

**Computer Science Department**

**COMP230 ( Fall 2016/2017)**

**Assign # 3 *Due Date: Saturday 14/1/2017 by 10:00 pm ( on Ritaj )***

Notes:

1. The assignment should be submitted by the due date and time ***( Late Assignments will not be accepted for any reason ) on Ritaj.***
2. The assignments are *individual* effort and copying the assignment will be treated as a cheating attempt, which may lead to *FAILING* the course.

Write a C program to compute the value of the mathematical constant ***e*** to the power of ***x*** (***ex***) and the number of terms used to compute it using the following infinite series:

**ex = 1 + x/1! + x2/2! + x3/3! + x4/4! + …**

Your program should include at least one function called ***compute\_ex*** which receives any value of ***x*** as a parameter and returns the following two values:

1. Value of **ex** for the given ***x***.
2. The number of terms used in computing **ex**.

The computation should stop when the new term added ( ***term = Xn/n!*** where ***n=0,1,2,3,…***) is less than 0.0001.

Your program should also ***NOT*** use the already predefined system function ***pow*** ***or use your own pow and factorial functions.***  ***You should solve the equation as a series and NOT by calling pow and factorial functions.***

**Example of a Sample Run:**

Enter the value of x:

2.5

e to the power 2.5 = 12.18

number of terms used in computation = 13

**VERY IMPORTANT:**

1. The name of the assignment file ( main.c file) should be saved as ***ass4\_youridnumber\_yourlecturesectionnumber.c*** ( for example if your student id number is 1151234 and your **lecture section** is section 4 then the assignment file ( main.c ) should be called ***ass4\_1151234\_s4.c*** ). ***Turn in your assignment by replying to the message on Rtaj and attaching your code file*** (***ass4\_youridnumber\_yourlecturesection.c***).
2. You must include your full name, student id number, and lecture section number in a comment at the beginning of your code file.