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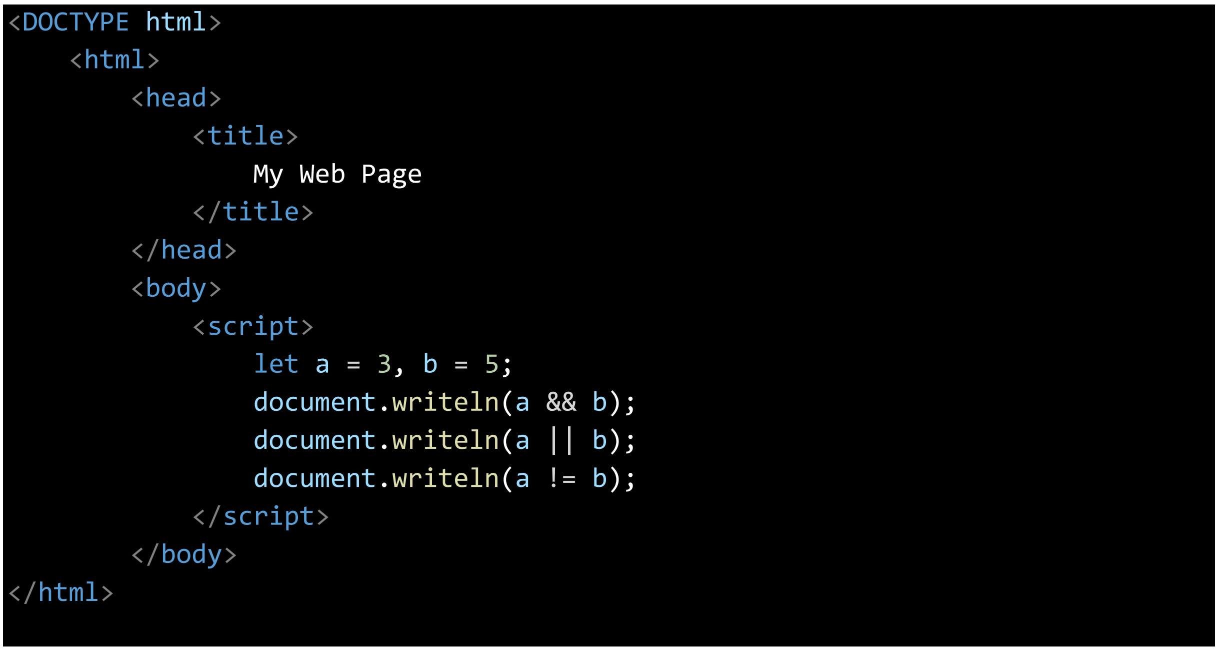
DEPT : ELECTRICAL AND ELETRONICS ENGINEERING

MERN STACK TASK 41-55

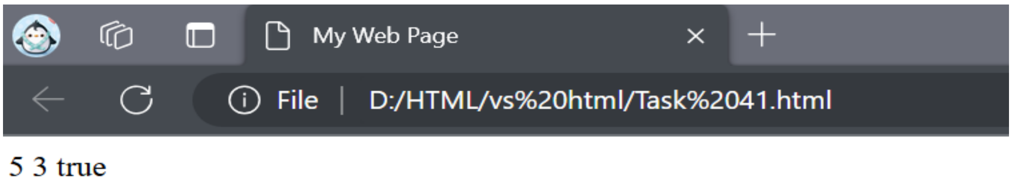
TASK 41 : Evaluate various combinations of logical operators (&&, ||, !).

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                let a = 3, b = 5;
                document.writeln(a && b);
                document.writeln(a || b);
                document.writeln(a != b);
            </script>
        </body>
</html>
```

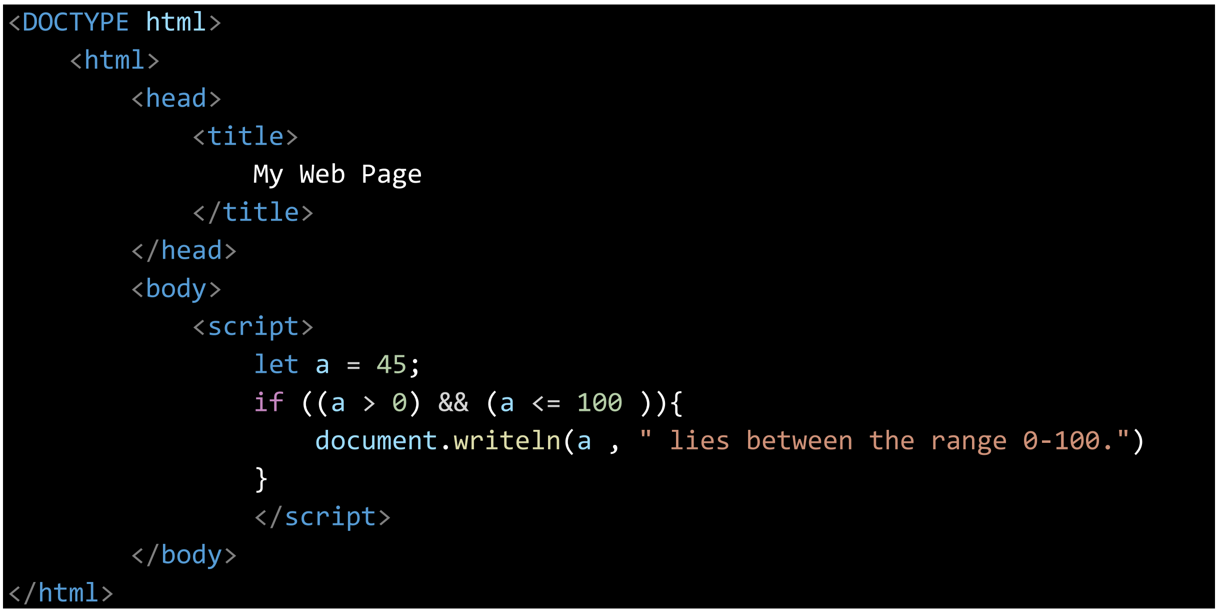
Output :



```
5 3 true
```

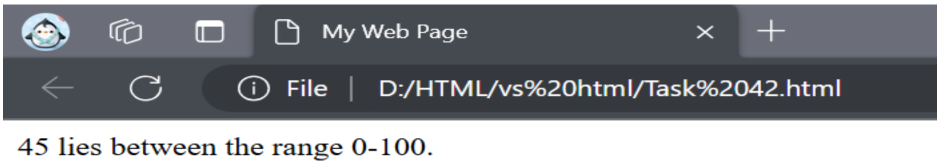
TASK 42 : Use logical operators to write a condition that checks if a number is in a given range.

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                let a = 45;
                if ((a > 0) && (a <= 100 )){
                    document.writeln(a , " lies between the range 0-100.")
                }
                </script>
        </body>
</html>
```

