the shortcut

Fullstack Web Development Tutorial Lesson 5

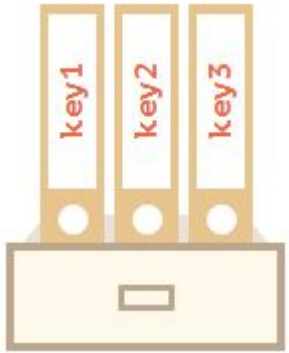
Today's lesson will cover

- Objects
- Git commit and setup Github pages (If we have the time)

JavaScript fundamentals

Objects

- Primitive data types contain only single thing be it string or number or whatever
- In contract, objects store keyed collections of various data
- Object can be created with figure brackets `{…}` with an optional list of *properties*
    - Property is a “key: value” pair, where `key` is a string (also called a “property name”), and `value` can be anything
- Empty object (“empty cabinet”) can be created using one of two syntaxes:
    - `let user = new Object(); // "object constructor" syntax`
    - `let user = {}; // "object literal" syntax`



Imagine an object as a cabinet with signed files

Objects: Literals and properties

- Property has a key (also known as “name” or “identifier”) before the colon `":"` and a value to the right of it.
- From our example, in the `user` object, there are two properties:
  - The first property has the name `"name"` and the value `"John"`.
  - The second one has the name `"age"` and the value `30`.
  - The resulting `user` object can be imagined as a cabinet with two signed files labeled “name” and “age
- We can add, remove and read files from it any time.
- Property values are accessible using the dot notation
- To remove a property, we can use `delete` operator
- We can also use multiword property names, but then they must be quoted
  - For multiword properties, the dot access doesn’t work. You have to use **square bracket notation**
- The last property in the list may end with a comma
- That is called a “trailing” or “hanging” comma. Makes it easier to add/remove/move around properties, because all lines become alike

Objects: Computed properties

- Computed Property Names is an ES6 feature which allows the names of object properties in JavaScript object literal notation to be determined dynamically, i.e. computed
- Use square brackets in an object literal, when creating an object
- Square brackets are much more powerful than the dot notation but cumbersome to write

Objects: Miscellaneous characteristics of properties

- Property value shorthand: Javascript language reserved terms such as `for, let or return` aren't allowed as variable names but for object property, there's no such restrictions
- Property names limitations: In short, there are no limitations on property names. They can be any strings or any other type of identifiers but they are automatically converted to strings
- Property existence test, "in" operator: In JavaScript, compared to many other languages, is that it's possible to access any property. There will be no error if the property doesn't exist!
    - Reading a non-existing property just returns `undefined`
    - Most of the time the comparison with `undefined` works fine. But there's a special case when it fails, but `"in"` works correctly. It's when an object property exists, but stores `undefined`

Objects: The “for...in” loop

- To walk over all keys of an object, there exists a special form of the loop: `for..in`. This is a completely different thing from the `for(;;)` construct that we studied before
- The syntax:
  - ```
    for (key in object) {
     // executes the body for each key among object properties
    }
    ```
- Loop output order: “ordered in a special fashion” - **integer** properties are sorted, others appear in creation order
    ```

Summary

- They store properties (key-value pairs), where:
  - Property keys must be strings or symbols (usually strings).
  - Values can be of any type
- To access a property, we can use:
  - The dot notation: `obj.property`.
  - Square brackets notation `obj["property"]`. Square brackets allow to take the key from a variable, like `obj[varWithKey]`.
- Additional operators:
  - To delete a property: `delete obj.prop`.
  - To check if a property with the given key exists: `"key" in obj`.
  - To iterate over an object: `for (let key in obj)` loop.
- What we've studied today is called a "plain object", or just `Object`.
- There are many other kinds of objects in JavaScript:
  - `Array` to store ordered data collections
  - `Date` to store the information about the date and time
  - `Error` to store the information about an error and so on

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Self Study Assignments

To Dos

- Continue freecodecamp Javascript. Ideally finish before we resume after summer.
- Continue with FCC HTML, CSS lessons. Ideally finish all the lessons by end of this month.
- Work on the HTML, CSS assignments to make the projects as complete as you desire and push latest version on Git repository, and use Github pages to have it as a live page
- Please let me know if you would prefer a 1-2-1 session this Friday 12 June, 2020 during training hours