

Programming in C

Duration time: 90 minutes

Introduction

Requirements

- Functions.

Exercise 1

Write C code that will output the multiplication table as show below:

1*1=1	2*1=2	3*1=3		9*1=1
1+2=2	2*2=4	3*2=6		9*2=18
.....				
1*9=9	2*8=18	3*9=27		9*9=81

Exercise 2

Write a program that will ask the user to input three integer values from the keyboard. Then it will print the smallest and largest of those numbers.

Exercise 3

Write a program using recursive function that computes the sum of all numbers from 1 to n, where n is given as parameter. Program will ask the user for n number.

Exercise 4

Write a program using recursive function that computes the factorial of n number. Program will ask the user for n number.

Factorial is defined by

- $1! = 1$
- $2! = 1 \cdot 2 = 2$
- $n! = 1 \cdot 2 \cdot \dots \cdot n$

Exercise 5

The Fibonacci sequence $a(1), a(2), a(3), \dots, a(n), \dots$ is defined by

- $a(1) = 1$
- $a(2) = 1$
- $a(n) = a(n-1) + a(n-2)$, for all $n > 2$

This generates the sequence

1, 1, 2, 3, 5, 8, 13, 21, ...

Write a program using function "`fibonacci(...)`" that computes the Fibonacci number corresponding to its positive integer argument, so that, for example, `fibonacci(7) == 13`.

Exercise 6

Write a program that swap two numbers a and b using Call by Reference.

Exercise 7

Write a program that rises x to the power of y. Try to use pow function in math.h library.

Exercise 8

Write a program that calculates tangent of x number in radians. Try to use functions in math.h library.