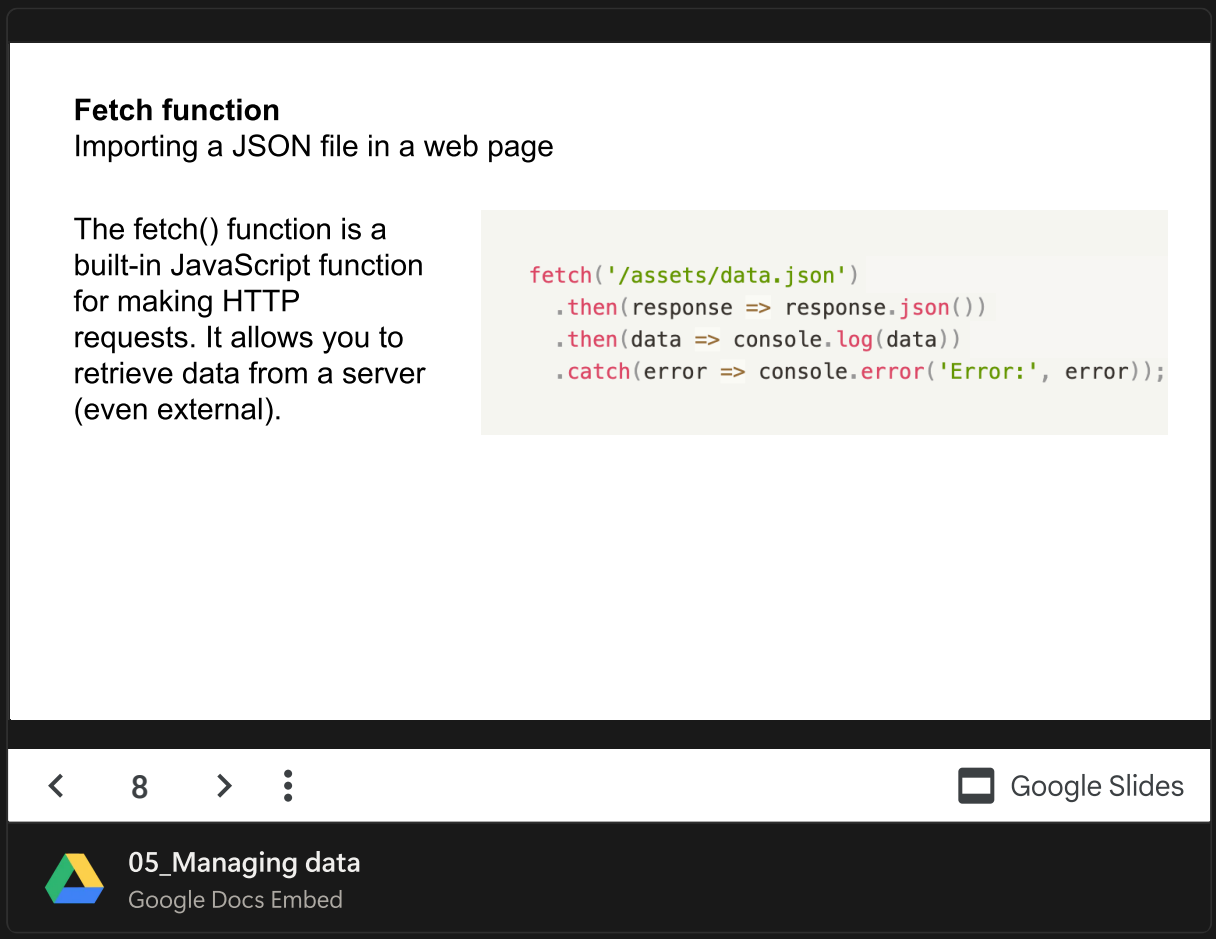
Lesson 5

Date	November 13, 2025
Topics	Managing data from local files and API
Assignments	Empty
Coding lab (16:00-1...	☑
Luca?	Written test + Coding lab + Talk
Talks	☑
Teacher	GP
Written test (13:30-...	☑



