

## **PRACTICAL-1**

**Aim:- Write a program to create registration form for the student using AWT.**

**Code:**

```
import java.awt.*;
class MyForm extends Frame
{ MyForm()
{   Frame fm=new Frame();
    setSize(800,800);
    setVisible(true);
    setLayout(null);
    Label n=new Label("Hemil Chovatiya");
    n.setBounds(200,45,200,30);
    Label n1=new Label("Name");
    n1.setBounds(20,105,110,20);
    TextField na=new TextField(20);
    na.setBounds(140,105,200,20);
    Label n2=new Label("Enrollment No.");
    n2.setBounds(20,140,110,20);
    TextField naa=new TextField(20);
    naa.setBounds(140,140,200,20);
    Label g=new Label("Sem");
    g.setBounds(20,175,110,20);
    Choice c=new Choice();
    c.setBounds(140,175,200,20);
    c.add("3");
    c.add("5");
    c.add("7");
    Label n3=new Label("Gender");
    n3.setBounds(20,210,110,20);
    CheckboxGroup cbg =new CheckboxGroup();
    Checkbox r1=new Checkbox("Male",cbg,false);
    r1.setBounds(140,210,50,20);
    Checkbox r2=new Checkbox("female",cbg,false);
    r2.setBounds(200,210,70,20);
    Label n4=new Label("Subject");
    n4.setBounds(20,245,110,20);
    Checkbox c1=new Checkbox("php");
    c1.setBounds(140,245,50,20);
    Checkbox c2=new Checkbox("Android");
    c2.setBounds(200,245,70,20);
```

```
Checkbox c3=new Checkbox("C++");
c3.setBounds(280,245,50,20);
Checkbox c4=new Checkbox("Swift");
c4.setBounds(340,245,50,20);
Label n5=new Label("Suggestion ");
n5.setBounds(20,280,110,20);
TextArea na1=new TextArea();
na1.setBounds(140,277,300,80);
Button b1=new Button("Submit");
b1.setBounds(140,380,110,25);
Button b2=new Button("cancel");
b2.setBounds(260,380,110,25);
add(b1);
add(b2);
add(n5);
add(na1);
add(r1);
add(r2);
add(g);
add(n);
add(naa);
add(na);
add(n1);
add(n2);
add(n3);
add(n4);
add(c);
add(c1);
add(c2);
add(c3);
add(c4);    }
public static void main(String args[])
{    MyForm mf=new MyForm();    }
}
```

## Output:



Hemil Chovatiya

Name	<input type="text"/>
Enrollment No.	<input type="text"/>
Sem	<input type="text" value="3"/>
Gender	<input type="radio"/> Male <input type="radio"/> female
Subject	<input type="checkbox"/> php <input type="checkbox"/> Android <input type="checkbox"/> C++ <input type="checkbox"/> Swift
Suggestion	<div><div></div><div></div></div>
<div><div>Submit</div><div>cancel</div></div>	

## PRACTICAL-2

**Aim:- Write a program to create registration form for the student using swing.**

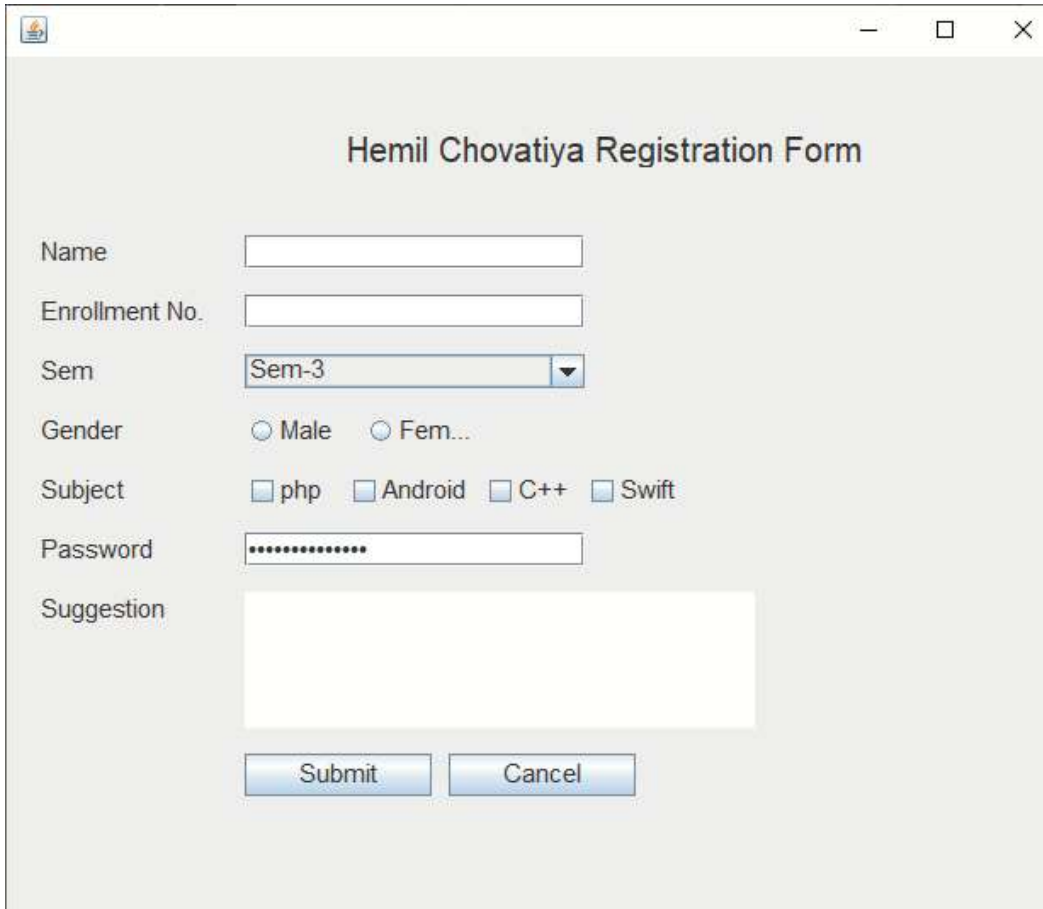
### Code:

```
import java.awt.*;
import javax.swing.*;
public class Myform extends JFrame
{
    public Myform()
    {
        setSize(800,800);
        setVisible(true);
        setLayout(null);
        JLabel n=new JLabel("Hemil Chovatiya Registration Form");
        n.setBounds(200,45,400,20);
        n.setFont(new Font("arial",Font.PLAIN,20));
        JLabel n1=new JLabel("Name");
        n1.setFont(new Font("arial",Font.PLAIN,15));
        n1.setBounds(20,105,110,20);
        JTextField na=new JTextField(20);
        na.setBounds(140,105,200,20);
        JLabel n2=new JLabel("Enrollment No.");
        n2.setFont(new Font("arial",Font.PLAIN,15));
        n2.setBounds(20,140,110,20);
        JTextField naa=new JTextField(20);
        naa.setBounds(140,140,200,20);
        JLabel g=new JLabel("Sem");
        g.setFont(new Font("arial",Font.PLAIN,15));
        g.setBounds(20,175,110,20);
        JComboBox c=new JComboBox<>();
        c.setModel(new DefaultComboBoxModel<>(new String[] { "Sem-3", "Sem-5", "Sem-7" }));
        c.setFont(new Font("arial",Font.PLAIN,15));
        c.setBounds(140,175,200,20);
        JLabel n3=new JLabel("Gender");
        n3.setFont(new Font("arial",Font.PLAIN,15));
        n3.setBounds(20,210,110,20);
        JRadioButton r1=new JRadioButton("Male",false);
        r1.setFont(new Font("arial",Font.PLAIN,15));
        ButtonGroup cbg=new ButtonGroup();
        r1.setBounds(140,210,70,20);
```

```
JRadioButton r2=new JRadioButton("Female",false);
r2.setFont(new Font("arial",Font.PLAIN,15));
r2.setBounds(210,210,70,20);
cbg.add(r1);
cbg.add(r2);
JLabel n4=new JLabel("Subject");
n4.setFont(new Font("arial",Font.PLAIN,15));
n4.setBounds(20,245,110,20);
JRadioButton x=new JRadioButton();
JCheckBox c1=new JCheckBox("php");
c1.setFont(new Font("arial",Font.PLAIN,15));
c1.setBounds(140,245,60,20);
JCheckBox c2=new JCheckBox("Android");
c2.setFont(new Font("arial",Font.PLAIN,15));
c2.setBounds(200,245,83,20);
JCheckBox c3=new JCheckBox("C++");
c3.setFont(new Font("arial",Font.PLAIN,15));
c3.setBounds(280,245,60,20);
JCheckBox c4=new JCheckBox("Swift");
c4.setFont(new Font("arial",Font.PLAIN,15));
c4.setBounds(340,245,70,20);
JLabel n6=new JLabel("Password ");
n6.setFont(new Font("arial",Font.PLAIN,15));
n6.setBounds(20,280,110,20);
JPasswordField pf=new JPasswordField("Enter Password");
pf.setFont(new Font("arial",Font.PLAIN,15));
pf.setBounds(140,280,200,20);
JLabel n5=new JLabel("Suggestion ");
n5.setFont(new Font("arial",Font.PLAIN,15));
n5.setBounds(20,315,110,20);
JTextArea na1=new JTextArea();
na1.setBounds(140,315,300,80);
JButton b1=new JButton("Submit");
b1.setFont(new Font("arial",Font.PLAIN,15));
b1.setBounds(140,410,110,25);
JButton b2=new JButton("Cancel");
b2.setFont(new Font("arial",Font.PLAIN,15));
b2.setBounds(260,410,110,25);
add(pf);
add(n6);
add(b1);
add(b2);
add(n5);
```

```
add(na1);
add(r1);
add(r2);
add(g);
add(n);
add(naa);
add(na);
add(n1);
add(n2);
add(n3);
add(n4);
add(c);
add(c1);
add(c2);
add(c3);
add(c4);    }
public static void main(String args[])
{    Myform mf=new Myform();    }
}
```

