

Introduction to the C Compiler

LAB 2

SECTION G

SUBMITTED BY:

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Problem

The purpose of this lab was to introduce compiling, wait seeing if we create come code ourselves. The program must let the user interact with the program and let it use the entered variables to calculate the area and volume of a box/square. The objective of this lab is to learn about the compiler and use it correctly.

Analysis

The lab says that we need to write the coded and compile it before running. Writing the code is very strait forward but having to fix the problems we made is the reason why we did the compiling it on our own.

Design

Our lab, states we needed to write the code for the area first ($x*y$). Once the code was written in notepad ++, we needed to compile and run the program and see if we did anything wrong, then proceed to fix the said errors. After the program could successfully find the area we needed to add another variable to the equation to make is compatible for the area equation ($x*y*z$). After the third variable was added we needed to save and run the program again, then again correct our errors that were made.

Testing

The main problem that I came across in testing my program, was trying to find the errors that I made after the compiler would not correctly compile the program. Fortunately they were not big problems, and they could be solved relatively fast. In lab 2-2 compiling the program again provided more of a struggle to figure out what exactly went wrong with my code. Once again I made a lot of small, silly errors that kept adding up.

Comments

None

```
// 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);
```

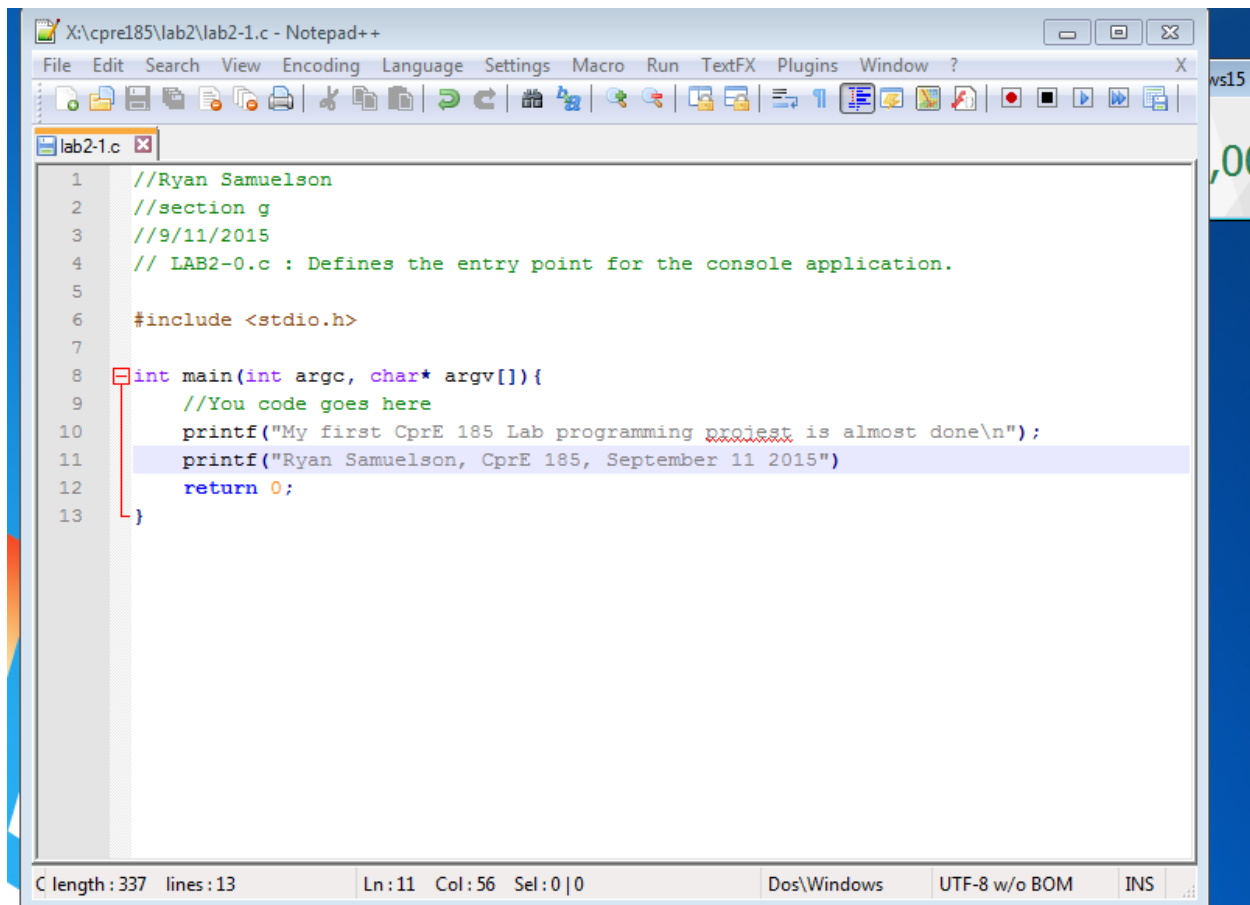
```
    printf("Enter a length:");
```

```
    scanf("%d",&z);
```

```
    printf("A %d by %d by %d rectangle's volume is %d\n", x,y,z, x*y*z);
```

