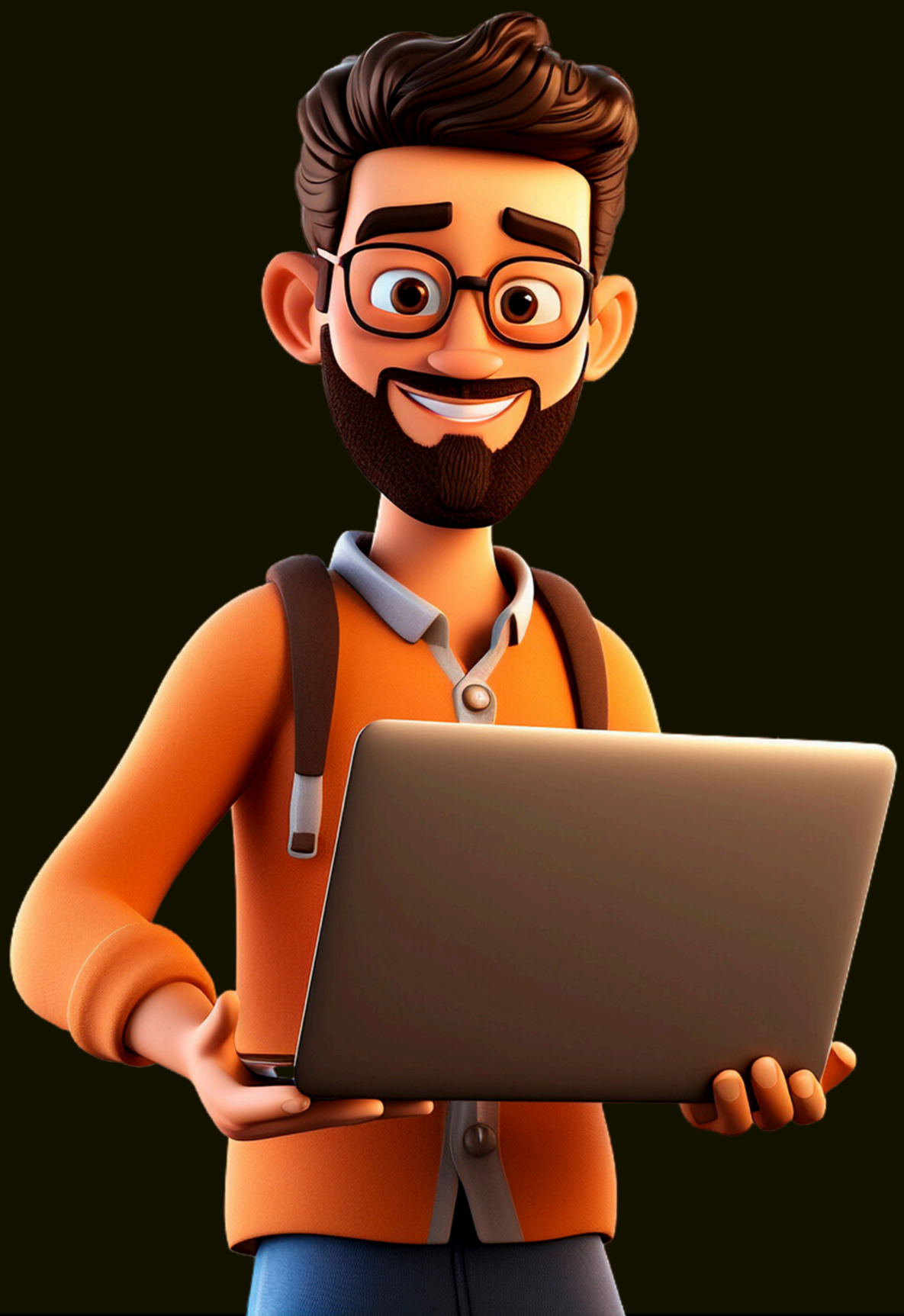
JavaScript

{ES6} Features



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Arrow Functions

```
// ES5 function
function add(x, y) {
   return x + y;
}

//ES6 function
const add = (x, y) => x + y;
```

Explanation: **Arrow Function** provides a concise syntax for writing functions, especially useful for **short, one-line** operations.

