



AVA



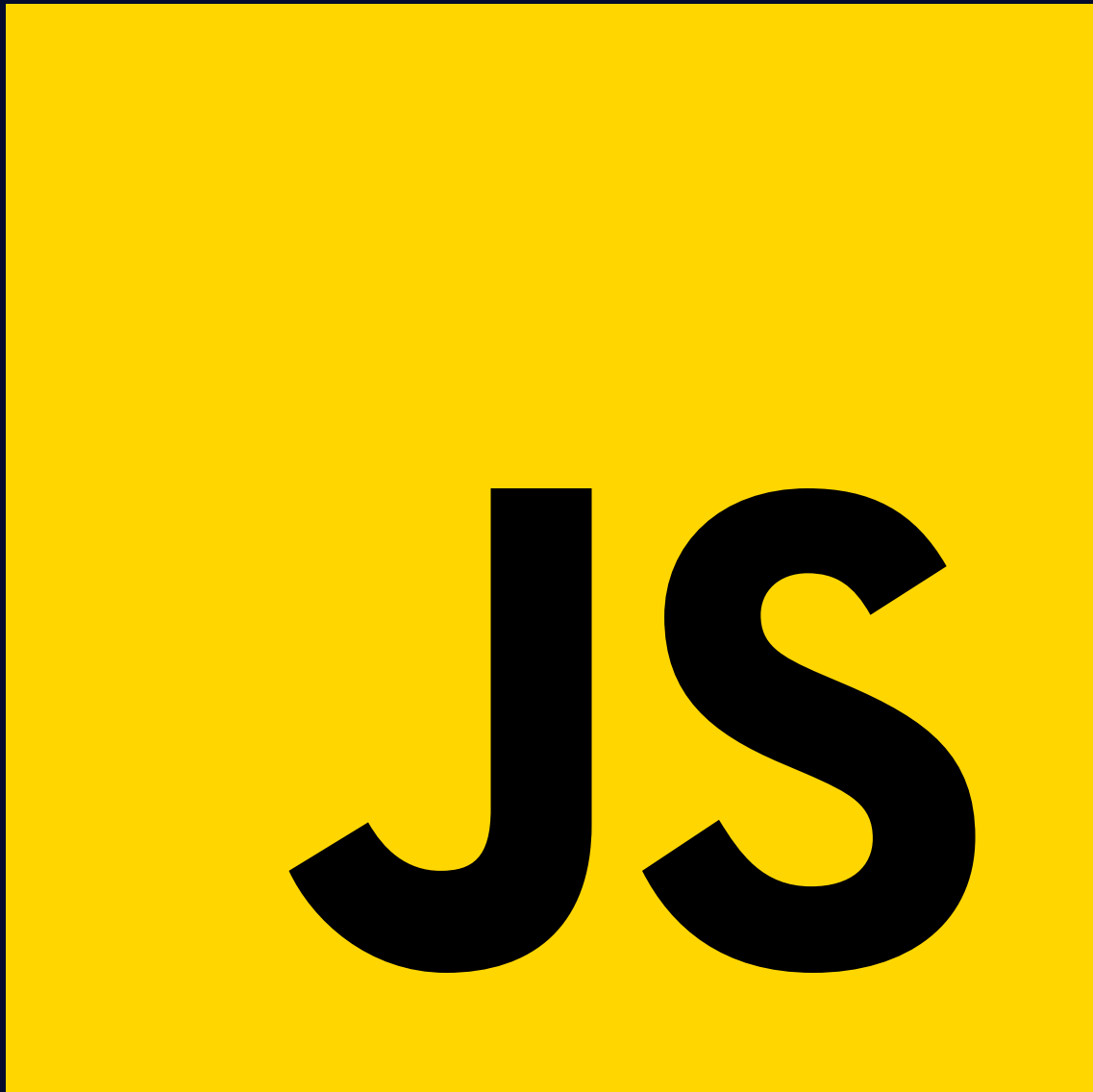
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JS

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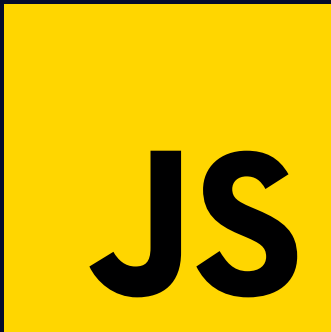
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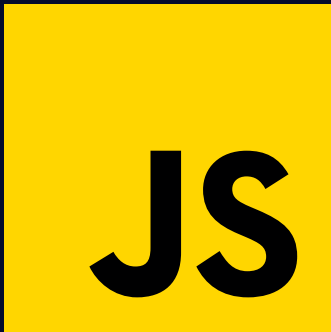
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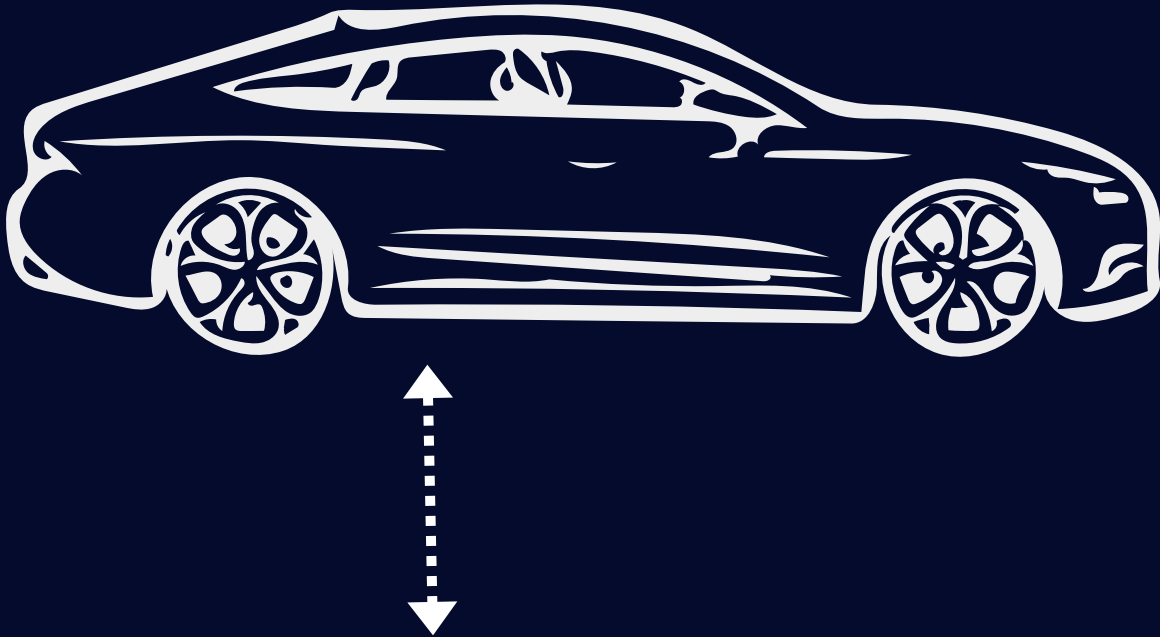
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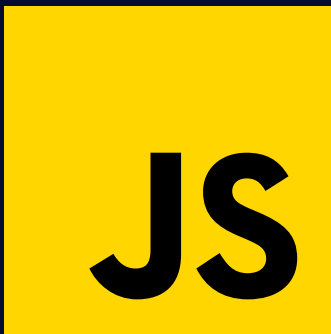


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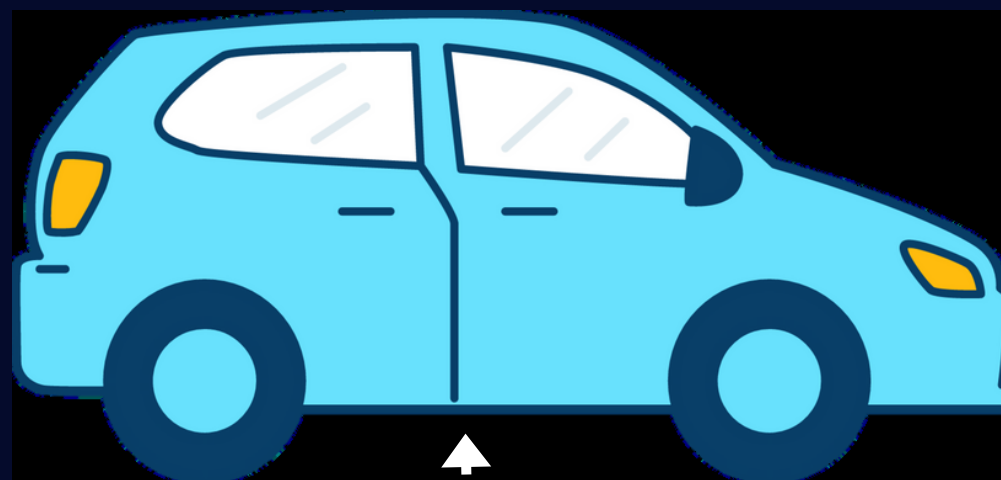
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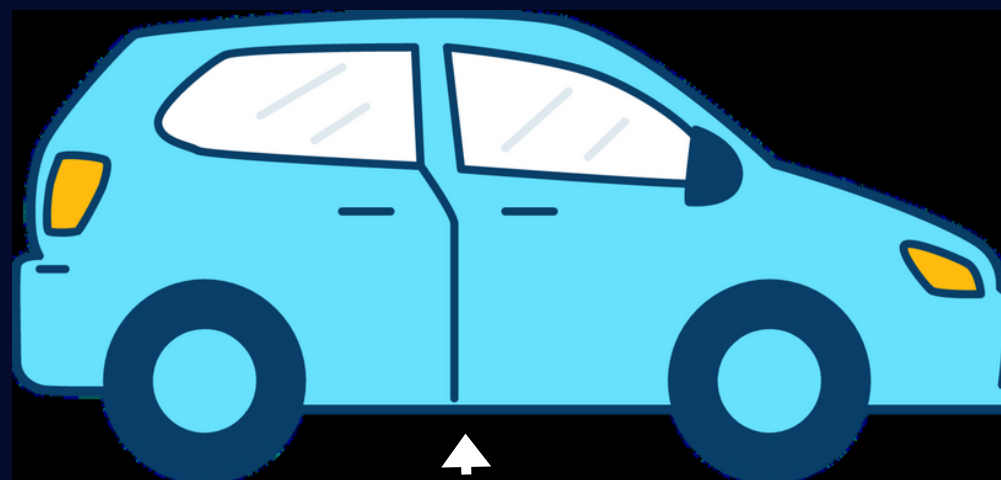
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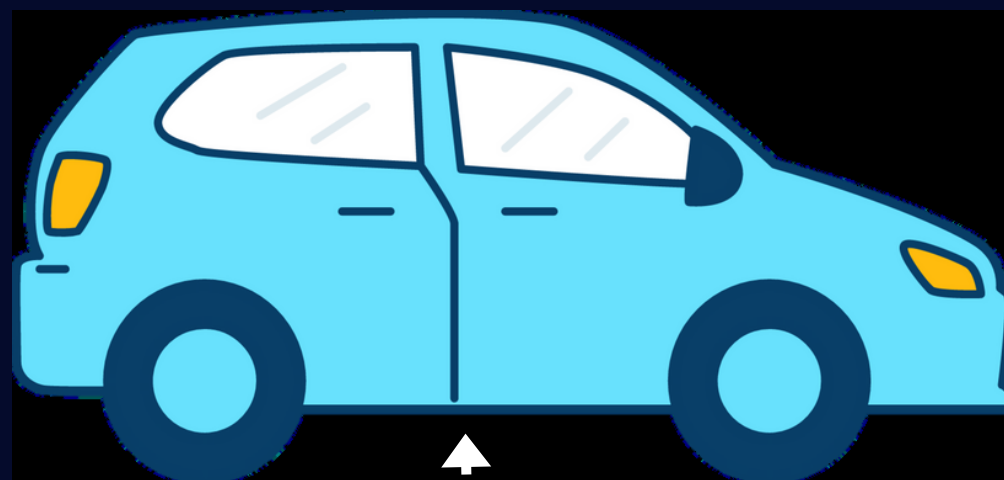
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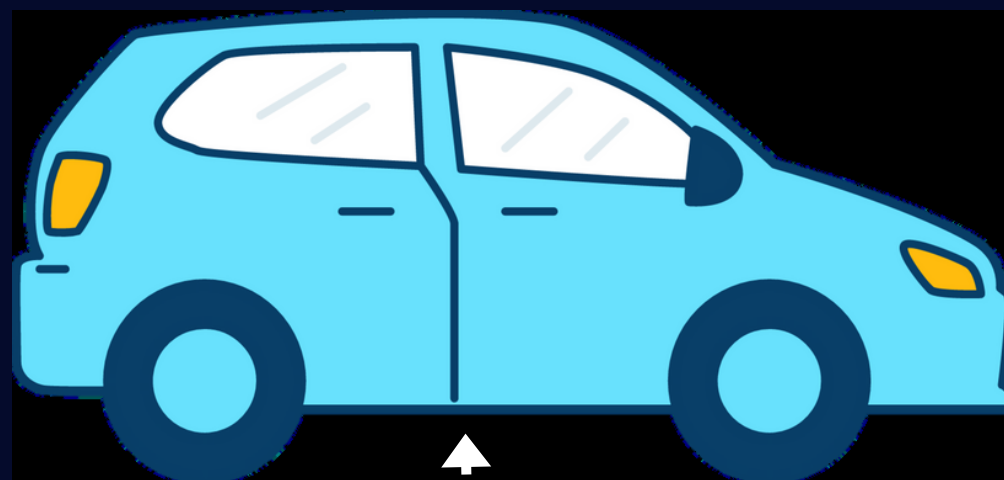
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JS

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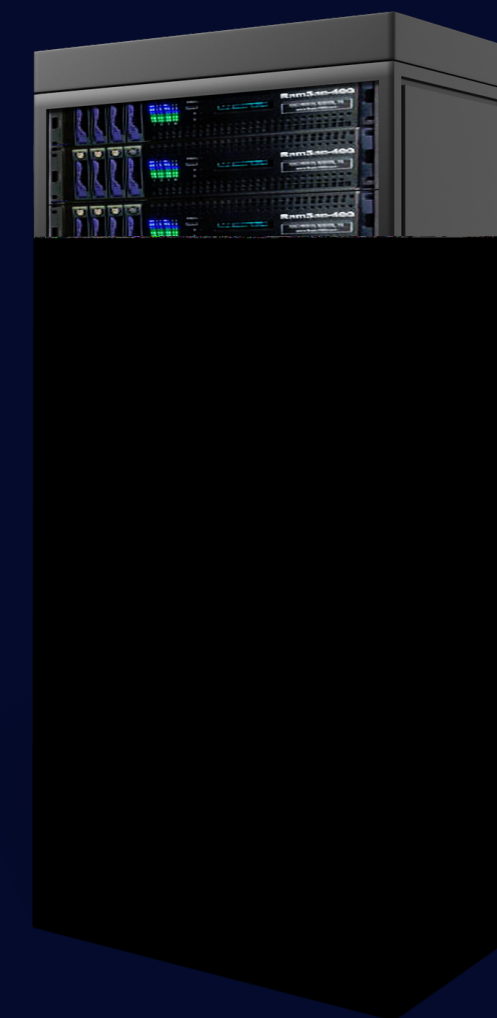
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JS

The Basics of Javascript



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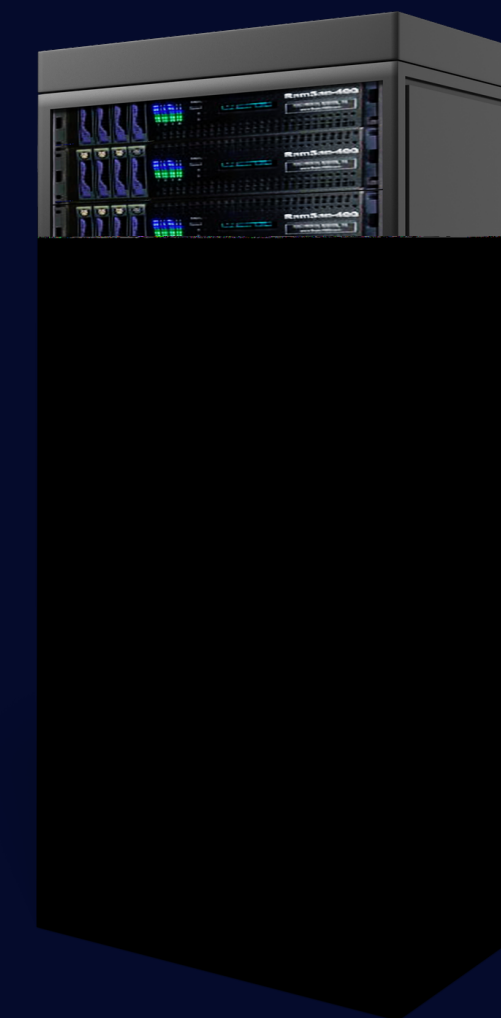
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JS

The Basics of Javascript



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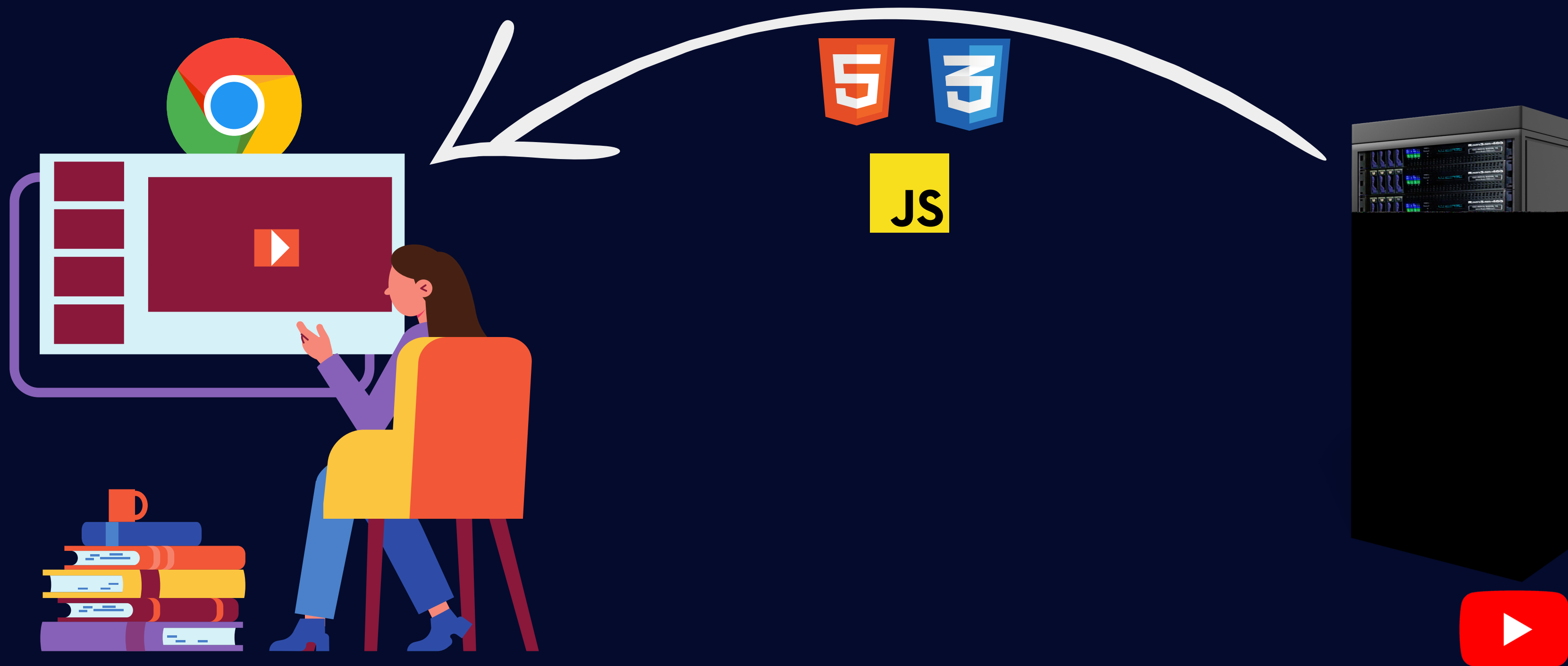
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The Basics of Javascript



JS

The Basics of Javascript



View in browser console



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The Benefits of Javascript



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Javascript Variables



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JS



What is a Variables?



