Week 9

8) Write a program that creates a user interface to perform integer divisions. The user enters 2 numbers. The div. of no. 1 & no. 2 is displayed in the Result field. when div. button is clicked. If the entered no. is not an int then throw number format Exception. If num 2 was 0. the program would throw an Arithmetic Exception.

Code / Input:

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

class SwingDemo {
    SwingDemo(){
    // create jframe container
    JFrame jfrm = new JFrame("Divider App");
    jfrm.setSize(275, 150);
    jfrm.setLayout(new FlowLayout());
    jfrm.setDefaultCloseOperation(JFrame.EXIT_
    _CLOSE);

    // text label
    JLabel jlab = new JLabel("Enter the divider
    and dividend:");

    JTextField ajtf = new JTextField(8);
    JTextField bjtf = new JTextField(8);

    JButton button = new JButton("Calcula
    te");
```

P.T.O.

// labels.

```
JLabel err = new JLabel();
JLabel alab = new JLabel();
JLabel blab = new JLabel();
JLabel anslab = new JLabel();

// add in order.

jfrm.add(err);
jfrm.add(jlab);
jfrm.add(ajtf);
jfrm.add(bjtf);
jfrm.add(button);
jfrm.add(alab);
jfrm.add(blab);
jfrm.add(anslab);

ActionListener l = new ActionListener(){
    public void actionPerformed(ActionEvent ev
    {
      System.out.println("Action event from a
      text field");
      }
  };
  ajtf.addActionListener(l);
  bjtf.addActionListener(l);

  button.addActionListener(new ActionListener
{
    public void actionPerformed(ActionEvent ev
    try{
        int a = Integer.parseInt(ajtf.getText());
        int b = Integer.parseInt(bjtf.getText());
```

```
        int ans = a/b;

        alab.setText("\n A= "+a);
        blab.setText("\n B= "+b);
        anslab.setText("\n Ans ="+ans);
    }
    catch (NumberFormatException e){
        alab.setText(" ");
        blab.setText(" ");
        anslab.setText("");
        err.setText("Enter only Integers!");
    }
    catch (ArithmaticException e){
        alab.setText("");
        blab.setText("");
        anslab.setText("");
        err.setText("B should be NON zero!");
    }
  }
});

  //display frame.
  jfrm.setVisible(true);
  }

public static void main(String args[]){

    SwingUtilities.invokeLater(new Runnable(){
        public void run(){
            new SwingDemo();
        }
    });
  }
}
```

OUTPUT:-

Enter the divider & dividend
4 4
calculate A=4 B=4 Ans=1

Enter only Integers!
Enter the divider & divident
int 4
calculate

B should be NON ZERO!
Enter the divider and divident:
3 0
Calculate

Report on all the functions used.

1) J Frame: 'JFrame' is the main window container for the GUI. It is responsible for the overall structure of the application window, including its title size, layout manager, and default close operation.
2) JLabel: 'JLabel' is used to display text on the GUI. In this program, labels are used to prompt the user to enter divider and dividend, and to display additional information or error messages.
3) Set size :- In Java GUI programming, the set size function is used to specify the dimensions of a graphical content such as a window, panel or button. It is typically used to define the width and height of the component for eg: set size (275, 150) set width to 275 pixels and height to 150 pixels.

→ set Layout() meathod. Common layouts include Border layout, Flow Layout, GridLayout etc. Example: setLayout(new BorderLayout()); assigns BorderLayout to the container, arranging components accordingly.

→ Set default close feration(): In Java GUI programming to set the default close operation for a JFrame, you can use the 'setDefaultCloseOperation()' meathod. In the above example '(JFrame.EXIT_ON_CLOSE)' sets the default close operation to exit the application when the JFrame is closed. There are a few other options available based on the desired behaviour.

→ To create a 'JTextField', it creates a text field that can hold up to 20 characters wide. You can adjust the width according to your requirements. Then 'add(textField)' adds the text field to the JFrame.

→ Of course add frame, a JFrame is created the a jTextfild is created. add Frame function allows you to add frames to youre main JFrame

→ Action Listener: In Java GUI programming, an action listener is an interface used to handle events triggered by user actions, such as clicking a button or selecting an item from a dropdown menu. When an event occurs, the corresponding action listener's actionperformed is invoked this allows you to define what action should be taken in response to the users interaction

→ set text: In Java 'setText()' is a meathod used to set the text content of a text based component, such as JLabel, 'JButton', 'JTextField' 'JTextArea'.