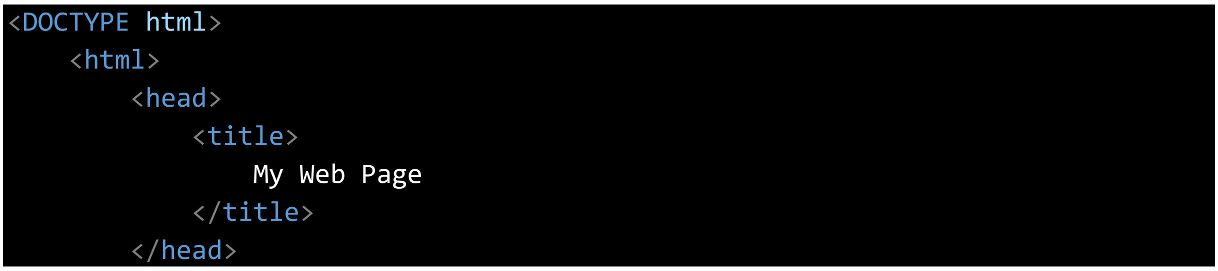
Output :



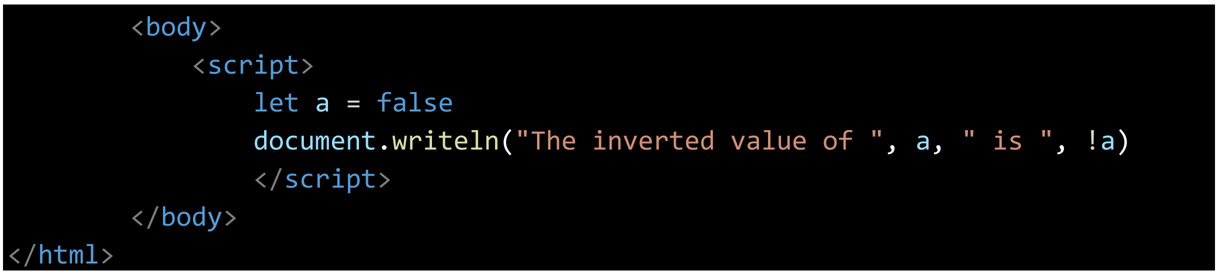
```
45 lies between the range 0-100.
```

TASK 43 : Use the NOT (!) operator to invert a boolean value.

Program :

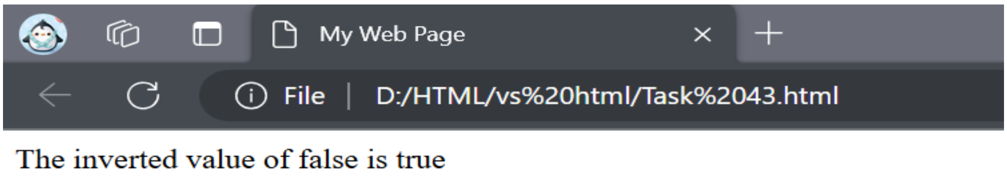


```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
```



```
        <body>
            <script>
                let a = false
                document.writeln("The inverted value of ", a, " is ", !a)
                </script>
        </body>
</html>
```

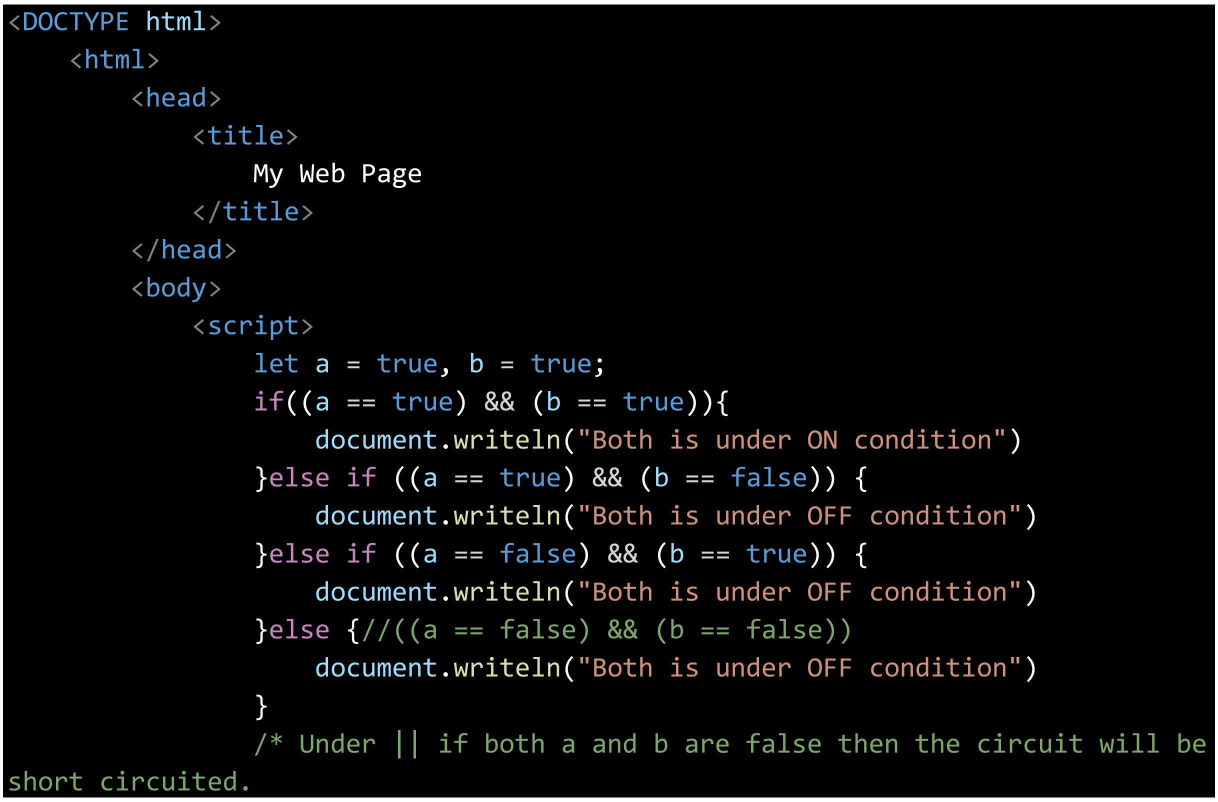
Output :



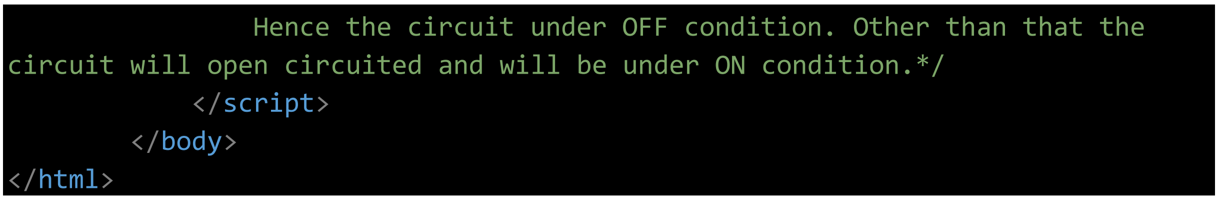
The inverted value of false is true

TASK 44 : Evaluate the short-circuiting nature of logical operators.

