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# 1. Why Use Arrays?

Before arrays, if you wanted to store multiple values, you had to **use separate variables** like this:

```
var city0 = "Atlanta";  
var city1 = "Baltimore";  
var city2 = "Chicago";  
var city3 = "Denver";  
var city4 = "Los Angeles";  
var city5 = "Seattle";
```

## ✓ Problem:

- If we need to store **100 cities**, do we create **100 variables**? ☐
  - Accessing them is also difficult (city3, city4, etc.).
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# 2. Introducing Arrays

An **array** lets us store **multiple values in one variable**.

```
var cities = ["Atlanta", "Baltimore", "Chicago", "Denver", "Los Angeles", "Seattle"];
```

## ✓ What happens here?

- JavaScript **automatically numbers** each element in the array, starting from **0**.

Index	Value
0	"Atlanta"
1	"Baltimore"
2	"Chicago"
3	"Denver"
4	"Los Angeles"
5	"Seattle"

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# 3. Accessing Array Elements

To get a specific value, use **square brackets** `[]` with the **index number**.

```
alert("Welcome to " + cities[3]);
```

## ✓ What happens?

- `cities[3]` gives "**Denver**", so the alert says:  
**"Welcome to Denver"**

## ✓ Remember:

- The **first item** is **index 0**, not 1.
  - The **last item** in an array of 6 items is **index 5**.
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## 4. Arrays Can Store Different Data Types

Arrays can hold **different types of values**, even mixed.

```
var mixedArray = [1, "Bob", "Now is", true];
```

Index	Value	Type
0	1	Number
1	"Bob"	String
2	"Now is"	String
3	true	Boolean

✓ **JavaScript allows mixed types, but usually, we keep arrays consistent (all strings, all numbers, etc.).**

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## 5. Modifying Arrays

You can **change values** in an array like this:

```
cities[3] = "New York";  
alert(cities[3]); // Now shows "New York"
```

✓ **This updates the 4th element (index 3) from "Denver" to "New York".**

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## 6. Adding New Elements

If you want to **add a new city**, use `.push()`:

```
cities.push("Miami");  
console.log(cities);
```

✓ **Miami is now added at the end.**

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## 7. Finding Array Length

To see **how many items** are in an array:

```
console.log(cities.length);
```

✓ **Output:** 6 (if we haven't added Miami)

✓ **Output:** 7 (if we added Miami)

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## 8. Summary

Feature	How It Works
<b>Declare an array</b>	<code>var cities = ["Atlanta", "Baltimore", "Chicago"];</code>
<b>Access an element</b>	<code>cities[1] // "Baltimore"</code>
<b>Modify an element</b>	<code>cities[2] = "New York";</code>
<b>Find length</b>	<code>cities.length // 3</code>
<b>Add new element</b>	<code>cities.push("Miami");</code>