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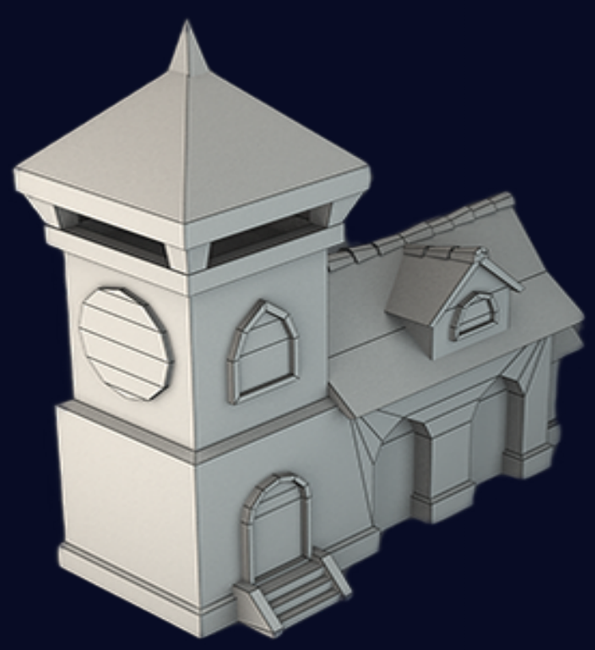
Constructor Functions

IN JAVASCRIPT



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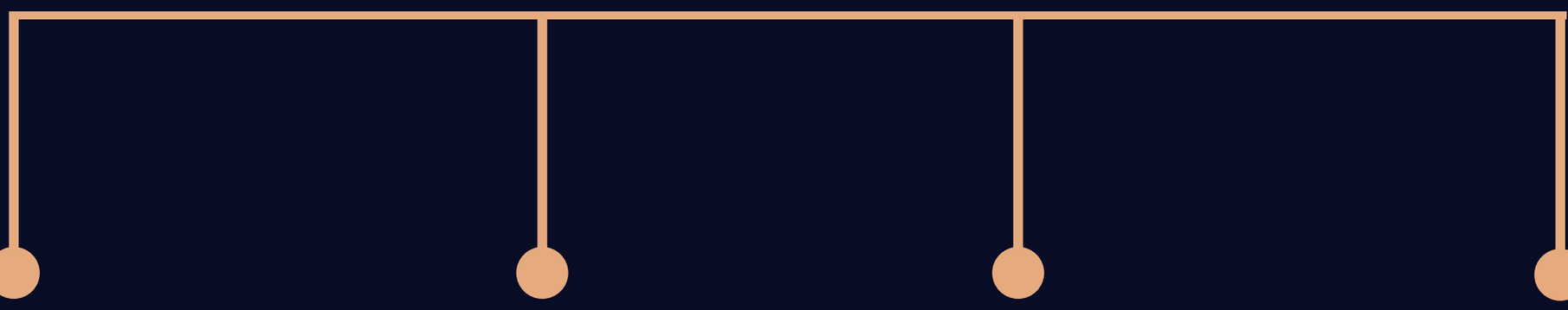
Creation of Objects



Why do we have multiple ways?

Before we get into that...Lets see what exactly are constructor functions and discuss few points.

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Constructor functions:

JavaScript constructor function are special functions used to create multiple similar objects.

Two conventions ✌️

1) The name of a constructor function starts with a **capital letter** like Person, Employee.

2) A constructor function should be called only with the **new** operator.

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Behind the scene of calling constructor functions:

When you call or invoke this constructor function, these sequence of operations take place:

- A new empty object gets created.
- The this keyword begins to refer to the new object and it becomes the current instance object.
- The new object is then returned as the return value.

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Creation of constructor function:

- Follow the convention of capital letter for function name.
- Commented part happens behind the scene

```
function Employee(name)
{

  // this = { }
  this.name = name;
  this.greet = function (){
          console.log( `Hi! this is ${this.name}`);
    };
  // return this
}
```

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Calling the constructor function:

- Follow the convention of capital letter for function name.
- Commented part happens behind the scene

```
const employee1 = new Employee('mani');
const employee2 = new Employee('serisha');
console.log(employee1)
console.log(employee2)
```

```
▼ Employee {name: 'mani', greet: ƒ} ⓘ
  ▶ greet: ƒ ()
    name: "mani"
  ▶ [[Prototype]]: Object
▼ Employee {name: 'serisha', greet: ƒ} ⓘ
  ▶ greet: ƒ ()
    name: "serisha"
  ▶ [[Prototype]]: Object
```

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Downside

- Perfect we have created similar objects.But there is a downside in this approach.

- Every time an instance of Employee is created, a new function is defined and assigned to the greet property of that object.

- If we create 5 Employee objects, they will all have their own greet method that does the same thing.

- A more efficient way to do this is to define greet once, so that each Employee object use that same function reference.

- Incase if you wanted to update the method, you need to do it at one place instead of updating for each single instance.

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Using prototype

- Every function in JavaScript has property called prototype. Whenever any Employee instance is created, the object will inherit any properties or methods defined on Employee.prototype.

```
function Employee(name) {
  this.name = name;
}

Employee.prototype.greet = function () {
   console.log( `Hi! this is ${this.name}`)
};

const employee1 = new Employee('mani');
const employee2 = new Employee('serisha');
console.log(employee1)
console.log(employee2)
```

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```
▼ Employee {name: 'mani'} ℹ
    name: "mani"
  ▼ [[Prototype]]: Object
    ▶ greet: ƒ ()
    ▶ constructor: ƒ Employee(name)
    ▶ [[Prototype]]: Object
▼ Employee {name: 'serisha'} ℹ
    name: "serisha"
  ▼ [[Prototype]]: Object
    ▶ greet: ƒ ()
    ▶ constructor: ƒ Employee(name)
    ▶ [[Prototype]]: Object
```

Now the greet method is in prototype. So anything on the prototype is **shared** across all object instances of that constructor. I repeat **SHARED**

The greet method is defined only once, so that each Employee object instance use that same function reference.

ES6 classes - they are just syntactic sugar of constructor functions.

So stay connected for more

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