**Output:**



The screenshot shows a Java Swing window titled "Hemil Chovatiya Registration Form". The window has a standard title bar with minimize, maximize, and close buttons. The form contains the following fields and controls:

- Name:** A text input field.
- Enrollment No.:** A text input field.
- Sem:** A dropdown menu currently showing "Sem-3".
- Gender:** Two radio buttons labeled "Male" and "Fem...".
- Subject:** Four checkboxes labeled "php", "Android", "C++", and "Swift".
- Password:** A text input field with masked characters (dots).
- Suggestion:** A large text area for additional comments.
- Buttons:** "Submit" and "Cancel" buttons at the bottom.

### **PRACTICAL-3**

**Aim:- Implement JDBC by connecting with database and execute Prepared Statement**

**Code:**

```
import java.util.*;
import java.sql.*;
class crud {
    Scanner sc = new Scanner(System.in);
    void delete() {
        System.out.println("Delete Row");
        System.out.println("Enter uname to delete row: ");
        String uname = sc.nextLine();
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con = DriverManager.getConnection(
                "jdbc:mysql://localhost:3306/farm", "root", "mysql");
            String qry = "delete from login where uname=?";
            PreparedStatement ps = con.prepareStatement(qry);
            ps.setString(1, uname);
            int rs = ps.executeUpdate();
            if (rs >= 1) {
                System.out.println(rs+" Row deleted successfully");
            } else {
                System.out.println(rs+" Row deleted successfully");
            }
            ps.close();
            con.close();
        } catch (Exception e) {
            System.out.println(e);
        }
    }
    void update() {
        System.out.println("Update Rows");
        System.out.println("Enter uname which you want to update row: ");
        String uname = sc.nextLine();
        System.out.println("Enter fname: ");
        String fname = sc.nextLine();
        System.out.println("Enter lname: ");
        String lname = sc.nextLine();
        System.out.println("Enter dob(YYYY-MM-DD): ");
```



```
String dob = sc.nextLine();
System.out.println("Enter password: ");
String password = sc.nextLine();
try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    Connection con = DriverManager.getConnection(
        "jdbc:mysql://localhost:3306/farm", "root", "mysql");
    String qry = "update login set fname=?,lname=?,dob=?,pwd=? where uname=?";
    PreparedStatement ps = con.prepareStatement(qry);
    ps.setString(1, fname);
    ps.setString(2, lname);
    ps.setString(3, dob);
    ps.setString(4, password);
    ps.setString(5, uname);
    int rs = ps.executeUpdate();
    if (rs >= 1) {
        System.out.println(rs+"Rows Updated successfully");
    } else {
        System.out.println(rs+"Rows Updated successfully");
    }
    ps.close();
    con.close();
} catch (Exception e) {
    System.out.println(e);
}
}
void insert() {
    System.out.println("Enter ");
    System.out.println("Enter fname: ");
    String fname = sc.nextLine();
    System.out.println("Enter lname: ");
    String lname = sc.nextLine();
    System.out.println("Enter uname: ");
    String uname = sc.nextLine();
    System.out.println("Enter dob(YYYY-MM-DD): ");
    String dob = sc.nextLine();
    System.out.println("Enter password: ");
    String password = sc.nextLine();
    try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection(
            "jdbc:mysql://localhost:3306/farm", "root", "mysql");
```

```
String qry = "insert into login values(?,?,?,?)";
PreparedStatement ps = con.prepareStatement(qry);
ps.setString(1, fname);
ps.setString(2, lname);
ps.setString(3, uname);
ps.setString(4, dob);
ps.setString(5, password);
int rs = ps.executeUpdate();
if (rs >= 1) {
    System.out.println(rs+" Rows Inserted successfully");
} else {
    System.out.println(rs+" Rows Inserted successfully");
}
ps.close();
con.close();
} catch (Exception e) {
    System.out.println(e);
}
}
void display() {
    try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/farm",
"root", "mysql");
        String qry = "select * from login;";
        Statement stmt = con.createStatement();
        ResultSet rs = stmt.executeQuery(qry);
        System.out.println("fname \t lname \t uname \t dob \t password");
        while (rs.next()) {
            System.out.println("'" + rs.getString(1) + "'\t" + rs.getString(2) +
            "\t" + rs.getString(3) + "\t" + rs.getString(4) + "\t" + rs.getString(5));
        }
        stmt.close();
        con.close();
    } catch (Exception e) {
        System.out.println(e);
    }
}
}
public class App {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        System.out.println("CRUD operation by hemil on mysql Database");
```

```
crud isrt = new crud();
int ch = 0;
while (ch <= 4) {
    System.out.println("1.Insert Data");
    System.out.println("2.Update Data");
    System.out.println("3.Delete Data");
    System.out.println("4.Display Data");
    System.out.println("5.Exit");
    System.out.println("Enter Choice :");
    ch = sc.nextInt();
    switch (ch) {
        case 1:
            isrt.insert();
            break;
        case 2:
            isrt.update();
            break;
        case 3:
            isrt.delete();
            break;
        case 4:
            isrt.display();
            break;
        default:
            System.out.println("Defafult choice error");
            break;
    }
}
sc.close();
}
```

