Functions in C++

In this lesson, you will study functions and their types.

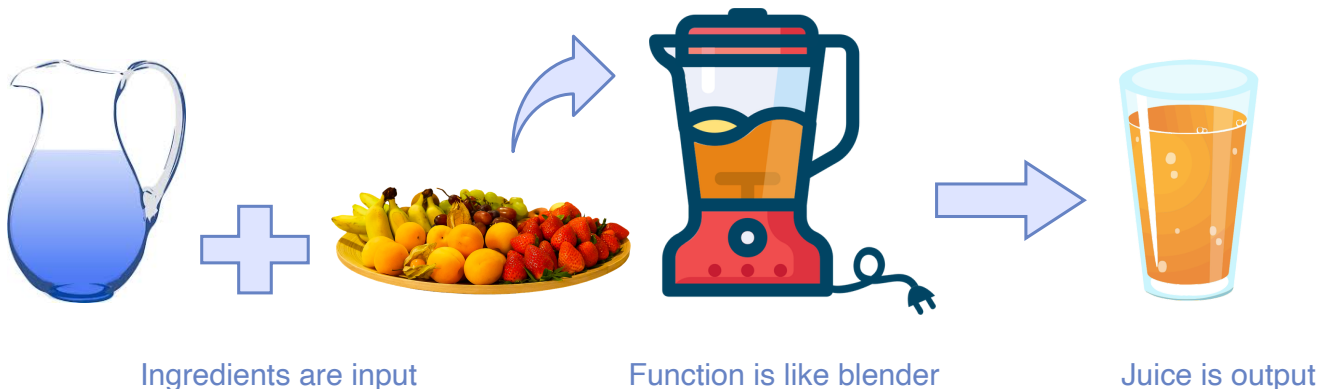**We'll cover the following** ⌃

- Introduction
  - Types of functions
    - Library functions
    - User-defined functions
  - Why use functions?

Introduction#

Suppose you want to make juice for yourself. You will follow the following steps:

1. Put fruits and water in a blender.
2. Turn on the juicer.
3. Enjoy the juice after 1 minute.

Ingredients are input   Function is like blender   Juice is output

A function is like a blender that performs a specific action on some ingredients and returns a modified product. We can use the same blender to extract the juice of different fruits. Similarly, functions are reusable, and we can use the same function anytime with different inputs.
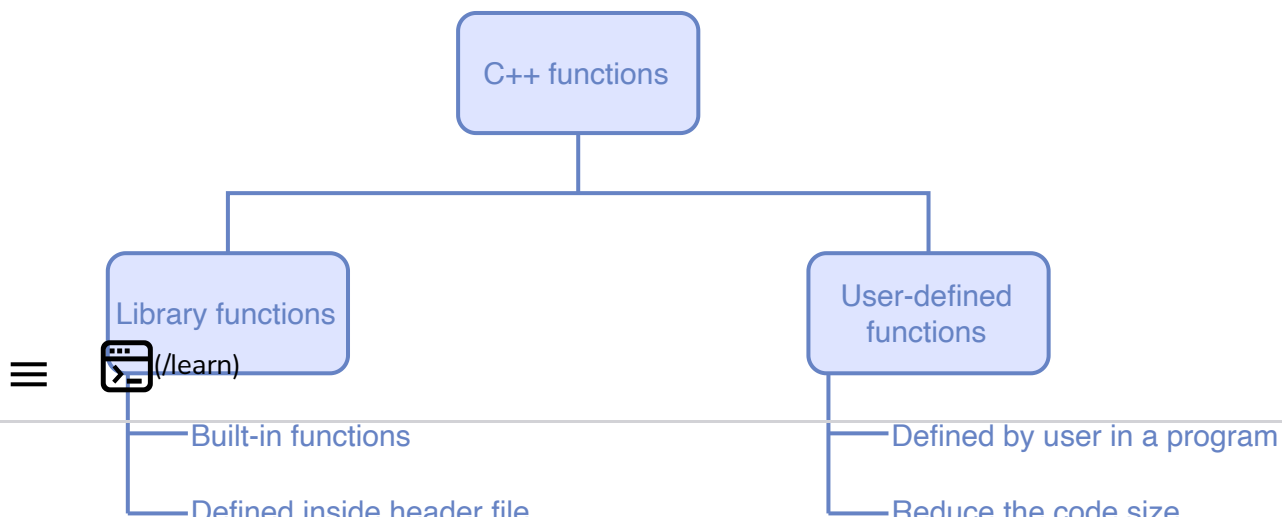
> In computer language, a **function** is a block of code that performs a particular task. It is also given a name.

Functions in programming are just like mathematical functions. They take something as input, perform some operation on it, and return an output.

Types of functions

In C++, we have two types of functions:

- Library functions
- User-defined functions

```
                    ┌─────────────────┐
                    │  C++ functions  │
                    └────────┬────────┘
                  ┌──────────┴──────────┐
        ┌─────────────────┐    ┌─────────────────┐
        │Library functions│    │   User-defined  │
        └─────────────────┘    │    functions    │
                               └─────────────────┘
```

—Built-in functions

—Defined inside header file

—Defined by user in a program

—Reduce the code size

Library functions

These functions are also known as built-in functions. They are already defined in the C++ header files such as `\<iostream>`, `\<string>`, and `\<cmath>` etc. We can use these functions by including the relevant header file and then call them later in a program.

User-defined functions#

These functions are defined by users according to their needs. We can call them anywhere in the current program. We will discuss them in detail in the upcoming lessons.

Why use functions?#

We use functions in a program to:

- Make our code reusable
- Divide our code into small modules
- Make the debugging of the program easier
- Make our code neat
- Avoid code repetition

> 📝 The purpose of a function is to define the code block once and then use it many times.

Let's dig deeper into user-defined functions. Keep on reading to find out more!