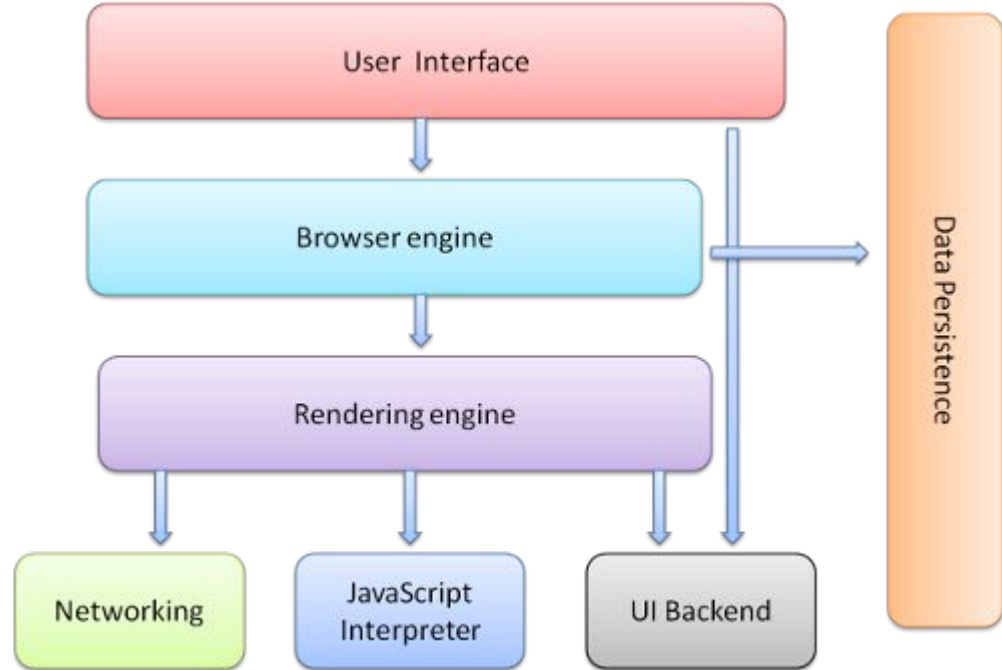# Browsers

FbW3-LEI
Taimur Khan

So what are web browsers and what is their connection to HTML/JS/CSS?

Browsers' High-Level Structure

1. The user interface
2. The browser engine
3. The rendering engine
4. Networking
5. UI backend
6. JavaScript interpreter
7. Data storage

Data persistence: "Persistent data in the field of data processing denotes information that is infrequently accessed and not likely to be modified."- Wikipedia

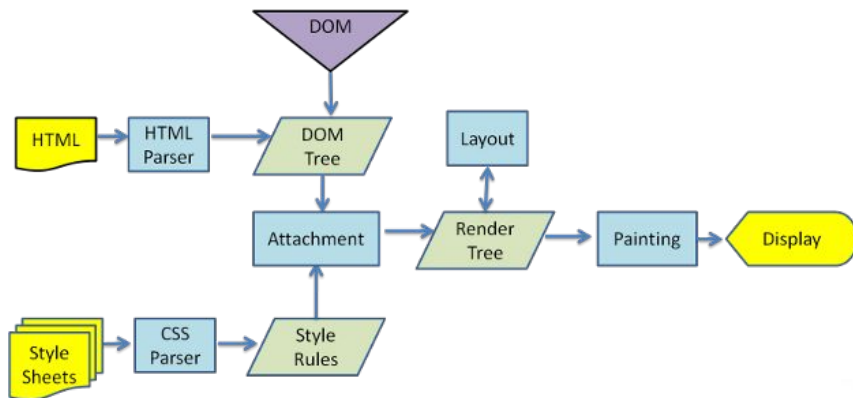
Source

The rendering engine

The responsibility of the rendering engine is well... Rendering, that is display of the requested contents on the browser screen.

- Internet Explorer uses Trident,
- Firefox uses Gecko, Safari uses WebKit,
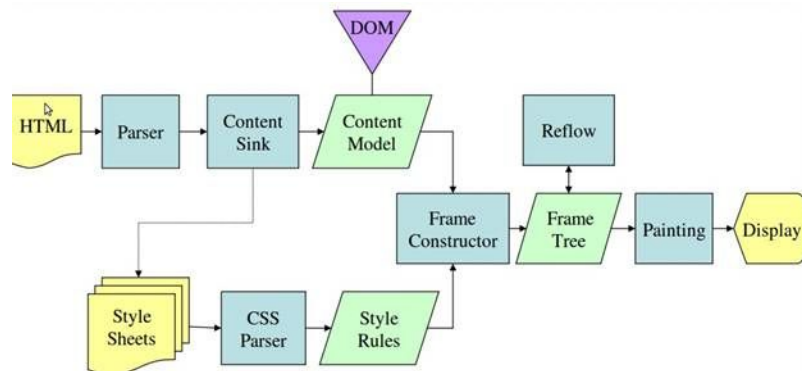- Chrome and Opera (from version 15) use Blink, a fork of WebKit

Figure : Rendering engine basic flow

Main Flow Example

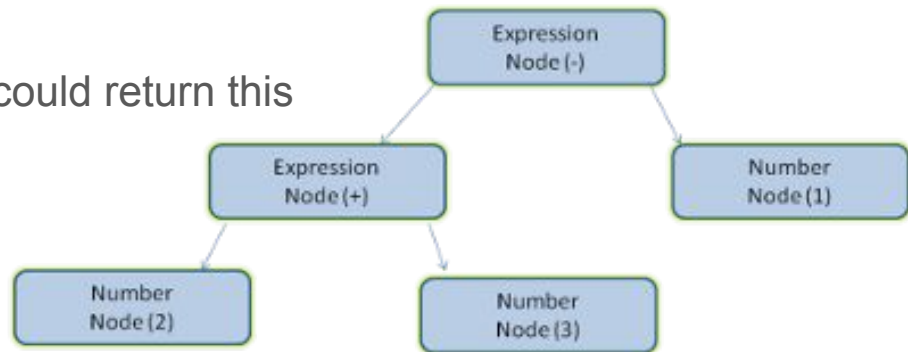Webkit mainflow example

Gecko mainflow example

Parsing

Since parsing is a very significant process within the rendering engine, we will go into it a little more deeply. Let's begin with a little introduction about parsing.

Parsing a document means translating it to a structure the code can use. The result of parsing is usually a tree of nodes that represent the structure of the document. This is called a _parse tree or a syntax tree._

For example, parsing the expression 2 + 3 - 1 could return this tree:

Web APIs

- Web APIs are the APIs made available to front-end developers, by the browser
- Web APIs are written in Javascript
- https://developer.mozilla.org/en-US/docs/Web/API

Cateogry C: Browser & Nodejs

- Within the Browser Module:
    1. DOM
    2. Events
    3. Library
    4. Modules
    5. Fetch
- Browser module → 16 course days

To Do Today:

Reading

- Available Web APIs: https://developer.mozilla.org/en-US/docs/Web/API
- Browser wars: https://en.wikipedia.org/wiki/Browser_wars
- Browser wars are back: https://www.theverge.com/2020/1/16/21068387/browser-wars-microsoft-edge-google-chrome-apple-safari-chromium-webkit-goat-rodeo

Get to know your browser:

- https://www.whatismybrowser.com/guides/?utm_source=whatismybrowsercom&utm_medium=internal&utm_campaign=top-nav
- https://developer.mozilla.org/en-US/docs/Glossary/Browser