

QUESTION – PROBLEM SOLVING

The Malaysian Meteorological Department (MetMalaysia) is an agency under the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) which is responsible for providing various meteorological, climate and geophysical services to meet the needs of the nation in meteorological, climate and geophysical.

Assumed that you are a UTM practical student currently attached to this agency. You have been asked to write a C++ program to facilitate the agency to keep track the weather data for each month of a year. The program uses a structure below to store the weather data for a particular month:

- Total Rainfall
- Number of rain days per month
- High Temperature
- Low Temperature
- Month Name

There are four tasks already listed to complete the program. You are given a partial complete of C++ program (**FinalQ2.cpp**) and a data file (**data.txt**). Complete the source code according to the tasks given as follows;

TASK 1:

Read the weather data for each month from the provided input text file named **data.txt**. Calculate the average temperature for each month while reading the data file. **Note:** Please make sure that the program will only continue reading the file if it is successfully opened, otherwise print the error message and exit the program.

TASK 2:

Calculate the total rainfall for the year, the average of monthly rainfall and the average temperature of the year.

TASK 3:

Find the month with the highest and lowest temperatures for the year.

TASK 4:

Print a weather report which contains all the results from Task 1, Task 2 and Task 3 to the screen as shown in **Figure 2**.

Note: Please use proper output formatting.

```
Total Rainfall: 2165.90
Average Monthly Rain: 180.49
Highest Temperature: 32.30   (Month 4: April)
Lowest Temperature: 23.90   (Month 1: January)

Month      Rain    Rain days  Hi TEMP  Lo TEMP  Avg TEMP
=====
January    234.60  13         30.40    23.90    27.15
February   112.80  8          31.70    24.30    28.00
March       170.30  13         32.00    24.60    28.30
April       154.80  14         32.30    25.00    28.65
May         171.20  14         32.20    25.40    28.80
June        130.70  12         32.00    25.40    28.70
July         154.40  14         31.30    25.00    28.15
August      148.90  14         31.40    25.00    28.20
September   156.50  13         31.40    24.80    28.10
October     154.60  15         31.70    24.70    28.20
November    258.50  18         31.10    24.30    27.70
December    318.60  18         30.20    24.00    27.10
```

Figure 2: Sample output