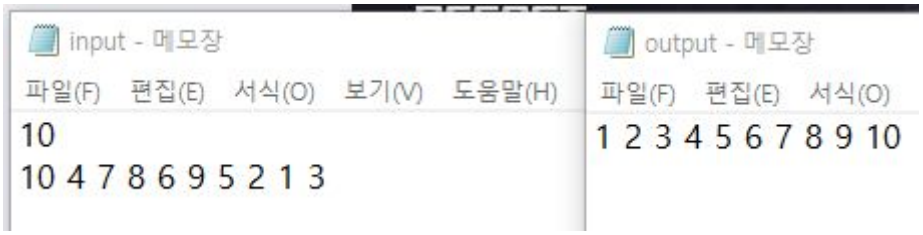
Lab 1: Review on C Programming

Lecture date 7/3/2019

During the data structure class, you will be given some practice problems (and homework) that need C programming. In this first class, you will practice two programming problems by using array, pointer, dynamic allocation, and structure in order to refresh your C programming skills. In addition, you need to know a fundamental file I/O, and how to use command line arguments.

1-1. Selection Sort

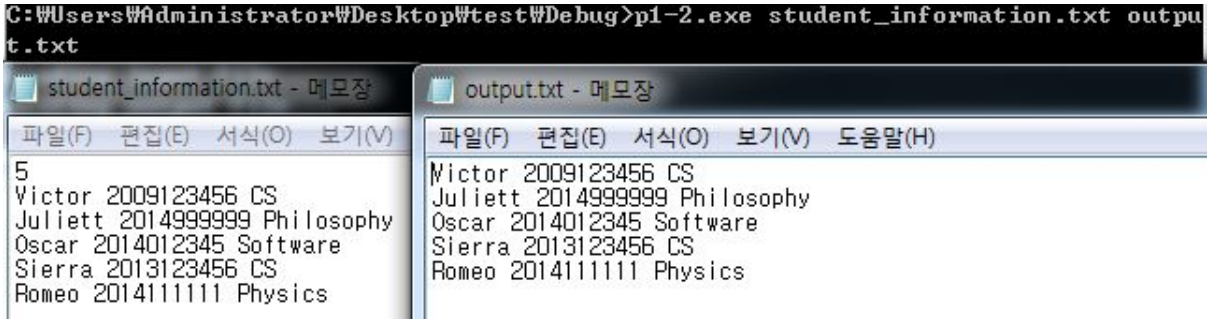
Obtain several numbers from the file input, and perform selection sort.
After selection sort, you have to print the result in txt format.

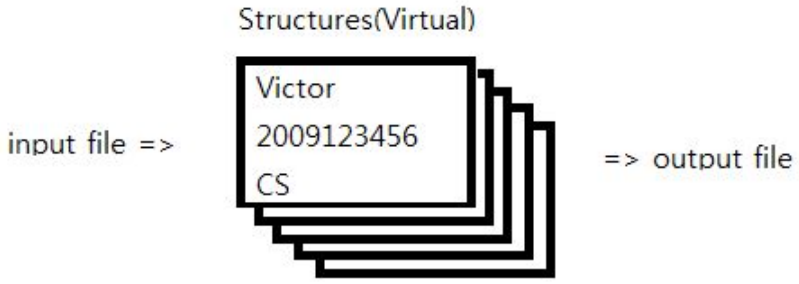


- program name: p1_1.c
- data structure : array of number
- input : size of input
  unsorted number
- output : sorted number
- there are 3 test cases you should pass.

1-2. Structure

Use a command line argument with a designated input file and your own output file. Read the first integer from the input file to figure out the number of students. Create an array of structures, and put the information (name, student ID number, major) in it. Then print the structures in the output file.





- program name: p1_2.c
- data structure : structure

```
typedef struct {
        char *name;
        int studentID;
        char *major;
}studentT;
```

- input : the number of students and their information (see student_information.txt)
- output : all of the student information, one student per row
- conditions :
  - the maximum lengths of student name and major are both 30 characters
  - no blank space is allowed in the name or major