Q.1 Develop a program (frame) to select multiple language known to user by using checkbox with frame window.(e.g. Marathi,Hindi,English,Sanskrit).-

(hint- by using checkbox with frame window-Refer assign.no.1 in lab manual)

Program:

```
package prpro;

import java.awt.*;

public class Practical1 extends Frame {

	Practical1(){

		setLayout(new FlowLayout());

		Label l1 = new Label("Select Languages");

		Checkbox cb1 = new Checkbox("Marathi");

		Checkbox cb2 = new Checkbox("Hindi");

		Checkbox cb3 = new Checkbox("English");

		Checkbox cb4 = new Checkbox("Sanskrit");

		add(l1);

		add(cb1);

		add(cb2);

		add(cb3);

		add(cb4);

	}

	public static void main(String []args) {

		Practical1 fr = new Practical1();

		fr.setTitle("Language selector");

		fr.setSize(400,400);

		fr.setVisible(true);

	}

}
```

Q.2 Write a program (applet) to create three buttons with caption OK,RESET,CANCEL.-

(hint-Refer assign.no.1 in lab manual using applet not frame)

Program:

```
package prpro;
import java.applet.*;
import java.awt.*;
public class Practical2 extends Applet {
	public void init() {
		Button b1 = new Button("OK");
		Button b2 = new Button("RESET");
		Button b3 = new Button("CANCLE");
		add(b1);
		add(b2);
		add(b3);
	}
}
```

Q.3 Develop an applet /application using List components to add names of 10 different cities.-

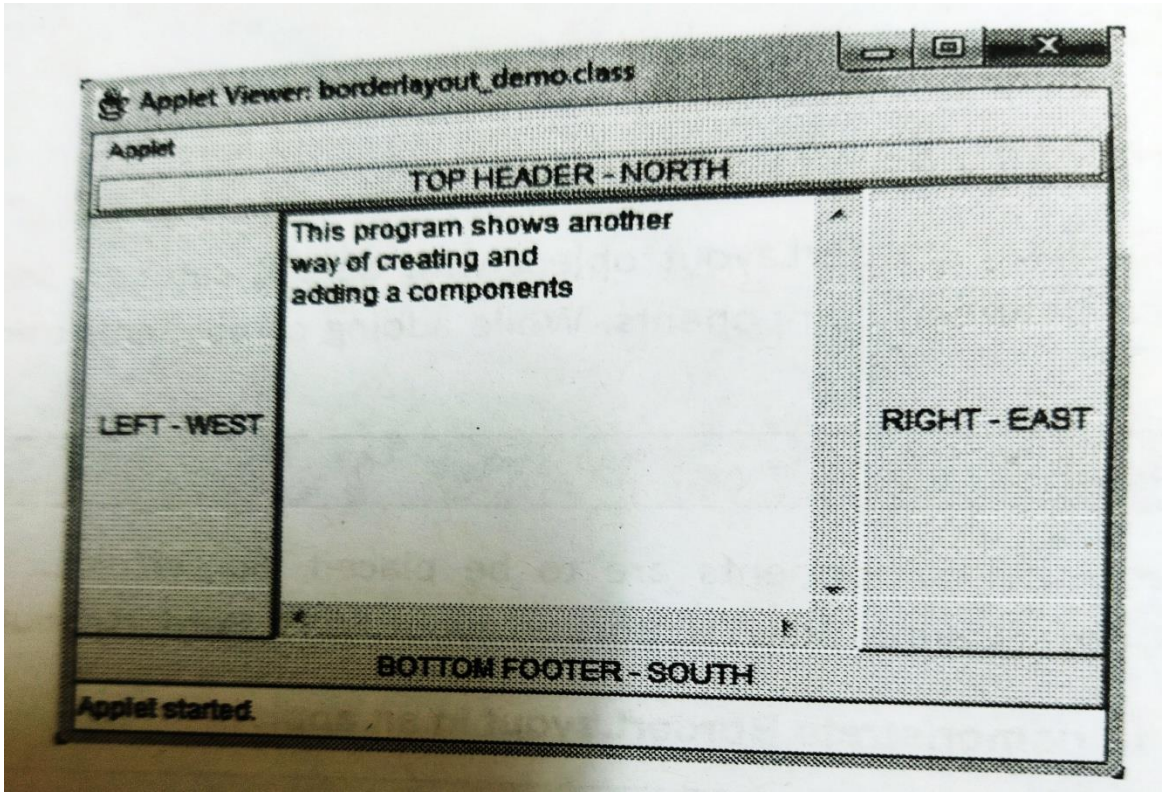
(hint-Refer assign.no.2 in lab manual)

Program:

```
package prpro;
import java.applet.*;
import java.awt.*;
public class Practical3 extends Applet {
	public void init() {
		List l = new List(3);
		l.add("mumbai");
		l.add("Pune");
		l.add("Nashik");
```

```
            l.add("Bengluru");
            l.add("Solapur");
            l.add("Baramati");
            l.add("Nagpur");
            l.add("Satara");
            l.add("Delhi");
            l.add("Surat");
            add(l);
        }
}
```

