# JDBC:

1. JDBC stands for Java Database Connectivity.
2. It is used for connecting a Java program to some database.
3. JDBC is a Java API to connect and execute the query with the database.
4. It is a part of Java SE (Java Standard Edition).
5. There are four types of JDBC drivers:
6. JDBC-ODBC Bridge Driver,
7. Native Driver,
8. Network Protocol Driver,
9. Thin Driver
10. We can use JDBC API to access tabular data stored in any relational database.
11. By the help of JDBC API, we can save, update, delete and fetch data from the database.
12. It is like Open Database Connectivity (ODBC) provided by Microsoft.



1. The current version of JDBC is 4.3.
2. It is the stable release since 21st September, 2017.
3. It is based on the X/Open SQL Call Level Interface.
4. The **java.sql** package contains classes and interfaces for JDBC API.
5. A list of popular interfaces of JDBC API are given below:

# Java Database Connectivity with 5 Steps

There are 5 steps to connect any java application with the database using JDBC.

These steps are as follows:

Step – 1: Register the Driver class

Class.forName();

Step – 2: Create connection

Step – 3: Create statement

Step – 4: Execute queries

Step – 5: Close connection

1. Create Database JDBC\_Demo;

2. Use JDBC\_Demo;

**import** java**.**sql**.\*;**

class Q01\_Statement\_All\_Steps

**{**

    public static void main**(**String args**[])**

**{**

        // 01

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

        // 02

        String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

        Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

        // 03

        Statement st **=** con**.**createStatement**();**

        // 04

        String s1 **=** ""**;**

        st**.**executeQuery**(**s1**);**

        // 05

        con**.**close**();**

**}**

**}**

error: unreported exception ClassNotFoundException; must be caught or declared to be thrown

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

                 ^

error: unreported exception SQLException; must be caught or declared to be thrown

    Connection con = DriverManager.getConnection( url, "root", "root");

                                                ^

error: unreported exception SQLException; must be caught or declared to be thrown

    Statement st = con.createStatement();

                                      ^

error: unreported exception SQLException; must be caught or declared to be thrown

    st.executeQuery(s1);

                   ^

error: unreported exception SQLException; must be caught or declared to be thrown

    con.close();

             ^

**import** java**.**sql**.\*;**

class Q02\_Statement\_try\_Catch

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String s1 **=** ""**;**

            st**.**executeUpdate**(**s1**);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Class Path Added"**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Before Class Path :

    java.lang.ClassNotFoundException: com.mysql.cj.jdbc.Driver

Because there no Class Path Added.

Set Class Path  :  D:\2\_All\_Code\17\_JDBC\mysql-connector-java-8.0.29.jar;.;%classpath%

After Set Class Path :

    Class Path Added

**import** java**.**sql**.\*;**

class Q03\_Statement\_executeUpdate\_Create\_Table

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String s1 **=** "CREATE TABLE Statement\_Table\_1( id int(10), Name varchar(20), Contact int(15), Address varchar(20) );"**;**

            int x **=** st**.**executeUpdate**(**s1**);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Table Created."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

// 01 Run 1st Time.

Table Created.

// 02 Run Again

java.sql.SQLSyntaxErrorException: Table 'statement\_table\_1' already exists

**import** java**.**sql**.\*;**

class Q04\_Statement\_executeUpdate\_Insert\_Data\_Manually

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04       id, Name, Contact, Address.

            String insert **=** "Insert into Statement\_Table\_1 values (1, 'Aman', 9876543, 'Harda');"**;**

            int rows **=** st**.**executeUpdate**(**insert**);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows affected."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Query OK, 1 rows affected.

**import** java**.**sql**.\*;**

class Q05\_Statement\_executeUpdate\_Insert\_Multiple\_Data\_Manually

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04                                                   id, Name, Contact, Address.

            String insert1 **=** "Insert into Statement\_Table\_1 values (2, 'Bhanu', 7894563, 'Harda');"**;**

            String insert2 **=** "Insert into Statement\_Table\_1 values (3, 'Chandu', 4569871, 'Harda');"**;**

            String insert3 **=** "Insert into Statement\_Table\_1 values (4, 'Deepak', 1234568, 'Harda');"**;**

            String insert4 **=** "Insert into Statement\_Table\_1 values (5, 'Eshan', 1478523, 'Harda');"**;**

            int rows **=** st**.**executeUpdate**(**insert1**);**

            rows **+=** st**.**executeUpdate**(**insert2**);**

            rows **+=** st**.**executeUpdate**(**insert3**);**

            rows **+=** st**.**executeUpdate**(**insert4**);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows affected."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Query OK, 4 rows affected.

