Assignment 5

1. Design and implement a GUI for the Temperature class. One challenge of this design is to find a good way for the user to indicate whether a Fahrenheit or Celsius value is being input. This should also determine the order of the conversion: F to C or C to F. [C/5 = (F -32)/9]

- ```
  import javax.swing.*;
  import java.awt.*;
  import java.awt.event.*;
  public class program1 extends JFrame implements ActionListener{
  JTextField tf; JLabel l,l1; JButton b;
  program1(){
      l1=new JLabel("Enter Temperature");
      add(l1);
      tf=new JTextField("",20);
      add(tf);
      l=new JLabel();
      b=new JButton("Calculate");
      add(b);
      add(l);
      b.addActionListener(this);
      add(b);
      setSize(400,400);
      setLayout(new FlowLayout());
      setVisible(true);
      }
  public void actionPerformed(ActionEvent e) {
  String s;
  ```
  ```

```
        s=tf.getText();
        int n=0;
        float f,c;
        n=Integer.parseInt(s);
        if(n>100)
        {
                c=(float)((n-32)*5)/9;
                l.setText(""+c);
        }
        else
        {
                f=(float)((n*9)/5)+32;
                l.setText(""+f);
        }
    }
    public static void main(String[] args) {
        new program1();
    } }
```

2. Design and implement a GUI application for Calculator same as Windows OS calculator.

```
        import java.awt.event.*;
        import javax.swing.*;
        import java.awt.*;
        class calculator extends JFrame implements ActionListener {
                static JFrame f;
                static JTextField l;
                String s0, s1, s2;
                calculator()
                {
                        s0 = s1 = s2 = "";
```

```
        }
    public static void main(String args[])
        {
        f = new JFrame("calculator");

            try {
    UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName
());
            }
            catch (Exception e) {
                System.err.println(e.getMessage());
            }
            calculator c = new calculator();
            l = new JTextField(16);
            l.setEditable(false);
            JButton b0, b1, b2, b3, b4, b5, b6, b7, b8, b9, ba, bs, bd, bm, be,
    beq, beq1;
            b0 = new JButton("0");
            b1 = new JButton("1");
            b2 = new JButton("2");
            b3 = new JButton("3");
            b4 = new JButton("4");
            b5 = new JButton("5");
            b6 = new JButton("6");
            b7 = new JButton("7");
            b8 = new JButton("8");
            b9 = new JButton("9");
            beq1 = new JButton("=");

            // create operator buttons
            ba = new JButton("+");
            bs = new JButton("-");
            bd = new JButton("/");
            bm = new JButton("*");
```

```
beq = new JButton("C");

be = new JButton(".");

JPanel p = new JPanel();

bm.addActionListener(c);

bd.addActionListener(c);
bs.addActionListener(c);
ba.addActionListener(c);
b9.addActionListener(c);
b8.addActionListener(c);
b7.addActionListener(c);
b6.addActionListener(c);
b5.addActionListener(c);
b4.addActionListener(c);
b3.addActionListener(c);
b2.addActionListener(c);
b1.addActionListener(c);
b0.addActionListener(c);
be.addActionListener(c);
beq.addActionListener(c);
beq1.addActionListener(c);

p.add(l);

p.add(ba);
p.add(b1);
p.add(b2);
p.add(b3);
p.add(bs);
p.add(b4);
p.add(b5);
p.add(b6);
p.add(bm);
p.add(b7);
p.add(b8);
p.add(b9);
p.add(bd);
p.add(be);
p.add(b0);
p.add(beq);
```

```
                p.add(beq1);
                p.setBackground(Color.blue);
                f.add(p);

                f.setSize(200, 220);
                f.show();
        }
        public void actionPerformed(ActionEvent e)
        {
                String s = e.getActionCommand();
                if ((s.charAt(0) >= '0' && s.charAt(0) <= '9') || s.charAt(0) == '.')
{
                        // if operand is present then add to second no
                        if (!s1.equals(""))
                                s2 = s2 + s;
                        else
                                s0 = s0 + s;

                        // set the value of text
                        l.setText(s0 + s1 + s2);
                }
                else if (s.charAt(0) == 'C') {
                        s0 = s1 = s2 = "";
                        l.setText(s0 + s1 + s2);
                }
                else if (s.charAt(0) == '=')
                {
                        double te;
                        if (s1.equals("+"))
                te = (Double.parseDouble(s0) + Double.parseDouble(s2));
                        else if (s1.equals("-"))
                te = (Double.parseDouble(s0) - Double.parseDouble(s2));
                        else if (s1.equals("/"))
                te = (Double.parseDouble(s0) / Double.parseDouble(s2));
                        else
                te = (Double.parseDouble(s0) * Double.parseDouble(s2));
                        l.setText(s0 + s1 + s2 + "=" + te);
                        s0 = Double.toString(te);
```

```
                    s1 = s2 = "";
                }
                else {
                    if (s1.equals("") || s2.equals(""))
                        s1 = s;
                    else {
                        double te;
                        if (s1.equals("+"))
                    te = (Double.parseDouble(s0) + Double.parseDouble(s2));
                        else if (s1.equals("-"))
                    te = (Double.parseDouble(s0) - Double.parseDouble(s2));
                        else if (s1.equals("/"))
                    te = (Double.parseDouble(s0) / Double.parseDouble(s2));
                        else
                    te = (Double.parseDouble(s0) * Double.parseDouble(s2));
                        s0 = Double.toString(te);
                        s1 = s;
                        s2 = "";
                    }
                    l.setText(s0 + s1 + s2);
                }
            }
        }
```

3. Design and create small notepad type application using Swing/AWT.

- ```
  import javax.swing.*;
  import java.awt.*;
  import java.awt.event.*;
  public class program1 extends JFrame implements ActionListener{
  JTextField tf; JLabel l,l1; JButton b;
  program1(){
      l1=new JLabel("Enter Temperature");
      add(l1);
      tf=new JTextField("",20);
      add(tf);
  ```
  ```

```
        l=new JLabel();
        b=new JButton("Calculate");
        add(b);
        add(l);
        b.addActionListener(this);
        add(b);
        setSize(400,400);
        setLayout(new FlowLayout());
        setVisible(true);
        }
    public void actionPerformed(ActionEvent e) {
    String s;
    s=tf.getText();
    int n=0;
    float f,c;
    n=Integer.parseInt(s);
    if(n>100)
    {
        c=(float)((n-32)*5)/9;
        l.setText(""+c);
    }
    else
    {
        f=(float)((n*9)/5)+32;
        l.setText(""+f);
    }
}
```

```
public static void main(String[] args) {
    new program1();
} }
```