Lab #0: Trial Lab

CS1010 AY2014/5 Semester 2

Date of release: 12 January 2015

Submission deadline: 31 January 2015

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0 INTRODUCTION

This is a non-graded lab. However, you need to submit your program on ***CodeCrunch*** in the presence of your ***discussion leader (DL)*** during your first discussion session, to show that you know how to do it.

This lab requires you to do only 1 exercise.

If you have any questions on any lab exercise, please post your queries on the relevant ***IVLE discussion forum.***

Important: Do not post your programs (partial or complete) in the forum before the deadline!

1 EXERCISE 1: VOLUME OF A BOX

1.1 LEARNING OBJECTIVES

- Using CodeCrunch.
- Run through edit-compile-run cycle of program development.
- Using the UNIX environment.
- Detection and correction of errors in a program.

1.2 TASK STATEMENT

Write a program ***box_volume.c*** that reads three positive integers representing the length, width and height of a box, and computes the volume of the box.

You may assume that the volume of the box does not exceed the maximum value representable in the int data type.

Check sample run for input and output format, and submit your program through ***CodeCrunch***.

1.3 SAMPLE RUN

Sample run using interactive input (user's input shown in blue; output shown in **bold purple**). Note that the first two lines (in green) below) are commands issued to compile and run your program on UNIX.

```
$ gcc -Wall box_volume.c -o box_volume

$ box_volume

Enter length: 12

Enter width : 3

Enter height: 10

Volume = 360
```

1.4 IMPORTANT NOTES

- You may download a skeleton program ***box_volume.c*** and sample test data from the IVLE. The skeleton file is almost complete and you just need to correct a few statements in the program.
- ***CodeCrunch*** awards marks for correctness ***ONLY*** if your output adheres to the given format. Hence, do not add any other characters (such as blanks that are not asked for in your output, or change the spelling in your output. The following outputs will all be graded as incorrect for this exercise:
    - volume = 360 (reason: "Volume" mis-spelt as "volume")
    - Volume=360 (reason: spaces around = sign missing)
    -   Volume = 360 (reason: additional spaces before "Volume")
    - Volume   =   360 (reason: too many spaces around = sign)
    - Volume = 360. (reason: additional dot at end of line)
- The last output statement in your program must end with a new line character '\n'. Otherwise, it is possible that your program may fail the correctness test of CodeCrunch.

1.5 SKELETON FILE AND SAMPLE TEST DATA

- **box_volume.c**
- Input files: **box1.in | box2.in | box3.in | box4.in | box5.in**
- Output files: **box1.out | box2.out | box3.out | box4.out | box5.out**

You can download the above files from IVLE.

1.6 EXPLANATION ON INPUT AND OUTPUT FILES

We provide the input and output files for your ease of checking. In writing your programs, you may assume that the input data are entered interactively (through stdin, i.e. the keyboard), and the outputs of your program are displayed on the monitor (stdout).

CodeCrunch takes your submitted program, compiles and runs it on each of the test data input files provided, using a technique called input file redirection.

You can use the technique too. If you have an input file, say, ***box1.in***, that contains the input data, you could make your program reads in data from this file instead of entering the data interactively through the keyboard. For example, assuming that your program is called ***a.out***, the following command:

```
a.out < box1.in
```

runs ***a.out*** which draws the input data from the file ***box1.in***.

You may also use output redirection to redirect the output of your program to a file, instead of showing it on the monitor. For example:

```
a.out < box1.in > 1.out
```

The above command saves the output of your program to the file ***1.out***. You may then compare the content of this file with the content of the provided output file ***box1.out*** with the expected answer, by using the UNIX ***diff*** command as follows:

```
diff 1.out box1.out
```

If the ***diff*** command does not produce any output, it means that the two files ***1.out*** and ***box1.out*** are identical.

1.7 NUMBER OF SUBMISSIONS

For this exercise, the number of submissions is 99.

1.8 EXPLORATION

What is the largest value available for int data type? Search the Internet for the answer, and write a separate program (no need to submit this) to test it out.

2 DEADLINE

You must submit the program on ***CodeCrunch*** in the presence of your DL during your first discussion session.

3 READING

Read up Lab Guidelines (as adopted in AY2014/15 Semester 1) to prepare yourself for subsequent lab assignments. (If you cannot open the link, you may also refer to the pdf version ***Lab_Guidelines.pdf,*** which is in the same folder of lab0 resources)