Week 4 Lab Exercise

Lab Instructions

During the lab you should be doing the following things:

1. You need to open Eclipse IDE on the lab machines or any other IDE for C on your own laptops.
2. Read the following tasks carefully and start implementing them.
3. Implement all tasks in one **.c file** inside of the **main** function, separated with the following block of code:

```
printf("========================================\n");
printf("==                TASK 1:               ==\n");
printf("========================================\n");
```

4. During the lab you are allowed to raise your hand and ask for the help from one of our TAs and Instructors if they are available.
5. You are NOT allowed to work on any other things during the lab, except doing the lab exercises.
6. You can discuss the tasks with the classmates and friends during the lab, but you are NOT allowed to do the tasks instead of each other.
7. **During the lab you should finish all the required tasks and submit to Moodle before the deadline to get the grades.**
8. You should be able to finish all these tasks in **1 hour 15 minutes**.
9. **The deadline for submission is Friday, September 7, at 9:00 pm.**
10. **During the work please make sure that you save your work each time.**
11. **WARNING: once you logged out from the lab machine, your work will be deleted. So please please save your work somewhere externally (any cloud drives or flash drives).**

Lab Exercises

1. **Factorial.** Write a program in C which accepts the integer value and displays the factorial of the given number, and continues this process until the input number is less than or equal to 0. You should implement this task using a do-while loop.

Input-Output Format:
Please provide the number: 3
The factorial of 3 is: 6
Please provide the number: 9
The factorial of 9 is: 362880

Please provide the number: -2
Done.

2. **Pyramid.** Write a program in C which accepts the integer from the user and does as many levels for the pyramid as the number was provided using while loops instead of for loop you did before.

   Input Format:

   Please provide an integer number: 5

   Output Format:

```
    1
   2 2
  3 3 3
 4 4 4 4
5 5 5 5 5
```

3. **Equality.** Write a C program which accepts two integer values from the user and checks whether they are equal or not, and continues this process until one of the input numbers is equal to 0.

   Input-Output Format:
   Please provide two integers: 15 15
   15 and 15 are equal
   Please provide the number: 7 8
   7 and 8 are not equal
   Please provide the number: 7 0
   Done.

4. **Finance.** Write a C program that accepts two values from the user, one value represents a Cost Price of the product and another value represents a Selling Price. Therefore, if the Cost Price is lower than Selling Price the company gets some profit. Your task is to write the program which will calculates the profit and loss on a transaction. Also the prompting messages must be done in the loops, where the program should keep asking the user the to provide for the positive number, and if the user provides negative one it should re-ask again.

   Input Format:

   Please provide a Cost Price: -2
   The value is invalid please provide again.
   Please provide a Cost Price: 300
   Please provide a Selling Price: -400
   The value is invalid please provide again.

Please provide a Selling Price: 500

Output Format:

Your profit amount: 200

OR

Input Format:

Please provide a Cost Price: 700
Please provide a Selling Price: 400

Output Format:

Your loss amount: 300

Grading and Submission

To receive credit for this lab exercise, you should present in the lab and work of the given lab exercises. By the end of the lab you should show and demonstrate your solution to one of the TAs or Instructor. You also will have some extra hours after the lab session to finish and submit your work as a **.c file** to **Moodle**. Do not wait until the last minute!

The maximum grade for this lab is **2 points**. To get the maximum, you should be able to complete all tasks and have a runnable code submitted to Moodle by the deadline specified on the submission box of Moodle. In case if you are late with the submission you will lose all points.

In case if you didn't finish the work or the code doesn't work, you should still be able to submit the work before the **deadline**.

Your submitted work will be run through Stanford Plagiarism Detection System called MOSS. In case if you have **copied** your work from someone this will be considered as an **Academic Misconduct** and you will lose all your points.