QUIZ!

What is the correct way to write a JavaScript array?

a. var colors = "red", "green", "blue“
b. var colors = (1:"red", 2:"green", 3:"blue")
c. var colors = 1 = ("red"), 2 = ("green"), 3 = ("blue")
d. var colors = ["red", "green", "blue"]

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a. call myFunction()
b. function myFunction()
c. myFunction()

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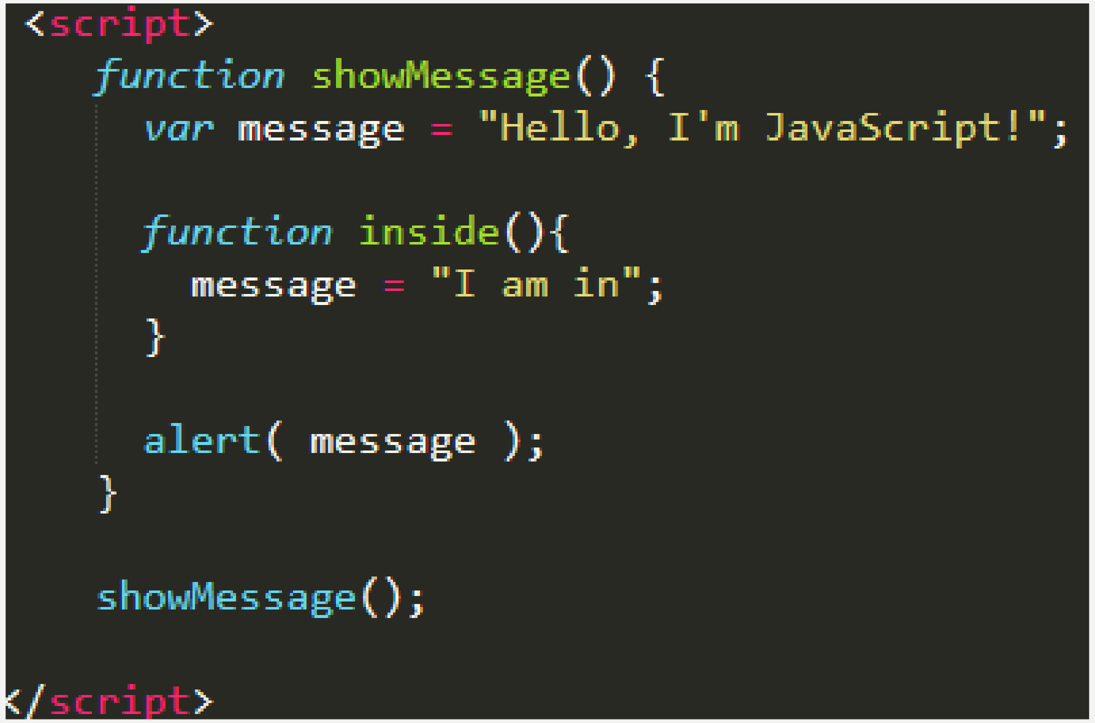
What will be alerted when the code below is executed?

- "Hello, I'm JavaScript!"
- "I am in"
- An error will show



```
<script>
   function showMessage() {
     var message = "Hello, I'm JavaScript!";

     function inside(){
       message = "I am in";
     }

     alert( message );
   }

   showMessage();

</script>
```

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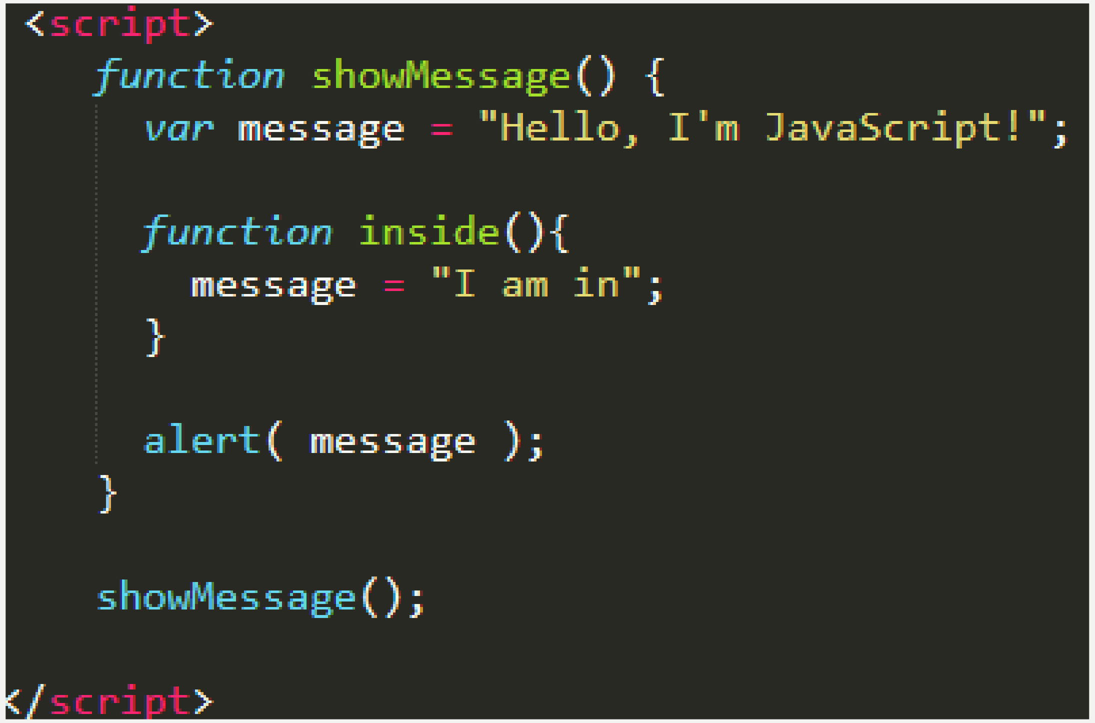

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```

Which of these is not a logical operator?

a. !
b. &
c. &&
d. ||

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What is the value of x ?

```
var a = false;
 var x = a ? "A" : "B";
```

a. Undefined
b. True
c. "A"
d. "B"

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c. "A"
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This is translated: if a is truthy then A otherwise B

if (a) { x = A; } else { x = B; }

WHAT ARE B* BELOW? TRUE OR FALSE?

```
var    B1    =          2!="2";

var    B2     =         2=="2";

var    B3     =         2!=="2";

var    B4     =        2==="2";
```

QUESTION IS B4 BELOW?
TRUE OR FALSE?

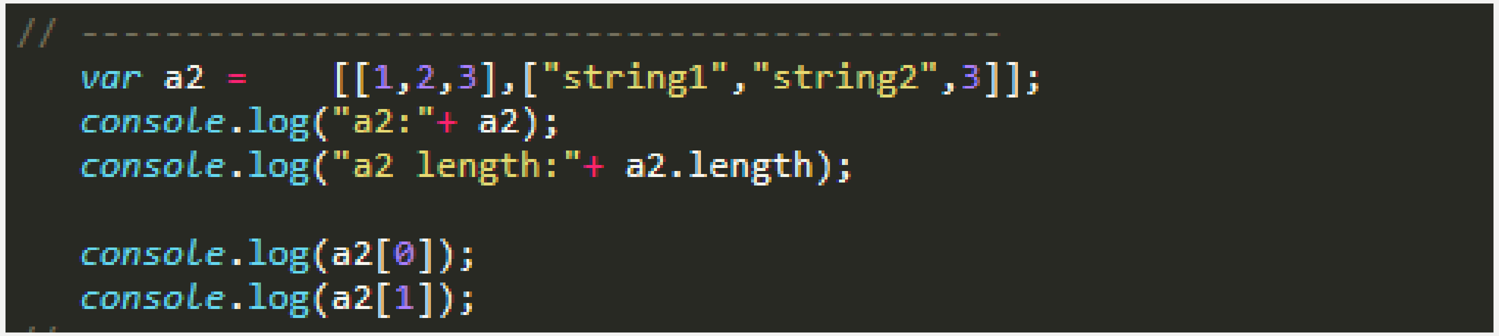
```
var   b1   =        2!="2";            >>  false

var   b2   =        2=="2";            >>  true

var   b3   =        2!=="2";           >>  true

var   b4   =       2==="2";            >>  false
```