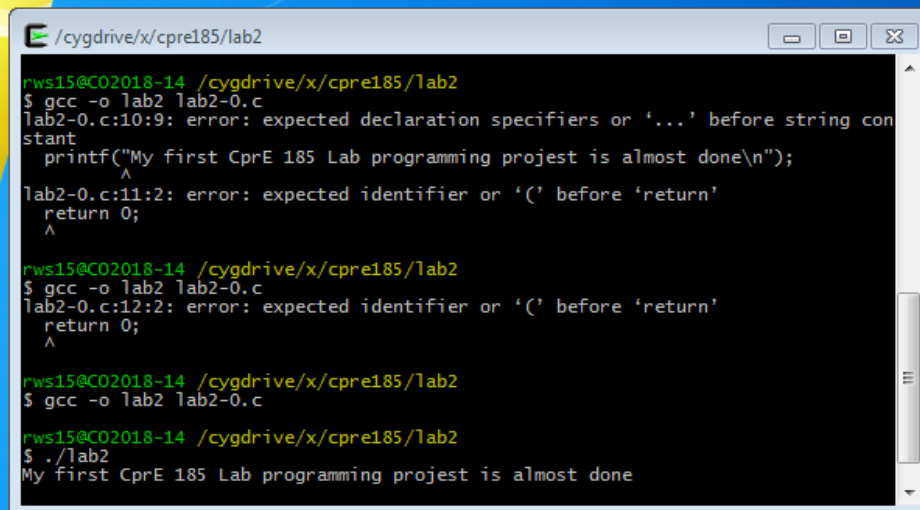
```
    return 0;
```

```
}
```



```
X:\cpre185\lab2\lab2-1.c - Notepad++
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?
lab2-1.c
1 //Ryan Samuelson
2 //section g
3 //9/11/2015
4 // LAB2-0.c : Defines the entry point for the console application.
5
6 #include <stdio.h>
7
8 int main(int argc, char* argv[]){
9     //You code goes here
10    printf("My first CprE 185 Lab programming project is almost done\n");
11    printf("Ryan Samuelson, CprE 185, September 11 2015")
12    return 0;
13 }
```

C length: 337 lines: 13 Ln: 11 Col: 56 Sel: 0 | 0 Dos\Windows UTF-8 w/o BOM INS



```
/cygdrive/x/cpre185/lab2
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-0.c
lab2-0.c:10:9: error: expected declaration specifiers or '...' before string constant
    printf("My first CprE 185 Lab programming project is almost done\n");
    ^
lab2-0.c:11:2: error: expected identifier or '(' before 'return'
    return 0;
    ^
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-0.c
lab2-0.c:12:2: error: expected identifier or '(' before 'return'
    return 0;
    ^
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-0.c
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
My first CprE 185 Lab programming project is almost done
```

This is problems with compiling 1.