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Template Literals

```
1   const name = "John";
2   const gretting = `Hello,{name}!`;
3
4   console.log(gretting);
5
6   result: Hello, John;
```

Explanation: Template literals allow embedding expressions inside strings, providing a **cleaner** and more **readable** way to concatenate strings.

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Destructuring Assignment

```
1  const person = { name: "Alice", age: 25 };
2  //Extarcting properties
3
4  const { name, age } = person;
5
6  console.log("Name :", name, "Age :", age);
7
8  //result: Name: Alice Age: 25
```

Explanation: **Destructuring** assignment simplifies the **extraction of values** from **objects** or **arrays** into **individual** variables.

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Spred Operator

```
1   const numbers = [1, 2, 3];
2   const newNumbers = [...numbers, 4, 5];
3
4   console.log("newNumbers :", newNumbers);
5
6   //result: newNumbers : [1, 2, 3, 4, 5]
```

Explanation: **The spread operator** allows for the expansion of elements making it handy for creating **new arrays** or **objects** based on existing ones.

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Rest Parameter

```
const sum = (...numbers) => {
  return numbers.reduce((acc, num) => {
    return acc + num;
  }, 0);
};

console.log(sum(1, 2, 3));
// result: 6;
```

Explanation: The **rest parameter** allows functions to accept an **indefinite** number of arguments as an array, simplifying parameter handling.

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Async / Await

```
1  const API = "https://api.example.com";
2  const fetchData = async () => {
3    try {
4      const result = await fetch(`${API}/data`);
5      const data = await result.json();
6      console.log(data);
7    } catch (error) {
8      console.log(error);
9    }
10 };
```

Explanation: **Async/await** is a syntax for handling **asynchronous** code more concisely, providing a cleaner alternative to working with Promise.

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Map & Set

```
1  //Creating a Map with a key-value pair
2  const numberMap = new Map().set("one", 1);
3
4  //Creating a Set with unique numbers
5  const unique = new Set([1, 2, 3, 2, 1]);
6
7  unique.forEach((number) => console.log(number));
8
9  //Output: 1
10 //         2
11 //         3
```

Explanation: **Map** and **Set** are new data structures introduced in **ES6**
Map is an **ordered** collection of **key-value** pairs,
and **Set** is a collection of **unique** values.

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Default Parameters

```javascript
const greet = (name='Guest')=>{
  return `Hello ${name}!`;
}

console.log(greet());
//Output: Hello Guest!

console.log(greet('John'));
//Output: Hello John!
```

Explanation: **Default parameters** provide values for function parameters if **none** are **provided**, improving **flexibility** and **reducing** the need for explicit checks.

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Modules

```js
//Exporting module
export const myFunction =()=>{...};

//Importing module
import {myFunction} from "./module.js";
```

Explanation: ES6 modules provide a **clean** and **organized** way to structure and **import/export** code, improving **maintainability** and **reusablility**

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Map Method

```
1   const numbers = [1, 2, 3, 4, 5];
2   const doubled = numbers.map((num) => num * 2);
3
4   console.log(doubled);
5   //Result: [2,4,6,8,10]
```

Explanation: The **map** method in JavaScript is used to create a **new array** by applying a provided function to **each** element of an **existing** array

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Filter Method

```
1  const numbers = [1, 2, 3, 4, 5];
2  const evens = numbers.filter((num) => num % 2 === 0);
3
4  console.log(evens);
5  //Result: [2, 4]
```

Explanation: the **filter** method is used to create a **new array** containing only the elements that satisfy a **specified** condition.

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Reduce Method

```
1   const data = [1, 2, 3, 4, 5];
2   const sum = data.reduce((acc, num) => acc + num, 0);
3
4   console.log(sum);
5   //Result: 15
```

Explanation: The **Reduce** method is used to **accumulate** the elements of an array into **single** value

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