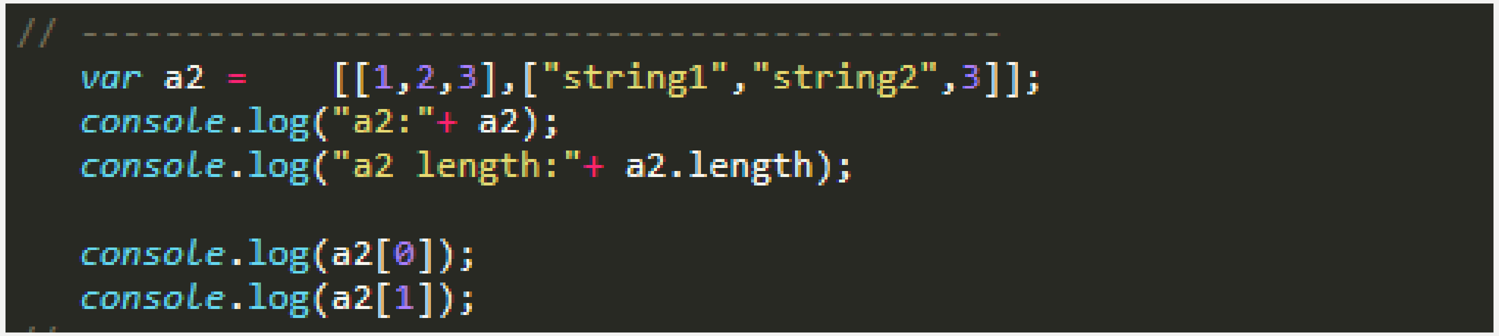
WHAT DO I EXPECT TO SEE?



```
// ----------------------------------------------
   var a2 =    [[1,2,3],["string1","string2",3]];
   console.log("a2:"+ a2);
   console.log("a2 length:"+ a2.length);

   console.log(a2[0]);
   console.log(a2[1]);
```

WHAT DO I EXPECT TO SEE?



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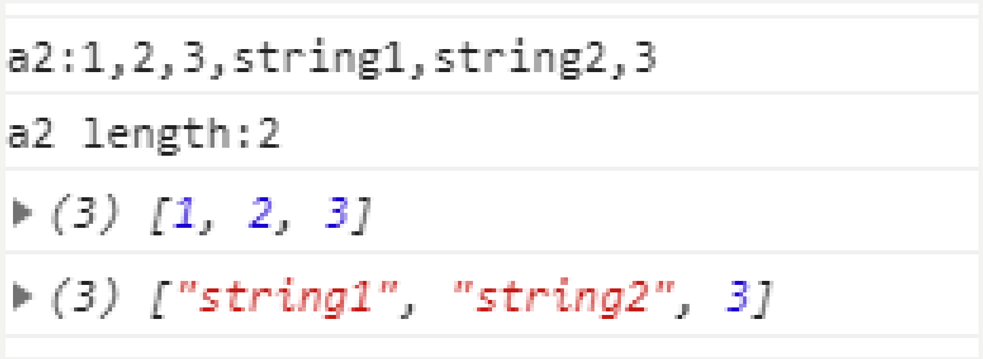
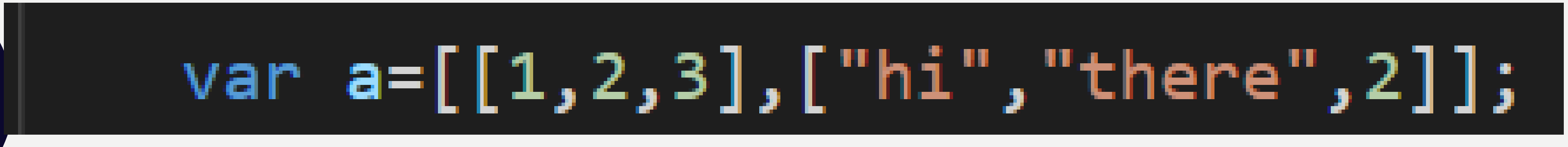


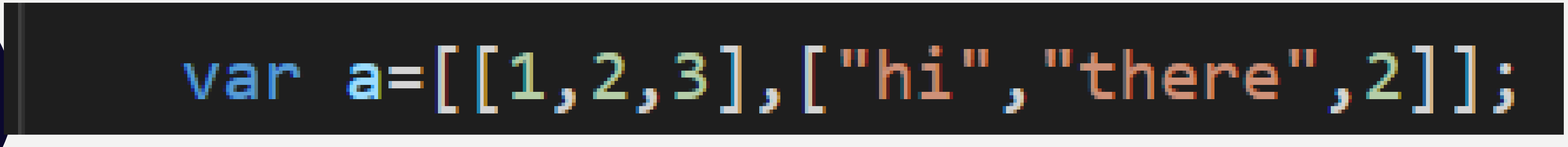
```
a2:1,2,3,string1,string2,3
a2 length:2
▶ (3) [1, 2, 3]
▶ (3) ["string1", "string2", 3]
```

- Can I access “hi”? If yes how?

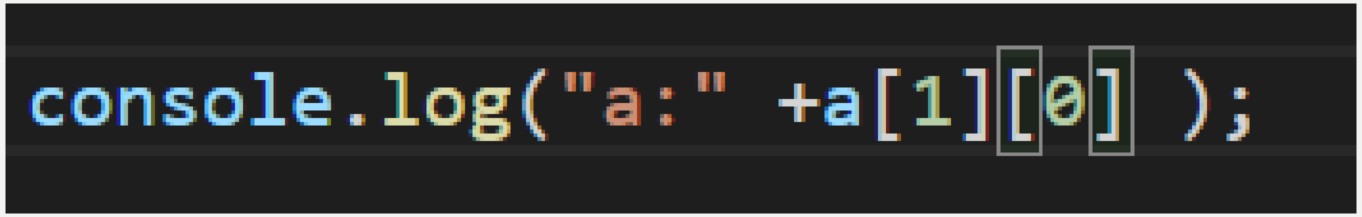


```
var a=[[1,2,3],["hi","there",2]];
```

- Can I access “hi”? If yes how?



```
var a=[[1,2,3],["hi","there",2]];
```



```
console.log("a:" +a[1][0] );
```

How can we append a value to an array in Javascript?

How can we append a value to an array in Javascript?

```
arr[arr.length] = value
arr.push(value) ;
```

What is the purpose of a "return" statement in a function ?

a. Returns the value and continues executing rest of the statements, if any

b. Returns the error if any

c. Stops executing the function and returns the value

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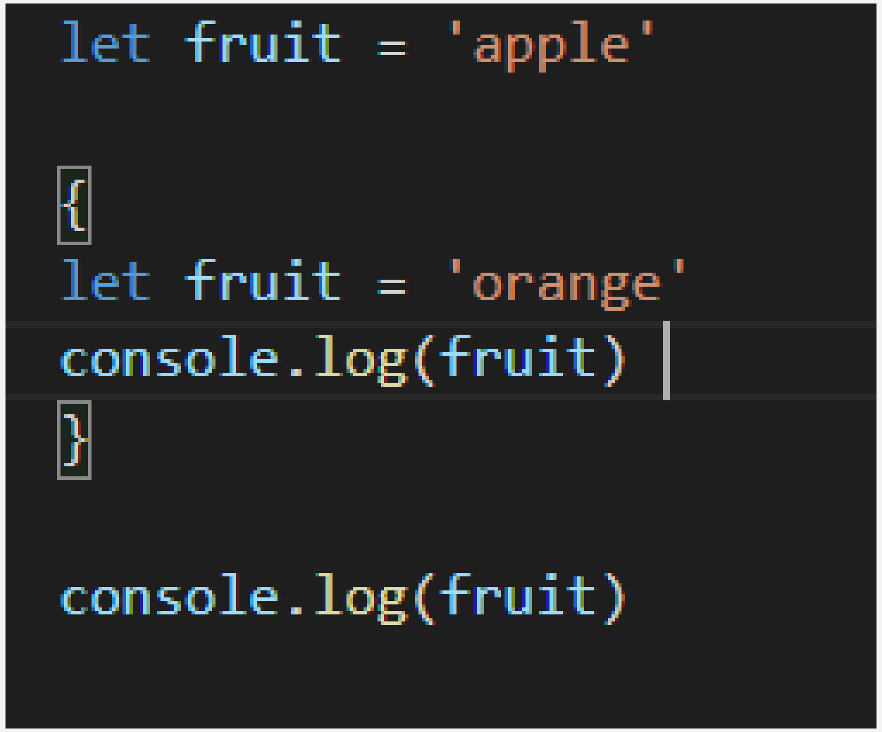
- What is the output of the console.logs below?

