Lab Work - WEEK 10
(18 April - 22 April 2016)

Question 1

Write a C function which:

• Has a function that calculates and returns the factorial of the given integer as parameter.

• The user inputs an integer and the program calculates the factorial of the entered number using the function.

Question 2

Write the following C program which takes 2 integers as parameters and calculates the number of combinations:

\[
\binom{n}{k} = \frac{n!}{k!(n-k)!}
\]

\(n\): number of all items,
\(k\): number of selected items

**Hint:** Use the factorial function in Question 1 to calculate the factorials.
Question 3

Write the following C program:

- The program has a function `countAa` that takes a string (length of 30) as parameter and returns the number of letters 'A' or 'a' in the string.
- The user will input 10 strings and the program will find the number of A or a's in each string using `countAa` function.

Question 4

Write a C program which contains two functions, $f$ and $g$ defined as:

\[ f(x) = 1 + x^2 \]

\[ g(x) = \frac{1}{1 + x^2} \]

Both function have double type numbers as input and output.
Use $f$ in $g$ to make the definition of $g$ simpler.