

Fundamentals of Computer Engineering

Module I - Unit I Introduction

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Year: 2022 - 2023

What is a web page?

Introduction to web programming

A **web page** (or **webpage**) is a hypertext document on the World Wide Web. Web pages are delivered by a web server to the user and displayed in a web browser.

World Wide Web

The WorldWideWeb (W3) is a wide-area [hypermedia](#) information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an [executive summary](#) of the project, [Mailing lists](#), [Policy](#), [November's W3 news](#), [Frequently Asked Questions](#).

[What's out there?](#)

Pointers to the world's online information, [subjects](#), [W3 servers](#), etc.

[Help](#)

on the browser you are using

[Software Products](#)

A list of W3 project components and their current state. (e.g. [Line Mode](#), [X11 Viola](#), [NeXTStep](#), [Servers](#), [Tools](#), [Mail robot](#), [Library](#))

[Technical](#)

Details of protocols, formats, program internals etc

[Bibliography](#)

Paper documentation on W3 and references.

[People](#)

A list of some people involved in the project.

[History](#)

A summary of the history of the project.

[How can I help?](#)

If you would like to support the web..

[Getting code](#)

Getting the code by [anonymous FTP](#), etc.

<http://info.cern.ch/hypertext/WWW/TheProject.html>



<https://www.ufv.es/>

The first web page was created at CERN by Tim Berners-Lee on August 6, 1991.

What is the difference between a website and web page?

A website refers to a central location containing more than one web page. For example, UFV is considered a website, which includes dozens of different web pages.

`https://www.ufv.es/la-universidad/sobre-ufv/`



The diagram shows the URL `https://www.ufv.es/la-universidad/sobre-ufv/` with brackets underneath identifying its parts: `https://` is labeled 'Protocol', `www` is 'Subdomain', `.ufv.es` is 'domain', `/la-universidad/` is 'directories', and `sobre-ufv/` is 'web page'.

The web page is always the last part of the URL. Currently websites hide the name of the file because the content is usually generated dynamically.

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What is the difference between a web site and web app?

A **web site** only show **static information**, and users can only scroll, look at content, and follow links.

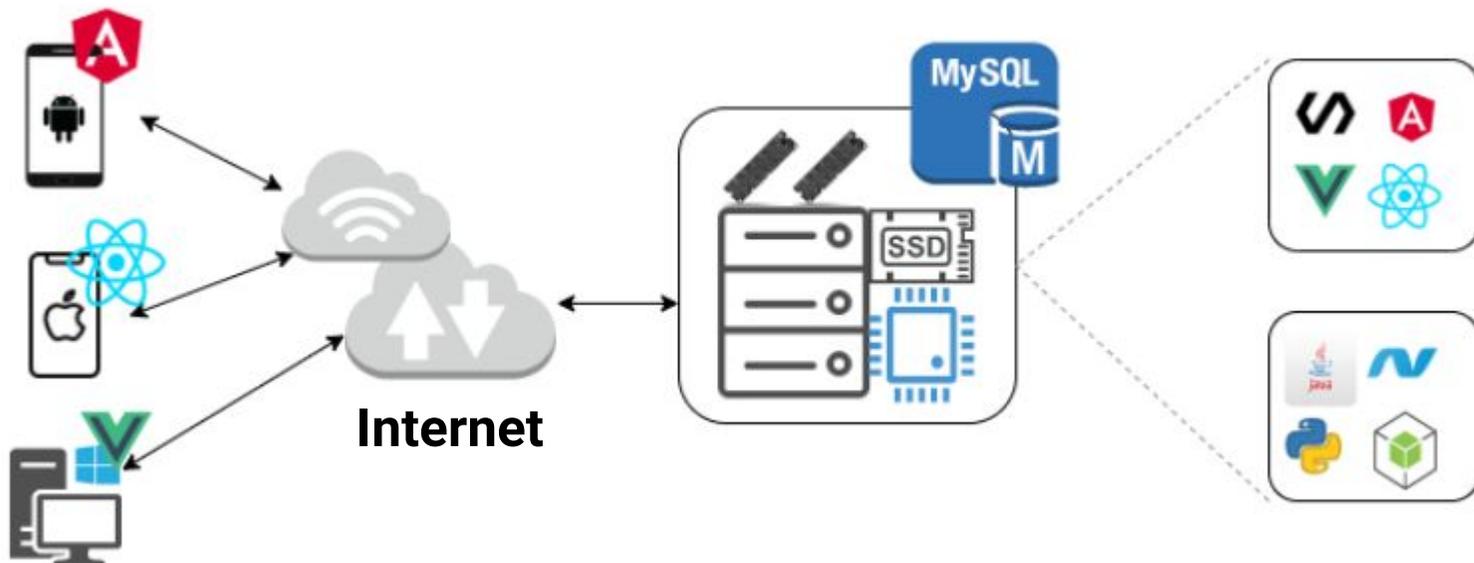
A **web app** is a **more complex product** that allows for many types of interactions and can use APIs to give users access to third-party services. Through a web application, users can complete tasks such as placing and paying for orders, uploading documents, and accessing analytics.



