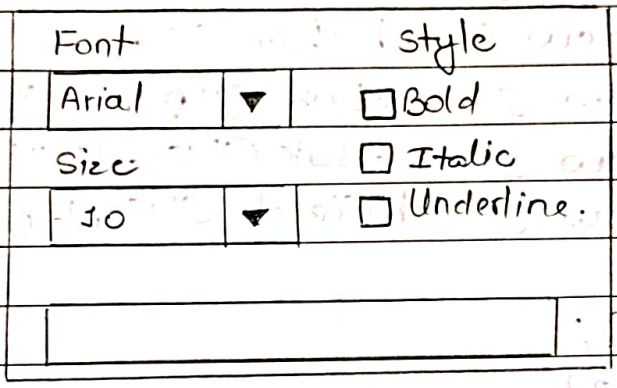
EXPERIMENT : No. Assignment - 3 DATE

* Set A.

1. Write a program to create the following GUI and apply the changes to the text in the JTextField.



→ Ass3SetA1.java

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

class Ass3SetA1 extends JFrame implements ItemListener
{
    JLabel l1, l2, l3;
    JComboBox cmb1, cmb2;
    JCheckBox cb1, cb2;
    JTextField t;
    Font f;

    Ass3SetA1()
    {
        super("Ass3SetA1");
```

```
setSize(500,250);
setLocation(200,150);
setLayout(null);

l1 = new JLabel("Font");
l2 = new JLabel("size");
l3 = new JLabel("style");
cmb1 = new JcomboBox();
cmb2 = new JcomboBox();
cb1 = new JCheckBox("Bold");
cb2 = new JcheckBox("Italic");
t1 = new JTextField("Font Operation");

add(l1);
add(l2);
add(l3);
add(cmb1);
add(cmb2);
add(t1);
add(cb1);
add(cb2);

l1.setBounds(50,20,100,20);
cmb1.setBounds(50,45,150,20);
l2.setBounds(50,80,100,20);
cmb2.setBounds(50,105,150,20);
t1.setBounds(50,140,300,50);

l3.setBounds(250,20,100,20);
cb1.setBounds(250,50,80,20);
cb2.setBounds(250,80,80,20);

cmb1.addItem("Arial");
cmb1.addItem("Times New Roman");
cmb1.addItem("Bookman Old Style");
cmb1.addItem("Courier New");
```

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```
cmbs.addItem("Georgia");

cmb2.addItem("10");
cmb2.addItem("15");
cmb2.addItem("20");
cmb2.addItem("36");

f = new Font("Arial", font.PLAIN, 30);
b1.setFont(b);

cmb1.addItemListener(this);
cmb2.addItemListener(this);
cb1.addItemListener(this);
cb2.addItemListener(this);

setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
setVisible(true);

public void itemStateChanged(ItemEvent e)
{
  steing fn = cmbs.getSelectedItem().tosteing();
int fs = Integer.parseInt(cmb2.getselectedItem().
  tosteing());

if(cbs.isSelected() && cb2.isSelected())
  f = newFont(fn, font.ITALIC + Font.BOLD, fs);
else if(cb1.isSelected())
  f = new Font(fn, font.BOLD, fs);
```

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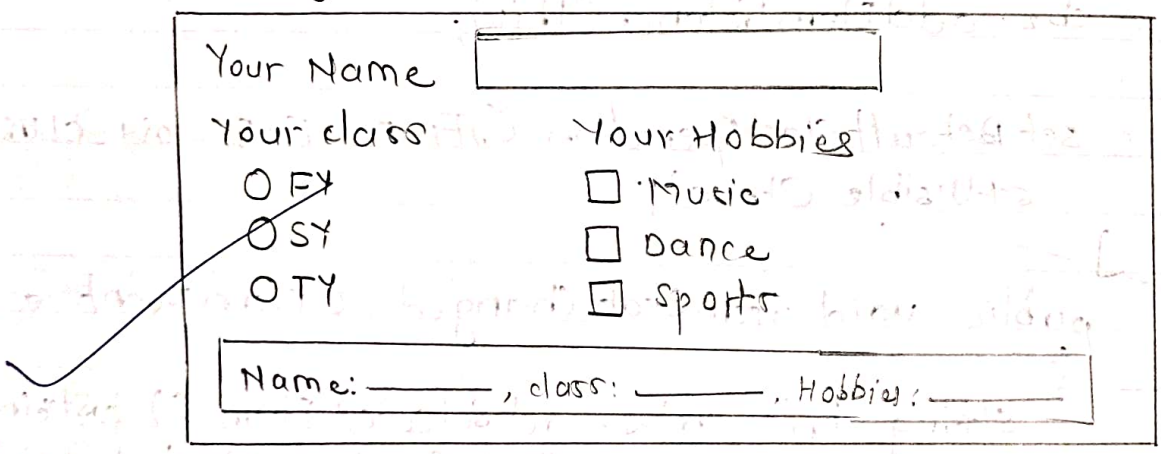
```
else if (cb2.isSelected())
    f = new Font(fn, Font.ITALIC, fs);
else
    f = new Font(fn, Font.PLAIN, fs);

t1.setFont(f);
}
public static void main(String args[])
{
    new Ass3SetA1();
}
}
```

