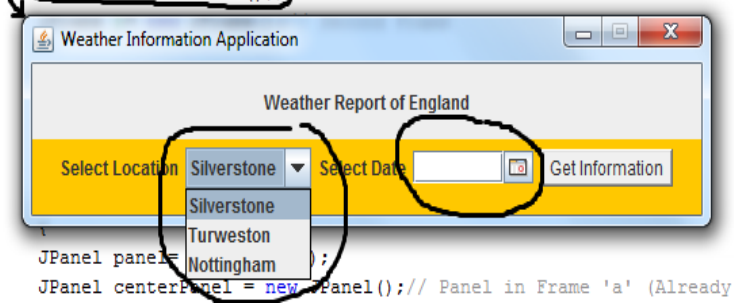
Demo:

1. When Program starts first frame appears with location and date selection

```
String[] locationStrings = { "Silverstone", "Turweston", "Nottingham" };// String Array to Store Location
JComboBox jComboBox1= new JComboBox(locationStrings);// Bind Location Array String in Combox Box
// Get Data In correct Formate in JDataChooser
com.toedter.calendar.JDateChooser jDateChooser1 = new JDateChooser();
SimpleDateFormat dateFormat = new SimpleDateFormat("yyyy/MM/dd");// Format of Date
JFrame a=new JFrame();// Main Frame
```

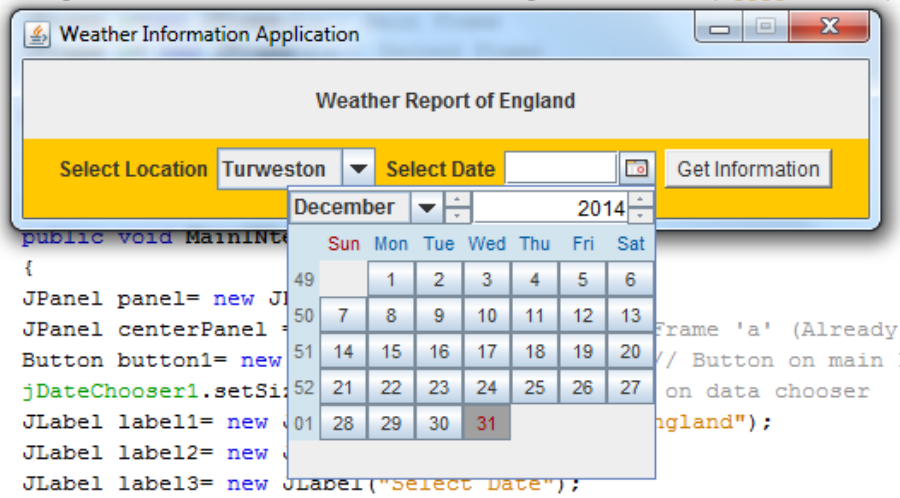



```
JPanel panel= new JPanel();
JPanel centerPanel = new JPanel();// Panel in Frame 'a' (Already Declared)
```

Location string contains Location which binds in JComboBox . JDateChoose is library file that is third party tool used in selecting date (you can see it and date format)