Q.4Write a program to generate following output using Border Layout.-



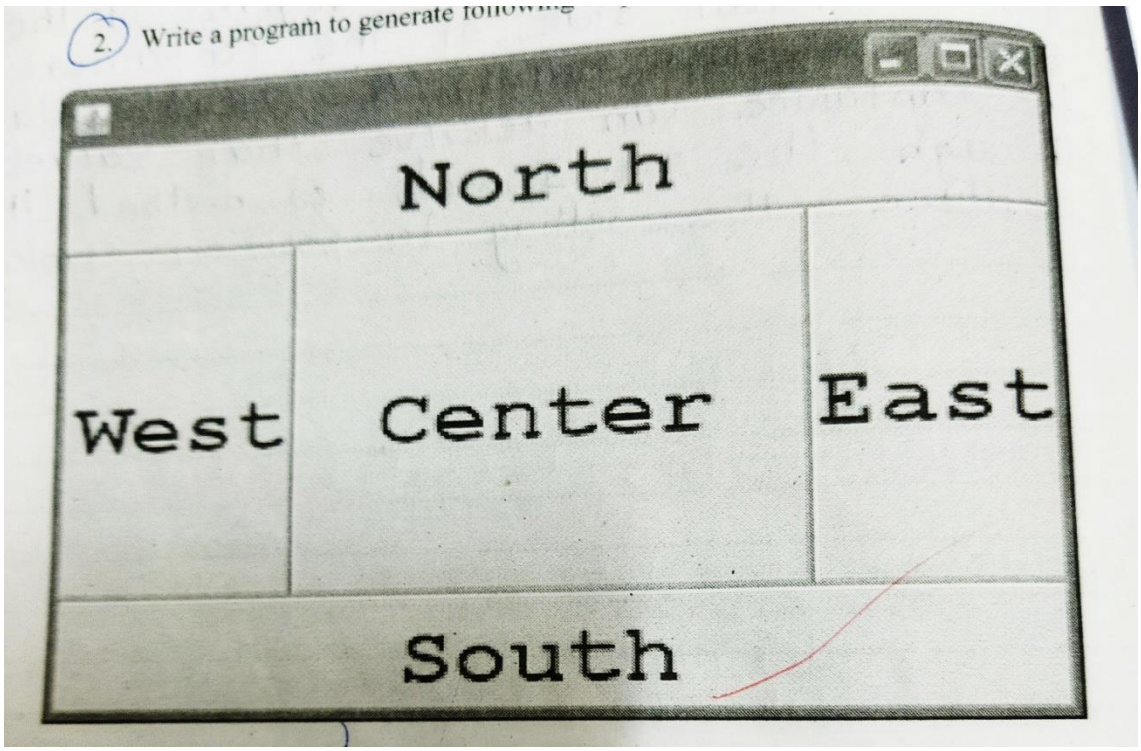
(hint- Refer Book page number 1-25 and 1-26)

Program:

```
package prpro;
import java.awt.*;
```

```
import java.applet.*;
import java.util.*;
public class Practical4 extends Applet {
	public void init() {
		setLayout(new BorderLayout());
		Button bt1 = new Button("TOP HEADER-NORTH");
		add(bt1,BorderLayout.NORTH);
		add(new Button("BOTTOM FOOTER-SOUTH"),BorderLayout.SOUTH);
		add(new Button("RIGHT-EAST"), BorderLayout.EAST);
		add(new Button("LEFT-WEST"), BorderLayout.WEST);
		String s = "This program shows another\n" + "way of creating and\n" + "adding components\n";
		add(new TextArea(s), BorderLayout.CENTER);
	}
}
```

Q.5 Write a program to generate following output using Border Layout.-

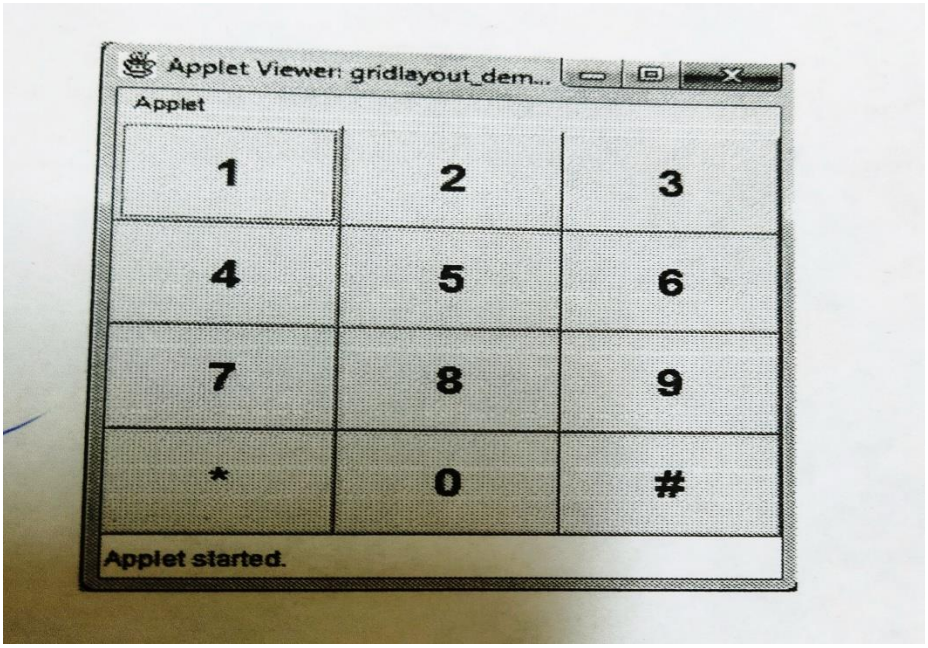


(hint-Refer assignment.no.3 in lab manual and refer Book page number 1-25 and 1-26 here replace TextArea to add button at BorderLayout.CENTER as button caption name is center)

