Question 01

Let us try to find out the average marks of a group of five students for two subjects, Mathematics and Physics. To do this, we use a two-dimensional array called grades. The marks corresponding to Mathematics would be stored in the first row (grades[0]), whereas those corresponding to Physics would be stored in the second row (grades[1]). Complete the following steps so that you can execute this program.

- Declare grades as a two-dimensional array of integers
- Complete the for loops by specifying their terminating conditions
- Compute the average marks obtained in each subject

Question 02

Calculates the factorial of a given number and display the output results in console.

Question 03

Generates the Fibonacci series for a given number using a recursive function.

Question 04

Calculate the sum of natural numbers using recursive method.

Question 05

Write a function with one positive integer parameter called n. The function will write 2^{n-1} integers. Here are the pattern of output for various values of n:

n=1 : Output is :1
n=2 : Output is :121
n=3 : Output is :1213121
n=4 : Output is : 121312141213121
And so on.
Note that the output for n always consists of the output for n-1, followed by n itself, followed by a second copy of the output for n-1.

Question 06

Implement the function to calculate the gcd of two integers. You can used this function to calculate gcd in a recursive approach.

gcd(a,0) = a
gcd(a,b) = gcd(b, a mod b)

gcd(a,a) = a,
gcd(a,b) = gcd(a-b , b) if a>b
gcd(a,b) = gcd(a, b-a) if a<b

Submission guidelines

You should upload your files as a single zip file to the LMS on or before 15th February 2018 - 11.55pm. Make sure to rename your submission file name as **indexnumber.zip (ex: 16000614.zip)**.