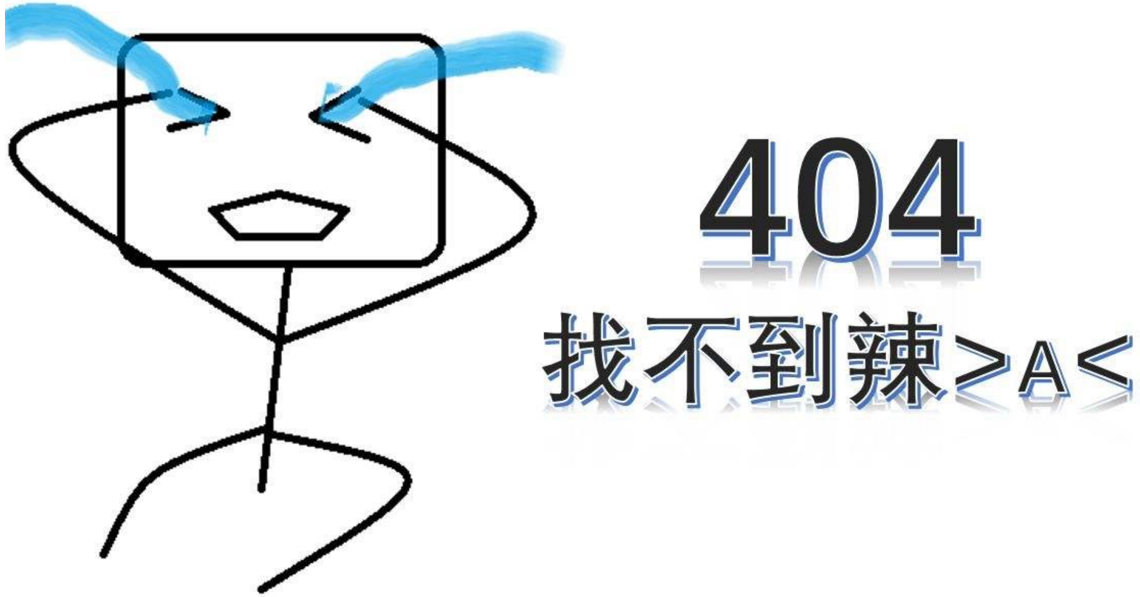
Technologies for E-Commerce

CAN302

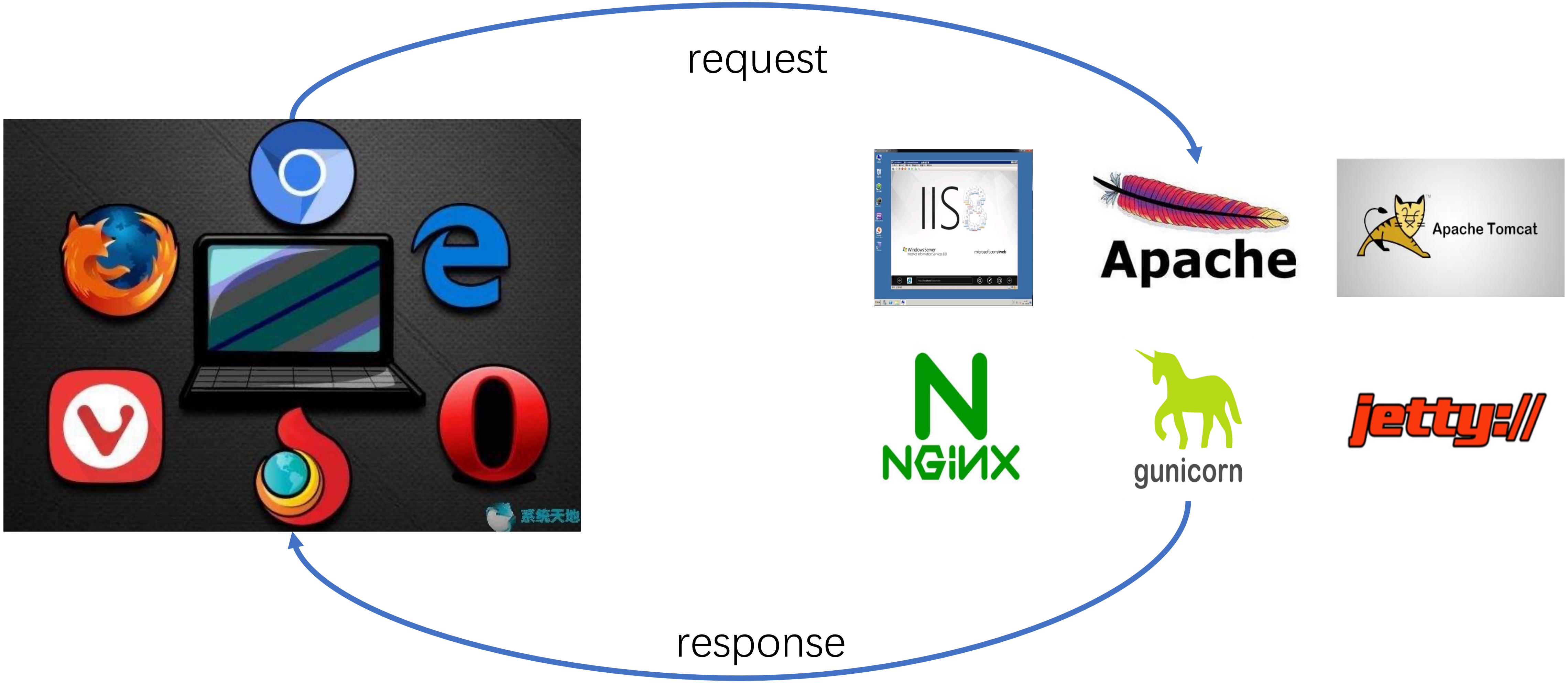
Department of Communications and Networking

Xi’an Jiaotong-Liverpool University (XJTLU)

