LAB REPORT

LAB 2
SECTION C

SUBMITTED BY:

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Problem:

There were two problems that arose from this lab. First off, I had to create my own program based on the existing source code. This new program would be able to print out my full name, the course title, and the date. To do this I had to modify printf so that it would fulfill my requirements. The second problem was that I had to modify code that returned the area of a rectangle to code that would return the volume of a rectangular prism. To do this I had to change the code so that the extra requirement to find the volume of a rectangular prism was added.

Analysis:

To begin this lab we had to open Cygwin and create a new lab 2 directory as well as choose which editor we were going to use to code. I chose to use Notepad++ since it seemed the most complete and easy to use. We were given the basic skeleton code for the lab at the beginning, yet I had to modify and add to the base skeleton code in order to complete the first problem. So instead of the skeleton code printing out "My first CPRE 185 Lab Programming project is almost done", I had to make the code print "Scott Vlasic, Section C, January 27, 2017". For the second problem we were given the code to find the area of a rectangle. Our task was to find the volume of a rectangular prism instead and to do that we had to modify the code to include a length variable.

Design:

To begin solving both of these problems, I had to look at what code I was given and see how I could change it in order to return the desired result. For example, in the first problem I noticed that I had much of the basic code that I needed to print out my desired result. The only issue was that what I was asking the printf function to print was incorrect. Therefore, to fix this I simply looked at what it was I needed to print out and replaced it with what needed to printed out, which was "Scott Vlasic, Section C, January 27, 2017).

Solving the second problem was a little more difficult to solve. I was given the code for how to find the area of a rectangle, but I needed to find the volume of a rectangular prism. The area of a rectangle is Width*Height, both of which were given in the area code. To find the volume of a rectangular prism, the formula is Length*Width*Height. Therefore, to fix this problem all I had to do was add a third variable to my area code for Length to give the volume of a rectangular prism. To do this I added an int z variable and made the code ask the user to enter a length. Therefore, once the length was accounted for, the final printf function read "A %d by %d by %d rectangle's is %d\n", given the variables x, y, z and x*y*z. Therefore, both of these problems were able to be solved by looking at the existing skeleton code provided and modifying it to fulfill the specified parameters.

Testing:

To test the code for the first problem, I asked it to print out the original text which was "My first CprE 185 Lab Programming Project is almost done" to see if that would compile without errors. Then I input the desired text which was "Scott Vlasic, Section C, January 27, 2017) to see if that would have any errors, which it did not. I did a couple more text tests to see if it would print whatever I asked of it and all of them passed without compile errors. For the second problem I tested out the area first to see if it printed correctly so that I could modify it to print out the volume. I tested this by inputting values for width and height and calculating it through a calculator to see if the answer matched the one the code gave. I then tested the volume formula I had written and performed the same test that I did for area, except for the new equation to see if it matched.

Comments:

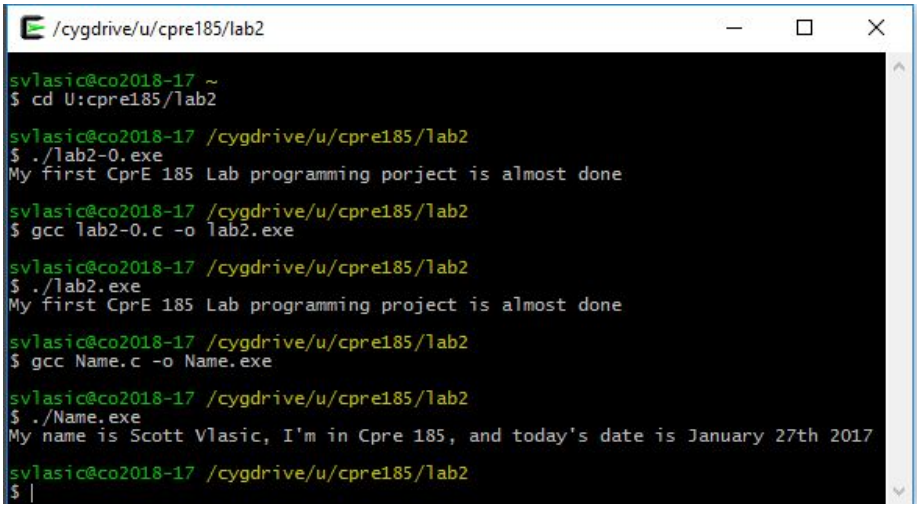
Looking at my design I feel as though I was successful in effectively analyzing the problems I was faced with and learning more about C programming. I learned more about printf statements and how to declare variables as can be seen through my modification of the second problem. One major issue I had was with compiling the program the first time. I compiled it in the wrong order and in turn there was an error when it was compiling. To solve this problem I asked my TA for help and they helped me identify that I had put the commands in incorrectly. I wouldn't change much about this lab except maybe go into more depth about compiling in Cygwin.

