

# Functions In JavaScript:

A function is a block of code designed to perform a particular task. It only runs when called/invoked.

Or

A function in JavaScript is like a reusable set of instructions

## Function Definition

```
function functionName(){
    // do some task
}
```

## Function Call/invoke

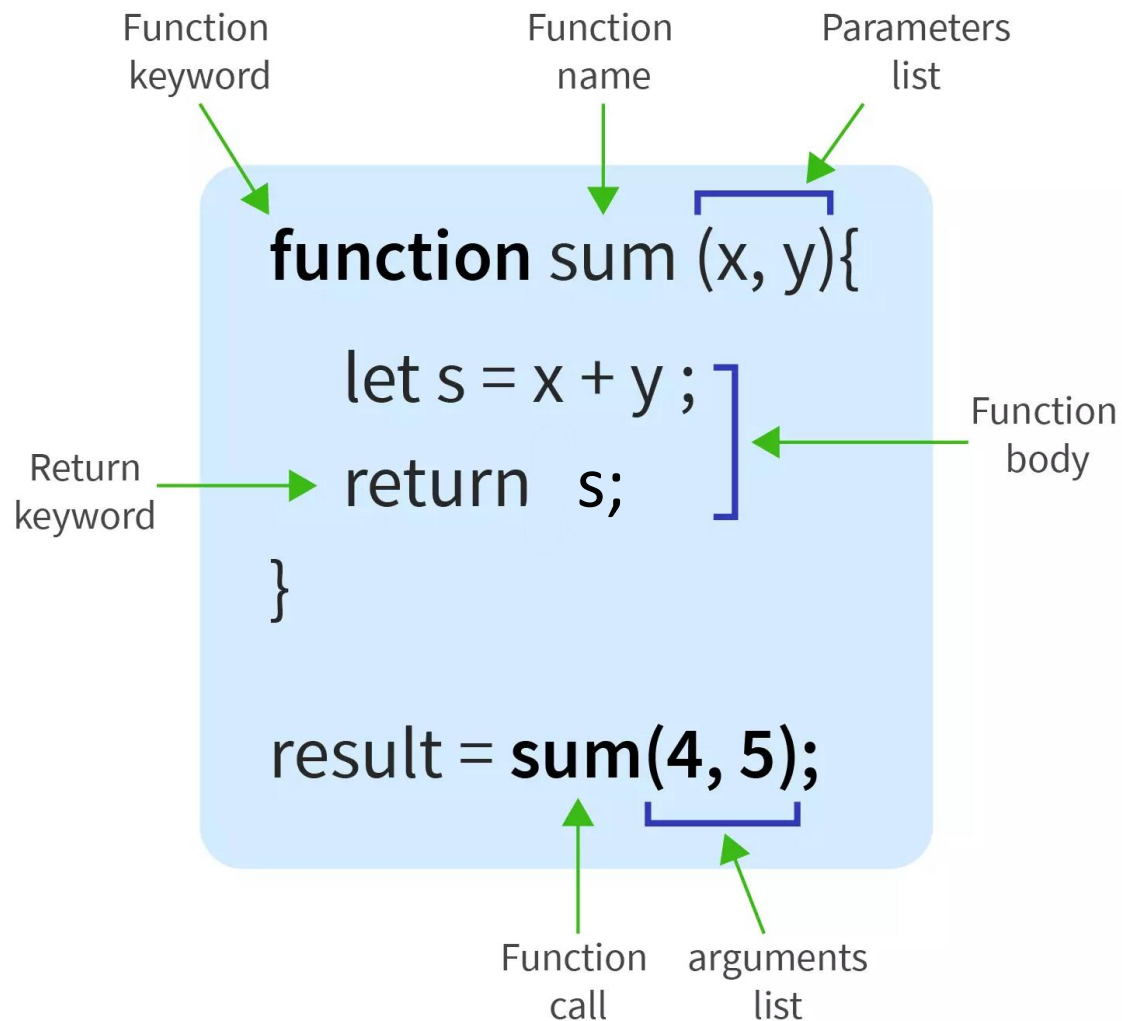
```
functionName();
```

## 4 ways to create a function

1. Without parameter list & without return.
2. Without parameter list & with return.
3. With parameter list & without return.
4. With parameter list & with return.

### Note:

- ❑ Parameters: placeholders used when creating the function.
- ❑ Arguments: actual values passed when calling the function.
- ❑ Parameters in a function is like local variable having block scope.



# Default Parameters

default parameters allow you to assign default values to function parameters.

If no value (or undefined) is passed for that parameter when the function is called, the default value is used instead.

## Example:

```
function greet(name = "Guest") {
  console.log("Hello, " + name + "!");
}
```

```
greet("MKL"); // Output: Hello, MKL!
greet(); // Output: Hello, Guest!
```

### Note:

- ❑ Only undefined triggers the default value.
- ❑ You can use expressions as default values.

# Types of functions

#	Function Type	Description	Example
1	<b>Function Declaration</b> (normal function)	Declared with the function keyword, can be hoisted	<pre>function greet(){   console.log("hello") }</pre>
2	<b>Function Expression</b>	Stored in a variable; not hoisted	<pre>const greet = function(){   console.log("hello") }</pre>
3	<b>Arrow Function</b> (fat arrow function)	Shorter syntax, introduced in ES6	<pre>() =&gt; {   console.log("hello") }</pre>
4	<b>Anonymous Function</b>	A function without a name, often used in expressions	<pre>setTimeout(function () {   console.log("hello") }, 2000);</pre>
5	<b>IIFE</b> (Immediately Invoked Function Expression)	A function that runs as soon as it's defined	<pre>(function(){   console.log("hello") })();</pre>

1. Write a regular function that takes a string and returns it with the first letter capitalized.
2. Show an alert message that says "Please login" after 5 seconds on your website.
3. Make an arrow function that takes a price and a discount, and returns the price after discount.
4. Create a function that builds a username from a full name.
5. Write a function that takes a traffic light color and gives the correct instruction (e.g. "go" for green, "stop" for red, "caution" for yellow, and "invalid color" for anything else).