

CS 2123 Data Structures Recitation - Recitation Exercise 03

One-D Arrays and functions: Complete the following program. You will mainly implement `SELECTION_SORT (...)`, `MERGE (...)`, and `PRINT_ARRAY (...)` functions!

```
main()
{
    /* 1.  Declare three integer arrays as follows */

    int  a[50], b[70], c[120];

    /* 2. implement a function set_array_rand(int x[], int n)
       and call it to generate the values in array a and b
       randomly. */

    set_array_rand(a, 50);
    set_array_rand(b, 70);

    /* 3. using the SELECTION_SORT(double x[], int n) function
       (see ch02.ppt), sort the elements in a and b arrays.  */

    SELECTION_SORT(a, 50);
    SELECTION_SORT(b, 70);

    /* 4. implement a MERGE function and call it as follows to
       merge the values in arrays a and b into array c such that
       the values in c will be sorted after merging */

    MERGE(a, 50, b, 70, c, 120);

    /* 5. print the values in array c */
    PRINT_ARRAY("Array c", c, 120);
}

void set_array_rand(int x[], int n)
{
    /* 1.  randomly generate elements of x array, e.g, */
    for(int i=0; i< n; i++)
        x[i] = rand_int(30, 100);
}

int rand_int(int a,int b)
{
    return rand()%(b-a+1) + a;
}
```

```

/* YOUR CODE */

void SELECTION_SORT(int x[], int n)
{
    int k,j,m;
    double temp;

}

void MERGE(int a[], int na, int b[], int nb, int c[], int nc)
{
    /* merge the values in a and b into c while keeping the values
       sorted. For example, suppose we have the following two
       Arrays a = { 3, 7, 9, 12} and b = {4, 5, 10}
       When we merge these two arrays, we will get
       c = {3, 4, 5, 7, 9, 10, 12}
    */

}

PRINT_ARRAY(char *name, int x[], int nx)
{
    /* YOUR CODE */

}

/* Don't forget to include comments about the problem, yourself and
   each major step in your program! */

```

What to return: !!!! NO LATE RECITATION ASSIGNMENT WILL BE ACCEPTED !!!

1. Create a directory called LASTNAME_Recitation03 and do all your work under that directory
2. First implement your program which can be named as rec03.c
3. Then compile and run it. Copy/paste the result in an output file, say out03.txt.
3. Finally zip your LASTNAME_Recitation03 directory as a single file LASTNAME_Recitation03.zip and Go to BB Learn to submit it as **attachment** before the deadline.

You must submit your work using Blackboard Learn and respect the following rules:

- 1) All assignments must be submitted as either a zip or tar archive file unless it is a single pdf file.
 - 2) Assignments must include all source code.
 - 3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
 - 4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.
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