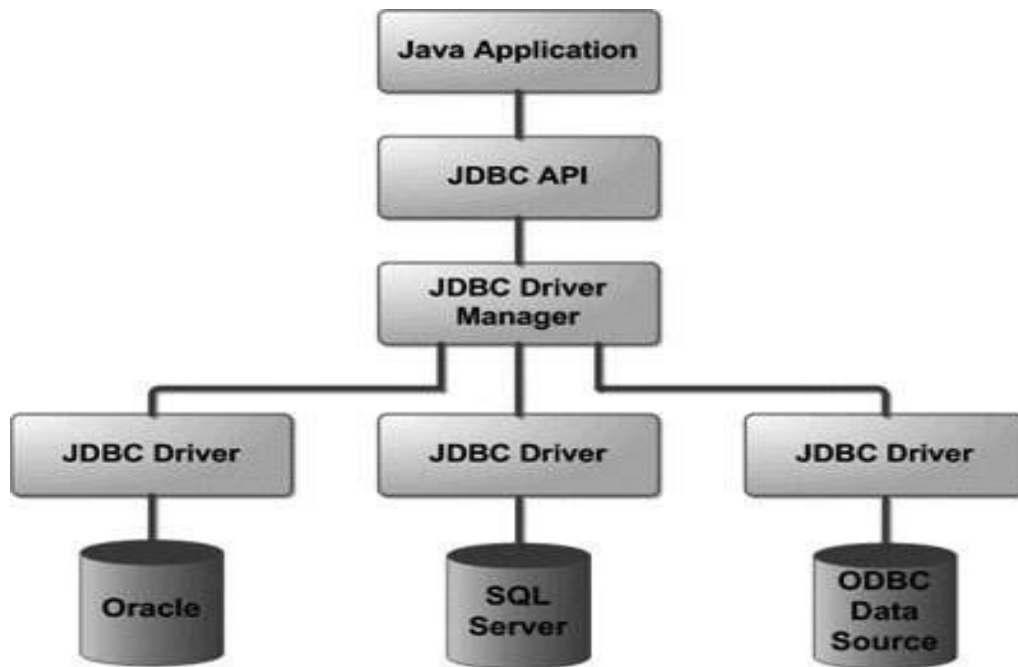


JDBC: Java Database Connectivity is an application programming interface for the programming language Java, which defines how a client may access a database. It is a Java-based data access technology used for Java database connectivity.

JDBC Architecture: The JDBC API supports both two-tier and three-tier processing models for database access but in general, JDBC Architecture consists of two layers:

JDBC API: This provides the application-to-JDBC Manager connection.

JDBC Driver API: This supports the JDBC Manager-to-Driver Connection.



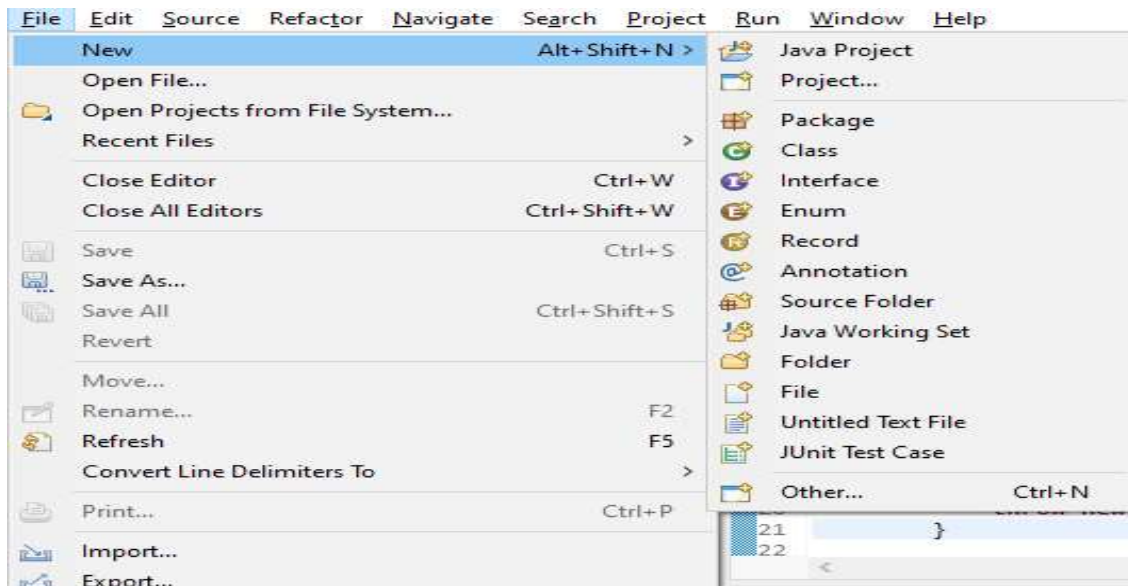
Note: Mysql workbench download for this link:

