

**COP 4331 - Fall 2016**  
**Homework 2**  
**Due: November 22, 2016**

- Please submit the homework through webcourses using the following format:  
COP4331\_Fall16\_HW2\_LastName\_FirstName.zip
- Homework assignment is an INDIVIDUAL assignment, not a team effort!!!
- No late submissions will be accepted

The company GSC is hiring new employees for its departments. The company's human resources department has made 2 exams to the candidates and asked their preference for the department/section that they want to work. You are supposed to implement a program to help them select the candidates to be interviewed by each department. Your program should read an input file and write at most 4 people on the output file.

Your program will going to read an input file (candidates.txt) where each entry will be separated by new line. Each entry in the file contains name and surname field, written exam score, programming exam score, the name of the preferred department and the preference order for that department. The scores will be positive integer and the fields will be separated by semicolon character(;).

```
Kurt Wagner;68;79;EmbeddedSystems;2
Michelle Sharadon;54;89;SecurityTesting;1
Kurt Wagner;68;79;CodeQualityAnalysis;3
Jack Cutter;67;81;EmbeddedSystems;3
Kurt Wagner;68;79;CodeQualityAnalysis;2
```

Your program will going to take the name of the department as command line argument. Note that there are no spaces between the words in the name of the department. Your program will pick the candidates who has selected that department and output the names of the candidates according to their calculated total scores in descending order. The total score is calculated as follows:

TotalScore = 0.4 x written exam score + 0.6 x programming exam score

If there is a tie or the difference between candidates is 1 or less then the candidate who has written that department on a higher level on the list (the one who has smaller value for preference) will be selected. We guarantee that there won't be a tie after this calculation. For example for the EmbeddedSystems department

Kurt Wagner's score:  $0.4 \times 68 + 0.6 \times 79 = 74.6$

Jack Cutter's score:  $0.4 \times 67 + 0.6 \times 77 = 75.4$

Their difference is  $75.4 - 74.6 = 0.8 < 1$  In that case Kurt Wagner will be picked since his preference was higher ( $2 < 3$ )

Based on these criteria above, your program will select 4 (or maybe less) top most candidates sorted according to their total score in descending order and write their names and surnames on the file named same with the department name. If department name is specified as CodeQualityAnalysis, then the filename will be CodeQualityAnalysis.txt

Your program always be run by the candidates.txt with a correctly syntaxed file.

Your program will be run with department name as input to command line

Ex:

```
C:\>candidacyChecker.jar CodeQualityAnalysis
```

candidate.txt file will be in the same directory with your program which should be named as candidacyChecker.jar or candidacyChecker.exe if you are using C/C++

after running your program, for that example above, CodeQualityAnalysis.txt should be created with names sorted according to their total score.

Your program shouldn't print out ANYTHING on the standard output.

It will be definitely ignored and submissions printing on standard output will get 0.

Your program should write the names of the person on the output file with one name and surname on each line. We guarantee that there will be at least one person to be written in the output file.

You are free to use the sorting function/s provided in the standard libraries of the programming languages if you need. Any kind of data structure is welcome to be used.

However using any kind of external libraries (both for Java and C/C++) is prohibited. Any jar file in your submission will be deleted by our automatic grader.

There will be bonus points for implementing this assignment using object/s.

Failing to follow the submission guidelines will decrease your grade considerably.

### **SUBMISSION GUIDELINES for Java**

You should put your source files and manifest in a folder with naming convention

**lastname\_firstname\_HW2**

Don't put candidates.txt in your submission.

Don't put any jar file in your submission.

Don't put class files in your submission.

In that folder you should put a batch file called **runner.bat** where the commands to compile and create a jar file are written. The lines that runner.bat should contain are given below. You need to provide a valid manifest file for your project.

That batch file should contain

the command/s to compile your source files

after that

the commands to make executable jar file.

runner.bat content

```
javac CandidacyChecker.java
```

```
jar cvfm CandidacyChecker.jar manifest.txt *.class
```

Once it is clicked it should be compiling your source codes and creating a jar file called **CandidacyChecker.jar**

You can make jar file with your IDE and check the manifest file created by IDE if you want to make your job easier.

You can also check this link to learn how to create jar file from command line

<http://www.skylit.com/javamethods/faqs/createjar.html>

after that you need to **zip** that folder. It will still contain the same naming convention **COP4331\_Fall16\_HW2\_LastName\_FirstName.zip**

### **SUBMISSION GUIDELINES for C/C++**

You should put your source files in a folder with naming convention

**lastname\_firstname\_HW2**

Don't put candidates.txt in your submission.

Don't put any .exe file in your submission.

In that folder you should put a batch file called **runner.bat** where the commands to compile your source files. Your source files should be compiled with gcc.

If you have CodeBlocks installed, probably you have also gcc.

Check your command line by typing gcc.

If you see some error like

*is not recognized as an internal or external command, operable program or batch file.*

then it means either you don't have gcc in your computer or path variable is not set for gcc.

Don't write the exact path of gcc in batch file as our gcc may not be at the same location in our computer with yours. command should look like

```
gcc file1.c file2.c -o CandidacyChecker.exe
```

*runner.bat content*

```
gcc file1.c file2.c -o CandidacyChecker.exe
```

Your program should compile on windows with GCC. On the line above, you may need to change the file names from file1.c or file2.c

Search internet about getting gcc in Windows or setting path variable in Windows.

Check this link if you want to see basic stuff about compiling on gcc

<http://pages.cs.wisc.edu/~beechung/ref/gcc-intro.html>

Once runner.bat is double clicked (executed) it should be compiling your source code/s and creating an executable file called

**CandidacyChecker.exe**

after that you need to **zip** that folder. It will still contain the same naming convention

**COP4331\_Fall16\_HW2\_LastName\_FirstName.zip**