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CSC415 Operating Systems

Assignment 1 – Command Line Arguments

Description:

The purpose of this program is to accept any number of command line arguments and then list them out one by one to the terminal with their respective order of input. Argument 0 will always be the name of the program. I also added some color in the terminal using ANSI escape sequences.

Approach / What I Did:

I had to first understand where the command line arguments are stored once the program is running. Thankfully, C programs store the arguments *and the number of arguments* in two very easily accessible variables argc and argv[]. Argc contains the number of arguments and argv has char sequences (or strings). After that a simple loop is all that's needed to print them out–along with figuring out printf formatting, which was pretty simple. I then decided I wanted to try messing around with color in the terminal and so I checked out some ANSI escape sequences that allowed me to switch the text color with each printf statement!

Issues and Resolutions:

I had a small issue where arguments passed 10 would ruin the formatting in the terminal. I fixed this by using printf's built in padding for variables and set it to pad a 0 in front of single digit numbers

Screenshot of compilation:

```
student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$ make
gcc -c -o Rennacker_Nathan_HW1_main.o Rennacker_Nathan_HW1_main.c -g -I.
gcc -o Rennacker_Nathan_HW1_main Rennacker_Nathan_HW1_main.o -g -I.
student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$
```

Screenshots of Execution:

make run with no specified runoptions (arguments "hello world" are pre-included in the makefile)

```
student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$ make run
gcc -c -o Rennacker_Nathan_HW1_main.o Rennacker_Nathan_HW1_main.c -g -I.
gcc -o Rennacker_Nathan_HW1_main Rennacker_Nathan_HW1_main.o -g -I.
./Rennacker_Nathan_HW1_main Hello World

 There were 3 arguments found on the command line:

    Argument 00:    ./Rennacker_Nathan_HW1_main
    Argument 01:    Hello
    Argument 02:    World

 Thank you for using Argument Counter™
         Have a nice day!

student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$
```

make run with my own custom arguments

```
student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$ make run RUNO
PTIONS="So yeah. The downfall of the universe was brought about by..."
./Rennacker_Nathan_HW1_main So yeah. The downfall of the universe was brought about by...

 There were 12 arguments found on the command line:

    Argument 00:    ./Rennacker_Nathan_HW1_main
    Argument 01:    So
    Argument 02:    yeah.
    Argument 03:    The
    Argument 04:    downfall
    Argument 05:    of
    Argument 06:    the
    Argument 07:    universe
    Argument 08:    was
    Argument 09:    brought
    Argument 10:    about
    Argument 11:    by...

 Thank you for using Argument Counter™
         Have a nice day!

student@student-VirtualBox:~/Desktop/Assignments/csc415-assignment-1-command-line-nlrennacker$
```