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Understanding

JAVASCRIPT SCOPES AND CLOSURES

SWIPE

01

SCOPE IN JAVASCRIPT

Scope determines the accessibility and visibility of variables and functions in JavaScript. We have two types of scope: ***global*** (for things declared outside functions) **and** ***local*** (for things declared inside functions)

```
let globalVar = 'I am global';
function foo() {
    let localVar = 'I am local';
    console.log(localVar);   // I am local
    console.log(globalVar);  // I am global
}
foo();
console.log(globalVar);  // I am global
console.log(localVar);    // error: localVar undefined
```

02

Hoisting

JavaScript exhibits a behavior where variable and function declarations are moved to the top of their containing scope during compilation, making them accessible before they appear in the code.

```
console.log(hoistedVariable);    // Output: undefined

var hoistedVariable = 'I am hoisted';

console.log(hoistedVariable);   // Output: I am hoisted
```

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03

LEXICAL SCOPING

JavaScript employs lexical (static) scoping, meaning that the variables are resolved by their source code position, not runtime location. This lets inner functions access outer function variables, forming a scope hierarchy.

```
function outerFunction() {
    let outerVariable = 'I exist in the outer realm';
    function innerFunction() {
        console.log(outerVariable);
    }
    innerFunction();
}
outerFunction();    // Output: I exist in the outer realm
```

04

CLOSURES IN JAVASCRIPT

A closure is created when an inner function references variables from its outer function, even after the outer function has finished executing.

```
function createGreeting(name) {
    let greeting = 'Hello, ';
    return function() {
        console.log(greeting + name);
    };
}
let greetJohn = createGreeting('John');
greetJohn();      // Output: Hello, John
```

05

PRACTICAL USAGE OF CLOSURES

Closures have practical applications in JavaScript. They can be used to create private variables and encapsulated functions. By enclosing variables within a "closure", we can limit their accessibility from the outside and thus ultimately can enhance data privacy and prevent unintended modifications.
Let's check an example

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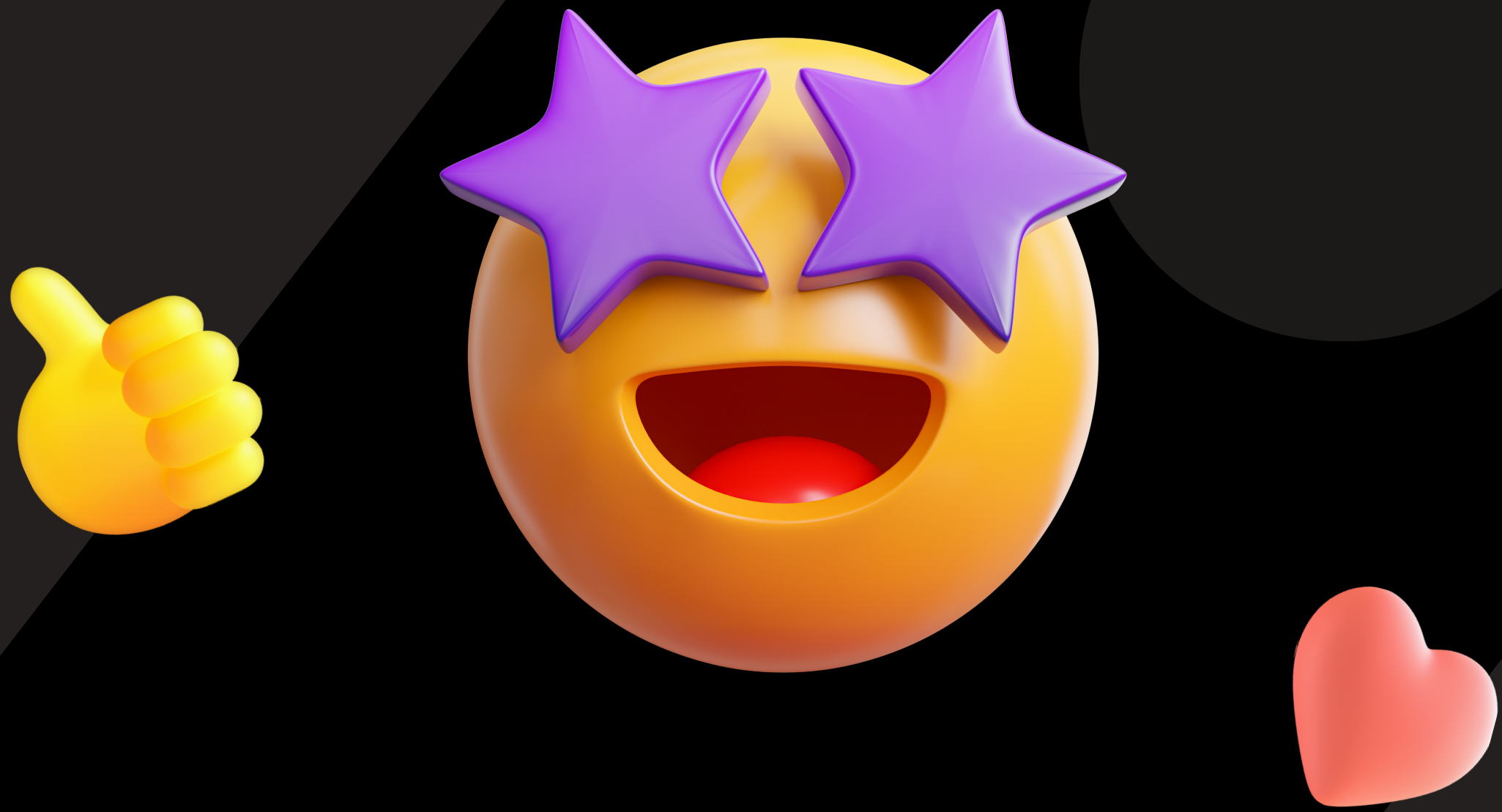
06

PRACTICAL USAGE OF CLOSURES

```
function createCounter() {
    let count = 1;
    return {
        increment:  function() { count++; },
        decrement:  function() { count--; },
        getCount:   function() { return count; }
    };
}
let counter = createCounter();
counter.increment();    // count: 2
counter.decrement();    // count: 1
```



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