In Database.

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

+------+--------+---------+---------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q06\_Statement\_executeUpdate\_Insert\_Data\_By\_User

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Id : "**);**

        int id **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Name : "**);**

        String name **=** sc**.**next**();**

        System**.**out**.**print**(**"Enter Contact : "**);**

        int contact **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Address : "**);**

        String address **=** sc**.**next**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04                                                   id, Name, Contact, Address.

            String insert1 **=** "Insert into Statement\_Table\_1 values( '"**+**id**+**"' , '"**+**name**+**"' , '"**+**contact**+**"' , '"**+**address**+**"'); "**;**

            int rows **=** st**.**executeUpdate**(**insert1**);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows affected."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Enter Id : 6

Enter Name : Faruk

Enter Contact : 9632145

Enter Address : Harda

Query OK, 1 rows affected.

In Database.

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|  1   | Aman   | 9876543 | Harda   |

|  2   | Bhanu  | 7894563 | Harda   |

|  3   | Chandu | 4569871 | Harda   |

|  4   | Deepak | 1234568 | Harda   |

|  5   | Eshan  | 1478523 | Harda   |

|  6   | Faruk  | 9632145 | Harda   |

+------+--------+---------+---------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q07\_Statement\_executeUpdate\_Update\_Data\_By\_User

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Id Which Do you want to Update : "**);**

        int update\_Row **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Id : "**);**

        int id **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Name : "**);**

        String name **=** sc**.**next**();**

        System**.**out**.**print**(**"Enter Contact : "**);**

        int contact **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Address : "**);**

        String address **=** sc**.**next**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04                                                   id, Name, Contact, Address.

            String update1 **=** "Update Statement\_Table\_1 Set id ='"**+**id**+**"' , name = '"**+**name**+**"' , contact = '"**+**contact**+**"' , address = '"**+**address**+**"' WHERE id = '"**+**update\_Row**+**"'"**;**

            int rows **=** st**.**executeUpdate**(** update1 **);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows affected."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Enter Id Which Do you want to Update : 7

Enter Id : 100

Enter Name : Vishal

Enter Contact : 798782

Enter Address : Harda

Query OK, 1 rows affected.

In Database.   Before

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

|    6 | Faruk  | 9632145 | Harda   |

|    7 | Gopal  |  987412 | Harda   |

+------+--------+---------+---------+

After :

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

|    6 | Faruk  | 9632145 | Harda   |

|  100 | Vishal |  798782 | Harda   |

+------+--------+---------+---------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q08\_Statement\_executeUpdate\_Delete\_Data\_By\_User

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Id Which Do you want to Delete : "**);**

        int delete\_Row **=** sc**.**nextInt**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04                                       id,     Name,   Contact,    Address.

            String delete1 **=** "Delete From Statement\_Table\_1 where Id = '"**+** delete\_Row**+**"'"**;**

            int rows **=** st**.**executeUpdate**(** delete1 **);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows Deleted."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

// 01

Enter Id Which Do you want to Update : 6

Query OK, 1 rows Deleted.

// 02

Enter Id Which Do you want to Delete : 10

Query OK, 0 rows Deleted.

In Database.   Before

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

|    6 | Faruk  | 9632145 | Harda   |

+------+--------+---------+---------+

After :

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

+------+--------+---------+---------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q09\_Statement\_executeUpdate\_Delete\_All\_Data

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04                                       id,     Name,   Contact,    Address.

            String delete1 **=** "Delete From Statement\_Table\_1"**;**

            int rows **=** st**.**executeUpdate**(** delete1 **);**

            // 05

            con**.**close**();**

            System**.**out**.**println**(**"Query OK, " **+** rows **+** " rows Deleted."**);**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Enter Id Which Do you want to Update : 6

Query OK, 5 rows Deleted.

