CSE108
LW 03

≅ **Using mobile phones, flash disks, internet and any other record or communication media is strictly forbidden during lab sessions. Throughout a lab session, all such media must be kept turned off and in a closed environment. Violation of this rule is punished with a grade 0, -100 or worse. Before doing anything else, make sure that your computer is not attached any such media.**

≅ **Make sure that you have deleted all of your work PERMANENTLY before leaving the first sessions.**

PART-I Read and Print. (1 Point)

Write a C program that takes some weather information of a day from an input file "input.txt" and prints the same information on the screen.

The input file will contain 3 integer which are
1. The day of the month
2. Velocity of wind
3. Temperature

PART-II Comment on Whether Condition (1 Point)

In this part you will comment on the whether condition using the weather data you obtain in the previous part.

Using the wind data, you will determine the wind condition as :
- windless (if wind velocity is at most 20 km/s),
- windy (if wind velocity is between 21 km/s and 50 km/s), or
- stormy (if wind velocity is at least 51 km/s)

Using the temperature data, you will determine the temperature condition as:
- cold (if the temperature is below 10 C)
- warm (if the temperature is between 11 C and 25 C)
- hot (if temperature is between 26 C and 40 C)

Procedure for Part 2:
1. Define a constant macro named as "**TRUE**" to indicate logical value "true" and a constant macro named as "**FALSE**" to indicate logical value "false". Use the constant macros as logical conclusions in parts 2 and 3
2. Define and use the following functions to check the above defined wind and temperature expressions:

   is_windless() : takes the wind velocity as an integer parameter and returns TRUE if it is windless and FALSE otherwise
   is_windy() : takes the wind velocity as an integer parameter and returns TRUE if it is windy and FALSE otherwise

is_stormy(): takes the wind velocity as an integer parameter and returns TRUE if it is stormy and FALSE otherwise.
is_cold(): takes the temperature as an integer parameter and returns TRUE if it is cold and FALSE otherwise.
is_warm(): takes the temperature as an integer parameter and returns TRUE if it is warm and FALSE otherwise.
is_hot(): takes the temperature as an integer and returns TRUE if it is hot and FALSE otherwise.

3. In main() write some code, which prints the weather condition as in the example below using the functions you wrote:

   If the content of input.txt is : 26 60 2 your program should print:

   26: Stormy and Cold

PART-III Comment on Flight Risk (1 Point)

- Write a function "**is_safe_to_fly()**" to check if the weather is safe for a flight. This function should take wind velocity and temperature as input arguments and return TRUE if the weather is safe for a flight and FALSE otherwise. It should consider the weather condition as dangerous if it is both windy and cold and safe otherwise.
- In main(), your code should print "Safe for Flight" or "Dangerous for Flight" according to the return value of the function is_safe_to_fly().

Part-IV Plane Runway Assignment (2 Points)

Write a C program which assigns 2 runways to 2 planes among the rules as follow:

- Let user specify which runway to be assigned to the first plane.(take the input from keyboard)
- Assign the available runway to the second plane
- Write a function "**report_runway_assignment()**" to write which runway is assigned to which plane into a text file. This function should take a FILE* (text file should be opened and closed in main()) and other assignment data.

  If user assign 2nd runway for the 1st plane; the content of your output file should be:

  plane 1 will take off from the runway 2
  plane 2 will take off from the runway 1