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Department of Computer Science

Academic Year: 2025-2026

Practical Assignment – 5

Class:- T.Y.B.C.A.(Science)

Subject:- Programming in JAVA **Date:-29/08/2025**

1.Write a JDBC program to display all the details of the Person table in proper format on the screen. Create a Person table with fields as PID, name, gender, birth_year in PostgreSQL. Insert values in Person table.

```
import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class PersonDetails {

   public static void main(String[] args) {

      try

{

Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");


         Statement st = con.createStatement();

         ResultSet rs = st.executeQuery("SELECT * FROM Person")) {


        System.out.println("PID\tName\tGender\tBirth Year");
```

```
            while (rs.next()) {
                System.out.print(rs.getInt("PID") + "\t");
                System.out.print(rs.getString("name") + "\t");
                System.out.print(rs.getString("gender") + "\t");
                System.out.println(rs.getInt("birth_year"));
            }

        } catch (SQLException ex) {
            ex.printStackTrace();
        }
    }
}
```

2. Write a program to display information about the ResultSet like number of columns available in the ResultSet and SQL type of the column. Use Person table. (Use ResultSetMetaData).

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.ResultSetMetaData;
import java.sql.SQLException;
import java.sql.Statement;

public class ResultSetInfo {
    public static void main(String[] args) {

        try
```

```
{
Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");

          Statement st = con.createStatement();
          ResultSet rs = st.executeQuery("SELECT * FROM Person")) {

         ResultSetMetaData rsmd = rs.getMetaData();
         int columnCount = rsmd.getColumnCount();

         System.out.println("Number of Columns: " + columnCount);
         System.out.println("Column Details:");

         for (int i = 1; i <= columnCount; i++) {
            System.out.println("Name: " + rsmd.getColumnName(i) +
                              ", Type: " + rsmd.getColumnTypeName(i));
         }

      } catch (SQLException ex) {
         ex.printStackTrace();
      }
   }
}
```

3. Write a JDBC program to display all the countries located in West Region. Create a table Country in PostgreSQL with fields (Name, continent, Capital,Region). Insert values in the table.

```
import java.sql.Connection;
```

```
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

public class CountriesInWestRegion {
    public static void main(String[] args) {

        try
{
Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");
Statement st = con.createStatement();
            ResultSet rs = st.executeQuery("SELECT * FROM Country WHERE Region = 'West'"))
{

            while (rs.next()) {
                System.out.println("Name: " + rs.getString("Name") +
                                   ", Continent: " + rs.getString("Continent") +
                                   ", Capital: " + rs.getString("Capital") +
                                   ", Region: " + rs.getString("Region"));
            }

        } catch (SQLException ex) {
            ex.printStackTrace();
        }
```

```
    }
}
```

4. Write a JDBC program to insert the records into the table Employee(ID,name,salary) using PreparedStatement interface. Accept details of Employees from user.

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.Scanner;


public class EmployeeInserter {
    public static void main(String[] args) {
          Scanner scanner = new Scanner(System.in);
        try
{
Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");
            String query = "INSERT INTO Employee (ID, name, salary) VALUES (?, ?, ?)";
            PreparedStatement pst = con.prepareStatement(query);


            System.out.println("Enter Employee Details");
            System.out.print("ID: ");
            int id = scanner.nextInt();
            scanner.nextLine();  // Consume the newline
            System.out.print("Name: ");
            String name = scanner.nextLine();
```

```
            System.out.print("Salary: ");
            double salary = scanner.nextDouble();

            pst.setInt(1, id);
            pst.setString(2, name);
            pst.setDouble(3, salary);

            int rowsAffected = pst.executeUpdate();
            System.out.println(rowsAffected + " row(s) affected");

            pst.close();
        } catch (SQLException ex) {
            ex.printStackTrace();
        }
    }
}
```

5. Write a JDBC program to perform search operation on Person table.
1. Search all the person born in the year 1986.
2. Search all the females born between 2000- 2005

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;

public class PersonSearch {
```

```
    public static void main(String[] args) {


        try
{
Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");


            searchPersonsBornIn1986(con);

            searchFemalesBornBetween2000And2005(con);

        } catch (SQLException ex) {

            ex.printStackTrace();

        }

    }


    private static void searchPersonsBornIn1986(Connection con) throws SQLException {

        String query = "SELECT * FROM Person WHERE birth_year = ?";

        try (PreparedStatement pst = con.prepareStatement(query)) {

            pst.setInt(1, 1986);

            ResultSet rs = pst.executeQuery();


            System.out.println("Persons born in 1986:");

            while (rs.next()) {

                System.out.println("Name: " + rs.getString("name") + ", Gender: " +
rs.getString("gender") + ", Birth Year: " + rs.getInt("birth_year"));

            }
```

```
        }
    }

    private static void searchFemalesBornBetween2000And2005(Connection con) throws SQLException {
        String query = "SELECT * FROM Person WHERE gender = ? AND birth_year BETWEEN ? AND ?";
        try (PreparedStatement pst = con.prepareStatement(query)) {
            pst.setString(1, "Female");
            pst.setInt(2, 2000);
            pst.setInt(3, 2005);
            ResultSet rs = pst.executeQuery();

            System.out.println("Females born between 2000 and 2005:");
            while (rs.next()) {
                System.out.println("Name: " + rs.getString("name") + ", Gender: " + rs.getString("gender") + ", Birth Year: " + rs.getInt("birth_year"));
            }
        }
    }
}
```

6. Write a JDBC program to update number_of_students of “BCA Science” to 1000. Create a table Course (Code,name, department,number_of_students). Insert values in the table.

```
import java.sql.Connection;
import java.sql.DriverManager;
```

```
import java.sql.PreparedStatement;
import java.sql.SQLException;

public class UpdateCourse {
    public static void main(String[] args) {
        try
{
Class.forName("org.postgresql.Driver");
Connection con=DriverManager.getConnection("jdbc:postgresql:DYP”,"postgres","");
            updateBCAScienceStudents(con);
        } catch (SQLException ex) {
            ex.printStackTrace();
        }    }

    private static void updateBCAScienceStudents(Connection con) throws SQLException {
        String query = "UPDATE Course SET number_of_students = ? WHERE name = ?";
        try (PreparedStatement pst = con.prepareStatement(query)) {
            pst.setInt(1, 1000);
            pst.setString(2, "BCA Science");
            int rowsAffected = pst.executeUpdate();
            System.out.println(rowsAffected + " row(s) updated");
        }
    }
}
```