Week 3 – Welcome newbie



HTTP - protocol between browser and server

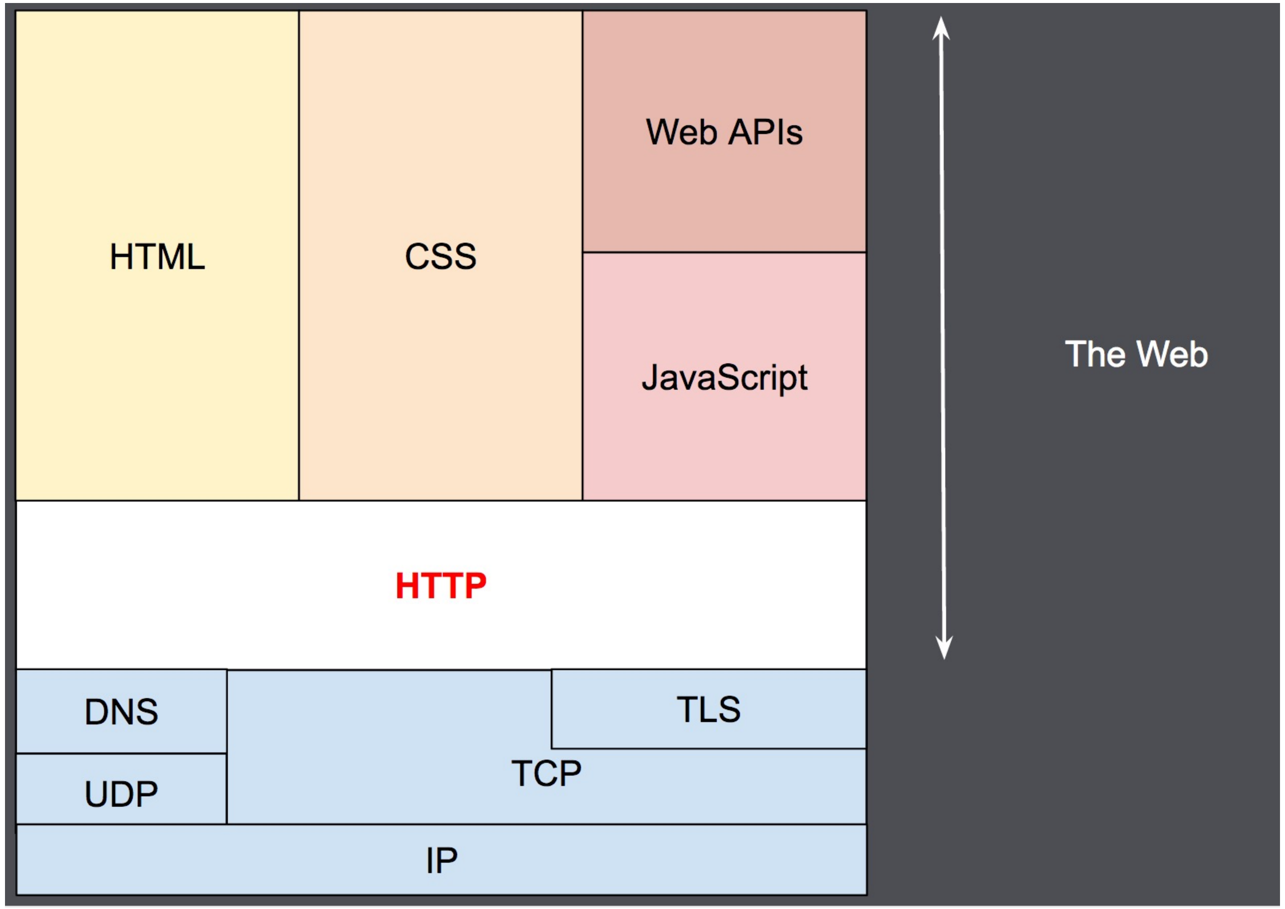


request

response

系统天地
IIS 8
Windows Server
microsoft.com/web
Apache
Apache Tomcat
NGINX
gunicorn
jetty://

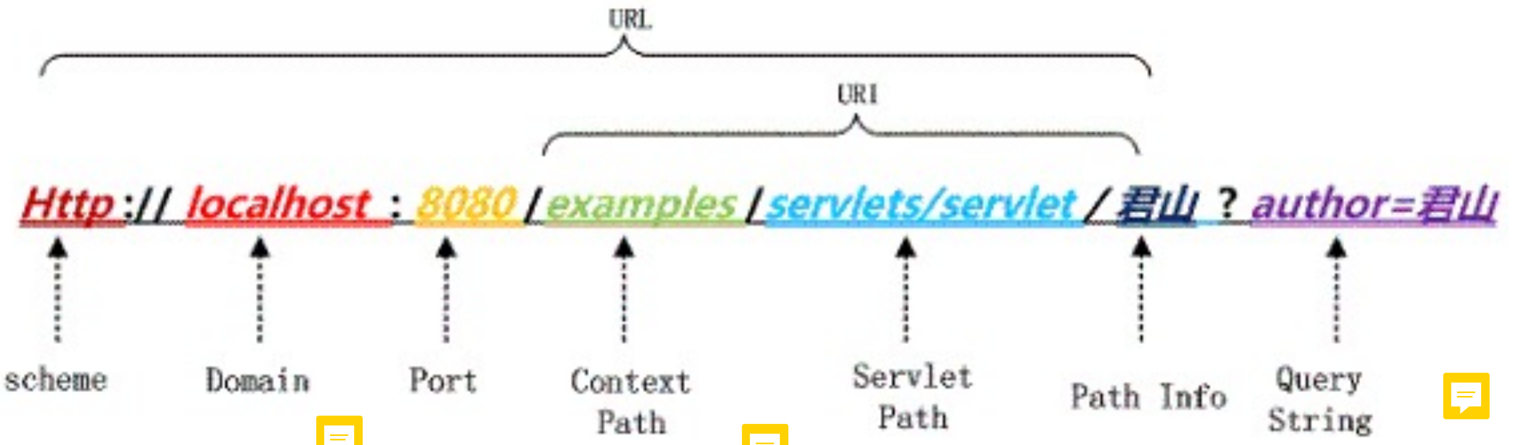
Http protocol

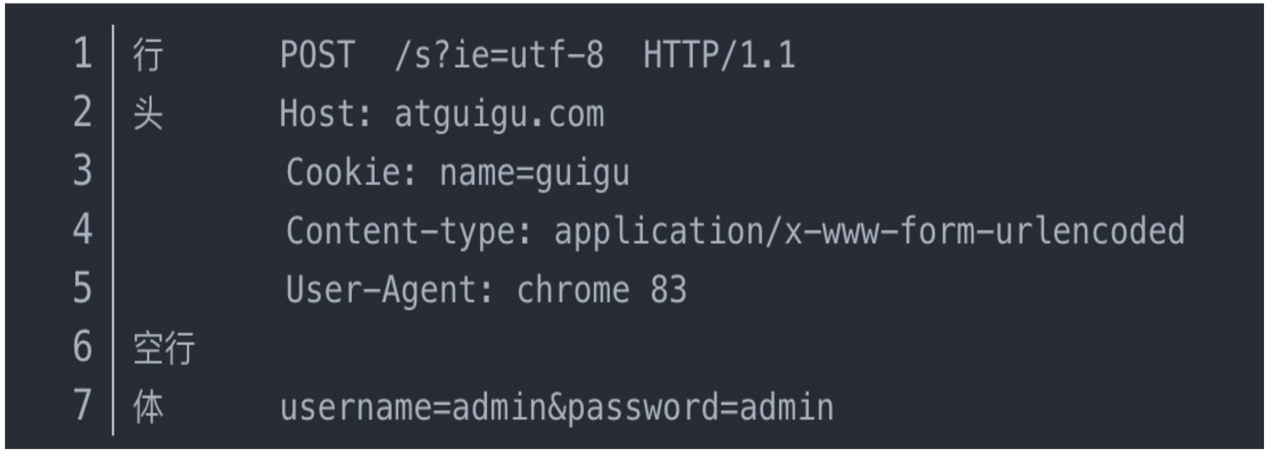

HTML
CSS
Web APIs
JavaScript
HTTP
DNS
UDP
TCP
TLS
IP
The Web

HTTP is a protocol for fetching resources such as HTML documents. It is the foundation of any data exchange on the Web and it is a client-server protocol, which means requests are initiated by the recipient, usually the Web browser. A complete document is reconstructed from the different sub-documents fetched, for instance, text, layout description, images, videos, scripts, and more.