## Output:

```
PS F:\pu_it_practical\Adv. Java\p3_ps_insrt_up
\bin\java.exe' '-XX:+ShowCodeDetailsInExcepti
CRUD operation by hemil on mysql Database
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
1
Insert Values:
Enter fname:
Hemil Chovatiya
Enter lname:
Chovatiya
Enter uname:
HemilChovatiya4@gmail.com
Enter dob(YYYY-MM-DD):
2001-07-20
Enter password:
HemilChovatiya
1 Rows Inserted successfully
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
2
Updates values in Rows
Enter uname which you want to update row:
HemilChovatiya4@gmail.com
Enter fname:
Hemil
Enter lname:
Chovatiya
Enter dob(YYYY-MM-DD):
2001-07-20
Enter password:
Hemil
1Rows Updated successfully
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
3
Delete Row
Enter uname to delete row:
HemilChovatiya4@gmail.com
1 Row deleted successfully
1.Insert Data
```

```
HemilChovatiya4@gmail.com
Enter dob(YYYY-MM-DD):
2001-07-20
Enter password:
HemilChovatiya
1 Rows Inserted successfully
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
2
Updates values in Rows
Enter uname which you want to update row:
HemilChovatiya4@gmail.com
Enter fname:
Hemil
Enter lname:
Chovatiya
Enter dob(YYYY-MM-DD):
2001-07-20
Enter password:
Hemil
1Rows Updated successfully
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
3
Delete Row
Enter uname to delete row:
HemilChovatiya4@gmail.com
1 Row deleted successfully
1.Insert Data
```

```

Enter Choice :
3
Delete Row
Enter uname to delete row:
HemilChovatiya4@gmail.com
1 Row deleted successfully
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
4
fname    lname    uname    dob    password
2121    1221    212    2001-01-01    123
212    21212    2212121    2001-01-21    12
Bhaumik Patel    Bhaumik@200    2002-04-08    Bhaumik@022
dharmik chovatiya    dc@gmail.com    2001-11-01    vdvvd
fenil gondliya    fenil@gmail.com    2001-06-11    fg
hemil chovatiya    hemil@20gmail    2001-05-04    hemil
JAY KHANPARA    JAYKHANPARA4@GMAIL.COM    2003-01-04    Jk@2000
kemil thummar kenil@gmail.com    2001-07-07    kEMIL
Krish gajera kg@gmail.com    2002-10-21    kg
krit Kakadiya    kk@gmail.com    2005-04-04    kkad@20
romit ghevariya    RG@gmail.com    2002-01-01    Rg@2332
TIRTH KANERIYA    TIRTH@2100    2002-07-07    tirth@02
Utsav Bhanderi    utb@2903    2002-08-04    utu@240
1.Insert Data
2.Update Data
3.Delete Data
4.Display Data
5.Exit
Enter Choice :
5
Defaault choice error
PS F:\pu it pratical\Adv. Java\p3 ps insrt update delete>

```

	fname	lname	uname	dob	pwd
	2121	1221	212	2001-01-01	123
	212	21212	2212121	2001-01-21	12
	Bhaumik	Patel	Bhaumik@200	2002-04-08	Bhaumik@022
	dharmik	chovatiya	dc@gmail.com	2001-11-01	vdvd
	fenil	gondliya	fenil@gmail.com	2001-06-11	fg
	hemil	chovatiya	hemil@20gmail	2001-05-04	hemil
	JAY	KHANPARA	JAYKHANPARA4@GMAIL.COM	2003-01-04	Jk@2000
▶	kemil	thummar	kenil@gmail.com	2001-07-07	kEMIL
	Krish	gajera	kg@gmail.com	2002-10-21	kg
	krit	Kakadiya	kk@gmail.com	2005-04-04	kkad@20
	romit	ghevariya	RG@gmail.com	2002-01-01	Rg@2332
	TIRTH	KANERIYA	TIRTH@2100	2002-07-07	tirth@02
	Utsav	Bhanderi	utb@2903	2002-08-04	utu@240
▲	NULL	NULL	NULL	NULL	NULL

## PRACTICAL-4

**Aim: Implement JDBC by connecting with database and execute Callable Statement.**

**Code:**

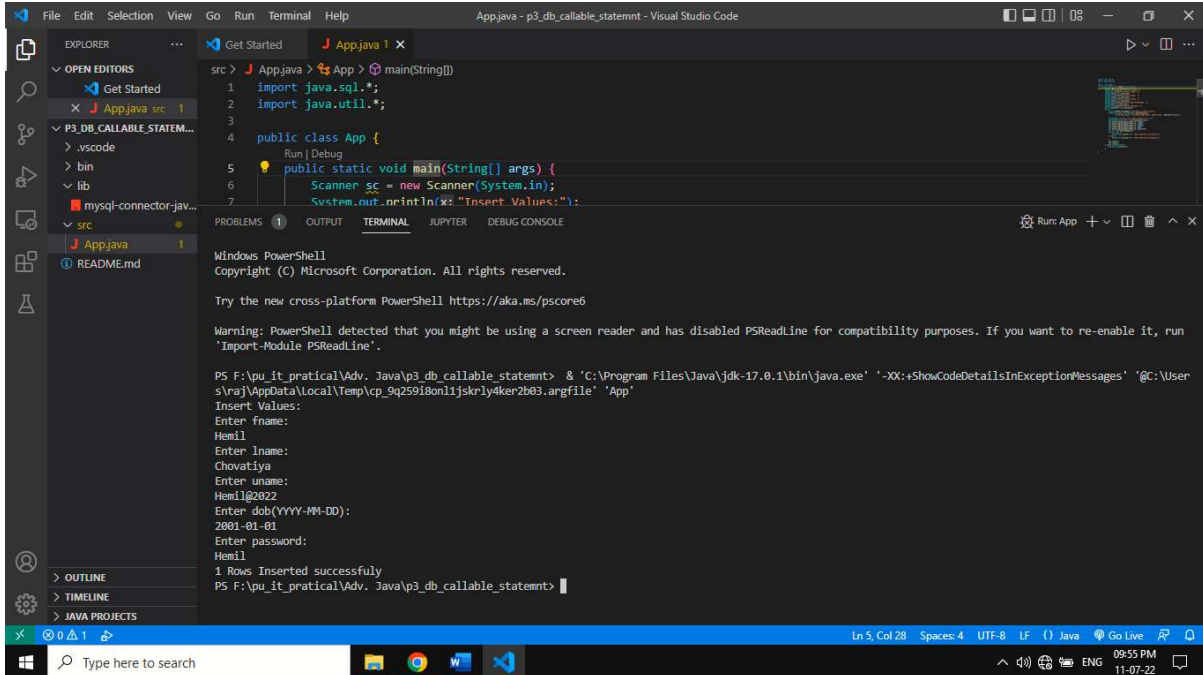
```
import java.sql.*;
import java.util.*;
public class App{
public static void main(String[] args)
{
    Scanner sc=new Scanner(System.in);
    System.out.println("Insert Values:");
    System.out.println("Enter fname: ");
    String fname = sc.nextLine();
    System.out.println("Enter lname: ");
    String lname = sc.nextLine();
    System.out.println("Enter uname: ");
    String uname = sc.nextLine();
    System.out.println("Enter dob(YYYY-MM-DD): ");
    String dob = sc.nextLine();
    System.out.println("Enter password: ");
    String password = sc.nextLine();
    try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con = DriverManager.getConnection(
            "jdbc:mysql://localhost:3306/farm", "root", "mysql");

        String qry = "insert into login values(?,?,?,?)";
        CallableStatement cst = con.prepareCall(qry);
        cst.setString(1, fname);
        cst.setString(2, lname);
        cst.setString(3, uname);
        cst.setString(4, dob);
        cst.setString(5, password);
        int rs = cst.executeUpdate();
        if (rs >= 1) {
            System.out.println(rs+" Rows Inserted successfully");
        } else {
            System.out.println(rs+" Rows Inserted successfully");
        }
        cst.close();
        con.close();
    }
}
```



```
} catch (Exception e) {
    System.out.println(e);
} }
```