Program :

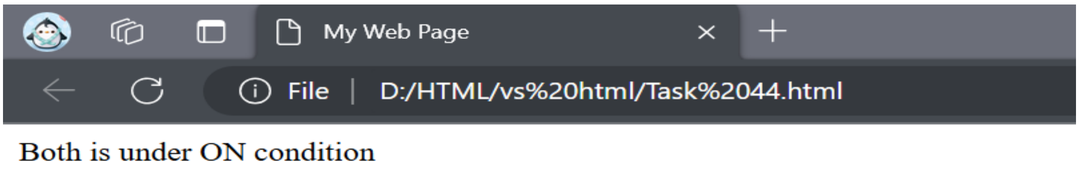


```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                let a = true, b = true;
                if((a == true) && (b == true)){
                    document.writeln("Both is under ON condition")
                }else if ((a == true) && (b == false)) {
                    document.writeln("Both is under OFF condition")
                }else if ((a == false) && (b == true)) {
                    document.writeln("Both is under OFF condition")
                }else {//((a == false) && (b == false))
                    document.writeln("Both is under OFF condition")
                }
                /* Under || if both a and b are false then the circuit will be
short circuited.
```



```
                Hence the circuit under OFF condition. Other than that the
circuit will open circuited and will be under ON condition.*/
            </script>
        </body>
</html>
```

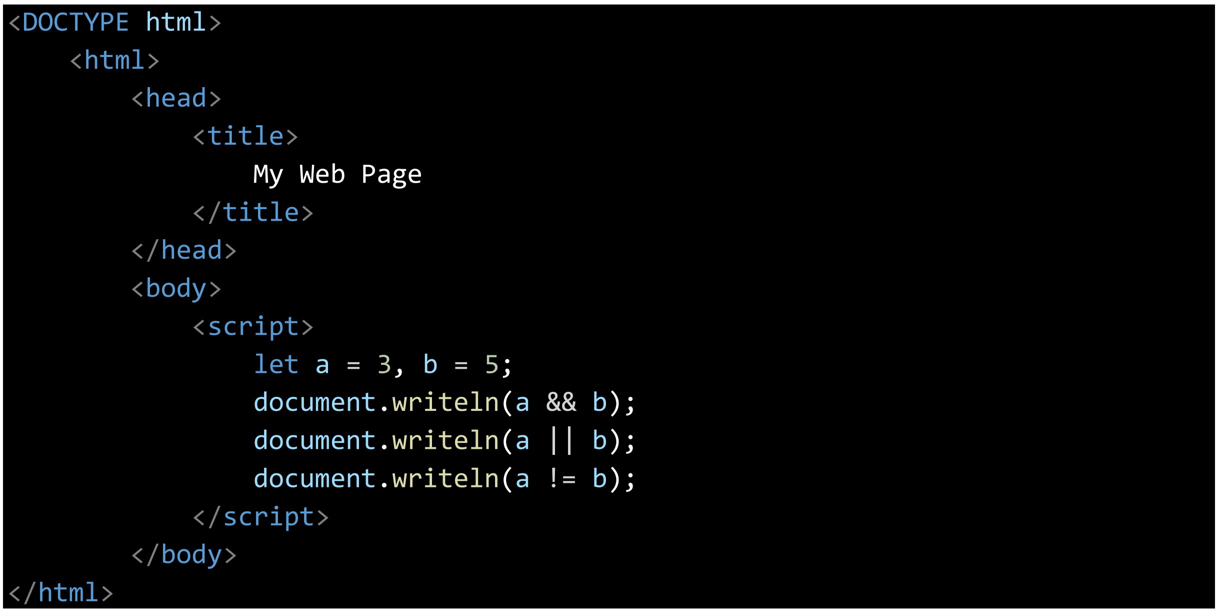
Output :



Both is under ON condition

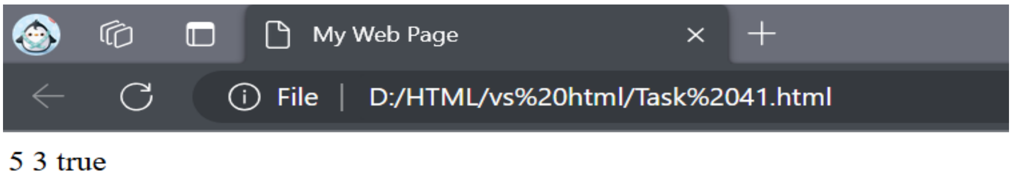
TASK 45 : Compare two non-boolean values using logical operators and observe the result.

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                let a = 3, b = 5;
                document.writeln(a && b);
                document.writeln(a || b);
                document.writeln(a != b);
            </script>
        </body>
</html>
```

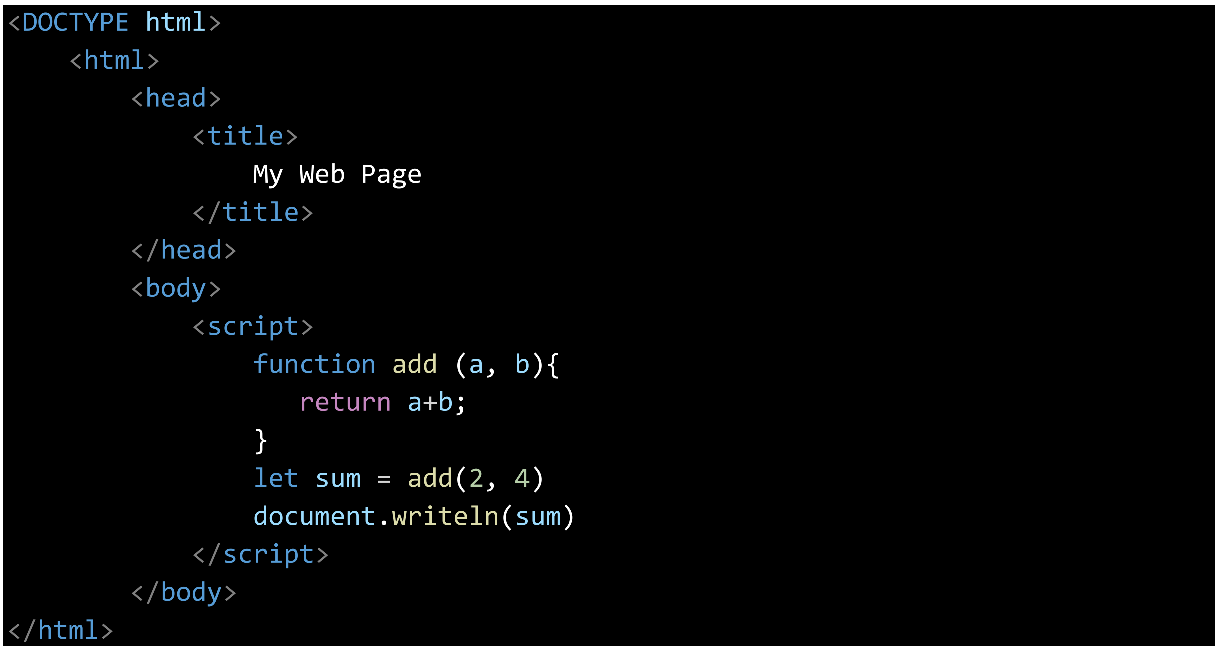
Output :



