Debugging Code

LAB # 4

SECTION #

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Problem

The purpose of this lab was to debug seven different source codes. Most of these consisted of syntax errors, logical errors, and even some functions were missing throughout some of the code. Each program in very direct on what it wants you to put down, so any slight mistake leads to the whole code not working.

Analysis

For most of the problems, it states that we must learn about logical, syntax, and compiler errors. All of this lead towards a simple notation of to be careful of when you write your code.

Design

In the first problem, there were many errors that had to be worked out. This included missing semicolons, end quotes, mistyped words, and no beginning/ending brackets. This was a general concept for the next few problems which were done a general order of

1. Check for any semicolons
2. Check for syntax errors
3. Then do a more thorough check of any logical errors
4. Test the program

Most of the equations needed for each of these programs were already accessible within the program itself.

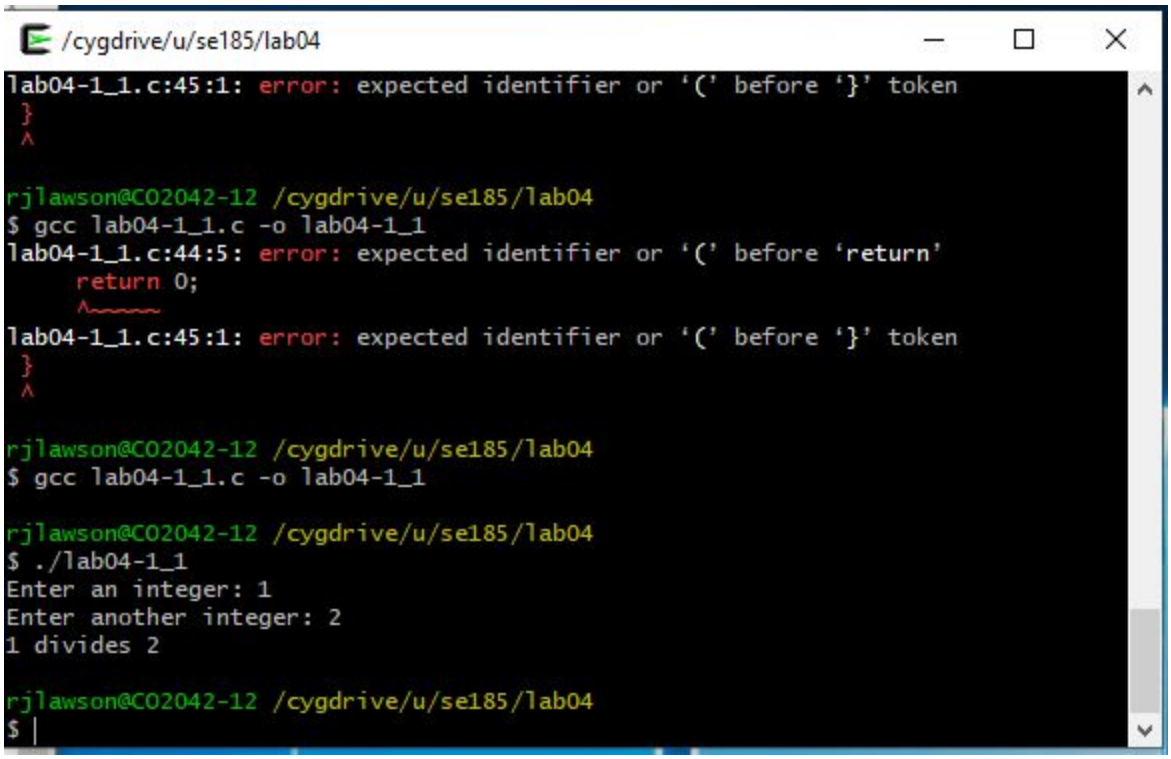
Testing

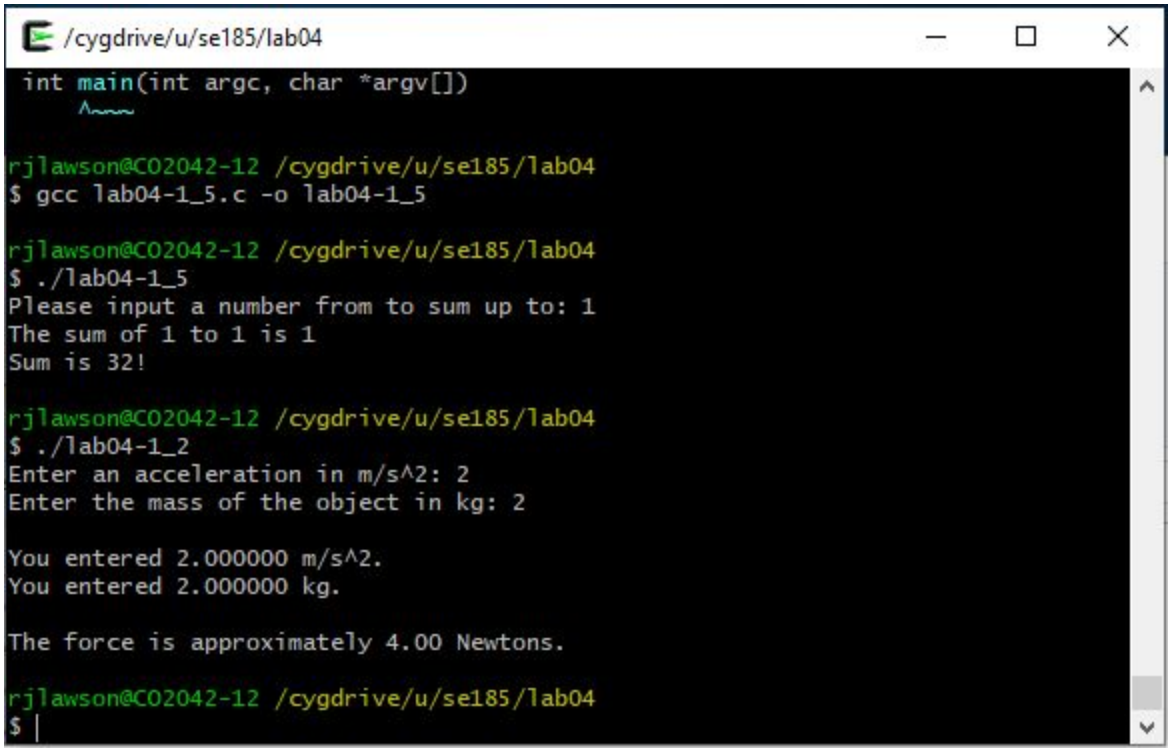
Lots of the programs consisted of roughly the same concept of changing different parts of code to have it compile correctly. However, when it came to putting it all together (lab04-3), it was especially difficult due to lots of hidden things within the program that you might overlook. An especially hard position within this particular program was the "=". I couldn't figure this out until I used "-Wall". This took me an extremely long amount of time trying to figure out what I had done wrong in that function. In order to verify that it was correct I just entered different numbers between 1 and 100 and I knew that it worked when it finally was giving me "the number was too high" or "the number was too low". In the last problem, however, I ran into (more than likely) a remote issue. I was testing the code on my personal computer and it would go past a certain point. I eventually just thought that maybe I set up the compiler wrong somehow. To my surprise, when I tried a different compiler it worked perfectly.