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Client-Server architecture

The client-server architecture refers to a system that hosts, delivers, and manages most of the resources and services that the client requests.

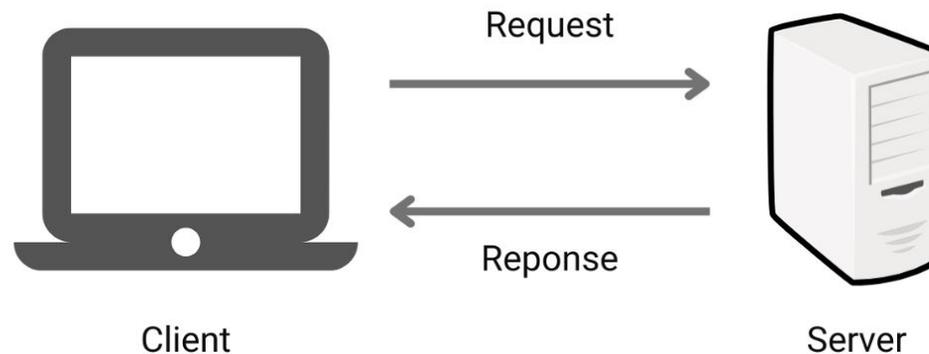


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Client-Server architecture

An operational client-server architecture execute the next operations:

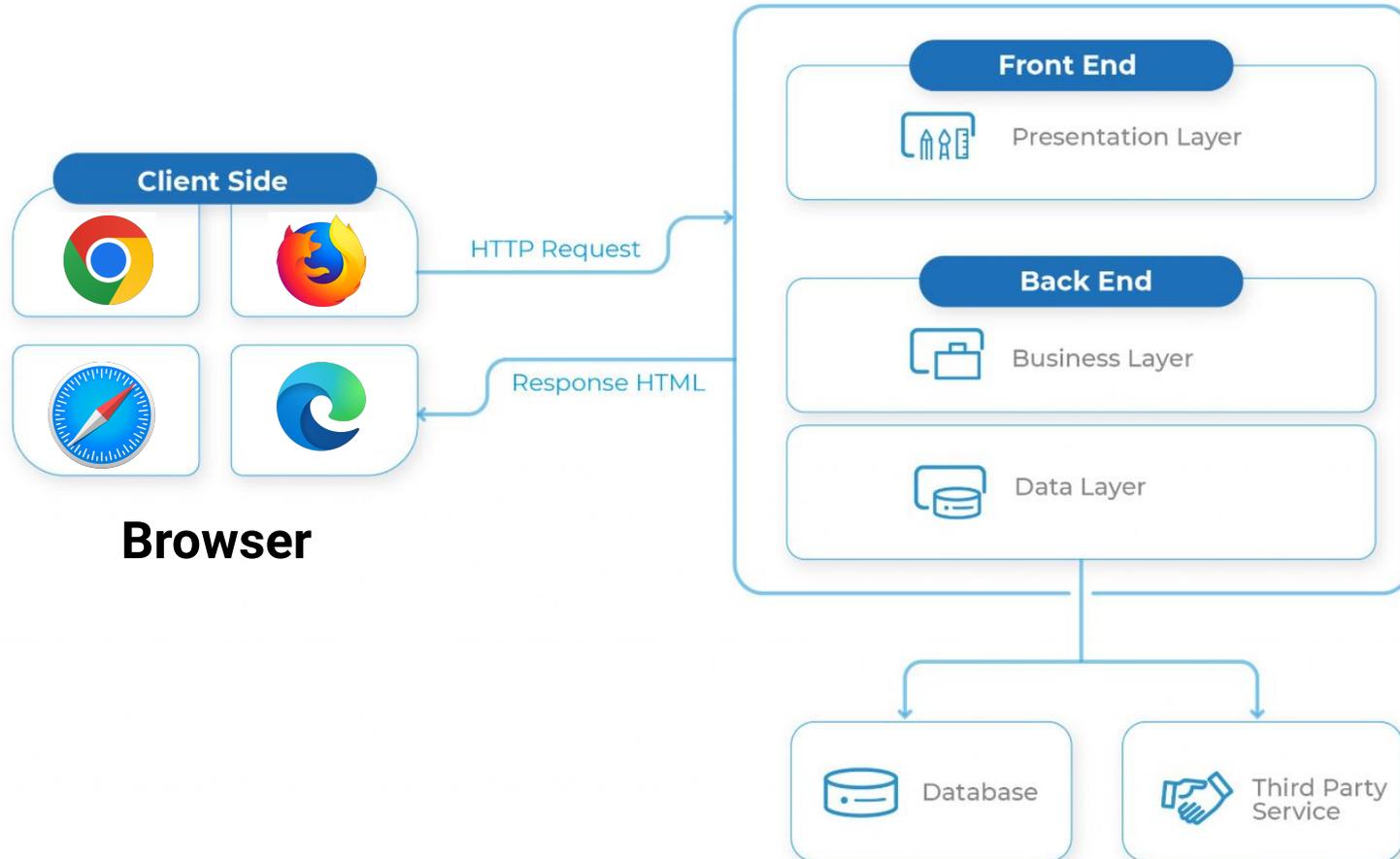
- The client **request** a web page through a network-enabled device.
- The web server receives and processes the request.
- The web server send a **response** to the client.