2] Create the following GUI screen using appropriate layout managers. Accept the name, class, hobbies of the user and display the selected options in a textbox.



→ Ass3SetA2.java

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

class Ass3SetA2 extends JFrame implements ActionListener,
```

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```
ItemListener
{
  JLabel lbl_name, l1, l2;
  JcheckBox cb1, cb2, cb3;
  JTextField jtf, txt_name;
  JRadioButton b1, b2, b3;
  ButtonGroup bg;
  string a, msg;

  ASS3SetA2()
  {
    super("ASS3SetA2");
    setSize(500, 250);
    setLocation(200, 150);
    setLayout(null);

    l1 = newJLabel("Your class");
    l2 = new JLabel("Your Hobbies");
    lbl_name = new JLabel("Enter Your Name");
    txt_name = new JTextField();
    cb1 = new JcheckBox("Music");
    cb2 = new JcheckBox("Dance");
    cb3 = new JcheckBox("Sports");
    b1 = new JRadioButton("FY");
    b2 = new JRadioButton("SY");
    b3 = new JRadioButton("TY");
```

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```
add (lbl_name);
add (txt_name);
add (cb1);
add(cb2);
add(cb3);
add(b1);
add(b2);
add(b3);
add(l1);
add(l2);
bg = new ButtonGroup();
bg.add(b1);
bg.add(b2);
bg.add(b3);

jtf=new JTextField(15);
add(jtf);

lbl_name.setBounds(50,20,100,20);
txt_name.setBounds(155,20,100,20);

l1.setBounds(50,50,100,20);
l2.setBounds(150,50,100,20);
b1.setBounds(60,70,50,20);
b2.setBounds(60,100,50,20);
b3.setBounds(60,130,50,20);
cb1.setBounds(150,70,100,20);
cb2.setBounds(150,100,100,20);
cb3.setBounds(150,130,100,20);
jtf.setBounds(50,165,400,30);
jtf.setFont(new Font("Arial", Font.BOLD,12));

cb1.addItemListener(this);
cb2.addItemListener(this);
cb3.acblItemListener(this);
b1.addActionListener(this);
b2.addActionListener(this);
b3.addActionListener(this);
```

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```
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
setVisible(true);
}
public void actionPerformed(ActionEvent e)
{
a="Name :"+txt_name.getText()+", Class :"+e.
getActionCommand();
jtf.setText(a);
cb1.setSelected(false);
cb2.setselected(false);
cb3.setSelected(false);
}
public void itemStateChanged(ItemEvent e)
{
if(cb1.isSelected()||cb2.isSelected()||
cb3.isSelected())
{
msg=a+" and Hobbies =";
if(cb1.isselected())
msg=msg+" "+cb1.getText();
if(cb2.isSelected())
msg=msg+" "+cb2.getText();
if(cb3.isselected())
msg=msg+" "+cb3.getText();
jtf.setText(msg);
}
else
jtf.setText(a);
```

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```
}
public static void main (String args[])
{
    new Ass3setA2();
}
}
```

3] Create an Applet which displays a message in the center of the screen. The message indicates the events taking place on the applet window. Handle events like mouse click, mouse moved, mouse dragged, mouse pressed and key pressed. The message should update each time an event occurs. The message should give details of the event such as which mouse button was pressed, which key is pressed etc.

→ Ass3SetA3.java

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

class Ass3SetA3 extends JFrame implements MouseListener,
MouseMotionListener, KeyListener
{
    JPanel pnl;
    JTextField txt1, txt2;

    String msg = "";

    Ass3SetA3()
    {
        setSize(600, 600);
        setTitle("Ass5Set1B2");
```

