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JavaScript Fundamentals

- What is JavaScript?
  - It was initially created to “make web pages alive”. The programs in this language are called scripts. They can be written right in a web page’s HTML and run automatically as the page loads.
- Why is it called JavaScript?
  - When JavaScript was created, it initially had another name: “LiveScript”. But Java was very popular at that time, so it was decided that positioning a new language as a “younger brother” of Java would help.
- JavaScript Engine
  - JavaScript can execute not only in the browser, but also on the server, or actually on any device that has a special program called the JavaScript engine.

In-browser JavaScript

Can Do

- Add/Change HTML, Modify styles
- React to user actions
- Send requests to server
- Get/Set Cookies
- Show Messages/Alerts
- Remember the data on Client-side

Can’t Do

- May not be able to read/write files on hard disk
- No direct access to OS system functions
- A very limited capability of working with files
- Usually different tabs/windows can’t interact with each other.
- Receiving data from other servers other than origin.

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- What makes JavaScript unique?
  - Full integration with HTML/CSS.
  - Support by all major browsers and enabled by default.
- Languages over JavaScript
  - CoffeeScript
  - Flow
  - Dart

JavaScript was initially created as a browser-only language, but is now used in many other environments as well.

Code Editors

IDE

Integrated Development Environment refers to a powerful editor with many features that usually operates on whole project. It's not just an editor, but a full-scale development environment.

Example - VS Code, IntelliJ etc.

Lightweight editors

They are mainly used to open and edit a file instantly. The main difference between a "lightweight editor" and an "IDE" is that an IDE works on a project level, so it loads much more data on start, analyzes the project structure if needed and so on. A lightweight editor is much faster if we need only one file.

Example - Vim, Notepad++ etc.

Developer Console

- In the browser, users don't see errors by default. So, if something goes wrong in the script, we won't see what's broken and can't fix it.
- To see errors and get a lot of other useful information about scripts, "developer tools" have been embedded in browsers.
- Most developers lean towards Chrome or Firefox for development because those browsers have the best developer tools.

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Coding with JavaScript

- Script
- Comments
- Variables
- Constants
- Naming Convention
- Data Types
- Type Conversions
- Operators
- Operator Precedence
- Assignment
- Comparisons
- Interaction

Coding with JavaScript

- Conditional Statement
- Logical operators
- Loops: While, Do-While and For
- Switch statement
- Functions
- JSON