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JS



JavaScript
variables are
used to store
data



JS



Basic rules of JavaScript syntax



JS



Variable naming conventions



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JS



BIG
DATA

Javascript

data types



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JS



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Javascript

Operators

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JS



Arithmetic operators



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Assignment operators



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Comparison operators



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Logical operators



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JS



Conditional Statements



JS



Truthy and falsy values



JS

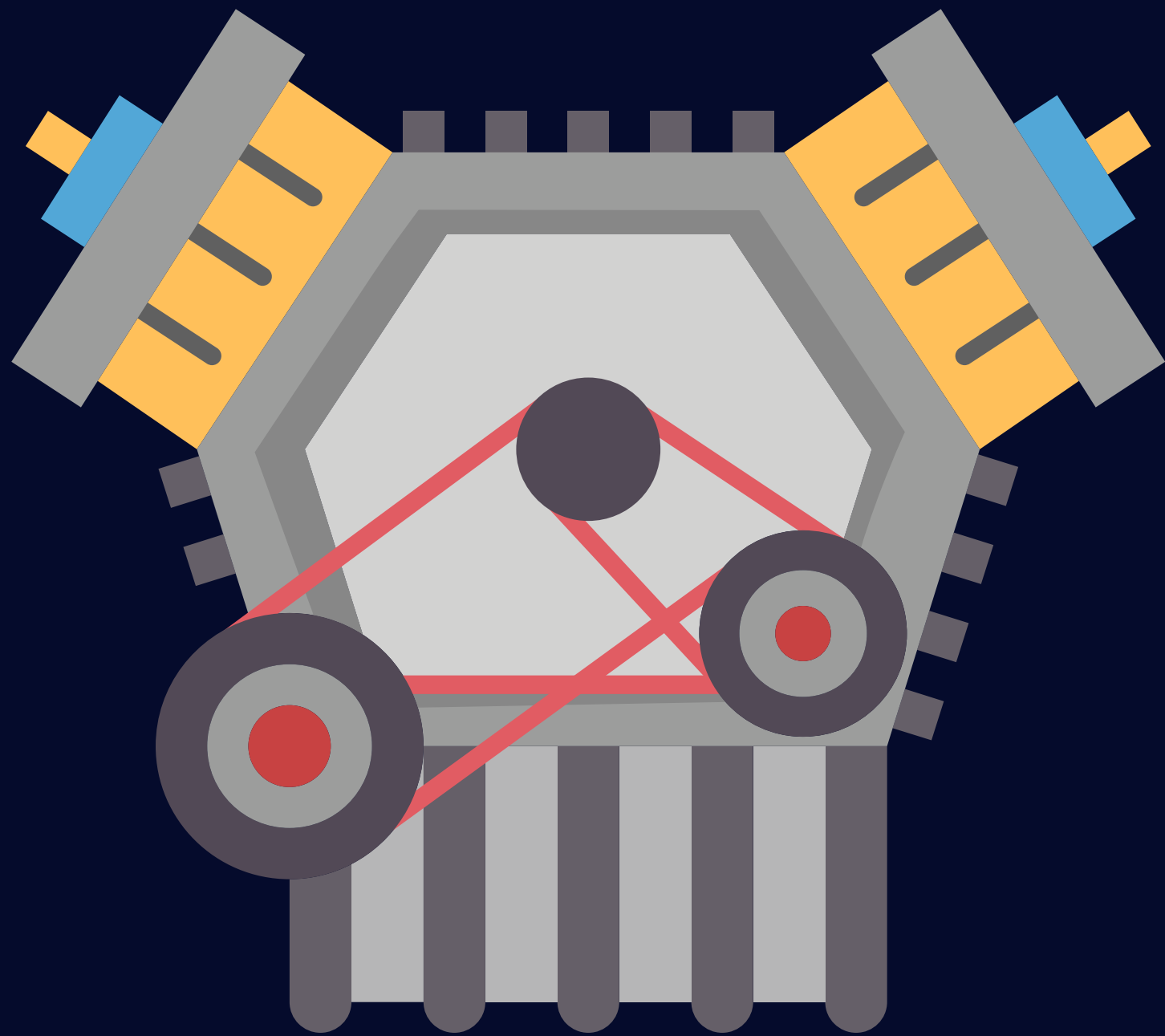


JavaScript

Loops



JS



Javascript Functions



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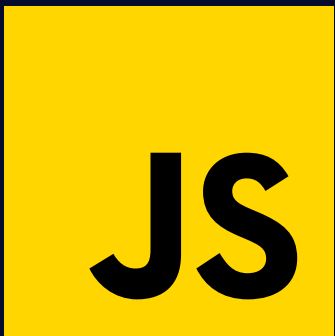
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JS

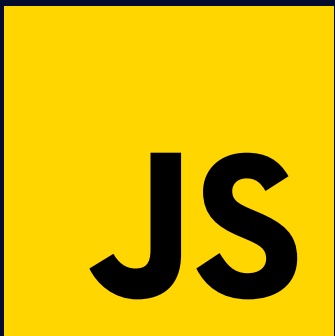
Functions **Syntax**



function declaration

```
function fnName(parameter) {  
    // code to be executed  
}
```



JS

Functions **Syntax**



function Expression

```
let fnName = function(parameter) {  
    // code to be executed  
}
```

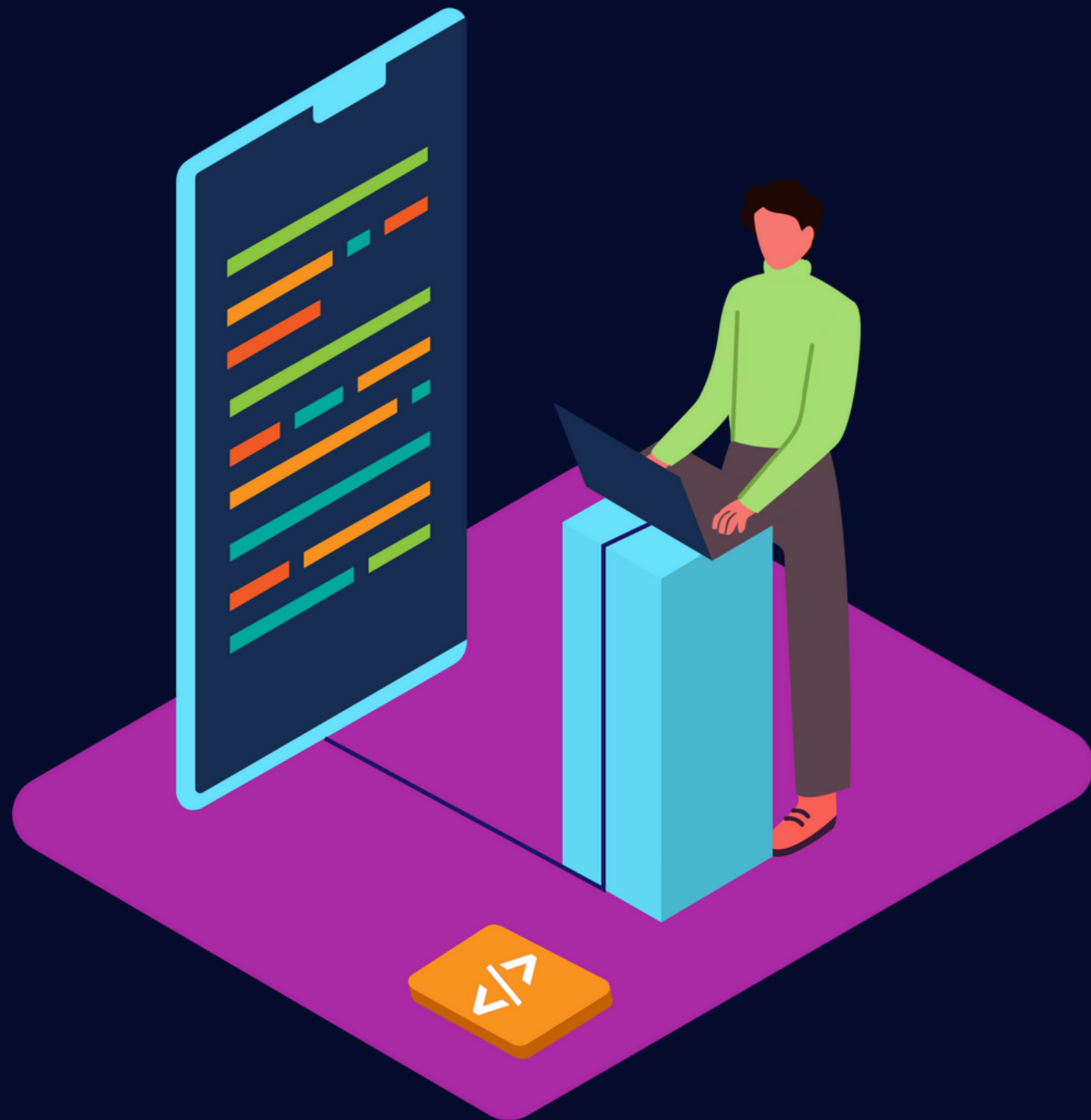


JS



Javascript

Strings



```
1  
2  const myString = "Hello World";  
3  
4  const myString2 = new String("Hello World");  
5
```



JS



Javascript

ARRAYS



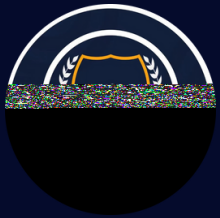
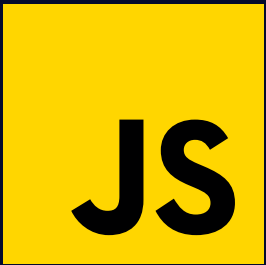
```
1  const myArr = new Array("css", "html", "nodejs");  
2  //or  
3  const myArr2 = ["css", "html", "nodejs"];  
4  
5
```





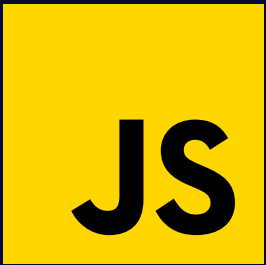
```
1  const myArr = new Array("css", "html", "nodejs");  
2  //or  
3  const myArr2 = ["css", "html", "nodejs"];  
4  
5
```

 index 0  index 1  index 2

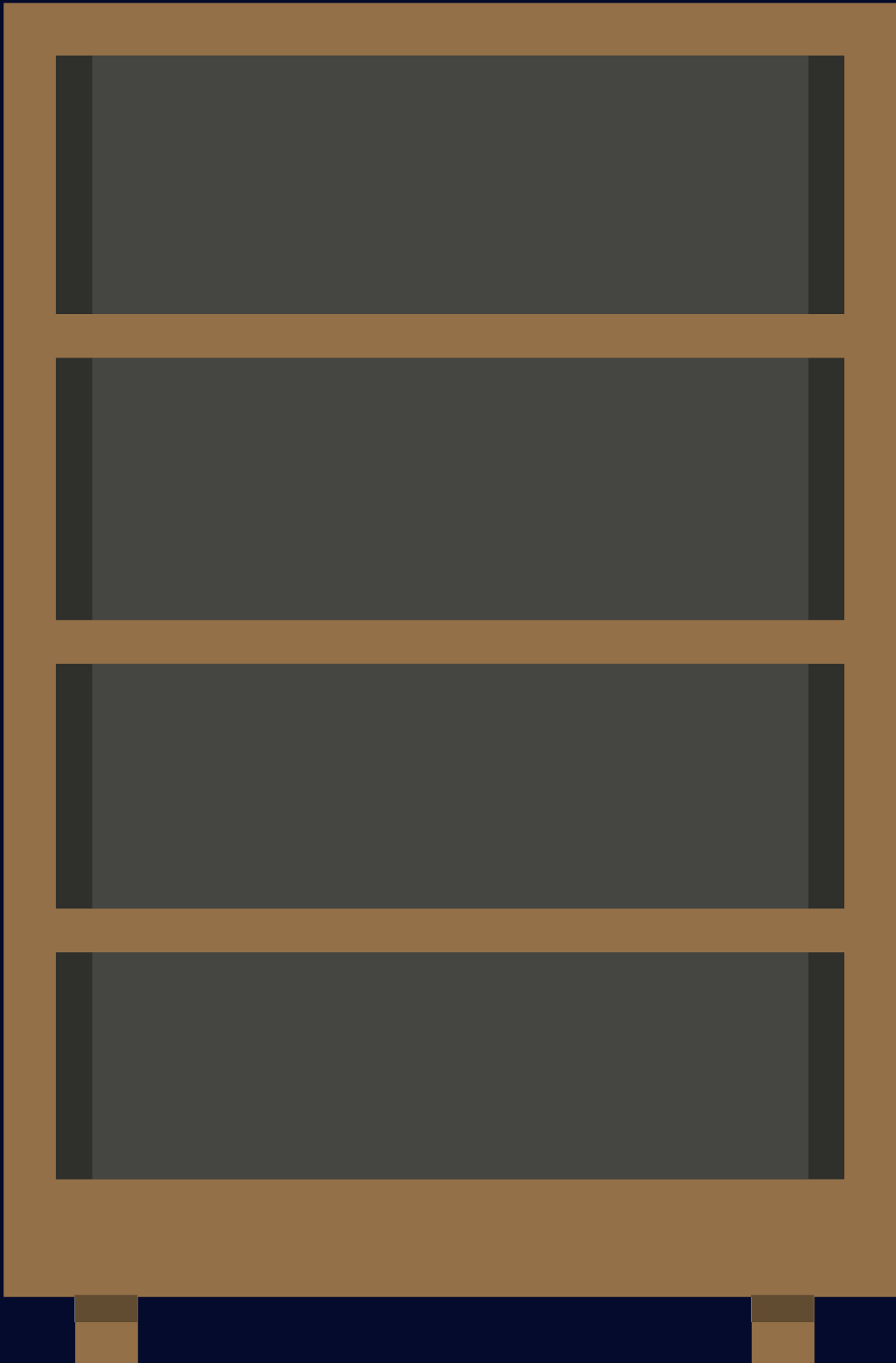
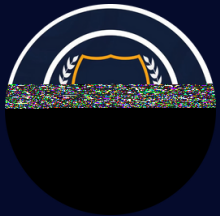


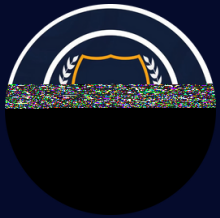
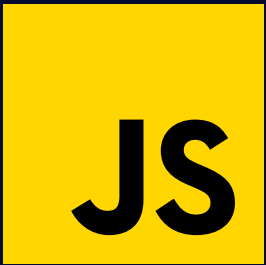
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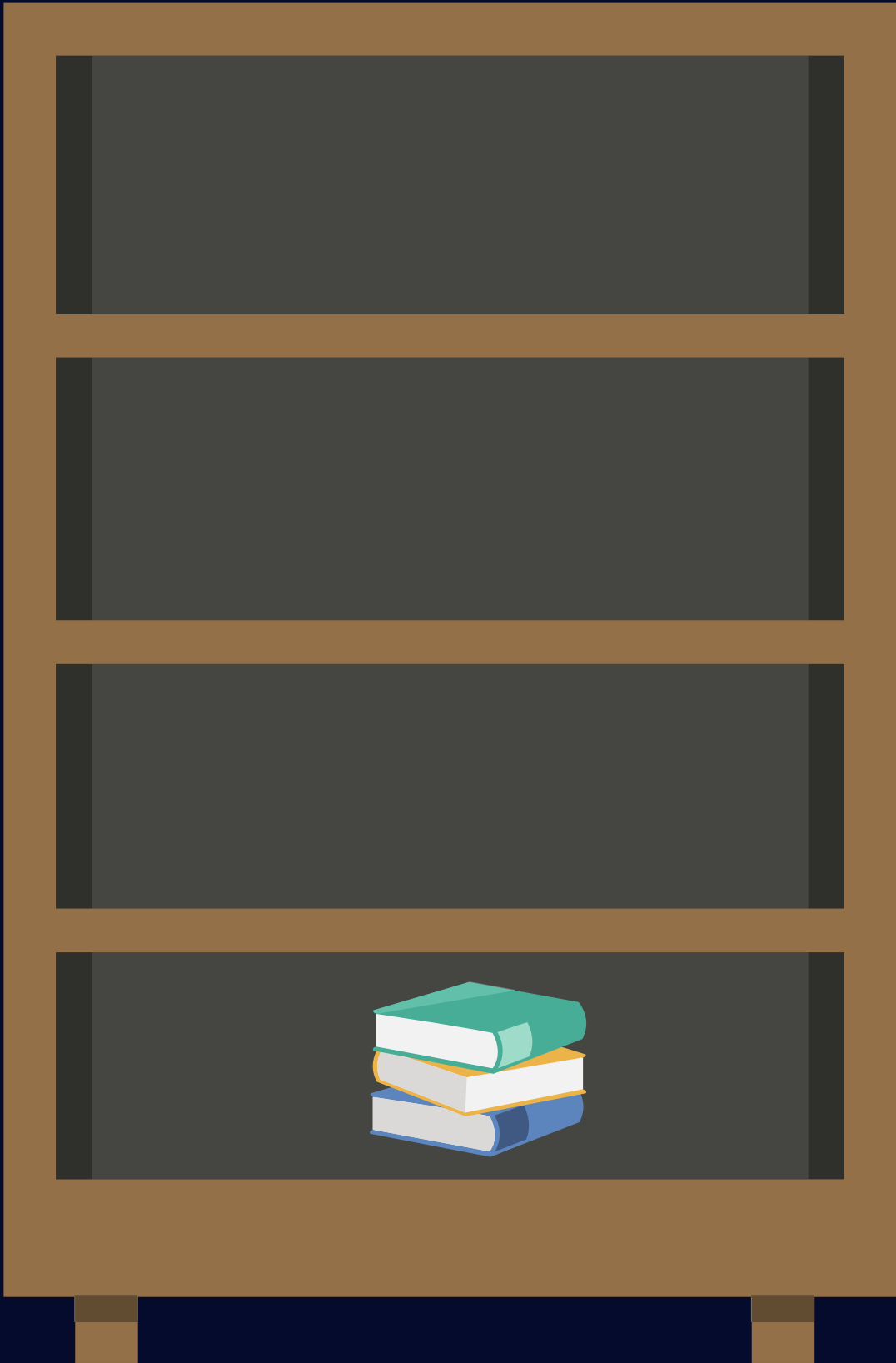


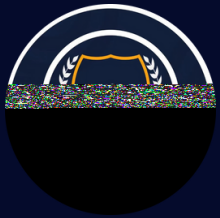
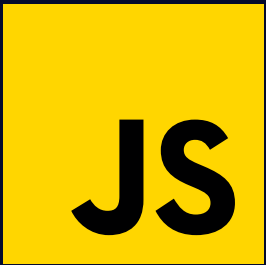
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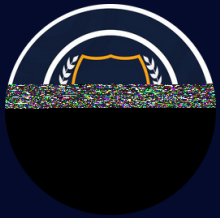
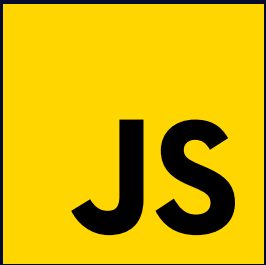
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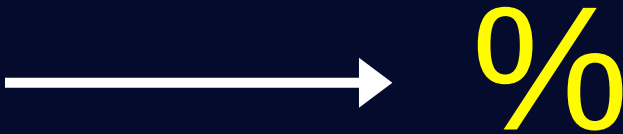


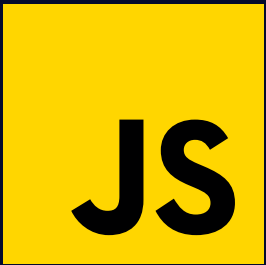
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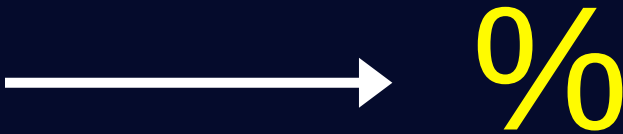


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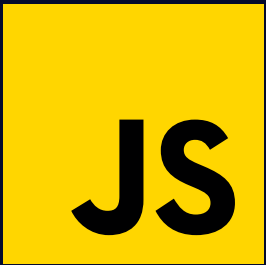
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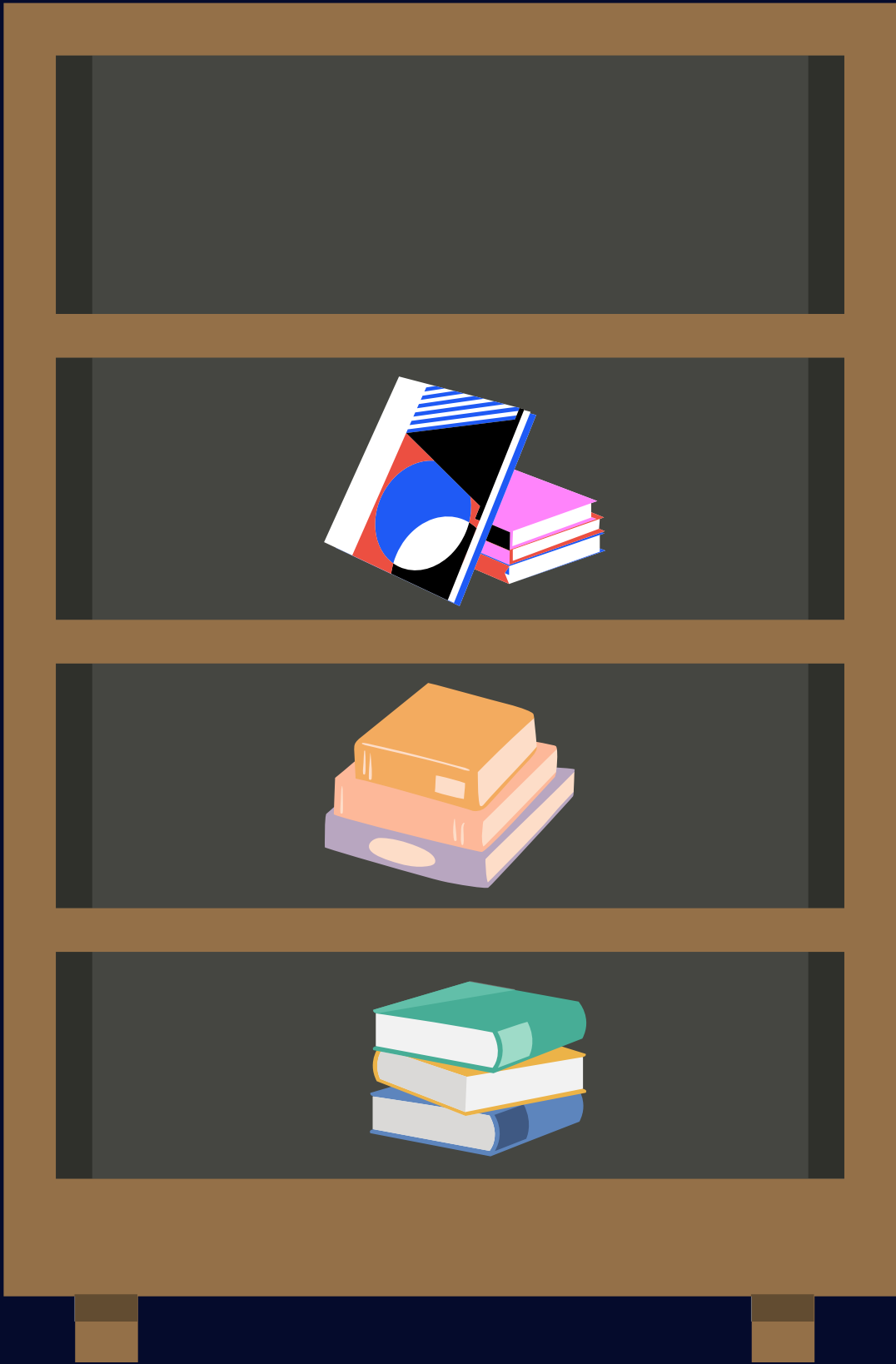


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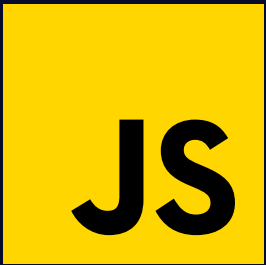