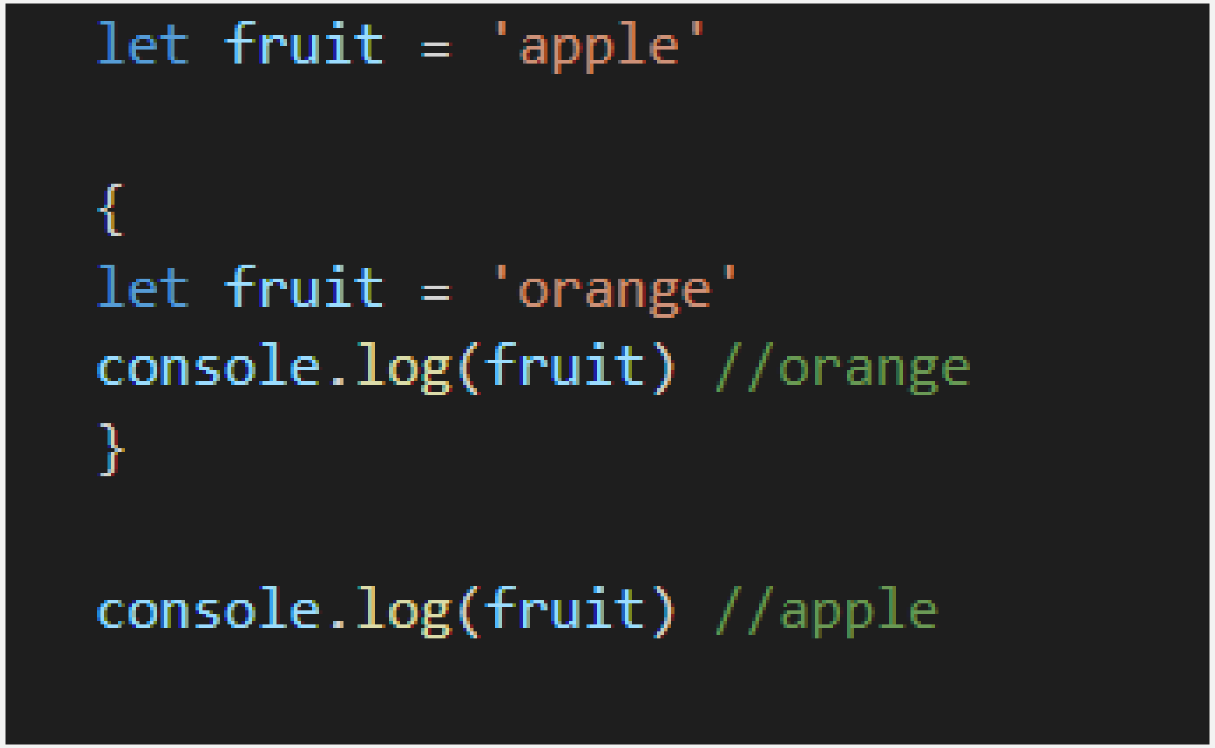


```
let fruit = 'apple'

{
let fruit = 'orange'
console.log(fruit)
}

console.log(fruit)
```

- What is the output of the console.logs below?

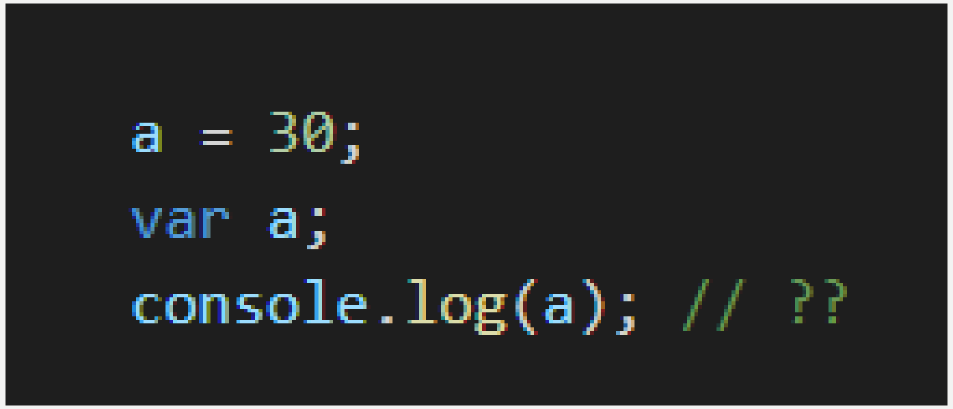


```
let fruit = 'apple'

{
let fruit = 'orange'
console.log(fruit) //orange
}

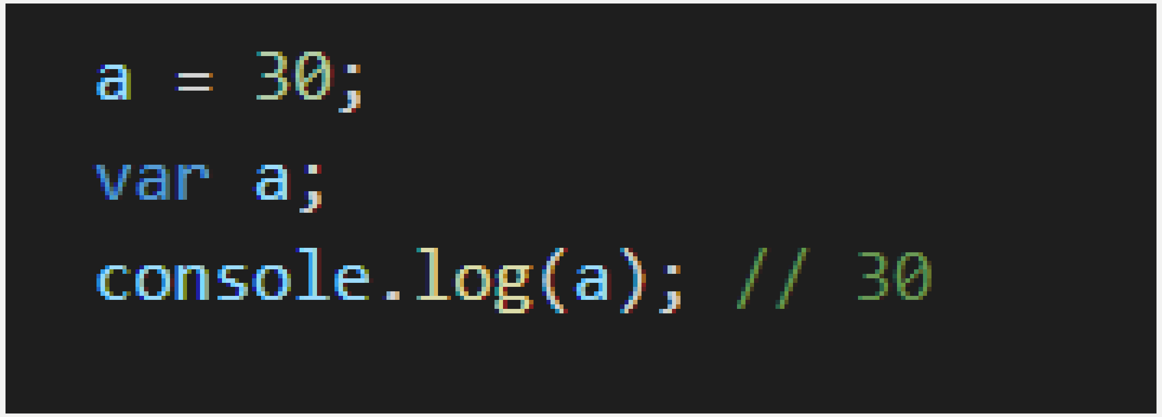
console.log(fruit) //apple
```

- What is the output of the console.log below?



```
a = 30;
var a;
console.log(a); // ??
```

- What is the output of the console.log below?



```
a = 30;
var a;
console.log(a); // 30
```

JAVASCRIPT HOISTING

- When a **JavaScript engine executes a script** -> it creates the execution context
- The execution context has two phases:
  - creation phase
  - execution phase.

- During the creation phase-> JavaScript engine moves the variable and function **declarations** to the top of the current scope (to the top of the current script or the current function).

JAVASCRIPT HOISTING

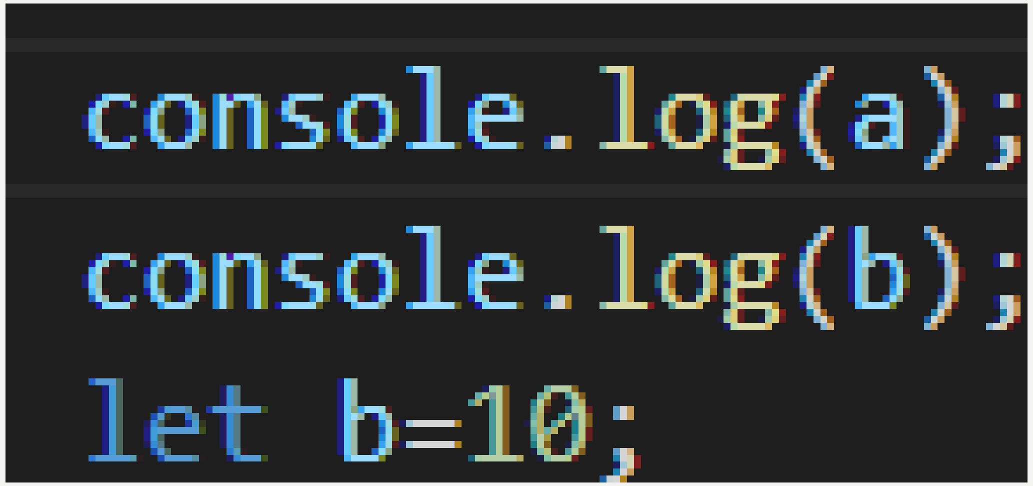
- Hoisting : JavaScript's default behavior of **moving declarations to the top** of current scope(local or global) **before code executions**.

- Hoisting -> allows functions/vars to be safely used in code before they are declared.