Implementation:

```
// Scott Vlasic, Section C, January 27,2017
// LAB2-0.c : Defines the entry point for the console application.
#include <stdio.h>


int main (int argc, char* argv[]){
        printf("My name is Scott Vlasic, I'm in Cpre 185, and today's date is January 27th 2017\n");
        return 0;
}
```

lab 2-1.c: Expected output is “My name is Scott Vlasic, I’m in CprE 185, and today’s date is January 27th 2017”

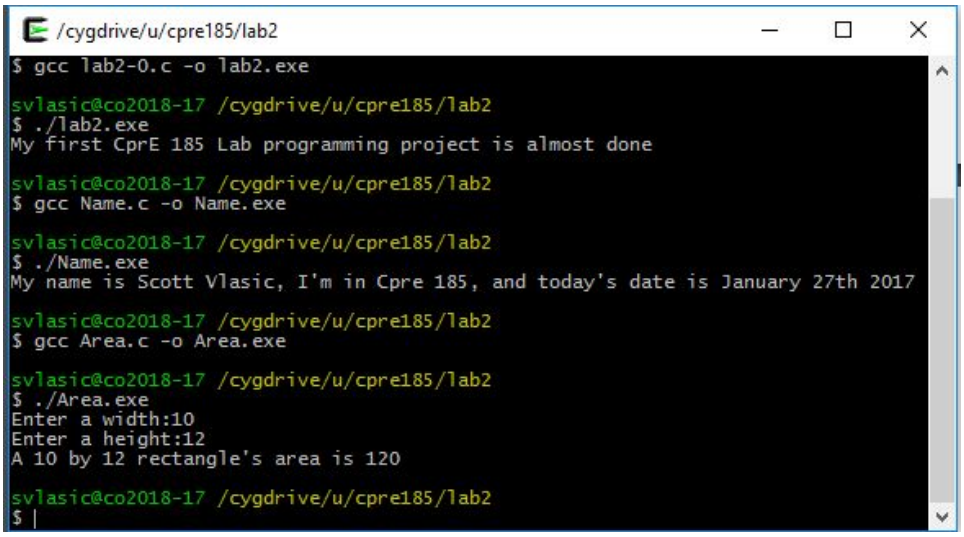


This is the output for lab 2-1.c which is what was expected therefore the code works

```
// Scott Vlasic, Section C, January 27, 2017
// LAB2-0.c
#include <stdio.h>


int main (int argc, char* argv[]){
        int x, y;
        printf("Enter a width:");
        scanf("%d", &x);
        printf("Enter a height:");
        scanf("%d", &y);
        printf("A %d by %d rectangle's area is %d\n", x, y, x*y);
        return 0;
}
```

lab 2-2.c Gives the formula for area which should print Width*Height

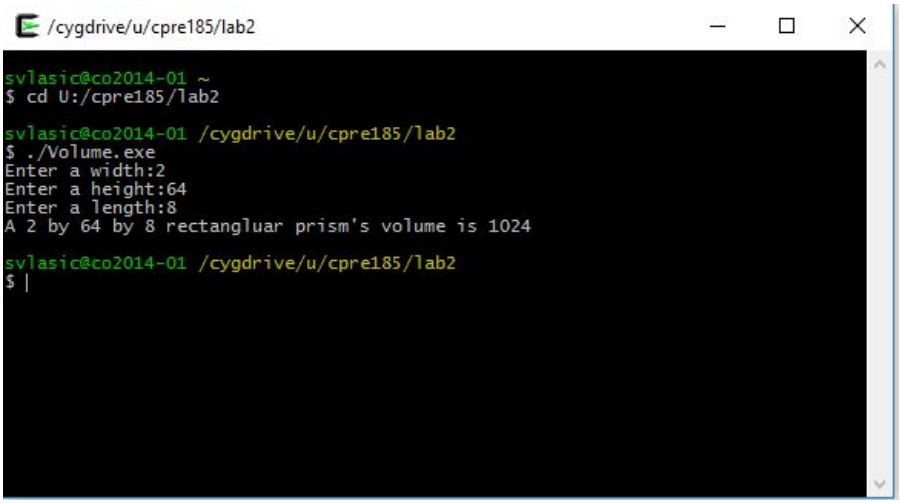


lab 2-2.c Displays the area of the rectangle given a width and height inputted by the user

```
// Scott Vlasic, Section C, January 27, 2017
// LAB2-0.c : Defines the entry point for the console application.
#include <stdio.h>


int main (int argc, char* argv[]){
        int x, y, z;
        printf("Enter a width:");
        scanf("%d", &x);
        printf("Enter a height:");
        scanf("%d", &y);
        printf("Enter a length:");
        scanf("%d", &z);
        printf("A %d by %d by %d rectangluar prism's volume is %d\n", x, y, z, x*y*z);
        return 0;
}
```

lab 2-3.c Gives the formula for volume which should print Width*Height*Length



lab 2-3.c Outputs the volume of a 2 by 64 by 8 prism as specified in the lab.

```
// Scott Vlasic, Section C, January 27, 2017
// LAB2-0.c
#include <stdio.h>

int main (int argc, char* argv[]){
	// Width and Height Variables
	int x, y;
	printf("Enter a width:");
	scanf("%d", &x);
	printf("Enter a height:");
	scanf("%d", &y);
	printf("A %d by %d rectangle's area is %d\n", x, y, x*y);
	return 0;
}

// Scott Vlasic, Section C, January 27,2017
// LAB2-0.c : Defines the entry point for the console application.
#include <stdio.h>

int main (int argc, char* argv[]){
	printf("My name is Scott Vlasic, I'm in Cpre 185, and today's date is January 27th
2017\n");
	return 0;
}

// Scott Vlasic, Section C, January 27, 2017
// LAB2-0.c : Defines the entry point for the console application.
#include <stdio.h>

int main (int argc, char* argv[]){
	// Length, Width, and Height Variables
	int x, y, z;
	printf("Enter a width:");
	scanf("%d", &x);
	printf("Enter a height:");
	scanf("%d", &y);
	printf("Enter a length:");
	scanf("%d", &z);
	printf("A %d by %d by %d rectangular prism's volume is %d\n", x, y, z, x*y*z);
```

```
        return 0;
}
```