What can we build a web app?

Introduction to web programming

How can we build a web app?



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How can we build a web app?



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How we can build a web app?

Frontend

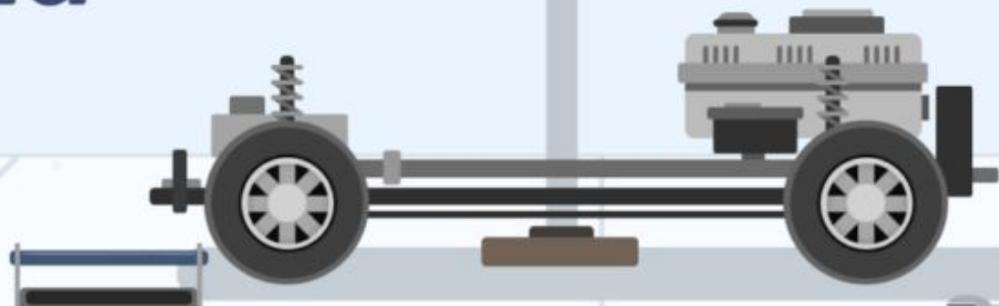


Users see



20% of total effort

Backend



Users don't see



80% of total effort



Repetitive

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How can we build a web app?

Backend Vs Frontend Who's The Boss?