JAVASCRIPT HOISTING

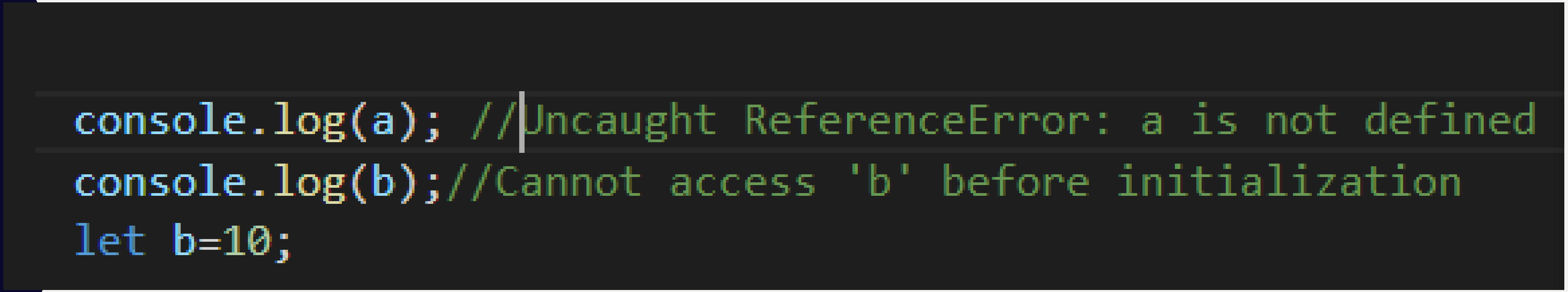
- JavaScript engine hoists the variables declared using the let keyword, **but it doesn’t initialize them** as the variables declared with the var keyword -> it does not work with **let** keyword
- Variables defined with let and const are hoisted to the top of the block, **but not initialized.**
- **Function expressions** and **arrow functions** aren’t hoisted.

- Will we get some errors here? If yes, will these errors be identical?



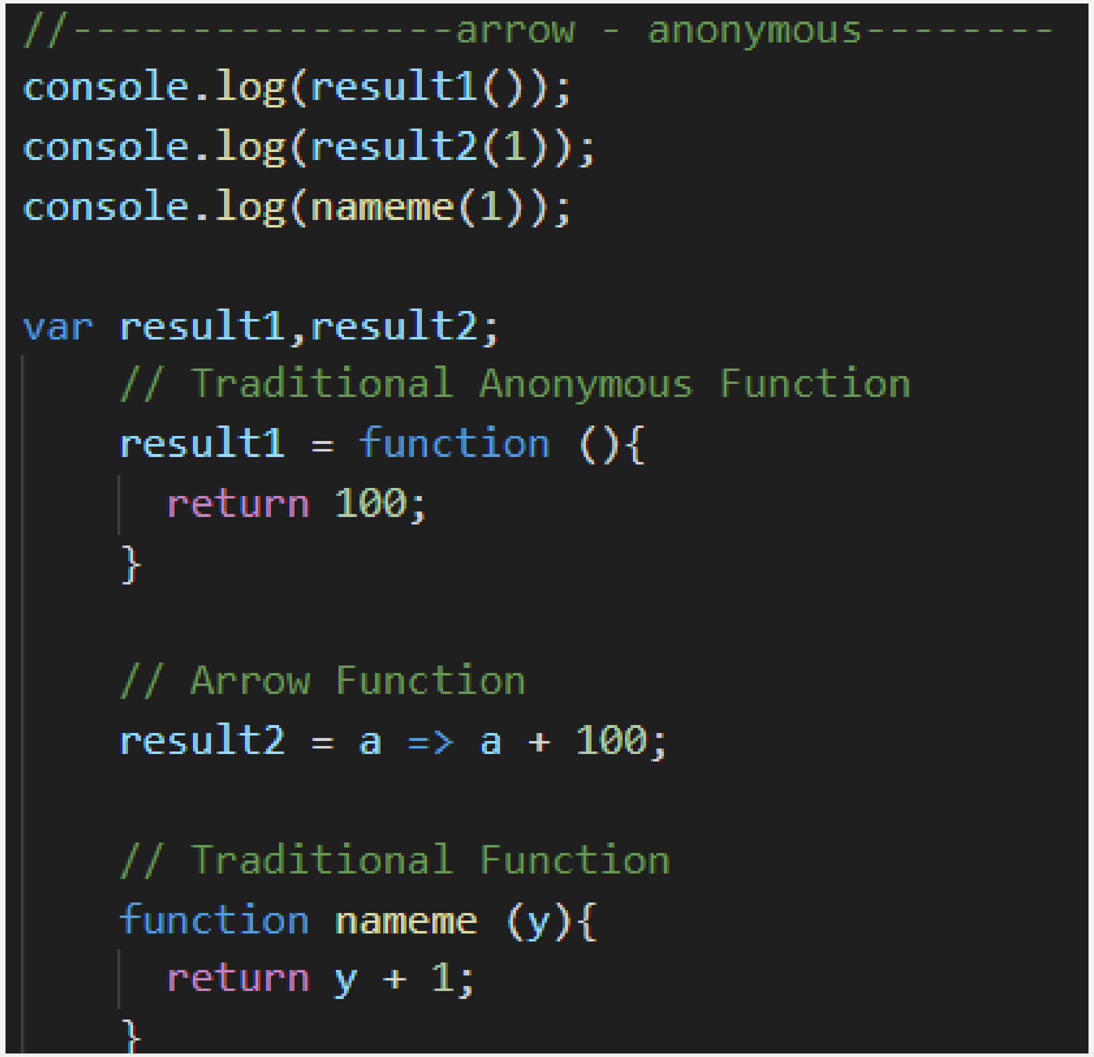
```
console.log(a);
console.log(b);
let b=10;
```

- Will we get some errors here? If yes, will these errors be identical?



```
console.log(a); //Uncaught ReferenceError: a is not defined
console.log(b);//Cannot access 'b' before initialization
let b=10;
```

- Will we get any errors below?



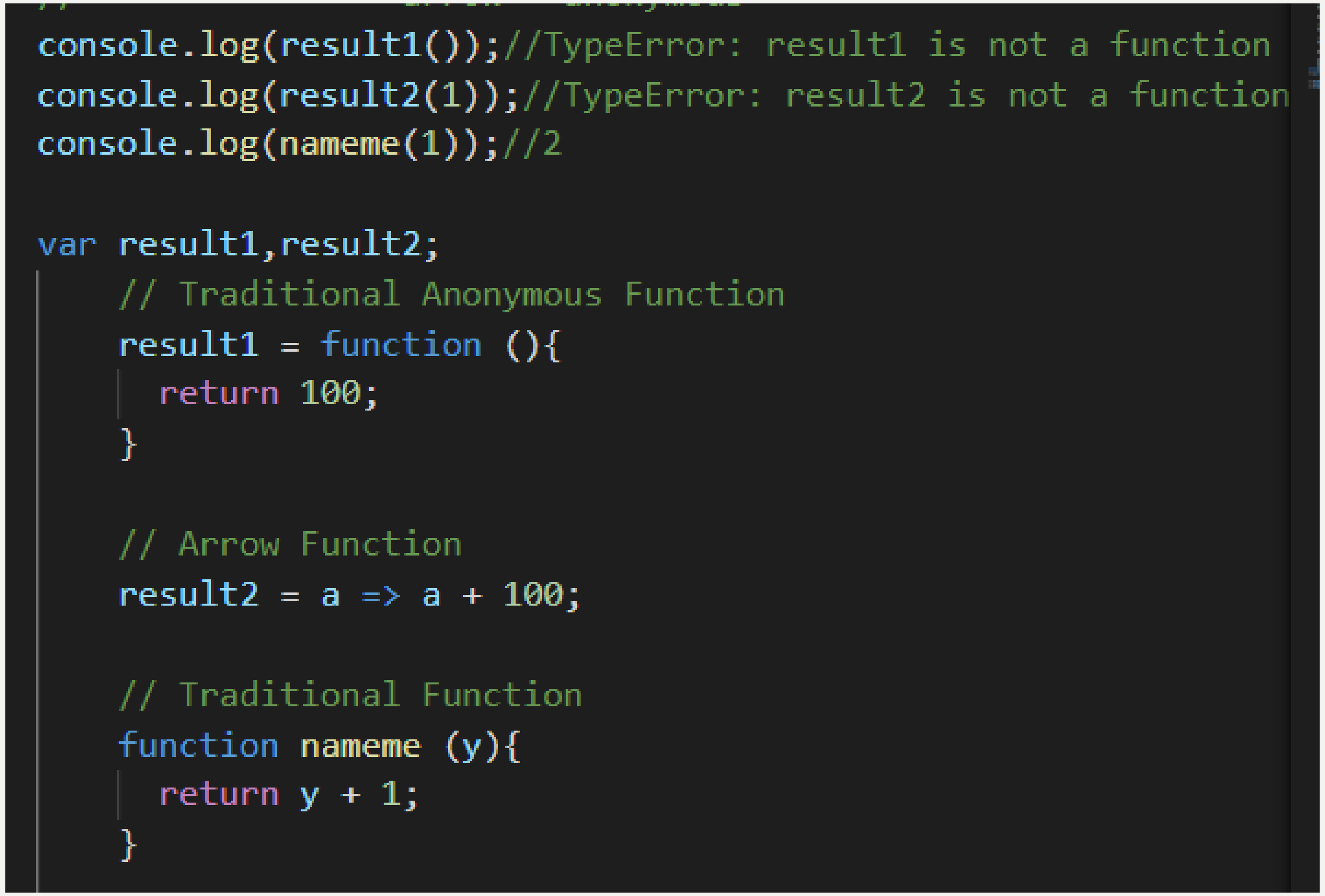
```
//----------------arrow - anonymous--------
console.log(result1());
console.log(result2(1));
console.log(nameme(1));

var result1,result2;
    // Traditional Anonymous Function
    result1 = function (){
      return 100;
    }

    // Arrow Function
    result2 = a => a + 100;

    // Traditional Function
    function nameme (y){
      return y + 1;
    }
```

