# Java assignment report

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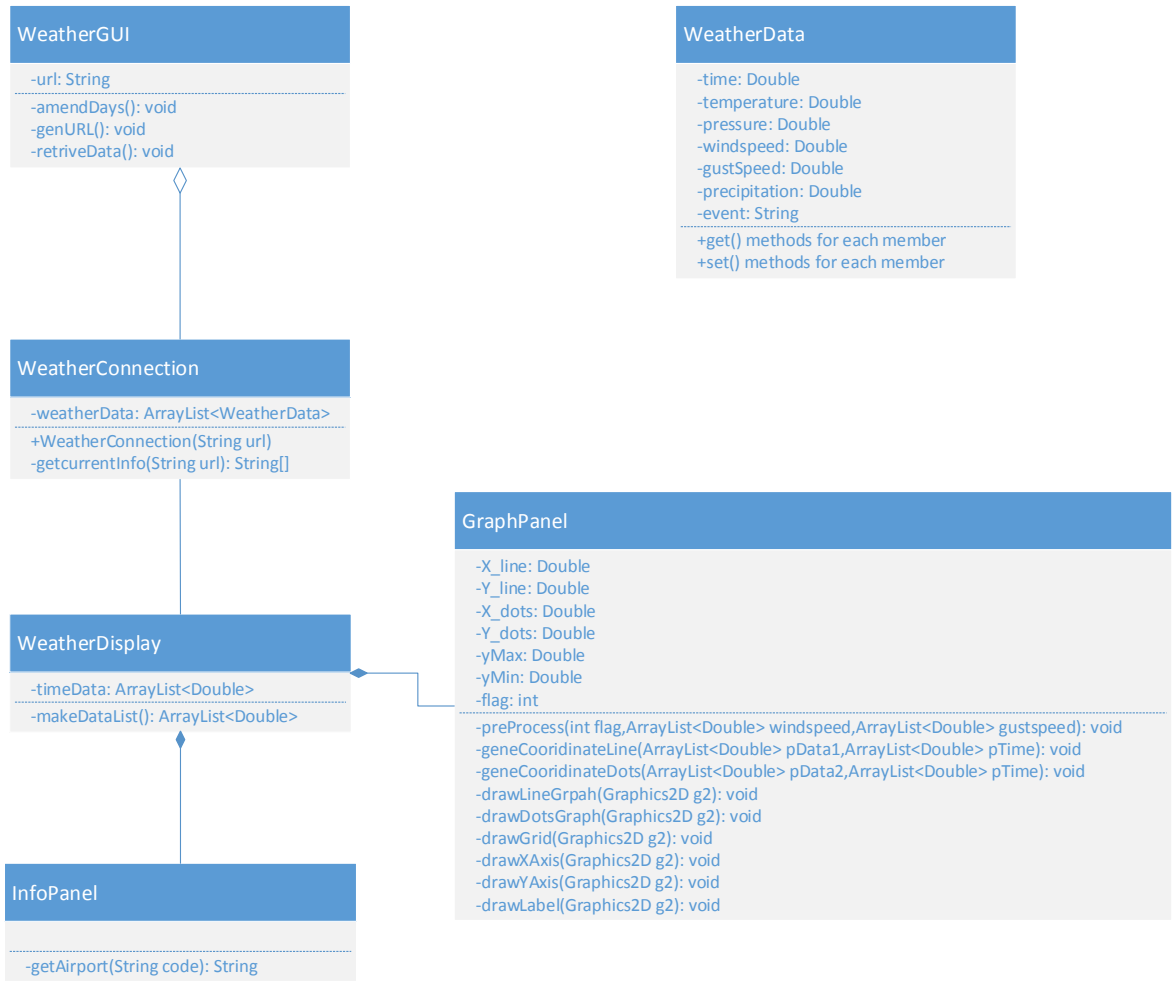
UML diagram:




Explanation:

1. The programme begins with a WeatherGUI class object (JFrame), it allows users to select choices of airport (ICAO code), day, month and year.
2. Then it builds up URL data with the information in previous step and sends it to the constructor of WeatherConnection class object.
3. The WeatherConnection class accounts for downloading data from the website and addressing data (using split method in String). After addressing data, the object of this class sends weatherData and currentInfo into the construction function of WeatherDisplay class object.
4. The WeatherDisplay class is used to show the graphs of weather data. It is made up by four panels, three graph panel (objects of GraphPanel) and one information panel (an object of InfoPanel).
5. The graph panel has two overloaded constructor with different parameters, one for temperature graph, pressure graph, the other one for wind data graph (line graph for wind speed data and dots graph for wind gust data). Similarly, there are two overloaded pre –

processing methods for finding maximum and minimum data to draw the graph(s).

