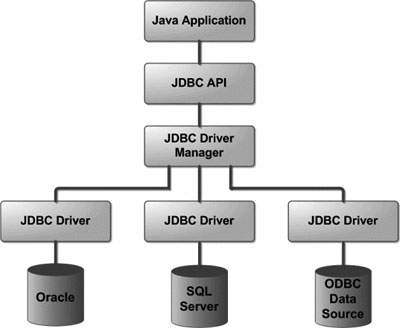
**What is JDBC?**

Java database connectivity is an API that provides classes and interfaces to connect or communicate the java applications with database. It enables java programs to execute SQL statements.

**JDBC Architecture**



**Connecting to MySQL database using JDBC**

1. Java driver for MySQL
2. Download from http://dev.mysql.com/downloads
3. Add the jar to build path

**Testing MySQL Connection**

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

**public** **class** TestMySQLConnection {

**static** String *username* = "root";

**static** String *password* = "admin123";

**static** String *dbURL* = "jdbc:mysql://localhost:3306/flipkart";

**public** **static** **void** main(String[] args) **throws** SQLException, InstantiationException, IllegalAccessException, ClassNotFoundException {

**try**(Connection conn=DriverManager.*getConnection*(*dbURL*,*username*,*password*)) {

System.*out*.println("Connection established successfully!!");

} **catch** (SQLException e) {

// **TODO** Auto-generated catch block

System.*err*.println(e.getMessage());

}

}

}

**Output**

**Connection established successfully!!**

**JDBC Statements**

**Statement,PreparedStatement and CallableStatement**

|  |  |
| --- | --- |
| Interface | Use |
| Statement | General purpose access to your database.Useful when you are using static interfaces at runtime. |
| PreparedStatement | Used to execute a parameterized query.Useful when we want to execute the same query many times. |
| CallableStatement |  |

**Methods of the Statement interface**

* public ResultSet executeQuery(String sql)
* public int executeUpdate(String sql)
* public boolean execute(String sql)

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Statement;

**public** **class** Banking {

**static** String *username* = "root";

**static** String *password* = "admin123";

**static** String *dbURL* = "jdbc:mysql://localhost:3306/bank";

**public** **static** **void** main(String[] args) **throws** SQLException, InstantiationException, IllegalAccessException, ClassNotFoundException {

Connection conn=**null**;

Statement stmt=**null**;

ResultSet rs=**null**;

**try** {

conn=DriverManager.*getConnection*(*dbURL*, *username*, *password*);

stmt=conn.createStatement();

System.*out*.println("\*Displaying records from the customer database\*\n"); //using executeQuery()

String sql = "select \*from customer";

rs=stmt.executeQuery(sql);

System.*out*.println("Account no\t\tCustomer Name\t\tCustomer Address");

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

{

System.*out*.println(rs.getInt("Acc\_no")+"\t\t"+rs.getString("Cust\_name")+"\t\t"+rs.getString("Cust\_add"));

}

System.*out*.println("\n\*Updating a record in the database\*\n"); //using executeUpdate()

sql="UPDATE customer set Cust\_add='f-residencies' where Cust\_name='Akshita Sharma'";

**int** flag=stmt.executeUpdate(sql);

System.*out*.println("Record updated..."+flag+" rows affected");

} **catch** (SQLException e) {

// **TODO** Auto-generated catch block

System.*err*.println(e.getMessage());

}

**finally**

{

**if**(rs!=**null**)

{

rs.close();

}

**if**(stmt!=**null**)

{

stmt.close();

}

**if**(conn!=**null**)

{

conn.close();

}

}

}

}

**Output**

\*Displaying records from the customer database\*

Account no Customer Name Customer Address

36542383 Komal Bakshi Kharadi

56742381 Kalyani Joshi Warje

59542399 Ritwik Kala Kharadi

86742382 Akshita Sharma kharadi

\*Updating a record in the database\*

Record updated...1 rows affected

**Methods of the ResultSet interface**

* Navigational methods : examples: beforeFirst(),afterLast(),etc
* Get methods: examples:getInt(int columnindex)
* Update methods: examples:updateString(int columnindex,String s)

**ResultSet types**

* TYPE\_FORWARD\_ONLY
* TYPE\_SCROLL\_INSENSITIVE
* TYPE\_SCROLL\_SENSETIVE

**ResultSet Concurrency types**

* CONCUR\_READ\_ONLY
* CONCUR\_UPDATABLE

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Statement;

**public** **class** Banking2 {

**static** String *username* = "root";

**static** String *password* = "admin123";

**static** String *dbURL* = "jdbc:mysql://localhost:3306/bank";

**public** **static** **void** main(String[] args) **throws** SQLException, InstantiationException, IllegalAccessException, ClassNotFoundException {