Program:

```
package prpro;

import java.applet.*;

import java.awt.*;

public class Practical5 extends Applet {

	public void init() {

		setLayout(new BorderLayout());

		add(new Button("NORTH"), BorderLayout.NORTH);

		add(new Button("SOUTH"), BorderLayout.SOUTH);

		add(new Button("EAST"), BorderLayout.EAST);

		add(new Button("WEST"), BorderLayout.WEST);

		add(new Button("CENTER"), BorderLayout.CENTER);

	}

}
```

Q.6 Write a program to create a following mobile keypad in an applet using Grid Layout.-260923

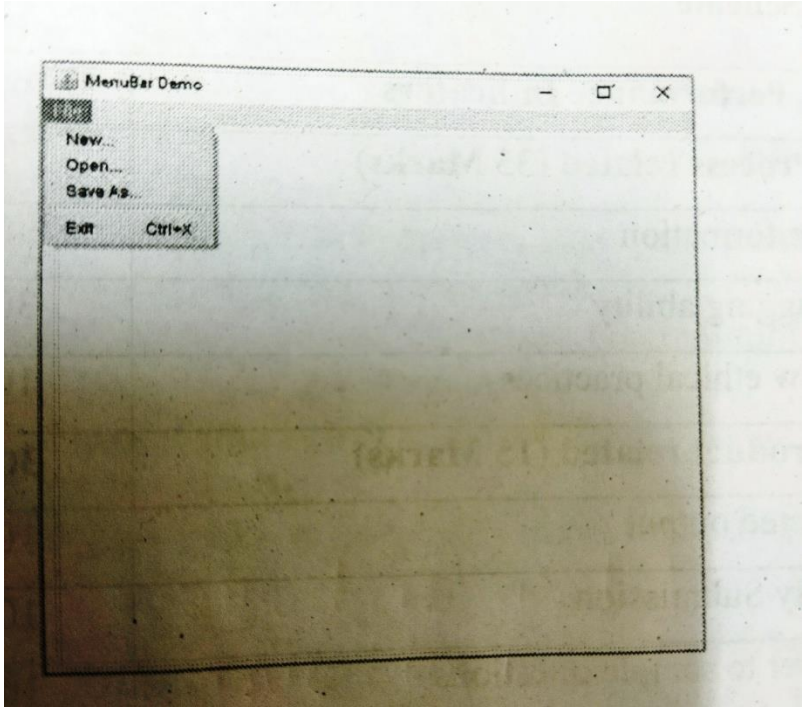


(hint-Refer Book page number 1-26 and 1-27)

Program:

```
package prpro;
import java.awt.*;
import java.applet.*;
public class Practical6 extends Applet {
	public void init() {
		setFont(new Font("SanSerif",Font.BOLD,24));
		GridLayout gl = new GridLayout(4,3);
		setLayout(gl);
		for(int i = 1;i<=9;i++) {
			add(new Button(""+i));
		}
		Button bt1 = new Button("*");
		Button bt2 = new Button("0");
		Button bt3 = new Button("#");
		add(bt1);
		add(bt2);
		add(bt3);
	}
}
```

Q.7 Write a program to demonstrate Menubar,Menu,MenuItem in an applet shows following output.-