## Output:



```
src > J Appjava > App > main(String[])
1 import java.sql.*;
2 import java.util.*;
3
4 public class App {
5     Run | Debug
6     public static void main(String[] args) {
7         Scanner sc = new Scanner(System.in);
8         System.out.println("Insert Values:");
9     }
10 }
```

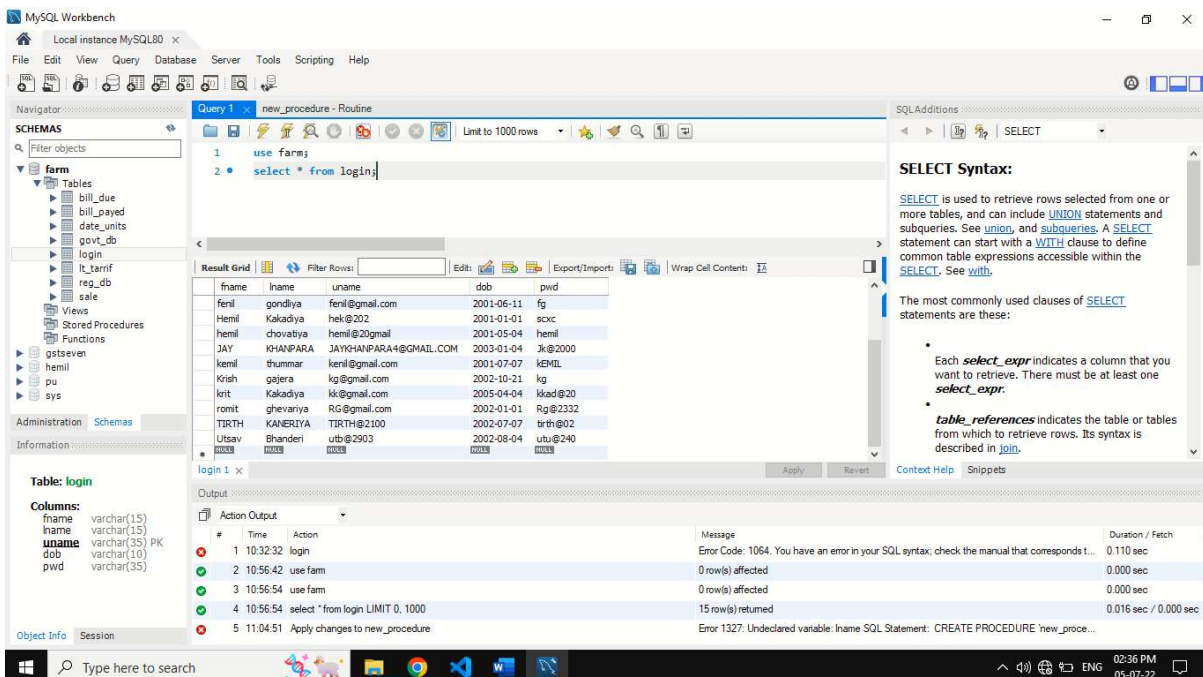
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell <https://aka.ms/pscore6>

Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purposes. If you want to re-enable it, run 'Import-Module PSReadLine'.

PS F:\pu\_it\_practical\Adv. Java\p3\_db\_callable\_statemnt> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '@C:\User\s\raj\AppData\Local\Temp\cp\_9q25918on1jksrly4ker2b03.argfile' 'App'

Insert Values:  
Enter fname:  
Hemil  
Enter lname:  
Chovatiya  
Enter uname:  
Hemil@2022  
Enter dob(YYYY-MM-DD):  
2001-01-01  
Enter password:  
Hemil  
1 Rows Inserted successfully  
PS F:\pu\_it\_practical\Adv. Java\p3\_db\_callable\_statemnt>



Query 1: new\_procedure - Routine

```
1 use farm;
2 select * from login;
```

fname	lname	uname	dob	pwd
feril	gondliya	feril@gmail.com	2001-06-11	fg
Hemil	Kakadiya	hek@202	2001-01-01	scxc
hemil	chovatiya	hemil@20gmail	2001-05-04	hemil
JAY	KHANPARA	JAYKHANDPARA4@GMAIL.COM	2003-01-04	3k@2000
kemil	thumar	kenil@gmail.com	2001-07-07	KEHIL
Krish	gajera	kg@gmail.com	2002-10-21	kg
Kakadiya	kk@gmail.com	2005-04-04	kkad@20	
romit	ghevariya	RG@gmail.com	2002-01-01	Rg@2332
TIRTH	KANERIYA	TIRTH@2100	2002-07-07	trth@02
Utsav	Bhandari	utb@2903	2002-08-04	utu@240

Table: login

Columns:

- fname varchar(15)
- lname varchar(15)
- uname varchar(35) PK
- dob varchar(10)
- pwd varchar(35)

Output:

#	Time	Action	Message	Duration / Fetch
1	10:32:32	login	Error Code: 1064, You have an error in your SQL syntax; check the manual that corresponds to...	0.110 sec
2	10:56:42	use farm	0 row(s) affected	0.000 sec
3	10:56:54	use farm	0 row(s) affected	0.000 sec
4	10:56:54	select * from login LIMIT 0, 1000	15 row(s) returned	0.016 sec / 0.000 sec
5	11:04:51	Apply changes to new_procedure	Error 1327: Undeclared variable: lname SQL Statement: CREATE PROCEDURE 'new_proce...	

## PRACTICAL-5

### Aim: Implement chat application using java.net

#### Code:chat\_client.java

```
package chat;
import static chat.chat_server.dout;
import static chat.chat_server.ss;
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.net.ServerSocket;
import java.net.Socket;

public class chat_client extends javax.swing.JFrame {
    static Socket s;
    static DataInputStream dis;
    static DataOutputStream dout;
    public chat_client() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    BEGIN: initComponents
    private void initComponents() {

        jScrollPane1 = new javax.swing.JScrollPane();
        msg_area = new javax.swing.JTextArea();
        msg_text = new javax.swing.JTextField();
        msg_send = new javax.swing.JButton();
        jLabel1 = new javax.swing.JLabel();
        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        msg_area.setColumns(20);
        msg_area.setRows(5);
        jScrollPane1.setViewportView(msg_area);
        msg_send.setText("send");
        msg_send.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                msg_sendActionPerformed(evt);
            }
        });
        jLabel1.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
        jLabel1.setText("client");
        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
```



```

        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup())
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jScrollPane1)
                    .addGroup(layout.createSequentialGroup())
                )
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup())
                    .addComponent(msg_text,
                        javax.swing.GroupLayout.PREFERRED_SIZE, 316,
                        javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(msg_send))
                    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE,
                        127, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGap(0, 18, Short.MAX_VALUE)))
            .addContainerGap()) );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup())
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 23,
                    javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 224,
                    javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(msg_text)
                .addGroup(layout.createSequentialGroup())
                    .addComponent(msg_send)
                    .addGap(0, 2, Short.MAX_VALUE)))
            .addContainerGap())
    );
    pack();
} // </editor-fold> //GEN-END: initComponents
private void msg_sendActionPerformed(java.awt.event.ActionEvent evt) { //GEN-
FIRST:event_msg_sendActionPerformed
    try {
        String msg="";
        msg=msg_text.getText();
        dout.writeUTF(msg);
        msg_text.setText("");
    }

