EE 5103 – Assignment 4

Due: April 13, 2021, 11:59 PM

Submission instructions: usual

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Problem 1. Research and learn about basic file operations in C++. The file “ghcnd-stations.txt” lists info about many weather stations from across the world. Each of these stations is capable of measuring various weather related data such as max temperature for the day, min temperature for the day and amount of snow and precipitation. The file “ghcnd-stations-readme.txt” gives you info on the format of the previous file. The file “20180101.csv” provides actual measurements of various weather related data by those weather stations on Jan 1, 2018.

Design one or more classes to model a weather station as per “ghcnd-stations.txt” and the respective measurements as per “20180101.csv”. CSV stands for comma separated values, which is a well-known way to format a file where each field is separated by a comma. “GHCND_documentation.pdf” and “ghcn-daily-by_year-format-1.rtf” explain the format of the csv file.

Read all the data from the two files into objects of that class. Provide class functions to compute the following info for Jan 1, 2018:

(a) The weather station name where the maximum temperature was recorded.
(b) The weather station name where the minimum temperature was recorded.
(c) The average maximum temperature of the world.
(d) The average minimum temperature of the world.
(e) The weather station name that measured the least precipitation.

Demonstrate your class using a main function.

All of these data were downloaded from https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/. Feel free to read through that website for further details, if needed.

Important: Do not use any container other than vectors and strings for this assignment.