Laboratory 1

Function and Recursion

Problem 1.

You are given a number “n” and an array of “n” elements, write the function that returns minimum of them.

5 10 1 32 3 45	1

Problem 2.

You are given a number “n” and an array of “n” elements, write the function that returns average of them.

4 3 2 4 1	2.5

Problem 3.

You are given a number “n”, write the function for checking whether“n” is prime.

7	Prime
10	Composite

Starting from this problem you must use recursion

Problem 4.

You are given a number “n”, write the program using recursion for finding “n!”

5	120

Problem 5.

You are given a number “n”, write the function for finding n-th elements in Fibonacci sequence using recursion. ($F_n = F_{n-1} + F_{n-2}$). $F_0 = 0$, $F_1 = 1$.

5	5
17	1597

Problem 6.

You are given numbers “a” and “n”, write the function that returns “a^n”.

2 10	1024

Problem 7.

You are given a number “n” and an array of “n” elements, write the program that returns given array in reverse order without using array data structure.

(Hint: recursion)

4 1 4 6 2	2 6 4 1

Problem 8.

You are given a string “s”, write the function for checking whether “s” is all consists of digits.

123456	Yes
123a12	No

Problem 9.

You are given numbers“n” and “k”,write the program that finds C_n^k(binomial coefficient) using formula$C_n^k=C_{n-1}^{k-1}+C_{n-1}^k$where $C_n^0=C_n^n=1$.

2 1	2
7 3	35

Problem 10.

You are given “a” and “b”, write the function for finding GCD(a, b) using recursion. (Hint: Euclidean Algorithm)

32 48	16
10 7	1

BONUS PROBLEMS

Solve any 8 problems from here:

https://www.hackerrank.com/domains/fp?filters%5Bsubdomains%5D%5B%5D=fp-recursion