In Database.   Before

mysql> SELECT \* FROM Statement\_Table\_1;

+------+--------+---------+---------+

| id   | Name   | Contact | Address |

+------+--------+---------+---------+

|    1 | Aman   | 9876543 | Harda   |

|    2 | Bhanu  | 7894563 | Harda   |

|    3 | Chandu | 4569871 | Harda   |

|    4 | Deepak | 1234568 | Harda   |

|    5 | Eshan  | 1478523 | Harda   |

|    6 | Faruk  | 9632145 | Harda   |

+------+--------+---------+---------+

After :

mysql> SELECT \* FROM Statement\_Table\_1;

Empty set (0.00 sec)

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q10\_Statement\_ExecuteQuery\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**   // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

java.sql.SQLException: Before start of result set

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q11\_Statement\_ExecuteQuery\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

// 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            rs**.**next**();**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

1, Aman, 9876543, Harda

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q12\_Statement\_ExecuteQuery\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            rs**.**next**();**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+**

rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+**

rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+**

rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

    // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

1, Aman, 9876543, Harda

1, Aman, 9876543, Harda

1, Aman, 9876543, Harda

1, Aman, 9876543, Harda

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q13\_Statement\_ExecuteQuery\_next

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  :  " **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  :  " **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  :  " **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  :  " **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  :  " **);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            // 05

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

true  :  1, Aman, 9876543, Harda

true  :  2, Bhanu, 7894563, Harda

true  :  3, Chandu, 4569871, Harda

true  :  4, Deepak, 1234568, Harda

true  :  5, Eshan, 1478523, Harda

false  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q14\_Statement\_ExecuteQuery\_next

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

**while(** rs**.**next**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

true  :  1, Aman, 9876543, Harda

true  :  2, Bhanu, 7894563, Harda

true  :  3, Chandu, 4569871, Harda

true  :  4, Deepak, 1234568, Harda

true  :  5, Eshan, 1478523, Harda

false  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q15\_Statement\_ExecuteQuery\_previous

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**();**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

**while(** rs**.**next**()** **)**

**{}**

**while(** rs**.**previous**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

java.sql.SQLException: Operation not allowed for a result set of type ResultSet.TYPE\_FORWARD\_ONLY.

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q16\_Statement\_ExecuteQuery\_previous\_TYPE\_FORWARD\_ONLY

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

**while(** rs**.**next**()** **)**

**{}**

**while(** rs**.**previous**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

5, Eshan, 1478523, Harda

4, Deepak, 1234568, Harda

3, Chandu, 4569871, Harda

2, Bhanu, 7894563, Harda

1, Aman, 9876543, Harda

true  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q17\_Statement\_ExecuteQuery\_first

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

**while(** rs**.**next**()** **)**

**{}**

            rs**.**first**();**

**while(** rs**.**next**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

2, Bhanu, 7894563, Harda

3, Chandu, 4569871, Harda

4, Deepak, 1234568, Harda

5, Eshan, 1478523, Harda

false  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q18\_Statement\_ExecuteQuery\_beforeFirst

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

**while(** rs**.**next**()** **){}**

            rs**.**beforeFirst**();**

**while(** rs**.**next**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

1, Aman, 9876543, Harda

2, Bhanu, 7894563, Harda

3, Chandu, 4569871, Harda

4, Deepak, 1234568, Harda

5, Eshan, 1478523, Harda

false  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q19\_Statement\_ExecuteQuery\_last

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            rs**.**last**();**

**while(** rs**.**previous**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

4, Deepak, 1234568, Harda

3, Chandu, 4569871, Harda

2, Bhanu, 7894563, Harda

1, Aman, 9876543, Harda

true  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q20\_Statement\_ExecuteQuery\_AfterLast

**{**

    public static void main**(**String args**[])**

**{**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            rs**.**afterLast**();**

**while(** rs**.**previous**()** **)**

                System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            System**.**out**.**print**(** rs**.**next**()** **+** "  ResultSet Reach Last Row" **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

5, Eshan, 1478523, Harda

4, Deepak, 1234568, Harda

3, Chandu, 4569871, Harda

2, Bhanu, 7894563, Harda

1, Aman, 9876543, Harda

true  ResultSet Reach Last Row

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q21\_Statement\_ExecuteQuery\_absolute

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(** ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_READ\_ONLY **);**

            // 04

            String printData **=** "SELECT \* From Statement\_Table\_1"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            System**.**out**.**print**(**"Enter Which row Do you want to Print : "**);**

            int absolute1 **=** sc**.**nextInt**();**

            rs**.**absolute**(**absolute1**);**

            System**.**out**.**println**(** rs**.**getInt**(**1**)** **+** ", " **+** rs**.**getString**(**2**)**  **+** ", " **+** rs**.**getString**(**3**)**  **+** ", " **+** rs**.**getString**(**4**)** **);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