```
5 3 true
```

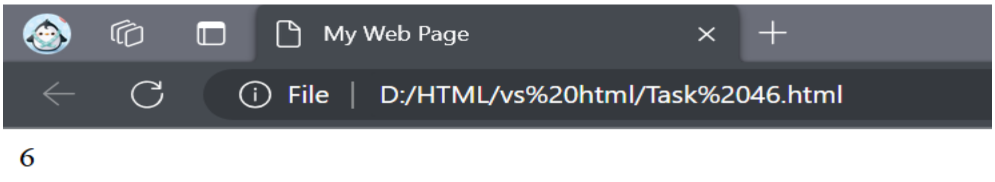
TASK 46 : Write a function that takes two numbers as arguments and returns their sum.

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                function add (a, b){
                   return a+b;
                }
                let sum = add(2, 4)
                document.writeln(sum)
            </script>
        </body>
</html>
```

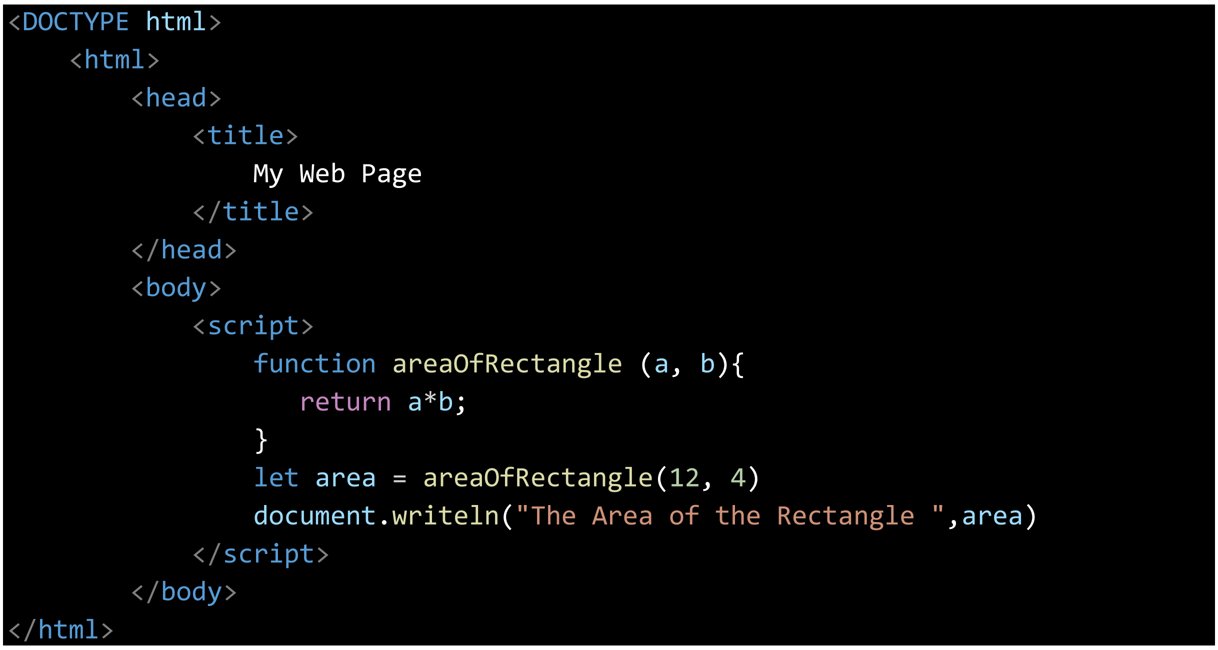
Output :



```
6
```

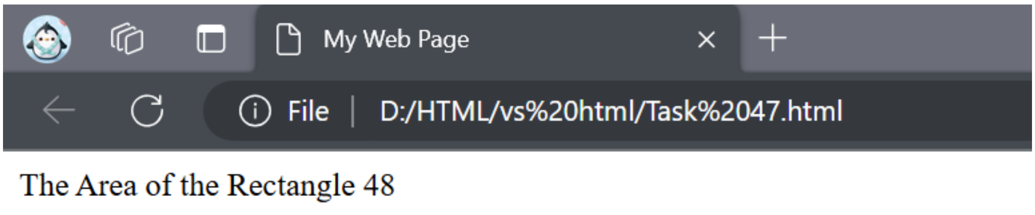
TASK 47 : Create a function that calculates the area of a rectangle.

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                function areaOfRectangle (a, b){
                   return a*b;
                }
                let area = areaOfRectangle(12, 4)
                document.writeln("The Area of the Rectangle ",area)
            </script>
        </body>
</html>
```

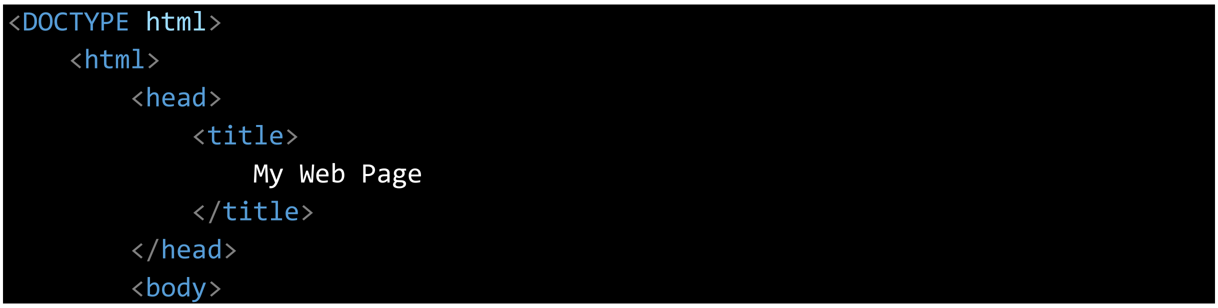
Output :



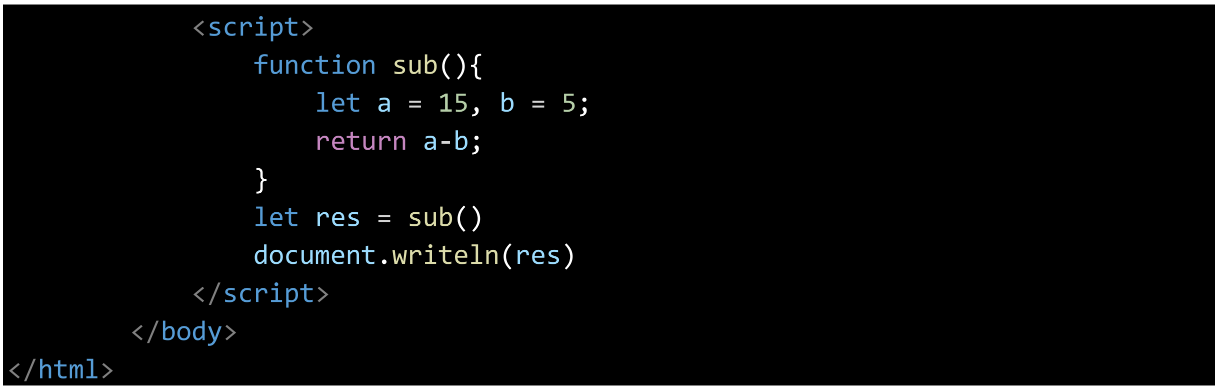
The Area of the Rectangle 48

TASK 48: Declare a function without parameters and call it.

Program :

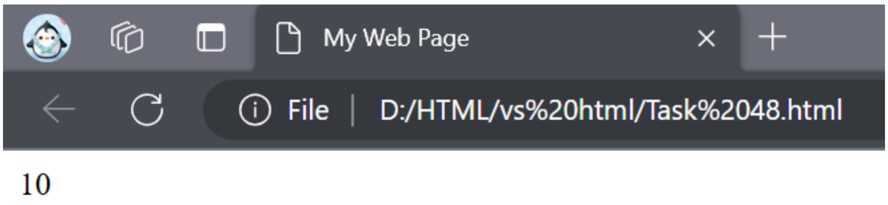