The image shows a Windows desktop environment. In the foreground, a Notepad++ window is open, displaying a C program named `lab2-1.c`. The code is as follows:

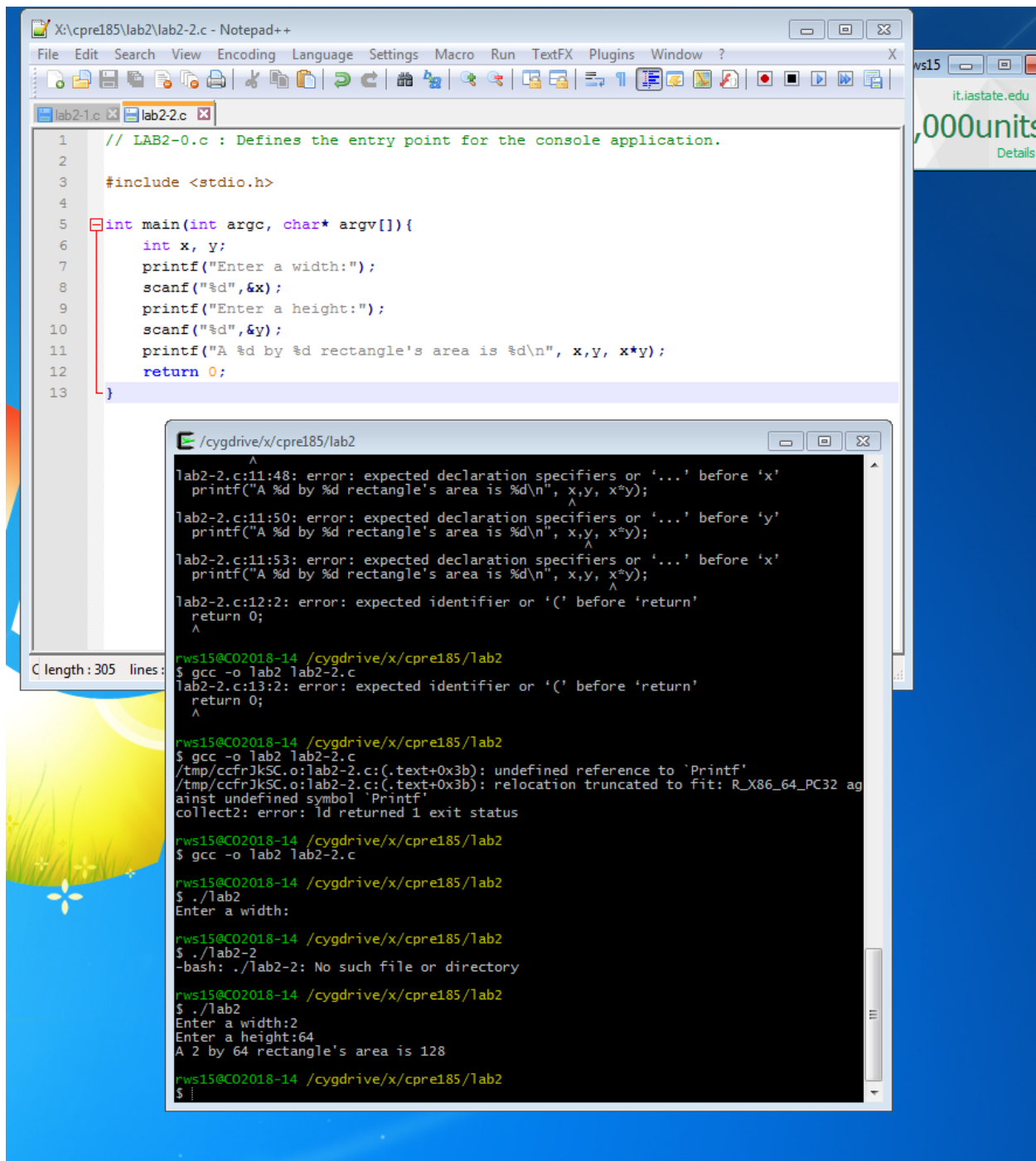
```
1 //Ryan Samuelson
2 //section g
3 //9/11/2015
4 // LAB2-0.c : Defines the entry point for the console application.
5
6 #include <stdio.h>
7
8 int main(int argc, char* argv[]){
9     //You code goes here
10    printf("My first CprE 185 Lab programming project is almost done\n");
11    printf("Ryan Samuelson, CprE 185, September 11 2015\n");
12    return 0;
13 }
```

The status bar at the bottom of Notepad++ indicates the file length is 340, it has 13 lines, and the cursor is at line 13, column 2. The encoding is UTF-8 w/o BOM.