```

```
catch(Exception e)
{    //handle the exception here    }
} //GEN-LAST:event_msg_sendActionPerformed
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and
    feel.
    * For details see
    http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
        javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {
        java.util.logging.Logger.getLogger(chat_client.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {
        java.util.logging.Logger.getLogger(chat_client.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {
        java.util.logging.Logger.getLogger(chat_client.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {
        java.util.logging.Logger.getLogger(chat_client.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    }
    //</editor-fold>
    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new chat_client().setVisible(true);
        }
    });
    try {
        String msgin = "";
        s = new Socket("127.0.0.1",1201); // ip address is of localhost because server is
        running on the same machine
```

```
dis = new DataInputStream(s.getInputStream());
dout = new DataOutputStream(s.getOutputStream());
while (!msgin.equals("exit")) {
    msgin = dis.readUTF();
    msg_area.setText(msg_area.getText() + "\n Server : " + msgin);
}
} catch (Exception e) { //handle the exception here }
} // Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JLabel jLabel1;
private javax.swing.JScrollPane jScrollPane1;
private static javax.swing.JTextArea msg_area;
private javax.swing.JButton msg_send;
private javax.swing.JTextField msg_text;
// End of variables declaration//GEN-END:variables }
```

### **chat\_server.java**

```
package chat;
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.net.ServerSocket;
import java.net.Socket;

public class chat_server extends javax.swing.JFrame {
    static ServerSocket ss;
    static Socket s;
    static DataInputStream dis;
    static DataOutputStream dout;
    /** * Creates new form chat_server */
    public chat_server() {
        initComponents();
    }
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">//GEN-BEGIN: initComponents
    private void initComponents() {

        jScrollPane1 = new javax.swing.JScrollPane();
        msg_area = new javax.swing.JTextArea();
        msg_text = new javax.swing.JTextField();
        msg_send = new javax.swing.JButton();
        jLabel1 = new javax.swing.JLabel();
        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        msg_area.setColumns(20);
        msg_area.setRows(5);
```

```
jScrollPane1.setViewPortView(msg_area);
msg_send.setText("send");
msg_send.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        msg_sendActionPerformed(evt);
    }
});
jLabel1.setFont(new java.awt.Font("Tahoma", 1, 18)); // NOI18N
jLabel1.setText("Server");
javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 114, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGroup(layout.createSequentialGroup()
                    .addComponent(msg_text,
                        javax.swing.GroupLayout.PREFERRED_SIZE, 303,
                        javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(10, 10, 10)
                    .addComponent(msg_send)))
            .addContainerGap(10, Short.MAX_VALUE))
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 400, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(10, Short.MAX_VALUE))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGroup(layout.createSequentialGroup()
                    .addComponent(msg_text,
                        javax.swing.GroupLayout.PREFERRED_SIZE, 303,
                        javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGap(10, 10, 10)
                    .addComponent(msg_send)))
            .addContainerGap(10, Short.MAX_VALUE))
        .addGroup(layout.createSequentialGroup()
            .addGap(10, 10, 10)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 225, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(10, Short.MAX_VALUE))
);
```

```

        .addComponent(msg_send, javax.swing.GroupLayout.DEFAULT_SIZE, 28,
Short.MAX_VALUE))
        .addContainerGap()
    );
    pack();
} // </editor-fold> // GEN-END: initComponents
private void msg_sendActionPerformed(java.awt.event.ActionEvent evt) { // GEN-
FIRST:event_msg_sendActionPerformed
    try {
        String msg="";
        msg=msg_text.getText();
        dout.writeUTF(msg);
        msg_text.setText("");
    }
    catch (Exception e)
    { //handle the exception here }
} // GEN-LAST:event_msg_sendActionPerformed
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
    *For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {
java.util.logging.Logger.getLogger(chat_server.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(chat_server.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(chat_server.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(chat_server.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    }
} //</editor-fold>

```

```

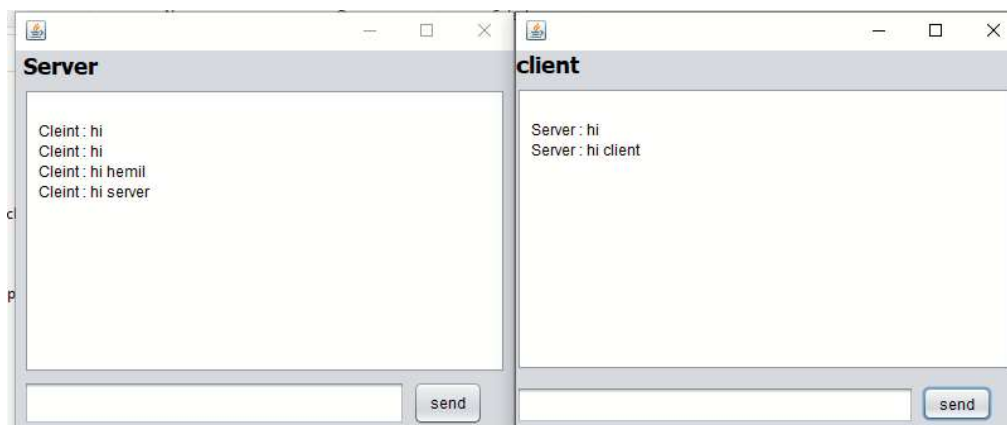
/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new chat_server().setVisible(true);
    }
});
try {
    String msgin = "";
    ss = new ServerSocket(1201);
    s = ss.accept();
    dis = new DataInputStream(s.getInputStream());
    dout = new DataOutputStream(s.getOutputStream());

    while (!msgin.equals("exit")) {
        msgin = dis.readUTF();
        msg_area.setText(msg_area.getText() + "\n Client : " + msgin);
    }
} catch (Exception e) {           //handle the exception here
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JLabel jLabel1;
private javax.swing.JScrollPane jScrollPane1;
private static javax.swing.JTextArea msg_area;
private javax.swing.JButton msg_send;
private javax.swing.JTextField msg_text;
// End of variables declaration//GEN-END:variables
}

```

## Output:



## PRACTICAL-6

**Aim: Implement any one sorting algorithm using TCP/UDP on Server application and Give Input on Client side and client should sorted output from server and display sorted on input side.**

### Code:

**File: SortClient.java**

```
package sort;
import java.io.*;
import java.net.*;
class SortClient
{
    public static void main(String ar[]) throws Exception
    {
        Socket s=new Socket("localhost",12345);
        PrintWriter p=new PrintWriter(s.getOutputStream());
        BufferedReader in=new BufferedReader(new InputStreamReader(s.getInputStream()));
        BufferedReader ink=new BufferedReader(new InputStreamReader(System.in));
        System.out.println("How many numbers to sort? ");
        int num=Integer.parseInt(ink.readLine());
        p.println(num);
        p.flush();
        System.out.println("Enter "+num+" numbers to sort :");
        String sarr[]=new String[num];
        for(int i=0;i<num;i++)
        {
            System.out.print("no. "+i+"=");
            sarr[i]=ink.readLine();
            p.println(sarr[i]);
            p.flush();
        }
        String res;
        System.out.println("\nSorted array::\n");
        while((res=in.readLine())!=null)
        {
            System.out.println(res);
        }
        s.close();
    }
}
```