```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
```



```
            <script>
                function sub(){
                    let a = 15, b = 5;
                    return a-b;
                }
                let res = sub()
                document.writeln(res)
            </script>
        </body>
</html>
```

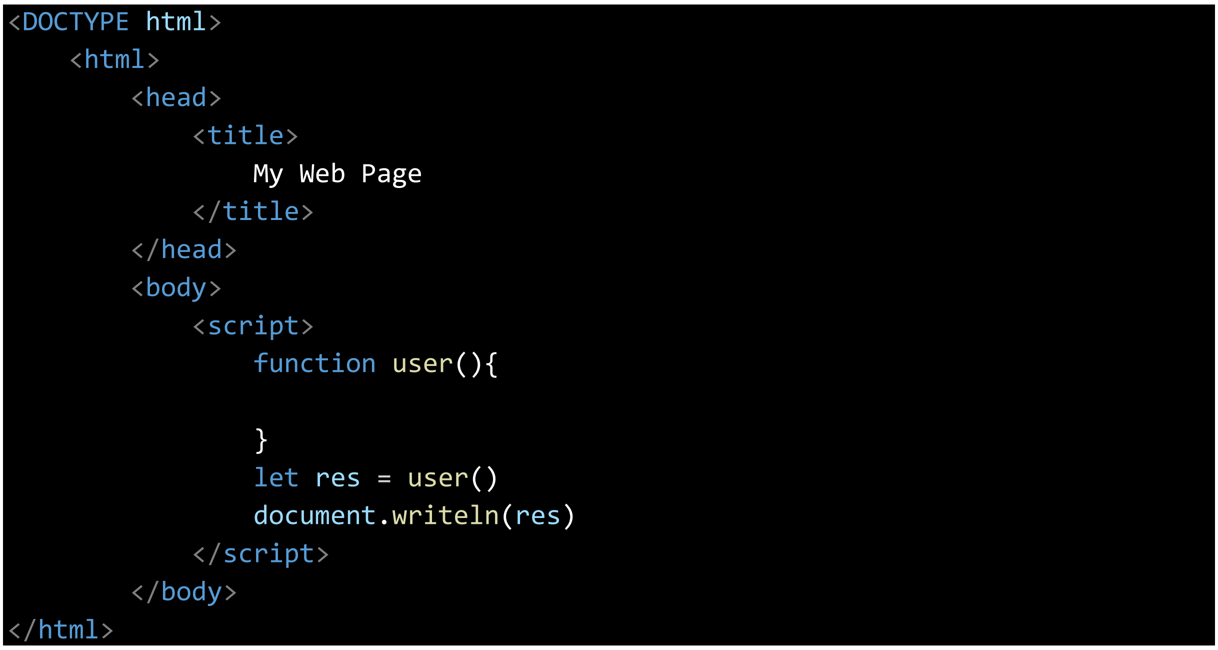
Output :



```
10
```

TASK 49 : Write a function that returns nothing and observe the default return value.

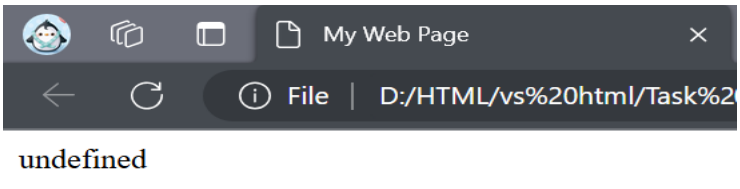
Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                function user(){

                }
                let res = user()
                document.writeln(res)
            </script>
        </body>
</html>
```

