EE 312
2017 Spring
Quiz 3 Valgrind

Before starting, please read the slides as a reference to prepare yourself with the basic knowledge of the c memory model and Valgrind usage. (If you already have mastered those contents, feel free to skip them.) Ask your TA if you have any questions.

You must turn in something during recitation. We do give you extra time to complete the work and turn it in later also, but turning in nothing during recitation will earn you a 0. There are no exceptions to this.

In this exercise, our program(quiz.c) will ask you to input two numbers, start and end. If end>start, it will create an array [start...end] (start and end are included in this array). You have to fix the bugs in the program and use Valgrind to verify there is no memory leakage in your fixed code.

Step 0:

SSH to ECE LRC, and copy all the required files to the remote machine.

Step 1:

Compile and execute the source code we provided (quiz.c), to see if you can get the correct result.

```
$ make
$ ./quiz
```

Thinking:

1. What if end <= start?
2. In what case we should return NULL?
3. Why we should use malloc, can we declare an array variable on stack and return it?

Step 2:

Debug your program, make sure it can output correct result firstly.

Please read the comments carefully, and double check if your program can satisfy all the requirements.

Step 3:

Using Valgrind to profile memory usage of your program, make sure there is no memory leakage.

Hint: The memory allocated at heap is always controlled by the programmer and won't be recycled by the operating system at function exit.

```
$ valgrind ./quiz
```

Copy the output from Valgrind to Valgrind_output.txt. The report should clearly indicate there is no memory leakage.

Step 4:

You only need to submit your fixed quiz.c file and Valgrind_output.txt (no need to rename them, but write your name and UT EID in the comment area).