

CENG 114 – Computer Programming

Spring 2019 – 2020

Homework # 4

Due Date: June 14, 2020 until midnight

Write a program to process Covid-19 data. The data is stored in "covid.txt" file. Each line of the file includes Covid related data for a country, including total number of cases, total number of deaths, total number of patients recovered, total number of tests performed and population. Each of these parameters are separated by '/' character.

Read Covid-19 data of each country into an array of structures.

Define a structure to store countryName; totalCases; totalDeaths; totalTecomered; totalTestnum; countryPopulation.

Your program will display the following menu continuously until user chooses 9 to exit.

1. Read data from file
2. Show Country data
3. Insert Country data
4. Remove Country Data
5. Update Country data
6. Sort Covid data based on total cases
7. Sort Covid data based on total deaths
8. Find and display the top 5 countries with largest number of cases per person
9. Write recent data to file "recent.txt"
10. Exit

Choose the task (0-9):

Use functions below:

- a. **readData():** receives name of the file as a parameter and inputs data into an array of structures and returns the array to the calling function
- b. **showData():** receives name of the country as a parameter and array of structures and outputs country data on the screen
- c. **insertData():** receives array of structures, inputs country Covid data and adds it to the end of the array if that country data does not exist in the array; otherwise it give a message("This country data exist in the dataset")to the user
- d. **removeData():** receives an array of structures, inputs name of the country from user and removes that country data from the array and returns the updated array and its size giving proper message to the user for task completion
- e. **updateData():** receives an array of structures, inputs name of the country from user and inputs new Covid data from user for each of the parameters and updates country data accordingly and returns the updated array giving proper message to the user for task completion
- f. **sortCases():** receives an array of structures and sorts and returns this array based on total number of cases giving proper message to the user for task completion
- g. **sortCases():** receives an array of structures and sorts and returns this array based on total number of deaths giving proper message to the user for task completion

NOTES:

Your program should;

- Be done **INDIVIDUALLY!!!**
- Include comments to explain your program.
- Give attention to indentation of your code
- Be easy to follow.
- Work for all possible inputs.
- Give your student id to your source file name. Otherwise, you will loose 10 points from your grade. Ex: 200111032_hw4.cpp