Department of Electrical and Computer Engineering, NSU

CSE 115L: Fundamentals of Computer Programming

Week 04 (Functions)

Function	**Calling Function from Main**

return_type function_name (**parameter_list**){
local variable declaration;
executable statement1 ;
executable statement2 ;
. . . . . .
return statement;
}
	return_type function_name (**parameter_list**);
	
	global variable declaration (if any);
	int main() // or any other function
	{
	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*
 	
int main(){
int a = 7, b = 8;
printf("%f", Average(a,b));
// *printing the value which is returned by function*
return 0;
}
 	
float Average(int first, int second){
return (first+second)/2.0;
}
	void Average(int first, int second);
	
	int main(){
	int a = 7, b = 8;
	Average(a,b); // *calling the function*
	return 0;
	}
	
	void Average(int first, int second){
	printf("%f", (first+second)/2.0);
	}

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 that 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 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.