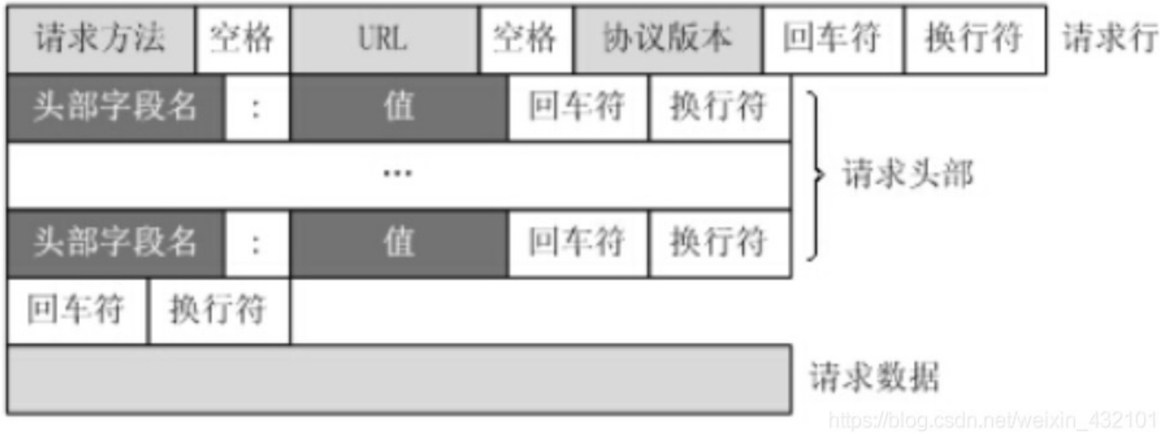
https://developer.mozilla.org/en-US/docs/Web/HTTP/OverView

Http protocol - request


URL
URI
Http :// localhost : 8080 / examples / servlets/servlet / 君山 ? author=君山
scheme
Domain
Port
Context Path
Servlet Path
Path Info
Query String



```
行      POST  /s?ie=utf-8  HTTP/1.1
头      Host: atguigu.com
         Cookie: name=guigu
         Content-type: application/x-www-form-urlencoded
         User-Agent: chrome 83
空行
体      username=admin&password=admin
```



请求方法 空格 URL 空格 协议版本 回车符 换行符 请求行

头部字段名 : 值 回车符 换行符

…

头部字段名 : 值 回车符 换行符

请求头部

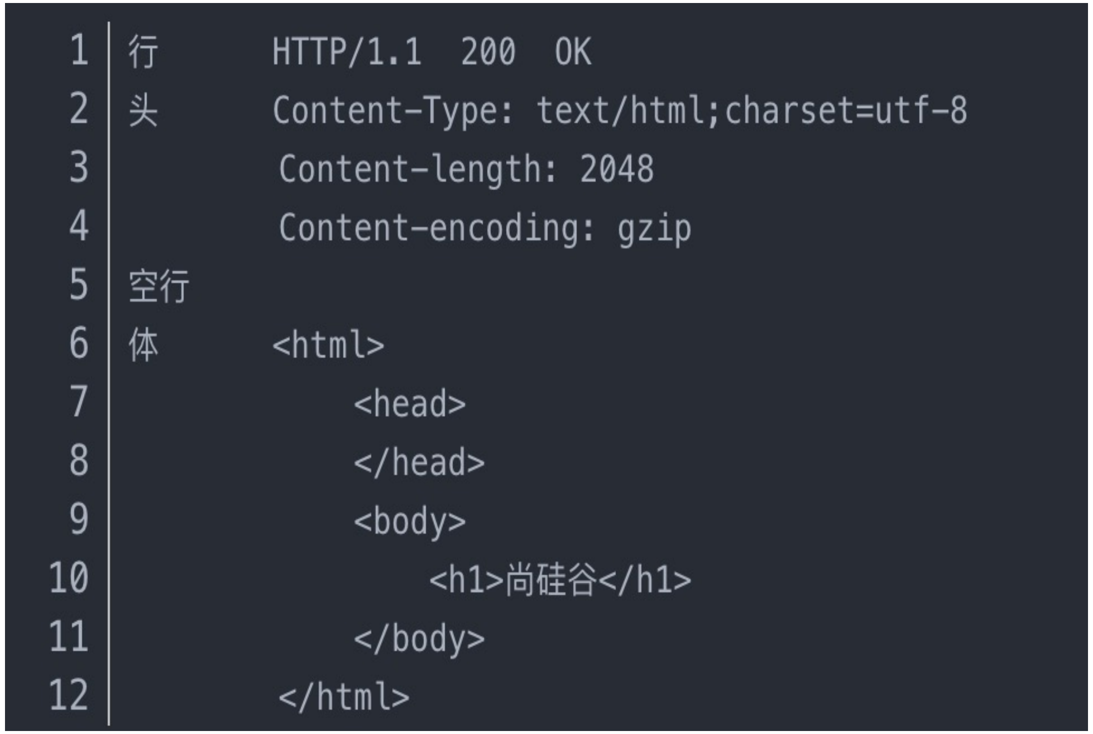
回车符 换行符

请求数据

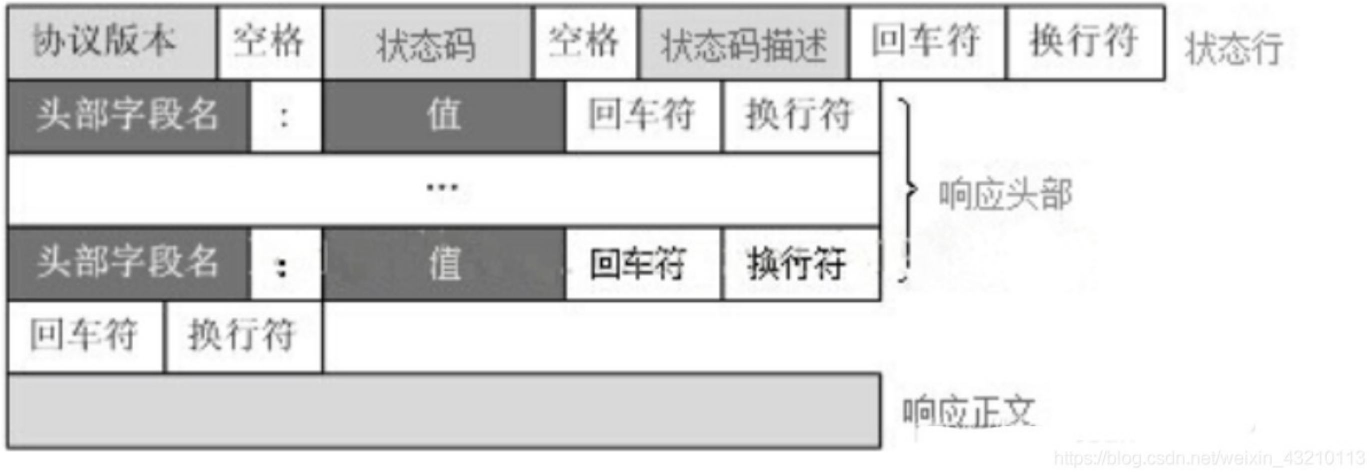
https://blog.csdn.net/weixin_432101

https://blog.csdn.net/weixin_43210113/article/details/110632207?spm=1001.2014.3001.5501