- Will we get any errors below?



```
console.log(result1());//TypeError: result1 is not a function
console.log(result2(1));//TypeError: result2 is not a function
console.log(nameme(1));//2

var result1,result2;
    // Traditional Anonymous Function
    result1 = function (){
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    }

    // Arrow Function
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    // Traditional Function
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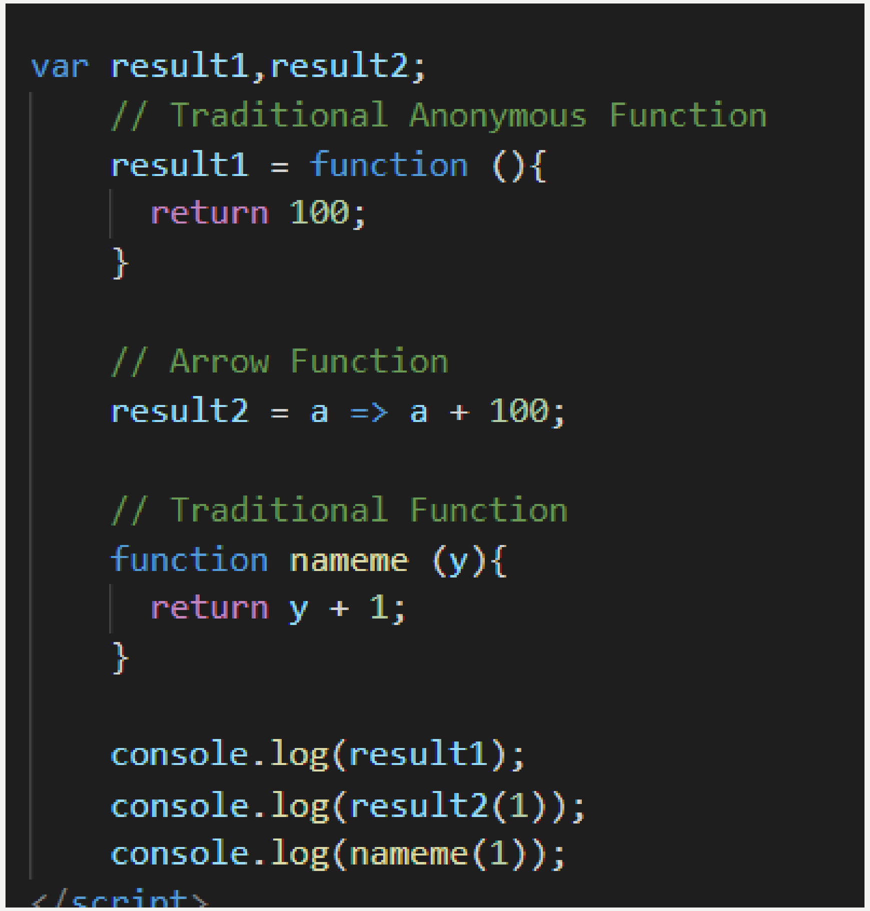
- Write down console.logs displayed from code below:



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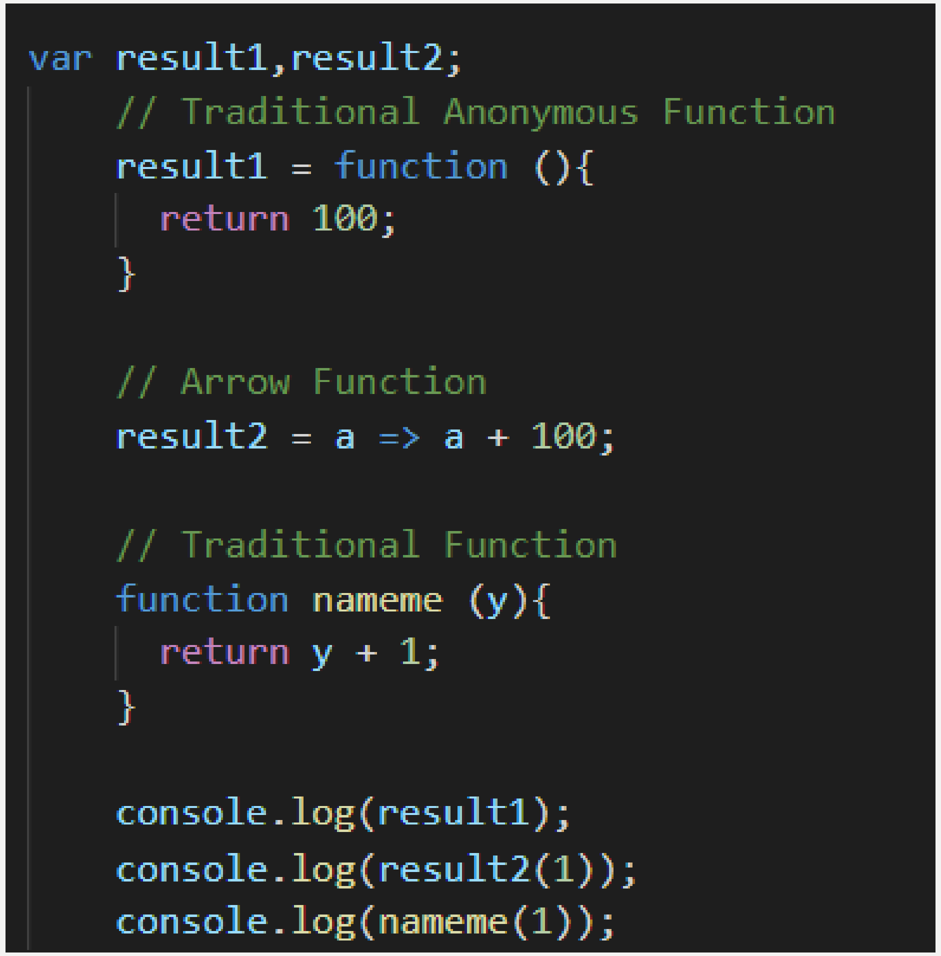

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    }

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    console.log(result1);
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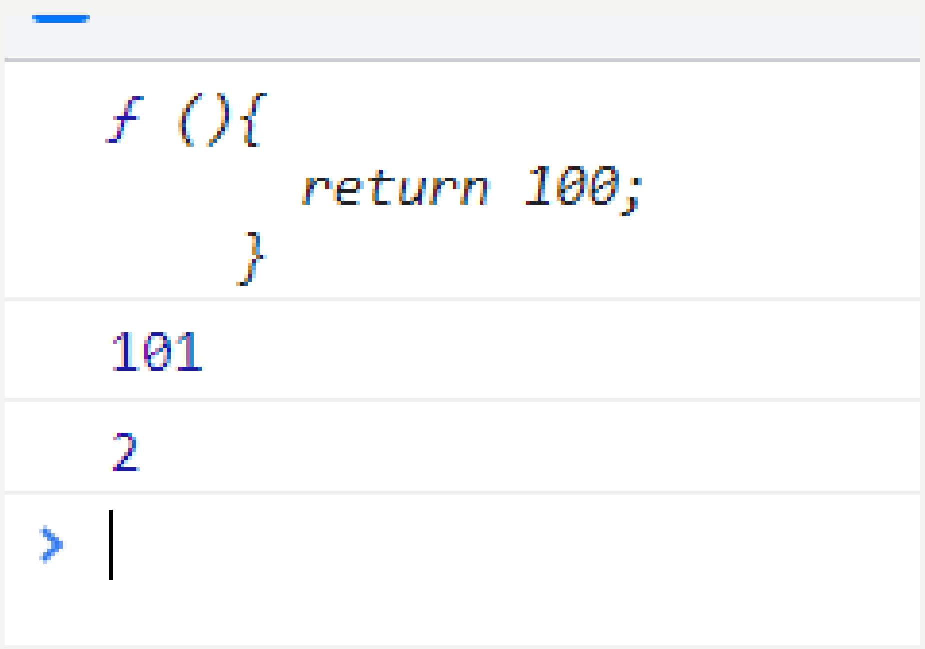