**File: SortServer.java**

```
package sort;
import java.io.*;
import java.net.*;
class SortServer
{
    public static void main(String ar[]) throws Exception
    {
        ServerSocket s1=new ServerSocket(12345);
        System.out.println(" Server Started");
        Socket s=s1.accept();
        PrintWriter p=new PrintWriter(s.getOutputStream());
        BufferedReader in=new BufferedReader(new
        InputStreamReader(s.getInputStream()));
        String num=in.readLine();
        int n=Integer.parseInt(num);
        System.out.println("Client want to sort "+n+" numbers");
        String sarr[]=new String[n];
        int arr[]=new int[n];
        int swap,c,d;
        System.out.println("received numbers::\n");
        for(int i=0;i<n;i++)
        {
            sarr[i]=in.readLine();
            arr[i]=Integer.parseInt(sarr[i]);
            System.out.println("no. "+i+"="+arr[i]);
        }

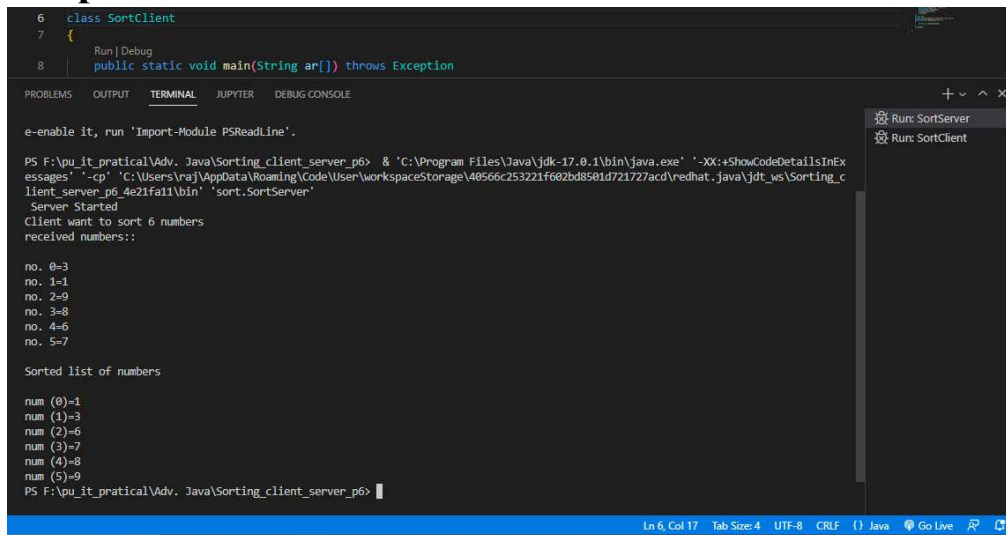
        for (c = 0; c < ( n - 1 ); c++)
        {
            for (d = 0; d < n - c - 1; d++)
            {
                if (arr[d] > arr[d+1])
                {
                    swap  = arr[d];
                    arr[d] = arr[d+1];
                    arr[d+1] = swap;
                }
            }
        }

        System.out.println("\nSorted list of numbers");
    }
}
```



```
String sendarr=new String();
for (c = 0; c < n; c++)
{
    sendarr+="\nnum (" +c+" )" +arr[c];
}
System.out.println(sendarr);
p.println(sendarr);
p.flush();
s.close();
} }
```

## Output:

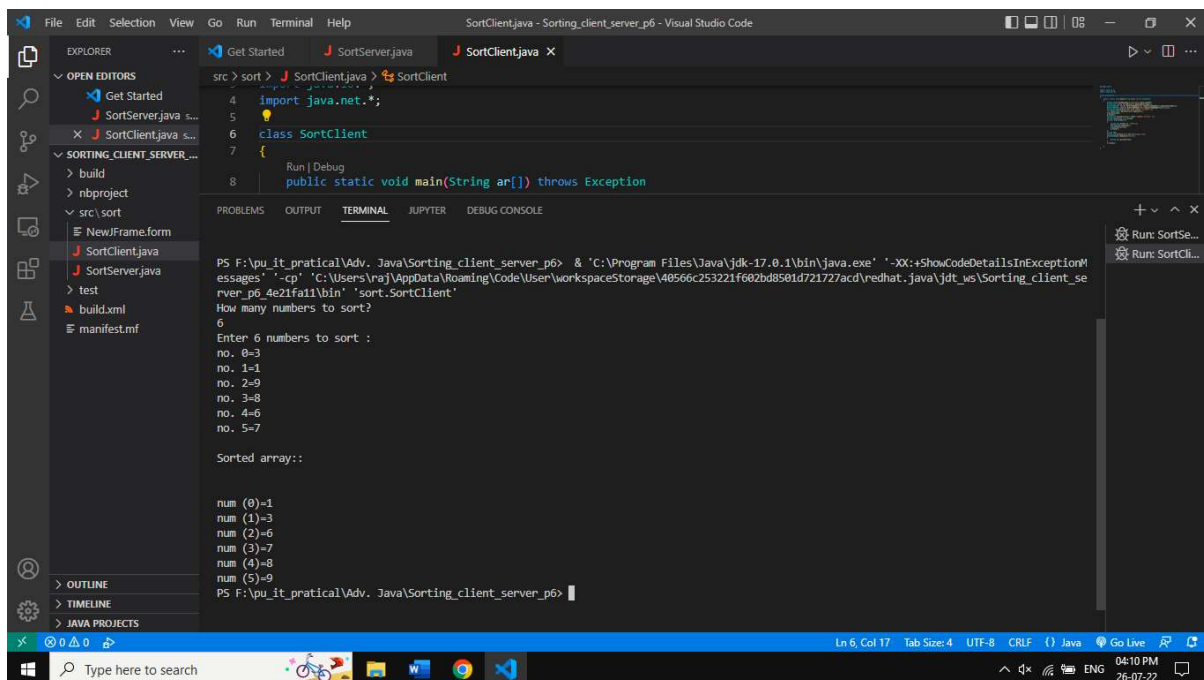


```
PS F:\pu_it_practical\Adv. Java\Sorting_client_server_p6> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\raj\AppData\Roaming\Code\User\workspaceStorage\48566c253221f602bd8501d721727acd\redhat.java\jdt_ws\Sorting_client_server_p6_4e21fa11\bin' 'sort.SortServer'
Server Started
Client want to sort 6 numbers
received numbers::

no. 0=3
no. 1=1
no. 2=9
no. 3=8
no. 4=6
no. 5=7

Sorted list of numbers

num (0)=1
num (1)=3
num (2)=6
num (3)=7
num (4)=8
num (5)=9
PS F:\pu_it_practical\Adv. Java\Sorting_client_server_p6>
```



```
src > sort > SortClient.java > SortClient
4 import java.net.*;
5
6 class SortClient
7 {
8     Run | Debug
    public static void main(String ar[]) throws Exception
    {
        e-enable it, run 'Import-Module PSReadLine'.
        PS F:\pu_it_practical\Adv. Java\Sorting_client_server_p6> & 'C:\Program Files\Java\jdk-17.0.1\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\raj\AppData\Roaming\Code\User\workspaceStorage\48566c253221f602bd8501d721727acd\redhat.java\jdt_ws\Sorting_client_server_p6_4e21fa11\bin' 'sort.SortClient'
        How many numbers to sort?
        6
        Enter 6 numbers to sort :
        no. 0=3
        no. 1=1
        no. 2=9
        no. 3=8
        no. 4=6
        no. 5=7

        Sorted array::

        num (0)=1
        num (1)=3
        num (2)=6
        num (3)=7
        num (4)=8
        num (5)=9
        PS F:\pu_it_practical\Adv. Java\Sorting_client_server_p6>
```

## PRACTICAL-7

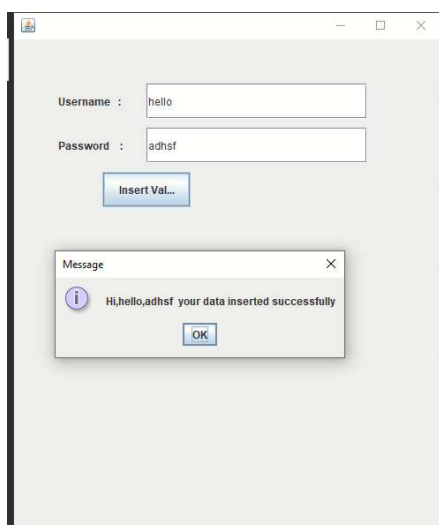
**Aim: Implement Student information system using JDBC and RMI.**

