UMKC School of Computing and Engineering

Assignment #6 Due: 11/18

For this program you will write couple of recursive functions. This assignment is divided into two tasks:

a) Prove using mathematical induction that

$$Q(n) = \underbrace{1^2 + 2^2 + 3^2 + \ \ldots\ n^2}_{\textbf{LHS}} = \underbrace{Q(n-1) + \ n^2}_{\textbf{RHS}}$$

You need to implement RHS using a recursive function, and LHS using a non-recursive function to validate that the LHS=RHS. Both functions will have one parameter of type *int*. The base case is Q (1) =1.

Your program will ask the user to input a number "n", then you will call the functions to validate if the output is the same or not using both functions.

b) Write a recursive function that reverse an array elements (1,2,3,4,5) => (5,4,3,2,1)

Your program will:

- Declare a dynamic array of type *int* and size [5]
- You will ask the user to input the values. Resize your dynamic array in case number of the values entered by the user is more than 5.
- Output the array elements reversed.

c) Your project will have one *main()* function.

d) Zip the whole project and upload it on Canvas before November 18th.

~BestOfLuck()