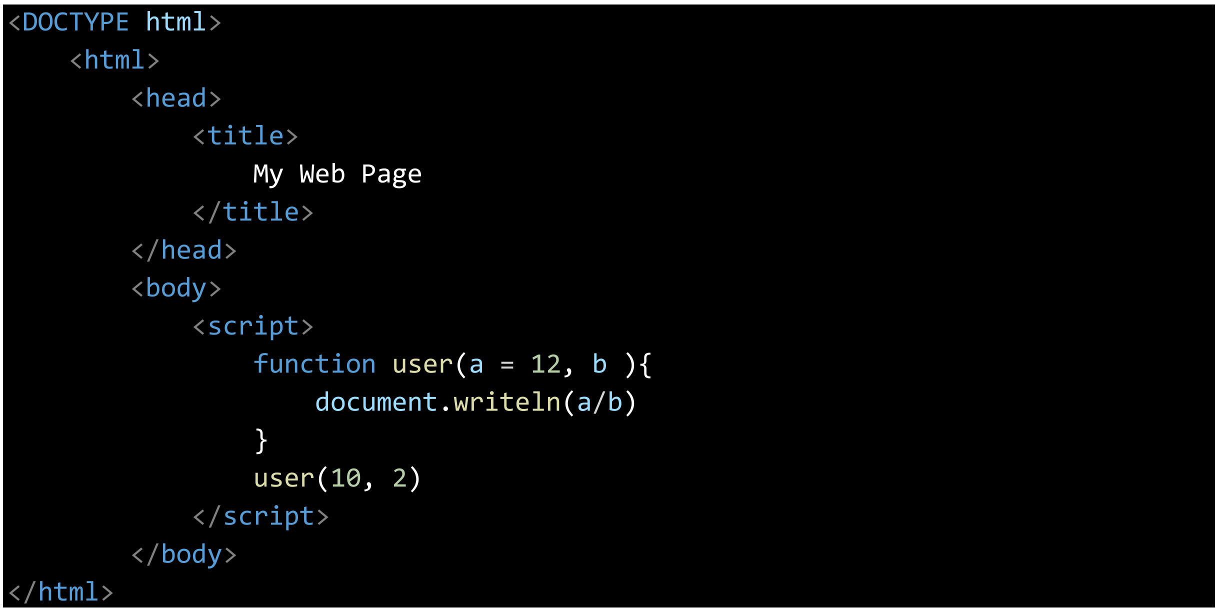
Output :



```
undefined
```

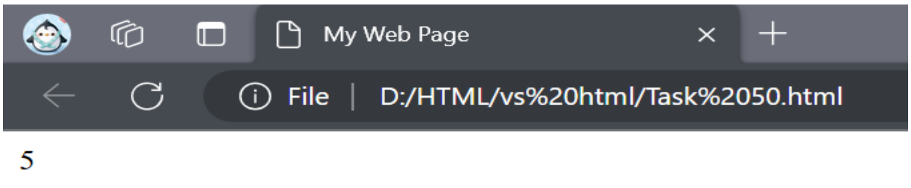
TASK 50: Declare a function with default parameters and call it with different arguments.

Program :



```
<DOCTYPE html>
    <html>
        <head>
            <title>
                My Web Page
            </title>
        </head>
        <body>
            <script>
                function user(a = 12, b ){
                    document.writeln(a/b)
                }
                user(10, 2)
            </script>
        </body>
</html>
```

Output :



```
5
```

TASK 51 : Declare a simple arrow function named greet that takes one parameter name and returns the string “Hello, name!”. Test your function with various names.

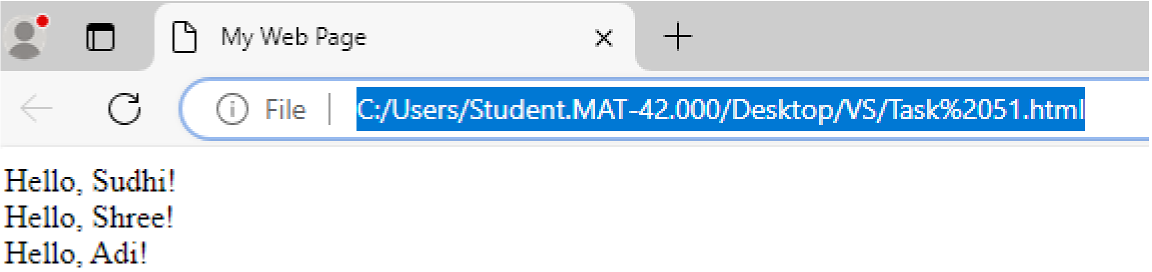
Program :

```
<!DOCTYPE html>
<html>
    <head>
        <title>

        </title>
    </head>
    <body>
        <script>
            let greet =  name =>
                document writeln "Hello, " name "!"
                document writeln "<br>"

            let name1 = 'Sudhi'
           greet name1
           let name2 = 'Shree'
           greet name2
           let name3 = 'Adi'
           greet name3
        </script>
    </body>
</html>
```

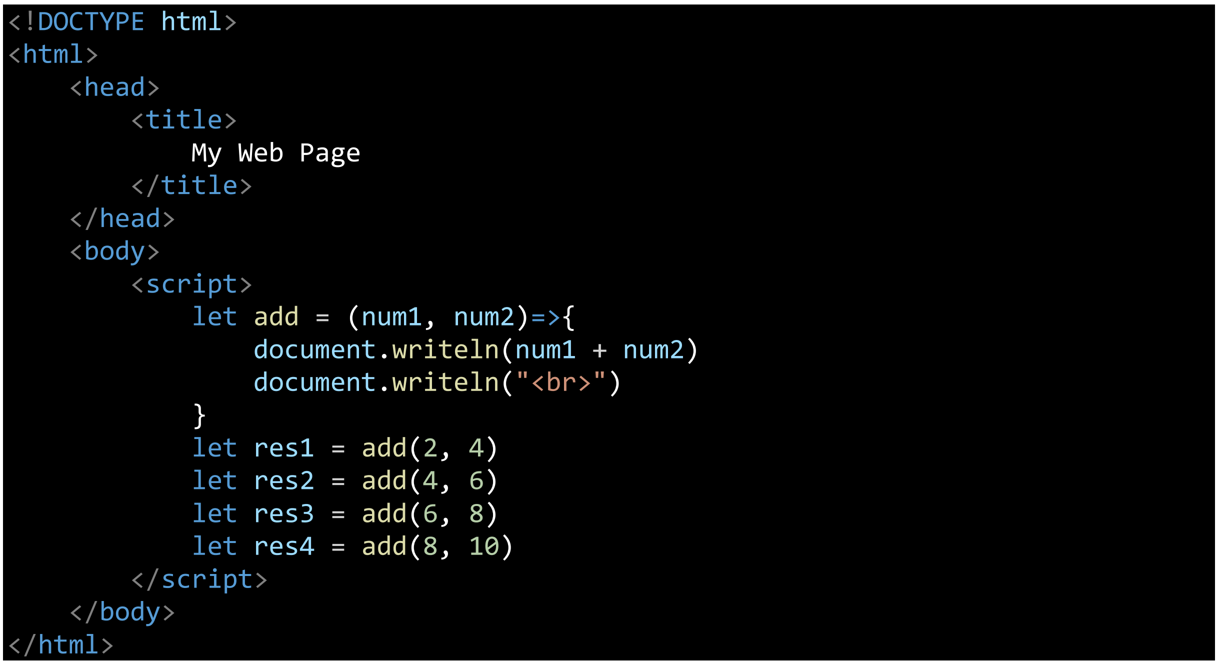
Output :



```
Hello, Sudhi!
Hello, Shree!
Hello, Adi!
```

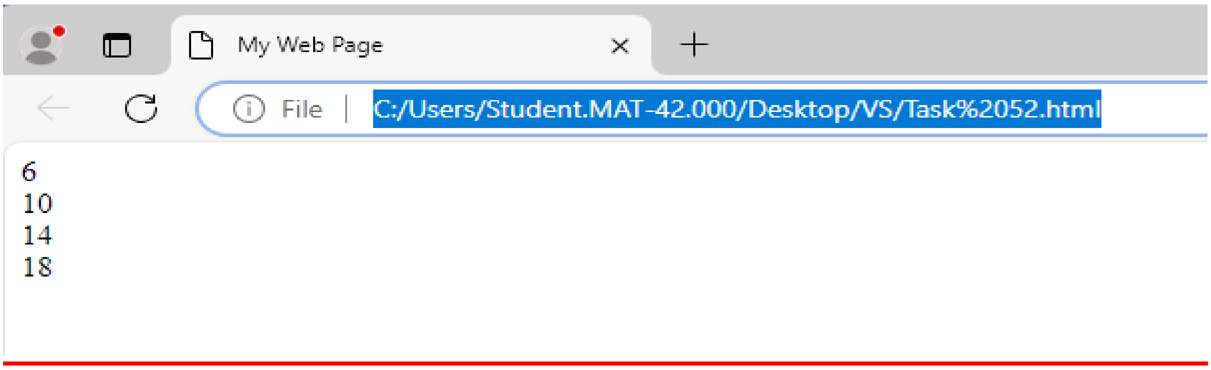
TASK 52 : Write an arrow function named add that takes two parameters and returns their sum. Validate your function with several pairs of numbers.