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Front end Development

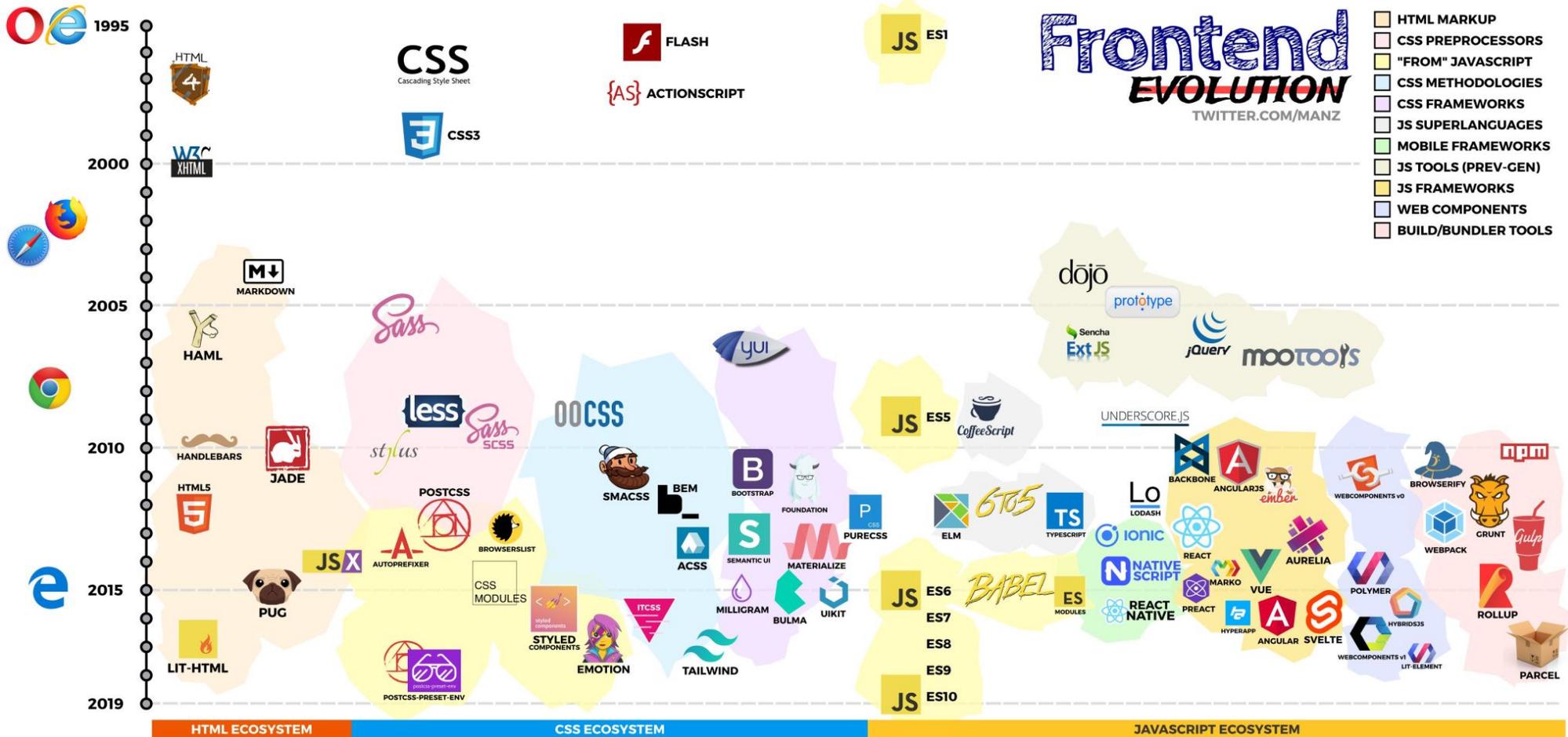


Frontend technologies encompass the programming languages interpreted by the browser. This means files are processed on the user's side (client).

Websites only have a frontend layer are called static web apps.

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Front end Development



HTML (HyperText Markup Language)

The **HyperText Markup Language** or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets and scripting languages such as JavaScript.

- **HyperText:** HyperText simply means "Text within Text." A text has a link within it, is a hypertext. HyperText is a way to link two or more web pages (HTML documents) with each other.
- **Markup Language:** A markup language is a computer language that is used to apply layout and formatting conventions to a text document.

CSS (Cascading Style Sheets)

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML or XML (including XML dialects such as SVG, MathML or XHTML).

- CSS provides a much better view to our HTML page as compared to HTML attributes.
- Styles are applied like cascading rules to every occurrence of that element. So, short code means high-speed download times.
- Changes are automatically updated within all web pages. We do not need to change html.
- CSS permits content which work in all web browsers.

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Javascript (JS)

JavaScript, often called JS, is a imperative, lightweight, interpreted (use a virtual machine), or just-in-time compiled programming language with object oriented and first-class functions. It is one of the core technologies of the World Wide Web, alongside HTML and CSS.

- 98% of current websites use JS on the client side, often incorporating third-party libraries.
- All major web browsers have a dedicated JS engine to execute the code on users' side.

Although Java and JavaScript are similar in name, syntax, and respective standard libraries, both languages are **distinct and differ extremely in design**.

What next?

What next?

The next block of the subject consists of:

- Basic concepts about web development.
- HTML - How it works.
- CSS - How it works.
- JavaScript - How it works.

Practical work II

- Design and deploy a web site