<https://dev.mysql.com/downloads/workbench/>

Note: Mysql Installer download for External-JAR edit in SRC.

Link: <https://dev.mysql.com/downloads/installer/>

Step 1: Create a project in Eclipse:



Step 2:

Add Jar file in your project:

(Right click) SRC → Choose build path → choose Libraries → Select Add Jar's → select your connector file → Click Apply and close.

For Example: Connection with database.

```
package com.first;
import java.sql.Connection;
import java.sql.DriverManager;

public class firstfile {
    private static Connection con=null;
    public static void main(String[] args) {
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            String url="jdbc:mysql://localhost:3306/ccit";
            String user="root";
            String pass="Ccit@123";

            DriverManager.getConnection(url,user,pass);
            System.out.println("Connected successfully");
        } catch (Exception e)
        {
```

```
        throw new RuntimeException("Not Connected");
    }
}
}
```

For Example: In this program create database in MySQL using java.

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
public class App {
    public static void main(String[] args) throws Exception {
        try(
Connection conn = DriverManager.getConnection
(
"jdbc:mysql://localhost:3306/",
"root",
"Ccit@123
);

        Statement stm=conn.createStatement();
        {
String sql="CREATE DATABASE ccitt";
stm.executeUpdate(sql);
System.out.println("Database created Successfully.....");
        }
        catch(SQLException e)
        {
            System.out.println("Something went wrong....");
        }
    }
}
```

For Example: In this program show the database with code in mysql.

```
package com.jdbc.student;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
```

```
import java.sql.Statement;

public class connect {
    static final String DB_URL = "jdbc:mysql://localhost:3306/";
    static final String USER = "root";
    static final String PASS = "Ccit@123";

    public static void main(String[] args) throws SQLException {
        Connection con = DriverManager.getConnection(DB_URL, USER, PASS);
        System.out.println("Connection established.....");

        Statement stmt = con.createStatement();
        ResultSet rs = stmt.executeQuery("Show databases");
        System.out.println("List of databases: ");
        while(rs.next()) {
            System.out.print(rs.getString(1));
            System.out.println();
        }
    }
}
```

For Example: In this program delete the database with code in mysql.

```
package com.jdbc.student;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
public class connect {
    static final String DB_URL = "jdbc:mysql://localhost:3306/";
    static final String USER = "root";
    static final String PASS = "Ccit@123";

    public static void main(String[] args) throws SQLException {
        try(Connection conn = DriverManager.getConnection(DB_URL,USER,PASS) ;
            Statement stmt = conn.createStatement();
        ){
```

```
        String sql = "DROP DATABASE study";
        stmt.executeUpdate(sql);
        System.out.println("Database          dropped
successfully...");
    } catch (SQLException e) {
        System.out.println("Database is not deleted");
    }
}
}
```

For Example: In this program create the table with code in mysql.

```
package com.jdbc.student;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
public class connect {
    static final String DB_URL = "jdbc:mysql://localhost:3306/ccit";
    static final String USER = "root";
    static final String PASS = "Ccit@123";
    public static void main(String[] args) throws SQLException {
try(Connection conn = DriverManager.getConnection(DB_URL,USER,PASS);
        Statement stmt = conn.createStatement();
    ) {
        String sql = "CREATE TABLE abc" +
            "(id INTEGER not NULL, " +
            " First VARCHAR(255), " +
            " Class VARCHAR(255), " +
            " Phone INTEGER, " +
            " PRIMARY KEY ( id ))";

        stmt.executeUpdate(sql);
        System.out.println("Created table in given database...");
    } catch (SQLException e) {
        System.out.println("Table is not created ");
    }
}
```

