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Homework 4

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Aim of this homework is writing a program that finds the set of M people among a set of N people, whose Body Mass Index BMI values are the farthest from a given threshold.

Development environment of this homework consists of Dev C++ IDE and TDM-GCC 4.9.2 Compiler on Windows 10 Home 64-Bit Operating System, and Geany IDE and GCC Compiler on Ubuntu 16.04 64-Bit Operating System. This homework includes one .c file named 151040005_h4.c. This .c file consist of one function and one structure.

Firstly, main function takes three arguments from command line, “N”, “M” and “threshold”. Since all of them are taken as strings, types of “N” and “M” are changed to integer via atoi function, and type of “threshold” is changed to double via atof function. After that, 1 value is assigned to both “i” and “j” integers and a string named “useless” is allocated from memory. Then, “height_weight.txt” file is opened to read via fopen function and assigned to “fileInput” pointer. After that “output.txt” file is created to write via fopen function and assigned to “fileOutput” pointer. Then, first line of “height_weight.txt” is read via fscanf function and assigned to pointer named “useless”. After that, as long as i is smaller than or equal to “N” value, values from “height_weight.txt” file and assigned to their respective array variables from “people” struct, and BMI value for every person is calculated. Then, “fileInput” is closed via fclose function and “useless” string is freed via free function. After that, difference between threshold and every person’s BMI is calculated. After that, arrays are sorted in descending order according to difference between threshold and each BMI in a “Bubble Sort” algorithm. Then, arrays are written to “output.txt” file , differences array is freed via free function and “fileOutput” is closed via fclose function, and program ends.

In conclusion, this homework aims to reading data from another file and writing data to another file. The most challenging part was skipping the first line of “height_weight.txt”. Other than that, it was rather easy than previous homeworks.