**Code:**

```
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.awt.*;
import javax.swing.JButton;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JTextField;
import javax.swing.event.MouseInputListener;
import java.awt.event.*;
import java.sql.*;
import javax.swing.JOptionPane;
public class App extends JFrame implements ActionListener {
    JTextField jt1, jt2, jt3, jt4;
    App() {
        setSize(500, 600);
        setVisible(true);
        setLayout(null);
        JLabel l1, l2, l4;
        JButton jb1;
        jb1 = new JButton("Insert Value");
        jb1.setBounds(100, 150, 100, 40);
        jb1.addActionListener(this);
        add(jb1);
        l1 = new JLabel("Username  :");
        l2 = new JLabel("Password  :");
        jt1 = new JTextField();
        jt2 = new JTextField();
        l1.setBounds(50, 50, 200, 40);
        l2.setBounds(50, 100, 200, 40);
        add(l1);
        add(l2);
        jt1.setBounds(150, 50, 250, 40);
        jt2.setBounds(150, 100, 250, 40);
        add(jt1);
        add(jt2);    }
    public void actionPerformed(ActionEvent e) {
```

```
String user1=jt1.getText();
String pass1 = jt2.getText();
String user = "root";
String pass = "mysql";
try {
    Class.forName("com.mysql.cj.jdbc.Driver");
    Connection con = DriverManager.getConnection(
"jdbc:mysql://localhost:3306/hemil", user, pass);
    String a = "insert into login1 values(?,?)";
    PreparedStatement ps = con.prepareStatement(a);
    ps.setString(1, user1);
    ps.setString(2, pass1);
    int rs=ps.executeUpdate();
    if(rs==1)
    {
        JOptionPane.showMessageDialog(this, "Hi,"+user1+", "+pass1+" your data inserted
successfully");
        System.out.println("Hemil ");
    }
    else{
        JOptionPane.showMessageDialog(this, "Hi,your data not inserted successfully");
    }
    con.close();
} catch (Exception c) {      System.out.println(c);      } }
public static void main(String[] args) throws Exception {
    new App();      } }
```

## Output:



## PRACTICAL-8

**Aim: Call remote procedure from a jvm to another jvm by implementing RMI.**

### Code:

#### Client Program:

**File: Client.java**

```
import java.rmi.*;
import java.rmi.registry.*;
public class Client {
    public static void main(String args[])
    {
        try
        {
            Display d=(Display)Naming.lookup("rmi://localhost:1099/displayervice");
            System.out.println(d.dis());
        }catch(Exception e)
        {
            System.out.println(e);
        }
    }
}
```

#### Defining the remote interface:

**File: Display.java**

```
import java.rmi.*;
public interface Display extends Remote
{
    public String dis() throws RemoteException;
}
```

#### Implementing the remote interface:

**File: DisplayRemote.java**

```
import java.rmi.server.*;
import java.rmi.*;
public class DisplayRemote extends UnicastRemoteObject implements Display{
    DisplayRemote()throws RemoteException
    {
        super();
    }
    public String dis()
    {return "hello World";}
}
```

#### Server Program:

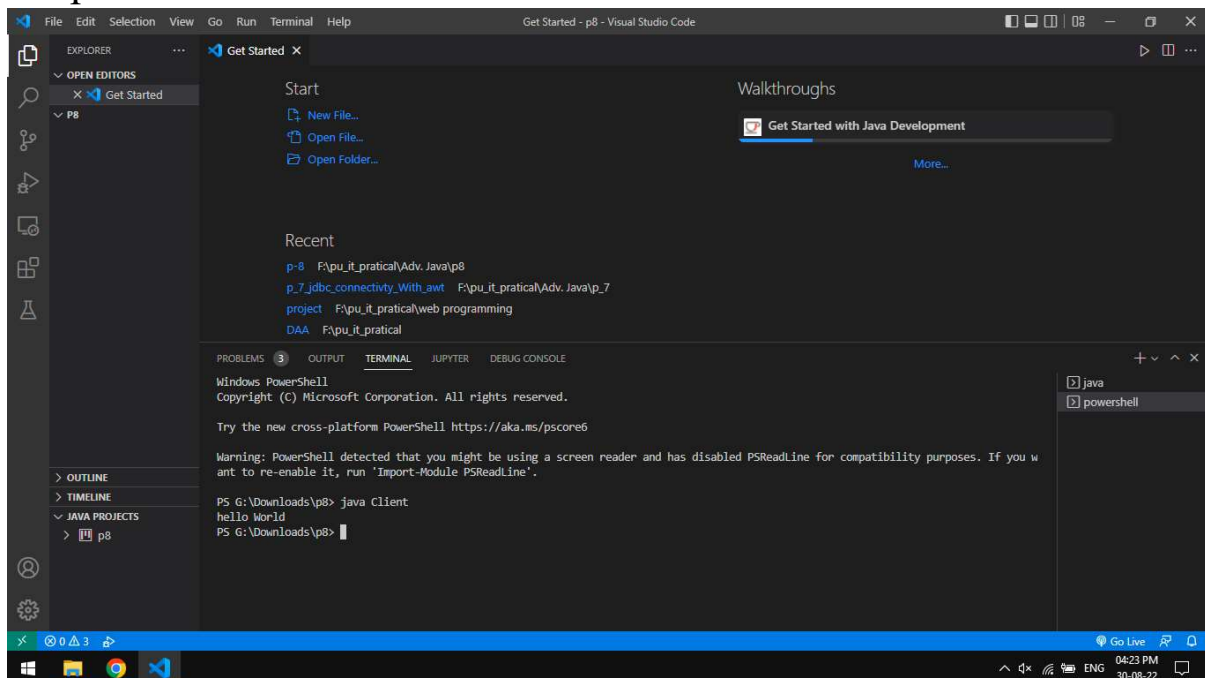
**File: Server.java**

```
import java.rmi.*;

public class Server {
    public static void main(String args[])
```

```
{  
    try  
    {  
        Display d=new DisplayRemote();  
        d.rebind("rmi://localhost:1099/displayService",d);  
    }  
    catch(Exception e)  
    {System.out.println(e);  
    }  
}
```

Output:



The screenshot shows the Visual Studio Code interface. The Explorer pane on the left shows a project named 'p8'. The main editor area displays the 'Get Started' page with options to 'New File...', 'Open File...', and 'Open Folder...'. Below this, the 'Recent' list shows several files and folders. The Terminal pane at the bottom shows the output of a Java program. The terminal text is as follows:

```
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
  
Try the new cross-platform PowerShell https://aka.ms/pscore6  
  
Warning: PowerShell detected that you might be using a screen reader and has disabled PSReadLine for compatibility purposes. If you want to re-enable it, run 'Import-Module PSReadLine'.  
  
PS G:\Downloads\p8> java Client  
hello World  
PS G:\Downloads\p8>
```

## PRACTICAL-9

**Aim: Make a simple calculator using RMI.**

### Code:

#### 1. Addition interface:

**File: AddInterface.java**

```
import java.rmi.Remote;  
import java.rmi.RemoteException;  
public interface AddInterface extends Remote {  
    public int Add(int x, int y) throws RemoteException;  
}
```

#### 2. Subtraction interface:

**File: subInterface.java**

```
import java.rmi.Remote;  
import java.rmi.RemoteException;  
public interface subInterface extends Remote {  
    public int sub(int x, int y) throws RemoteException;  
}
```

#### 3. Multiplication interface:

**File: mulInterface.java**

```
import java.rmi.Remote;  
import java.rmi.RemoteException;  
public interface mulInterface extends Remote {  
    public int mul(int x, int y) throws RemoteException;  
}
```

#### 4. Division interface:

**File: divInterface.java**

```
import java.rmi.Remote;  
import java.rmi.RemoteException;  
public interface divInterface extends Remote {  
    public int div(int x, int y) throws RemoteException;  
}
```