```
}
```

For Example: In this program print the data from table with using jdbc and sql query.

Program:

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

class App {
    public static void main(String[] args) throws Exception
    {
        String url
            = "jdbc:mysql://localhost:3306/ccit";    // table
details

        String username = "root"; // MySQL credentials
        String password = "Council@123_";
        String query
            = "select * from home"; // query to be run
        Class.forName(
            "com.mysql.cj.jdbc.Driver"); // Driver name
        Connection con = DriverManager.getConnection(
            url, username, password);
        System.out.println(
            "Connection Established successfully");
        Statement st = con.createStatement();
        ResultSet rs
            = st.executeQuery(query); // Execute query
        rs.next();
        String name
            = rs.getString("Name");
        String roll=rs.getString("Roll_No");
// Retrieve name from db

        System.out.println(name);
        System.out.println(roll); // Print result on console
        st.close(); // close statement
        con.close(); // close connection
        System.out.println("Connection Closed....");
    }
}
```

```
    }  
}
```

File: In this program print the all data from table.

For Example:

```
import java.io.*;  
import java.sql.*;  
  
class App {  
    public static void main(String[] args) throws Exception  
    {  
String url= "jdbc:mysql://localhost:3306/ccit"; // table details  
        String username = "root"; // MySQL credentials  
        String password = "Council@123_";  
        String query  
            = "select * from home"; // query to be run  
        Class.forName(  
            "com.mysql.cj.jdbc.Driver"); // Driver name  
        Connection con = DriverManager.getConnection(  
            url, username, password);  
        System.out.println(  
            "Connection Established successfully");  
        Statement st = con.createStatement();  
        ResultSet rs= st.executeQuery(query); // Execute query  
        while (rs.next())  
        {  
            int id = rs.getInt("ID");  
            String firstName = rs.getString("Name");  
            String lastName = rs.getString("Class");  
            String ph = rs.getString("Phone");  
            // print the results  
System.out.format("%s, %s, %s, %s \n", id, firstName, lastName, ph);  
        }  
  
        st.close(); // close statement  
        con.close(); // close connection  
        System.out.println("Connection Closed....");  
    }  
}
```

```
}
```

For Example: In this example insert the data from java in table.

```
package com.jdbc.student;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.Scanner;

public class studentdata {
    public static Connection connection = null;
    private static Scanner sc=new Scanner(System.in);
        public static void main(String[] args){

            studentdata s=new studentdata();
            try {
                Class.forName("com.mysql.cj.jdbc.Driver");
                String url="jdbc:mysql://localhost:3306/ccit";
                String username="root";
                String password="Ccit@123";
                connection = DriverManager.getConnection(url,username,password);

                s.insert();
            } catch (Exception e) {
                throw new RuntimeException("Data not insterted ");
            }
        }
        private void insert() throws SQLException
        {
            String sql= "insert into first  (Name,Class,Phone)
values('Council','Second',31456987)";
            PreparedStatement p= connection.prepareStatement(sql);
            int rows = p.executeUpdate();
            if(rows>0)
            {
                System.out.println("*****Row is inserted***** ");
            }
        }
    }
}
```



```
    }  
    else  
    {  
        System.out.println("Not inserted ");  
    }  
    System.out.println("insert data in table ");  
}  
}
```

For Example: In this example insert the data from different way in mysql using java.

```
package com.jdbc.student;  
import java.sql.Connection;  
import java.sql.DriverManager;  
import java.sql.PreparedStatement;  
import java.sql.SQLException;  
import java.util.Scanner;  
public class studentdata {  
    public static Connection connection = null;  
    private static Scanner sc=new Scanner(System.in);  
        public static void main(String[] args){  
  
        studentdata s=new studentdata();  
        try {  
            Class.forName("com.mysql.cj.jdbc.Driver");  
            String url="jdbc:mysql://localhost:3306/ccit";  
            String username="root";  
            String password="Ccit@123";  
connection = DriverManager.getConnection(url,username,password);  
            int choice;  
            System.out.println("1. Insert data in table ");  
            System.out.println("Enter your choice ");  
            choice=sc.nextInt();  
            switch(choice)  
            {  
            case 1:  
                s.insert();  
                break;
```

```
        case 2:
            System.out.println("This is update query ");
            break;
        default:
            System.out.println("You entered invalid value ");
            break;
    }
} catch (Exception e) {
    throw new RuntimeException("Something went wrong ");
}

}

private void insert() throws SQLException
{
String sql= "insert into first(Name,Class,Phone) values(?,?,?)";
    PreparedStatement p= connection.prepareStatement(sql);
    p.setString(1,"ABC");
    p.setString(2,"Third");
    p.setLong(3,456132798);

    int rows = p.executeUpdate();
    if(rows>0)
    {
System.out.println("***** Row is inserted ***** ");
    }
    else
    {
        System.out.println("Not inserted ");
    }

    System.out.println("insert data in table ");
}
}
```

