

SOOP Lab-4

EXERCISES on Multiple Function Programs

1. Write a multifunction program to print the following patterns where number of rows is user input and must be read in main function. There should be separate function for each of the following patterns and note that, you cannot pass any data through parameters to those functions.

(a)
4444444
33333
222
1

(c)
7654321
54321
321
1

(d)
* * * * *
* * *
*
* * *
* * * * *

2. Write a function to calculate the factorial value of any integer entered through the keyboard.
3. A prime integer is entered through the keyboard. Write a function to obtain the prime factors of this number. For example, prime factors of 24 are 2, 2, 2 and 3 whereas prime factor of 35 are 5 and 7.

EXERCISES on Recursion and Recursive Function

1. The series 0, 1, 1, 2, 3, 5, 8, 13, ... is called the Fibonacci series. Here, $\text{term}_n = \text{term}_{n-1} + \text{term}_{n-2}$, for $n > 1$, $\text{term}_0 = 0$, $\text{term}_1 = 1$. Write a program that finds the sum of first n terms of the series using recursion.
2. Convert a decimal number into correspondent binary number using recursion where decimal number is input from user.