

CS 344 Homework 3

Due: Saturday, 2/16/2019 by 11:59 PM

Please read the entire document before starting to code. Get in touch with me if you are unclear about anything.

Before doing this exercise you need to know about stdio file manipulation functions as well as bit-wise operators.

CPUs load certain data from memory into their registers in either little-endian format or big-endian format based on the architecture of the CPU.

First, do some research into the two formats so that you understand what they are.

Second, write a program that will read a binary file made up of 4-byte integers that were saved in little-endian format, convert those integers into big-endian format, and write the results out to another file as well as to the console as hexadecimal values.

You will have to read in integers but write out bytes or the CPU will reverse them if you write out integers.

The input file is named **littleEndian.bin** and the output file should be named **bigEndian.bin**.

You do not know how big the file is but you are guaranteed that the size is a multiple of 4.

You will need to generate room for the bytes dynamically since you are not to assume that you know the size of the file even if you know what the file is and I don't want you to create an array of a large size just to handle any file you think that you may come across.

You are allowed to use stdio functions to help determine the size of the file if you need to.

Create **functions** that will do the following and call those functions from the main:

- Create memory (and maybe reallocate – depending on your logic) for each integer in the file and read the integers from the file into the memory created.

- Convert each integer into its big-endian equivalent.

- Write the converted data to the output file one BYTE at a time.

- Write the converted data to the console. Write the data to the console so that there are at most 16 bytes per row in hexadecimal format.

You are encouraged to create any other helper functions that will make your logic cleaner.

Please put your name, the due date, and a small description of the program at the top of the program.

Also, document your code thoroughly by explaining what each logical block of code is going to do and what each obscure statement does.

When you are done, zip the program up into a **compressed file named** as follows:

`yourUserName_hwk3_mmddyyyy`

mmddyyyy refers to the due date. (If you are using your own computer, use your ERAU username.)

Example: `bethelmd_hwk3_02162019`

Upload the zipped file onto Canvas.