

JDBC - SAMPLE, EXAMPLE CODE

<http://www.tutorialspoint.com/jdbc/jdbc-sample-code.htm>

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This tutorial provides an example of how to create a simple JDBC application. This will show you how to open a database connection, execute a SQL query, and display the results.

All the steps mentioned in this template example, would be explained in subsequent chapters of this tutorial.

Creating JDBC Application:

There are following six steps involved in building a JDBC application:

- **Import the packages** . Requires that you include the packages containing the JDBC classes needed for database programming . Most often, using *import java.sql.** will suffice.
- **Register the JDBC driver** . Requires that you initialize a driver so you can open a communications channel with the database.
- **Open a connection** . Requires using the *DriverManager.getConnection()* method to create a Connection object, which represents a physical connection with the database.
- **Execute a query** . Requires using an object of type Statement for building and submitting an SQL statement to the database.
- **Extract data from result set** . Requires that you use the appropriate *ResultSet.getXXX()* method to retrieve the data from the result set.
- **Clean up the environment** . Requires explicitly closing all database resources versus relying on the JVM's garbage collection.

Sample Code:

This sample example can serve as a **template** when you need to create your own JDBC application in the future.

This sample code has been written based on the environment and database setup done in previous chapter.

Copy and past following example in FirstExample.java, compile and run as follows:

```
//STEP 1. Import required packages
import java.sql.*;

public class FirstExample {
    // JDBC driver name and database URL
    static final String JDBC_DRIVER = "com.mysql.jdbc.Driver";
    static final String DB_URL = "jdbc:mysql://localhost/EMP";

    // Database credentials
    static final String USER = "username";
    static final String PASS = "password";

    public static void main(String[] args) {
        Connection conn = null;
        Statement stmt = null;
        try{
            //STEP 2: Register JDBC driver
            Class.forName("com.mysql.jdbc.Driver");

            //STEP 3: Open a connection
            System.out.println("Connecting to database...");
            conn = DriverManager.getConnection(DB_URL,USER,PASS);

            //STEP 4: Execute a query
            System.out.println("Creating statement...");
            stmt = conn.createStatement();
            String sql;
            sql = "SELECT id, first, last, age FROM Employees";
```

```
ResultSet rs = stmt.executeQuery(sql);

//STEP 5: Extract data from result set
while(rs.next()){
    //Retrieve by column name
    int id   = rs.getInt("id");
    int age  = rs.getInt("age");
    String first = rs.getString("first");
    String last  = rs.getString("last");

    //Display values
    System.out.print("ID: " + id);
    System.out.print(", Age: " + age);
    System.out.print(", First: " + first);
    System.out.println(", Last: " + last);
}

//STEP 6: Clean-up environment
rs.close();
stmt.close();
conn.close();
}catch(SQLException se){
    //Handle errors for JDBC
    se.printStackTrace();
}catch(Exception e){
    //Handle errors for Class.forName
    e.printStackTrace();
}finally{
    //finally block used to close resources
    try{
        if(stmt!=null)
            stmt.close();
    }catch(SQLException se2){
    }// nothing we can do
    try{
        if(conn!=null)
            conn.close();
    }catch(SQLException se){
        se.printStackTrace();
    }//end finally try
    }//end try
    System.out.println("Goodbye!");
}

//end main
}

//end FirstExample
```

Now let us compile above example as follows:

```
C:\>javac FirstExample.java
C:\>
```

When you run **FirstExample**, it produces following result:

```
C:\>java FirstExample
Connecting to database...
Creating statement...
ID: 100, Age: 18, First: Zara, Last: Ali
ID: 101, Age: 25, First: Mahnaz, Last: Fatma
ID: 102, Age: 30, First: Zaid, Last: Khan
ID: 103, Age: 28, First: Sumit, Last: Mittal
C:\>
```