

ARDUINO C++

markus.hofer.rocks/arduino-cpp

Comments

```
// This is a comment - it's ignored when the program runs
```

Variables - values that can change

```
<Data Type> <name> = <starting value>;
```

```
bool won = false;
int score = 100;
float num = 12.87;
String name = "Bob";
```

Data Types - the types of data a variable can hold

bool - true or false
int - integer number (like 438 or -12)
float - floating point number (like 37.83752 or -1.2)
char - single character (like 'C' or 'f')
String - text (like "Who came up with this nonsense?")

Functions (Methods) - are sections of reusable code that can be invoked from different places

The Arduino library comes with many built-in functions to call:

```
delay(1000); // pauses the execution of the program for 1000ms (1 sec)
random(0, 10); // generates a random number between 0 and 10
```

You can **define your own functions**:

```
<Return Type> <function name>(<arguments>){ <function content> }
```

```
int add(int a, int b){
    return a + b; // return the result of a + b
}
```

Then **call your function** like this:

```
int result = add(256, 128);
```

How to return nothing

If your function returns *nothing*, use return type **void**.

Basic Structure of an Arduino Program - you need to define 2 functions

```
void setup(){
    // called once at the very beginning
}

void loop(){
    // called again and again and again for as long as the program runs
}
```

Serial Output/Input - an easy way to send data between your microcontroller and your computer

```
void setup(){
    Serial.begin(9600); // Initialize serial communication at the given baud rate
}

void loop(){
    while (!Serial.available()) {} // Wait for user input to complete

    char userChoice = Serial.read(); // Read the user input into a variable
    Serial.print("Received:"); // Print text
    Serial.println(userChoice); // Print user input
}
```

Serial Monitor (CTRL+SHIFT+M)

Open **Tools > Serial Monitor** to see what your microcontroller sends!



```
Output Serial Monitor x
Message (Enter to send message to 'Arduino Leonardo' on 'COM39') New Line 9600 baud
10:58:47.971 -> You entered: 1
10:58:47.971 -> You entered: 2
10:58:47.971 -> You entered: a
10:58:47.971 -> You entered:
10:58:47.971 ->
```