#### 5. Implementation of the remote interface:

**File: Impl.java**

```
import java.rmi.server.*;  
public class Impl extends UnicastRemoteObject  
implements AddInterface, subInterface, mulInterface, divInterface {  
    public Impl() throws Exception { super(); }  
    public int Add(int x, int y) { return x + y; }  
    public int sub(int x, int y) { return x - y; }  
    public int mul(int x, int y) { return x * y; }  
    public int div(int x, int y) { return x / y; }  
}
```

```
}
```

### 6. Server program:

**File: Server.java**

```
import java.rmi.*;
public class Server {
    public static void main(String[] args) throws Exception
    {
        Impl obj = new Impl();
        Naming.rebind("ADD", obj);
        System.out.println("Server Started");
    }
}
```

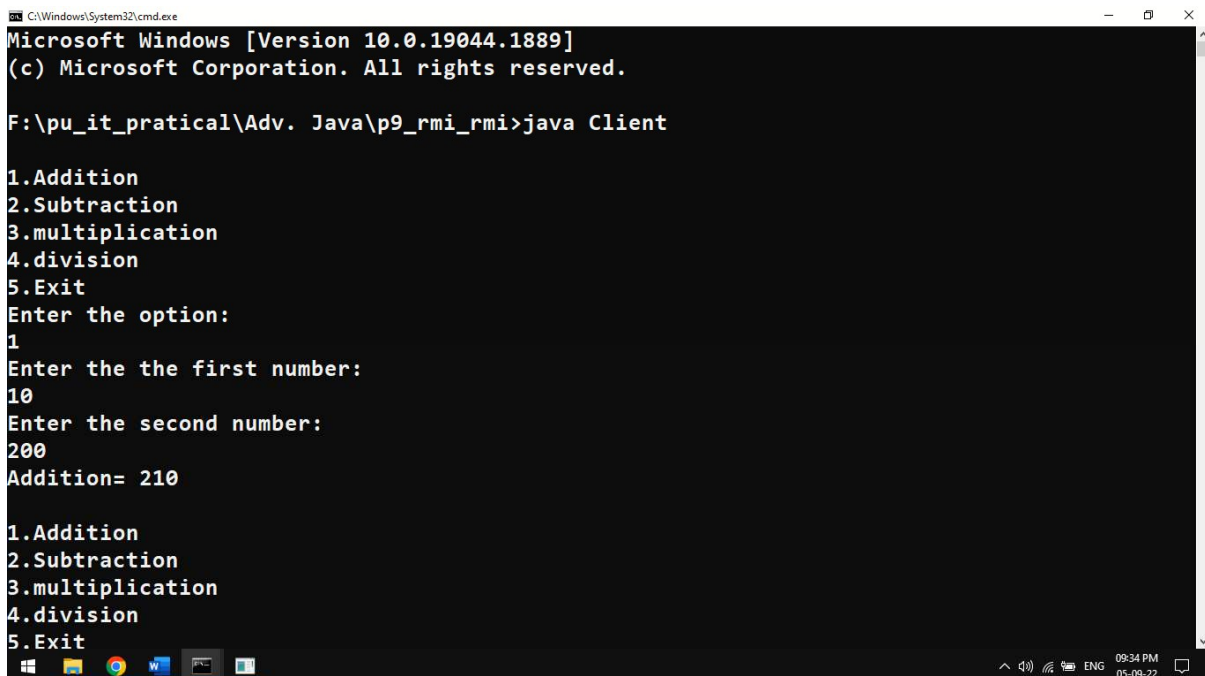
### 7. Client program:

**File: Client.java**

```
import java.rmi.*;
import java.util.*;
public class Client {
    public static void main(String[] args) throws Exception {
        try (Scanner sc = new Scanner(System.in)) {
            while (true) {
                System.out.println("\n1.Addition\n2.Subtraction\n3.multiplication\n4.division\n5.Exit");
                System.out.println("Enter the option:");
                int opt = sc.nextInt();
                if (opt == 5) {
                    break;
                }
                System.out.println("Enter the the first number:");
                int a = sc.nextInt();
                System.out.println("Enter the second number:");
                int b = sc.nextInt();
                int n;
                switch (opt) {
                    case 1:
                        AddInterface obj = (AddInterface) Naming.lookup("ADD");
                        n = obj.Add(a, b);
                        System.out.println("Addition= " + n);
                        break;
                    case 2:
                        subInterface obj1 = (subInterface) Naming.lookup("ADD");
                        n = obj1.sub(a, b);
                        System.out.println("Subtraction= " + n);
                        break;
                    case 3:
                        mulInterface obj2 = (mulInterface) Naming.lookup("ADD");
```

```
n = obj2.mul(a, b);
System.out.println("Multiplication = " + n);
break;
case 4:
divInterface obj3 = (divInterface) Naming.lookup("ADD");
n = obj3.div(a, b);
System.out.println("Division = " + n);
break;
}      }      }      }
```

## Output:

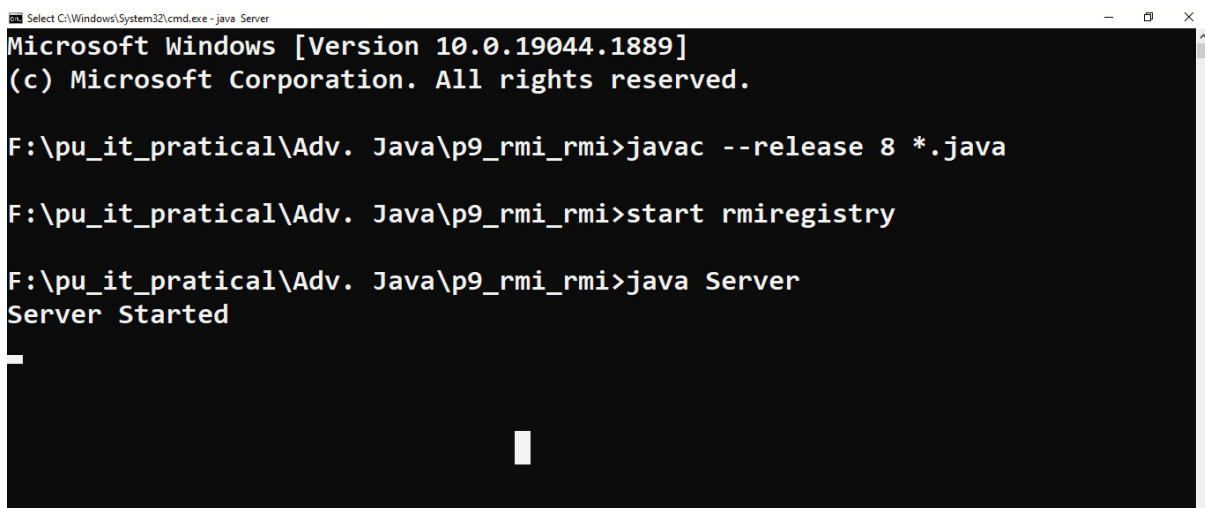


```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

F:\pu_it_practical\Adv. Java\p9_rmi_rmi>java Client

1.Addition
2.Subtraction
3.multiplication
4.division
5.Exit
Enter the option:
1
Enter the the first number:
10
Enter the second number:
200
Addition= 210

1.Addition
2.Subtraction
3.multiplication
4.division
5.Exit
```



```
Select C:\Windows\System32\cmd.exe - java Server
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

F:\pu_it_practical\Adv. Java\p9_rmi_rmi>javac --release 8 *.java

F:\pu_it_practical\Adv. Java\p9_rmi_rmi>start rmiregistry

F:\pu_it_practical\Adv. Java\p9_rmi_rmi>java Server
Server Started
```