```
ƒ (){
        return 100;
    }
101
2
>
```

- Which built-in method ->removes and returns last element from array?

a. last()

b. shift()

c. pop()

d. None of the above.

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a. last()

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d. None of the above.

- What alert will show below?

- var arr = [1, 2, 3, 4, 5];

- arr.length = 2;
- alert(arr);

- What alert will show below?

- var arr = [1, 2, 3, 4, 5];

- arr.length = 2; // truncate to 2 elements
- alert(arr); // 1,2

- Note that:
- length -> it’s writable
- If we increase it manually, nothing interesting happens
- if we decrease it, the array is **truncated**

- **Try the following code**
- **arr=[1,2,3,4]**
- **arr.length=2**
- **console.log(arr);**
- **arr.length=5;**
- **console.log(arr);**

- const fruit = { name: "apple" };
- const fruitbear = { name: "apple" };

- What will comparison below return, true or false?

a) fruit == fruitbear;
b) fruit === fruitbear;

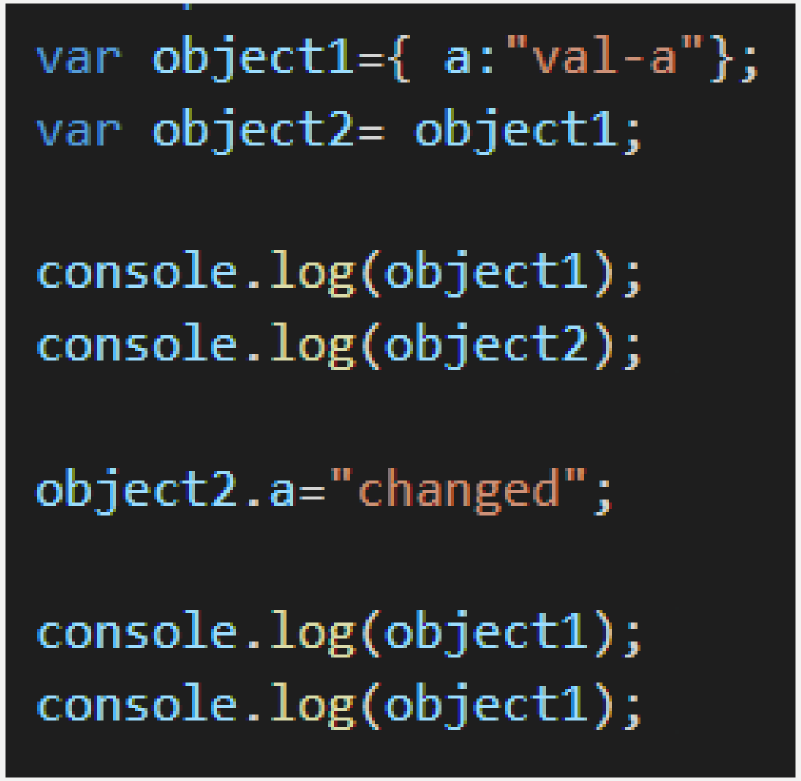
- // Two variables, two distinct objects with the same properties
- const fruit = { name: "apple" };
- const fruitbear = { name: "apple" };

- What will the comparison below return, true or false?

a) fruit == fruitbear; // return false

b) fruit === fruitbear; // return false

What will console.logs show below?



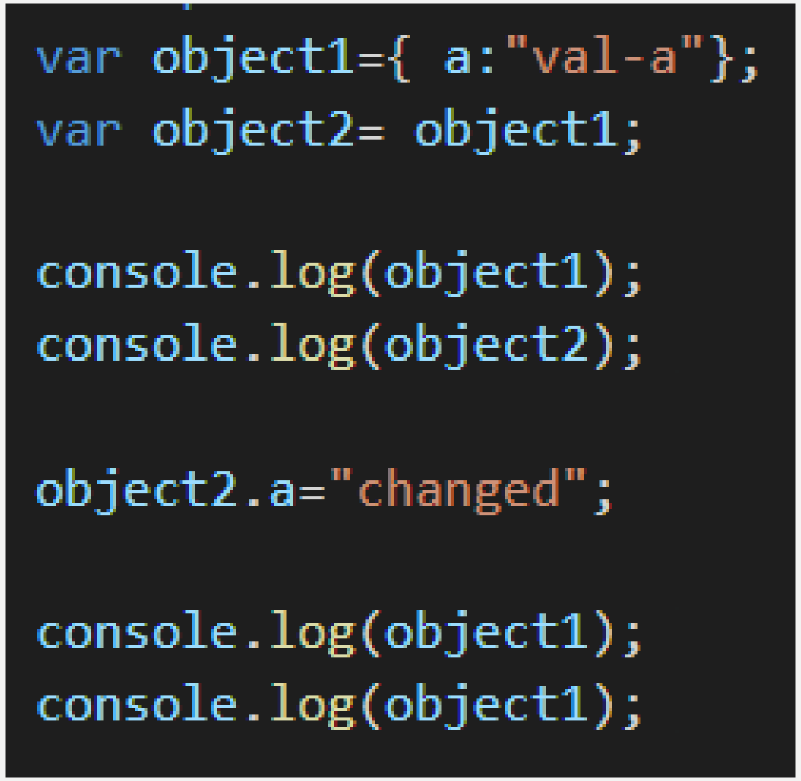
```
var object1={ a:"val-a"};
var object2= object1;

console.log(object1);
console.log(object2);

object2.a="changed";

console.log(object1);
console.log(object1);
```

What will console.logs show below?



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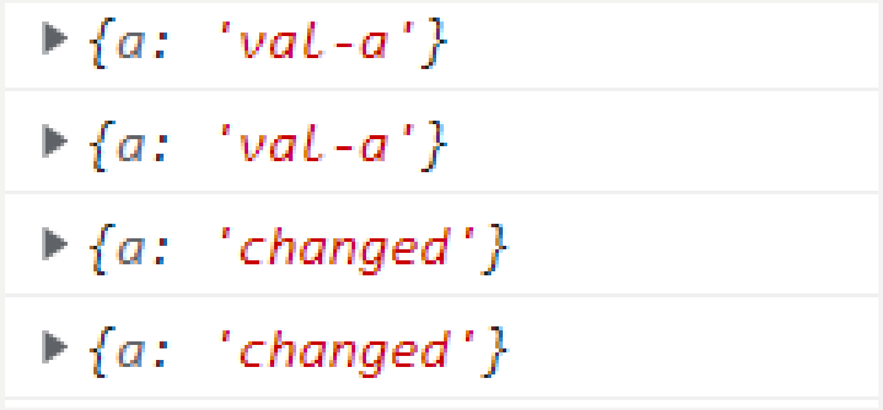
var object2= object1;

console.log(object1);
console.log(object2);

object2.a="changed";

console.log(object1);
console.log(object1);
```

