JavaScript closures

A closure can be defined as a JavaScript feature in which the inner function has access to the outer function variable. In [JavaScript](https://www.javatpoint.com/javascript-tutorial), every time a closure is created with the creation of a function.

The closure has three scope chains listed as follows:

* Access to its own scope.
* Access to the variables of the outer function.
* Access to the global variables.

Let's understand the closure by using an example.

Example1

1. <!DOCTYPE html**>**
2. **<html>**
3. **<head>**
4. **<script>**
5. function fun()
6. {
7. var a = 4; // 'a' is the local variable, created by the fun()
8. function innerfun() // the innerfun() is the inner function, or a closure
9. {
10. return a;
11. }
12. return innerfun;
13. }
14. var output = fun();
15. document.write(output());
16. document.write(" ");
17. document.write(output());
18. **</script>**
19. **</head>**
20. **<body>**
22. **</body>**
23. **</html>**

**Output**

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4 4

In the above program we have two functions: **fun()** and **innerfun()**. The function **fun()** creates the local variable **a** and the function **innerfun()**. The inner function **innerfun()** is only present in the body of **fun()**. The inner function can access the outer function's variable, so the function **innerfun()** can access the variable **'a'**, which is declared and defined in **fun()**.

This is the closure in action in which the inner function can have access to the global variables and outer function variables.

The entire body of function **innerfun()** is returned and stored in the variable **output**, due to the statement **return innerfun**. The inner function is not executed only by using the **return** statement; it is executed only when followed by the braces **()**.

In the output, the code will display the value of the variable **'a'**, defined in the parent function.

Now, there is another example in which we will use the parameterized function

Example2

1. <!DOCTYPE html**>**
2. **<html>**
3. **<head>**
4. **<script>**
5. function fun(a)
6. {
7. function innerfun(b){
8. return a\*b;
9. }
10. return innerfun;
11. }
12. var output = fun(4);
13. document.write(output(4));
14. document.write(" ");
15. document.write(output(5));
16. **</script>**
17. **</head>**
18. **<body>**
20. **</body>**
21. **</html>**

**Output**

16 20

In the above program there are two parameterized functions: **fun()** and **innerfun()**. The function **fun()** has a parameter **a**, and the function **innerfun()** has the parameter **b**. The function **fun()** returns a function **innerfun()** which takes an argument and returns the multiplication of **a** and **b**. In the program, the **output** is the closure.

Now, there is another example of closure within a loop.