File: In this file insert the data from user in JDBC program.

For Example:

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

```
import java.util.*;
class App {
    public static void main(String a[])
    {
        Scanner k = new Scanner(System.in);

        System.out.println("enter name");
        String name = k.next();
        System.out.println("enter class");
        String cls = k.next();
        System.out.println("enter Phone no: ");
        int roll = k.nextInt();
        String sql = "INSERT INTO home(Name,Class,Phone)
        VALUE ('"+name+"', '"+cls+"', '"+roll+"')";
        Connection con = null;

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            con = DriverManager.getConnection(
            "jdbc:mysql://localhost:3306/ccit","root","Council@123_");
            Statement st=null;
            st = con.createStatement();
            System.out.println("Connection Succesfully*****");
            int m = st.executeUpdate(sql);
            if (m == 1)
            System.out.println("inserted successfully : " + sql);
            else
                System.out.println("insertion failed");
            con.close();
        }
        catch (Exception ex) {
            System.out.println("Something wrong .....");
        }
    }
}
```

For Example: In this program use the delete query in table by using Mysql.

```
package com.jdbc.student;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.SQLException;
import java.util.Scanner;

public class studentdata {
    public static Connection connection = null;
    private static Scanner sc=new Scanner(System.in);

    public static void main(String[] args){

        studentdata s=new studentdata();
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            String url="jdbc:mysql://localhost:3306/ccit";
            String username="root";
            String password="Ccit@123";
            connection =
DriverManager.getConnection(url,username,password);
            int choice;
            System.out.println("1. For Insert Data\n 2. For Delete Data \n 3.
For Update Data \n 4. For Exit");
            System.out.println(" Enter your choice " );

            choice=sc.nextInt();
            switch(choice)
            {
            case 1:
                s.insert();
                break;
            case 2:
                s.delete();
                break;
            default:
                break;
            }
        }
    }
}
```

```
        } catch (Exception e) {
            throw new RuntimeException("Something went wrong ");
        }
    }

    private void insert() throws SQLException
    {
String sql= "insert into first(Name,Class,Phone) values(?,?,?)";
        PreparedStatement p= connection.prepareStatement(sql);
        p.setString(1,"ABC");
        p.setString(2,"Third");
        p.setLong(3,456132798);
        int rows = p.executeUpdate();
        if(rows>0)
        {
            System.out.println("***** Row is inserted
***** ");
        }
        else
        {
            System.out.println("Not inserted ");
        }

        System.out.println("insert data in table sucessfully");
    }

    private void delete() throws SQLException
    {
        String sql ="delete from first where Name='ABC'";
        PreparedStatement p= connection.prepareStatement(sql);
        int rows = p.executeUpdate();
        if(rows>0)
        {
            System.out.println("***** Row is deleted *****
");
        }
        else
        {
            System.out.println("Not deleted data ");
        }
    }
}
```

```
}  
}  
}
```

File: In this file delete the data from table in mysql by using java.

```
package com.postgresqлтutorial;  
  
import java.sql.Connection;  
import java.sql.DriverManager;  
import java.sql.PreparedStatement;  
import java.sql.SQLException;  
  
public class Main {  
  
    private final String url = "jdbc:postgresql://localhost/firstdata";  
    private final String user = "root";  
    private final String password = "";  
  
    public Connection connect() throws SQLException {  
        return DriverManager.getConnection(url, user, password);  
    }  
  
    public int deleteActor(int id) {  
        String SQL = "DELETE FROM data1 WHERE actor_id = ?";  
  
        int affectedrows = 0;  
  
        try (Connection conn = connect();  
            PreparedStatement pstmt = conn.prepareStatement(SQL)) {  
  
            pstmt.setInt(1, id);  
  
            affectedrows = pstmt.executeUpdate();  
  
        } catch (SQLException ex) {
```

```
        System.out.println(ex.getMessage());
    }
    return affectedrows;
}

public static void main(String[] args) {
    Main main = new Main();
    main.deleteActor(214);
}
}
```