Program :



```
<!DOCTYPE html>
<html>
    <head>
        <title>
            My Web Page
        </title>
    </head>
    <body>
        <script>
            let add = (num1, num2)=>{
                document.writeln(num1 + num2)
                document.writeln("<br>")
            }
            let res1 = add(2, 4)
            let res2 = add(4, 6)
            let res3 = add(6, 8)
            let res4 = add(8, 10)
        </script>
    </body>
</html>
```

Output :



```
6
10
14
18
```

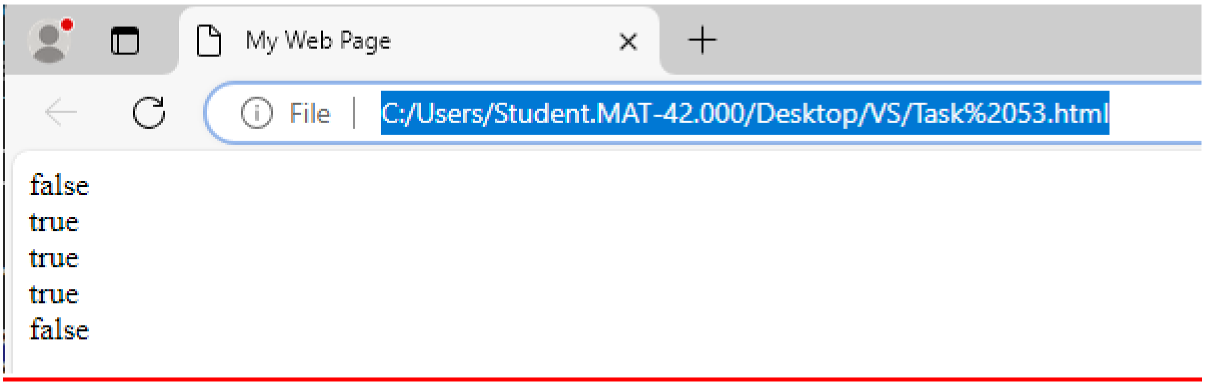
TASK 53 : Declare an arrow function named isEven that checks if a number is even. If the number is even, it should return true; otherwise, false. Remember that if the arrow function body has a single statement, you can omit the curly braces.

Program :

```
<!DOCTYPE html>
<html>
    <head>
        <title>

        </title>
    </head>
    <body>
        <script>
            let iseven =  num =>  num % 2 === 0
            let res1 = document writeln iseven 7  "<br>"
            let res2 = document writeln iseven 4  "<br>"
            let res3 = document writeln iseven 0  "<br>"
            let res4 = document writeln iseven 2  "<br>"
            let res5 = document writeln iseven 5  "<br>"
        </script>
    </body>
</html>
```

Output :

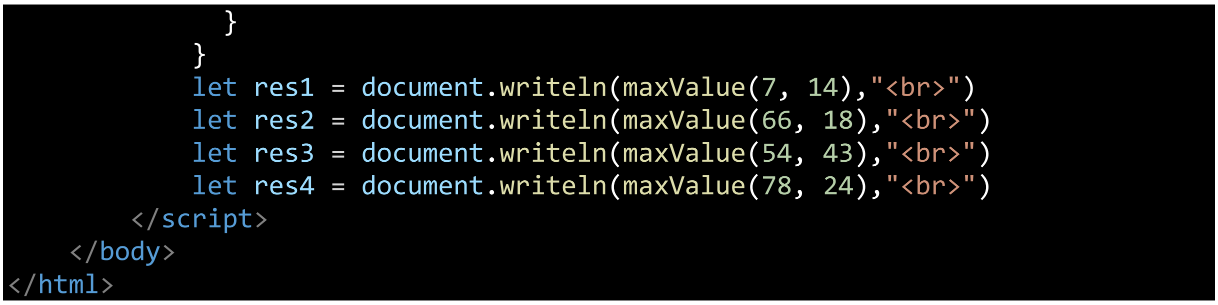


```
false
true
true
true
false
```

TASK 54 : Implement an arrow function named maxValue that takes two numbers as parameters and returns the larger number. Here, you'll need to use curly braces for the function body and the return statement.

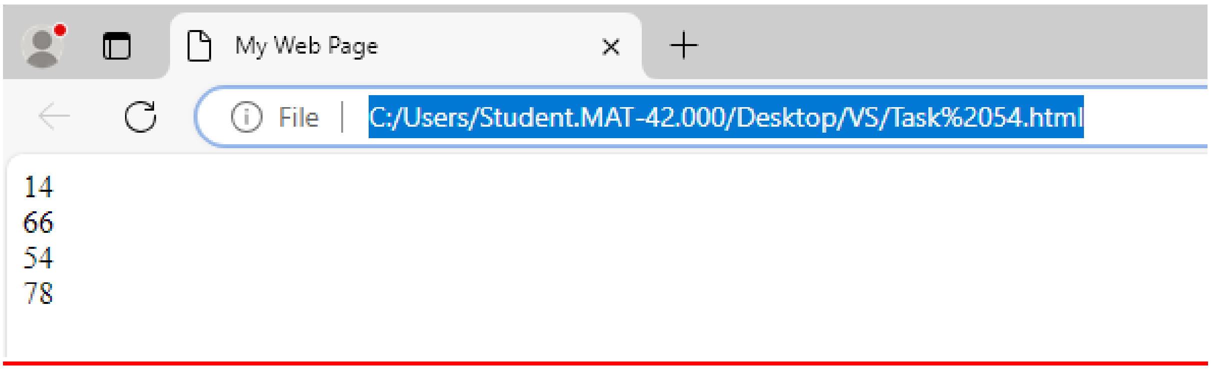
Program :

```
<!DOCTYPE html>
<html>
    <head>
        <title>
            My Web Page
        </title>
    </head>
    <body>
        <script>
            let maxValue = (num1, num2)=>{
              if(num1 > num2){
                return num1
              }else{
                return num2
```



```
              }
            }
            let res1 = document.writeln(maxValue(7, 14),"<br>")
            let res2 = document.writeln(maxValue(66, 18),"<br>")
            let res3 = document.writeln(maxValue(54, 43),"<br>")
            let res4 = document.writeln(maxValue(78, 24),"<br>")
        </script>
    </body>
</html>
```

