: "));

            String name = System.console().readLine("Enter employee name: ");

            String dept = System.console().readLine("Enter employee department: ");

            intsalary = Integer.parseInt(System.console().readLine("Enter employee salary: "));

            sql = "INSERT INTO Employee "+ "VALUES (" + empid + ", '" + name + "', '" + dept + "', " + salary + ")";

            stmt = conn.createStatement();

            stmt.executeUpdate(sql);

            System.out.println("Employee added successfully!");

            stmt.close();

            break;

        case 2:

            empid = Integer.parseInt(System.console().readLine("Enter employee ID: "));

            name = System.console().readLine("Enter employee name: ");

            dept = System.console().readLine("Enter employee department: ");

            salary = Integer.parseInt(System.console().readLine("Enter employee salary: "));

            sql = "UPDATE Employee " + "SET name = '" + name + "', dept = '" + dept + "', salary = " + salary + "WHERE empid = " + empid;

            stmt = conn.createStatement();

            int rowsUpdated = pra stmt.executeUpdate(sql);

            if (rowsUpdated > 0) {

                System.out.println("Employee details updated successfully!");

            } else {

                System.out.println("No employee found with ID " + empid);}

            stmt.close();

            break;

        case 3:

            empid = Integer.parseInt(System.console().readLine("Enter employee ID: "));

            sql = "DELETE FROM Employee " + "WHERE empid = " + empid;

            stmt = conn.createStatement();

            rowsUpdated = stmt.executeUpdate(sql);

            if (rowsUpdated > 0) {

                System.out.println("Employee deleted successfully!");

            } else {

                System.out.println("No employee found with ID " + empid);}

            stmt.close();

            break;

        case 4:

            sql = "SELECT \* FROM Employee";

            stmt = conn.createStatement();

            rs = stmt.executeQuery(sql);

            System.out.println("\nAll Employees:");

            System.out.println(" -------------- ");

            while (rs.next()) {

                System.out.println("ID: " + rs.getInt("empid") + ", Name: " + rs.getString("name") + ", Department: " + rs.getString("dept") + ", Salary: " + rs.getInt("salary"));

            }

            rs.close();

            stmt.close();

            break;

        case 5:

            sql = "SELECT \* FROM Employee "+ "WHERE salary = (SELECT MAX(salary) FROM Employee)";

            stmt = conn.createStatement();

            rs = stmt.executeQuery(sql);

            System.out.println("\nEmployee with Maximum Salary:");

            System.out.println(" -------------- ");

            while (rs.next()) {

                System.out.println("ID: " + rs.getInt("empid") + ", Name: " + rs.getString("name") + ", Department: " + rs.getString("dept") + ", Salary: " + rs.getInt("salary"));

            }

            rs.close();

            sql = "SELECT \* FROM Employee "+ "WHERE salary = (SELECT MIN(salary) FROM Employee)";

            stmt = conn.createStatement();

            rs = stmt.executeQuery(sql);

            System.out.println("\nEmployee with Minimum Salary:");

            System.out.println(" -------------- ");

            while (rs.next()) {

                System.out.println("ID: " + rs.getInt("empid") + ", Name: " + rs.getString("name") + ", Department: " + rs.getString("dept") + ", Salary: " + rs.getInt("salary"));

            }

            rs.close();

            stmt.close();

            break;

        case 6:

            sql = "SELECT dept, COUNT(\*) AS count, AVG(salary) AS average\_salary FROM Employee GROUP BY dept ";

stmt = conn.createStatement(); rs = stmt.executeQuery(sql);

            System.out.println("\nEmployee Information Grouped by Department:");

            System.out.println(" -------------- ");

            while (rs.next()) {

                System.out.println("Department: " + rs.getString("dept") + ", Number of Employees: " + rs.getInt("count") + ", Average Salary: " + rs.getInt("average\_salary"));

            }

            rs.close();

            stmt.close();

            break;

        default:

            System.out.println("Invalid option. Please try again.");

            break;

    }

}

        } catch (SQLException se) {

            se.printStackTrace();

        } catch (Exception e) {

            e.printStackTrace();

        } finally {

            try {

                if (stmt != null)

                    stmt.close();

            } catch (SQLException se2) {

            }

            try {

                if (conn != null)

                    conn.close();

            } catch (SQLException se) {

                se.printStackTrace();

            }

        }

    }

}

Output

Employee Management System

 ----------------------

1. Add new employee

2. Update employee details

3. Delete employee

4. Display all employee

5. Display maximum and minimum salary employee details

6. Display employee information according to their department(Group by)

0. Exit

Enter option: 1

Enter employee ID: 1

Enter employee name: A

Enter employee department: IT

Enter employee salary: 10000

Employee added successfully!

Employee Management System

 ----------------------

1. Add new employee

2. Update employee details

3. Delete employee

4. Display all employee

5. Display maximum and minimum salary employee details

6. Display employee information according to their department(Group by)

0. Exit

Enter option: 1

Enter employee ID: 2

Enter employee name: B

Enter employee department: IT

Enter employee salary: 20000

Employee added successfully!

Employee Management System

 ----------------------

1. Add new employee

2. Update employee details

3. Delete employee

4. Display all employee

5. Display maximum and minimum salary employee details

6. Display employee information according to their department(Group by)

0. Exit

Enter option: 1

Enter employee ID: 3

Enter employee name: C

Enter employee department: HR

Enter employee salary: 30000

Employee added successfully!

Employee Management System

 ----------------------

1. Add new employee

2. Update employee details

3. Delete employee

4. Display all employee

5. Display maximum and minimum salary employee details

6. Display employee information according to their department(Group by)

0. Exit

Enter option: 4

All Employees:

 --------------

ID: 1, Name: A, Department: IT, Salary: 10000

ID: 2, Name: B, Department: IT, Salary: 20000

ID: 3, Name: C, Department: HR, Salary: 30000

Employee Management System

 ----------------------

1. Add new employee

2. Update employee details

3. Delete employee

4. Display all employee

5. Display maximum and minimum salary employee details

6. Display employee information according to their department(Group by)

0. Exit

Enter option: 0

Exiting...