2020-02 C Programming (CSE2035)

**Project 1 : Sorting**

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# **Design goal**

Through this project, we will develop a program that sort file data and practice the dynamic allocation and pointer that we learned in class. The program has the following restrictions.

* Development Environment : Linux (cspro server)
* Use pointer and dynamic allocation to solve a given problem.

The production of this program should follow the basic course of the C programming class and the results should be submitted in accordance with the published format (source files and documents).

# **Requirements**

## **2.1 Preparation**

Define what needs to be implemented in this program and investigate the grammatical knowledge of C language required for production. Learn about the environment and constraints in which production is made, how this affects program development, and what additional features are available.

## **2.2 Analysis**

Design a function to meet the program's requirements, after the definition of the problem to be implemented and the acquisition of basic knowledge has been completed. To modularize the problem, the function, parameters, return values, etc. of the function are accurately identified and considered how each function is implemented.

## **2.3 Development**

Once the analysis is over, it goes into production. Implement each function to perform the function defined in the analysis step. If problems occur that were not found beforehand during production, they can be solved flexibly.

/\* Explain in detail what function you have implemented and how it works \*/

/\* If you don’t explain it, we’ll assume you didn’t implement it \*/

/\* main keyword : file handling, sorting\*/

## **2.4 Test**

Whether the program produced is actually working and running according to the rules presented is the biggest criterion for evaluation. It is also considered whether all other possible exceptions have been handled, whether the problem has been correctly identified at the design stage, and whether the solutions have been reasonable and clear.

## **2.5 Evaluation**

Enter several test cases and evaluate them.

## **2.6 Stability**

It is required to identify various constraints and devise programmatic treatments that can complement situations where errors can be caused (C-language buffer overflow vulnerabilities). For this, students should create separate functions.

After the completion of the actual program, the functions shall be possible according to the project details in the test process, and the modifications and completeness of the parts not properly performed shall be continuously carried out.

## **2.7 Durability**

In carrying out the project, students can accumulate basic knowledge of C language through learning about the pointer, dynamic arrangement, and string processing of C language and learn the principle of the operation of the interpreter in the process of coding themselves. Students can also actively handle the various errors that occur during the project and correct them on themselves.

## **2.8 Standard**

Basically, the project is built in compliance with the ANSI C standard of the gcc Compiler(5.4), and students connect to the Linux server and proceed with the project, so they provide a desktop and ssh interface program that can access that server. Sub-accounts are issued to each student on the Linux server to provide an environment where they can freely use their allocated capacity to proceed with the project.

# **Note**

## **3.1 Environment**

Students connect to a Linux server and proceed with the project, so they provide a desktop and ssh access program to connect to that server. Sub-accounts are issued to each student on the Linux server that they connect to to provide an environment where they can freely proceed with the project based on the capacity they receive.

## **3.2 Focus**

As a programing class that follows the first semester, the focus should be on generating interest from the sense of achievement in the completion of the project, including an additional simple algorithm in the grammatical part of programming, and improving the ability to complete fragmentary knowledge that has been learned during the two semesters in a single project.

## **3.3 Team**

Individuals form a team.

## **3.4 Due-date**

Fun. October 30, 23:59:59

You must be able to complete the program and write a report within the stated project period.