6. The object of InfoPanel is used to display information for total precipitation and other information, such as airport information, the date which the user has chosen and the author name. However, the total precipitation has something wrong when downloading from the website. I think there is no logic problem with my programme but the problem with the data itself. The precipitation (mm) is always "N/A" when downloading from the website. The weather icon only shows the snowy, foggy, rainy as these weather conditions would affect the airline. If there is snow, showing Snow.png; else if there is fog, showing Fog.png; else if there is rain, showing Rain.png; else, showing sunny icon (None.png).
7. The WeatherData class is only used as data structure for ArrayList<WeatherData>.

Test:

Data on 02/01/2015:

**URL:**

http://www.wunderground.com/history/airport/EGNT/2015/1/2/DailyHistory.html?HideSpec&MR=1

**The data which is downloaded from website:**

TimeGMT,TemperatureC,Dew PointC,Humidity,Sea Level PressurehPa,VisibilityKm,Wind Direction,Wind SpeedKm/h,Gust SpeedKm/h,PrecipitationmmEvents,Conditions,WindDirDegrees,DateUTC<br />

12:20 AM,10.0,6.0,76,1004,10.0,West,63.0,83.3,N/A,Rain,Light Rain,270,2015-01-02 00:20:00<br />

12:50 AM,8.0,5.0,81,1005,10.0,West,55.6,-,N/A,,Scattered Clouds,280,2015-01-02 00:50:00<br />

1:20 AM,7.0,4.0,81,1007,10.0,West,53.7,75.9,N/A,,Scattered Clouds,280,2015-01-02 01:20:00<br />

1:50 AM,7.0,3.0,76,1008,10.0,West,44.4,-,N/A,,Scattered Clouds,270,2015-01-02 01:50:00<br />

2:50 AM,6.0,2.0,76,1010,10.0,West,48.2,-,N/A,,Scattered Clouds,270,2015-01-02 02:50:00<br />

3:20 AM,6.0,2.0,76,1010,10.0,West,46.3,-,N/A,,Scattered Clouds,270,2015-01-02 03:20:00<br />

3:50 AM,5.0,0.0,70,1011,10.0,West,55.6,-,N/A,,Partly Cloudy,270,2015-01-02 03:50:00<br />

4:50 AM,3.0,1.0,87,1013,10.0,West,48.2,70.4,N/A,Rain,Light Rain,270,2015-01-02 04:50:00<br />

5:20 AM,4.0,2.0,87,1014,10.0,West,31.5,-,N/A,Rain,Light Rain,280,2015-01-02 05:20:00<br />

5:50 AM,3.0,2.0,93,1014,10.0,West,27.8,-,N/A,,Scattered Clouds,270,2015-01-02 05:50:00<br />

6:20 AM,4.0,1.0,81,1014,10.0,West,37.0,-,N/A,,Partly Cloudy,260,2015-01-02 06:20:00<br />

6:50 AM,5.0,1.0,76,1015,10.0,West,40.7,-,N/A,,Partly Cloudy,270,2015-01-02 06:50:00<br />

7:20 AM,4.0,1.0,81,1016,10.0,West,38.9,-,N/A,Rain,Light Rain Showers,270,2015-01-02 07:20:00<br />

7:50 AM,4.0,2.0,87,1016,10.0,West,37.0,-,N/A,,Partly Cloudy,260,2015-01-02 07:50:00<br />

8:20 AM,4.0,1.0,81,1017,10.0,West,40.7,-,N/A,Rain,Light Rain Showers,270,2015-01-02 08:20:00<br />

8:50 AM,3.0,1.0,87,1018,10.0,West,37.0,-,N/A,Rain,Light Rain Showers,260,2015-01-02 08:50:00<br />

9:50 AM,4.0,1.0,81,1018,10.0,West,46.3,-,N/A,,Partly Cloudy,270,2015-01-02 09:50:00<br />

10:20 AM,4.0,2.0,87,1019,10.0,West,40.7,-,N/A,,Partly Cloudy,260,2015-01-02 10:20:00<br />

10:50 AM,5.0,2.0,81,1019,10.0,West,44.4,-,N/A,,Partly Cloudy,260,2015-01-02 10:50:00<br />

11:20 AM,5.0,1.0,76,1019,10.0,West,40.7,59.3,N/A,,Partly Cloudy,260,2015-01-02 11:20:00<br />

11:50 AM,5.0,1.0,76,1020,10.0,West,44.4,66.7,N/A,,Partly Cloudy,270,2015-01-02 11:50:00<br />

12:20 PM,5.0,1.0,76,1020,10.0,West,48.2,66.7,N/A,Rain,Light Rain,270,2015-01-02 12:20:00<br />

12:50 PM,4.0,1.0,81,1021,10.0,West,37.0,57.4,N/A,,Partly Cloudy,270,2015-01-02 12:50:00<br />

