May 20, 2022

CSE108 – Computer Programming Laboratory

Spring 2022, May 20

Lab #12

Hand-in Policy: Via Teams. No late submissions will be accepted. File name that you submit should be as following: *StudentNo.c*
Collaboration Policy: No collaboration is permitted.
Grading: This lab will be graded on the scale of 100.
PS: Do not forget to create the makefile and write comments.

In this lab, you are going to do dynamic array allocation without linked list. You will create a struct called dynamic_array and you will read and write the data into this struct from the txt file. This structure that you create as dynamic_array type has to expand dynamically. It is unknown how many elements are in the file. You have to increase the dynamic_array size for each incoming element. You are only allowed to use calloc(). There are instructions below and follow these instructions to execute your program.

1. **typedef struct{ int * array; int currentsize;} dynamic_array;**
   This structure is an int array and should store the size of this array.

2. **dynamic_array read_from_file(char *filename, dynamic_array arr);**
   Write a function that takes the filename and writes the values in that file into dynamic_array. It should return dynamic_array. (If you take dynamic_array as a parameter using a pointer, it doesn't need to return a value.)

3. **dynamic_array removeData(dynamic_array arr, int number);**
   Write a function that removes the value given as a parameter from dynamic_array and reduces the size of dynamic_array by 1. If there is more than one searched number in the array, you should delete the first encountered value. It should return dynamic_array. (If you take dynamic_array as a parameter using a pointer, it doesn't need to return a value.)

4. **print_array(dynamic_array arr);**
   Write a function that prints the dynamic_array given as a parameter.

5. **int *resize_array(int *array, int currentsize);**
   Write a function that takes the integer array and its size given as a parameter, then resizes that array. This function should increase the array size by 1 and not lose the previous array values. You are only allowed to use calloc() .

Your program will be gave output like this: