

# HTML Structure

The skeleton and tags

# Agenda

- General Info
  - What is a Browser?
  - Where are the websites?
  - What is a Client and a Server?
- HTML
  - What is HTML?
  - How is HTML structured?
- Tags
  - Tags for the initial structuring: html, head, body, title, ...
  - Define tags for document content: Headings, Paragraphs, Formatting, etc...
  - Structure tags for document content: Divisions, Spans, Main, Side, Menu, Nav, Article, etc...
- Workshop: Let' try it!
- Questions

# Learn Goals

- The definition, meaning and history of HTML
- Why data should be transferred in a structured way
- The anatomy of an HTML document (minimum, valid)

# General

web, history, now & future

# Browser

The window to the web

- A desktop program that allows a user to navigate between the web pages.
- Chrome, Internet Explorer (IE, Edge), Firefox (FF), Safari, Opera...
- The browsers are developed by the major internet companies or organizations.
  - Google -> Chrome
  - Mozilla -> Firefox
  - Apple -> Safari
  - Microsoft -> IE, Edge
- Browser Wars
- A browser can understand and interpret HTML, CSS, JS.



## Five well-known Browsers

<http://www.evolutionoftheweb.com/>



## Browser Wars

<https://www.youtube.com/watch?v=LF6y3C6u7b8>

# Web sites

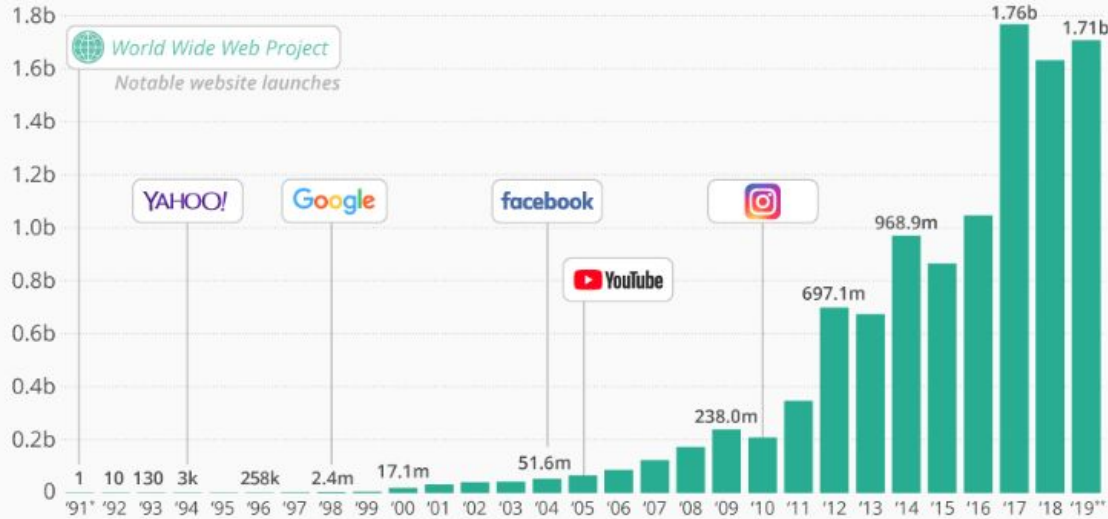
Documents from Internet

- Structured text documents
- Navigable documents
- Enriched content with media (Pictures, Video, etc...)
- can be tied together with links.
- The content can be indexed and searched (SEO).
- ~1.5 Billion Web sites online
- Consists: HTML, CSS, JS, Fonts, Pictures, Video, 3D, PDF, SVG, Streaming,...



# How Many Websites Are There?

Number of websites online from 1991 to 2019



"Website" is defined as a unique hostname, i.e. a name which can be resolved, using a name server, into an IP Address.

\* As of August 1, 1991  
\*\* As of August 19, 2019 at 10:22 CET  
@StatistaCharts Source: Internet Live Stats

statista

## The number of websites over years

<http://www.internetlivestats.com/total-number-of-websites/>

# HTML

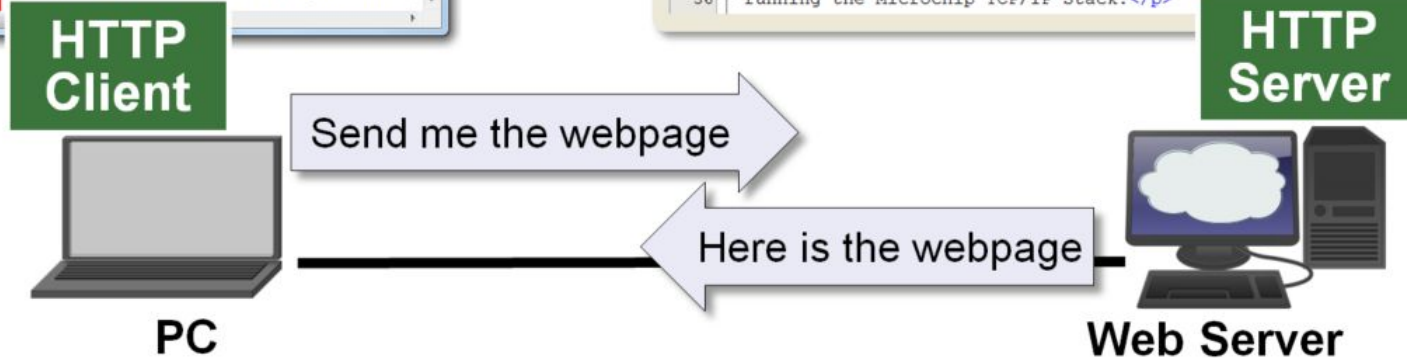
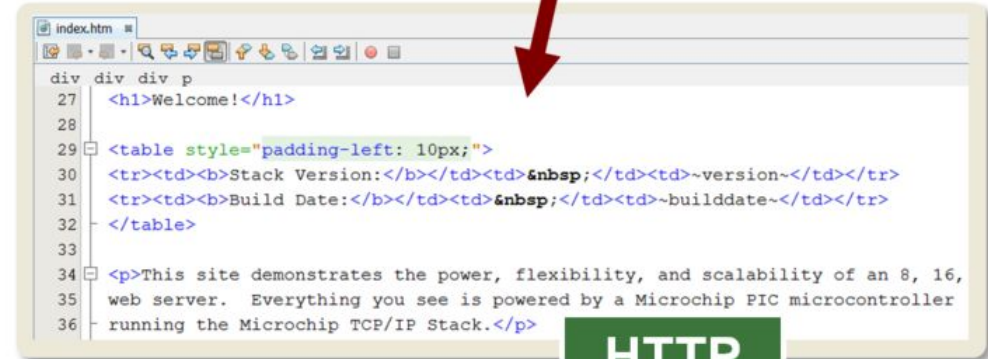
transfer data in a structured way over http

# Client Server

Client requests.  
Server serves.

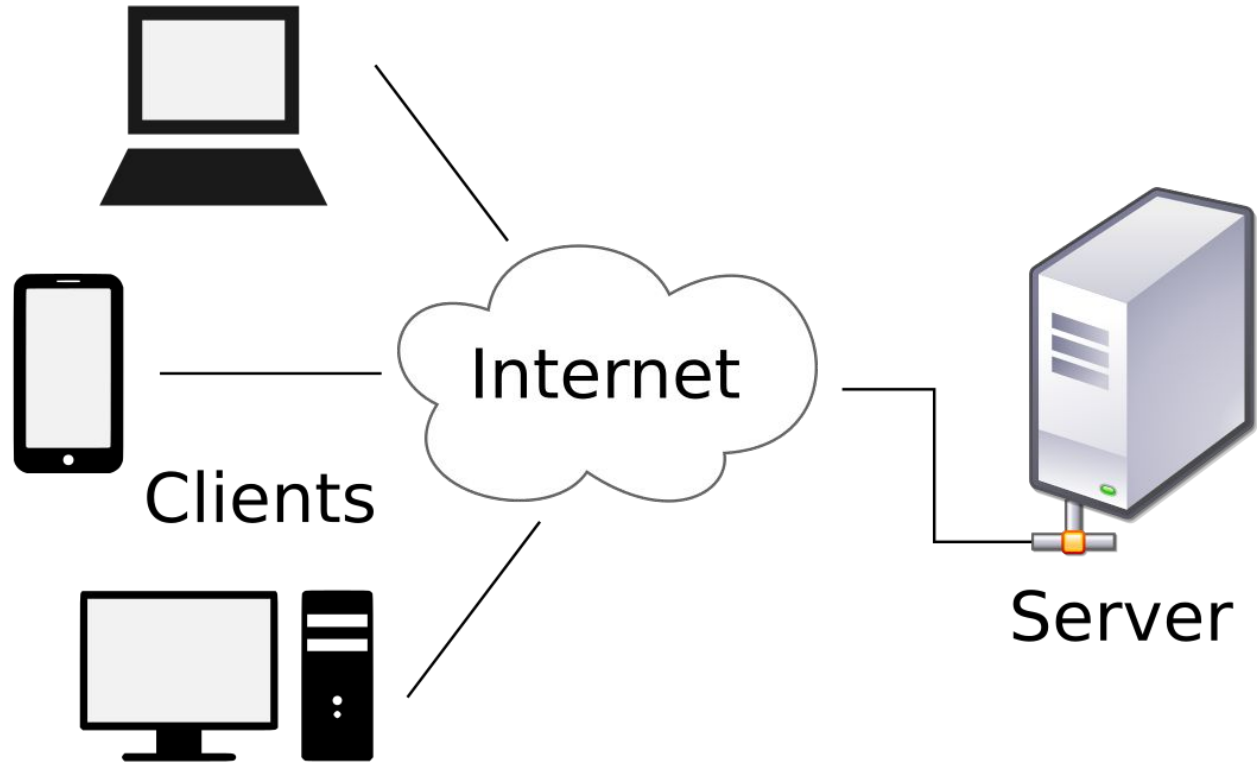
- A client can be:
  - Laptop
  - Mobile Phone
  - PC
  - Another Server
  - CLI
- A server is a powerful computer accessible to all on the Internet.
- A server can deliver
  - HTML Documents
  - PDFs
  - Video Streaming
  - Data
  - ...

Web page written in HTML (Hyper Text Markup Language) stored on HTTP server



The communication between the client and server

source: Help HTTP - Developer Help



Server responds many clients at the same time

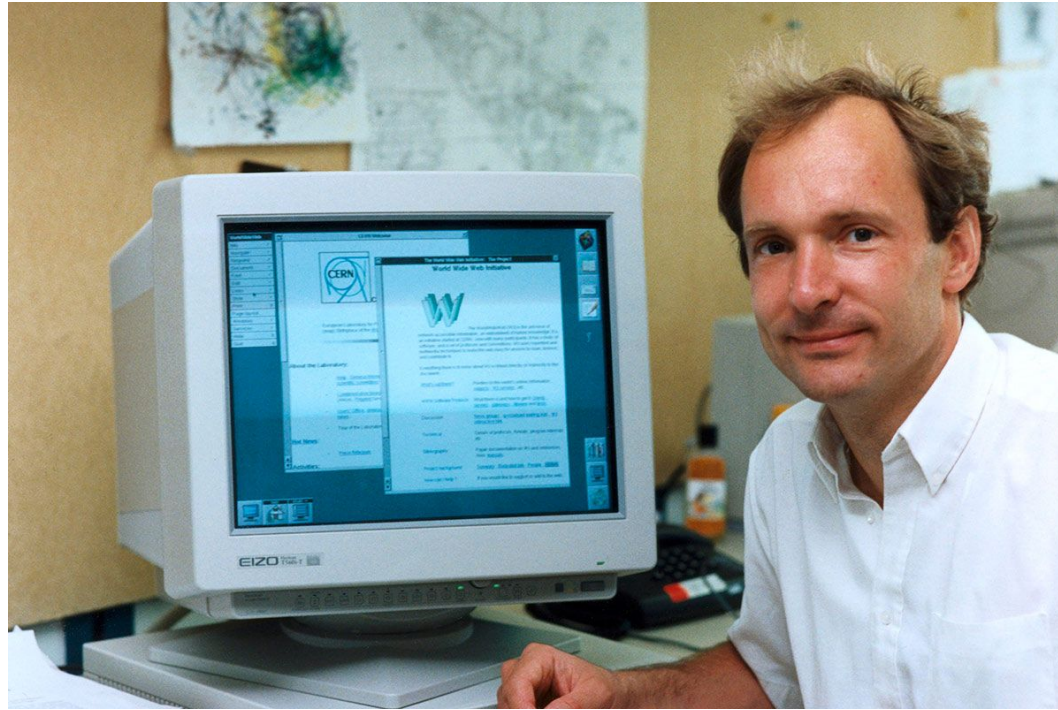
source: Wikipedia

**let's try it!**

# HTML

The Internet document whose content is defined or structured with a markup language.

- HTML
  - Hypertext Markup Language
  - Language that describes the structure of a page
- CERN
  - Sharing information among scientists
  - Unification project for information exchange is started
- 1992
  - 1. specification HTML (Tim Berners Lee)
- Current
  - HTML5
- W3C and WHATWG standardize HTML further.



Tim Berners Lee

Source: Engramme



# the evolution

standards, browser wars, availability of the internet, demand of the we users

# 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?](#)

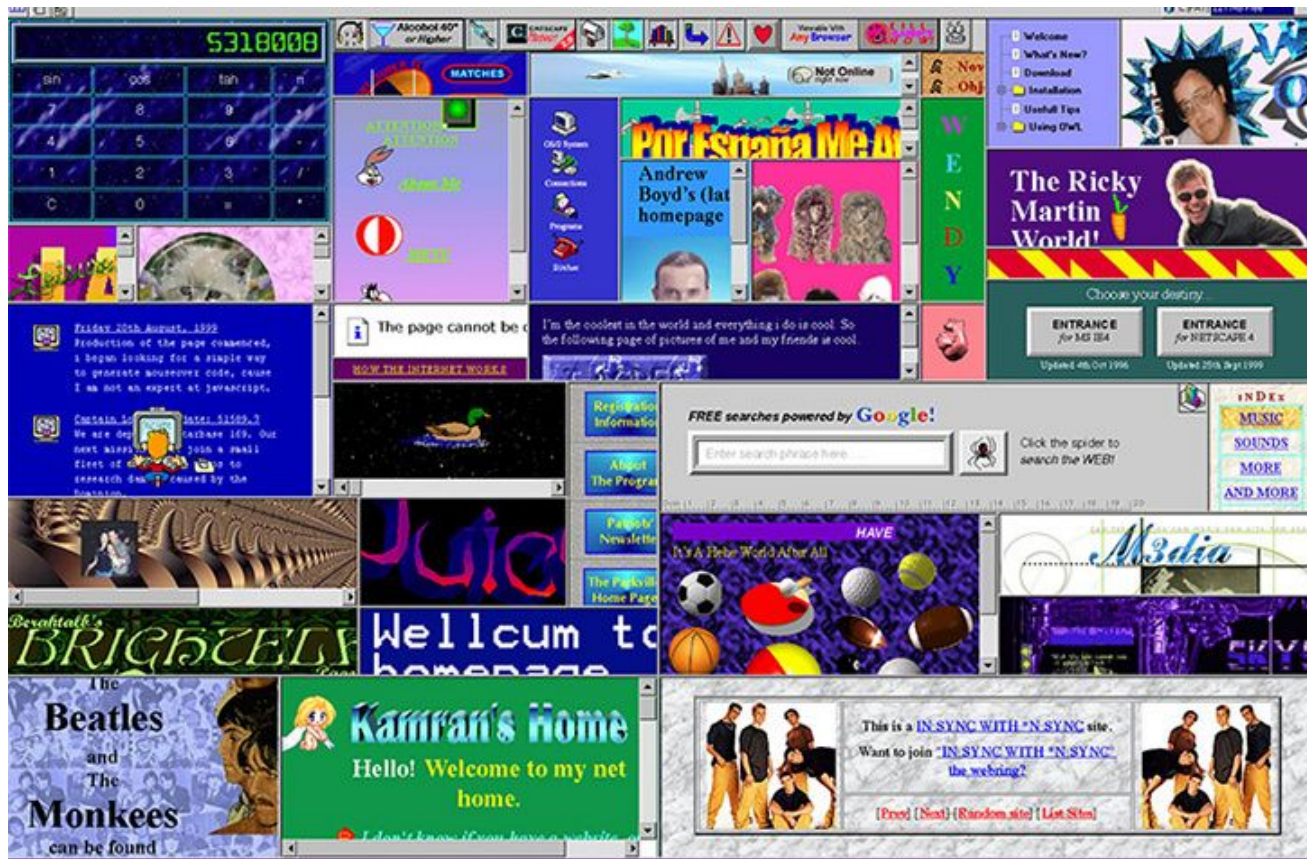
If you would like to support the web.

## [Getting code](#)

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

Tim Berners Lees first HTML Seite.

Source: designer-info.com

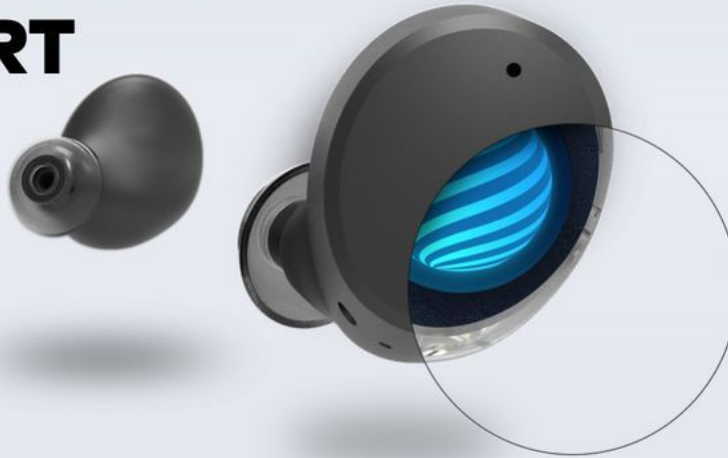


Then at some point in 90 years, end users will begin to design.

# MAKE YOUR AUDIO PRODUCTS TRULY SMART

## *Introducing the Bragi Software Suite*

Our modular Software Suite with embedded AI enables brands and manufacturers to create truly smart audio products efficiently.



Today's design approach

# Tags

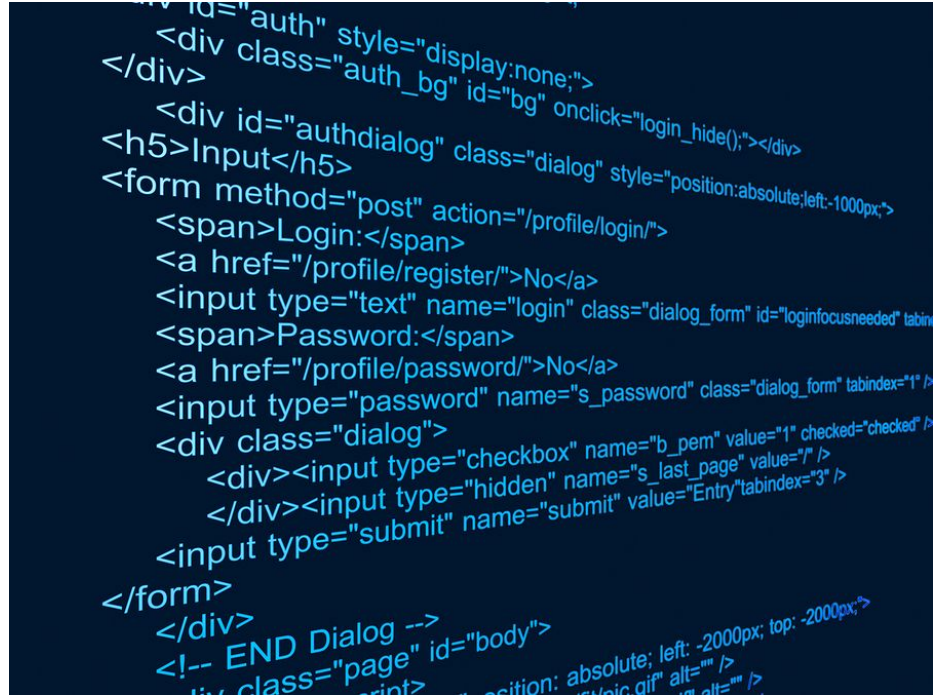
etiquette, elements, structure, ...

# Intro



How can data in HTML structure and define documents?

- HTML is a Markup Language
- Has orders, Tags
- Each command is executed by browser.
- Executed commands build a picture (web page) in the browser.
- Initial HTML was intended for data exchange only.
- Today all media are transported.
- Every tag has a meaning for machine interpretation to work.



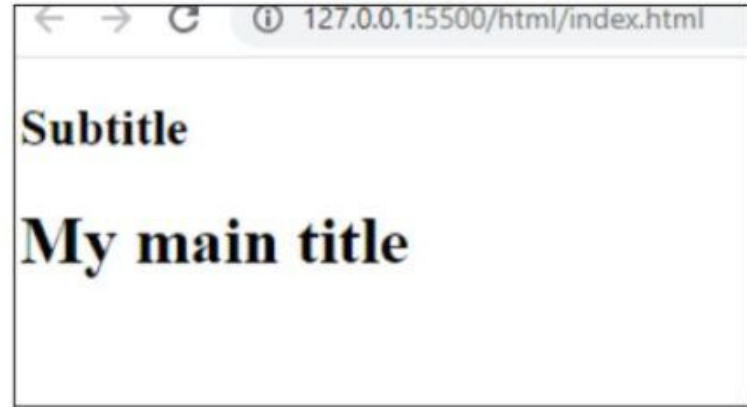
An HTML document has a very simple initial structure. But it can be structured very complex.



```
<h1>My main title</h1>  
<h2>Subtitle</h2>
```



```
<h2>Subtitle</h2>  
<h1>My main title</h1>
```



Browser interprets the HTML to a view!

Source: nology.io



<> week02-01.html X

<> week02-01.html >  html >  body >  p

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>HiCoders - Week 02 - Tags</title>
7  </head>
8  <body>
9
10     <h1>HiCoders</h1>
11     <h2>Coding Academy</h2>
12     <h3>For everybody</h3>
13     <p>Lorem ipsum dolor sit amet consectetur adipisicing elit.
14         Quo sequi harum non, in nemo voluptates, voluptas nostrum
15         libero a qui ad minus nobis inventore! Vitae itaque dolor
16         sit error dignissimos!</p>
17
18 </body>
19 </html>
20
```

# HiCoders

## Coding Academy

### For everybody

Lorem ipsum dolor sit amet consectetur adipisicing elit. Quo sequi harum non, in nemo voluptates, voluptas nostrum libero a qui ad minus nobis inventore! Vitae itaque dolor sit error dignissimos!

An HTML can be written in VSCode.

<> week02.html X

<> week02.html > html > body > address > p

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6      <title>HiCoders - Week 02 - Tags</title>
7  </head>
8  <body>
9
10     <h1>Adresler</h1>
11
12     <address>
13         <p>Mehmet Dogan</p>
14         <p>HiCodersstr. 1</p>
15         <p>8005</p>
16         <p>Zürich</p>
17     </address>
18
19 </body>
20 </html>
21
```

# Adresler

*Mehmet Dogan*

*HiCodersstr. 1*

*8005*

*Zürich*

An HTML can be written in VSCode.

# An HTML Form

## EXAMPLE

### Email address

### Password

### File input

 No file chosen

Example block-level help text here.

☐ Check me out

```
<form>
  <div class="form-group">
    <label for="exampleInputEmail1">Email address</label>
    <input type="email" class="form-control" id="exampleInputEmail1" placeholder="Email">
  </div>
  <div class="form-group">
    <label for="exampleInputPassword1">Password</label>
    <input type="password" class="form-control" id="exampleInputPassword1" placeholder="Password">
  </div>
  <div class="form-group">
    <label for="exampleInputFile">File input</label>
    <input type="file" id="exampleInputFile">
    <p class="help-block">Example block-level help text here.</p>
  </div>
  <div class="checkbox">
    <label>
      <input type="checkbox"> Check me out
    </label>
  </div>
```

[Copy](#)

# Classification



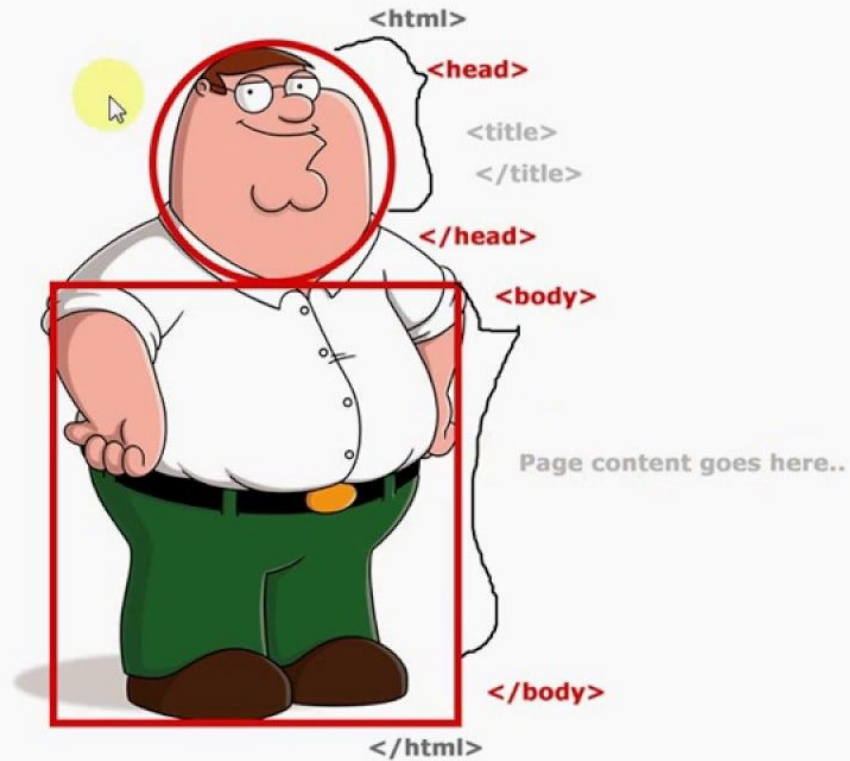
What kind of tag groups are existing?

- Tags for Structure
- Tags for document content
- Tags for document layout
- Tags for Input, server communication

# Tags – general Structure

The envelope, the root of the document, parent structure.

- `<!DOCTYPE html>`
  - Document type definition → html allein stehend steht für HTML5
- `<html></html>`
  - Definiert Sektion, der HTML ist.
- `<head></head>`
  - Invisible "head" part of the document, in each of which elements such as title of the page,
  - Meta information such as character set, HTML styling and document links are noted. Note: tags like
  - `<script></script>` can also des `<head></head>` Bereiches definiert werden.
- `<body></body>`
  - Visible part of the page
- `<link></link>`
  - Element for document linking, such as external CSS files



:)

# Minimum acceptable/**valid** HTML structure

- **doctype**
- html
- head
- **title**
- body

# Minimum valid HTML

```
<!DOCTYPE html>  
  <title>title</title>
```



# Minimum HTML

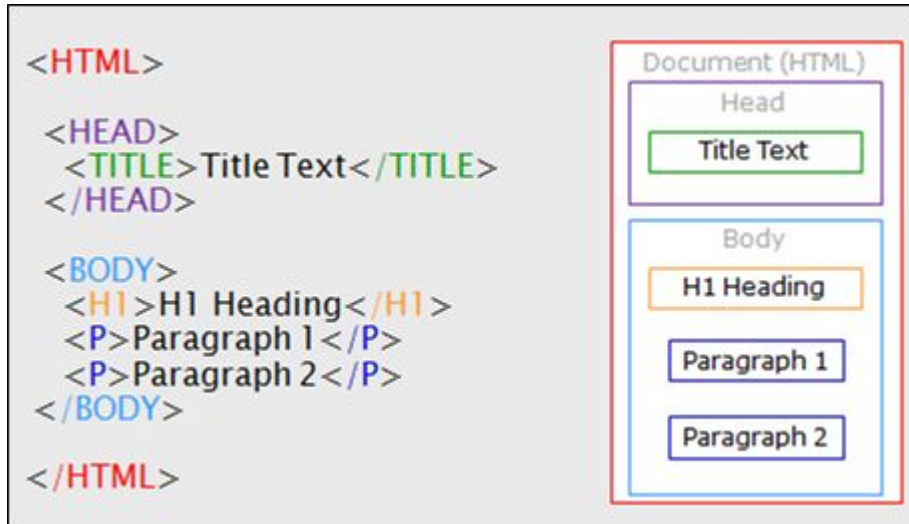
```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>title</title>
  </head>
  <body>
    <!-- page content -->
  </body>
</html>
```

# HTML with CSS & JS

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>title</title>
    <link rel="stylesheet" href="style.css">
    <script src="script.js"></script>
  </head>
  <body>
    <!-- page content -->
  </body>
</html>
```

# HTML with CSS & JS

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>title</title>
    <link rel="stylesheet" href="style.css">
    <script src="script.js"></script>
  </head>
  <body>
    <!-- page content -->
  </body>
</html>
```



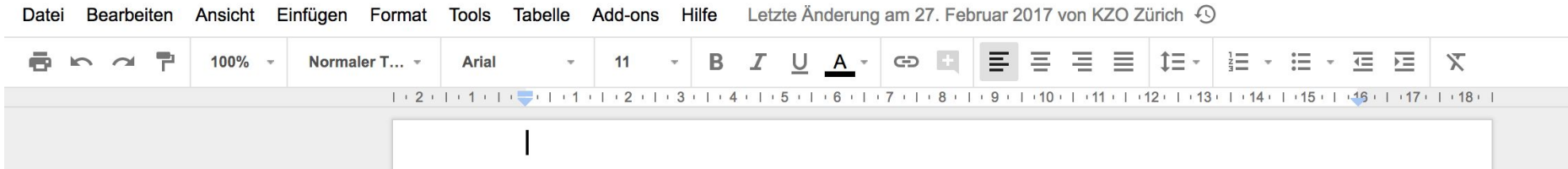
A small HTML structure - It's like a **nested box hierarchy**

**let's try it!**

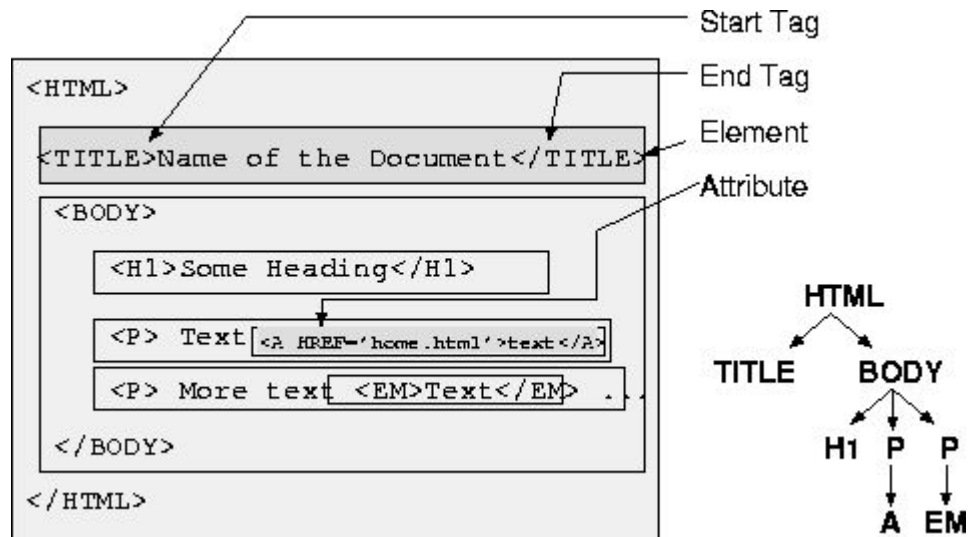
# Tags for Defining Content

Think/treat it as a word  
document

- `<h1></h1>` (h2, h3, h4, h5, h6)
  - Element zur Definition eines Headings/Überschrifts.
- `<p></p>`
  - Element zur Definition eines Paragraphen
- `<b></b>`, `<strong></strong>`
- `<i></i>`, `<em></em>`
- `<a>`
- `<ul></ul>`
  - Unordered List, Element für die Definition einer unstrukturierten Liste
- `<ol></ol>`
  - Ordered List, Element zur Definition einer strukturierten Liste
- `<li></li>`
  - List Item, Element zur Definition einer Listeinheit
- `<table></table>`
  - Element zur Tabellendefinition
- `<form></form>`
  - Element zur Definition einer Formularbereichs für Informationseingabe
- `<input></input>`
  - Element zur Definition eines Eingabebereichs
- `<img>`, `<video>`