05_Managing data
Google Docs Embed

Resources

- Visual studio shortcuts (for mac)
- Visual studio shortcuts (for Windows)
- Mockaroo - Random Data Generator and API Mocking Tool | JSON..., make dummy data
- My Location - What is My Location Now

Array

A data structure that stores a collection of elements in a single variable. Each element is accessible by an index (or position).

```
const SPORTS = ["judo", "football", "box", "cycling"];
console.log(SPORTS[1]); // football
```

Basic operations with arrays

```
let subjects = ["mathematics","geography","physics","biology"] // get the lenght of the array let subjectsLenght = SUBJECTS.length; console.log(subjectsLenght) // update an item in an array subjects[0] = "art" // remove items from an array subjects.splice(1,2) // index of the item to remove, number of elements to be removed // loop an array for (let subject of subjects) { console.log(subject); // mathematics geography physics biology } // sort alphabetically let new_sort = subjects.sort((a,b) => a.localeCompare(b)) // sort an array of numbers let numbers = [0, 12, 33, 2, 32, 14, 42, 92, 101] let new_sort_number = numbers.sort((a,b) => a - b)
```

Object

Data structure that stores collections of data in key-value pairs. It can also contain arrays.

```
const FIRST_STUDENT = { name: "Alice", age: 25, address: { street: "Corso Elvezia 6", city: "Lugano" } };
```

Operations with objects

```
const SECOND_STUDENT = { name: "Riccardo", age: 27, address: { street: "Piazza Molino Nuovo 3", city: "Lugano" }, hobbies: [ "video games", "movies", "hicking" ] }; // get a value let the_name = SECOND_STUDENT.name let the_city = SECOND_STUDENT.address.city console.log(the_name, the_city) // Riccardo Lugano let theFirstHobby = SECOND_STUDENT.hobbies[0] console.log(theFirstHobby) // video games // join the two objects const STUDENTS = [FIRST_STUDENT, SECOND_STUDENT]
```

Advanced operations with arrays of objects

```
const DATA = [
{"id":1,"first_name":"Bent","last_name":"Bozworth","email":"bbozworth0@
{"id":2,"first_name":"Christiana","last_name":"Cops","email":"ccops1@an
{"id":3,"first_name":"Letisha","last_name":"Dethloff","email":"ldethlof
] // sort array by last name let last_name_order = data.sort((a, b) => a.age - b.age)
```

JSON

Data format used to store structured data. It's commonly used to transmit data between a server and a web application.
It can be used with many programming languages (i.e. Javascript, Python, C++).


```
[ { "name": "Riccardo", "age": 27, "address": { "street": "Piazza Molino Nuovo 3", "city": "Lugano" }, "hobbies": [ "video games", "movies", "hicking" ], "favourite color": "red" }, { "name": "Tommaso", "age": 26, "address": { "street": "Corso Elvezia 13", "city": "Lugano" }, "hobbies": [ "footbal", "cycling" ], "favourite color": "blue" } ]
```

Fetch function to load an external JSON

```
fetch('/assets/data.json') // get the data from an external source
.then(response => response.json()) // parse/convert the data in
JavaScript format .then(data => console.log(data)) // dispay the data
in the console .catch(error => console.error('Error:', error)); //
display an error if the data cannot be loaded
```

Display the data in the page

```
function displayData(data){ const CONTAINER =
document.getElementById("container") let output = "" for (let student
of data){ output += ` <li> ${student.name} <br> ${student.age} <br>
</li> `; // use the back-tick to open a close the string // use this
notation to include data. Ex: ${student.name} CONTAINER.innerHTML =
output }
```

MOCK_DATA.json 141.1 KiB

Mock data: random data about people (made with Mockaroo)

API

List of APIs

- openweathermap.org
- GitHub GitHub - public-apis/public-apis: A collective list of free ...