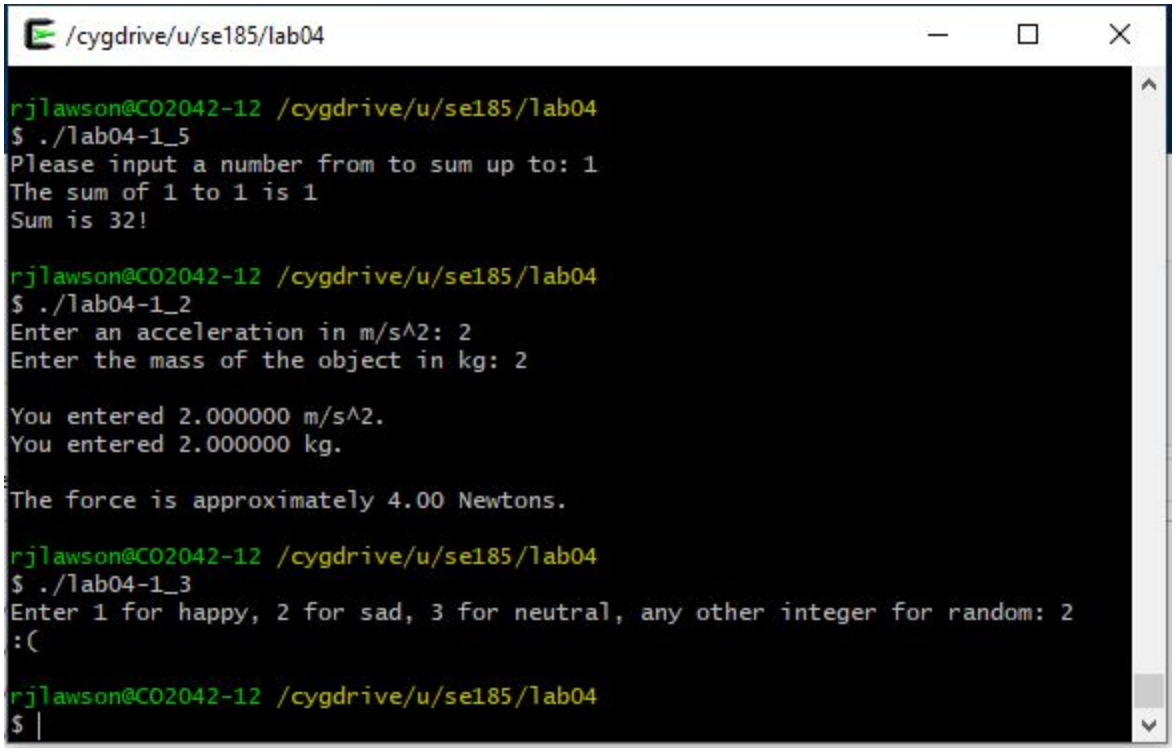
Comments

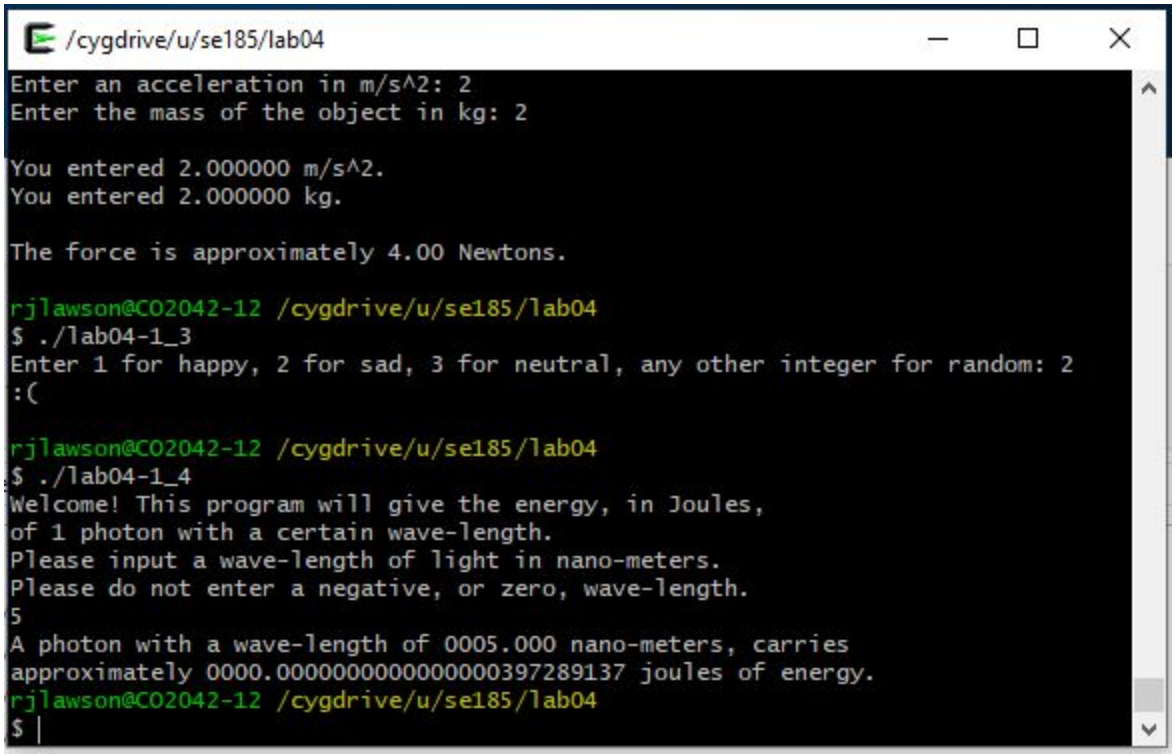
In this lab, I learned that double checking everything is a requirement. Each error that happens is relatively easy to fix once you narrow it down, but if you hadn't made the mistake of messing that part of the code in the first place you wouldn't have to go back and fix it.