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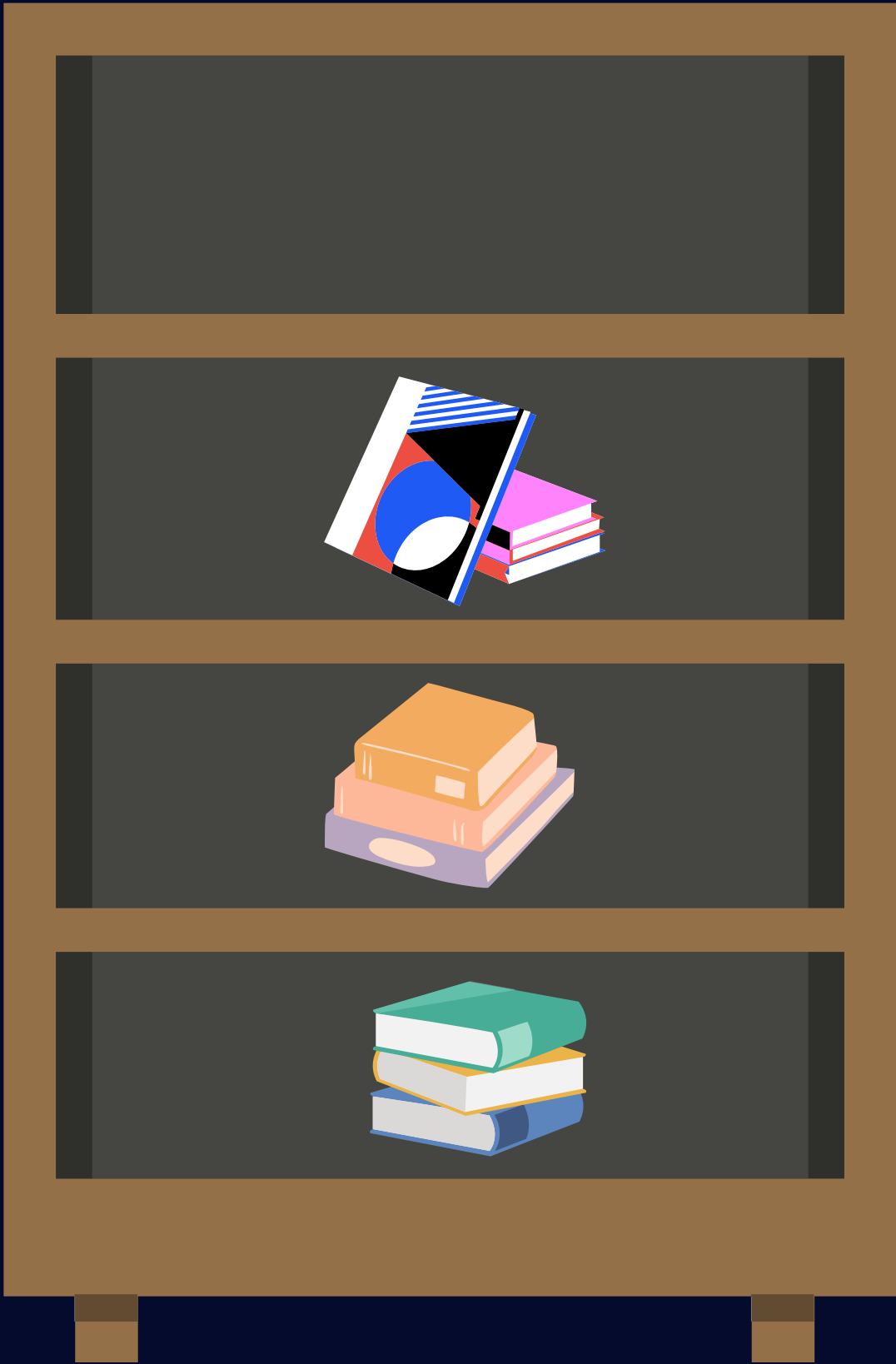


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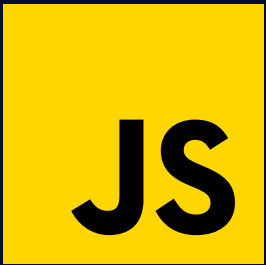


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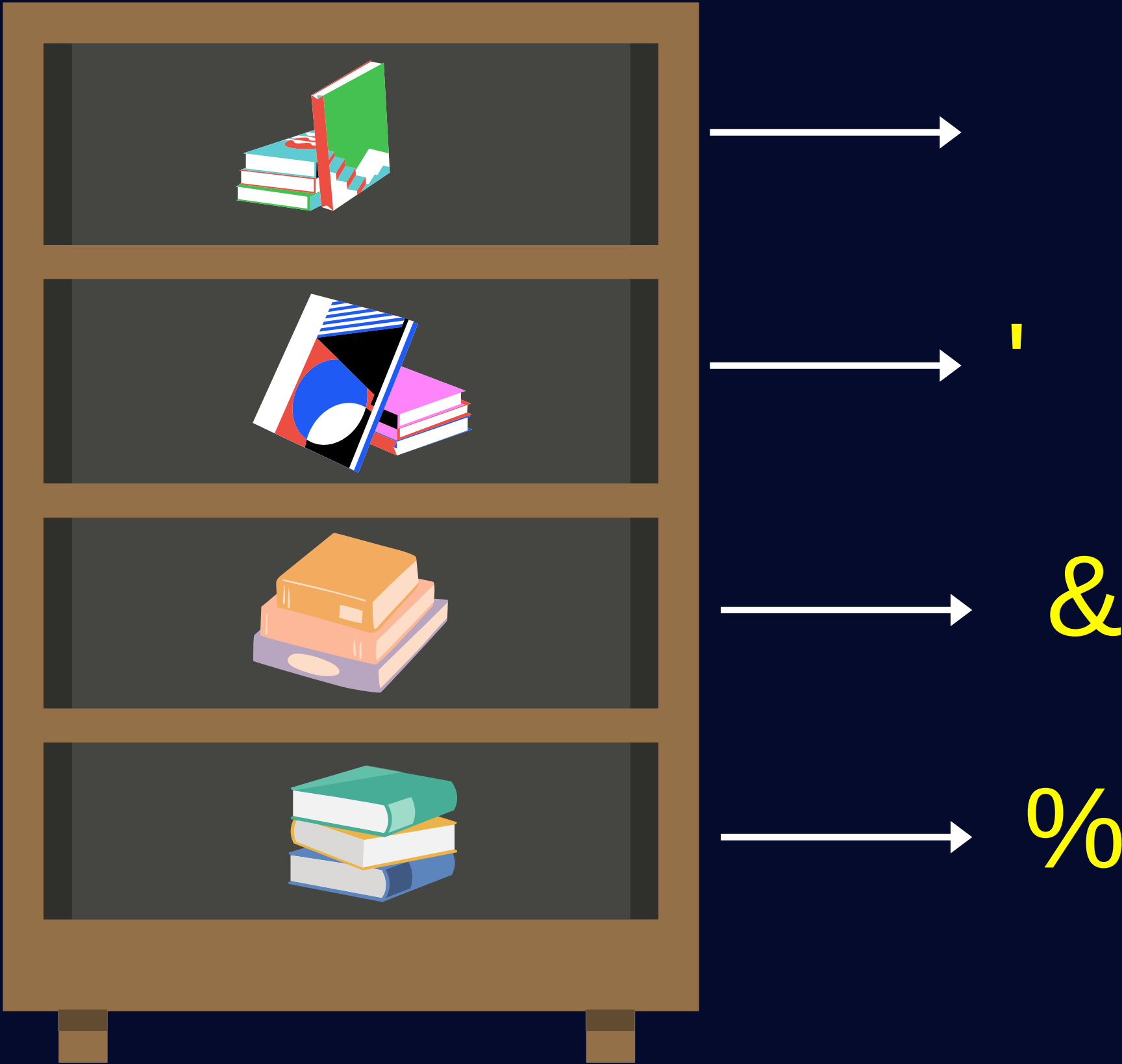


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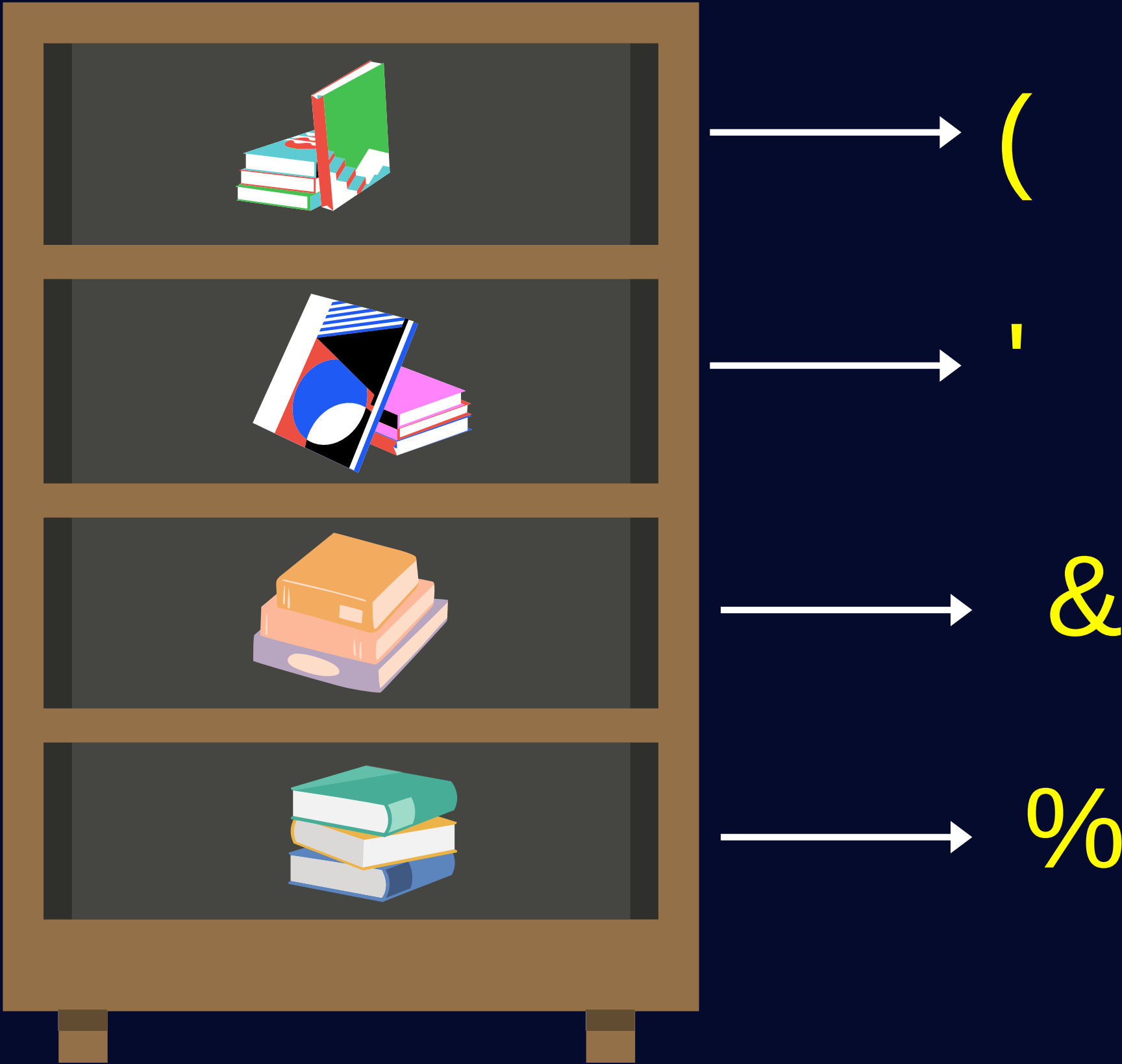




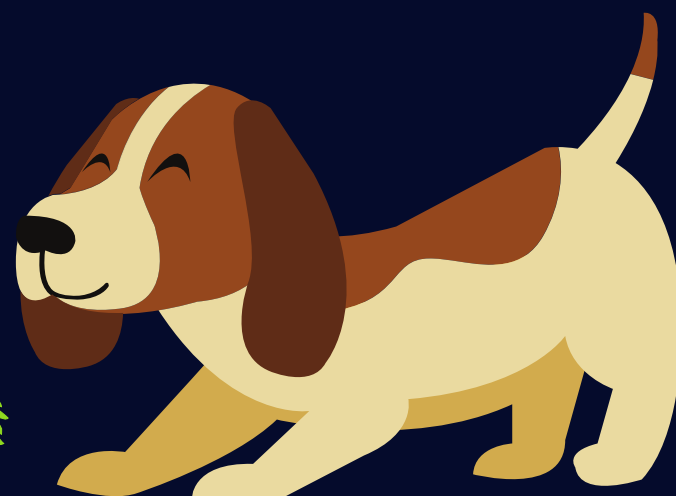
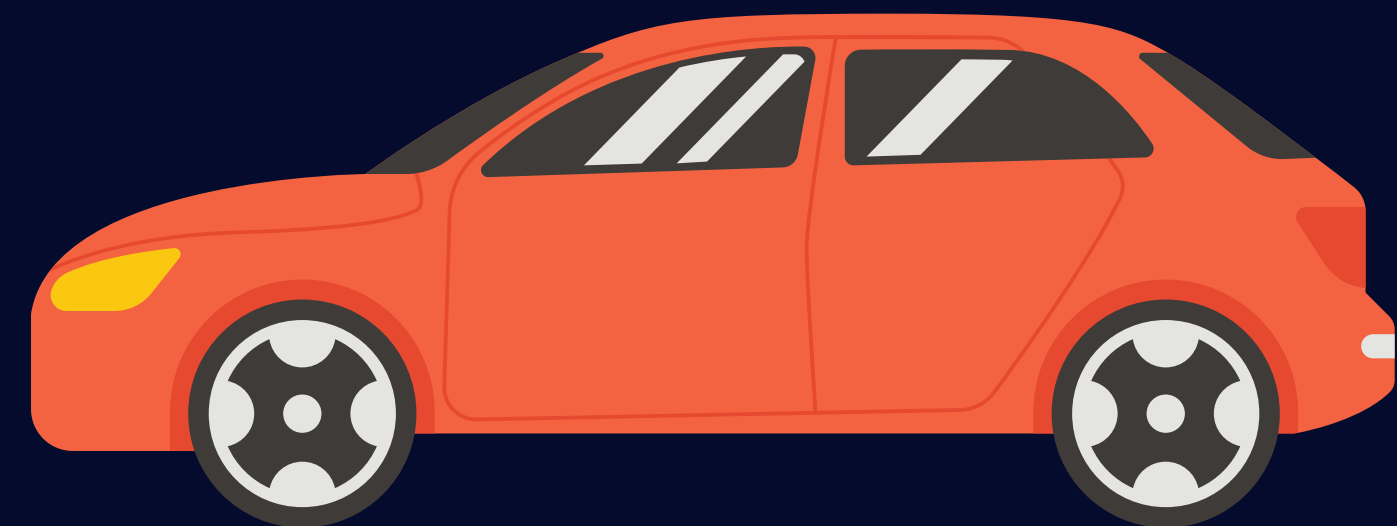
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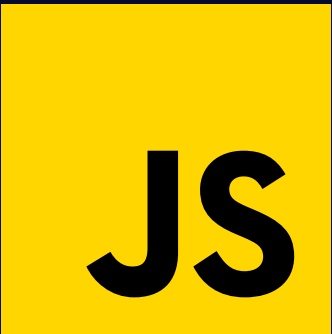


JS



Javascript Objects





JS

Person Object



JS



{ } syntax



Object Name

Properties

Methods

`person.name = John``person.greet()``person[name] = John``person.walk()``person.age = 25``person.shout()``person[age] = 25``person.run()`



Javascript versions



Javascript versions





JavaScript was created by Brendan Eich in 1995 and became an ECMA standard in 1997





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Organization





Javascript versions



The official name of the language is ECMAScript. ECMAScript versions have been abbreviated to ES1, ES2, ES3, ES5, and ES6. Since 2016, new versions have been named by year (ECMAScript 2016 / 2017 / 2018).





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ECMA



The official name of the language is ECMAScript. ECMAScript versions have been abbreviated to ES1, ES2, ES3, ES5, and ES6. Since 2016, new versions have been named by year (ECMAScript 2016 / 2017 / 2018).

ECMA European Computer Manufacturers Association (ECMA)





Javascript versions





Javascript versions



1997





Javascript versions



1997

ES1 (ECMAScript 1) first version of JS language standard





Javascript versions



1997



2007

ES1 (ECMAScript 1) first version of JS language standard





Javascript versions



1997



2007

ES1 (ECMAScript 1) first version of JS language standard

ES5 (ECMAScript 5) New more features released



1997



2007



2015

ES1 (ECMAScript 1) first version of JS language standard

ES5 (ECMAScript 5) New more features released

ES6 (ECMAScript 5) Biggest update

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2007

ES5 (ECMAScript 5) New more features released

2015

ES6 (ECMAScript 6) Biggest update

2016

2017



Javascript versions



ES6/2015



DESTRUCTURING

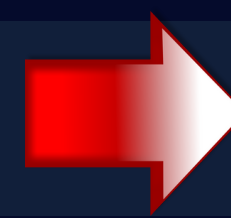
ES6/2015



ES6/2015

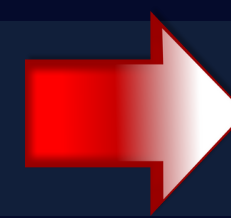


Rest parameters are a way to pass an arbitrary number of arguments to a function



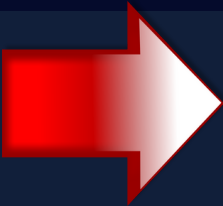
ES6/2015

$$() \Rightarrow \{ \}$$

(6

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t $\hat{I}^{\wedge} k \ddot{o}$ $\hat{I}^{\wedge} k \hat{I}^{\wedge} \ddot{o}$ k < 3 $\hat{I}^{\wedge} +$ p3êk < 3 ö < [$\hat{I}^{\wedge} \ddot{o} d d < 3 \frac{1}{2} \acute{e} p k$ k ê $\hat{I}^{\wedge} 3 3 < k \acute{e} \ddot{o}$
p d $\hat{I}^{\wedge} \ddot{o}$ 3 $\hat{I}^{\wedge} + d k p \hat{I}^{\wedge} k < 3 d \hat{A}$

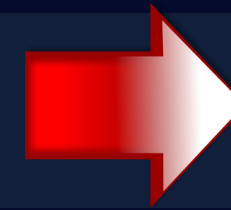


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JS

ARROW FUNCTION

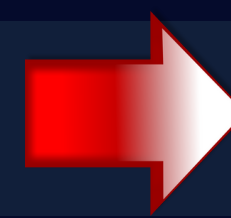


ES6/2015



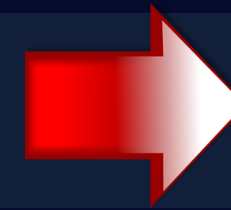
Arrow function limitations



**ES6/2015**

▶ Arrow functions do not have this keyword.

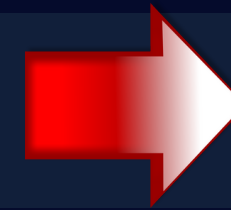




ES6/2015

- Arrow functions do not have this keyword.
- Arrow functions do not have arguments.





ES6/2015

- Arrow functions do not have this keyword.
- Arrow functions do not have arguments.
- Arrow functions cannot use as a constructor.





The spread operator (...) is a convenient way to copy all or part of an existing array or object into another array or object.

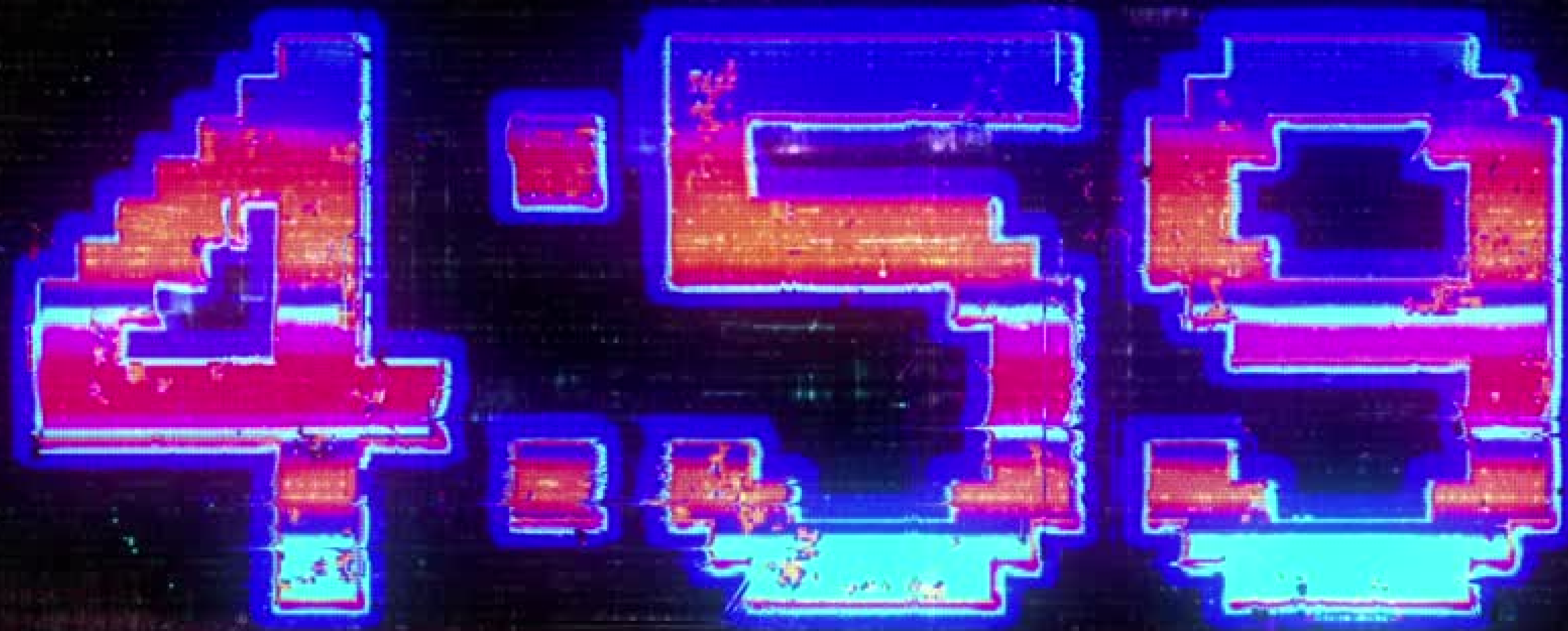
Spread vs Rest

Spread syntax "expands" an array into its elements, while rest syntax collects multiple elements and "condenses" them into a single element



JS

Math Object



JS

Number Methods

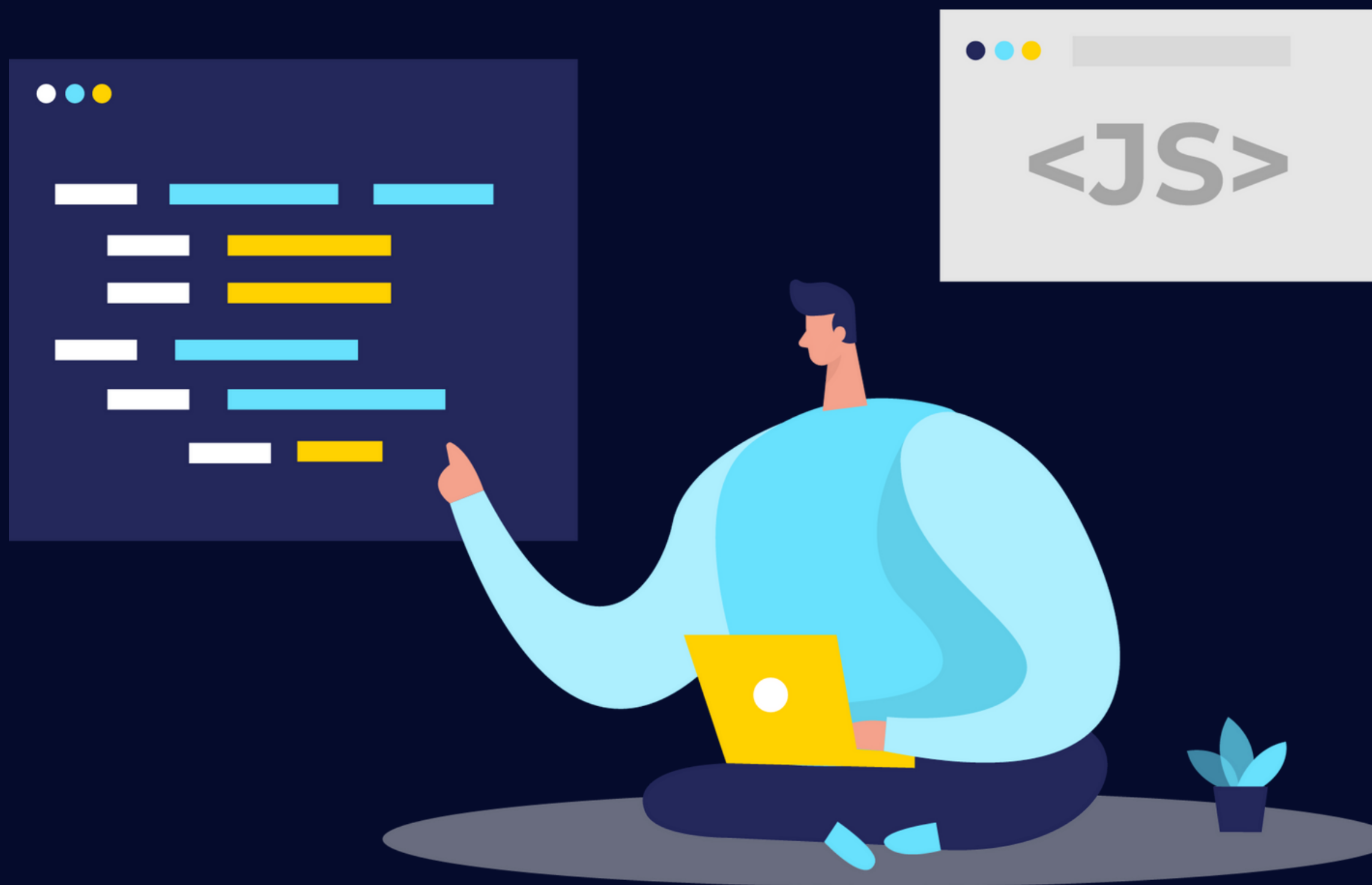




Primitive values cannot have properties and methods, but JavaScript treats primitive values as objects when executing methods and properties. This allows for methods and properties to be available to primitive values.