File: In this file create a form and insert the data in table using mysql with JDBC

For Example:

```
import javax.swing.*;
import java.awt.event.*;
import java.util.*;
import java.sql.*;

class data
{
    JFrame f;
    data() throws ClassNotFoundException
    {
        f=new JFrame();
        {
            JFrame f= new JFrame("Name");
            JTextField t1,t2,t3;
            JLabel l1,l2,l3,l4,l5,l6;
            l1=new JLabel("First Name");
            l1.setBounds(20,20, 100,30);
            t1=new JTextField();
            t1.setBounds(100,20, 100,30);
            l2=new JLabel("Class");
            l2.setBounds(20,60, 100,30);
            t2=new JTextField();
            t2.setBounds(100,60, 100,30);
            l3=new JLabel("Phone No");
```

```
l3.setBounds(20,100, 100,30);
t3=new JTextField();
t3.setBounds(100,100, 100,30);
l4=new JLabel("Gender");
l4.setBounds(20,140, 80,30);
JRadioButton r1=new JRadioButton("Male");
JRadioButton r2=new JRadioButton("Female");
r1.setBounds(100,140,60,30);
r2.setBounds(170,140,100,30);
ButtonGroup bg=new ButtonGroup();
bg.add(r1);bg.add(r2);
l5=new JLabel("Qualification");
l5.setBounds(20,190, 150,30);
JCheckBox checkBox1 = new JCheckBox("10th");
checkBox1.setBounds(100,180, 50,50);
JCheckBox checkBox2 = new JCheckBox("12th");
checkBox2.setBounds(180,180, 80,50);
JCheckBox checkBox3 = new JCheckBox("Graduation");
checkBox3.setBounds(100,240, 100,50);
JCheckBox checkBox4 = new JCheckBox("Post Graduation");
checkBox4.setBounds(200,240, 170,50);
l6=new JLabel("Streams");
l6.setBounds(20,330, 130,10);
String Streams[]={"BBA","BCA","MBA","MA","MCA"};
JComboBox cb=new JComboBox(Streams);
cb.setBounds(100, 320,70,30);
JButton bt=new JButton("Submit");
bt.setBounds(250,500,78,30);
f.add(cb);
f.add(checkBox1);
f.add(checkBox2);
f.add(checkBox3);
f.add(checkBox4);
f.add(r1);f.add(r2);
f.add(t1); f.add(t2); f.add(t3);
f.add(l1);
f.add(l2);f.add(l3);f.add(l4);f.add(l5);f.add(l6); f.add(bt);
```



```
f.setSize(600,600);
f.setLayout(null);
f.setVisible(true);

try
{
    String url
        = "jdbc:mysql://localhost:3306/ccit";
    String username = "root";
    String password = "Council@123_";

    Class.forName("com.mysql.cj.jdbc.Driver");
    Connection con = DriverManager.getConnection(
        url, username, password);
    System.out.println(
        "Connection Established successfully");

    bt.addActionListener(new ActionListener()
    {
        public void actionPerformed(ActionEvent e)
        {
            String data = t1.getText();
            String data2 =t2.getText();
            String data3=t3.getText();

            try {
                String sql = "INSERT INTO home (Name,Class,Phone)
                VALUE ('"+data+"', '"+data2+"', '"+data3+"')";
                Statement st=null;
                st = con.createStatement();
                System.out.println("Connection Succesfully*****");
                int m = st.executeUpdate(sql);
                if (m == 1)
                    System.out.println(
                        "inserted successfully : " + sql);
                else
                    System.out.println("insertion failed");
                con.close();
            }
        }
    });
}
```

```
    } catch (SQLException e1) {
        System.out.println("Not insert data in table  " );
    }

    }

});
} catch (SQLException e)
{
    System.out.println("Not Connected ...");
}
catch (ClassNotFoundException r)
{
    System.out.println("Class not found .....");
}
}

}

public static void main(String[] args) throws ClassNotFoundException
{
    new data();
}
}
```