

CSE/IT 221: Homework 0

Make sure your code is x86_64 Linux binary compatible. Comment your code with doxygen style comments and follow the Linux Kernel Coding Style (available on Canvas). Use a `Makefile` to compile.

Follow the requirements of the sample output exactly. We use `diff` to compare your output to the expected output. If your output is different than the expected output it is wrong, even if the program meets the other requirements.

Problems

1. Write a program that converts hexadecimal to decimal. Name your program `hex2dec.c`. Use the C function `strtol`. Use `errno` and `perror()` to process errors (see `man strtol`). Input should be able to handle hexadecimal numbers with or without a leading `0x`. Use command line arguments and make sure you provide a usage statement.

Sample Output

```
$ ./hex2dec
usage: hex2dec hexnum1 [hexnum2] ....
$ ./hex2dec F FF 0xFF AA
15
255
255
170
$ ./hex2dec FFFFFFFFFFFFFFFF
error converting FFFFFFFFFFFFFFFF to a decimal value: Numerical result
↪ out of range
$ ./hex2dec AABCCDD AABCCDDEEFAABB FF
2864434397
error converting AABCCDDEEFAABB to a decimal value: Numerical result
↪ out of range
255
$ ./hex2dec -A -ABC
-10
-2748
$ ./hex2dec -FFFFFFFFFFFFFFF
error converting -FFFFFFFFFFFFFFF to a decimal value: Numerical
↪ result out of range
```

2. Write a program that converts decimal to hexadecimal. Name your program `dec2hex.c`. Use the C function `strtol`. Use `errno` and `perror()` to process errors (see `man strtol`). Use command line arguments and make sure you provide a usage statement.

Sample Output

```
$ ./dec2hex
usage: dec2hex num1 [num2] ....
$ ./dec2hex 1 -1 10 100 -1000
0x1
0xFFFFFFFFFFFFFFFF
0xA
0x64
0xFFFFFFFFFFFFFFC18
$ ./dec2hex -11111111111111111111 99999999999999999999999999999999 9999 99
error converting -11111111111111111111 to a hexadecimal value:
↪ Numerical result out of range
error converting 99999999999999999999999999999999 to a hexadecimal value:
↪ Numerical result out of range
0x270F
0x63
```

Submission

Tar your source code files and your `Makefile` into a file named:

`cse221_firstname_lastname_hw0.tar.gz`

Upload the file to Canvas before the due date.