2. Date chooser is like this.

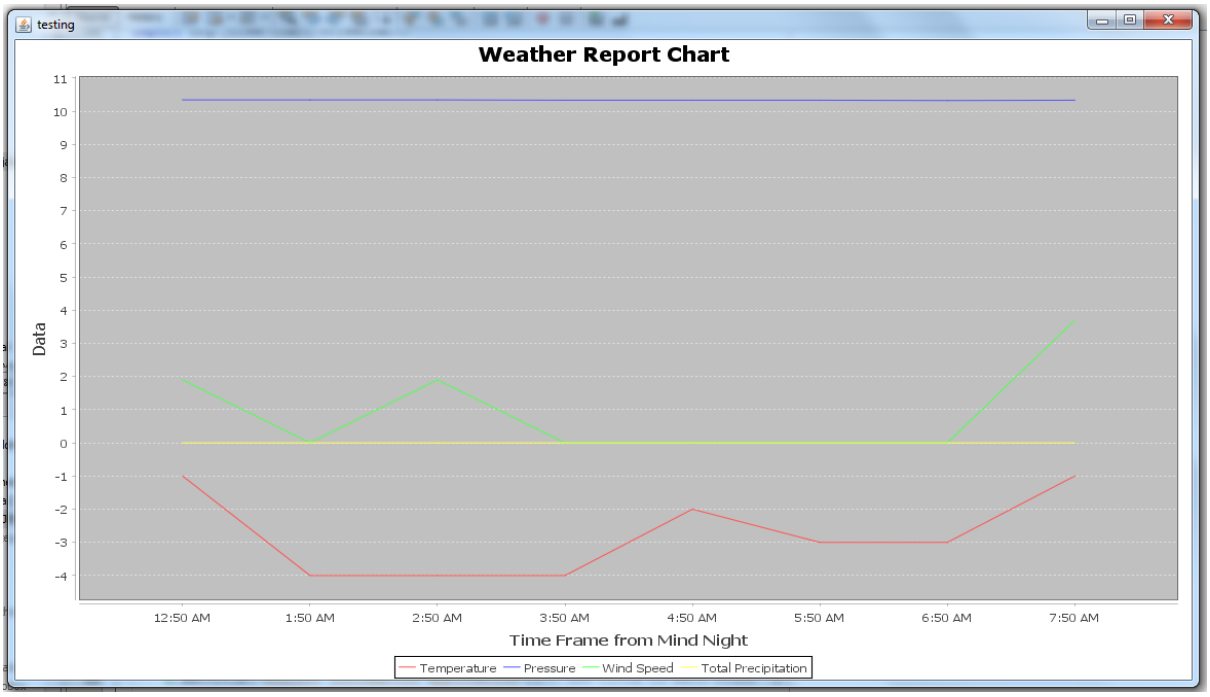
```
com.toedter.calendar.JDateChooser jDateChooser1 = new JDateChooser();
SimpleDateFormat dateFormat = new SimpleDateFormat("yyyy/MM/dd");// Format of Date
```



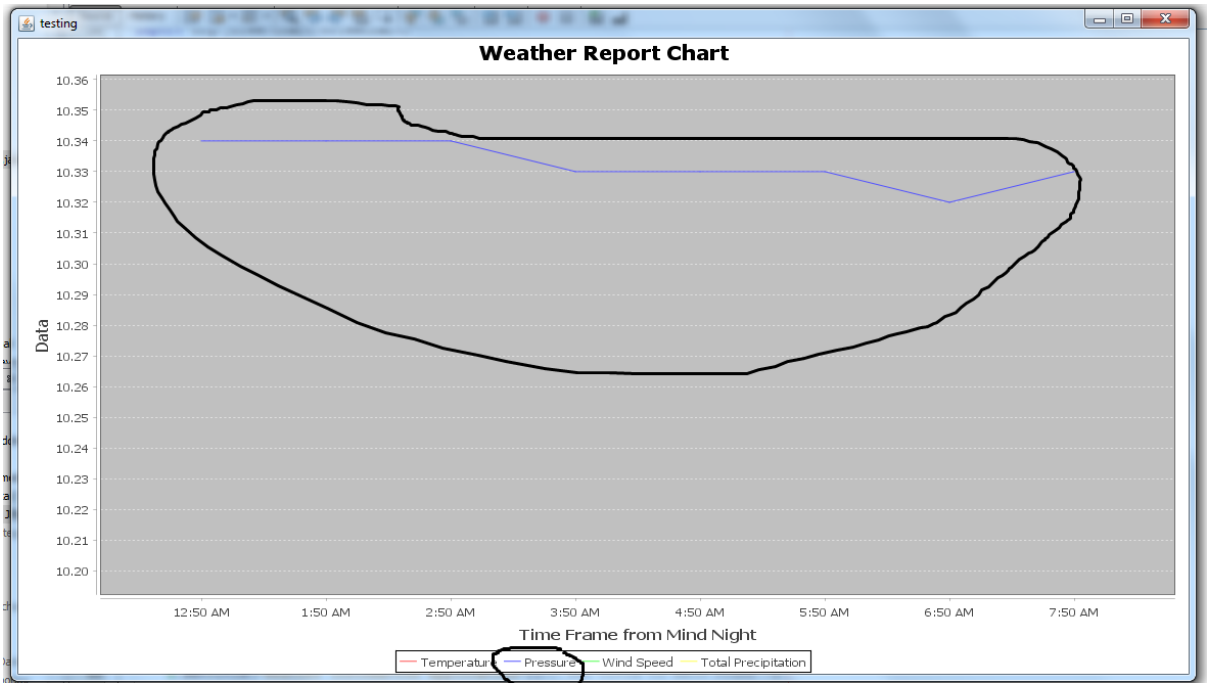

```
public void MainInt
{
JPanel panel= new J
JPanel centerPanel
Button button1= new
jDateChooser1.setSi
JLabel label1= new
JLabel label2= new
JLabel label3= new JLabel("Select Date");
```

```
Frame 'a' (Already Declared)
// Button on main Frame
on data chooser
ngland");
```