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```
setLocation (300,300);
setLayout (new BorderLayout ());
pnl = new JPanel ();
txt1 = new JTextField ();
txt2 = new JTextField ();
add (txt1, BorderLayout.NORTH);
add (txt2, BorderLayout.SOUTH);
add (pnl, BorderLayout.CENTER);
txt1.setFont (new Font ("Arial", Font.BOLD, 16));
txt2.setFont (new Font ("Arial", Font.BOLD, 16));
txt1.setEditable (false);
txt2.setEditable (false);
pnl.setBackground (Color.YELLOW);
pnl.setFocusable (true);
pnl.addMouseListener (this);
pnl.addMouseMotionListener (this);
pnl.addKeyListener (this);
setVisible (true);
setDefaultCloseOperation (JFrame.EXIT_ON_CLOSE);
}
public void mouseClicked (MouseEvent e)
{
if (e.getButton () == 1)
    msg = "Left Button Clicked";
else if (e.getButton () == 2)
    msg = "Middle Button Clicked";
else if (e.getButton () == 3)
msg = "Right Button Clicked";
```

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```
    txts.setText(msg);
}
public void mousePressed(MouseEvent e)
{
    txts.setText("Mouse Pressed at "+e.getX()+","
      +e.getY());
}
public void mouseReleased(MouseEvent e)
{
    txts.setText("Mouse Released at "+e.getX()+
     ","+e.getY());
}
public void mouseEntered(MouseEvent e)
{
    txts.setText("*** Mouse Entered ***");
}
public void mouseExited(MouseEvent e)
{
    txts.setText("*** Mouse Exited ***");
}
public void mouseMoved(MouseEvent e)
{
    msg="Moved at x="+e.getX()+" y="+e.getY();
    txt2.setText(msg);
}
public void mouseDragged(MouseEvent e)
{
    msg="Dragged at x="+e.getX()+" y="+e.getY();
    txt2.setText(msg);
}
```

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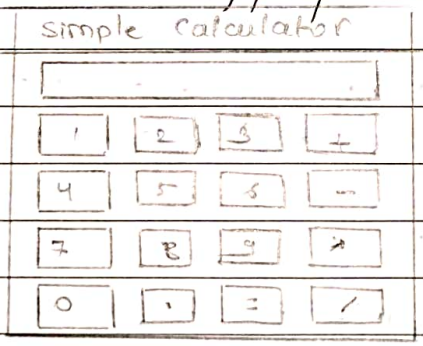
```
public void keyTyped (KeyEvent e)
{
    msg = msg + e.getKeyChar();
    txt2.setText(msg);
}
public void keyPressed (KeyEvent e)
{
    txt3.setText("*** key Pressed ***");
}
public void keyReleased (KeyEvent e)
{
    txt3.setText("*** key Released ***");
}
public static void main (String args[])
{
    new AS3SetA3();
}
}
```

* Set B.

1. Write a java program to implement a simple arithmetic calculator. Perform appropriate validations.



Teacher's Sign.: _____

→ Ass3setB1.java.

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

class Ass3setB1 extends JFrame implements ActionListener
{
   JTextField t1;
   JPanel pnl;
   JButton b[];
   int i;
   Font f;
   double x,y,z;
   int flg=0;

   Ass3SetB1()
   {
    super("calculator");
    setSize(400,450);
    setLocation(200,300);
    setLayout(null);
   f = new Font("Arial", Font.BOLD, 20);
   t1 = new JTextField();
   pnl = new JPanel();
   add(t1);
   t1.setFont(f);
  add(pnl);
  pnl.setLayout(new GridLayout(4,3,10,10));
  pns.setBackground(Color.YELLOW);
  t1.setBounds(50,40,270,30);
  pnl.setBounds(50,80,200,200);
  b = new JButton[12];
  for(i=1;i<10;i++)
}
```

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```
b[i] = new JButton("" +i);
pnl.add(b[i]);
}
b[0] = new JButton("0");
b[10] = new JButton(".");
b[11] = new JButton("=");
b[12] = new JButton("+");
b[13] = new JButton("-");
b[14] = new JButton("*");
b[15] = new JButton("/");
b[16] = new JButton("Clear");
b[17] = new JButton("Exit");

pnl.add(b[0]);
pnl.add(b[10]);
pnl.add(b[11]);
add(b[12]);
add(b[13]);
add(b[14]);
add(b[15]);
add(b[16]);
add(b[17]);

b[12].setBounds(260, 80, 60, 42);
b[13].setBounds(260, 132, 60, 42);
b[14].setBounds(260, 184, 60, 42);
b[15].setBounds(260, 236, 60, 42);
b[16].setBounds(50, 290, 130, 42);
b[17].setBounds(190, 290, 130, 42);
```