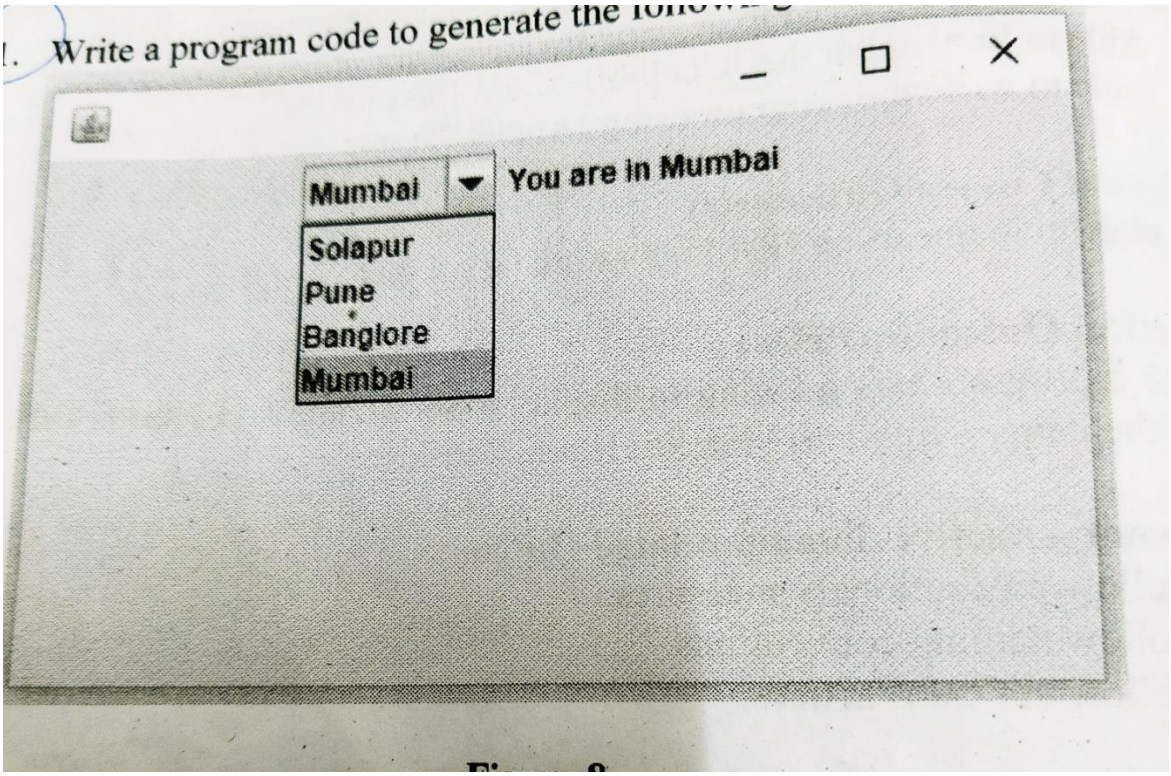
(hint-Refer Book page number 1-33 and 1-34 and in Lab manual assignment.no. 5 page .no 28 and 29)

Program:

```
package prpro;
import java.awt.*;
import java.awt.event.KeyEvent;
public class Practical7 extends Frame {
	public Practical7() {
		setTitle("Menuitem");
		setSize(400,400);
		setLayout(null);
		MenuShortcut ms = new MenuShortcut(KeyEvent.VK_X);
		Menu m = new Menu("File");
		MenuBar mb = new MenuBar();
		MenuItem m1 = new MenuItem("New...");
		MenuItem m2 = new MenuItem("Open...");
		MenuItem m3 = new MenuItem("Save...");
		MenuItem m4 = new MenuItem("Exit",ms);
```

```
            m.add(m1);
            m.add(m2);
            m.add(m3);
            m.addSeparator();
            m.add(m4);
            mb.add(m);
            setMenuBar(mb);
        }
        public static void main( String args[]) {
            Practical7 p = new Practical7();
            p.setVisible(true);
        }
}
```

Q.8 Write a program code to generate the following output by using JComboBox.-



(hint-Refer Book page number 2-13 and 2-14 and in Lab manual assignment.no. 6 page .no 32)

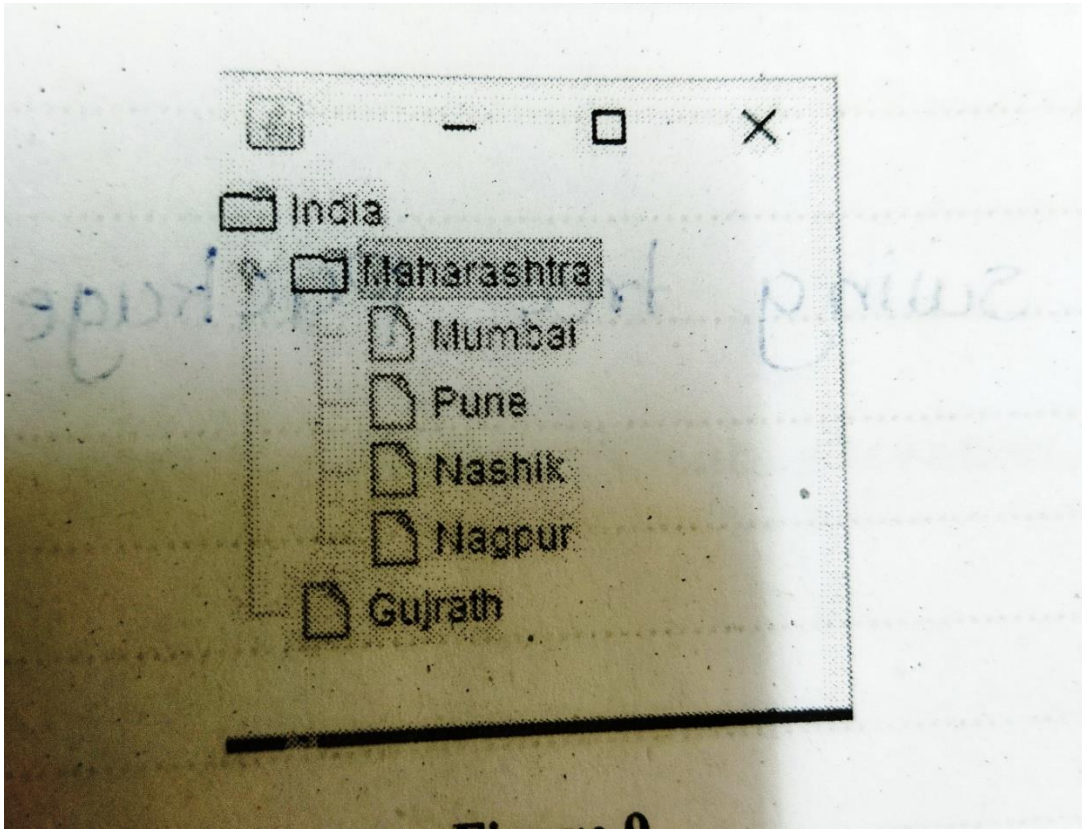
Program:

```
package prpro;
```

```
import java.awt.*;
import javax.swing.*;
import java.awt.event.*;
public class Practical8 extends JFrame implements ActionListener {
	String s;
	JLabel l1;
	JComboBox jc;
	Container ct;
	public Practical8() {
		ct = getContentPane();
		ct.setLayout(null);
		jc = new JComboBox();
		jc.addItem("Solapur");
		jc.addItem("Pune");
		jc.addItem("Banglore");
		jc.addItem("Mumbai");
		ct.add(jc);
		jc.setBounds(30,50,100,30);
		jc.addActionListener(this);
		l1 = new JLabel("You are in ");
		l1.setBounds(150,50,200,30);
		ct.add(l1);
	}
	public void actionPerformed(ActionEvent ae) {
		s = (String) jc.getSelectedItem();
		l1.setText("You are in " + s);
	}
	public static void main(String []args) {
```

```
            Practical8 p1 = new Practical8();
            p1.setTitle("Demonstrating Combo box");
            p1.setSize(300,400);
            p1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            p1.setVisible(true);
        }
}
```