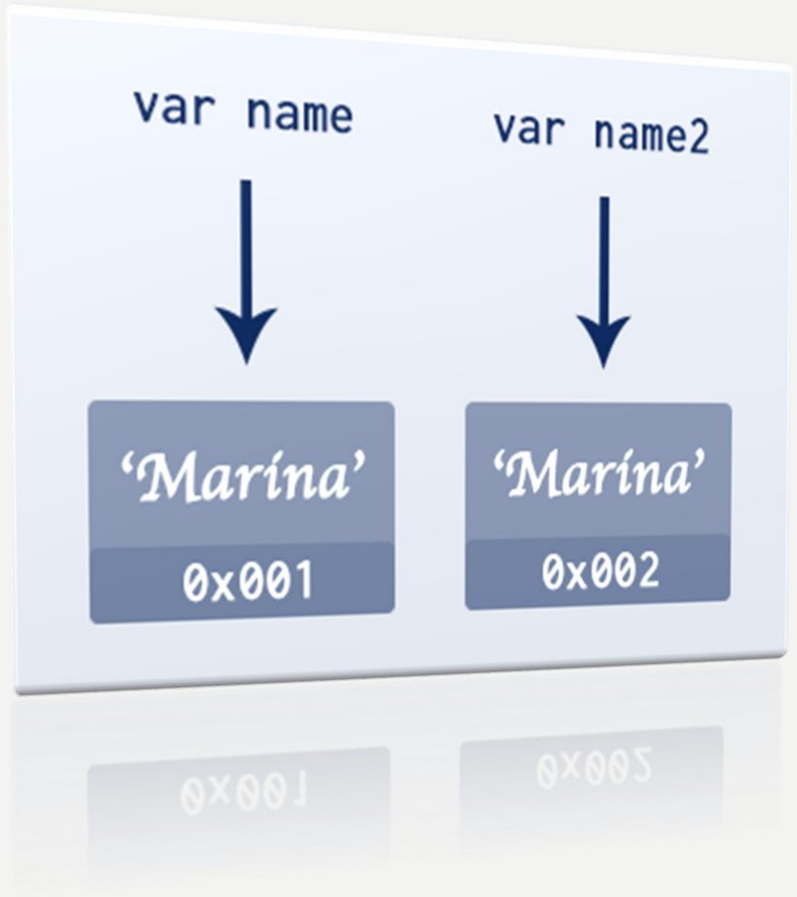


```
▶ {a: 'val-a'}
▶ {a: 'val-a'}
▶ {a: 'changed'}
▶ {a: 'changed'}
```

When we **pass** an object (or array) it is possible to modify the contents of that object.

Here a reference to *object1* is assigned to *object2*.
Think of it like the same object is accessible by two names.

- let name = ‘Marina’;let name2 = name;



- **Objects** in JavaScript **are passed by reference.**
- When more than one variable is set to store either an object, array or function, those variables **will point to the same allocated space** in the memory.

- const animals = ['Cat', 'Dog', 'Horse', 'Snake’];
- let animals2 = animals

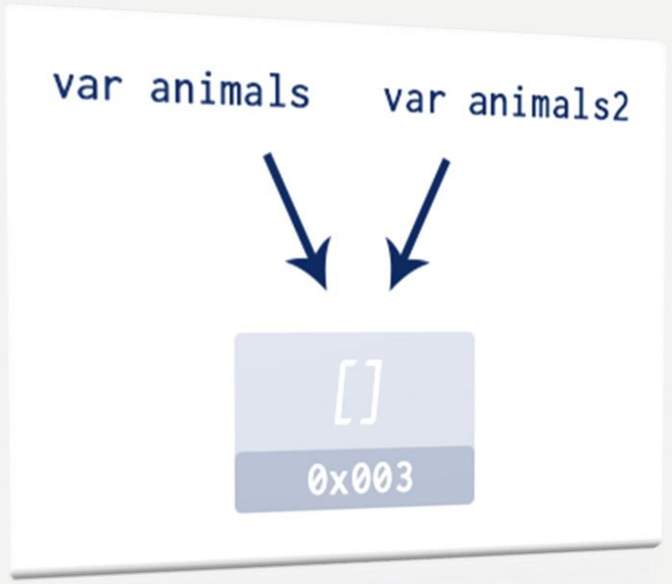
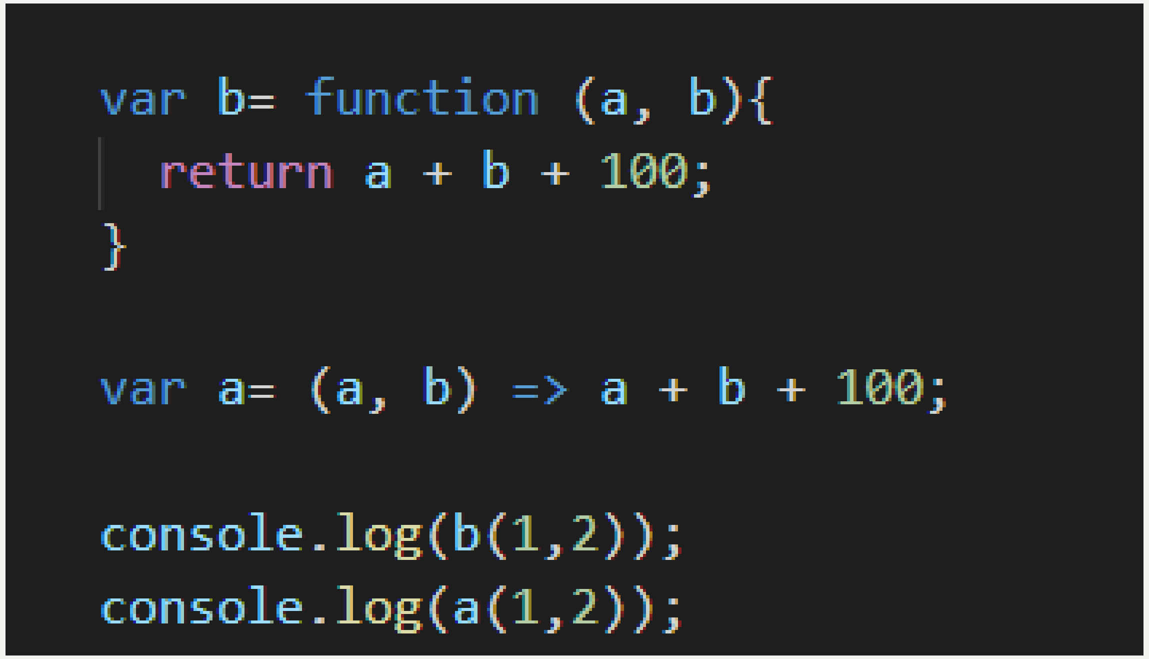


Image sources https://www.freecodecamp.org/news/how-to-get-a-grip-on-reference-vs-value-in-javascript-cba3f86da223/

- Will a and b return the same result?

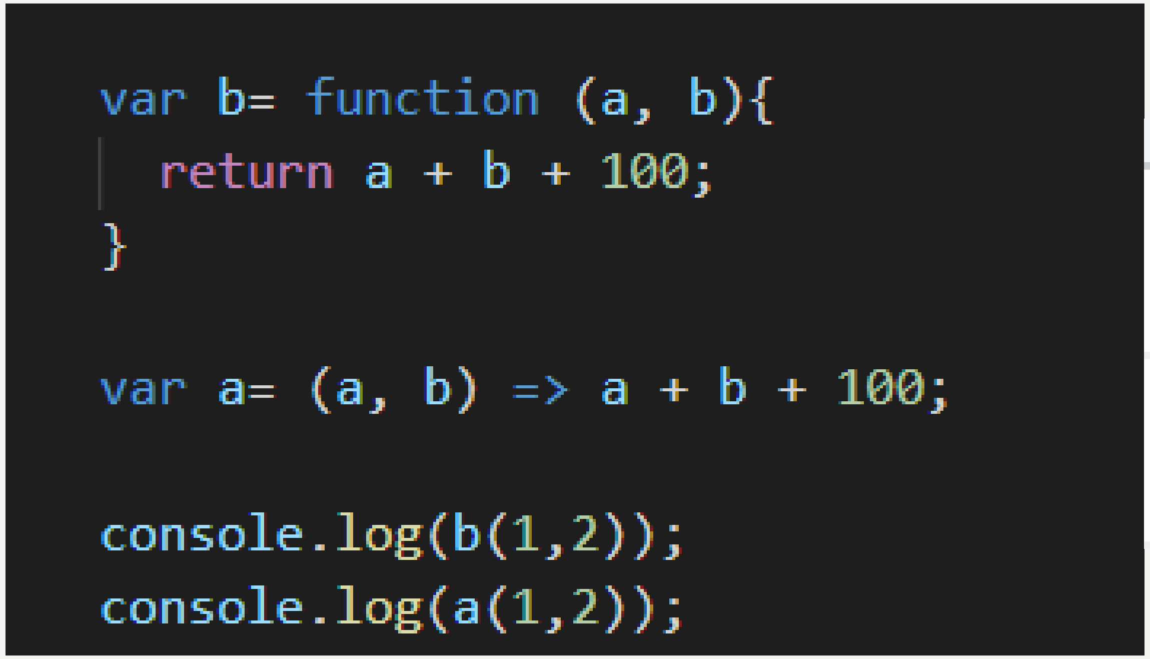


```
var b= function (a, b){
  return a + b + 100;
}

var a= (a, b) => a + b + 100;

console.log(b(1,2));
console.log(a(1,2));
```