Exactly the same as formatting a Word document



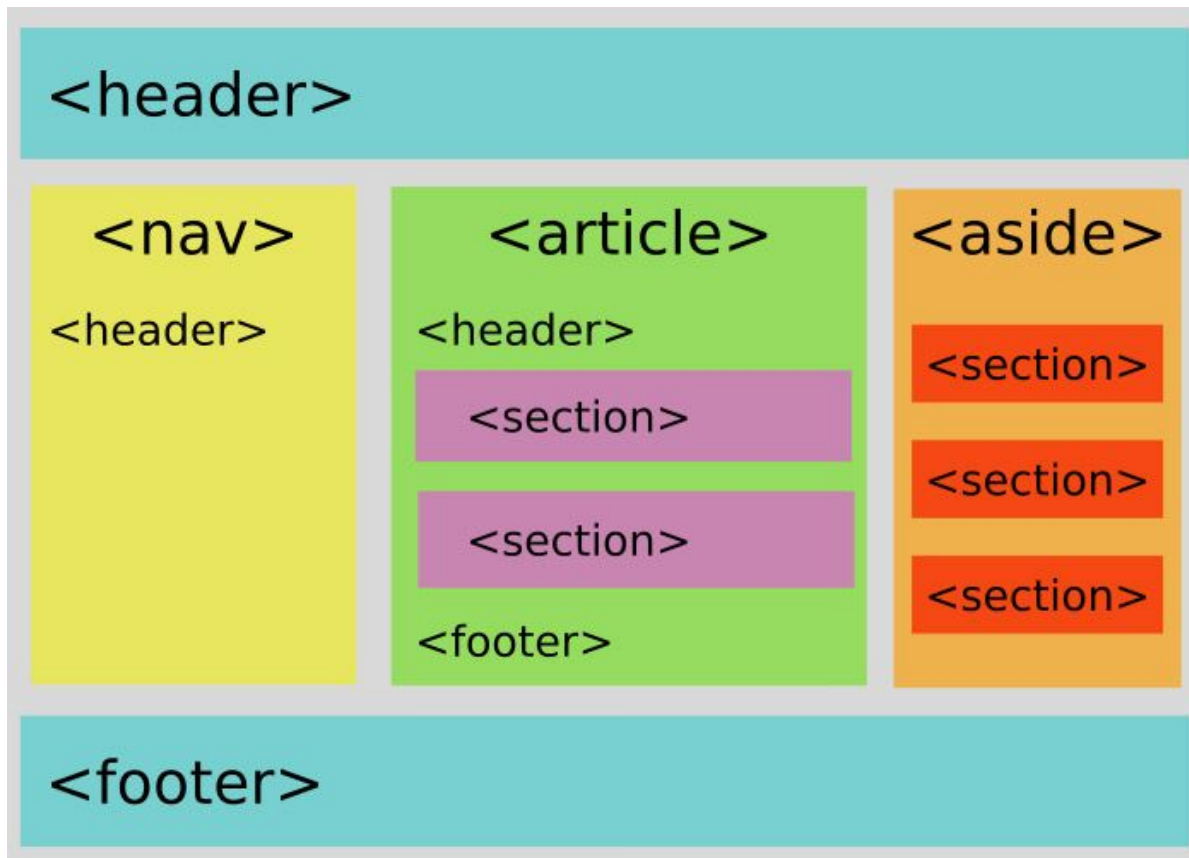


**let's try it!**

# Tags for Structure Content

How can I structure the content  
of the body (visible part)?

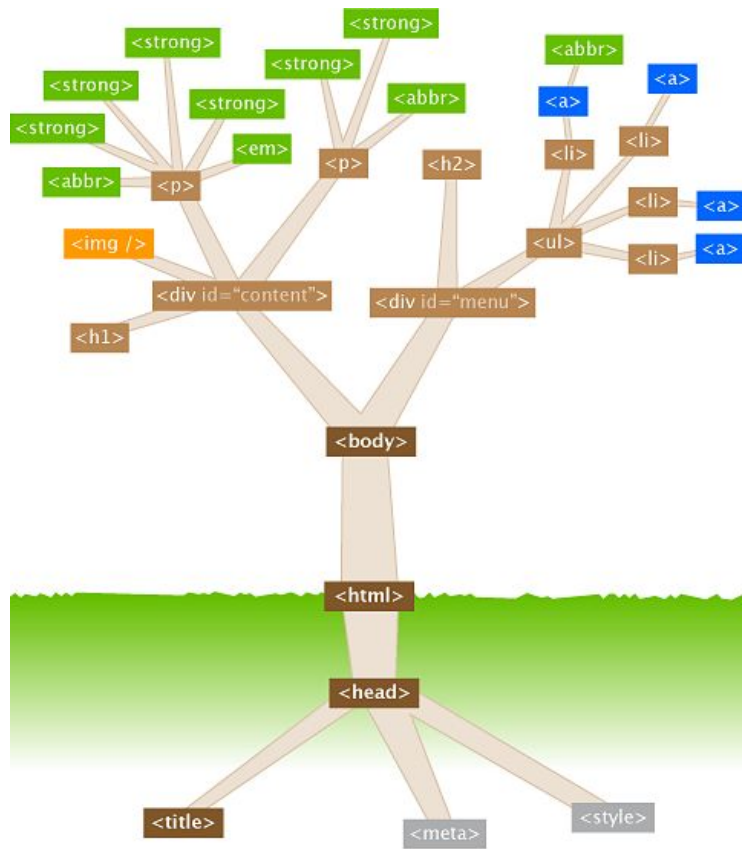
- div
- span
- main
- header
- footer
- nav
- aside
- article
- section



## Semantic HTML

Source: Hongkiat

**let's try it!**



**Questions?**