Q.9 Write a program code to generate the following output by using JTree.-



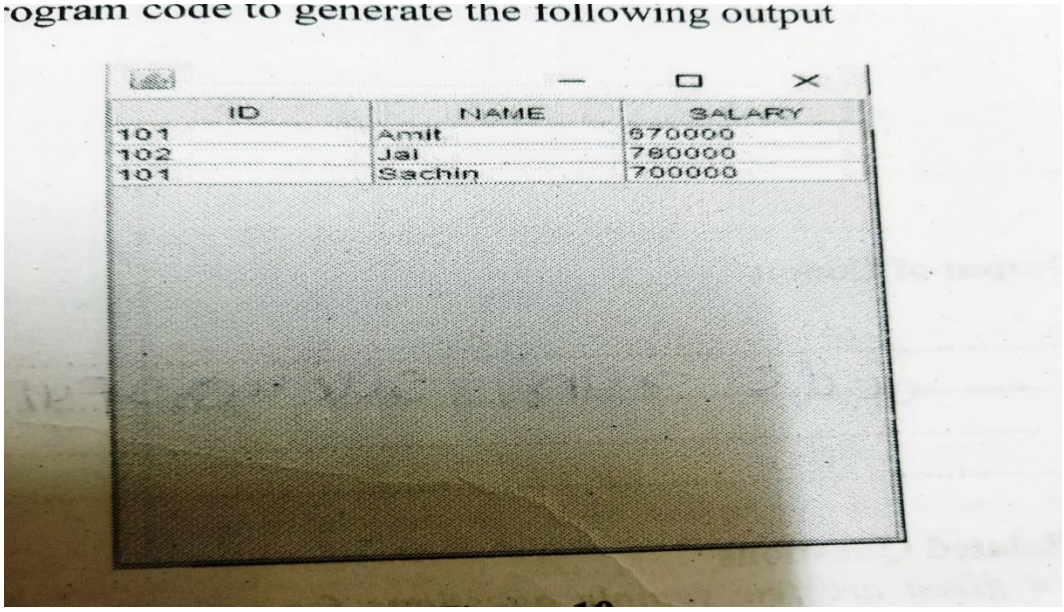
(hint-Refer Book page number 2-25 and 2-26 and in Lab manual assignment.no. 7 page .no 39)

Program:

```
package prpro;
import java.awt.*;
import javax.swing.*;
import javax.swing.tree.*;
public class Practical9 extends JApplet {
        public void start() {
```

```
        Container ct = getContentPane();
        ct.setLayout(new BorderLayout());
        DefaultMutableTreeNode root = new DefaultMutableTreeNode("India");
        DefaultMutableTreeNode a = new DefaultMutableTreeNode("Maharastra");
        root.add(a);
        DefaultMutableTreeNode a1 = new DefaultMutableTreeNode("Mumbai");
        a.add(a1);
        DefaultMutableTreeNode a2 = new DefaultMutableTreeNode("Pune");
        a.add(a2);
        DefaultMutableTreeNode a3 = new DefaultMutableTreeNode("Nashik");
        a.add(a3);
        DefaultMutableTreeNode a4 = new DefaultMutableTreeNode("Nagpur");
        a.add(a4);
        DefaultMutableTreeNode b = new DefaultMutableTreeNode("Gujrat");
        root.add(b);
        JTree tree = new JTree(root);
        int v = ScrollPaneConstants.VERTICAL_SCROLLBAR_ALWAYS;
        int h = ScrollPaneConstants.HORIZONTAL_SCROLLBAR_ALWAYS;
        JScrollPane jsp = new JScrollPane(tree,v,h);
        ct.add(jsp,BorderLayout.CENTER);
    }
}
```

