

# Functions

## Lecture- 9

**Raghav Garg**

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# Let's create new bigger patterns

Take a, b, c as input and print the following pattern:

a = 3, b = 4, c = 5

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

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# Let's change the code!

What if we want to make a same pattern for numbers?

A lot of code change! Duh!!!

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# Can we do it in a better way?

The importance of functions

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# Syntax for Functions

Wrapping the logic under a name

```
function_name {  
    // function body  
}
```

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# Syntax for Functions

## The need for arguments

```
function_name(int a, int b, int c) {  
    // function body  
}
```

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# Syntax for Functions

The need for a return type: **Understanding with example**

```
<void/int/float> function_name(int a, int b, int c) {  
    // function body  
}
```

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# What is `int main()`?

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# Some inbuilt library functions

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# Ques : Combination and Permutation

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**Ques** : Pascal triangle

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# Ques : Pascal triangle Optimised

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# Are arguments passed actually the same?

Printing out the actual address of variables in the functions...

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# Formal parameters and Actual Parameters

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# Scope of variable

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# Default values of Arguments

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**Ques** : Write a function to compute the greatest common divisor of two given numbers

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## State TRUE or FALSE :

- 1) The variables commonly used in C++ functions are available to all the functions in a program.
- 2) To return the control back to the calling function we must use the keyword return.
- 3) The same variable names can be used in different functions without any conflict.

**State TRUE or FALSE :**

- 4) Every called function must contain a return statement.**
- 5) A function may contain more than one return statements.**
- 6) Each return statement in a function may return a different value.**

**Bonus Ques** : Print the factorials of first n numbers

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**Ques** : Swap 2 numbers

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# Why does this not work?

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# Is there a way to solve this?

What if we are able to store or pass the actual address inside functions?

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# Next Lecture

Understanding the **memory aspects** of programming

Working with memory **addresses** using Pointers!

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