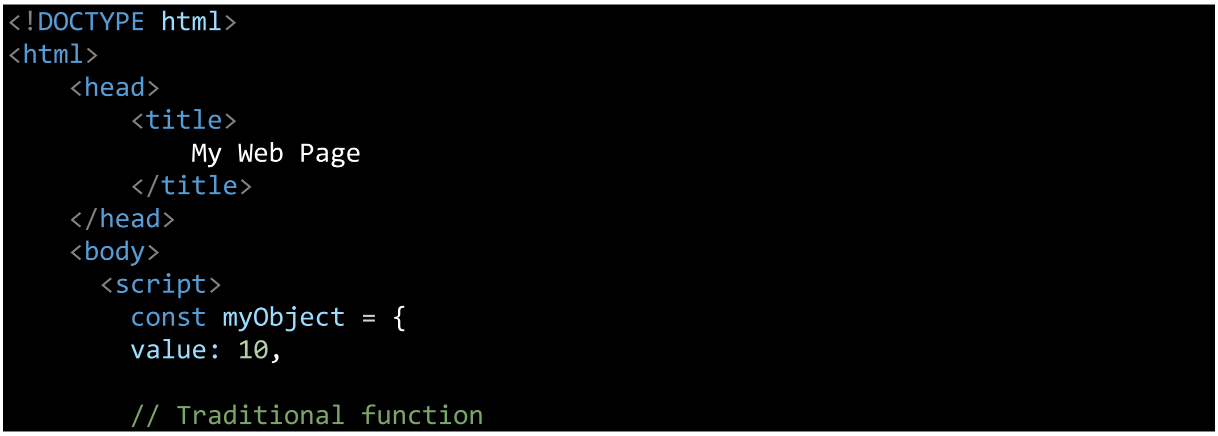
Output :



```
14
66
54
78
```

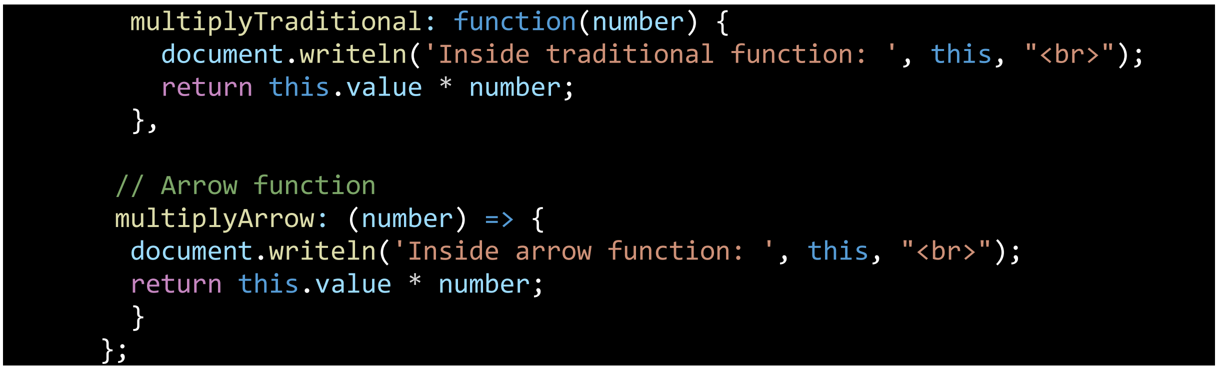
TASK 55 : Examine the behavior of the this keyword inside an arrow function vs a traditional function. Create an object named myObject with a property value set to 10 and two methods: multiplyTraditional using a traditional function and multiplyArrow using an arrow function. Both methods should attempt to multiply the value property by a number passed as a parameter. Check the value of this inside both methods.

Program :



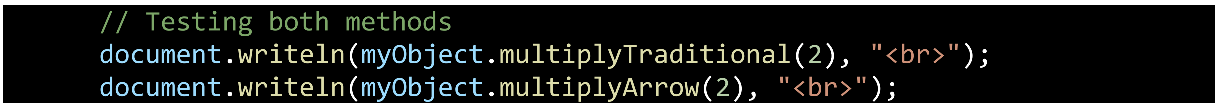
```
<!DOCTYPE html>
<html>
    <head>
        <title>
            My Web Page
        </title>
    </head>
    <body>
      <script>
        const myObject = {
        value: 10,

        // Traditional function
```

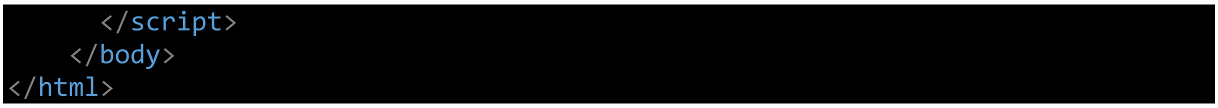


```
        multiplyTraditional: function(number) {
          document.writeln('Inside traditional function: ', this, "<br>");
          return this.value * number;
        },

       // Arrow function
       multiplyArrow: (number) => {
        document.writeln('Inside arrow function: ', this, "<br>");
        return this.value * number;
        }
      };
```

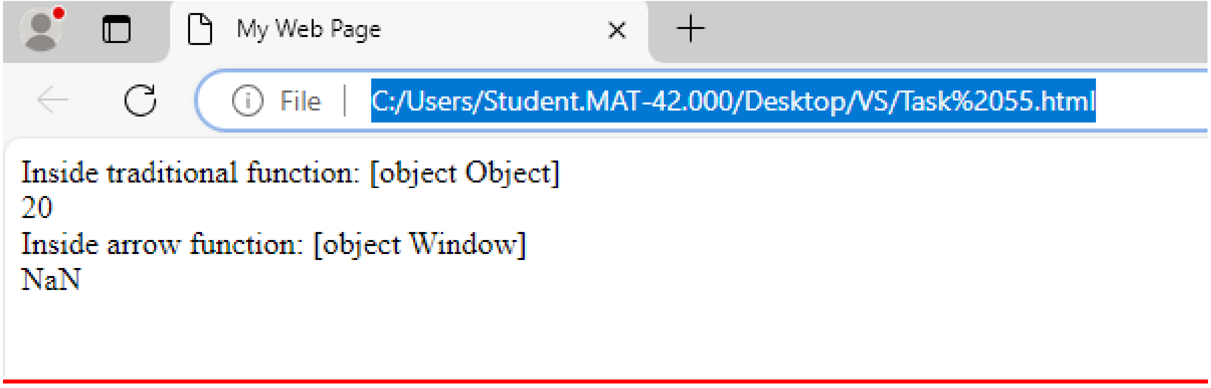


```
      // Testing both methods
      document.writeln(myObject.multiplyTraditional(2), "<br>");
      document.writeln(myObject.multiplyArrow(2), "<br>");
```



```
      </script>
    </body>
</html>
```

Output :



```
Inside traditional function: [object Object]
20
Inside arrow function: [object Window]
NaN
```