Basic C/C++ Assignment#2

This assignment is handed out Dec 29, 2020. Due is **Jan 3, 2021**.

```
(Assignment Structure)
 week2
 - functions.c
 - combination.c
 - pointer.c
 - length.c
 - reverse.c
 - double.c
```

1. Functions (5PP)

Write a C program that displays the sum, difference, and multiplication of the two numbers by entering two integers. However, you must write and use the functions below and print them out as shown in the example below. (↵ means that the user press the enter key after input.)

A. add function : Take two integers as factors and return the sum of two integers. No result output within the function.
B. sub function : Take two integers as factors and returns the difference of two integers. No result output within the function.
C. mul function : Take two integers as factors and return the multiplication of two integers. No result output within the function.
D. div function : Take two integers as factors and return the value divided by the first factor as the second factor. No result output on the screen within the function. It should return the divided results displayed to a decimal point, not the quotient.
E. mod function : Take two integers as factors and return the remainder divided by the first factor as the second factor. No result output on the screen within the function.

```
(Example)
 8 5↵
 sum : 13
 difference : 3
 multiplication : 40
 division : 1.6
 remainder : 3
```

2. Combination (5PP)

Enter two integers, n and r, and write a C program that outputs the result. (↵ means that the user press the enter key after input.)

A. A combination is a mathematical technique that determines the number of possible arrangements in a collection of items where the order of the selection does not matter.
B. You must use recursive function. If you use formular(nCr), you will get 0pp.

```
(Example)
 5 3↵
 10
```

3. Pointer (5PP)

Enter an integer and save it in the int-type variable i. Then insert the address of the variable i into the int-type pointer variable pi. In addition, after printing the value stored in the variable to which pi is pointing, Square i through pi. Then, the value stored in the variable that pi points to is printed. Write a C program that performs the actions described in the problem. The output should be as shown in the example below. (↵ means that the user press the enter key after input.)

```
(Example)
 3↵
 3
 9
```

4. Length (5PP)

Enter one English word (maximum length less than 100) and write a C program that prints the length of that word. (↵ means that the user press the enter key after input.)

A. Do not include string.h
B. Do not use strlen()

```
(Example)
 Ulsan↵
 5
```

5. Reverse (5PP)

Declares an int-type array with a length of 5 and receives 5 integers from the user and fills each element of the array in order. Replace the values stored in this array in reverse order and write a C program that prints the contents of the changed array. The output should be as shown in the example below. (↵ means that the user press the enter key after input.)

A. Use only pointer and pointer operations. Using indexing operator (subscript operator) [] is not allowed.
B. The contents of the array should be changed in reverse order and print the array. Don't just print array in reverse order.

```
(Example)
 10 2 -3 -1 15⏎
 15 -1 -3 2 10
```

6. Double (5PP)

Declares a double-type array with a length of 5, fills the array with five real numbers, and then declares the pointer variable parr, which points to the first element of this array. After doubling the value of all array elements through parr, create a C program that outputs the total sum of all array elements and values of all array elements increased. (↵ means that the user press the enter key after input.)

A. Use only pointer and pointer operations through parr. Using indexing operator (subscript operator) [] is not allowed except during input.

```
(Example)
 1.1 3.3 5.5 7.7 9.9⏎
 2.2 6.6 11.0 15.4 19.8
 sum : 55
```