Assignment 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

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 string consisting of M distinct symbols. Print all the permutations (all possible variants) of the symbols of this string.

IOX	XOI OIX IXO XIO OXI IOX

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$C^k_n=C^{k-1}_{n-1}+C^k_{n-1}$where $C^0_n=C^n_n=1$.

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