Q.10Write a program code to generate the following output by using JTable.-



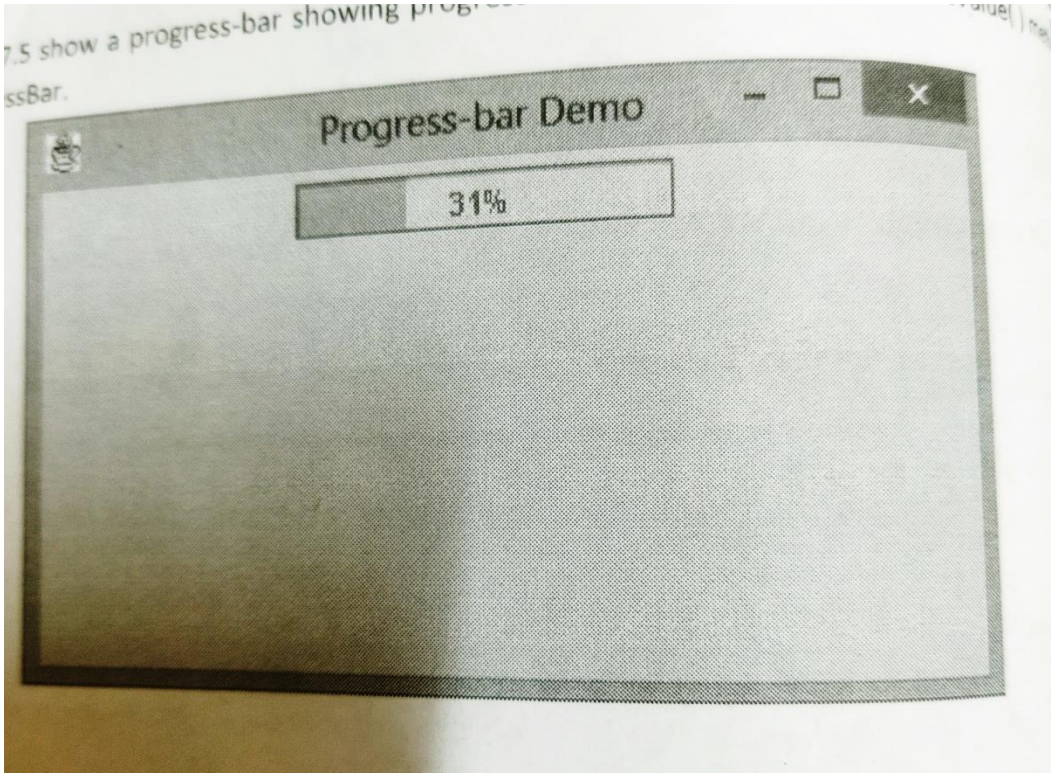
(hint-Refer Book page number 2-27 and 2-28 and in Lab manual assignment.no. 8 page .no 43)

Program:

```
package prpro;

import java.awt.*;

import javax.swing.*;

public class Practical10 extends JApplet {

	public void init() {

		String col[] = {"ID", "Name", "Salary"};

		Object data[][] = {

				{"101","Amit","670000"},

				{"102","Jai","760000"},

				{"103","Sachin","700000"}

		};

		JTable t = new JTable(data,col);

		JScrollPane jp = new
JScrollPane(t,ScrollPaneConstants.VERTICAL_SCROLLBAR_ALWAYS,ScrollPaneConstants.HORIZONTA
L_SCROLLBAR_ALWAYS);

		add(jp);

	}
```

}

Q.11 Write a program code to launch a JProgressBar with showing progress value in percentage.-



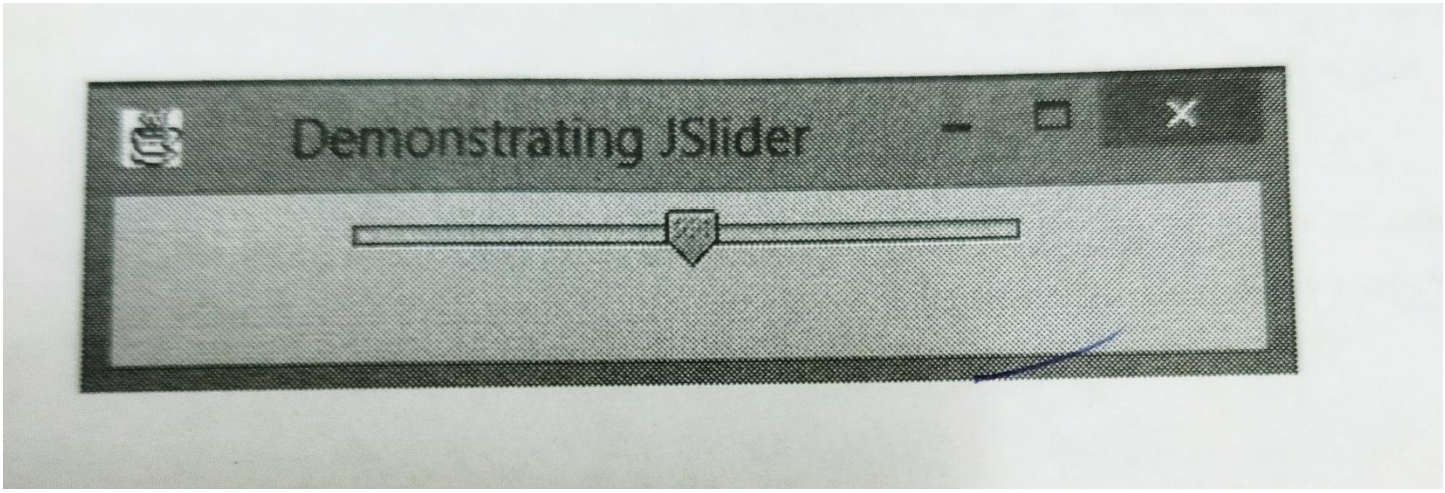
(hint-Refer Book page number 2-28 and 2-29,2-30)