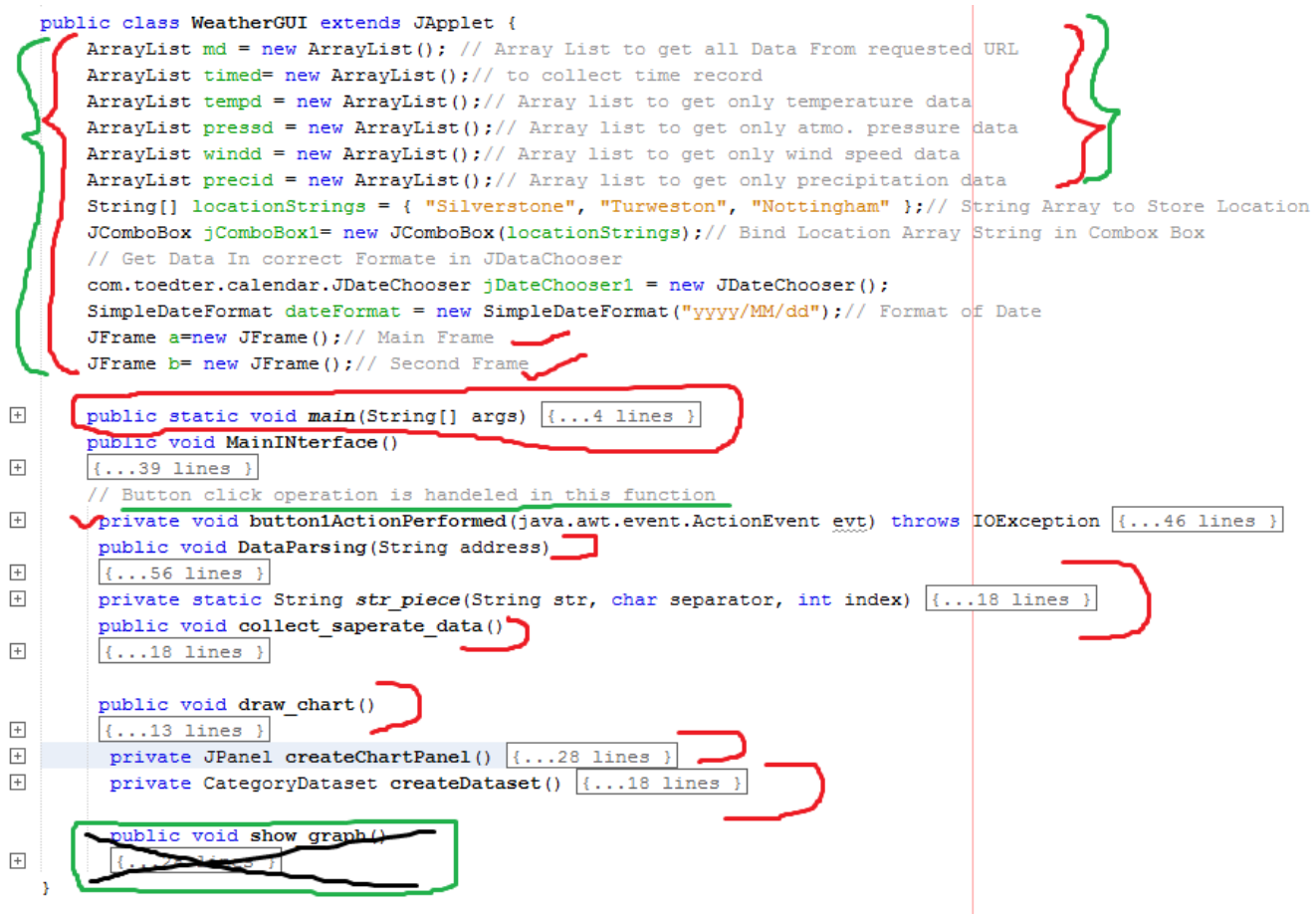
3. When click on Get Information button New frame appears that shows graph like this



