

North South University
Department of Electrical and Computer Engineering
CSE 115L: Programming Language I Lab
Week 04 - Functions

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

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)
<pre> float Average(int first, int second); <i>// prototype</i> int main(){ int a = 7, b = 8; printf("%f", Average(a,b)); <i>// printing the value which is returned by function</i> return 0; } float Average(int first, int second){ return (first+second)/2.0; }</pre>	<pre> void Average(int first, int second); int main(){ int a = 7, b = 8; Average(a,b); <i>// calling the function</i> return 0; } 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>	Returns the absolute value of its integer arguments	int	int
ceil(x)	<math.h>	Returns the smallest integral value that is not less than x	double	double
pow(x,y)	<math.h>	Returns x raised to the power of y	double	double
cos(x)	<math.h>	Returns the cosine of angle x	Double(radians)	Double
sqrt(x)	<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 $\frac{1}{2} * \text{base} * \text{height}$ 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. ($n \geq r$)

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

$$n! = 1 * 2 * 3 * \dots * n$$

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.