

# 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.

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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 has an int array and 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 should give an output like this:

```
Data in source file
*****
12
15
6
21
35
12
5
2
2
```

```
Enter the number you want to be deleted: 35
Array after deletion
*****
12
15
6
21
12
5
2
2
```