

DAY - 10

C++ COMPLETE BOOTCAMP

Hello CPPBuddies

Day 10

Welcome
To
C++ COMPLETE BOOTCAMP

Your Guide To A Solid Foundataion in C++

Let us begin

Functions (Very Important)

A function is a **block of code** which only runs when it is called.

You can pass **data**, known as **parameters**, into a **function**.

Functions are used to perform **certain actions**,
and they are **important** for **reusing code**

A function can be called multiple times:

Create a Function

C++ provides some pre-defined functions, such as **main()**, which is used to execute code.

But you can also **create** your own functions to **perform certain actions**.

Syntax

```
void myFunction() {  
    // code to be executed  
}
```

Example Explained

- `myFunction()` is the name of the function
- `void` means that the function does not have a return value.
- inside the function (the body), add code that defines what the function should do

Call a Function

Declared functions are **not** executed immediately.

They are "saved for later use", and will be executed later,
when they are **called**.

To **call a function**, write the **function's name** followed
by two parentheses **()** and a semicolon **;**



DEMO

LET US WRITE A GREET FUNCTION

Example

Inside `main`, call `myFunction()`:

```
// Create a function
void myFunction() {
    cout << "I just got executed!";
}

int main() {
    myFunction(); // call the function
    return 0;
}

// Outputs "I just got executed!"
```

Example

```
void myFunction() {  
    cout << "I just got executed!\\n";  
}  
  
int main() {  
    myFunction();  
    myFunction();  
    myFunction();  
    return 0;  
}  
  
// I just got executed!  
// I just got executed!  
// I just got executed!
```

```
#include<iostream>

void greet() { ←
    // code
}

int main() {
    ...
    greet(); —
    ...
}

→ ...
```

The diagram illustrates a function call between two code snippets. A red box encloses the first snippet, which contains a definition for the `greet()` function. An arrow points from the end of the `greet()` definition to the start of the second snippet. The second snippet contains a call to the `greet()` function, indicated by a red arrow pointing to it. The word "function call" is written in red next to the second snippet.

function
call

Function Declaration and Definition

A C++ function consist of two parts:

Declaration:

1. the function's name,
2. return type,
3. and parameters (if any)

Definition:

the body of the function (code to be executed)

```
void myFunction() { // declaration  
    // the body of the function (definition)  
}
```

Note: If a user-defined function, such as `myFunction()` is declared after the `main()` function, **an error will occur**:

Example

```
int main() {  
    myFunction();  
    return 0;  
}  
  
void myFunction() {  
    cout << "I just got executed!";  
}  
  
// Error
```

However, it is possible to **separate** the declaration
and the **definition** of the function
- for code optimization.

You will often see C++ programs that have
function declaration above main(),
and function definition below main().

This will make the code **better organized** and **easier to read:**

Example

```
// Function declaration
void myFunction();

// The main method
int main() {
    myFunction(); // call the function
    return 0;
}

// Function definition
void myFunction() {
    cout << "I just got executed!";
}
```



DEMO

LET US WRITE A GREET FUNCTION

Advantages of FUNCTIONS

The advantages of using functions are:

- Avoid repetition of codes.
- Increases program readability.
- Divide a complex problem into simpler ones.
- Reduces chances of error.
- Modifying a program becomes easier by using function.

Function

Tutorial4us.com

Library function

- predefined

- declarations inside header files

- body inside .dll files

- Eg:

- getch(), clrscr() .. etc

User defined

- Created by user

- Reduced complexity of program

Examples & Practice Questions

Problem No. 1

Pattern Printing

*

* *

* * *

* * * *

* * * * *

Problem No. 2

Pattern Printing

1

2 4

3 6 9

4 8 12 16

5 10 15 20 25

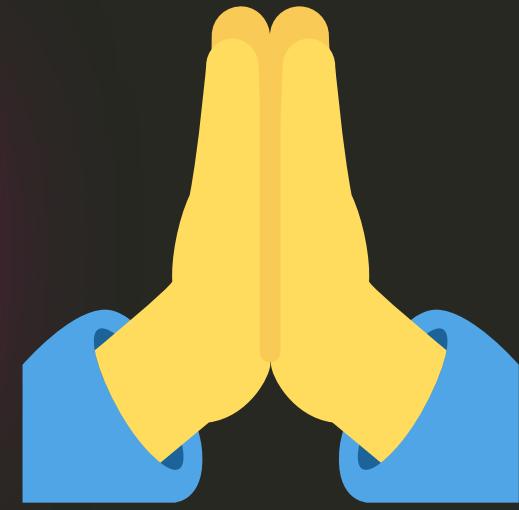
Problem No. 3

Enter Number of Rows : 5

```
* * * * *
* * * *
* * *
* *
*
```



THANK YOU



keep calm,
wear mask,
and
study hard



whoami

AKASH MAJI
Your Mentor