- Will a and b return the same result? Yeap



```
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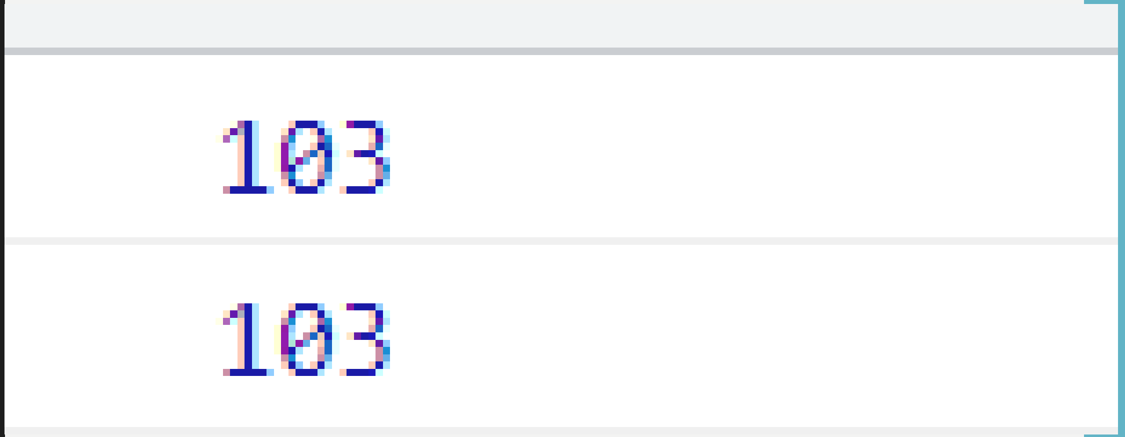
  return a + b + 100;
}

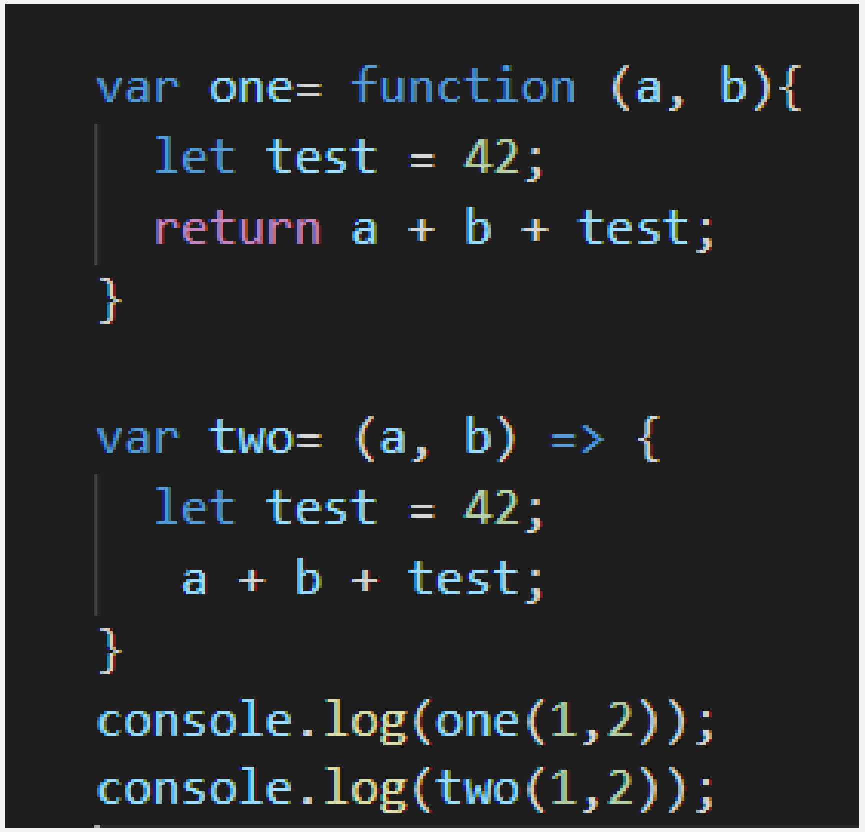
var a= (a, b) => a + b + 100;

console.log(b(1,2));
console.log(a(1,2));
```



```
103
103
```

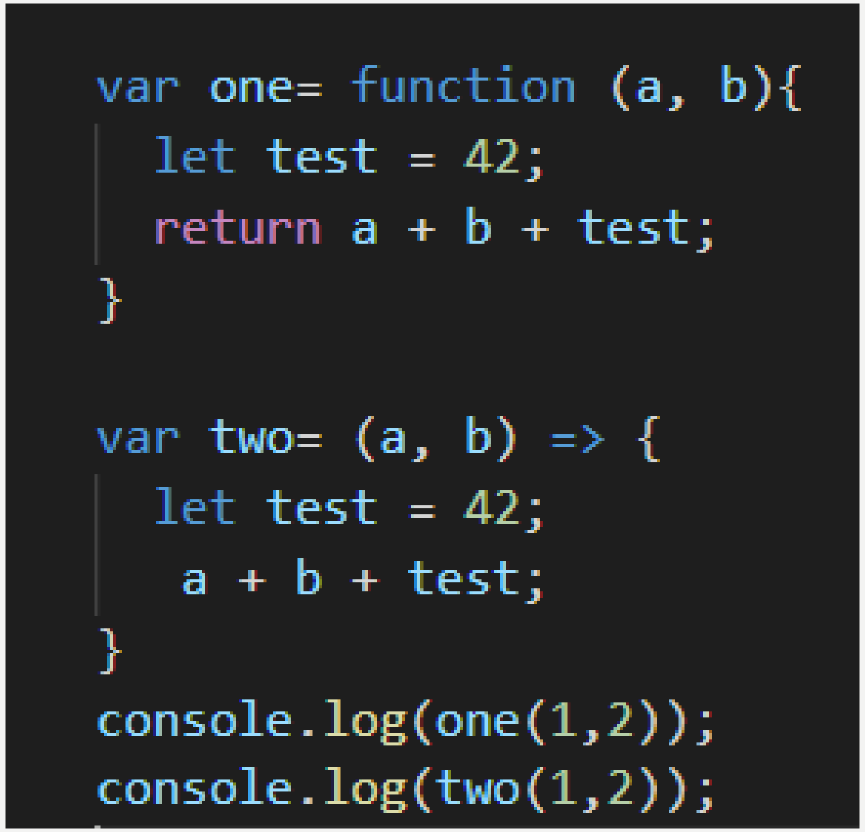
- Will one and two return the same result?



```
var one= function (a, b){
  let test = 42;
  return a + b + test;
}

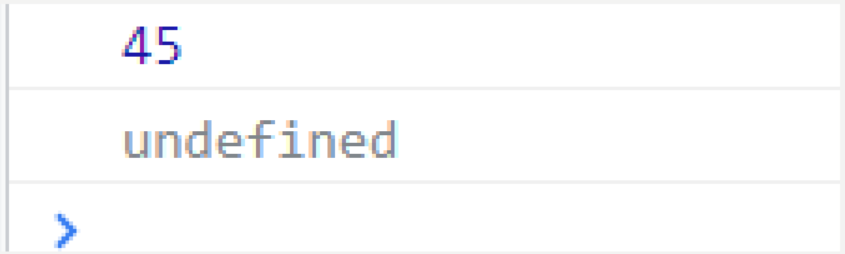
var two= (a, b) => {
  let test = 42;
   a + b + test;
}
console.log(one(1,2));
console.log(two(1,2));
```

- No: we need "return" in the arrow function: it can not magically guess what we want to "return"



```
var one= function (a, b){
  let test = 42;
  return a + b + test;
}

var two= (a, b) => {
  let test = 42;
   a + b + test;
}
console.log(one(1,2));
console.log(two(1,2));
```



```
45
undefined
>
```