

Data structures personal reference

Sources of Data

1. **From the program itself:** data written directly in source code (e.g. status messages)
2. **From the UI:** Data input from the user or data written in DOM (e.g. tasks in to-do app)
3. **From external sources:** Data fetched for example from web API data from other web applications – data from web API's usually come in a special data format called JSON (just a long string which can be converted to JavaScript objects because it uses the same formatting)

There are four built in data structures in JavaScript which to use?

Simple list of values? Use **Arrays** or **Sets** – values without any description

Key/Value pairs? Use **Objects** or **Maps** – keys allow us to describe the values

Other built-in data structures:

WeakMap

WeakSet

Non-built-in data structures:

Stacks

Queues

Linked lists

Trees

Hash tables

ARRAYS	SETS(not meant to replace arrays)
<pre>tasks = ['Code', 'Eat', 'Code']; // ['Code', 'Eat', 'Code']</pre>	<pre>tasks = new Set(['Code', 'Eat', 'Code']); // ['Code', 'Eat']</pre>
Use when you need ordered list of values and might contain duplicates	Use when you need to work with unique values
Use when you need to manipulate data (there are a ton of useful array methods)	Use when high-performance is REALLY important (deleting or searching for an item in a set can be up to 10x faster in sets than arrays)
	Use to remove duplicates from arrays

OBJECTS (Most used until ES6)	MAPS(came after ES6)
<pre>task = { task: 'code', date: 'today', repeat: true, }</pre>	<pre>task = new Map ([['task', 'code'], ['date', 'today'], [false, 'Start Coding']]);</pre>
More 'traditional' key/value store's	Better Performance
Use when you need to manipulate data(there are a ton of useful array methods)	Keys can have any data type
Easier to write and access values with . and []	Easy to iterate
	Easy to compute size
Use when you need to include functions(methods)	Use when you simply need to map key to values
Use when working with JSON (can convert to map)	Use when you need keys that are NOT strings