1:20 PM,4.0,1.0,81,1022,10.0,West,46.3,-,N/A,,Partly Cloudy,280,2015-01-02 13:20:00<br />

1:50 PM,5.0,1.0,76,1023,10.0,West,33.3,-,N/A,,Partly Cloudy,270,2015-01-02 13:50:00<br />

2:20 PM,5.0,1.0,76,1023,10.0,West,31.5,50.0,N/A,Rain,Light Rain Shower,270,2015-01-02 14:20:00<br />

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3:20 PM,3.0,1.0,87,1024,10.0,West,31.5,-,N/A,,Partly Cloudy,270,2015-01-02 15:20:00<br />

3:50 PM,3.0,1.0,87,1024,10.0,West,31.5,-,N/A,,Partly Cloudy,260,2015-01-02 15:50:00<br />

4:20 PM,3.0,1.0,87,1024,10.0,West,25.9,-,N/A,,Partly Cloudy,260,2015-01-02 16:20:00<br />

4:50 PM,3.0,1.0,87,1024,-9999.0,West,16.7,-,N/A,,Clear,260,2015-01-02 16:50:00<br />

5:20 PM,4.0,1.0,81,1024,-9999.0,WSW,27.8,-,N/A,,Clear,250,2015-01-02 17:20:00<br />

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6:20 PM,4.0,1.0,81,1024,-9999.0,West,24.1,-,N/A,,Clear,260,2015-01-02 18:20:00<br />

6:50 PM,4.0,1.0,81,1024,-9999.0,WSW,24.1,-,N/A,,Clear,250,2015-01-02 18:50:00<br />

7:20 PM,5.0,1.0,76,1023,-9999.0,WSW,33.3,51.9,N/A,,Clear,250,2015-01-02 19:20:00<br />

7:50 PM,5.0,1.0,76,1023,-9999.0,WSW,31.5,-,N/A,,Clear,250,2015-01-02 19:50:00<br />

8:20 PM,5.0,0.0,70,1022,-9999.0,WSW,31.5,50.0,N/A,,Clear,250,2015-01-02 20:20:00<br />

8:50 PM,6.0,1.0,70,1022,-9999.0,WSW,37.0,59.3,N/A,,Clear,250,2015-01-02 20:50:00<br />

9:20 PM,6.0,1.0,70,1021,-9999.0,WSW,44.4,63.0,N/A,,Clear,250,2015-01-02 21:20:00<br />

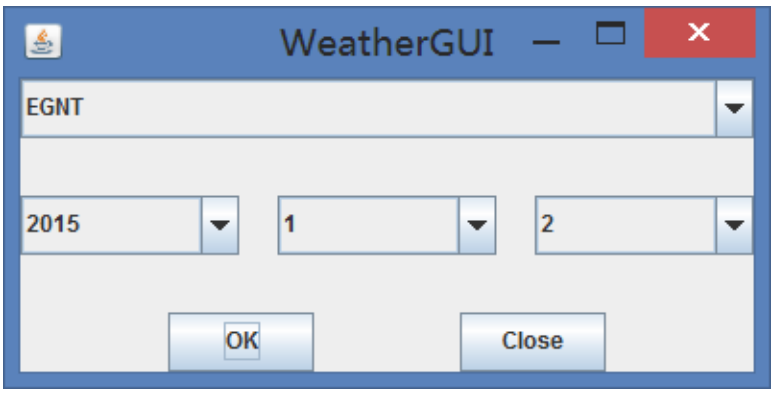
9:50 PM,6.0,1.0,70,1020,-9999.0,WSW,48.2,68.5,N/A,,Clear,250,2015-01-02 21:50:00<br />

10:20 PM,6.0,1.0,70,1021,-9999.0,West,50.0,70.4,N/A,,Clear,260,2015-01-02 22:20:00<br />

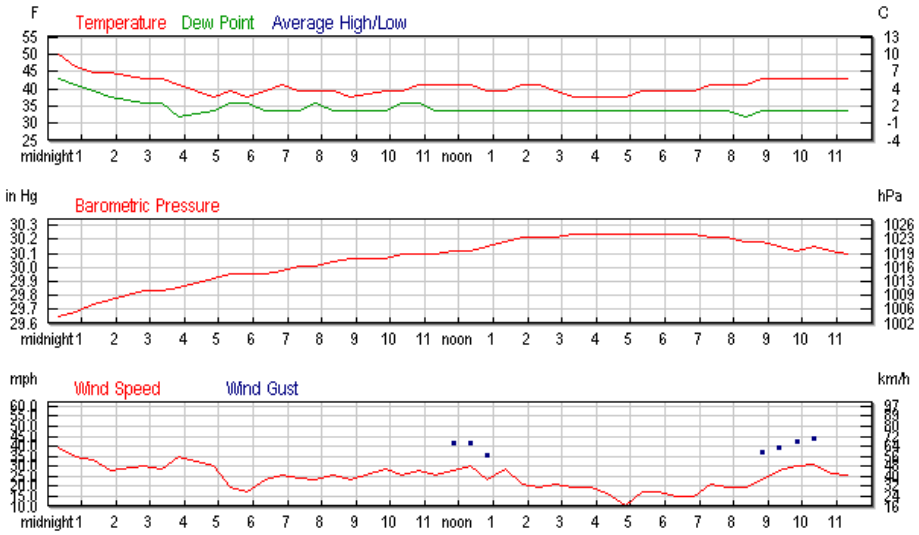
10:50 PM,6.0,1.0,70,1020,-9999.0,WSW,42.6,-,N/A,,Clear,250,2015-01-02 22:50:00<br />