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```
for(i=0; i<18; i++)
 {
  b[i].setFont(f);
  b[i].addActionListener(this);
 }
 setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
 setVisible(true);
}
public void actionPerformed(ActionEvent e)
{
 if(e.getSource()==b[1]||e.getSource()==b[2]||
    e.getSource()==b[3]||e.getSource()==b[4]||
    e.getSource()==b[5]||e.getSource()==b[6]||
    e.getSource()==b[7]||e.getSource()==b[8]||
    e.getSource()==b[9])
  {
   if(t1.getText().length()==0)
     t1.getText(e.getActionCommand());
   else
     t1.setText(t1.getText()+e.getActionCommand());
  }
   if(e.getSource()==b[0])
   if(t1.getText().length()==0)
     t1.setText(e.getActionCommand());
   else
     if(!t1.getText().equals("0"))
      t1.setText(t1.getText()+e.getActionCommand());

 if(e.getSource()==b[10])
  if(t1.getText().length()!=0)
  if(t1.getText().indexOf('.')==-1)
   t1.setText(t1.getText()+e.getActionCommand());
```

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```
if (e.getSource() == b[12])
{
  x = Double.parseDouble(t1.getText());
  flg=1; t1.setText("");
}
if (e.getSource() == b[13])
{
  x = Double.parseDouble(t1.getText());
  flg=2; t1.setText("");
}
if (e.getSource() == b[14])
{
  x = Double.parseDouble(t1.getText());
  flg=3; t1.setText("");
}
if (e.getSource() == b[15])
{
  x = Double.parseDouble(t1.getText());
  flg=4; t1.setText("");
}
if (e.getSource() == b[11])
{
  y = Double.parseDouble(t1.getText());
  if (flg==1) z = x+y;
  else if (flg==2) z = x-y;
  else if (flg==3) z = x*y;
  else if (flg==4) z = x/y;
  t1.setText("" + z);
}
```

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```
        if (e.getSource() == b[16])
            t1.setText("");
        if (e.getSource() == b[17])
          System.exit(0);
        }
        public static void main (String args [])
        {
          new Ass3setB1();
        }
}
```

3) Write a menu driven program to perform the following operations on a set of integers. The Load operation should generate 50 random integers (2 digits) and display the numbers on the screen. The save operation should save the numbers to a file "numbers.txt". The compute menu provides various operations and the result is displayed in a message box. The search operation accepts a number from the user in an input dialog and displays the search result in a message dialog. The sort operation sorts the numbers and displays the sorted data on the screen.

→ Ass3setB2.java

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

class Ass3setB2 extends JFrame implements ActionListener
{
  JMenuBar mbr;
 JMenu m_file, m_compute, m_operations, sort;
 JMenuItem load, save, ext, sum, avg, max, min, med, srch;
JRadioButtonMenuItem ascending, descending;
ButtonGroup bg;
TextArea t;
```

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```
int randomInt, num[];
Ass3SetB2()
{
    super("MenuBar");
    setSize(500,500);
    setLocation(200,200);
    setLayout(null);
    mbr = new JMenuBar();
    m_file = new JMenu("File");
    m_compute = new JMenu("Compute");
    m_operations = new JMenu("Operations");
    load = new JMenuItem("Load");
    save = new JMenuItem("Save");
    ext = new JMenuItem("Exit");
    sum = new JMenuItem("Sum");
    max = new JMenuItem("Maximum");
    min = new JMenuItem("Minimum");
    avg = new JMenuItem("Average");
    med = new JMenuItem("Median");
    srch = new JMenuItem("Search");
    sort = new JMenu("Sort");
    asending = new JRadioButtonMenuItem
                ("Ascending");
    desending = new JRadioButtonMenuItem
                ("Descending");
    bg = new ButtonGroup();
    bg.add(asending); bg.add(desending);
    t = new TextArea("50 Random Numbers :\n");
```

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```
t.setFont(new Font("Arial", Font.BOLD, 20));
num = new int[500];
m_file.add(load);
m_file.add(save);
m_file.add(exit);

m_compute.add(sum);
m_compute.add(avg);
m_compute.add(max);
m_compute.add(min);
m_compute.add(med);

sort.add(asending);
sort.add(descending);

m_operations.add(srch);
m_operations.add(sort);

mbr.add(m_file);
mbr.add(m_compute);
mbr.add(m_operations);
add(mbr);
add(t);
mbr.setBounds(0,0,500,20);
t.setBounds(0,25,480,420);
load.addActionListener(this);
save.addActionListener(this);
exit.addActionListener(this);
sum.addActionListener(this);
avg.addActionListener(this);
max.addActionListener(this);
min.addActionListener(this);
med.addActionListener(this);
srch.addActionListener(this);
asending.addActionListener(this);
descending.addActionListener(this);
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
setVisible(true);
}
```