Http protocol - response



```
行      HTTP/1.1  200  OK
头      Content-Type: text/html;charset=utf-8
        Content-length: 2048
        Content-encoding: gzip
空行
体      <html>
            <head>
            </head>
            <body>
                <h1>尚硅谷</h1>
            </body>
        </html>
```

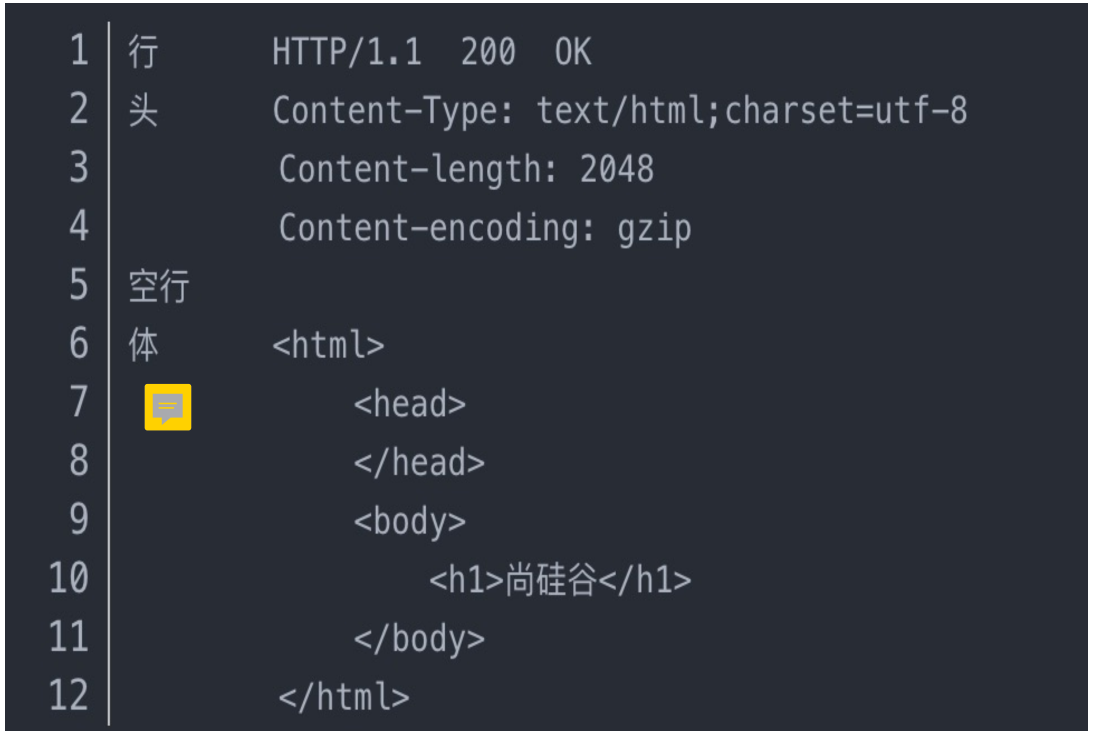


协议版本	空格	状态码	空格	状态码描述	回车符	换行符	状态行
头部字段名	:	值	回车符	换行符			响应头部
…							
头部字段名	:	值	回车符	换行符			
回车符	换行符						
							响应正文

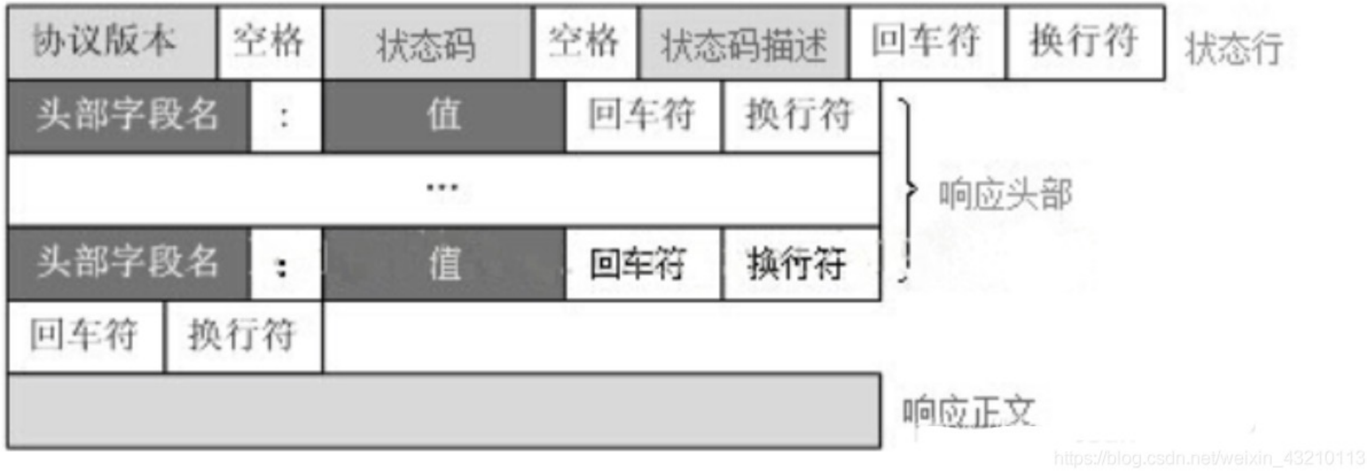
https://blog.csdn.net/weixin_43210113

https://zhuanlan.zhihu.com/p/63855809

Brower – draw the page



```
行      HTTP/1.1  200  OK
头      Content-Type: text/html;charset=utf-8
         Content-length: 2048
         Content-encoding: gzip
空行
体      <html>
            <head>
            </head>
            <body>
                <h1>尚硅谷</h1>
            </body>
         </html>
```



