



LEARNINGS

JavaScript for Beginners – Part 6: Data Structures (Arrays & Objects)

Stop using single variables for everything! Learn how to organize and manage complex data using Arrays and Objects, including essential methods like `.map()`, `.push()`, and dot notation. Includes explanations in Darija.

JAVASCRIPT

WEB-DEVELOPMENT

DATA-STRUCTURES

ARRAYS

OBJECTS

PROGRAMMING-BASICS

DARIJA

Ibtissam Oulahchoum

13 September 2026

Data Structures (Arrays & Objects)

So far, we've stored single values in variables (e.g., let name = "Ibtissam"). But what happens when you need to store a list of names? Or describe a s That's where **Arrays** and **Objects** come in. They are the primary ways you will organize data in JavaScript.

1 Arrays (Ordered Lists)

An Array is a list of values where **order matters**. Every item has a numbered position called an **index**, starting from 0.

MA Darija:

(يُحال النقط دىال الامتحانات أو السميات دىال صحابك)، كنخدم بهاد الطالبو. هو اللي كيخليك تستف المعلومات باش تقدر من بعد دوز عليهم وحدة بوحدة (**Array**) تخيل الطالبو

🔪 Essential Array Methods:

- **.length**: Counts the total number of items.
- **.push(item)**: Adds a new item to the end of the list.
- **.pop()**: Removes the very last item.
- **.map()**: Transforms every item and returns a brand-new array.

2 Objects (The Descriptive Key-Value)

An Object allows you to group related data together using **labels (keys)**. Unlike arrays, **order doesn't matter** here; the names of the keys are what mat

MA Darija:

المفتاح والقيمة دىالها. يعني باش توصل للمعلومة، كنعط عليها بسميتها المكتوبة ماشي بالترتبة دىال الترتيب (**Object**) إيلا كان الطالبو عبارة على لائحة، فالكاكن البرمجي

Code Examples

Working with Arrays:

```
const techStack = ["HTML", "CSS", "JavaScript"];

// Accessing items (Remember: 0-based index)
console.log(techStack[0]); // Output: "HTML"

// Changing an item
techStack[1] = "Tailwind";
console.log(techStack); // Output: ["HTML", "Tailwind", "JavaScript"]

// Using the .map() method
const numbers = [2, 4, 6];
const doubled = numbers.map(num => num * 2);
// doubled is now [4, 8, 12]
```

Working with Objects:

```
const user = {
  username: "Amine_Dev",
  level: 25,
  isPro: true,
  skills: ["JS", "React"] // Yes, an array inside an object!
};

// Accessing Data
console.log(user.username); // Dot Notation (Cleanest way)
console.log(user['level']); // Bracket Notation (Flexible way)

// Modifying Data
user.level = 26;           // Update an existing property
user.city = "Casablanca"; // Add a brand new property
```

The Ultimate Combo: Array of Objects

In the real world, you will mostly use them together. Think of a database containing multiple users:

```
const users = [  
  { name: "Sara", id: 1 },  
  { name: "Omar", id: 2 }  
];
```

Challenge Time! (تمرين تطبيقي)

English: Create a variable called library that holds an Array of two Objects representing books. Each book object should have:

1. A title (string)
2. The number of pages (number)

Darija: كيملو كتوبة. كل كتاب خاصو يكون فيه Objects ديال جوج ديال ال Array فيه library سميتو Variable صاوب واحد ال:

1. العنوان (title) ك نص (String).
2. عدد الصفحات (pages) ك رقم (Number).

Key Takeaways (الملخص)

- **Arrays for Ordered Lists:** Use arrays when you have a collection of similar items where the specific order is important.
 - *Darija:* كنخدمو بالطابلو فاش كتكون عندنا لائحة ديال حاجات من نفس النوع ومرتبة.
- **Objects for Descriptions:** Use objects to describe a single entity (like a user or a product) using descriptive keys.
 - *Darija:* فاش كتبغيو نوصفو شي حاجة معينة بمجموعة ديال الخصائص اللي عندها سميات **Object** كنخدمو بـ.
- **Zero-Based Indexing:** Always remember that the first item in a JavaScript array is at position 0.
 - *Darija:* ديما عقل باللي الحساب ف الطابلو كيبدأ من الزيرو ماشي من الواحد.
- **Accessing Objects:** Dot notation (user.name) is the most common way to get data out of an object.
 - *Darija:* **Object** النقطة هي أسهل وأكثر طريقة مستعملة باش توصل للمعلومة وسط ال.
- **Nesting Data:** You can put arrays inside objects and objects inside arrays to represent complex real-world data structures.
 - *Darija:* تقدر تدير طابلو وسط أوبجي أو العكس، وهادشي هو اللي كيخلينا نمثلو بيانات معقدة ف المواقع ديالنا.

See you in the next part! :)