CIS241 Lab 4: Play with Bits

Converting Chars to Numbers

In C, bitwise operators are very useful in encoding pieces of information into another representation. They can also be used to retrieve certain number of bits from one data type to extract expected information. For example, the given program (**coder.c**) can encode two chars into one short integer and save results into a file. It can also decode a short integer into two chars and save results in a file.

Use the command below to download the source code **coder.c** from the instructor's web page to your current directory.

> wget http://cis.gvsu.edu/~wangx/teaching/cis241/coder.c
> wget http://cis.gvsu.edu/~wangx/teaching/cis241/d

Compile the program and run it as follows:

> **gcc coder.c**
>
> **./a.out e d c**
>
> **./a.out d c dd**

The contents of d and dd should be identical. The contents of c should be all integer numbers.

Please study the code and understand it.

Please modify the code so that:

- It encodes 4 chars (one byte each) from an input file into one integer (4 bytes each), and saves the results into another file.
- It decodes one integer from an input file into 4 chars, and saves the results into another file.

Show your program to your instructor when you have done.