

# C++ Notes – 28092020

## User defined functions –

- In programming, function refers to a segment that groups code to perform a specific task. Depending on whether a function is predefined or created by programmer; there are two types of function:
  1. Library Function
  2. User-defined Function
- Library Function – Library functions are the built-in function in C++ programming. Programmer can use library function by invoking function directly; they don't need to write it themselves.
- User defined Function - C++ allows programmer to define their own function. A user-defined function group's code to perform a specific task and that group of code is given a name (identifier). When the function is invoked from any part of program, it all executes the codes defined in the body of function.

### Example 1: Library Function -

```
#include<iostream.h>
#include<cmath.h>
void main()
{
    double number, squareRoot;
    cout << "Enter a number: ";
    cin >> number;

    squareRoot = sqrt(number);
    cout << "Square root of " << number << " = " << squareRoot;
}
```

## How user-defined function works in C Programming?

```
#include <iostream>

void function_name() {
    ... ..
    ... ..
}

int main() {
    ... ..
    function_name();
    ... ..
}
```

The diagram illustrates the execution flow of a user-defined function. It shows a code block with a function definition `void function_name() { ... .. }` and a `main` function that calls `function_name();`. An arrow originates from the function call in the `main` function and points to the opening curly brace of the `function_name` definition, indicating the transfer of control to the user-defined function.

```
/* User Defined Function - Traditional Format */
```

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
// Function Declaration
```

```
void add();
```

```
void main()
```

```
{
```

```
    // Function Call
```

```
    add();
```

```
}
```

```
// Function Body
```

```
void add()
```

```
{
```

```
    int a=10,b=20;
```

```
    cout<<"Sum is: "<<(a+b);
```

```
}
```

```
/* User Defined Format - New Format */
```

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
// Function Body
```

```
void add()
```

```
{
```

```
    int a=10,b=20;
```

```
    cout<<"Sum is: "<<(a+b);
```

```
}
```

```
void main()
```

```
{
```

```
    // Function Call
```

```
    add();
```

```
}
```

### Different types of user defined functions -

- ☐ Without return type, without parameters
- ☐ Without return type, with parameters
- ☐ With return type, without parameters
- ☐ With return type, with parameters

### /\* Without Return Type, with out parameters - Traditional Format\*/

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
// Function Declaration
```

```
void add();
```

```
void main()
```

```
{
```

```
    // Function Call
```

```
    add();
```

```
}
```

```
// Function Body
```

```
void add()
```

```
{
```

```
    int a=10,b=20;
```

```
    cout<<"Sum is: "<<(a+b);
```

```
}
```

### /\* Without return type, without parameter - New Format \*/

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
// Function Body
```

```
void add()
```

```
{
```

```
    int a=10,b=20;
```

```
    cout<<"Sum is: "<<(a+b);
```

```
}
```

```
void main()
```

```
{
```

```
    // Function Call
```

```
    add();
```

```
}
```