协议版本 空格 状态码 空格 状态码描述 回车符 换行符 状态行

头部字段名 : 值 回车符 换行符

…

头部字段名 : 值 回车符 换行符

响应头部

回车符 换行符

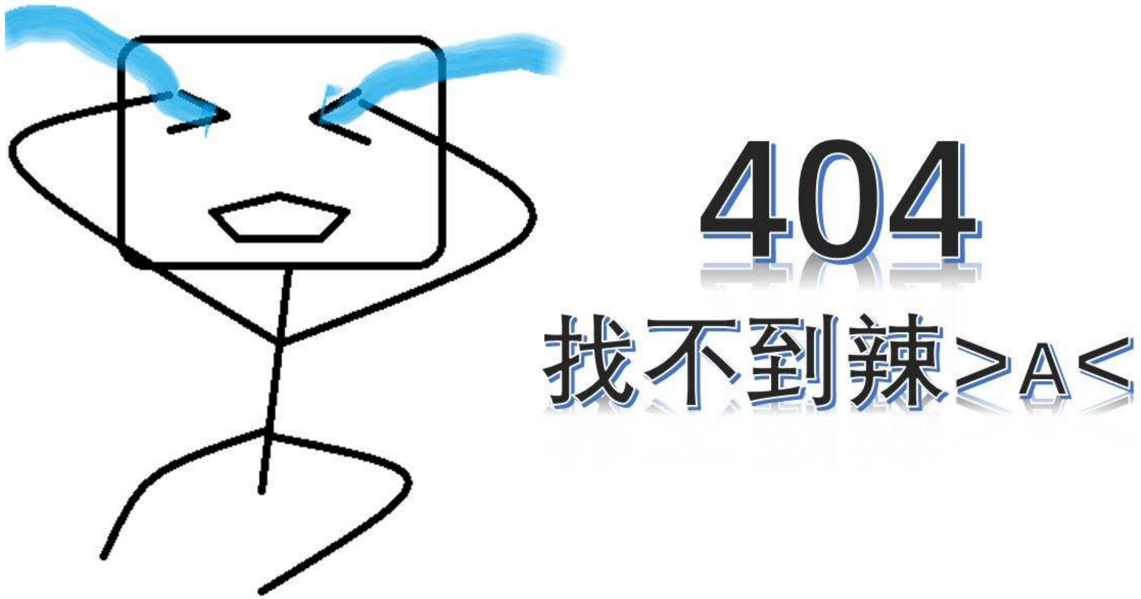
响应正文

https://blog.csdn.net/weixin_43210113

https://zhuanlan.zhihu.com/p/63855809

Http response code

HTTP response status codes indicate whether a specific [HTTP] request has been successfully completed. Responses are grouped in five classes:

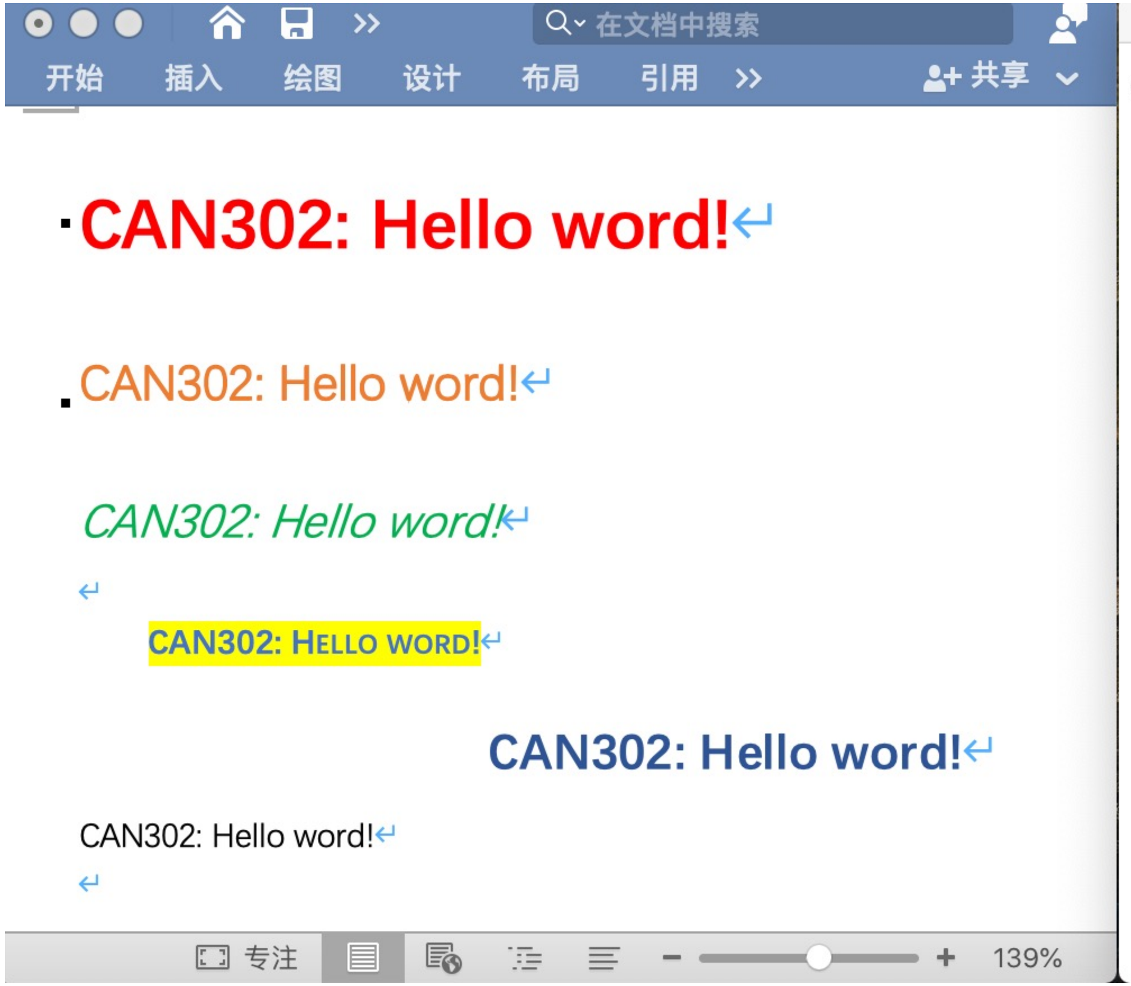


- Informational responses (100–199)
- Successful responses (200–299)
- Redirection messages (300–399)
- Client error responses (400–499)
- Server error responses (500–599)

The below status codes are defined by section 10 of RFC 2616. You can find an updated specification in RFC 7231.

https://developer.mozilla.org/en-US/docs/Web/HTTP/Status

Think about “word” and “notepad”


在文档中搜索
开始
插入
绘图
设计
布局
引用
共享
专注
139%

CAN302: Hello word!

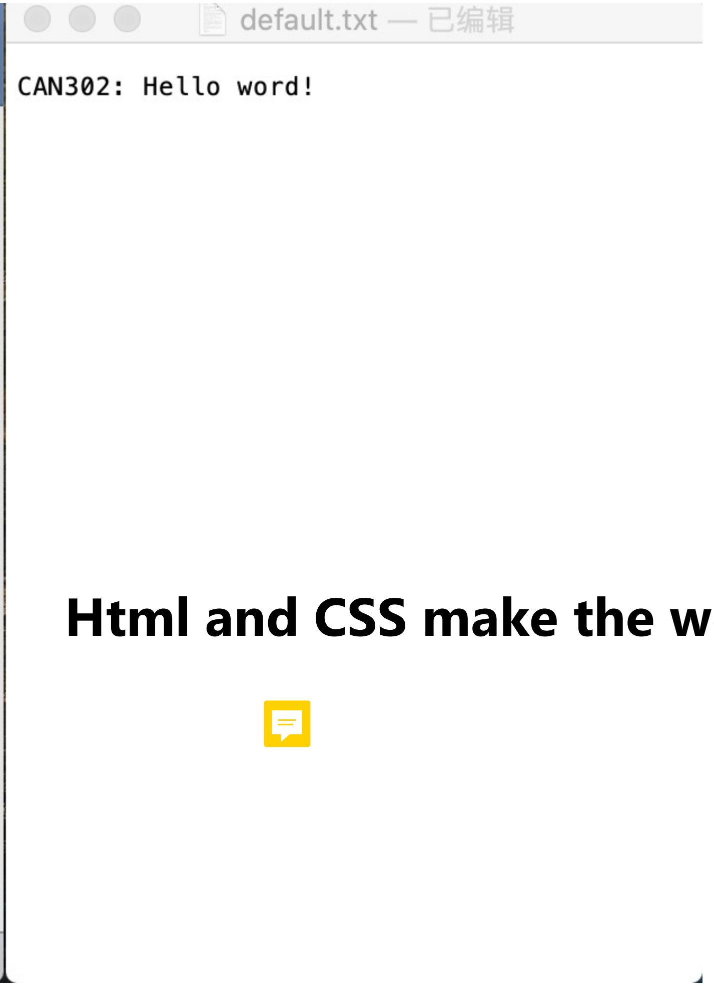
CAN302: Hello word!