JS

Advanced Functions



JS



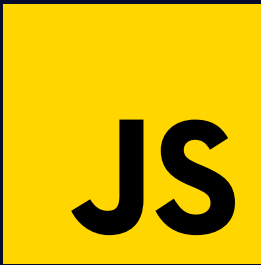
Functions

Scope



Variable and function visibilities





```
1  let number = 10;
2
3  function findTotal() {
4      const arr = [3, 5, 7, 9];
5      let total = 0;
6
7      for (let i = 0; i < arr.length; i++) {
8          let msg = "The loop has run " + i + " times";
9          total += arr[i];
10     }
11 }
12
```

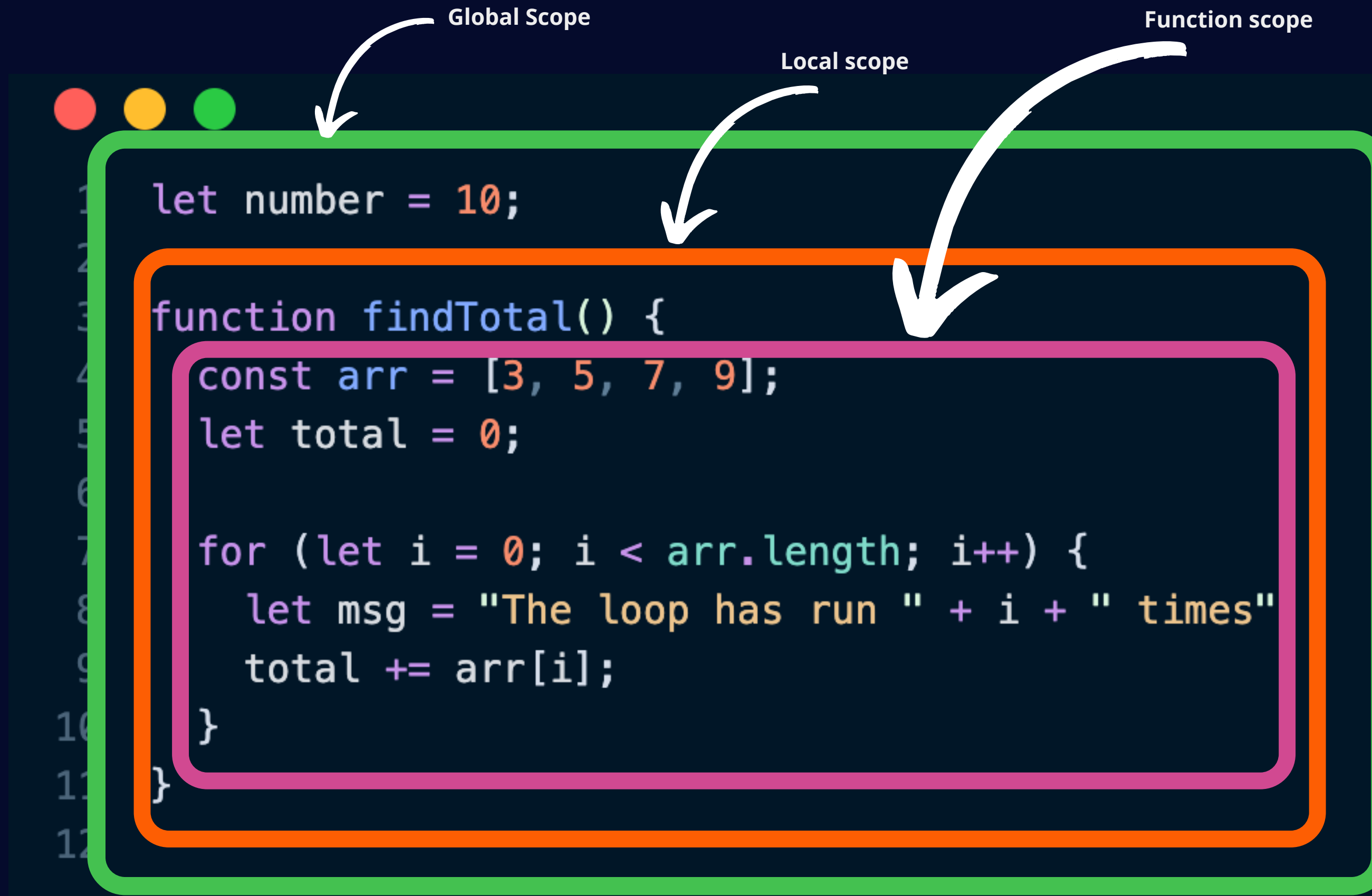
Global Scope

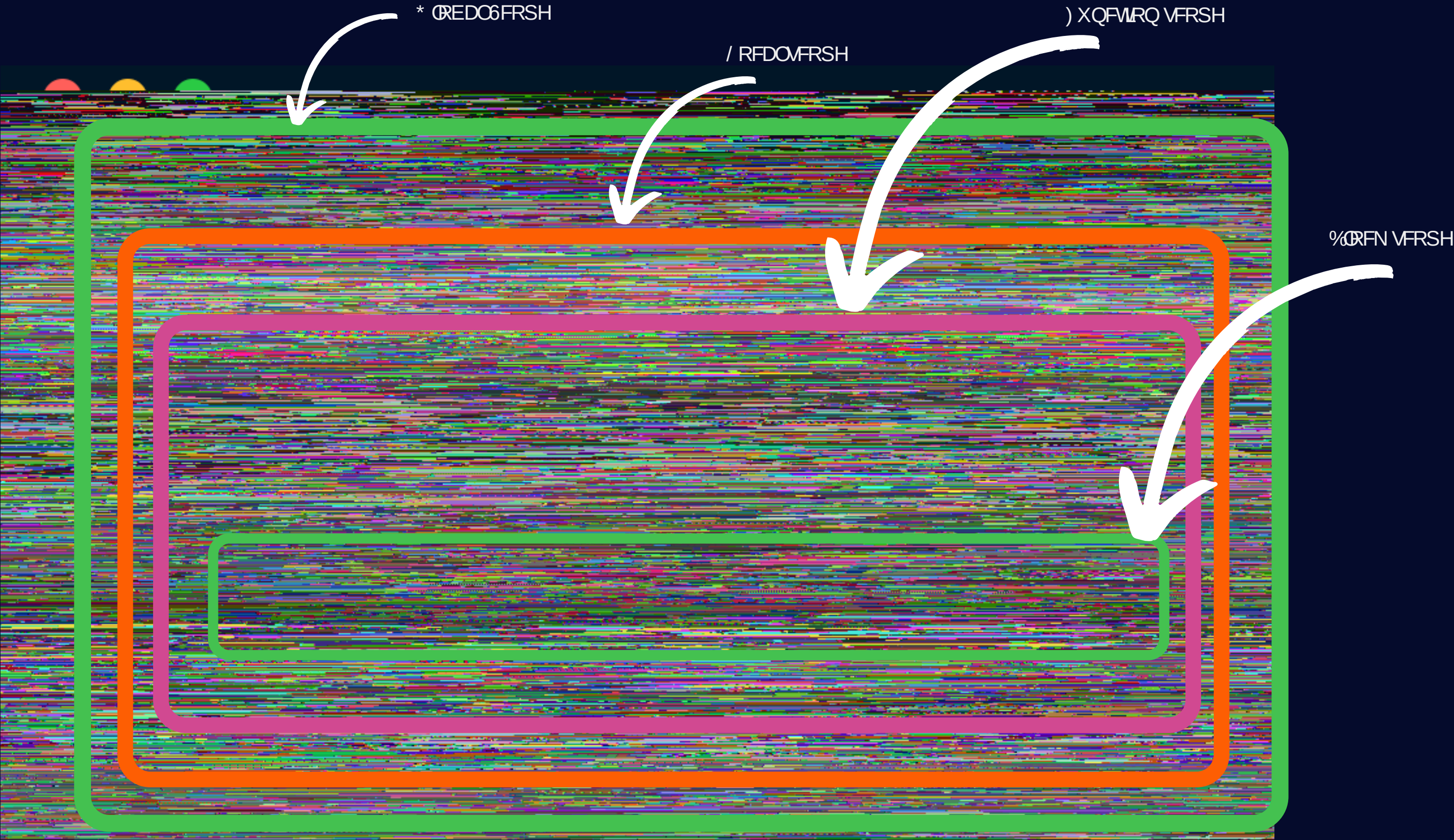
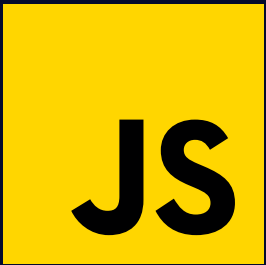
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1 let number = 10;
2
3 function findTotal() {
4   const arr = [3, 5, 7, 9];
5   let total = 0;
6
7   for (let i = 0; i < arr.length; i++) {
8     let msg = "The loop has run " + i + " times";
9     total += arr[i];
10  }
11 }
12
```

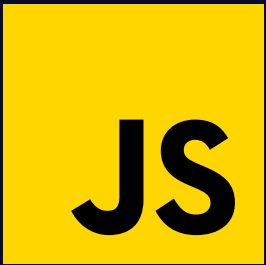

Global Scope

Local scope

```
1 let number = 10;
2
3 function findTotal() {
4   const arr = [3, 5, 7, 9];
5   let total = 0;
6
7   for (let i = 0; i < arr.length; i++) {
8     let msg = "The loop has run " + i + " times";
9     total += arr[i];
10  }
11 }
12
```





The logo consists of the letters 'JS' in a bold, black, sans-serif font, centered within a solid yellow square.

HISTORY OF JAVASCRIPT



www.inovotekacademy.com



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HISTORY OF JAVASCRIPT



Brendan Eich



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inovotekacademy

➤ JavaScript was created in 1995 by Brendan Eich

Brendan Eich



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- It was originally named Mocha -> LiveScript ---> JavaScript.

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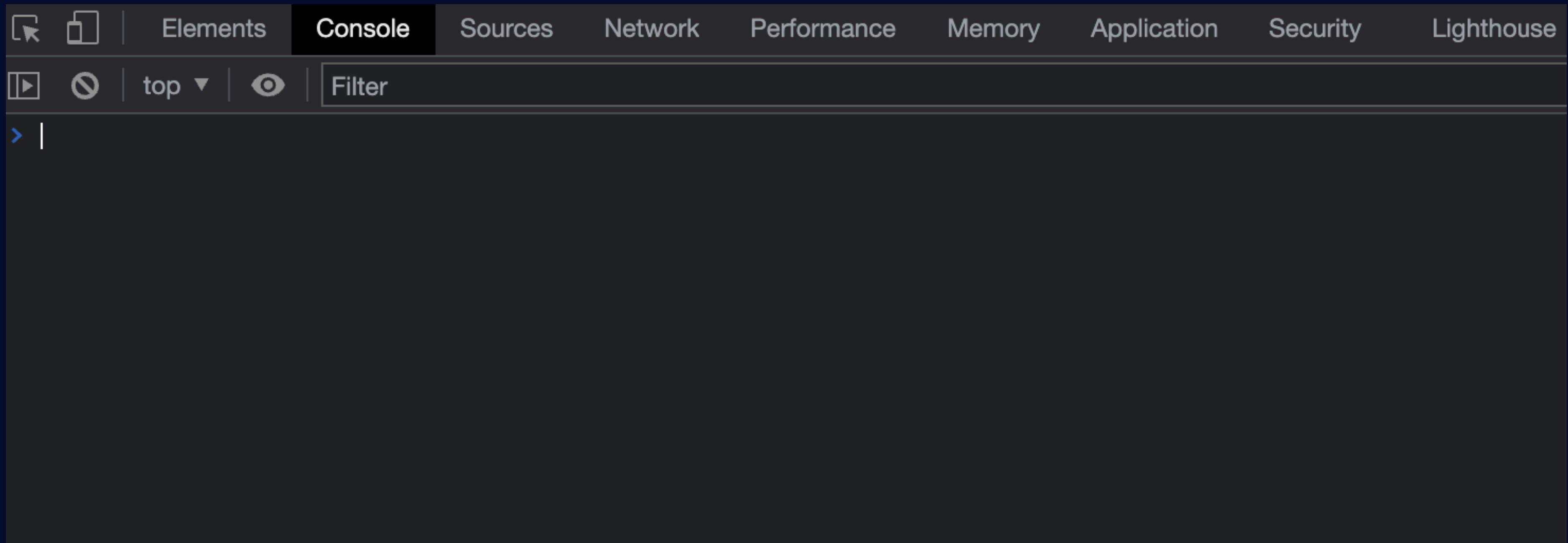
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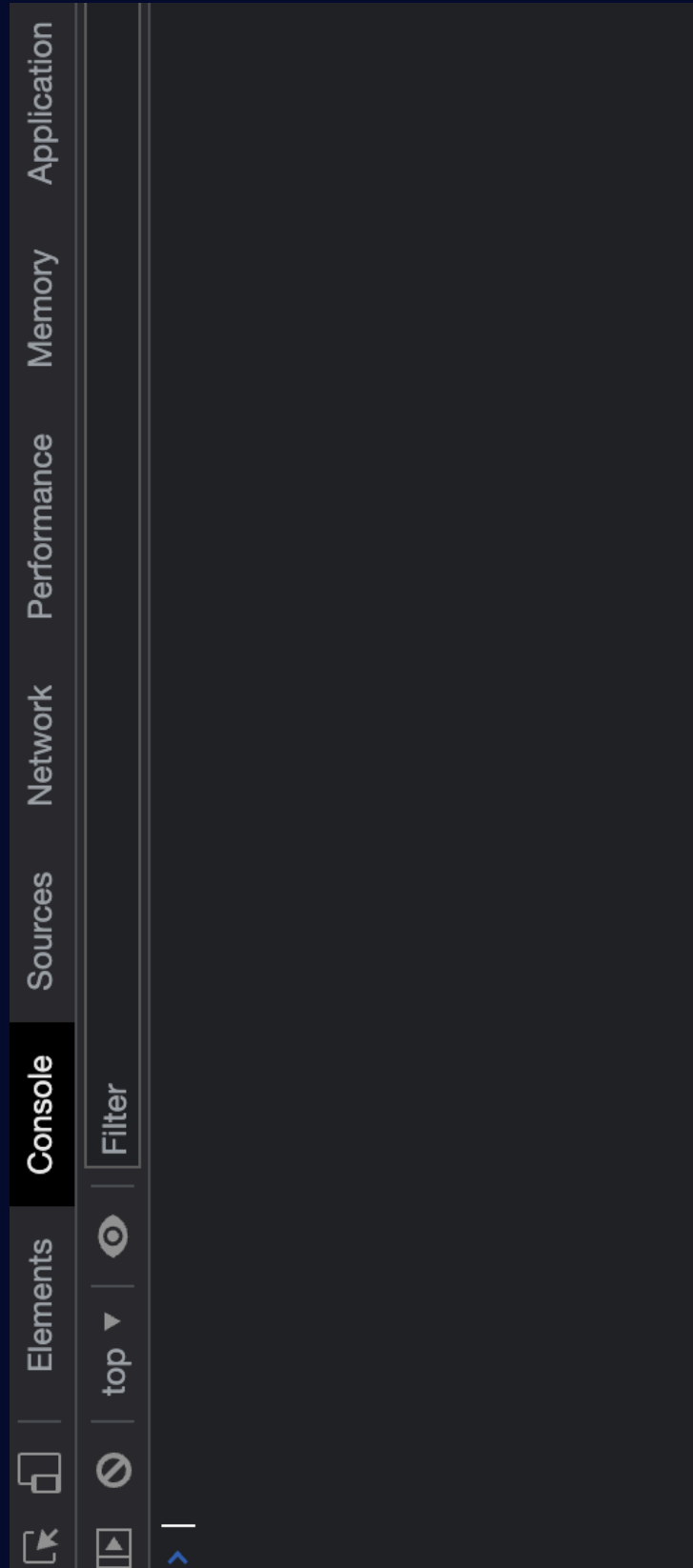
JS



console.log()



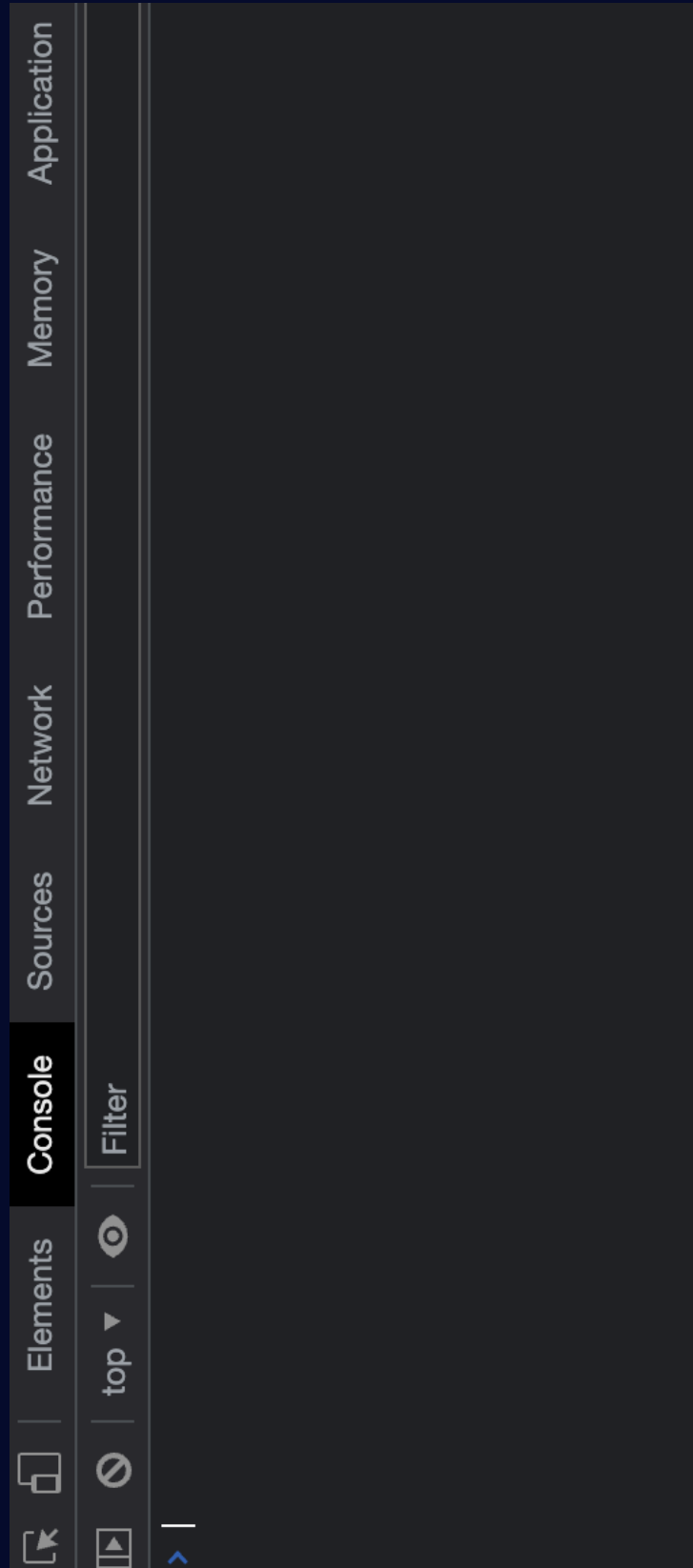
console.log()



The console.log() is a function in JavaScript which is used to print any kind of variables



console.log()

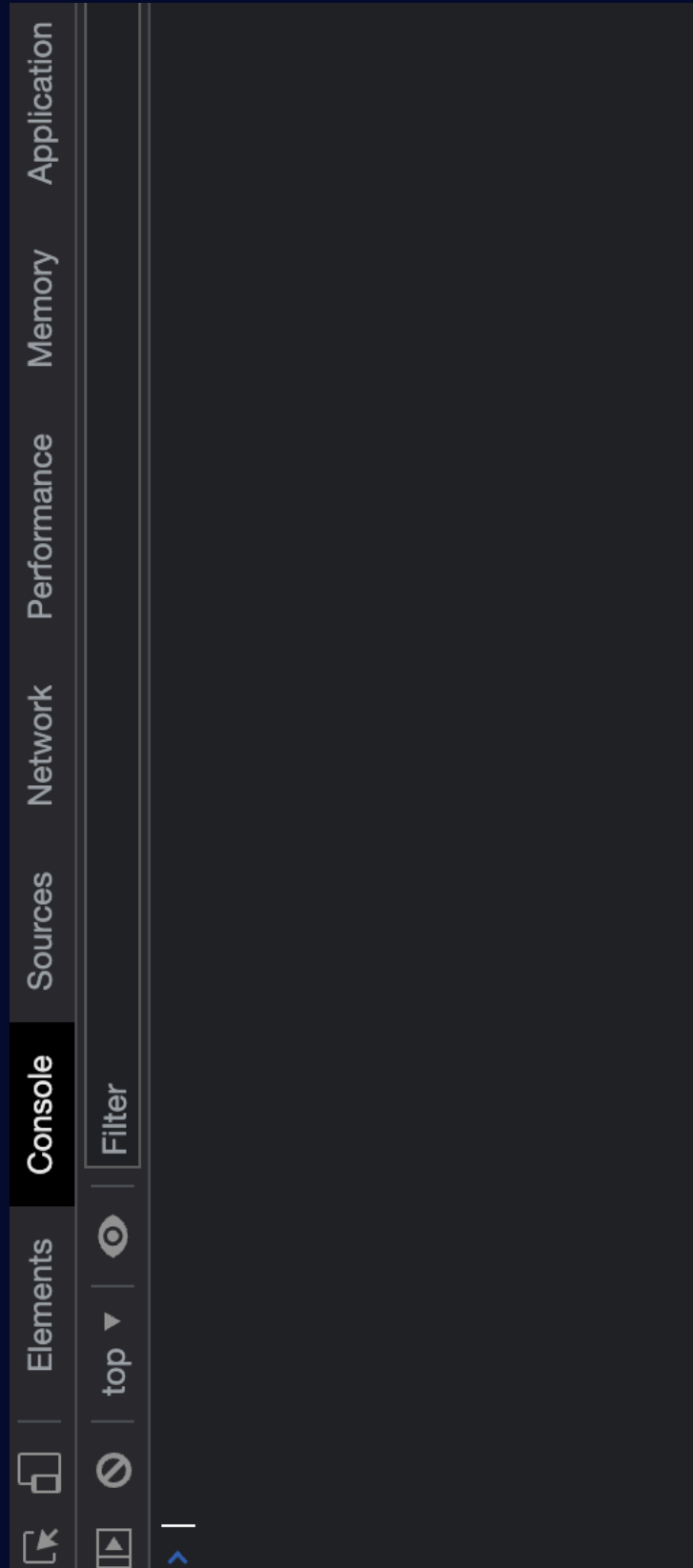


➤ The console.log() is a function in JavaScript which is used to print any kind of variables

➤ It is like a command-line interface that runs JavaScript on your JavaScript engine.



console.log()

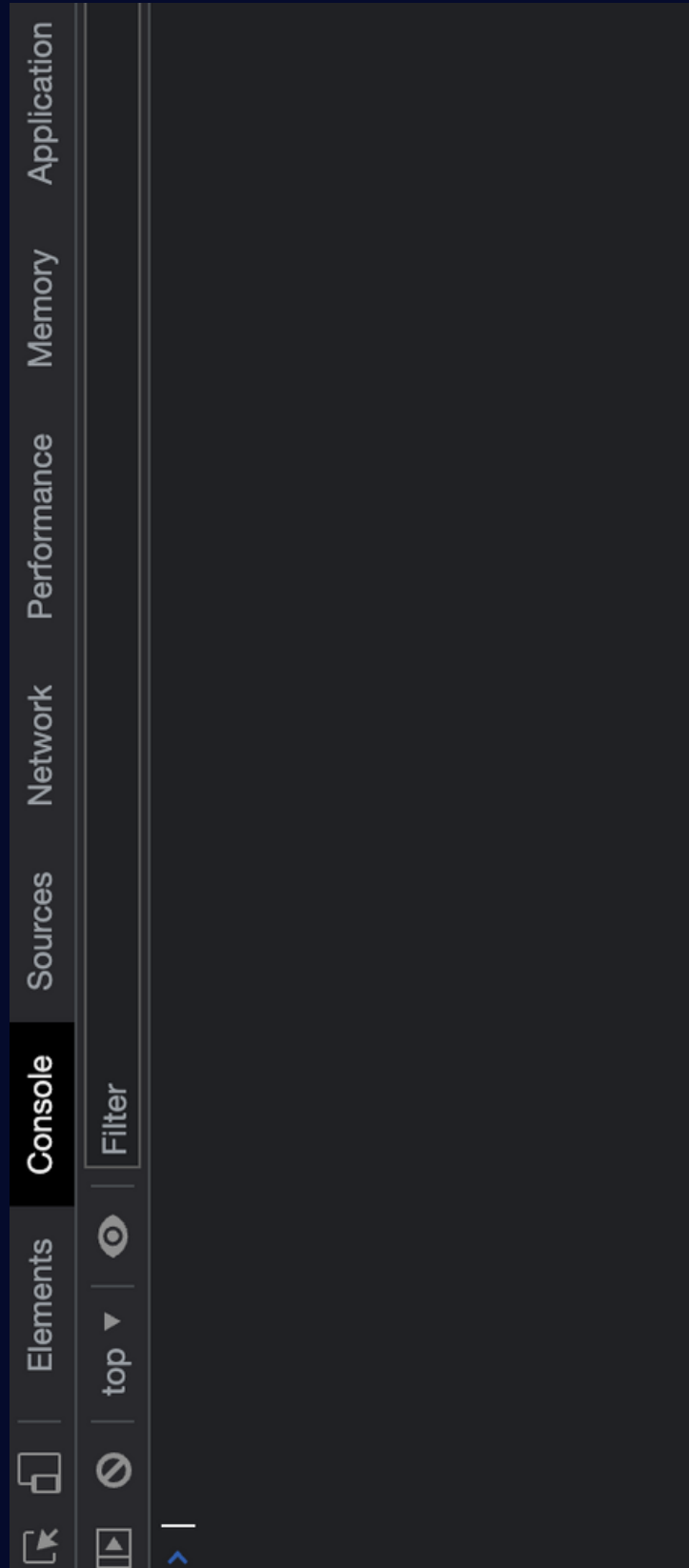


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console.log()



➤ The console.log() is a function in JavaScript which is used to print any kind of variables

➤ It is like a command-line interface that runs JavaScript on your JavaScript engine.

➤ read-eval-print loop (REPL). This refers to the loop that the console runs



Features of javascript



Features of javascript



It's a single threaded language



It's a single threaded language

It's a dynamically typed language



Features of javascript



It's a single threaded language

It's a dynamically typed language

object-oriented language



It's a single threaded language

It's a dynamically typed language

object-oriented language

It's a garbage collector



It's a single threaded language

It's a dynamically typed language

object-oriented language

It's a garbage collector

It's a client-side language



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It's a non-blocking



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It's a high-level language





Features of javascript



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object-oriented language

It's a garbage collector

It's a client-side language

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It's a non-blocking

It's a high-level language



This means that js executes the code line by line.





Features of javascript



It's a single threaded language

It's a dynamically typed language

object-oriented language

It's a garbage collector

It's a client-side language

It's a server-side language

It's a non-blocking

It's a high-level language



This means that the type of a variable can change during the program execution



It's a single threaded language

It's a dynamically typed language

object-oriented language

It's a garbage collector

It's a client-side language

It's a server-side language

It's a non-blocking

It's a high-level language

It's a programming paradigm that uses objects as the primary way of representing data which uses Prototypal Inheritance



It's a single threaded language

It's a dynamically typed language

object-oriented language

It's a client-side language

It's a server-side language





V8 Engine

source code