4. If you want to see more specific data you will have to zoom in graph by holding left mouse click and drag down the mouse. In this graph you can see specific data about pressure for above graph. Since graph line is straight in above graph while in this graph not.



Code:



A snap of WeatherGUI.Java File.

1. JFrame ’a’ and JFrame ‘b’ is declared here which are main frame for this project.
2. A function called MainINterface() is used to call in main method while load program this contain frame a in which date chooser and select location operation is performed. When button click operation fired it validate data like date is in range and in correct format. You can see in following image. Applied on JFrame ‘a’.

```
public static void main(String[] args) {
    WeatherGUI obj= new WeatherGUI();
    obj.MainINterface();
}
public void MainINterface()
{
JPanel panel= new JPanel();
JPanel centerPanel = new JPanel();// Panel in Frame 'a' (Already Declared)
Button button1= new Button("Get Information");// Button on main Frame
jDateChooser1.setSize(100,20);// applying size on data chooser
JLabel label1= new JLabel("Weather Report of England");
JLabel label2= new JLabel("Select Location");
JLabel label3= new JLabel("Select Date");
a.setTitle("Weather Information Application");// Set title to main Frame 'a'
a.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);// on closing the window exit application
centerPanel.setVisible(true);// making visibility true for centerPanel
// adding various components in panel and centerPanel
panel.add(label1);
panel.setBorder(BorderFactory.createEmptyBorder(10, 10, 10, 10));
centerPanel.add(label2);
centerPanel.add(jComboBox1);
centerPanel.setBackground(Color.orange);
centerPanel.add(label3);
centerPanel.add(jDateChooser1);
centerPanel.add(button1);
// adding components in main Frame 'a'
a.add(panel, BorderLayout.NORTH);
a.add(centerPanel, BorderLayout.CENTER);
a.setSize(500, 120);
a.setResizable(false);
a.setLocationRelativeTo(null);
a.setVisible(true);
// Button Click Event handeling
```

3. When button click event is fired then it will have to validate date and location it can be seen in the following image.

```
private void button1ActionPerformed(java.awt.event.ActionEvent evt) throws IOException {
    //Remove all elements from array list so that previous added data can't affect this
    md.clear();
    // Declearing Date object
Date date;
// Assigning Date to given object from JDateChooser
 date=jDateChooser1.getDate();
   // Vailidation of date
   if(date==null)
   {
       JOptionPane.showMessageDialog(null, "Please select Date!");
       jDateChooser1.grabFocus();
   }
   else
   {
       // Now check wheather Date is of future
       Calendar cal = Calendar.getInstance();
       if(date.compareTo(cal.getTime())>0)
       {
           JOptionPane.showMessageDialog(null, "Wrong Date Selected");
       }
       // assigning corresponding area code to selected location
       else
       {
           String LocationCode;
           if(jComboBox1.getSelectedItem().toString().equals("Silverstone"))
           {
               LocationCode="EGBV";
           }
           else
           {
               if(jComboBox1.getSelectedItem().toString().equals("Turweston"))
                   {
                       LocationCode="EGBT";
                   }
               else
               {
                   LocationCode="EGBK";
```

