Javascript 5:
JS Objects & JSON

INST-377: Dynamic Web Applications
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Recap

- What are the three primitive data types in Javascript?
- What are two empty data types in Javascript?
- What are hash tables called in Javascript (and why does it matter?)

Python to JS: A hash table is an Object

- Define an object
  - **const obj = {name: "emile"}**
    - Again, object *contents* are not constant, but the object *type* is
- Access by **key**
  - **console.log(obj.name)** -> **"emile"**

- Manipulate objects by setting values via key
  - obj.name = 'bali';

- **document.querySelector** is therefore a Function stored on an object Key

Defining an object

```
12  // Setting an object
13  const obj = {
14    key: 6,
15    key2: "string",
16    key3: (e) => e.toUpperCase()
17  };
```

Working with an object

```
19    console.log(obj.key);
20    // 6
21
22    console.log(obj.key2);
23    // "string"
24
25    console.log(obj.key3(obj.key2));
26    // "String"
```

So that's an Object. What's JSON?

- JSON is a *much more formal* structure
- Looks *a lot* like an Object in code, but has stricter requirements around structure - no comments, no undefined values, no trailing commas
- The formal structure of JSON makes it better than an Object for transmitting data across the internet, because it has a known-good state. This makes it easier to **parse**.
- **YAML** and **JSON5** are competitors, a lot of people quite like them both

Working with JSON

- **JSON.stringify**
  - Convert a piece of Javascript written in a valid style to a JSON string.
  - This will replace *undefined* with *null*

```
1    let person = {"name": "bess", "number": 24};
2    let p_json = JSON.stringify(person);
```

- **JSON.parse**
  - Parse some JSON into a Javascript object you can work with

```
5    const data = JSON.parse(p_json);
6    console.log(data.name);
7    // Output: "Bess"
```

Storing JSON on the browser

- Set on a *session*, which will clear when you close the browser

```
13  > const obj = {…
17    };
18    sessionStorage.setItem("json_item", JSON.stringify(obj));
```

- Retrieve *from* the session by use of the key (objects in objects!)

```
31    const str = sessionStorage.getItem("json_item");
32    const json = JSON.parse(str);
33
34    console.log(json.key2);
35    // "string"
```

Lab 4: Github Pages

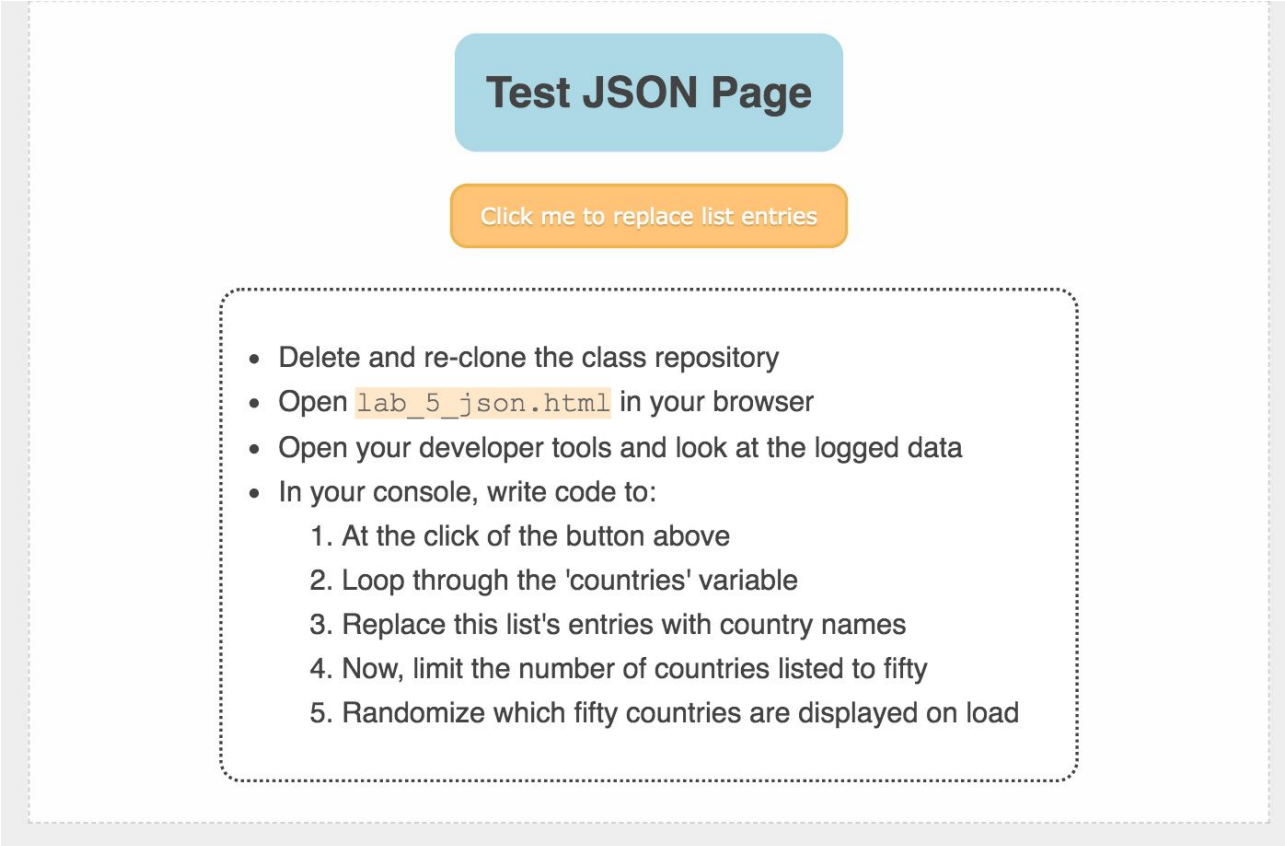
Github Pages

- Working with some materials *requires* a server
- You can check out HTML and CSS locally...
  - But eventually you need to load information from a server.
  - Github Pages can stand in for that period of time.

- **Load Lab #4**
- Make your Github Pages instance by following the instructions
- Submit your working Pages URL for 5 points

Lab 5: JSON

Lab 5 - JSON


Test JSON Page
Click me to replace list entries
Delete and re-clone the class repository
Open lab_5_json.html in your browser
Open your developer tools and look at the logged data
In your console, write code to:
1. At the click of the button above
2. Loop through the 'countries' variable
3. Replace this list's entries with country names
4. Now, limit the number of countries listed to fifty
5. Randomize which fifty countries are displayed on load