```
res = {}  
res.data = self.get_data()  
status = {}  
status.data = self.get_data()  
status.id = self.get_data()  
status.name = self.get_data()  
status.status = self.get_data()  
return status
```

parser

AST (abstract syntax tree)



V8 Engine

source code

```
res = {}  
res.data = self.get_data()  
status = Status()  
status_id = data.id, name = data.name  
status = Status()  
status_id = data.id, name = data.name  
status = Status()  
status_id = data.id, name = data.name  
return statuses
```

parser

AST (abstract syntax tree)

machine code



V8 Engine

source code

```
res = {}  
res.data = self.get_data()  
status = {}  
status.data = self.get_status()  
status.data.id = self.get_id()  
status.data.name = self.get_name()  
status.data.email = self.get_email()  
status.data.phone = self.get_phone()  
status.data.address = self.get_address()  
status.data.city = self.get_city()  
status.data.state = self.get_state()  
status.data.country = self.get_country()  
status.data.zip = self.get_zip()  
status.data.city = self.get_city()  
status.data.state = self.get_state()  
status.data.country = self.get_country()  
status.data.zip = self.get_zip()  
return status
```

parser

AST (abstract syntax tree)

Compilation

machine code



V8 Engine

source code

```
responder = {  
  statuses: {}  
}  
async function getResponser() {  
  for (data in responder) {  
    status = Status({  
      status_id: data.id, name: data.name  
    })  
    statuses[status.name] = status  
  }  
  return statuses  
}
```

parser

AST (abstract syntax tree)

Compilation

machine code

browser



hine code

100





V8 Engine

source code