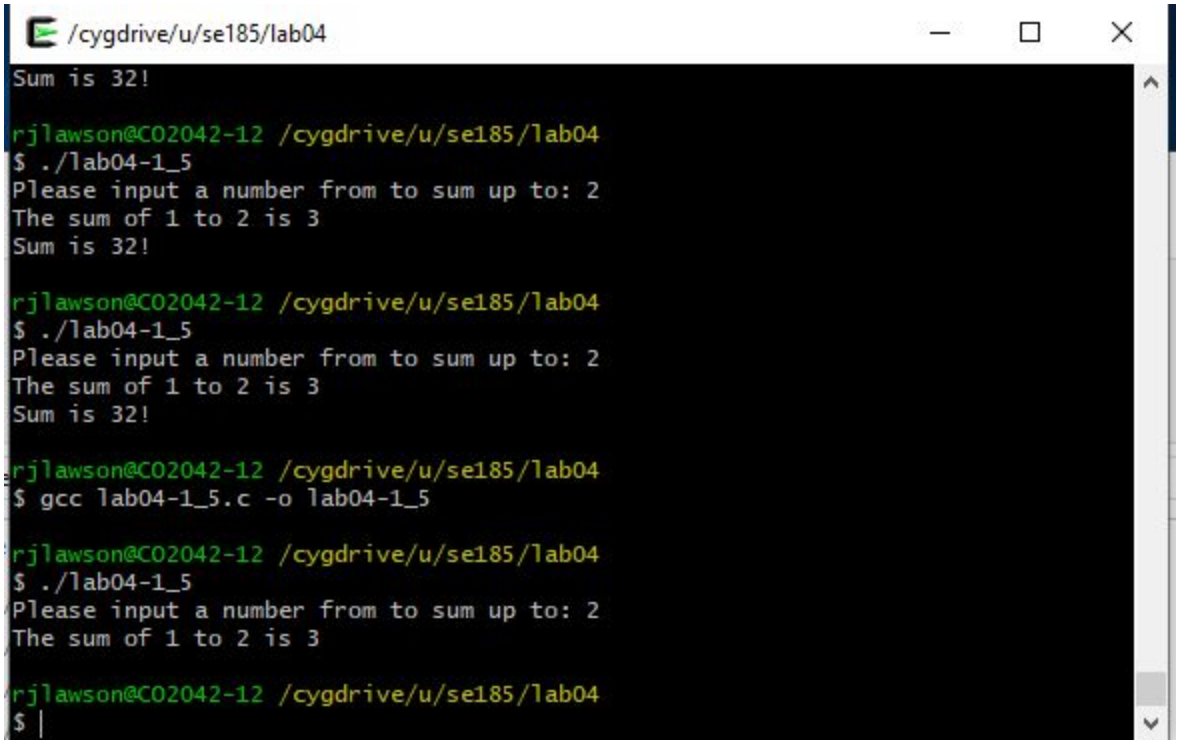
Screen Shots

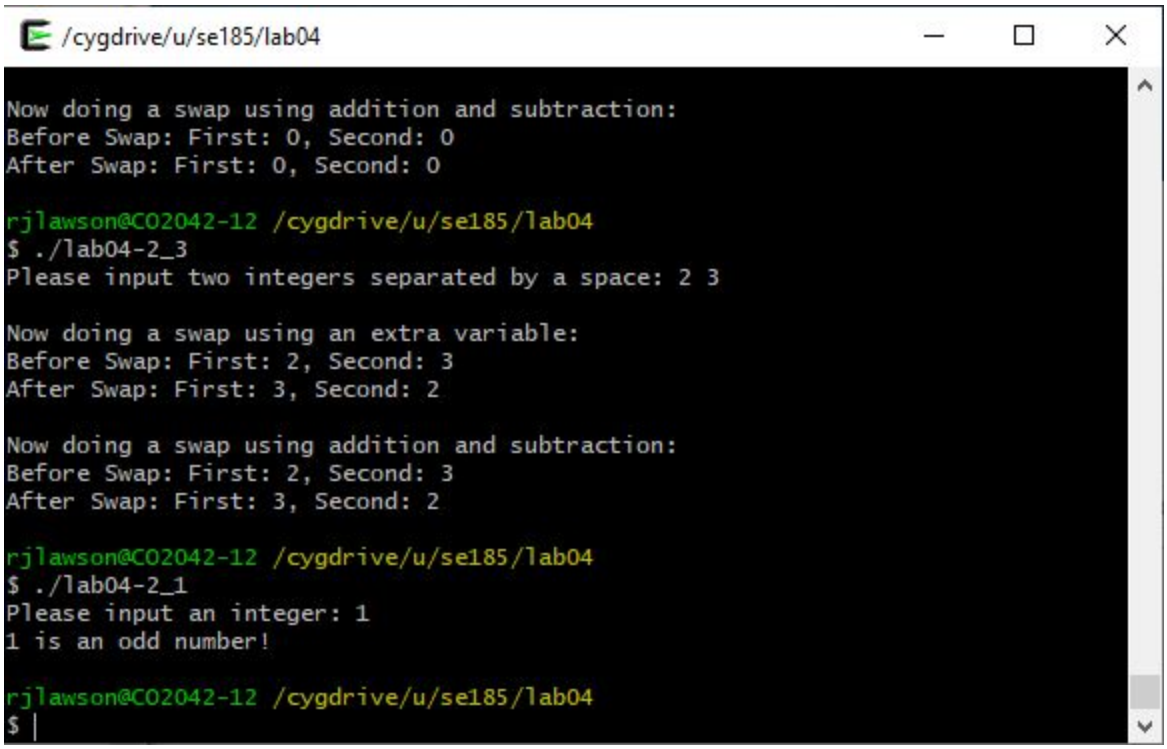


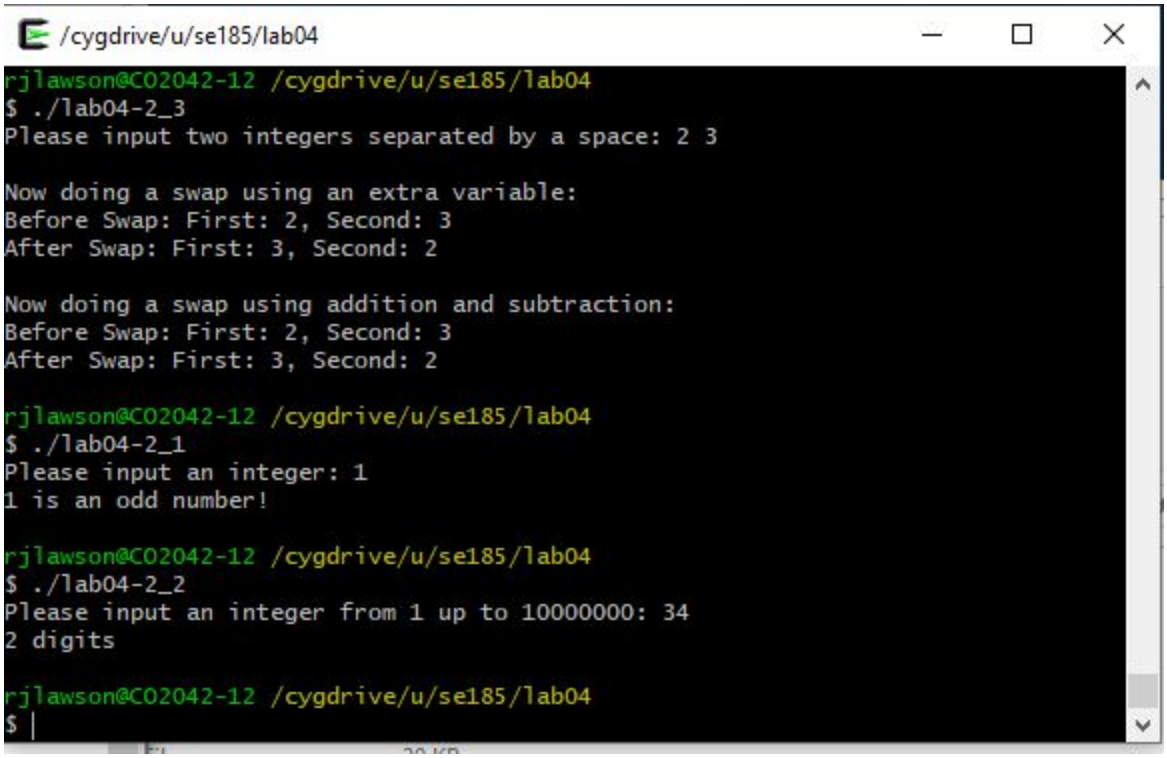


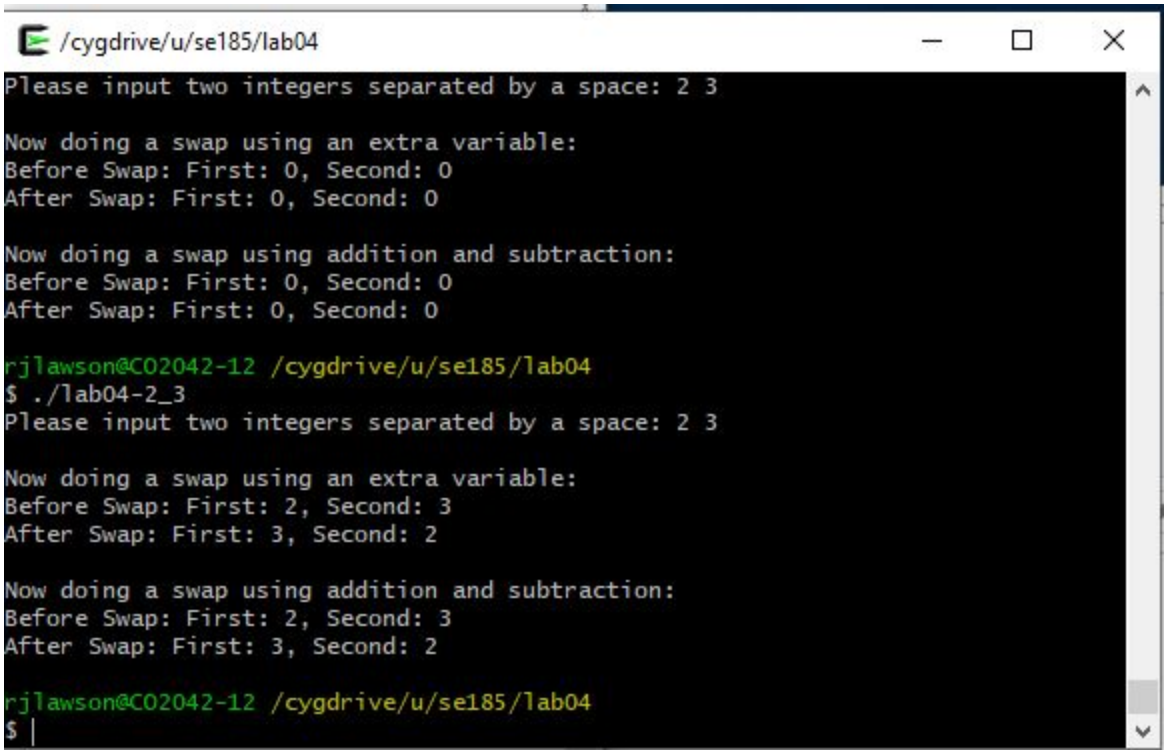

/cygdrive/u/se185/lab04
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_5
Please input a number from to sum up to: 1
The sum of 1 to 1 is 1
Sum is 32!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_2
Enter an acceleration in m/s^2: 2
Enter the mass of the object in kg: 2
You entered 2.000000 m/s^2.
You entered 2.000000 kg.
The force is approximately 4.00 Newtons.
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_3
Enter 1 for happy, 2 for sad, 3 for neutral, any other integer for random: 2
:(
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$