4. If everything is okay then it is time to make URL string to get data from weather underground server and send it a method that get data and parse it according to respective category and add in ArrayList 'md'. But here we will have to take care of data validation and control like -9999.0, N/A,-9999 and Null. So here we are storing 0 of data is anything like them.

5. Now if no such data is available for selected location and date then we will have to check it also so here if md.size<36 then no data is available.

```
                    if(Arrays.asList("N/A", "-9999.0","-9999","-","Calm","").contains(k))
                    {
                        // adding value to ArrayList 'md' declared on the top of program
                        md.add("0");
                    }
                    else
                    {
                        // adding value to ArrayList 'md' declared on the top of program
                        md.add(k);
                    }


                    }

                }

                } while (line != null);
                //JOptionPane.showMessageDialog(null, md.toString());
            }
            catch (IOException ex)
                    {
                        JOptionPane.showMessageDialog(null, ex.toString());
                    }

            if(md.size()<=36)
            {
                JOptionPane.showMessageDialog(null, "No data is avaiblable for this location and date");
            }
            else
            {
                collect_saperate_data();
            }

        }
        private static String str_piece(String str, char separator, int index) {
            String str_result = "";
            int count = 0;
            for(int i = 0; i < str.length(); i++) {
```

6. Now We have separate ArrayList for every time, temperature , pressure, wind speed and precipitate so we will have to get all data from ‘md’ ArrayList and will have to assign corresponding value in these array lists.

```
public void collect_saperate_data()
{
    tempd.clear();
    // get bigger loop counter to apply looping
    int counter=md.size()/12;
    int loopcounter=counter-2;
    //JOptionPane.showMessageDialog(null, counter);
    for(int i=1;i<=loopcounter;i++)
    {
        timed.add(md.get((12*(i+1))));
        tempd.add(md.get((13*(i+1)-i)));
        pressd.add(md.get((16*(i+1))-(4*i)));
        windd.add(md.get(((16*(i+1))-(4*i)+3)));
        precid.add(md.get(((16*(i+1))-(4*i)+5)));
    }
   // JOptionPane.showMessageDialog(null, windd.toArray());
    draw_chart();
    //show_graph();
}
```

7. Now this time to draw chart so draw_chart() is method for this work. This method wants JFreeChart a third party library from Oracle.

```
public void draw_chart()
{
    a.dispose();
    b.setTitle("testing");
    JPanel chartPanel = createChartPanel();
    add(chartPanel, BorderLayout.CENTER);

    b.setSize(640, 480);
    b.add(chartPanel);
    b.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    b.setLocationRelativeTo(null);
    b.setVisible(true);
    //return b;
}
 private JPanel createChartPanel() {...28 lines }
 private CategoryDataset createDataset() {
    // creates chart dataset...
    // returns the dataset
DefaultCategoryDataset dataset = new DefaultCategoryDataset();
String series1 = "Temperature";
String series2 = "Pressure";
String series3 = "Wind Speed";
String series4 = "Total Precipitation";
 for (int i=1;i<timed.size();i=i+2)
 {
     dataset.addValue(Double.parseDouble(tempd.get(i).toString()), series1, timed.get(i).toString());
     dataset.addValue(Double.parseDouble(pressd.get(i).toString())/100, series2, timed.get(i).toString());
     dataset.addValue(Double.parseDouble(windd.get(i).toString()), series3, timed.get(i).toString());
     dataset.addValue(Double.parseDouble(precid.get(i).toString()), series4, timed.get(i).toString());
 }

return dataset;
```