```
res = {}  
res.data = self.get_data()  
status = {}  
status.data = self.get_status()  
status.id = self.get_id()  
status.name = self.get_name()  
statuses[status.name] = status  
return statuses
```

parser

AST (abstract syntax tree)

Compilation

machine code

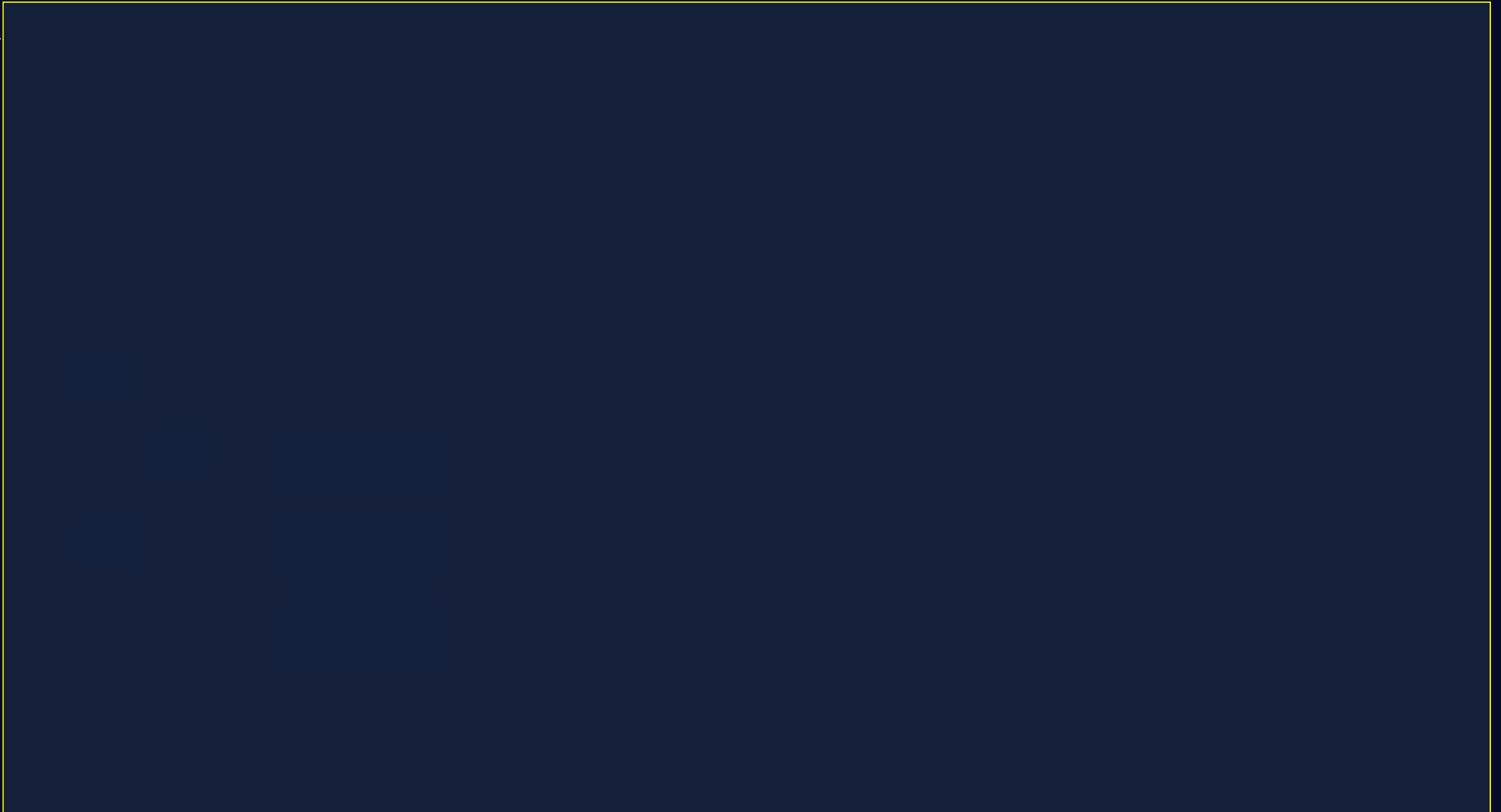
interpreter

browser





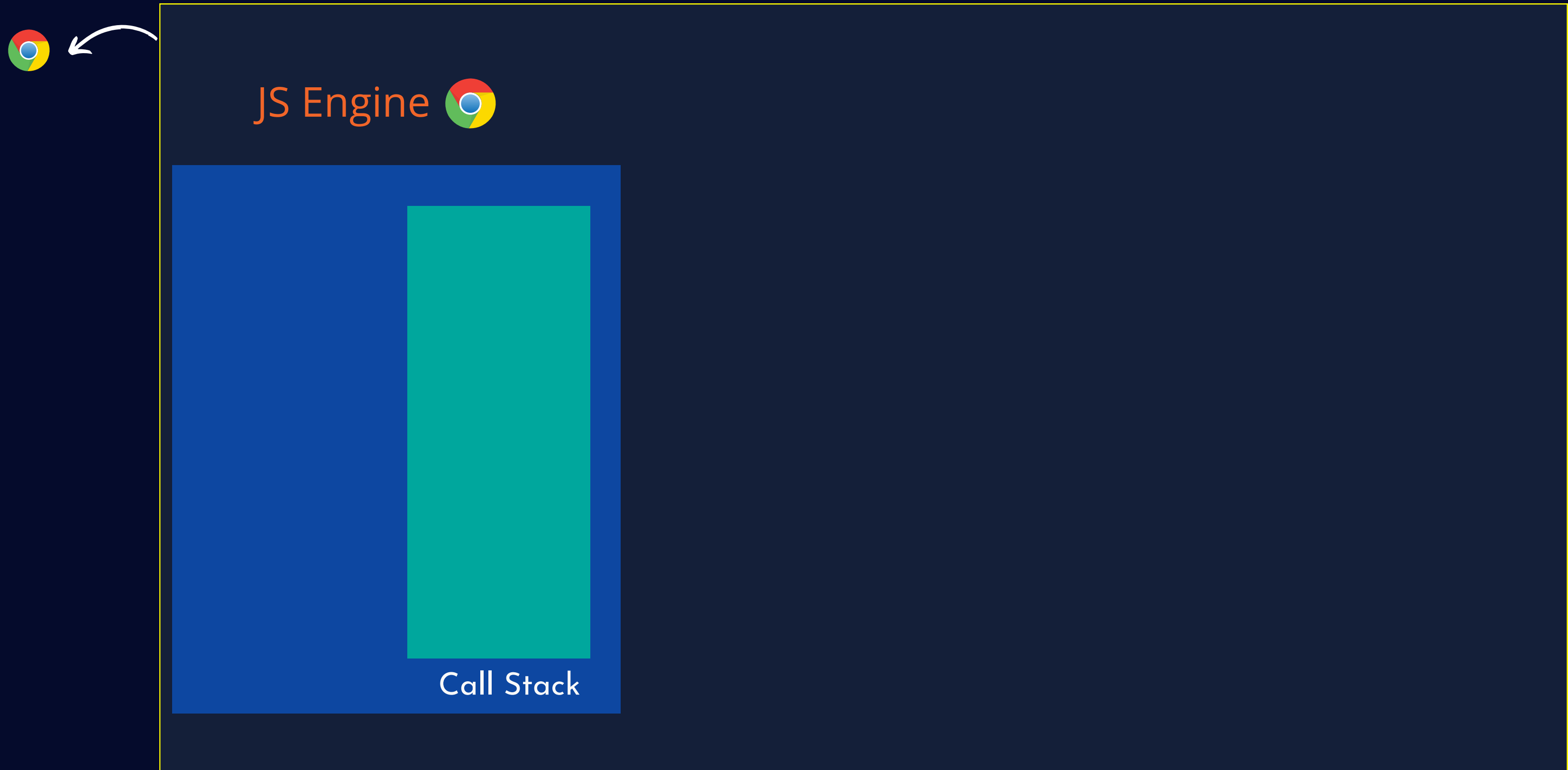
JS runtime, in a layman's point of view, it's a box that contains all the things we need to run our code.

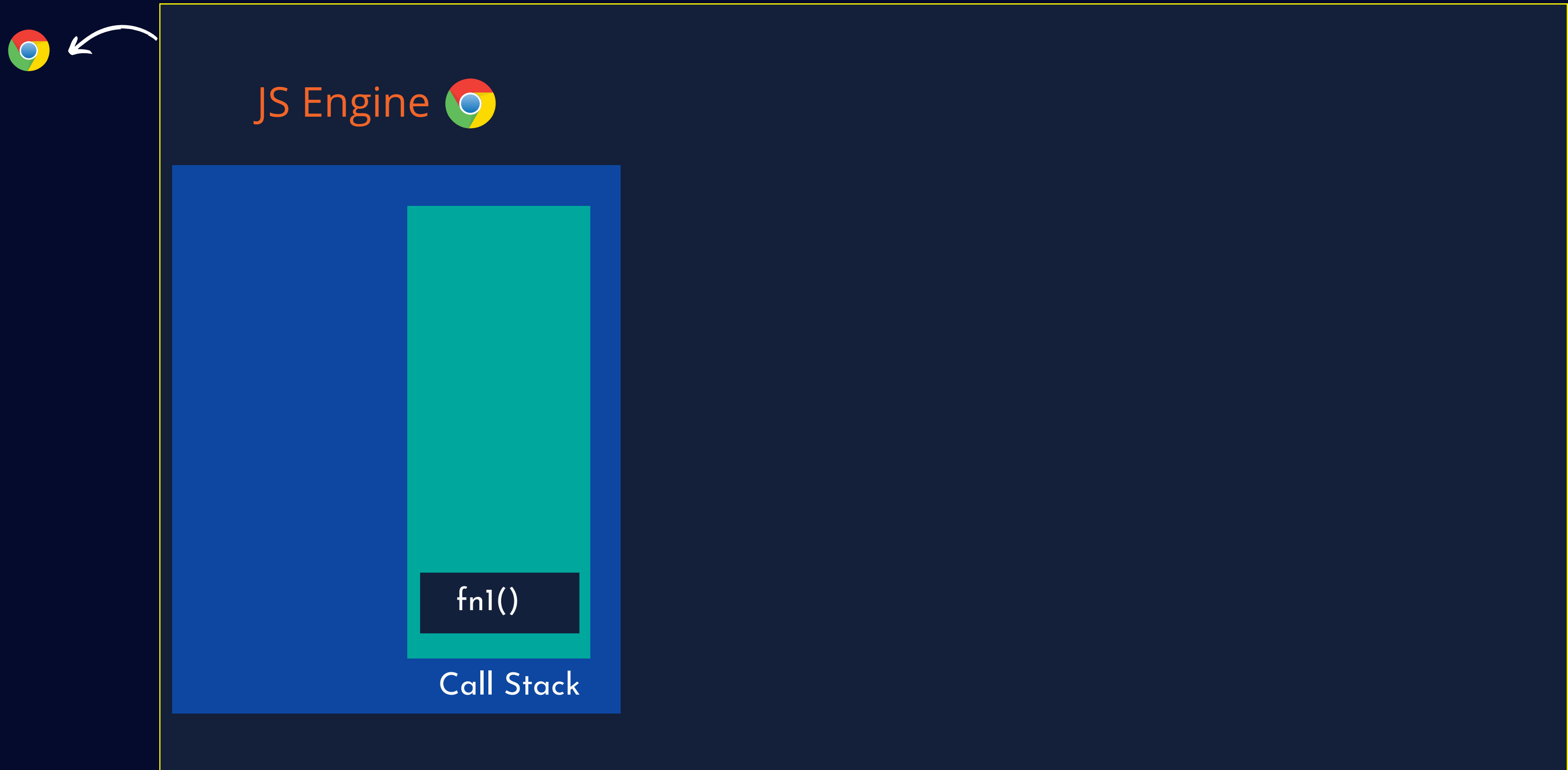


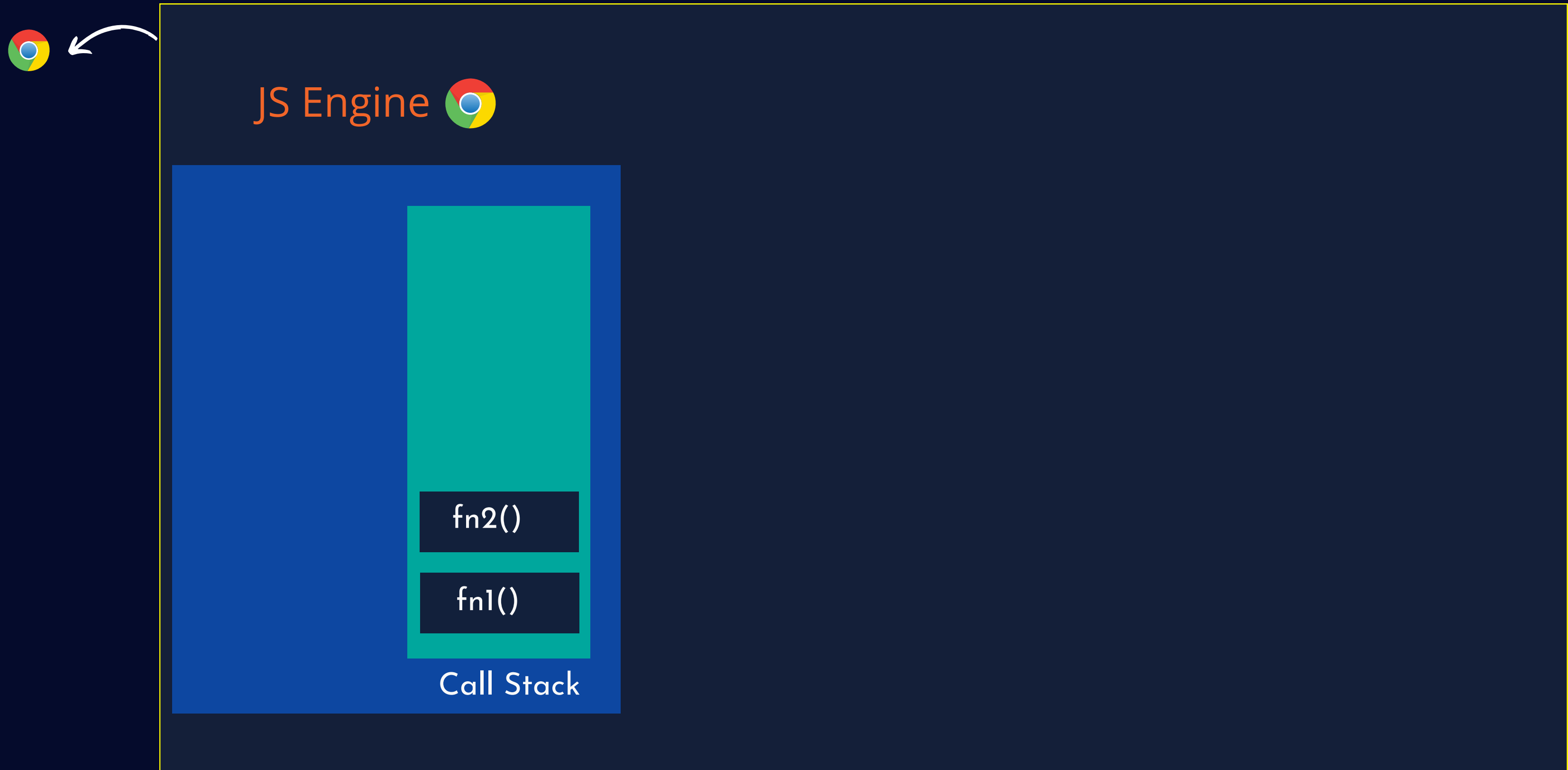


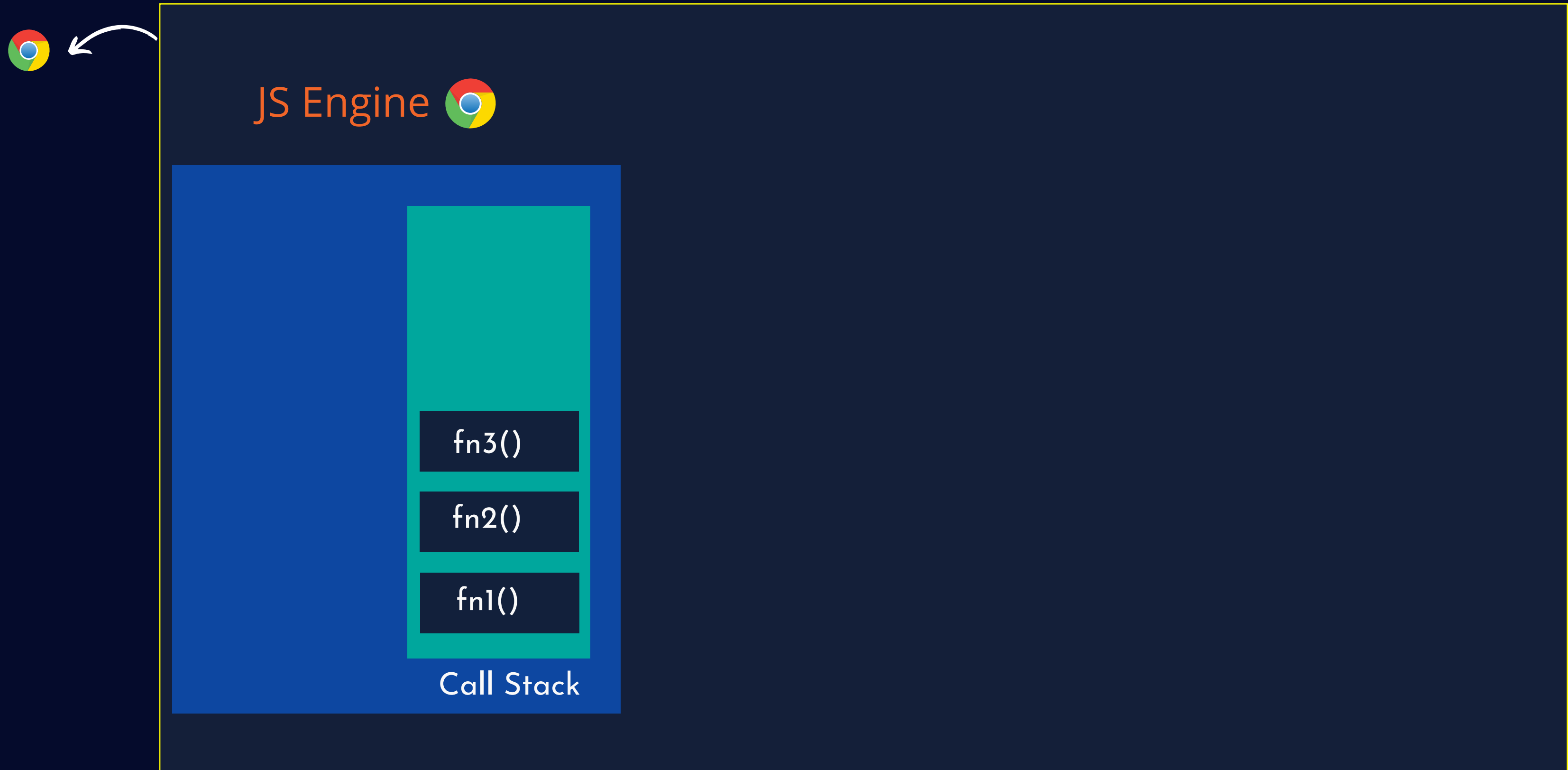
JS Engine 

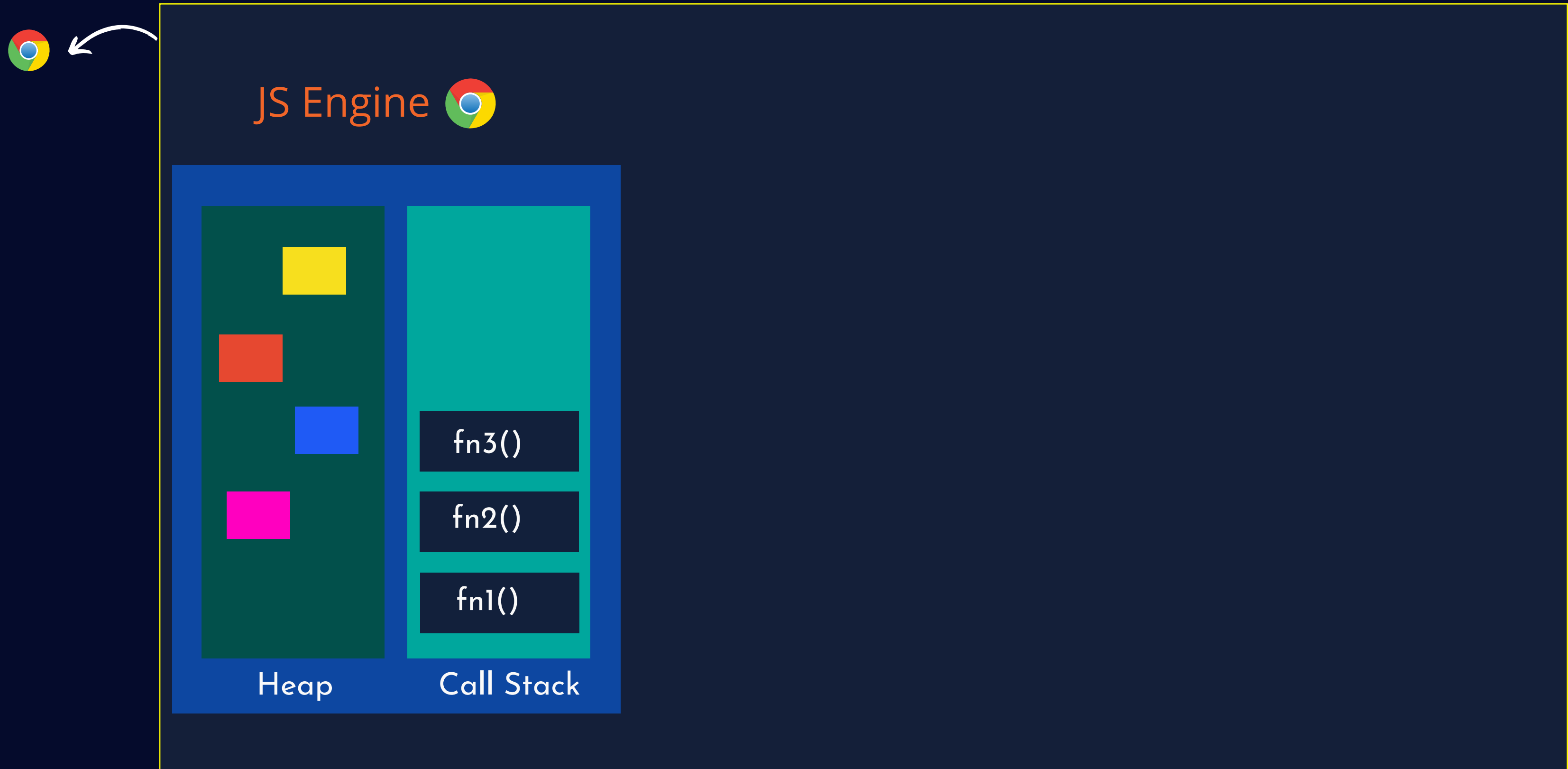






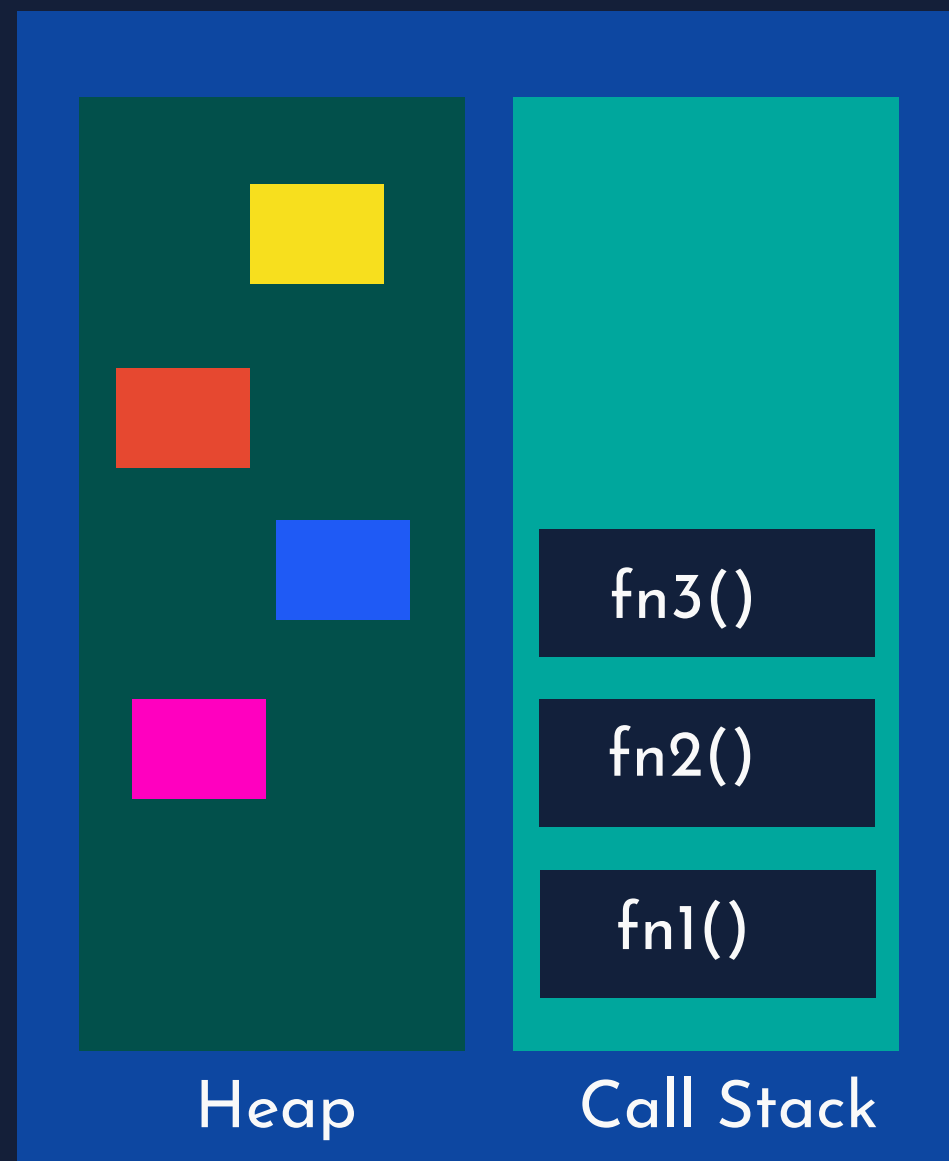




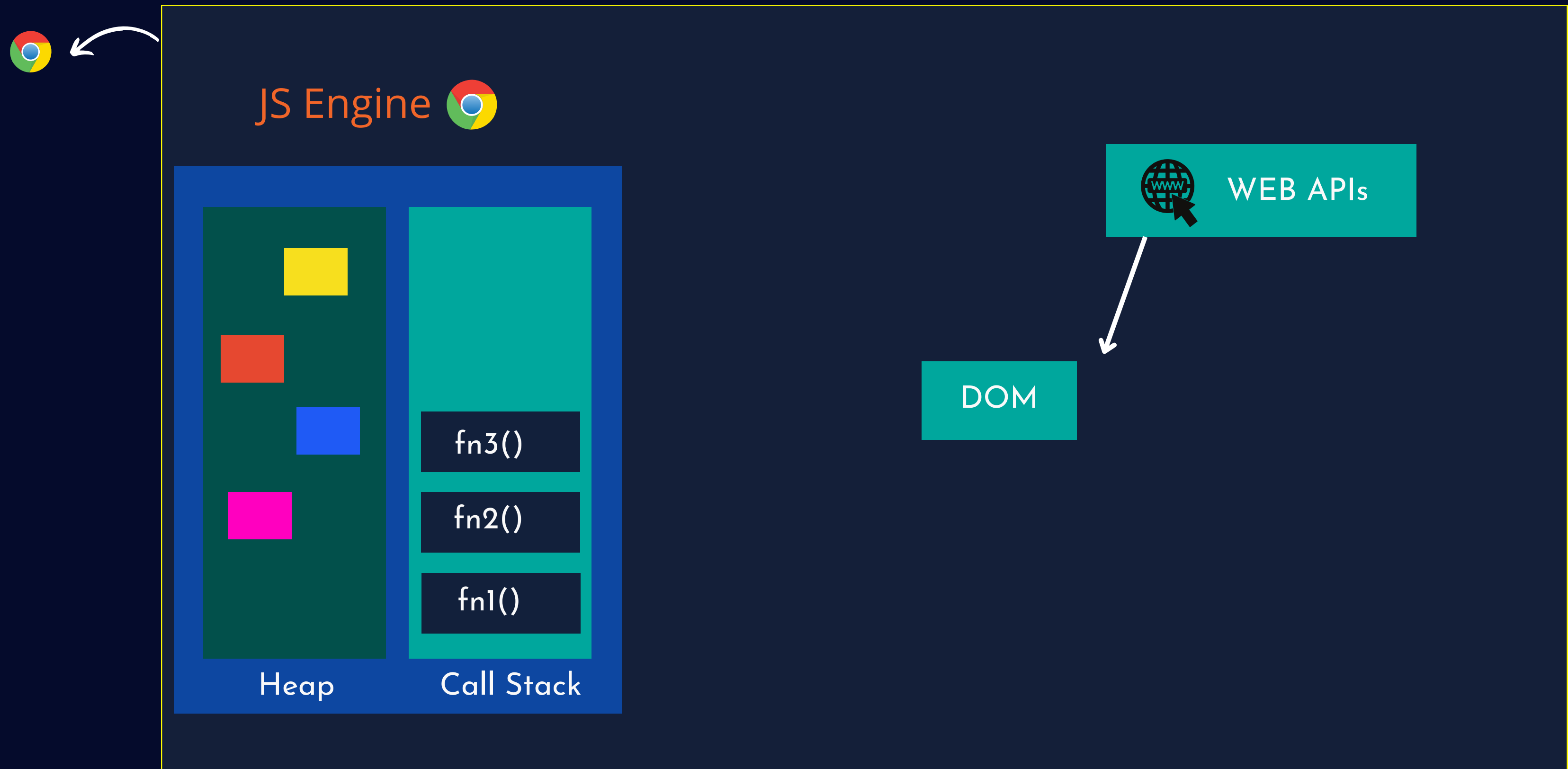


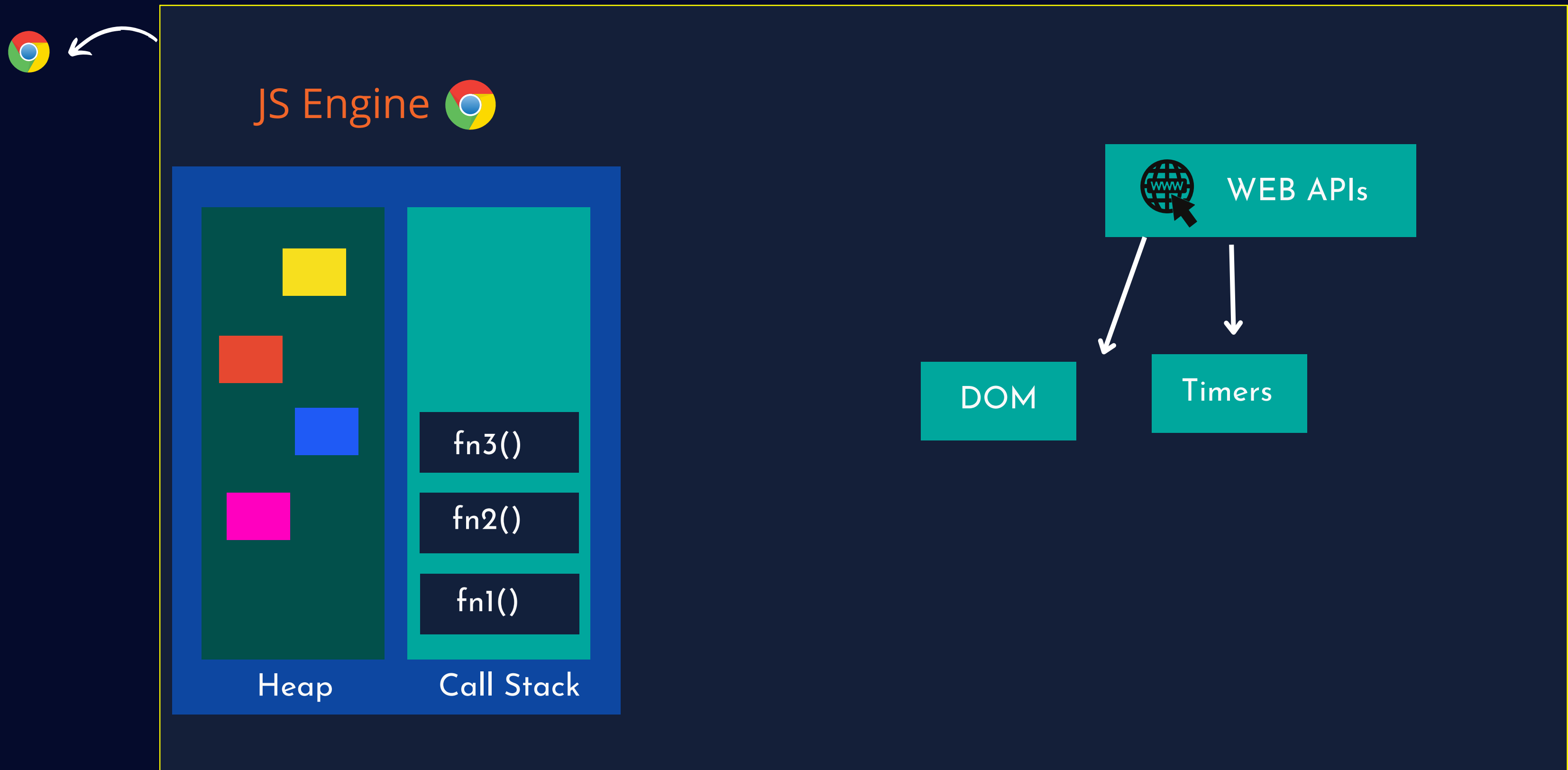


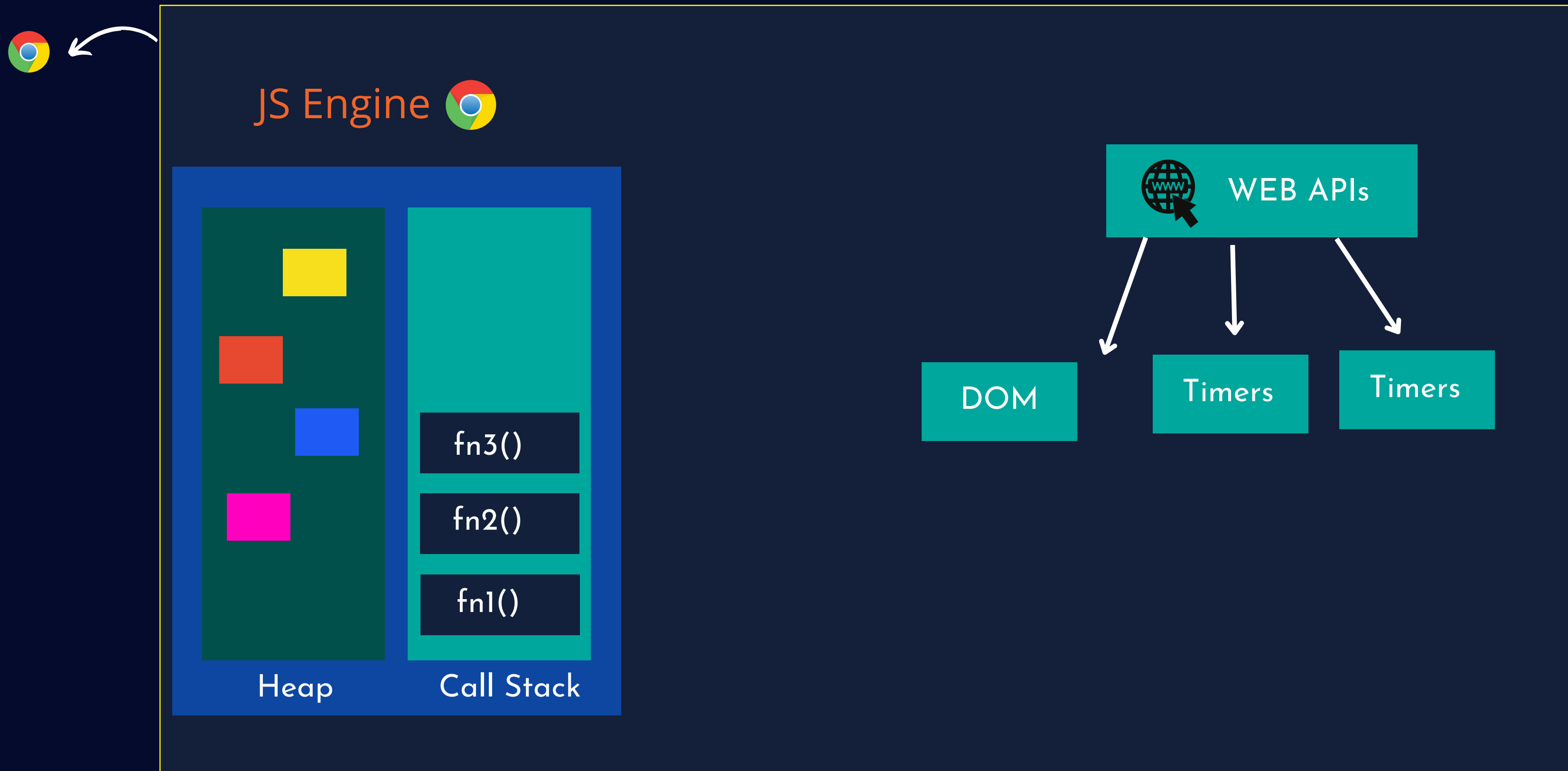
JS Engine 



WEB APIs

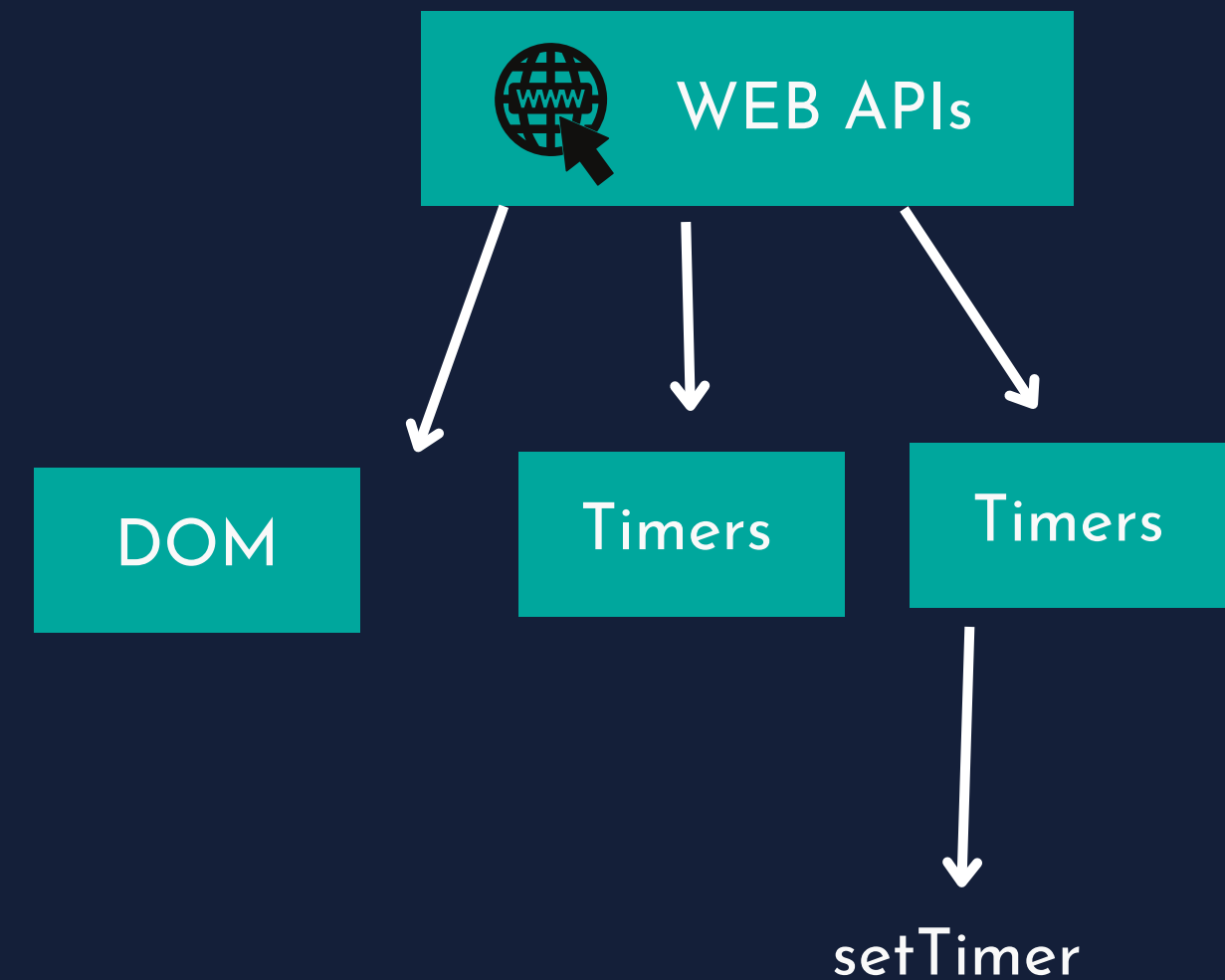
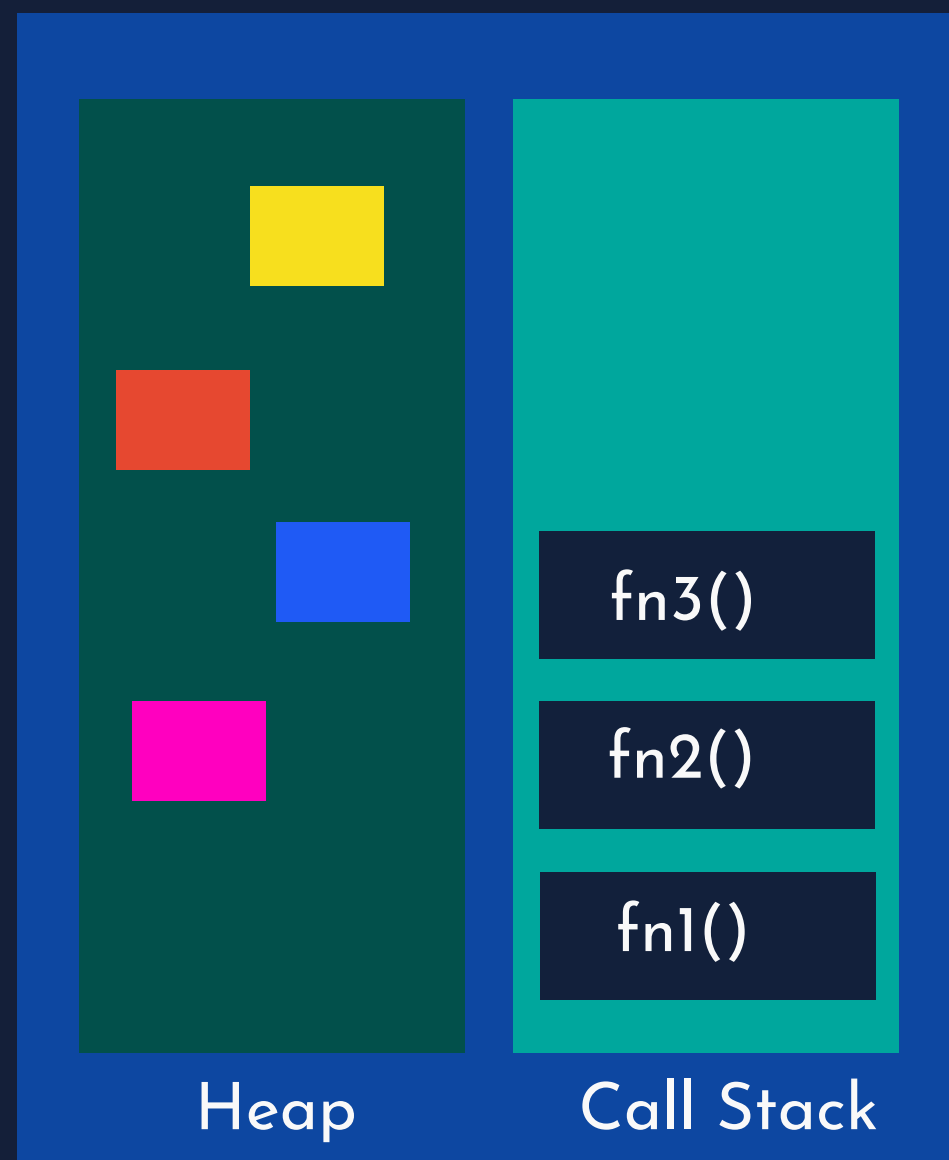






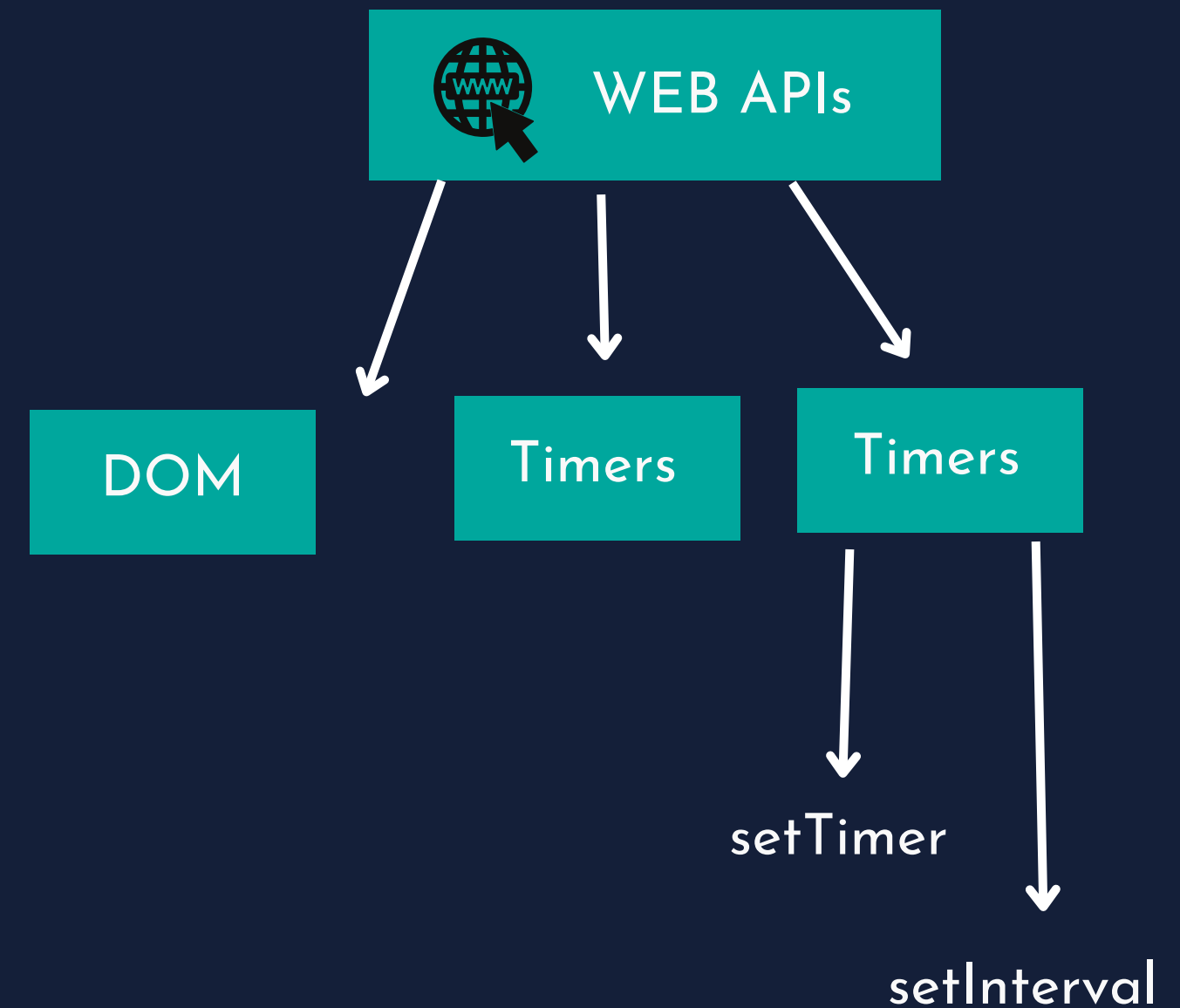
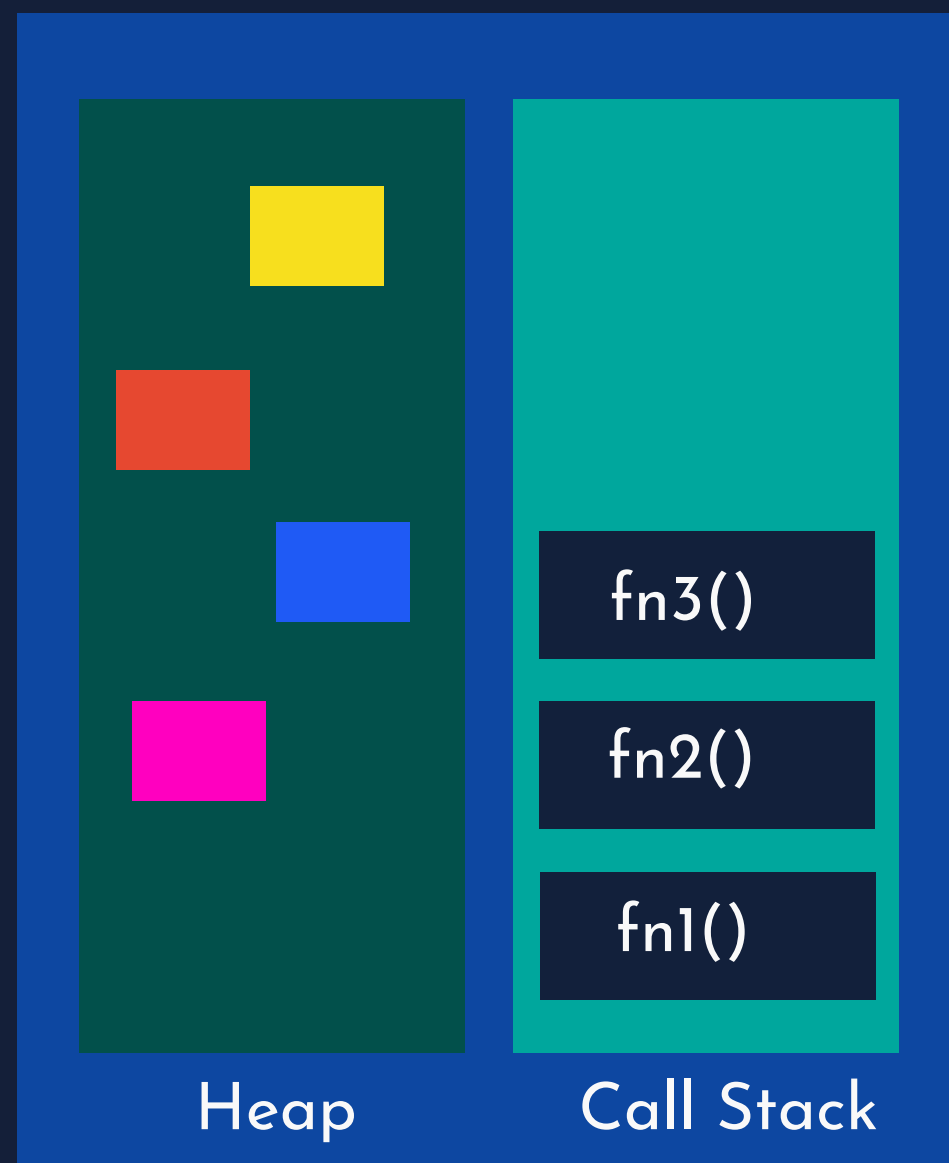


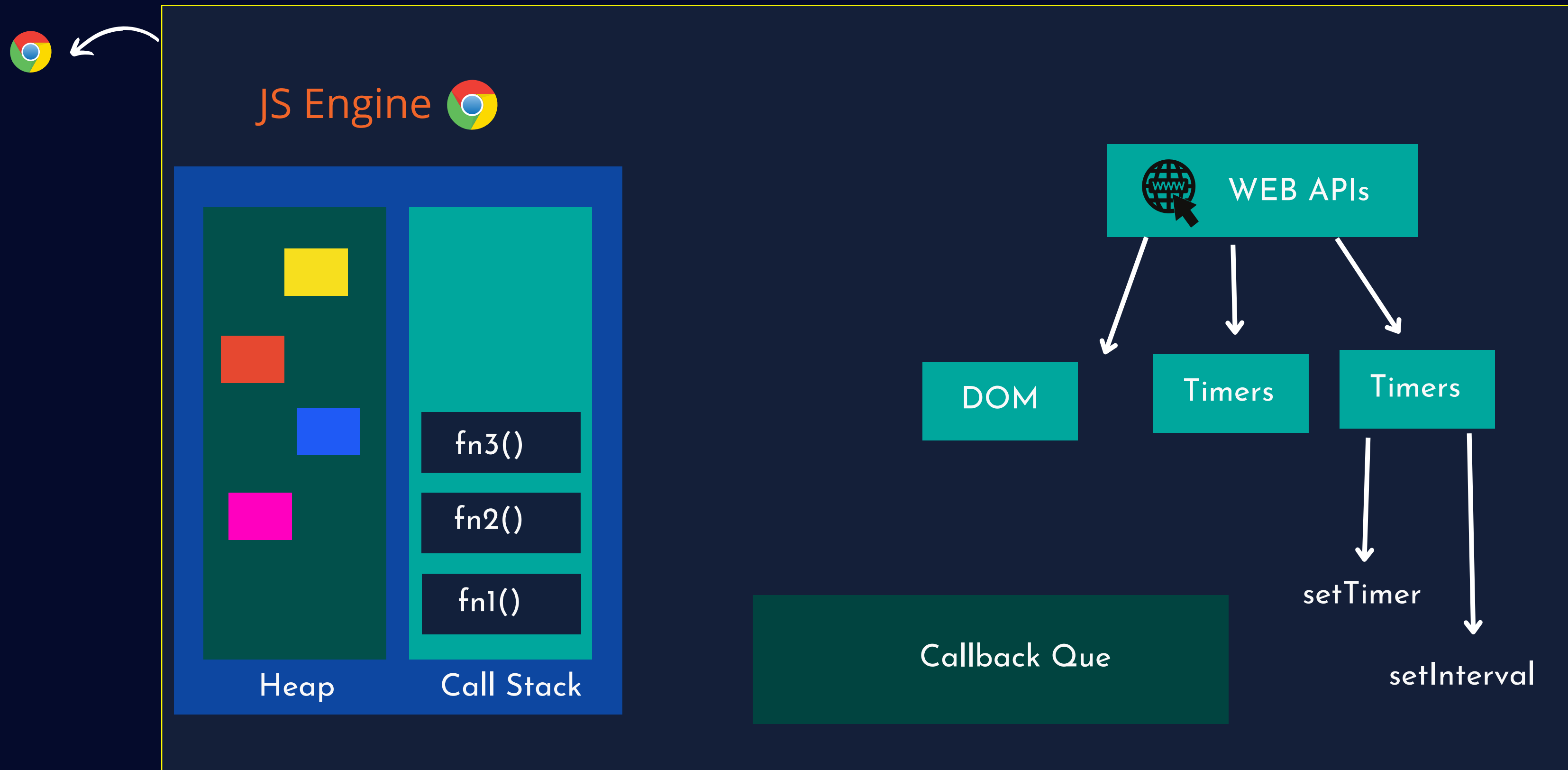
JS Engine 

