

CSE 114 - Fundamentals of Computer Programming

Assignment 6

Due: 07.05.2021, 11:59 PM

In this assignment, you are going to reverse each occurrence of an array in a given 2D matrix.

This process will be applied to a number of integers, which should be stored in a two-dimensional array.

First, fill an integer table by calling **fill_table** function. This function should randomly fill the array with the integers between 1 and 9. The last element of the array should be equal to the 0.

Then, in the main program you should define an array which must exist in the table at least 1. After each occurrence of the array is found and reversed in the table, the result should be printed by calling the **print_table** function.

All accesses **must be** done **using pointers**. This means that you cannot use brackets ([]) anywhere in the code (except when defining the matrix in main function and defining two-dimensional array parameters). You can assume that 2D matrix size is equal to 10 to 10.

An example:

```
before
5 8 6 3 5 9 7 9 9 2
1 9 7 9 1 3 8 8 8 2
7 2 1 3 5 7 7 1 9 8
8 3 6 2 9 1 2 2 1 4
2 3 2 1 3 3 3 5 7 5
9 3 8 2 2 6 4 9 4 5
8 8 1 9 9 2 1 1 7 8
5 8 8 8 7 5 6 1 6 3
7 8 1 5 3 6 7 9 1 7
4 9 6 8 7 9 8 7 3 0

find the below array in the table and reverse it
1 9 7 9 1 3 8

after
5 8 6 3 5 9 7 9 9 2
8 3 1 9 7 9 1 8 8 2
7 2 1 3 5 7 7 1 9 8
8 3 6 2 9 1 2 2 1 4
2 3 2 1 3 3 3 5 7 5
9 3 8 2 2 6 4 9 4 5
8 8 1 9 9 2 1 1 7 8
5 8 8 8 7 5 6 1 6 3
7 8 1 5 3 6 7 9 1 7
4 9 6 8 7 9 8 7 3 0
```

Functions to implement:

Implementing different functions other than the provided prototypes is **forbidden**.

void fill_table(int table[10][10]){ }

- This function is responsible for filling the table. The last element of the must be equal to 0. **You can use the example codes that we have shared in the lab session.**

void print_table(int table[10][10]){ }

- This function is responsible for printing all integers in the table. **You can use the example codes that we have shared in the lab session.**

int find_and_replace_array(int * array1, int * array2, int len1, int len2){ }

- This function finds all occurrences of array2 in the array1 and calls the reverse function with appropriate parameters for them to be reversed. Note that the return type is "int" instead of "void". Use this to your advantage.

void reverse(int * array1, int position, int * array2, int len2){ }

- This function is responsible for the reversing process itself. Here, it is guaranteed that there is an occurrence of the array2 in the array1 at **position** index.

void find_and_replace_table(int table[10][10], int * array, int len1, int len2){ }

- This function reverses all occurrences of the array in all integers available in the table by calling appropriate functions.

WARNING:

- **DO YOUR OWN WORK.**
- Submit only the source file in the format **name_surname.c**
- Be sure the extension of your file is **.c**. If you do not know how to check the extension please look at the file ("How to run your code?") on the COADSYS.
- Do not use any library other than stdio (Exception: You can use stdlib for rand() function only).