**try**(Connection conn=DriverManager.*getConnection*(*dbURL*, *username*, *password*);

Statement stmt=conn.createStatement(ResultSet.*TYPE\_SCROLL\_INSENSITIVE*,ResultSet.*CONCUR\_READ\_ONLY*);

ResultSet rs=stmt.executeQuery("select \*from customer");) {

System.*out*.println("Account no\t\tCustomer Name\t\tCustomer Address");

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

{

System.*out*.println(rs.getInt("Acc\_no")+"\t\t"+rs.getString("Cust\_name")+"\t\t"+rs.getString("Cust\_add"));

}

System.*out*.println("\*rs.absolute() method\*");

rs.absolute(2); //used for moving the cursor to a specified row

System.*out*.println(rs.getString(2)); //display the second column of the second row

System.*out*.println("\*moving the cursor to the previous row\*");

rs.previous();

System.*out*.println(rs.getString(2)); //display the second column of previous row

} **catch** (SQLException e) {

// **TODO** Auto-generated catch block

System.*err*.println(e.getMessage());

}

}

}

Output

Account no Customer Name Customer Address

36542383 Komal Bakshi Kharadi

56742381 Kalyani Joshi Warje

59542399 Ritwik Kala Kharadi

86742382 Akshita Sharma kharadi

\*rs.absolute() method\*

Kalyani Joshi

\*moving the cursor to the previous row\*

Komal Bakshi

Understanding Updatable ResultSet

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Statement;

**public** **class** Banking3 {

**static** String *username* = "root";

**static** String *password* = "admin123";

**static** String *dbURL* = "jdbc:mysql://localhost:3306/bank";

**public** **static** **void** main(String[] args) **throws** SQLException, InstantiationException, IllegalAccessException, ClassNotFoundException {

**try**(Connection conn=DriverManager.*getConnection*(*dbURL*, *username*, *password*);

Statement stmt=conn.createStatement(ResultSet.*TYPE\_SCROLL\_INSENSITIVE*,ResultSet.*CONCUR\_UPDATABLE*);

ResultSet rs=stmt.executeQuery("select \*from customer");) {

rs.absolute(3);

rs.updateString("Cust\_add", "eon");

rs.updateRow();

System.*out*.println("Record updated successfully");

//System.out.println(rs.getString("Cust\_add"));

rs.moveToInsertRow();

rs.updateInt("Acc\_no", 87654523);

rs.updateString("Cust\_name", "Sangat Das");

rs.updateString("Cust\_add", "Nagpur");

rs.insertRow();

System.*out*.println("Record inserted successfully");

//System.out.println(rs.getString(2));

} **catch** (SQLException e) {

// **TODO** Auto-generated catch block

System.*err*.println(e.getMessage());

}

}

}

Output

Record updated successfully

Record inserted successfully

**PreparedStatement**

It is used to execute a parameterized query.

Why should be use it?

* Query is compiled only once.So the performance of the application will be faster.

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.util.Scanner;

**public** **class** Banking4 {

**static** String *username* = "root";

**static** String *password* = "admin123";

**static** String *dbURL* = "jdbc:mysql://localhost:3306/bank";

**public** **static** **void** main(String[] args) **throws** SQLException, InstantiationException, IllegalAccessException, ClassNotFoundException {

Connection conn=**null**;

PreparedStatement pstmt=**null**;

ResultSet rs=**null**;

String add = **null**;

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

**try** {

conn=DriverManager.*getConnection*(*dbURL*, *username*, *password*);

String sql="select \*from customer where Cust\_Add=?";

pstmt=conn.prepareStatement(sql, ResultSet.*TYPE\_SCROLL\_INSENSITIVE*, ResultSet.*CONCUR\_READ\_ONLY*);

System.*out*.println("Enter the address for viewing filterd results:");

add=sc.nextLine();

*preparedStatement*(pstmt,add);

} **catch** (SQLException e) {

// **TODO** Auto-generated catch block

System.*err*.println(e.getMessage());

}

**finally**

{

sc.close();

**if**(rs!=**null**)

{

rs.close();

}

**if**(pstmt!=**null**)

{

pstmt.close();

}

**if**(conn!=**null**)

{

conn.close();

}

}

}

**private** **static** **void** preparedStatement(PreparedStatement pstmt,String add)

**throws** SQLException {

ResultSet rs;

pstmt.setString(1,add);

rs=pstmt.executeQuery();

System.*out*.println("Account no\t\tCustomer Name\t\tCustomer Address");

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

{

System.*out*.println(rs.getInt("Acc\_no")+"\t\t"+rs.getString("Cust\_name")+"\t\t"+rs.getString("Cust\_add"));

}

}

}

Output:

Enter the address for viewing filterd results:

Kharadi

Account no Customer Name Customer Address

36542383 Komal Bakshi Kharadi

86742382 Akshita Sharma kharadi