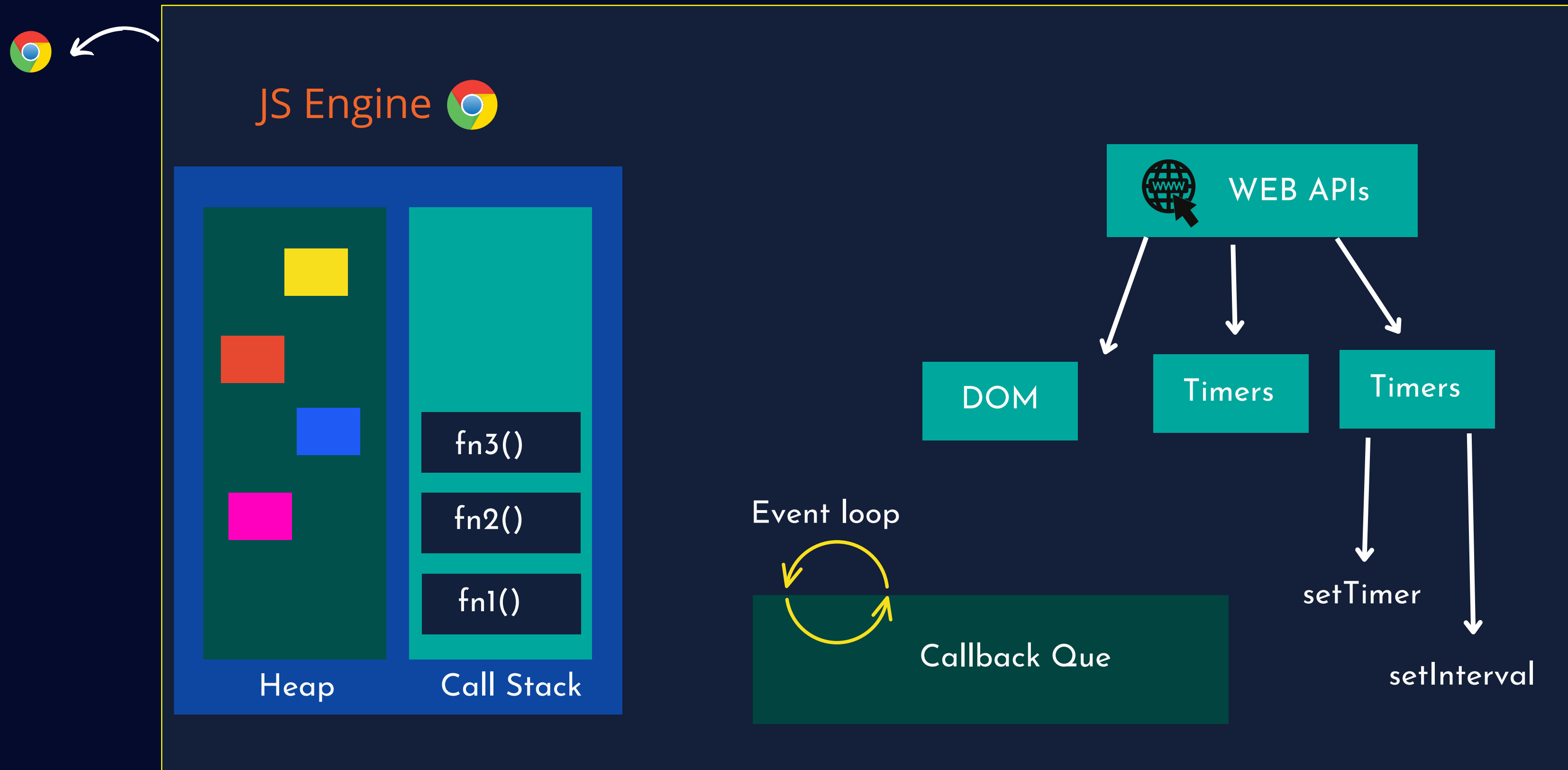


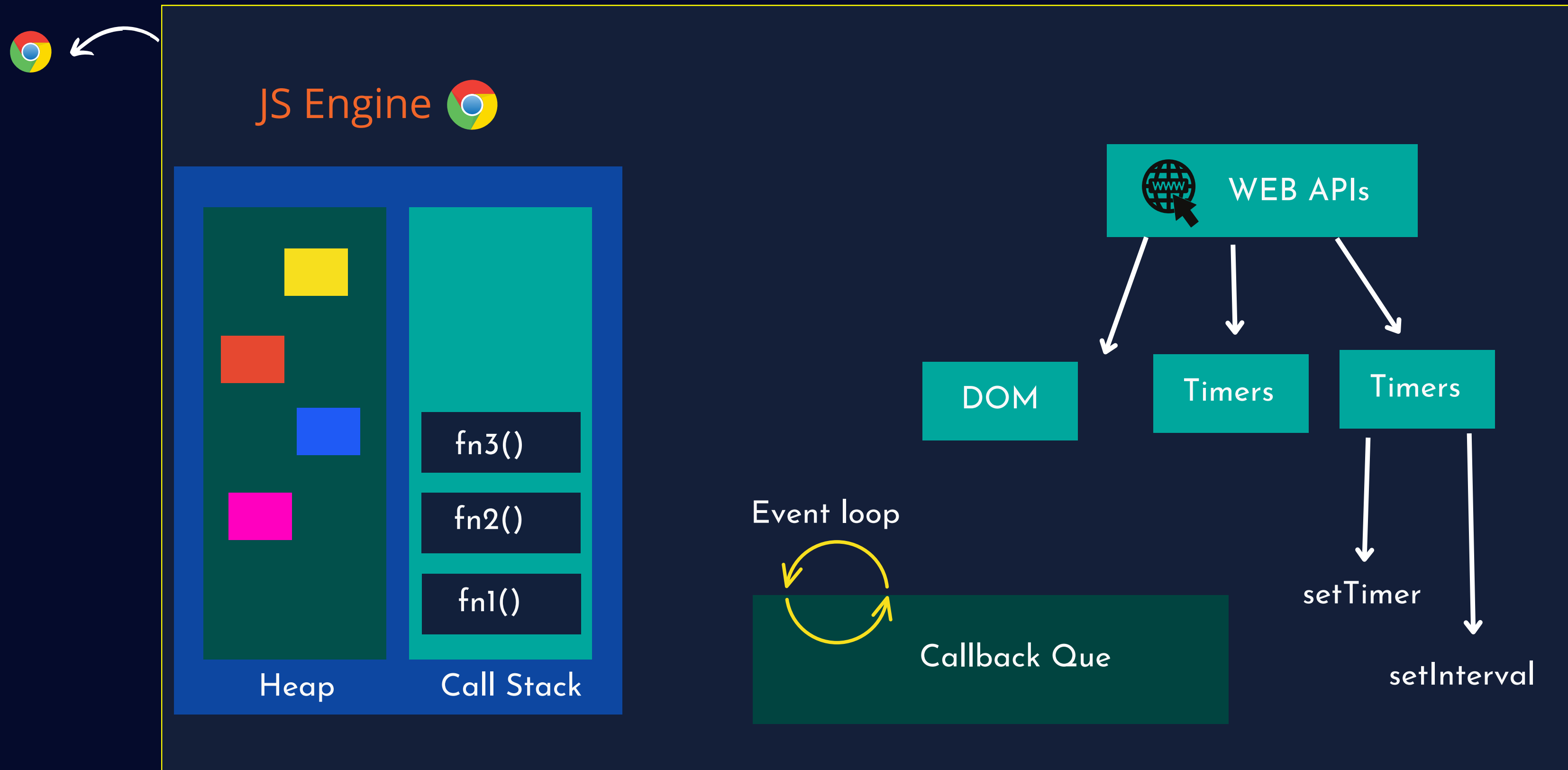


JS Engine 









Call Stack

fn3()

fn2()

fn1()

Synchronous vs Asynchronous programming



Synchronous vs Asynchronous



Synchronous code is executed in a linear fashion, one line at a time. Asynchronous code, on the other hand, can be executed out of order or in parallel.



Asynchronous

Single threaded

Code blocking

Handle one request at a time

Poor user experience

Synchronous

Multi threaded

None blocking code

Handle multiple requests at a time

Improve user experience

Synchronous programming

Single threaded

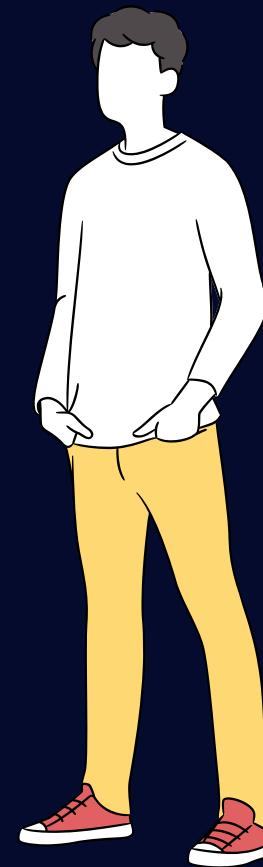




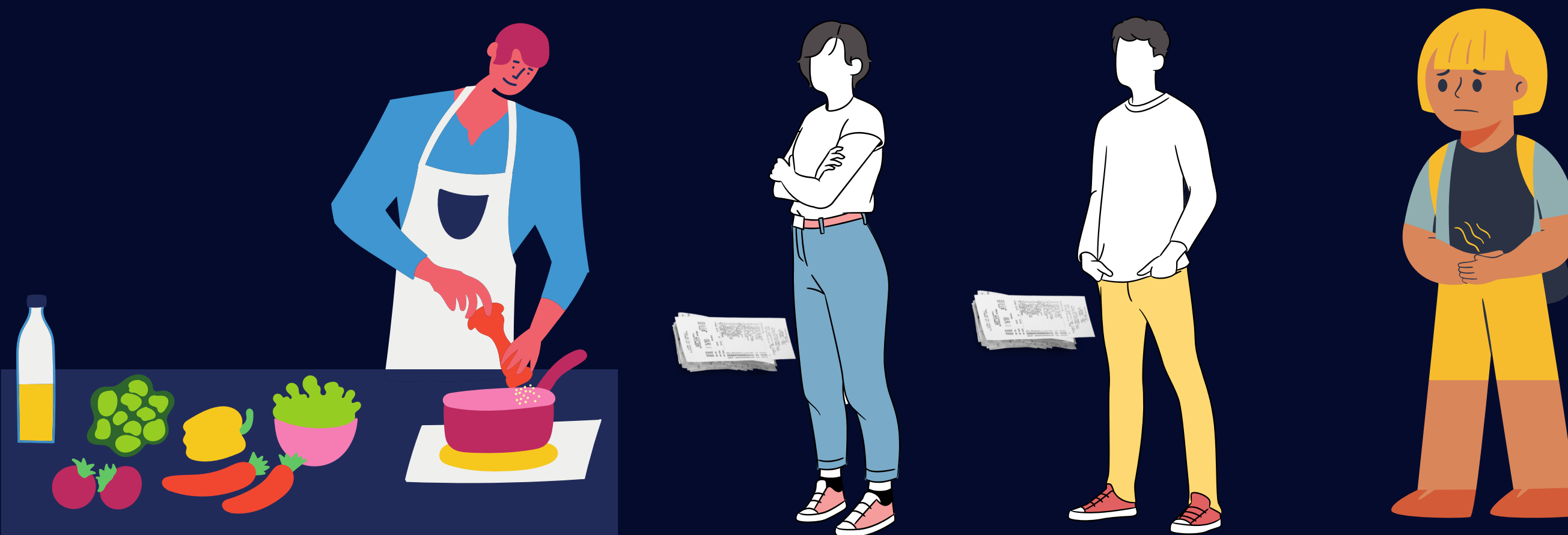




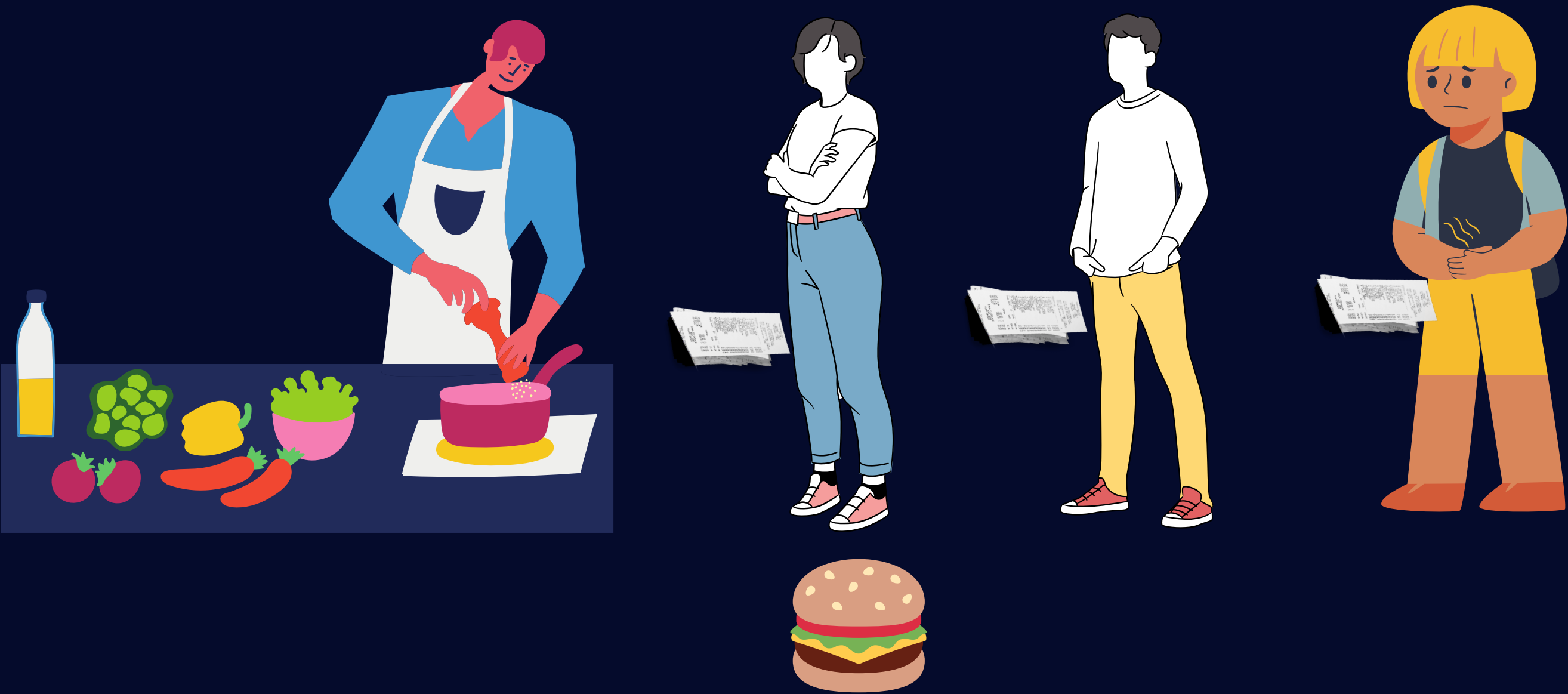




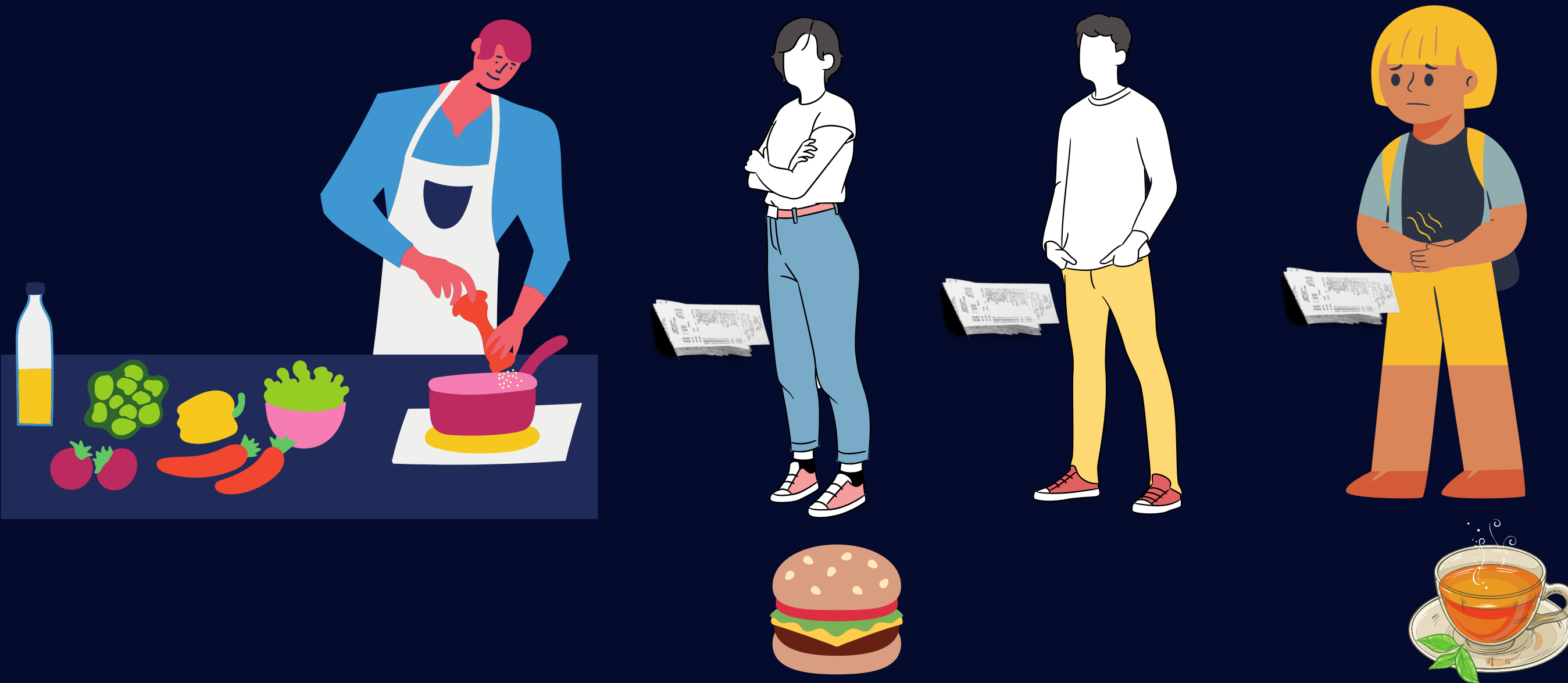


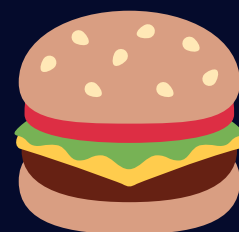






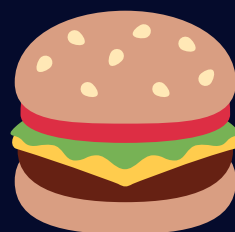






50 minutes to cook



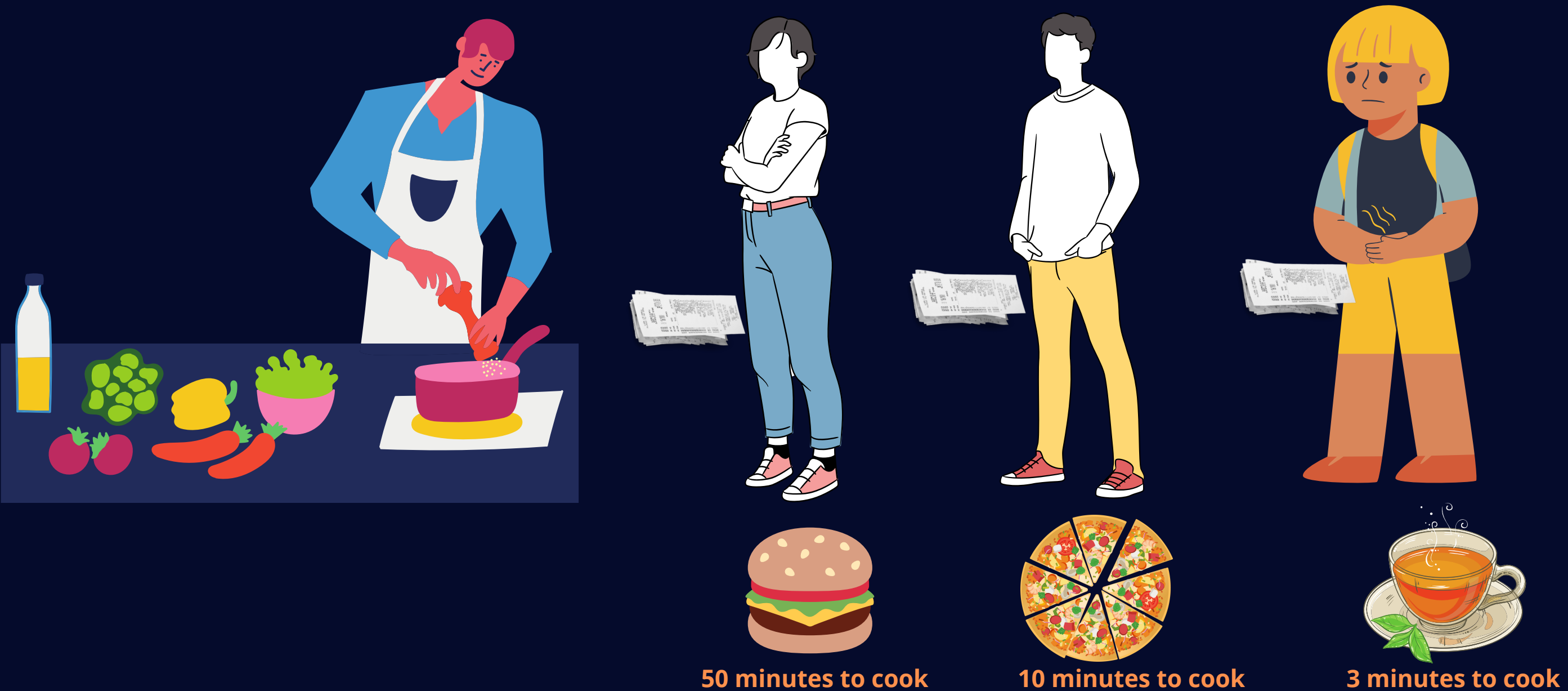


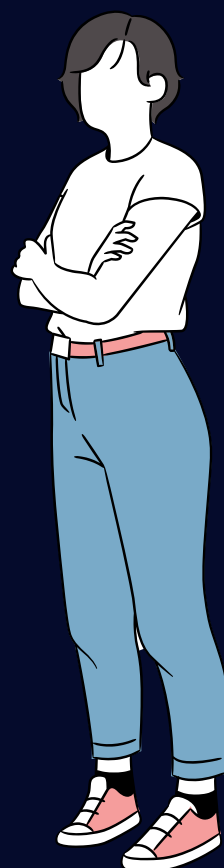
50 minutes to cook



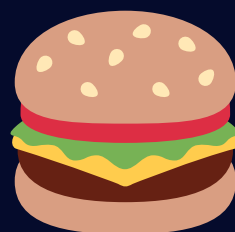
10 minutes to cook







50 minutes to cook