// 01

Enter Which row Do you want to Print : 5

5, Eshan, 1478523, Harda

// 02

Enter Which row Do you want to Print : 2

2, Bhanu, 7894563, Harda

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q22\_Insertion\_Using\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Id Row : "**);**

        int id **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Name Row : "**);**

        String name **=** sc**.**next**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(**ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_UPDATABLE**);**

            // 04

            String update **=** "SELECT \* From ResultSet\_Table"**;**

            ResultSet rs **=** st**.**executeQuery**(**update**);**

            // 01 Reach To Last ( Create a blank row in ResultSet)

            rs**.**moveToInsertRow**();**

            // 02 Update Data in newly Inserted Row

            rs**.**updateInt**(**1**,** id**);**

            rs**.**updateString**(**2**,** name**);**

            // 03 To save the newly inserted Row in Database.

            rs**.**insertRow**();**

            System**.**out**.**println**(**"Query OK, 1  rows affected."**);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Enter Id Row : 5

Enter Name Row : ASDF

mysql> select \* from ResultSet\_Table;

+----+------+

| Id | Name |

+----+------+

|  1 | AAA  |

|  2 | BBB  |

|  3 | CCC  |

|  4 | DDD  |

+----+------+

mysql> select \* from ResultSet\_Table;

+-----+--------+

| Id  | Name   |

+-----+--------+

|   1 | AAA    |

|   2 | BBB    |

|   3 | CCC    |

|   4 | DDD    |

|   5 | ASDF   |

+-----+--------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q23\_Update\_Using\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Update Row : "**);**

        int update\_Row **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Id Row : "**);**

        int id **=** sc**.**nextInt**();**

        System**.**out**.**print**(**"Enter Name Row : "**);**

        String name **=** sc**.**next**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(**ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_UPDATABLE**);**

            // 04

            String update **=** "SELECT \* From ResultSet\_Table"**;**

            ResultSet rs **=** st**.**executeQuery**(**update**);**

            // Reach To Absolute Row Which we wants to update.

            rs**.**absolute**(** update\_Row **);**

            rs**.**updateInt**(**1**,** id**);**

            rs**.**updateString**(**2**,** name**);**

            rs**.**updateRow**();**

            System**.**out**.**println**(**"Query OK, 1  rows affected."**);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Enter Update Row : 1

Enter Id Row : 123

Enter Name Row : 123

mysql> select \* from ResultSet\_Table;

+----+------+

| Id | Name |

+----+------+

|  1 | AAA  |

|  2 | BBB  |

|  3 | CCC  |

|  4 | DDD  |

+----+------+

mysql> select \* from ResultSet\_Table;

+-----+------+

| Id  | Name |

+-----+------+

|   2 | BBB  |

|   3 | CCC  |

|   4 | DDD  |

| 123 | 123  |

+-----+------+

**import** java**.**sql**.\*;**

**import** java**.**util**.\*;**

class Q24\_delete\_Using\_ResultSet

**{**

    public static void main**(**String args**[])**

**{**

        Scanner sc **=** **new** Scanner**(**System**.**in**);**

        System**.**out**.**print**(**"Enter Deleted Row : "**);**

        int deleted\_Row **=** sc**.**nextInt**();**

**try**

**{**

            // 01

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

            // 02

            String url **=** "jdbc:mysql://localhost:3306/JDBC\_Demo"**;**

            Connection con **=** DriverManager**.**getConnection**(** url**,** "root"**,** "root"**);**

            // 03

            Statement st **=** con**.**createStatement**(**ResultSet**.**TYPE\_SCROLL\_SENSITIVE**,** ResultSet**.**CONCUR\_UPDATABLE**);**

            // 04

            String printData **=** "SELECT \* From ResultSet\_Table"**;**

            ResultSet rs **=** st**.**executeQuery**(** printData **);**

            // Reach To Delete Row

            rs**.**absolute**(** deleted\_Row **);**

            System**.**out**.**println**(** rs**.**getString**(**1**)** **+**",  " **+** rs**.**getString**(**2**)** **);**

            rs**.**deleteRow**();**

            System**.**out**.**println**(**"Query OK, 1  rows Deleted."**);**

            // 05

            con**.**close**();**

**}**

**catch(** Exception e**)**

**{**

            System**.**out**.**println**(**e**);**

**}**

**}**

**}**

Query OK, 1  rows Deleted.