CAN302: Hello word!

CAN302: HELLO WORD!

CAN302: Hello word!

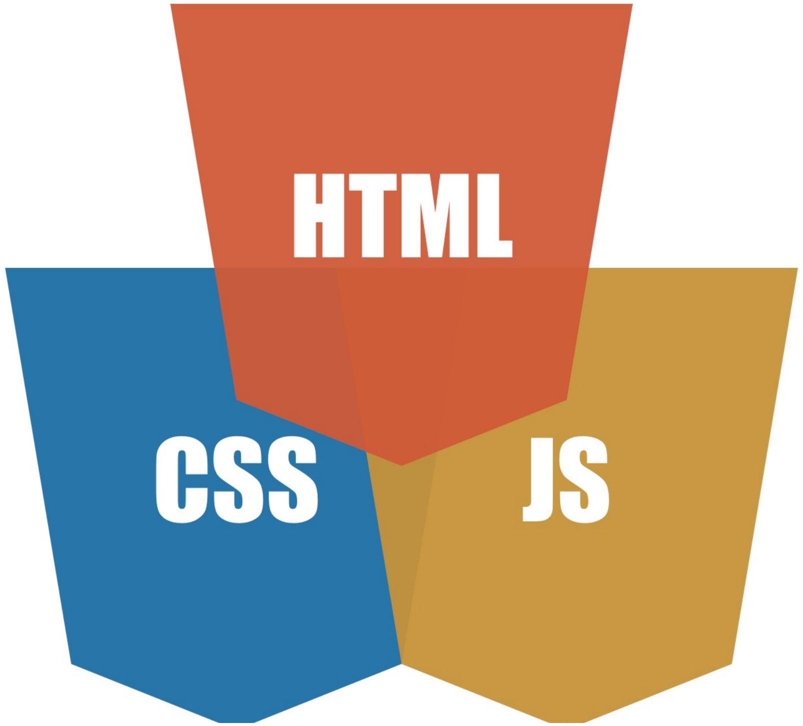
CAN302: Hello word!


default.txt — 已编辑

```
CAN302: Hello word!
```

Html and CSS make the webpage likes nice!!!

Html, CSS and JS



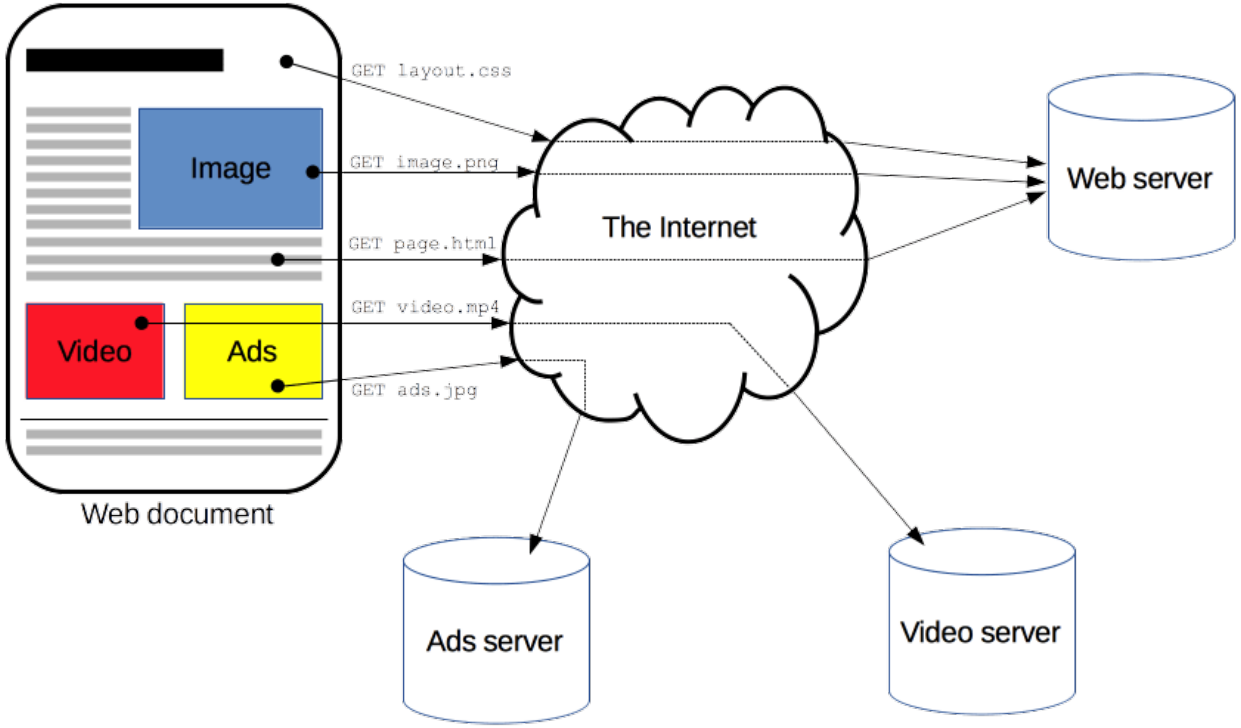
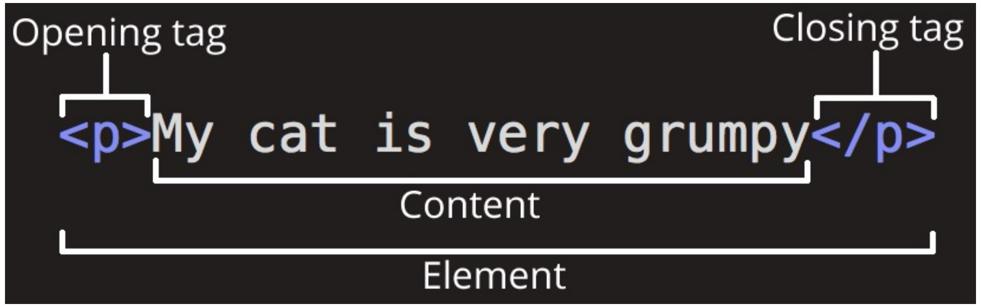


Image
GET layout.css
GET image.png
GET page.html
GET video.mp4
GET ads.jpg
Video
Ads
The Internet
Web server
Web document
Ads server
Video server

