**Weather Analysis**

The 2018-09 Dublin Airport.csv contains the Historical Data recorded at the Dublin

Airport Metropolitan Weather Observing Station in September 20181.

**The data set contains seven variables:**

**date: Date (dd-mmm-yy),**

**rain: Precipitation Amount (mm),**

**maxtp: Maximum Air Temperature (C),**

**mintp: Minimum Air Temperature (C).**

**Tasks:**

1. Load in the data as an object called DublinAirport. Assign to the DublinAiport

object the classes WeatherData and data.frame.

2. Write an S3 summary method for an object of class WeatherData which produces

the following statistical summaries for the rain, maxtp, mintp variables: mean,

standard deviation, minimum, maximum.

3. Download the new data set 2018 09 Cork Airport.csv from Blackboard, assign

the classes WeatherData and data.frame to the object containing the Cork data,

and test your function on it. Interpret your findings for Dublin and Cork Airports.

4. Create an S3 plot method for the class WeatherData that produces the following

plots.

* Two plots must be on a single panel, one above the other. Only the plot on

the top panel will contain a main title.

* The plot on the top is about the daily Air Temperature (C). It must include

the following:

* + lines plot to show the daily air temperatures
  + by default the plot will draw a red line for the maximum temperatures

and a blue line for the minumum temperatures. The user must be able to

change these colors

* + the plot must include meaningful labels for the axis and legend
  + the plot must include a grey vertical dotted line for each day to clearly
  + identify the day corresponding to each couple of points. (hint: see the

abline function)

* + the plot by default should allow the user to identify clearly the noteworthy

points by adding a point character over the value of the highest maximum

temperature registered and a point character over the value of the lowest

minimum temperature registered. The user must be able to decide to avoid

to add the point characters to the plot.

* The plot on the bottom is about the daily Precipitation Amount (mm). It

must include the following:

* + vertical-line plot to show the daily precipitation amount (hint: look at the

help of plot to see which type of plot you want to draw)

* + by default the plot will draw the vertical bar for the day with the highest

amount of rain in red. The user must be able to change the colour to be

used.

**Test your function on the Dublin and Cork airport data set, and set different**

**meaningful titles for the two cases.**