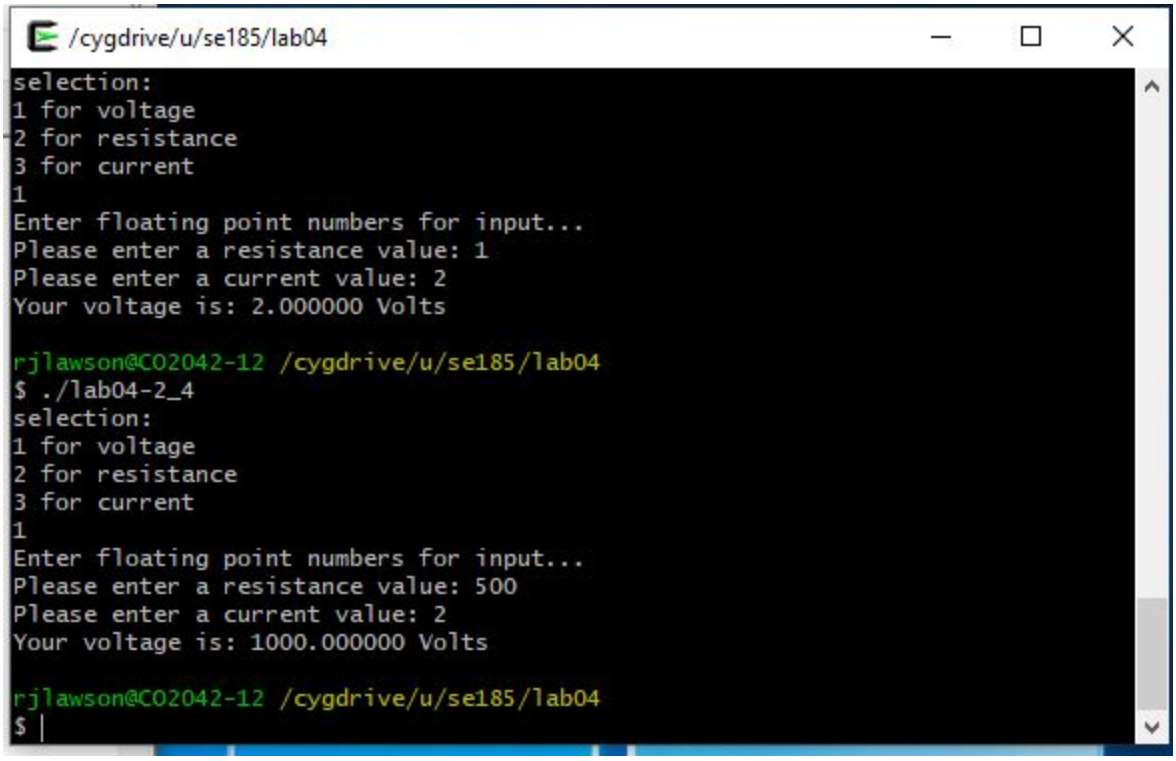

/cygdrive/u/se185/lab04
Enter an acceleration in m/s^2: 2
Enter the mass of the object in kg: 2
You entered 2.000000 m/s^2.
You entered 2.000000 kg.
The force is approximately 4.00 Newtons.
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_3
Enter 1 for happy, 2 for sad, 3 for neutral, any other integer for random: 2
:(
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_4
Welcome! This program will give the energy, in Joules,
of 1 photon with a certain wave-length.
Please input a wave-length of light in nano-meters.
Please do not enter a negative, or zero, wave-length.
5
A photon with a wave-length of 0005.000 nano-meters, carries
approximately 0000.000000000000000397289137 joules of energy.
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$