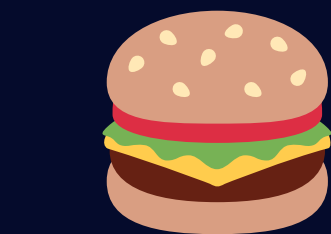


10 minutes to cook



3 minutes to cook





50 minutes to cook



10 minutes to cook



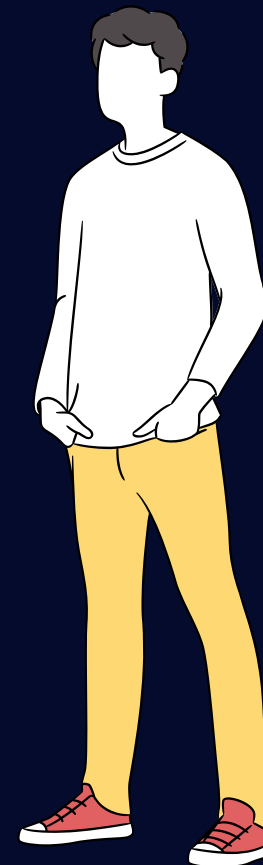
3 minutes to cook



10 minutes to cook



3 minutes to cook



10 minutes to cook



3 minutes to cook



3 minutes to cook



3 minutes to cook



Asynchronous programming

Multi threaded

50 minutes to cook

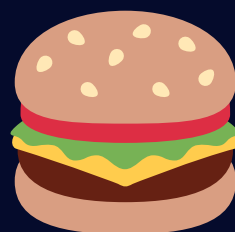
10 minutes to cook

3 minutes to cook





Multi threaded



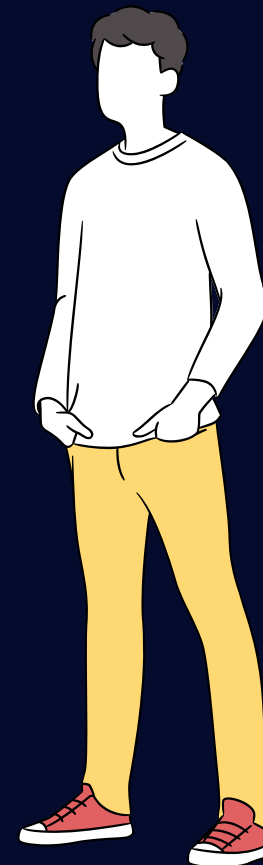
50 minutes to cook



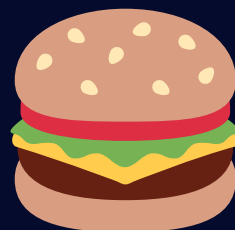
10 minutes to cook



3 minutes to cook



Multi threaded



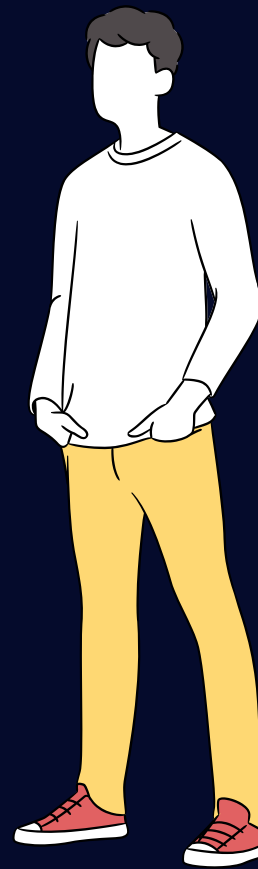
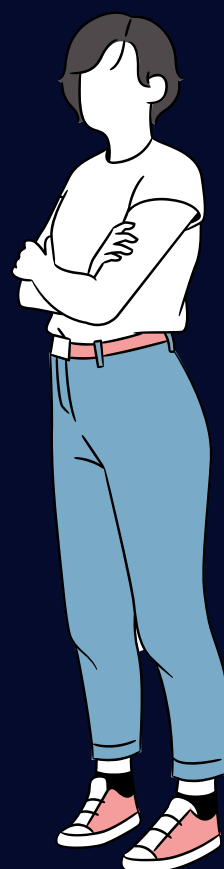
50 minutes to cook



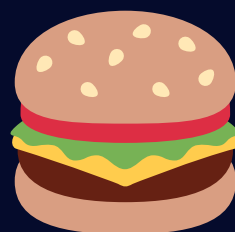
10 minutes to cook



3 minutes to cook



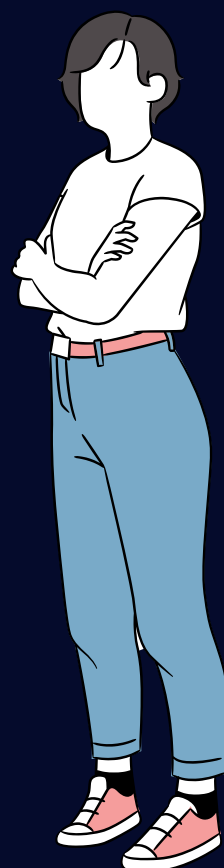
Multi threaded



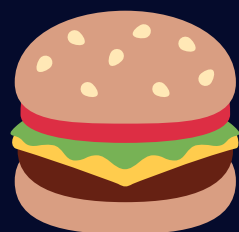
50 minutes to cook



10 minutes to cook



Multi threaded



50 minutes to cook



Multi threaded

Ways of writing

Async Code

SetTimeout



SetTimeout



Callback



