

Department of Electrical and Computer Engineering, NSU

CSE 115L: Fundamentals of Computer Programming

Week 04 (Functions)

Function	Calling Function from Main	
<pre>return_type function_name (parameter_list){ local variable declaration;</pre>	return_type function_name (parameter_list);	
executable statement1;	global variable declaration (if any);	
executable statement2;	int main() // or any other function	
	{	
return statement;	function call (argument list);	
}	}	

return-type: int, float, double, char etc.

parameters: type name1, type name2,.... Where type can be int, float, char, double and all the basic data type in C.

Function with return value	Function with no return value (void)	
float Average(int first, int second); // prototype	void Average(int first, int second);	
<pre>int main(){ int a = 7, b = 8; printf("%f", Average(a,b)); // printing the value which is returned by function return 0; }</pre>	<pre>int main(){ int a = 7, b = 8; Average(a,b); // calling the function return 0; }</pre>	
float Average(int first, int second){ return (first+second)/2.0; }	<pre>void Average(int first, int second){ printf("%f", (first+second)/2.0); }</pre>	

Some Useful C Library Functions:

Function	Header	Purpose	Argument(s)	Result
abs(x)	<stdlib.h></stdlib.h>	Returns the absolute value of its integer arguments	int	int
ceil(x)	<math.h></math.h>	Returns the smallest integral value that is not less that x	double	double
pow(x,y)	<math.h></math.h>	Returns x raised to the power of y	double	double
cos(x)	<math.h></math.h>	Returns the cosine of angle x	Double(radians)	Double
sqrt(x)	<math.h></math.h>	Returns the non negative square root of x for x>= 0.0	Double	Double

Lab Tasks

1. Write functions called getBase(), getHeight(), getAreaTriangle(float base, float height).

getBase(): takes input a base in cm and returns it

getHeight(): takes input a height in cm and returns it

getAreaTriangle(float base, float height): Calculates area using formula ½ * base * height and returns it

Sample output

Enter base: 2.0 Enter height: 4.0

The base is: 2.0 cm and height is: 4.0 cm

The area of the triangle is: 4.0

2. Write a function **Combination**(int,int) to compute combination using the following formula:

$$n_{c_r} = \frac{n!}{r!(n-r)!}$$
 both n and r are integer inputs here. (n>=r)

You'll need another function named **Factorial**(int) to simplify this problem.

$$n! = 1*2*3*....*n$$

Sample output:

Enter values of n and r: 6 4

Combination: 15

3. Write a function called getNum(), getSquare(int n), getCube(int l). User will input the number and you have to display the square and cube of that number.

Sample output

Enter number: 2

The square of the number is: 4 The cube of the number is: 8

4. Write a program which prints all prime numbers between two numbers (entered by the user) using a loop and by making a user-defined function **int checkPrimeNumber(int n)**. The checkPrimeNumber function returns 1 if the number passed is a prime number. A prime number is a positive integer which is divisible only by 1 and itself. For example: 2, 3, 5, 7, 11, 13.