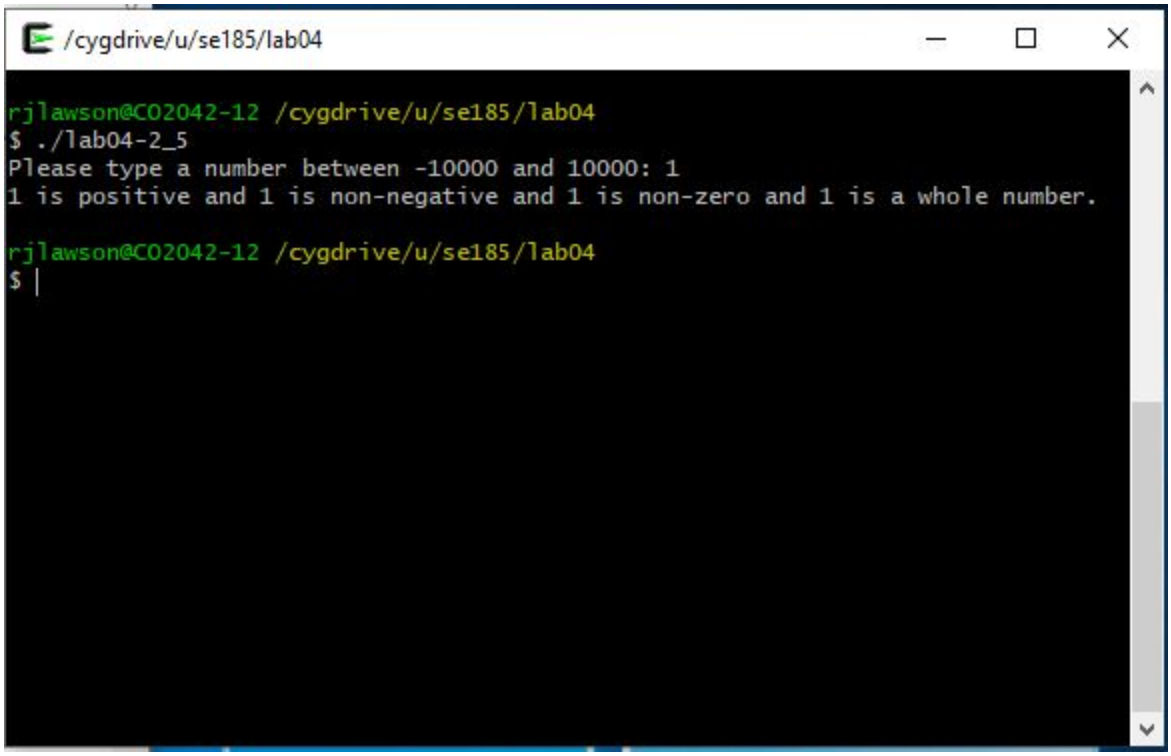

/cygdrive/u/se185/lab04
Sum is 32!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_5
Please input a number from to sum up to: 2
The sum of 1 to 2 is 3
Sum is 32!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_5
Please input a number from to sum up to: 2
The sum of 1 to 2 is 3
Sum is 32!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ gcc lab04-1_5.c -o lab04-1_5
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-1_5
Please input a number from to sum up to: 2
The sum of 1 to 2 is 3
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$


/cygdrive/u/se185/lab04
Now doing a swap using addition and subtraction:
Before Swap: First: 0, Second: 0
After Swap: First: 0, Second: 0
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_3
Please input two integers separated by a space: 2 3
Now doing a swap using an extra variable:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
Now doing a swap using addition and subtraction:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_1
Please input an integer: 1
1 is an odd number!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$


/cygdrive/u/se185/lab04
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_3
Please input two integers separated by a space: 2 3
Now doing a swap using an extra variable:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
Now doing a swap using addition and subtraction:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_1
Please input an integer: 1
1 is an odd number!
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_2
Please input an integer from 1 up to 10000000: 34
2 digits
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$


/cygdrive/u/se185/lab04
Please input two integers separated by a space: 2 3
Now doing a swap using an extra variable:
Before Swap: First: 0, Second: 0
After Swap: First: 0, Second: 0
Now doing a swap using addition and subtraction:
Before Swap: First: 0, Second: 0
After Swap: First: 0, Second: 0
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_3
Please input two integers separated by a space: 2 3
Now doing a swap using an extra variable:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
Now doing a swap using addition and subtraction:
Before Swap: First: 2, Second: 3
After Swap: First: 3, Second: 2
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$


/cygdrive/u/se185/lab04
selection:
1 for voltage
2 for resistance
3 for current
1
Enter floating point numbers for input...
Please enter a resistance value: 1
Please enter a current value: 2
Your voltage is: 2.000000 Volts
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$ ./lab04-2_4
selection:
1 for voltage
2 for resistance
3 for current
1
Enter floating point numbers for input...
Please enter a resistance value: 500
Please enter a current value: 2
Your voltage is: 1000.000000 Volts
rjlawson@CO2042-12 /cygdrive/u/se185/lab04
$




```
y

You are guessing a number. The options are 1 through 100.

What is your guess on what number I will select?
  -> 1

You guessed too low. Enter another guess.
  -> 100

 You guessed too high. Enter another guess.
  -> 22

You guessed too low. Enter another guess.
  -> 35

You guessed too low. Enter another guess.
  -> 72

 You guessed too high. Enter another guess.
  ->
```