창의적 소프트웨어 프로그래밍 Lab 5

Handed out : Thu, Sep 29, 2022

Due : Thu, Sep 29, 2022, 23:59 (NO SCORE for late submissions!)

Submit your file on LMS.

1. Write a program that works as follows.
    A. Take an integer n from the user and create an array of length n. Assume that n > 0.
    B. Set the value of each element of the array to 0, 1, … , n-1.
    C. Print out the contents of the array.
    D. Note that
        i. You must use new [ ] operator to create the array.
        ii. Do not forget to free the memory by using delete[] operator after using the array.
    E. Input: An integer value
    F. Output: The elements of the array
    G. Files to submit:
        i. A C++ source file

```
$ ./dynamic_array
5⏎
0 1 2 3 4
```

2. Write a program that works as follows.
    A. Take a integer N from the user and create an array of length N.
    B. Take N integers from the user and fill the array with them.
    C. Find and print out the min and max values in the array.

D. Note that

   i. Only <iostream> is allowed to include.

E. Input: An integer value

F. Output: min, max value in the array

G. Files to submit:

   i. A C++ source file

```
$ ./dynamic_min_max
5⏎
1 2 2 -1 -1⏎
min: -1
max: 2
```

3. Write a program that works as follows.

   A. Take two integers from the user and store them to two int variables, n1, n2.

   B. Take two strings from the user and store them to two std::string variables, s1, s2. Assume these strings do not contain spaces.

   C. Implement swap functions for integers and strings in the form of:

      i. void swapInt(int& n1, int& n2)

      ii. void swapString(std::string& s1, std::string& s2)

   D. Swap the value of n1 and n2 and swap the value of s1 and s2 by calling these functions.

   E. Print out the values of these four variables before and after calling the swap functions.

   F. Input: Two integers, two strings

   G. Output: Swapped integers and strings

   H. Files to submit:

      i. A C++ source file

```
$ ./swaping
2 5 abc def⏎
n1: 2, n2: 5, s1: abc, s2: def
n1: 5, n2: 2, s1: def, s2: abc
```

4. Write a program that works as follows.
   A. Take two integers a, b from the user
   B. Compute the of (a+b) and (a-b) using the getSumDiff() in the following code skeleton.
   C. Print out the results).
   D. Note that
      i. The code for printing results must be in main().
   E. Input: Two integers a, b
   F. Output: a+b, a-b
   G. Files to submit:
      i. A C++ source file

```
$ ./get_sum_diff
1 3
sum:4
diff:-2
```

Code skeleton:

```
#include <stdio.h>

void getSumDiff(int a, int b, int& sum, int& diff)
{
        // Implement this function
}

Int main(void)
{
       // Implement this function
}
```