

## Lab 2

**Deadline: Due at 12:15PM on Jan 31, 2024**

Implement a function **transposeArray** in the provided **quiz1.c** skeleton file that transposes a 2D array of integers.

The signature of the function is:

```
void transposeArray(int arr[10][10], int rows, int cols);
```

### Requirements

- The input array size is limited to 10x10.
- You may receive an input smaller than 10x10, and it will always fit within a 10x10 array.
- The input array will be a square containing only digits 1-9.
- The main function reads the input from a file specified in the command line arguments and prints the transposed array to the output file.

### Restrictions

- You are not allowed to write any additional **printf** statement anywhere in the file.
- You are not allowed to modify any part of the code except the **transposeArray** function and the **a\_num** variable.
- If you have any doubts, ask me.

### Example

Here is a 5x5 example of the input file, 5 is dimension of array and E at the end specifies the end of file:

```
5
11111
11111
22222
22222
33333
E
```

Here is the output of running the input file through your program.

```
11223
11223
11223
11223
11223
```

## How to Compile and Run

- The Makefile for quiz1 is provided.
- The Makefile is supposed to work with quiz1.c, input.txt, output.txt and ref.txt files so, make sure to modify the skeleton file and save the text files accordingly.
- Run the following command in vs code Terminal.

`make`

It should compile the code without any errors.

`make convert_input`

It should convert the input.txt file to unix encoding.

`make run`

It should run the compiled code.

`make convert_output`

It should convert the output.txt file to unix encoding.

- Run the following command to delete the out file.  
`make clean`
- Run the following command to check the output with provided reference file.  
`make check`
- You are not supposed to make any changes in the Makefile.

## Grading

The quiz must done in Unix environment. There will be no corner case inputs. Any grading failure due to not following instructions will result in 0.

- (3 point) Three test cases.

## Submission

- You must submit only one .c file named: quiz1.c (case sensitive) to learning hub.
- Make sure to update your A number. Look at the top of quiz1.c and write your A number including leading 0's.