

## Group A

### Assignment No 9

#### Title of the Assignment: Database Connectivity:

Write a program to implement MySQL/Oracle database connectivity with any front end language to implement Database navigation operations (add, delete, edit etc.)

**Objective of the Assignment:** To understand the concept of MySQL/Oracle database Connectivity.

**Outcome:** Students will be able to learn and understand MySQL/Oracle database Connectivity.

#### Theory:

In Java, we can connect to our database(MySQL) with JDBC(Java Database Connectivity) through the Javacode. JDBC is one of the standard APIs for database connectivity, using it we can easily run our query, statement, and also fetch data from the database.

#### ❖ Prerequisite to understand Java Database Connectivity with MySQL:-

1. You have MySQL on your System.
2. You have JDK on your System.
3. To set up the connectivity user should have MySQL Connector to the Java (JAR file), the 'JAR' file must be in classpath while compiling and running the code of JDBC.

#### ❖ Steps to download MySQL Connector:

Search for MySQL community downloads.

- Then, go to the Connector/J.
- Then, select the Operating System platform-independent.
- Then, download the zip file Platform Independent (Architecture Independent), ZIP Archive.
- Then, extract the zip file.
- Get the mysql-connector-java-8.0.20.jar file from the folder.

## ❖ Java Database Connectivity with MySQL.

To connect Java application with the MySQL database, we need to follow steps.

In this example we are using MySQL as the database. So we need to know following information's for the MySQL database:

1. **Driver class:** The driver class for the MySQL database is **com.mysql.jdbc.Driver**.
2. **Connection URL:** The connection URL for the MySQL database is **jdbc:mysql://localhost:3306/sonoo** where jdbc is the API, mysql is the database, localhost is the server name on which MySQL is running, we may also use IP address, 3306 is the port number and sonoo is the database name. We may use any database, in such case, we need to replace the sonoo with our database name.
3. **Username:** The default username for the MySQL database is **root**.
4. **Password:** It is the password given by the user at the time of installing the MySQL database. In this example, we are going to use root as the password.

Let's first create a table in the MySQL database, but before creating table, we need to create

```
database first.create database sonoo;  
use sonoo;  
create table emp(id int(10),name varchar(40),age int(3));
```

### Example to Connect Java Application with MySQL database

In this example, sonoo is the database name, root is the username and password both.

#### 1. Connection program.

```
import java.sql.*;  
class MysqlCon{  
    public static void main(String args[]){ try{ Class.forName("com.mysql.jdbc.Driver");  
        Connection con=DriverManager.getConnection(  
            "jdbc:mysql://localhost:3306/sonoo","root","root");  
        //here sonoo is database name, root is username and password  
        Statement  
        stmt=con.createStatement();  
        ResultSet rs=stmt.executeQuery("select * from emp");while(rs.next())  
        System.out.println(rs.getInt(1)+" "+rs.getString(2)+" "+rs.getString(3));con.close();  
    } catch(Exception e){ System.out.println(e);}  
    }  
}
```

## 2. Insert record

```
package simple;

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

public class insert {

    public static void main(String[] args) {
        // TODO Auto-generated
        method stubtry{
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con=DriverManager.getConnection(
                "jdbc:mysql://localhost:3306/TE","root","123");
            Statement stmt=con.createStatement();
            // Execute a query
            System.out.println("Inserting records into the
            table..."); String sql = "INSERT INTO student
            VALUES (100, 'Zara')";stmt.executeUpdate(sql);
            sql = "INSERT INTO student VALUES (101, 'Mahnaz')";
            stmt.executeUpdate(sql);
            sql = "INSERT INTO student VALUES (102, 'Zaid')";
            stmt.executeUpdate(sql);
            sql = "INSERT INTO student VALUES(103,
            'Sumit')";stmt.executeUpdate(sql);
            System.out.println("Inserted records into the table...");
            }
            catch(Exception e){ System.out.println(e);
        }
    }
}
```

### 3. Update Record

```
package simple;

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

public class update
{
    static final String QUERY = "SELECT rollno,name FROM student";public static void main(String[]
args)
    {
        // TODO Auto-generated method stubtry{
            Class.forName("com.mysql.cj.jdbc.Driver"); Connection
            con=DriverManager.getConnection(
                "jdbc:mysql://localhost:3306/TE","root","Root@1234");
            //here sonoo is database name, root is username and password
            Statement stmt=con.createStatement();
            String sql = "UPDATE student " + "SET name = 'om' WHERE rollno in (100)";
            stmt.executeUpdate(sql);
            ResultSet rs = stmt.executeQuery(QUERY);while(rs.next()){
                //Display values
                System.out.println(rs.getInt(1)+" "+rs.getString(2));
            }
        }
        catch(Exception e){ System.out.println(e);}
    }
}
```

#### 4. Delete record

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

public class JDBCExample
{
    static final String DB_URL = "jdbc:mysql://localhost/TUTORIALSPOINT";
    static final String USER = "guest";
    static final String PASS = "guest123";
    static final String QUERY = "SELECT id, first, last, age FROM Registration";

    public static void main(String[] args)
    {
        // Open a connection
        try(Connection conn = DriverManager.getConnection(DB_URL, USER,
            PASS);Statement stmt = conn.createStatement();
        )
        {
            String sql = "DELETE FROM Registration " +"WHERE id = 101";
            stmt.executeUpdate(sql);

            ResultSet rs = stmt.executeQuery(QUERY);while(rs.next())
            {
                //Display values
                System.out.print("ID: " + rs.getInt("id"));

                System.out.print(", Age: " + rs.getInt("age"));

            }
            rs.close();
        }
        catch (SQLException e)
        {
            e.printStackTrace();
        }
    }
}
```

**Conclusion:** Performed implementation of MySQL/Oracle database connectivity with java platform.

**Viva Question:**

- What is database connectivity?
- Write is JDBC?
- Write is JDBC Driver?
- What are the steps to connect to the database in java?
- What is the return type of Class.forName() method?

<b>Date:</b>	
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