

# **C++ Basics (Part 2)**

# Goal

## To understand:

- Loops
- Arrays
- Nested Loops
- Pattern-Printing

# Scope

A scope is a region of the program.

Every pair of curly braces creates a new scope.

The variables inside the scope cannot be used outside the scope, but the variables outside the scope can be used inside.

# Loop

Loops are used to repeat a block of code until some condition is satisfied.

There are three types of loops in C++:

- for loop
- while loop
- do-while loop

# Loop (Miscellaneous)

- An iteration is defined as one time the loop gets executed. For example, 3<sup>rd</sup> iteration is the 3<sup>rd</sup> time the loop is run.
- “break” statement exits the current/innermost loop when executed.
- “continue” statement skips to the next iteration of the current/innermost loop when executed.

# “for” loop

Syntax: 

```
for (s1; s2; s3) {  
    // Code here  
}
```

s1: Initialization of the loop.

s2: Condition of the loop. Loop exits if false.

s3: Executed after each iteration.

# “while” loop

Syntax:

```
while (condition) {  
    // Code here  
}
```

Check if the condition is true and then execute the block of code. Repeat.

# Arrays

An array is a collection of multiple items of the same datatype.

- Arrays are ordered.
- The size of an array cannot be changed.

Syntax: `datatype name[size]`



# Pattern-Printing & Random

- <https://www.faceprep.in/c/pattern-programs-in-c/>
- <https://www.codingame.com/> (clash of code)

Thanks for watching!