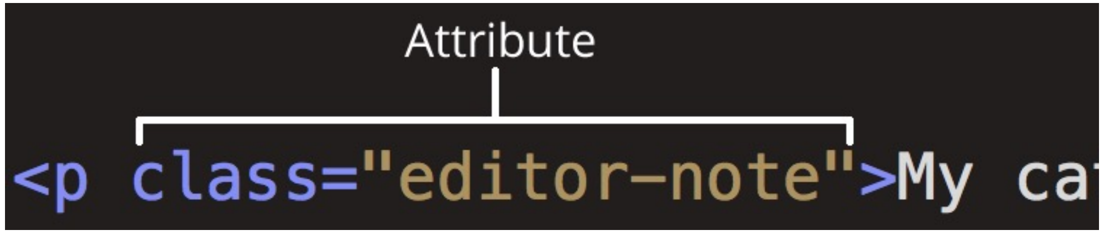
https://html-css-js.com/
https://blog.hubspot.com/marketing/web-design-html-css-javascript
https://developer.51cto.com/art/202004/614896.htm

Html basics

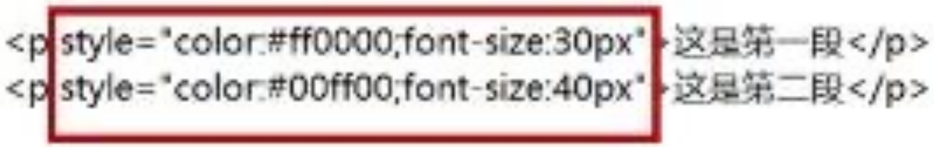
- Markup language
- Elements are the basic components in HTML
- Tags to mark the type of elements. Normally marks are pairs.
- Each element can set attributes. Styles define how the contents looks like. Styles can be defined directly or by a class.
- “id” is special attribute, it must be unique and can be referred as variable.


Opening tag
Closing tag
Content
Element

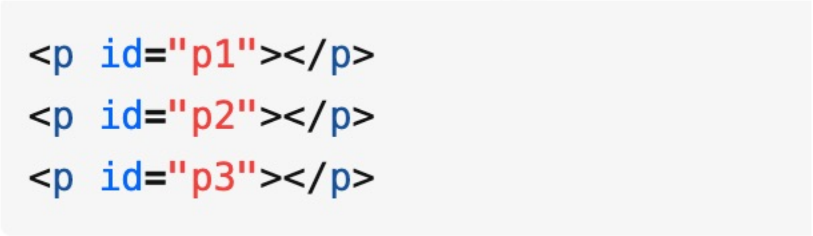
```
<p>My cat is very grumpy</p>
```



```
<p class="editor-note">My ca
```



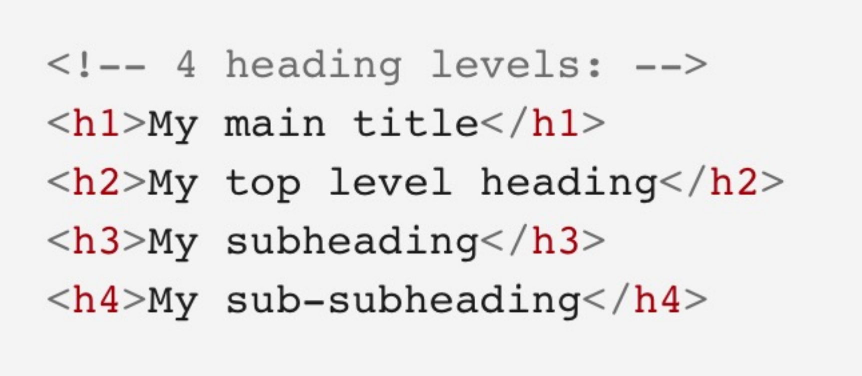
```
<p style="color:#ff0000;font-size:30px">这是第一段</p>
<p style="color:#00ff00;font-size:40px">这是第二段</p>
```



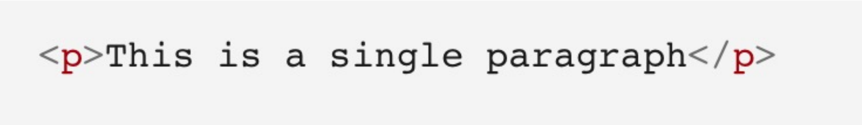
```
<p id="p1"></p>
<p id="p2"></p>
<p id="p3"></p>
```

https://zhuanlan.zhihu.com/p/171538981

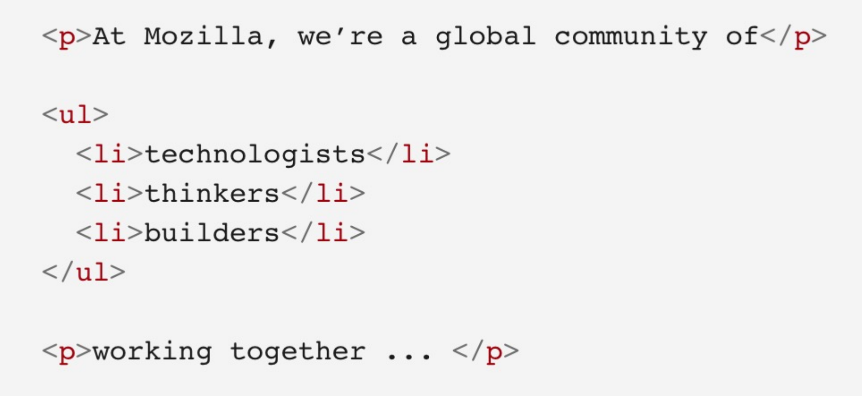
Html basics



```
<!-- 4 heading levels: -->
<h1>My main title</h1>
<h2>My top level heading</h2>
<h3>My subheading</h3>
<h4>My sub-subheading</h4>
```

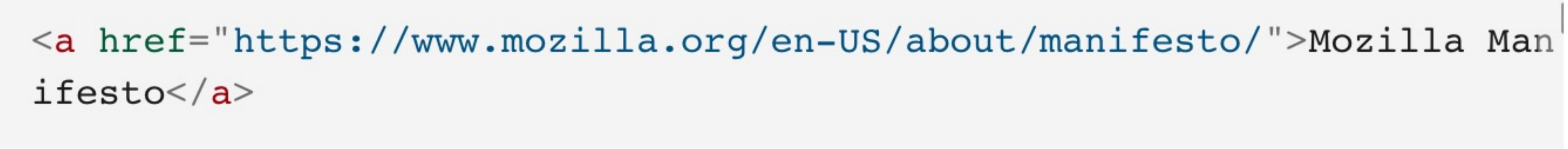


```
<p>This is a single paragraph</p>
```



```
<p>At Mozilla, we're a global community of</p>

<ul>
  <li>technologists</li>
  <li>thinkers</li>
  <li>builders</li>
</ul>

<p>working together ... </p>
```

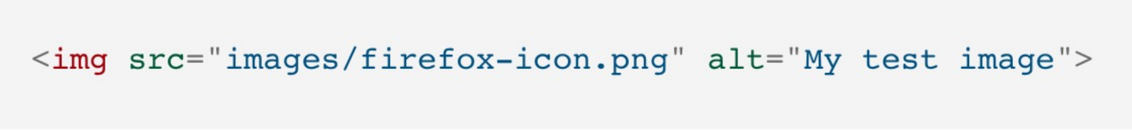
HTML markup includes so many "elements" such as: <head>, <title>, <body>, <header>, <footer>, <article>, <section>, <p>, <div>, <span>, <img>, <aside>, <audio>, <canvas>, <datalist>, <details>, <embed>, <nav>, <output>, <progress>, <video>, <ul>, <ol>, <li> and many others.