Program:

```
package prpro;

import java.awt.*;

import javax.swing.*;

public class Practical11 extends JFrame {

	JProgressBar jb;

	int i = 0, num = 0;

	public Practical11() {

		Container ct = getContentPane();

		jb = new JProgressBar(0,2000);

		jb.setBounds(40,40,200,30);

		jb.setValue(0);

		jb.setStringPainted(true);
```

```
        ct.add(jb);
        this.setSize(400,400);
        ct.setLayout(new FlowLayout());
    }
    public void iterate() {
        while(i<=2000) {
            jb.setValue(i);
            i = i + 20;
            try {
                Thread.sleep(150);
            } catch(Exception e) {}
        }
    }
    public static void main(String []args) {
        Practical11 p1 = new Practical11();
        p1.setTitle("Progress bar demo");
        p1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        p1.setVisible(true);
        p1.iterate();
    }
}
```

Q.12Write a program code for JSlider.-



(hint-Refer Book page number 2-32 and 2-33)

Program:

```
package prpro;
import java.awt.*;
import javax.swing.*;
public class Practical12 extends JFrame {
	public Practical12() {
		Container ct = getContentPane();
		JSlider slider = new JSlider(JSlider.HORIZONTAL,0,50,25);
		JPanel panel = new JPanel();
		panel.add(slider);
		ct.add(panel);
	}
	public static void main(String []args) {
		Practical12 p1 = new Practical12();
		p1.pack();
		p1.setTitle("Demonstrating JSlider");
		p1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
		p1.setVisible(true);
```

```
    }
}
```

Q.13 Develop a program to accept two numbers and display product of two numbers when user pressed "Multiply" button by using action Listner.

(hint-Refer in Lab manual assignment.no. 10 page .no 56 and refer attached program printoutsof assignment .no.10)

Program:

```
package prpro;

import java.awt.*;

import javax.swing.*;

import java.awt.event.*;

public class Practical13 extends JFrame implements ActionListener {

    JLabel label1,label2,result;

    JTextField textfield1,textfield2,resultfield;

    JButton button;

    public Practical13() {

        Container ct = getContentPane();

        ct.setLayout(new FlowLayout());

        label1 = new JLabel("Enter number 1 : ");

        label2 = new JLabel("Enter number 2 : ");

        result = new JLabel("Result : ");

        textfield1 = new JTextField(10);

        textfield2 = new JTextField(10);

        resultfield = new JTextField(15);

        resultfield.setEditable(false);

        button = new JButton("Multiply");

        button.addActionListener(this);

        ct.add(label1);

        ct.add(textfield1);
```

```
            ct.add(label2);
            ct.add(textfield2);
            ct.add(button);
            ct.add(result);
            ct.add(resultfield);
        }
        public void actionPerformed(ActionEvent ae) {
            try {
                int num1 = Integer.parseInt(textfield1.getText());
                int num2 = Integer.parseInt(textfield2.getText());
                int result = num1 * num2;
                resultfield.setText(Integer.toString(result));
            } catch(NumberFormatException e) {
                resultfield.setText("Invalid Input");
            }
        }
        public static void main(String []args) {
            Practical13 p1 = new Practical13();
            p1.setSize(400,400);
            p1.setTitle("Multiply Operation");
            p1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            p1.setVisible(true);
        }
}
```

Q.14 Write a program that demonstrate the method of MouseListener interfaces.-

(hint-Refer Book page number 3-12 and 3-13 like mouse click,release,pressed,exited)

Program:

```
package prpro;
import java.awt.*;
import java.applet.*;
import java.awt.event.*;
public class Practical14 extends Applet implements MouseListener {
	String s = "see your event here";
	public void init() {
		this.addMouseListener(this);
	}
	public void paint(Graphics g) {
		g.drawString(s, 100, 100);
	}
	public void mouseEntered(MouseEvent me) {
		s="Mouse Entered";
		repaint();
	}
	public void mouseExited(MouseEvent me) {
		s="Mouse Exited";
		repaint();
	}
	public void mouseClicked(MouseEvent me) {
		s="Mouse Clicked";
		repaint();
	}
	public void mousePressed(MouseEvent me) {
		s="Mouse Pressed";
		repaint();
	}
```

```
	public void mouseReleased(MouseEvent me) {
		s="Mouse Released";
		repaint();
	}
}
```

Q.15Write a program using URL class to retrieve the host,protocol,port and file of URL http://www.msbte.org.in

(hint-Refer Book page number 4-12 and 4-13 use of URL class and its methods and in Lab manual assignment.no. 16 page .no 83)

Program:

```
package prpro;

import java.io.*;

import java.net.*;

public class Practical15 {

	public static void main(String []args) throws MalformedURLException {

		URL url = new URL("https://www.msbte.org.in");

		System.out.println("Host : "+ url.getHost());

		System.out.println("Protocol : "+ url.getProtocol());

		System.out.println("Port : "+ url.getPort());

		System.out.println("File : "+ url.getFile());

	}

}
```

Q.16 Develop a program to accept two numbers and display sum of two numbers when user pressed “Multiply” button by using action Listner.

