세계 속의 GIST 이공계 대학

Computer Programming

Quiz2

Dec. 10, 2021

Problem 1

- After creating a file with the name hello.txt, write Hello FILE IO in the file.

- **Program output**

```
[ohyong@newton Quiz2]$ vi pr1.c
[ohyong@newton Quiz2]$ ls
pr1.c
[ohyong@newton Quiz2]$ gcc pr1.c -o pr1
[ohyong@newton Quiz2]$ ls
pr1  pr1.c
[ohyong@newton Quiz2]$ ./pr1
[ohyong@newton Quiz2]$ ls
hello.txt  pr1  pr1.c
[ohyong@newton Quiz2]$ vi hello.txt
```

```
  1 Hello FILE IO
~
~
~
~
```

Problem 2

- Write a function swap_array that receives two integer arrays of the same size as parameters and swaps the values of the elements of the two arrays. Write a program to swap the values of two arrays of size 10 using the swap_array function. Here are the function prototypes:
  - void print_array(int arr[ ], int size);
  - void swap_array(int *x, int *y, int size);

Problem 2

- **Program output**

```
[ohyong@newton Quiz2]$ vi pr2.c
[ohyong@newton Quiz2]$ gcc pr2.c -o pr2
[ohyong@newton Quiz2]$ ./pr2
a - Enter 10 integers: 1 2 3 4 5 6 7 8 9 10
b - Enter 10 integers: 0 2 4 6 8 1 3 5 7 9


<< before calling swap_array >>
a:  1  2  3  4  5  6  7  8  9 10
b:  0  2  4  6  8  1  3  5  7  9

<< after calling swap_array >>
a:  0  2  4  6  8  1  3  5  7  9
b:  1  2  3  4  5  6  7  8  9 10
```

Problem 3

- Write a function find_all_in_array that receives an integer array and key value as parameters, finds all key values in the array, stores the index in the array, and returns it. This function returns the number of items found. For example, if 3 12s are found in the array, 3 is returned, and the index of the found item is stored in the index array as a parameter. If the item cannot be found, 0 is returned.
- The function prototype is:
  - int find_all_in_array(int arr[ ], int size, int key, int found[ ]);
- The variable declaration is as follows.

```
#define SIZE 10
int main(void)
{
   int a[SIZE] = { 0 };
   int value = 0;
   int index[SIZE];
   int cnt = 0;
   int i;
   …
```

Problem 3

- **Program output**

```
[ohyong@newton Quiz2]$ vi pr3.c
[ohyong@newton Quiz2]$ gcc pr3.c -o pr3
[ohyong@newton Quiz2]$ ./pr3
Enter 10 integers: 12 45 62 12 99 83 23 12 72 37
12 45 62 12 99 83 23 12 72 37
The value you want to retrieve: 12
Number of items found : 3
Index of found item: 0 3 7
```

```
[ohyong@newton Quiz2]$ ./pr3
Enter 10 integers: 12 45 62 12 99 83 23 12 72 37
12 45 62 12 99 83 23 12 72 37
The value you want to retrieve: 5
5 not found..
```

Submission

- **Submit to Newton server**

At the end of the Quiz2, submit your C source file by typing

```
~gs1401/bin/submit Quiz2_2 pr1.c pr2.c pr3.c        // due : 16pm
```

You may check that you have submitted your source code correctly by typing

```
~gs1401/bin/submit -check
```