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```
public void actionPerformed (ActionEvent e)
{
  if (e.getSource() == load)
  {
    t.setText("50 Random Numbers = \n");
    Random rg = new Random();
    for (int idx = 0; idx <50; idx++)
    {
      randomInt = rg.nextInt(300);
      if (randomInt >9)
      {
        t.setText(t.getText() + randomInt + " ");
        num[idx] = randomInt;
        if ((idx+1)%10 == 0)
          t.setText(t.getText() + "\n");
      }
      else
        idx--;
      }
  }
    if (e.getSource() == save)
    {
    try
      {
        FileOutputStream out = new FileOutputStream
        ("numbers.txt");
      PrintStream p = new PrintStream(out);
      p.println(t.getText());
```

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```
p.close();
JOptionPane.showMessageDialog (null," File numbers.txt
 created successfully !!!");
}
catch (FileNotFoundException ex)
{
 JOptionPane.showMessageDialog (null, ex.toString());
}
}
if (e.getSource() == ext)
 System.exit(0);
   if (e.getSource() == sum)
   {
     int sum=0;
     for(int i=0; i<50; i++)
       sum = sum +num [i];
     JOptionPane.showMessageDialog (null,"sum = "+sum);
   }
   if (e.getSource() == avg)
    {
    int sum=0, avg =0;
    for (int i=0; i<50; i++)
      sum = sum + num [i];
      avg = sum /50;
   JOptionPane.showMessageDialog (null,"Average="+
       avg);
   }
   if (e.getSource() == max)
   {
    int max=num [0];
    for(int i=0; i<50; i++)
    if (max <num [i])
      max = num [i];
   JOptionPane.showMessageDialog (null,"Maximum
   No. = "+max);
}
```

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```
if (e.getSource()==min)
{
    int min=num[0];
    for(int i=0; i<50; i++)
     if(min>num[i])
      min=num[i];
JoptionPane.showMessageDialog(null,"Minimum No.
    = "+min);
}
if(e.getSource()==med)
 {
    int temp;
    for(int i=0; i<50; i++)
     for(int j=0; j<50; j++)
      if(num[i]<num[j])
       {
        temp=num[i];
        num[i]=num[j];
        num[j]=temp;
       }
      t.setText("Sorted Numbers to calculate
      Median =\n");
      for(int i=0; i<50; i++)
       {
        t.setText(t.getText()+num[i]+" ");
        if((i+1)%10==0)
        t.setText(t.getText()+"\n");
 }
```

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```
double ans = num[24] + num[25];
double median = ans/2;
JOptionPane.showMessageDialog(null, "Median=" + median);
}
if(e.getSource() == srch)
{
String temp = JOptionPane.showInputDialog(null,
"Enter the Number to Search:");
int searchNo = Integer.parseInt(temp);
int flg = 0;
for(int i=0; i<50; i++)
if(searchNo == Integer.parse num[i])
{
flg = 1;
break;
}
if(flg == 0)
JOptionPane.showMessageDialog(null, "Number
Found !!!");
}
if (e.getSource() == asending)
{
int temp;
for(int i=0; i<50; i++)
for(int j=0; j<50; j++)
if(num[i] < num[j])
{
temp = num[i];
num[i] = num[j];
num[j] = temp;
}
t.setText("Sort by Ascending Order \n");
for(int i=0; i<50; i++)
{
t.setText(t.getText()+num[i] + " ");
if((i+1)%10 == 0)
t.setText(t.getText() + "\n");
}
}
```