Program:

```
package prpro;

import java.awt.*;

import java.awt.event.*;

import javax.swing.*;
```

```
public class Practical16 extends JFrame implements ActionListener {
	JLabel label1,label2,result;
	JTextField textfield1,textfield2,resultfield;
	JButton button;
	public Practical16() {
		Container ct = getContentPane();
		ct.setLayout(new FlowLayout());
		label1 = new JLabel("Enter number 1 : ");
		label2 = new JLabel("Enter number 2 : ");
		result = new JLabel("Result : ");
		textfield1 = new JTextField(10);
		textfield2 = new JTextField(10);
		resultfield = new JTextField(15);
		resultfield.setEditable(false);
		button = new JButton("Sum");
		button.addActionListener(this);
		ct.add(label1);
		ct.add(textfield1);
		ct.add(label2);
		ct.add(textfield2);
		ct.add(button);
		ct.add(result);
		ct.add(resultfield);
	}
	public void actionPerformed(ActionEvent ae) {
		try {
			int num1 = Integer.parseInt(textfield1.getText());
			int num2 = Integer.parseInt(textfield2.getText());
```

```
                int result = num1 + num2;
                resultfield.setText(Integer.toString(result));
            } catch(NumberFormatException e) {
                resultfield.setText("Invalid Input");
            }
        }
        public static void main(String []args) {
            Practical16 p1 = new Practical16();
            p1.setSize(400,400);
            p1.setTitle("Multiply Operation");
            p1.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
            p1.setVisible(true);
        }
}
```

Q17.Write a program that demonstrate the method of KeyListener interfaces.

Program:

```
package prpro;
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
public class Practical17 extends Applet implements KeyListener {
        String st = "";
        public void init() {
            addKeyListener(this);
        }
        public void keyPressed(KeyEvent ke) {
            showStatus("Key is Pressed");
        }
```

```
	public void keyReleased(KeyEvent ke) {
		showStatus("Key is Released");
	}
	public void keyTyped(KeyEvent ke) {
		st = "Key Typed" + ke.getKeyChar();
		repaint();
	}
	public void paint(Graphics g) {
		g.drawString(st, 20, 20);
	}
}
```

Q18.Write a program that demonstrate JDBC –ODBC connection with Ms-access databse.

Q19.Write a client –server program that accepts a user name from the client and sends a greeting message 'Hello ,<username>' to the client using socket programming.

Program:

Client:

```
package prpro;
import java.net.*;
import java.io.*;
public class ClientProg {
	public static void main(String []args) throws IOException {
		Socket s = new Socket("localhost",100);
		DataOutputStream dos = new DataOutputStream(s.getOutputStream());
		System.out.println("Client application is sending user name");
		dos.writeUTF("Shardul Wable");
		s.close();
	}
}
```

Server:

```
package prpro;

import java.net.*;

import java.io.*;

public class ServerProg {

	public static void main(String []args) throws IOException {

		ServerSocket ss = new ServerSocket(100);

		Socket s = ss.accept();

		DataInputStream dis = new DataInputStream(s.getInputStream());

		String str = (String)dis.readUTF();

		System.out.println("Server Says, Hello "+str);

		ss.close();

		s.close();

	}

}
```

Q20.Write a client –server program that accepts a number from the client and server returns the square of number using socket programming.

Program:

Client:

```
package prpro;

import java.io.*;

import java.net.*;

public class ClientSquare {

	public static void main(String []args) throws IOException {

		Socket s = new Socket("localhost",200);

		DataOutputStream dos = new DataOutputStream(s.getOutputStream());

		DataInputStream dis = new DataInputStream(s.getInputStream());

		System.out.println("Client application is sending request value");
```

```
                dos.writeUTF("5");
                String ans = (String)dis.readUTF();
                System.out.println("Client program received result from server");
                System.out.println("Square of 5 is : "+ ans);
                s.close();
        }
}
```

Server:

```
package prpro;
import java.io.*;
import java.net.*;
public class ServerSquare {
        public static void main(String []args) throws IOException {
                ServerSocket ss = new ServerSocket(200);
                Socket s= ss.accept();
                DataOutputStream dos = new DataOutputStream(s.getOutputStream());
                DataInputStream dis = new DataInputStream(s.getInputStream());
                System.out.println("Server is waiting for input from user");
                String str = (String)dis.readUTF();
                System.out.println("Server received input from user");
                int n = Integer.parseInt(str);
                int sq = n*n;
                dos.writeUTF(""+sq);
                System.out.println("Server send the response");
                ss.close();
                s.close();
        }
}
```

Q21.Write a program that demonstrate JDBC –ODBC connection with Ms-access databse using prepared statement.