Function Definition

Let's learn the logic and syntax needed to create our first function!

WE'LL COVER THE FOLLOWING

As we discussed earlier, a function performs a certain task and returns a value. This implies that the function will contain an *expression*.

The Need for Functions

A function can be used repeatedly, which helps us avoid writing redundant code.

Let’s look at a simple program where we calculate and print the double of an integer:

```
let two = 2;
let seven = 7;
let ten = 10;

let doubleOfTwo = two * 2;
Js.log(doubleOfTwo); /* 4 */

let doubleOfSeven = seven * 2;
Js.log(doubleOfSeven); /* 14 */

let doubleOfTen = ten * 2;
Js.log(doubleOfTen); /* 20 */
```

The code above is redundantly verbose for no reason. The simple steps are:

1. Calculate the double.
2. Print its value.

Let's suppose we had a function called `double()`, which could print the doubled value for any integer. Here's how it would work:

```
double(2);
double(7);
double(10);
```

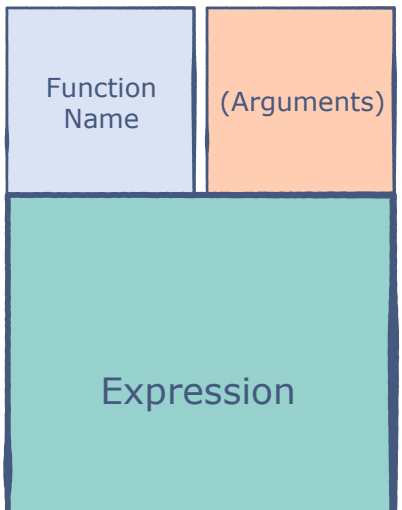
Pretty neat right? The function hides the needless code and performs its assigned task whenever called.

It's time for us to create our own `double()` method, but before that, we need to understand how a function is created.

The Structure of a Function

In programming terms, we refer to function creation as function **definition** or **implementation** since we are *defining* a function.

Below, we can find a simple illustration of the different components of a function.



A basic function.

Function Name

This is the identifier of the function. In the example above, the function name is `double`. We use `let` bindings to specify this name.

Arguments

Also known as parameters, arguments are the input values in a function. They will be used to perform computations within the function. In the `double()` method, the argument was the number whose double was computed. A function can have as many arguments as required.

Expression

This is where the actual task of the function is implemented.

The Template

Here's what a typical function in Reason looks like:

```
let functionName = (arguments) => {
  expression
};
```

- The `=` and `=>` operators are compulsory for a function.
- Multiple arguments can be separated by commas.
- The expression should return a value or object.

The Implementation

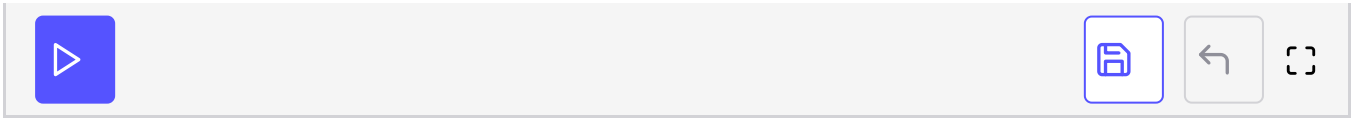
Finally, let's write the implementation for our `double()` function:

```
let double = (num: int) => {
  num * 2;
};
let doubleOfTen = double(10);
Js.log(doubleOfTen);
```

As a safety check, we've annotated the type of the `num` argument. The value returned by the function is bound to the `doubleOfTen` variable.

And just like that, we've created our first function! Since our function only contains a single-line expression, we could make it more concise in the following way:

```
let double = (num: int) => num * 2;
let doubleOfTen = double(10);
Js.log(doubleOfTen);
```



In the next lesson, we'll learn more about the scope of a function.