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```
if (e.getSource () == derending )
 {
   int temp;
    for (int i=0; i<5; i++)
      for( int j=0; j<5; j++)
       if (num [i] > num [j])
        {
          temp = num [i];
          num [i] = num [j];
           num [j] = temp;
        }
        t.setText (t.getText ()+num [i]+" ");
         if ((i+1) % 10 == 0)
         t.setText (t.getText () + "\n");
        }
      }
  }

public static void main (String args [])
 {
    new Ass3SetB2();
 }
}
```

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2) Write a menu driven program to perform the following operations on a set of integers. The Load operation should generate 50 random integers (2 digits) and display the numbers on the screen. The save operation should save the numbers to a file "numbers.txt". The Compute menu provides various operations and the result is displayed in a message box. The search operation accepts a number from the user in an input dialog and displays the search result in a message dialog. The sort operation sorts the numbers and displays the sorted data on the screen.

→ Ass3SetB3.java

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

class Ass3SetB3 extends JFrame implements ActionListener
{
    JLabel l1, l2, l3, l4, l5, l6;
    JTextField t1, t2, t5, t6;
    JPasswordField t3, t4;
    JButton b1;
    int a, b, c;
    char ch;
    Random rg;

    Ass3SetB3()
    {
        super("Registration form");
        setSize(500, 350);
        setLayout(null);
        setLocation(300, 200);
        l1 = new JLabel("Registration Form");
        l2 = new JLable("Name");
        l3 = new JLabel("Login Name");
        l4 = new JLabel("Password");
```

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```
l5 = new JLabel("confirm Password");
l6 = new JLabel("capacha");
t1 = new JTextField();
t2 = new JTextField();
t3 = new JPasswordField();
t4 = new JPasswordField();
t5 = new JTextField();
t6 = new JTextField();
b1 = new JButton("submit");

add(l1); add(l2); add(l3); add(l4); add(l5);
add(l6); add(t1); add(t2); add(t3); add(t4);
add(t5); add(t6); add(b1);

l1.setBounds(170,50,200,20);
l2.setBounds(50,80,150,20);
t1.setBounds(210,80,200,20);
t3.setBounds(50,110,150,20);
t2.setBounds(210,110,200,20);
t4.setBounds(50,140,150,20);
t3.setBounds(210,140,200,20);
l5.setBounds(50,170,150,20);
t4.setBounds(210,170,200,20);
l6.setBounds(50,200,150,20);
t5.setBounds(210,200,80,20);
t6.setBounds(300,200,110,20);
b1.setBounds(150,230,200,20);

b1.addActionListener(this);
```

Teacher's Sign.: _____

```
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
setVisible(true);
rg = new Random();
a = rg.nextInt(10);
b = rg.nextInt(10);
c = a+b;
ts.setEditable(false);
ts.setText(" "+a+" +"+b+" =");
}
public void actionPerformed(ActionEvent e)
{
if(t1.getText().length()==0 || t2.getText().length()==0 || t3.getTextext()==0 || t4.getText().length()==0 || t6.getText().length()==0)
JOptionPane.showMessageDialog(null,"Registration Failed !!! All Fields Required !!!");
else
{
if(ts.getText().length()<6)
{
JOptionPane.showMessageDialog(null,"Registration Failed !!! Password should be minimum 6 characters !!!");
t3.requestFocus();
}
else
{
int flg1=0, flg2=0, flg3=0;
for(int i=0; i<t3.gettext().length(); i++)
{
ch = t3.getText().charAt(i);
if(ch>=65 && ch<=90)
flg1=1;
if(ch>=48 && ch<=57)
flg2=1;
if(ch>=33 && ch<=48) || ch==64)
flg3=1;
```

EXPERIMENT : No. DATE

```
}
if (flg1 == 0)
 JOptionPane.showMessageDialog(null,"Registration
Failed !!! password should containing at least
one uppercase letter !!!");
else if (flg2 == 0)
 JOptionPane.showMessageDialog(null,"Registration
Failed !!! Password should containing at least
one digit !!!");
 else if (flg3 == 0)
 JOptionPane.showMessageDialog(null,"Registration
 Failed !!! Password should containing at
 least one symbol !!!");
if (flg1 == 1 && flg2 == 1 && flg3 == 1)
 }
   if (t3.getText().equals(t4.getText()))
   {
     if (c == Integer.parseInt(t6.getText()))
   JOptionPane.showMessageDialog(null,"Registra-
    tion sucessful !!!");
   else
   JOptionPane.showMessageDialog(null,"Registration
    Failed !!! capacha should match !!!");
}
else
 JOptionPane.showMessageDialog(null,"
 Registration Failed!!! Confirm password and
   Password fields should match !!!");
}
```

Teacher's Sign.: _____

```
    }
  }
}

public static void main (String args[])
{
    new Ass3setB3();
}
```

'C'

Gautami
08/10/2024