Quiz 3

Deadline: Due at 9:15AM on Feb 20, 2024

Implement a function **reverseIntBits** in **quiz3.c** file (skeleton not provided) that transposes an array of integers.

The signature of the function is:

```
void reverseIntBits(unsigned int arr, int start, int end);
```

This function takes an array of 1 unsigned integer and 2 integers. We are reversing the bit positions from start to end inclusive.

Requirements

- You must output the final unsigned integer to an output file.
- There is no corner case testing.
- The input and output files names must be specified using command line arguments e.g ./a.out input.txt output.txt

Restrictions

- You are not allowed to write any additional **printf** statement anywhere.
- If you have any doubts, ask your instructor.

Example

Here is one example where the input file is:

```
1234
2
29
E
```

This means to reverse (not flip) bit positions from 2 to 29 in an unsigned integer 1234. Assume that the bit position is starting at 0. MSB is going to be at bit position 0. The binary representation of 1234 in a 32 bit integer type is:

(MSB) 00000000000000000000010011010010 (LSB)

I highlighted the region of interest where we have to reverse bits. The reversed number should be:

00001011001000000000000000000010

This number in decimal is 186646530, so your output file must be:

```
186646530
```

How to Compile and Run

- The Makefile is provided.
- The Makefile is supposed to work with quiz3.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.
- Run the following command to delete the out file.
  `make clean`
- Run the following command to convert the generated output to unix encoding.
  `make convert_output`
  It should convert the output.txt file to unix encoding.
- Run the following command to check your output with provided ref file.
  `make check`
- You are not supposed to make any changes in the Makefile.
- Make sure to install dos2unix utility using the following command:
  `sudo apt-get install dos2unix`
  For Mac
  `brew install dos2unix`

Grading

The quiz must be 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: quiz3.c (case sensitive) to learning hub.
- Write your Name and A number including leading 0's at the top of quiz3.c.