

Functions in C - Module - 1

Monolithic vs Modular Programming

1. Monolithic Programming indicates the program which contains a single function for the large program.
2. Modular programming help the programmer to divide the whole program into different modules and each module is separately developed and tested. Then the linker will link all these modules to form the complete program.
3. On the other hand monolithic programming will not divide the program and it is a single thread of execution. When the program size increases it leads inconvenience and difficult to maintain.

Disadvantages of monolithic programming:

1. Difficult to check error on large programs.
2. Difficult to maintain.
3. Code can be specific to a particular problem. i.e. it can not be reused.

Advantage of modular programming:

1. Modular program are easier to code and debug.
2. Reduces the programming size.
3. Code can be reused in other programs.
4. Problem can be isolated to specific module so easier to find the error and correct it.

Functions in C

A function is a group of statements that together perform a task. Every C program has at least one function, which is main(), and all the most trivial programs can define additional functions.

Function Declaration OR Function Prototype:

1. It is also known as function prototype.
2. It inform the computer about the three things a) Name of the function b) Number and type of arguments received by the function. c) Type of value return by the function.
3. Calling function need information about called function. If called function is place before calling function then the declaration is not needed.

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## Introduction to 'C' Language

Syntax :

```
return_type function_name (type1 arg1 , type2 arg2);
```

OR

```
return_type function_name (type1 type2);
```

**Example of Function Declaration:** `int add(int a, int b);`

### Function Definition:

1. It consists of code description and code of a function. It consists of two parts  
a) Function header b) Function coding

Function definition tells what are the I/O function and what is going to do.

Syntax:

```
return_type function_name (type1 arg1 , type2 arg2)  
{  
    local variable;  
  
    statements ;  
  
    return (expression);  
}
```

2. Function definition can be placed any where in the program but generally placed after the main function.

3. Local variable declared inside the function is local to that function. It cannot be used anywhere in the program and its existence is only within the function.

4. Function definition cannot be nested.

5. Return type denote the type of value that function will return and return type is optional if omitted it is assumed to be integer by default.

### Example:

```
c  
  
int add(int a, int b) {  
    return a + b;  
}
```

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