

**Advanced Java Programming Lab Sheet**  
**III Year /VI Part**  
**Faculty: BCA**

**Lab sheet 3**

**Objectives:**

1. Execution of sample JDBC program.
2. To familiarize with JDBC statements.
3. To understand concept of Scrollable and Updatable Result sets.
4. To understand concept of Row sets.

**Objective 1:**

```
package com.texas.npl;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;

public class Select {

    public static void main(String[] args) {

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

            Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/empmgmt", "UserName", "Password");

            Statement statement = con.createStatement();
            String sql = "SELECT * FROM city;";

            ResultSet rs = statement.executeQuery(sql);
            while (rs.next()) {
                String id = rs.getString("ID");
                String name = rs.getString("Name");
                String countryCode = rs.getString("CountryCode");
                String district = rs.getString("District");
                String population = rs.getString("Population");

                System.out.println(id + " : " + name + " : " + countryCode + " : " + district
+ " : " + population);
            }

        } catch (Exception e) {
            e.printStackTrace();
        }

    }
}
```

**Assignment:**

1.0. Create a database name as **empmgmt** with table name as **city** having below properties:

```
ID int NOT NULL AUTO_INCREMENT PRIMARY KEY,
Name varchar(255) NOT NULL,
CountryCode char(3) NOT NULL,
District char(20) NOT NULL,
Population int NOT NULL);
```

1.1. Modify above program and select top 10 elements sorted by ID in ascending order.

## Objective 2:

```
package com.texas.npl;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;

public class Insert {

    public static void main(String[] args) {

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

            Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/empmgmt", "UserName", "Password");

            String sql_qyery = "Insert into city (Name,CountryCode,District,Population) values (?,?,?,?);";

            PreparedStatement statement = con.prepareStatement(sql_qyery);
            statement.setString(1, "Kathmandu");
            statement.setString(2, "NPL");
            statement.setString(3, "Kathamnadu");
            statement.setString(4, "100000");

            int result = statement.executeUpdate();
            if (result > 0) {
                System.out.println("Data Inserted Successfully!");
            }
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

## Assignment:

2.0. Using the above database and table, modify above program and update the record where ID=1 set Name = "Bhaktapur" and Population = 20,000 use prepared Statement.

2.1. Using the above database and table, write a java program and select all the records from the city table using the following statements :

- a. prepared Statement
- b. create statement.

2.2. Write a java program and delete the record where ID=2 use prepared statement.

### Objective 3:

```
package com.mysql.DBconnection;

import java.sql.*;

public class ScrollableResultSet {

    public static void main(String[] args) {

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

            Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/empmgmt", "UserName", "Password");
            Statement stm = con.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE, ResultSet.CONCUR_READ_ONLY);

            String sql = "select * from city;";
            ResultSet rs = stm.executeQuery(sql);

            rs.last();
            System.out.println("Row No : "+rs.getRow()+ " Name : "+rs.getString("Name"));

            rs.first();
            System.out.println("Row No : "+rs.getRow()+ " Name : "+rs.getString("Name"));

            rs.absolute(10);
            System.out.println("Row No : "+rs.getRow()+ " Name : "+rs.getString("Name"));

            rs.previous();
            System.out.println("Row No : "+rs.getRow()+ " Name : "+rs.getString("Name"));

            rs.relative(-1);
            System.out.println("Row No : "+rs.getRow()+ " Name : "+rs.getString("Name"));

        } catch (Exception e) {
            e.printStackTrace();
        }

    }
}
```

### Assignment:

3.0. Modify the above program and create a scrollable ResultSet using prepared Statement.

3.1 Modify the above program and create an updatable ResultSet using prepared Statement and perform below operations:

1. Insert
2. Update
3. Delete

3.2. Modify the above program and create an updatable ResultSet using create Statement and perform below operations:

1. Insert
2. Update
3. Delete

#### Objective 4:

```
package com.texas.crud;
```

```
import java.sql.*;
```

```
import javax.sql.rowset.JdbcRowSet;
```

```
import javax.sql.rowset.RowSetProvider;
```

```
public class RowSetDemo {
```

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

```
        String url = "jdbc:mysql://localhost:3306/empmgmt";
```

```
        String user = "UserName ";
```

```
        String password = "Password ";
```

```
        String sql = "select * from city";
```

```
        try {
```

```
            JdbcRowSet jdbcrw= RowSetProvider.newFactory().createJdbcRowSet();
```

```
            jdbcrw.setUrl(url);
```

```
            jdbcrw.setUsername(user);
```

```
            jdbcrw.setPassword(password);
```

```
            jdbcrw.setCommand(sql);
```

```
            jdbcrw.execute();
```

```
            while(jdbcrw.next()) {
```

```
                String ID = jdbcrw.getString(1);
```

```
                String Name = jdbcrw.getString(2);
```

```
                System.out.println("Id : "+ID + " Name : "+Name);
```

```
            }
```

```
        } catch (SQLException e) {
```

```
            e.printStackTrace();
```

```
        }
```

```
    }
```

```
}
```

4.0 What is row set?

4.1 Modify the above program and create JdbcRowSet, CachedRowSet and WebRowSet.