In the background, a terminal window is open, showing the compilation and execution of the program. The commands and output are:

```
/cygdrive/x/cpre185/lab2
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-1.c
lab2-1.c: In function 'main':
lab2-1.c:12:2: error: expected ';' before 'return'
    return 0;
    ^
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-1.c
lab2-1.c: In function 'main':
lab2-1.c:12:2: error: expected ';' before 'return'
    return 0;
    ^
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-1.c
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
My first CprE 185 Lab programming project is almost done
Ryan Samuelson, CprE 185, September 11 2015
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$
```

This is problems with compiling 2.



```
X:\cpre185\lab2\lab2-2.c - Notepad++
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?
lab2-1.c lab2-2.c
1 // LAB2-0.c : Defines the entry point for the console application.
2
3 #include <stdio.h>
4
5 int main(int argc, char* argv){
6     int x, y;
7     printf("Enter a width:");
8     scanf("%d",&x);
9     printf("Enter a height:");
10    scanf("%d",&y);
11    printf("A %d by %d rectangle's area is %d\n", x,y, x*y);
12    return 0;
13 }
C length: 305 lines: 13

/cygdrive/x/cpre185/lab2
lab2-2.c:11:48: error: expected declaration specifiers or '...' before 'x'
printf("A %d by %d rectangle's area is %d\n", x,y, x*y);
lab2-2.c:11:50: error: expected declaration specifiers or '...' before 'y'
printf("A %d by %d rectangle's area is %d\n", x,y, x*y);
lab2-2.c:11:53: error: expected declaration specifiers or '...' before 'x'
printf("A %d by %d rectangle's area is %d\n", x,y, x*y);
lab2-2.c:12:2: error: expected identifier or '(' before 'return'
return 0;
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-2.c
lab2-2.c:13:2: error: expected identifier or '(' before 'return'
return 0;
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-2.c
/tmp/ccfrJk5C.o:lab2-2.c:(.text+0x3b): undefined reference to 'Printf'
/tmp/ccfrJk5C.o:lab2-2.c:(.text+0x3b): relocation truncated to fit: R_X86_64_PC32 ag
ainst undefined symbol 'Printf'
collect2: error: ld returned 1 exit status
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-2.c
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2-2
-bash: ./lab2-2: No such file or directory
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:2
Enter a height:64
A 2 by 64 rectangle's area is 128
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$
```

This is lab 2-2, debugging and running.

```
X:\cpre185\lab2\lab2-3.c - Notepad++
File Edit Search View Encoding Language Settings Macro Run TextFX Plugins Window ?
lab2-1.c lab2-3.c
1 // LAB2-0.c : Defines the entry point for the console application.
2
3 #include <stdio.h>
4
5 int main(int argc, char* argv){
6     int x, y, z;
7     printf("Enter a width:");
8     scanf("%d",&x);
9     printf("Enter a height:");
10    scanf("%d",&y);
11    printf("Enter a length:");
12    scanf("%d",&z);
13    printf("A %d by %d by %d rectangle's volume is %d\n", x,y,z, x*y*z);
14    return 0;
15 }
C length: 367 lines

/cygdrive/x/cpre185/lab2
lab2-2.c:13:2: error: expected identifier or '(' before 'return'
    return 0;
    ^
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-2.c
/tmp/ccFrJkSC.o:lab2-2.c:(.text+0x3b): undefined reference to 'Printf'
/tmp/ccFrJkSC.o:lab2-2.c:(.text+0x3b): relocation truncated to fit: R_X86_64_PC32 against undefined symbol 'Printf'
collect2: error: ld returned 1 exit status
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-2.c
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2-2
-bash: ./lab2-2: No such file or directory
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:2
Enter a height:64
A 2 by 64 rectangle's area is 128
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:2
Enter a height:64
A 2 by 64 rectangle's area is 128
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ gcc -o lab2 lab2-3.c
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$ ./lab2
Enter a width:2
Enter a height:64
Enter a length:8
A 2 by 64 by 8 rectangle's volume is 1024
rws15@C02018-14 /cygdrive/x/cpre185/lab2
$
```

This is lab 2-3 debugging and running.