11:20 PM,6.0,1.0,70,1019,-9999.0,WSW,40.7,59.3,N/A,,Clear,250,2015-01-02 23:20:00<br />

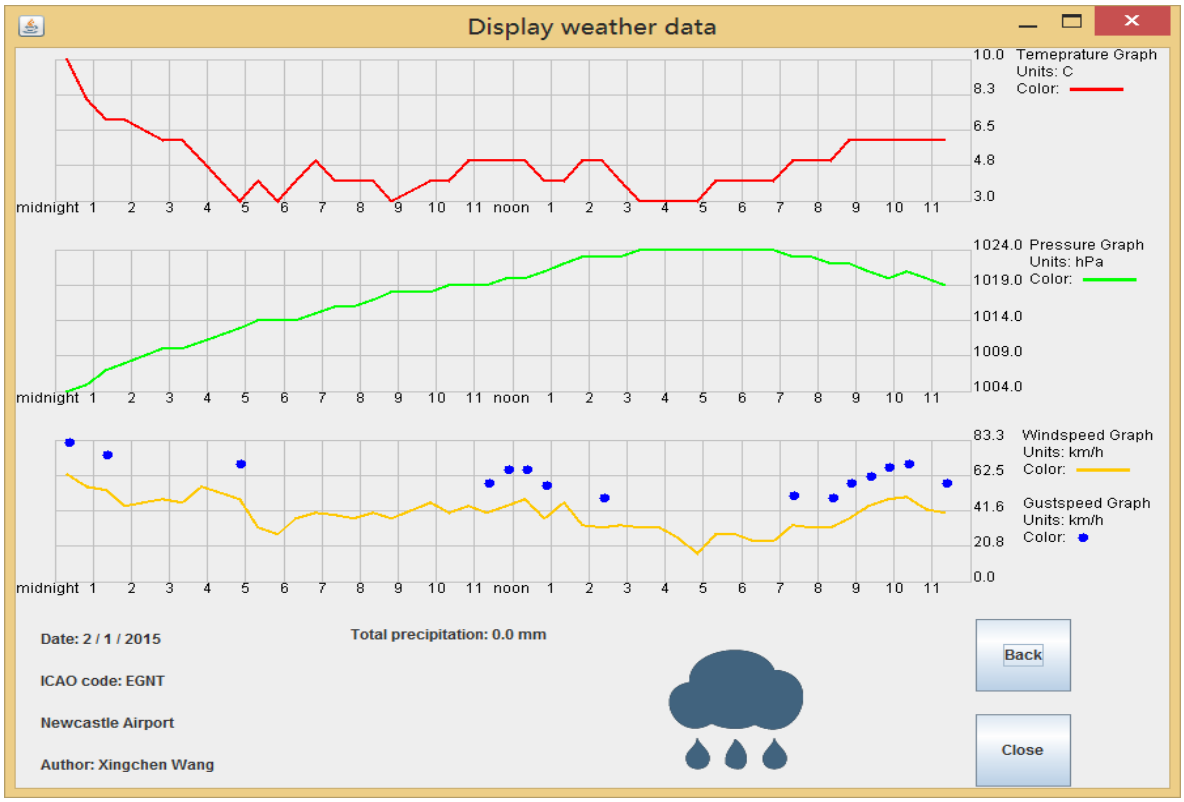
**WeatherGUI:**



## Daily Weather History Graph




**My program:**




This test uses the data in 02/01/2015, Newcastle Airport (EGNT), it shows the data which meets the requirements. The graphs display from the maximum value to the minimum value. The gust wind speed data is drawn in blue circle while other data are drawn in colourful lines. The graph picture on the website shows there are only seven gust wind speed data, but actually there are 15 gust wind data (Shown in highlighted data in the data list above).

If the user doesn't choose the year, month, day or airport, it will inform the user "`Please check`

the airport and the date". If the user choose a date in future or there is no data on that day, it will show "There is no data currently". When clicking the "Back", the graphs window will be closed but the selection window will still be opened. If the user clicks the "Close" button, the programme will be exited.