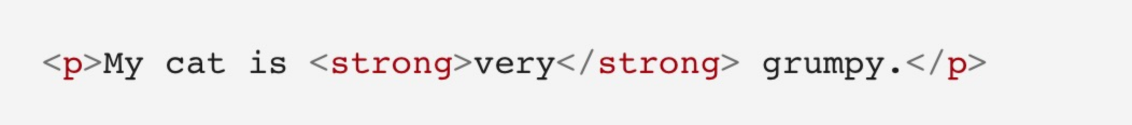
```
<a href="https://www.mozilla.org/en-US/about/manifesto/">Mozilla Man
ifesto</a>
```

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics

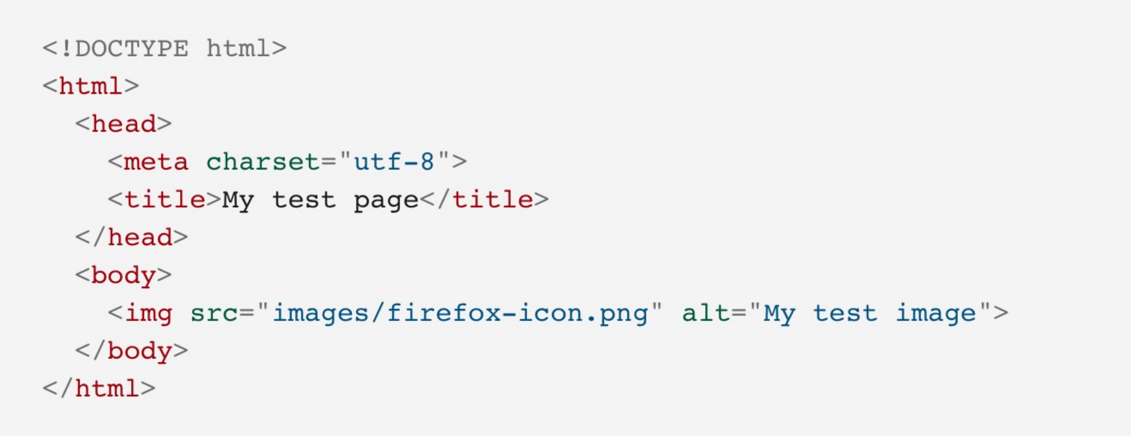
Html - Structuring the Web



```
<img src="images/firefox-icon.png" alt="My test image">
```



```
<p>My cat is <strong>very</strong> grumpy.</p>
```

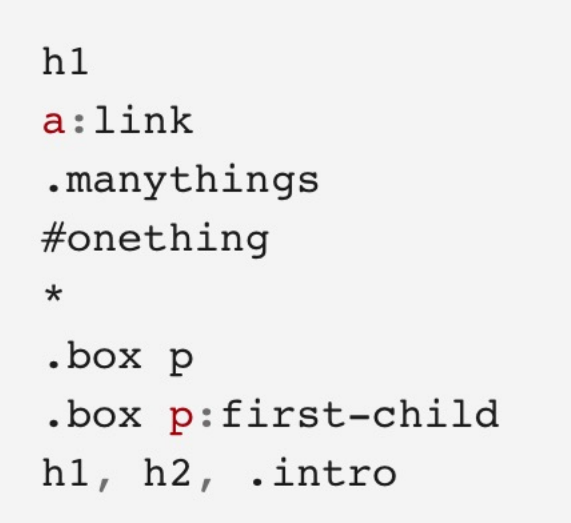


```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>My test page</title>
  </head>
  <body>
    <img src="images/firefox-icon.png" alt="My test image">
  </body>
</html>
```

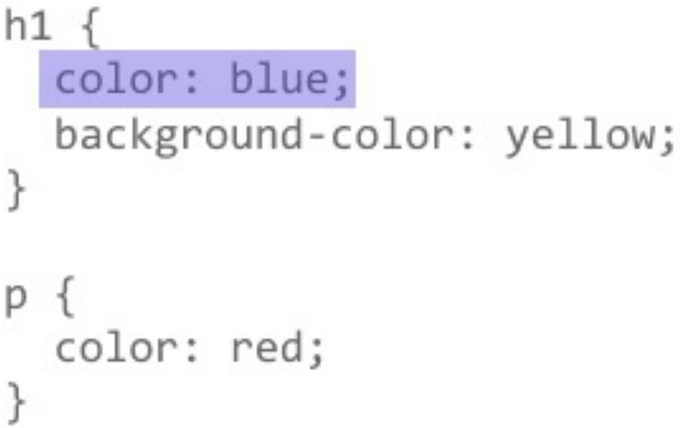
- Some elements have no content and are called empty elements. The sample has two attributes, but there is no closing </img> tag and no inner content.
- You can put elements inside other elements too — this is called **nesting**. The whole html file is a nested by html, head and body and so on.

https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics

CSS basics



```
h1
a:link
.manythings
#onething
*
.box p
.box p:first-child
h1, h2, .intro
```

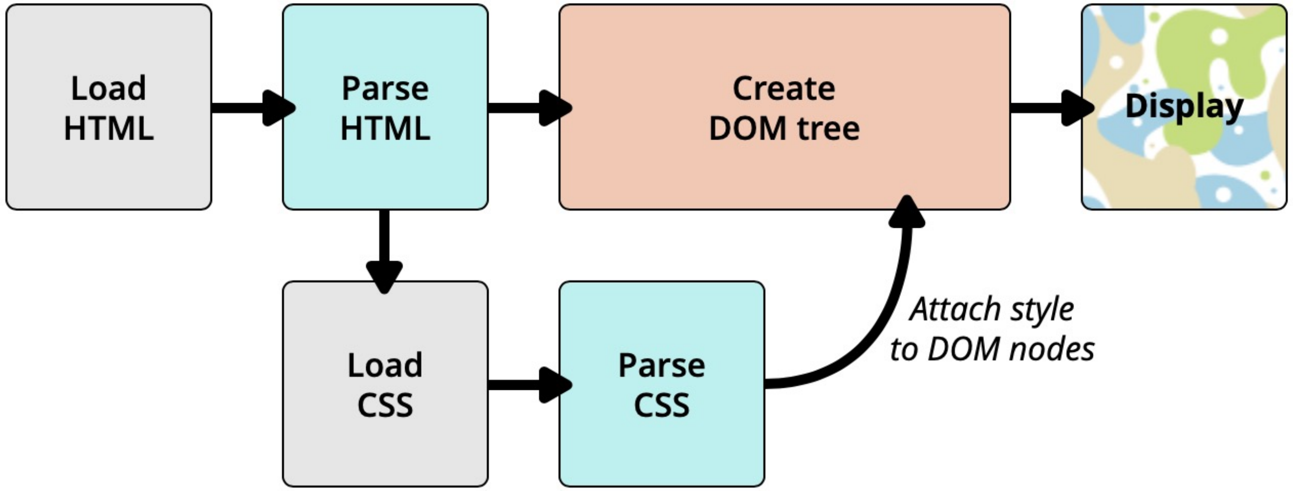


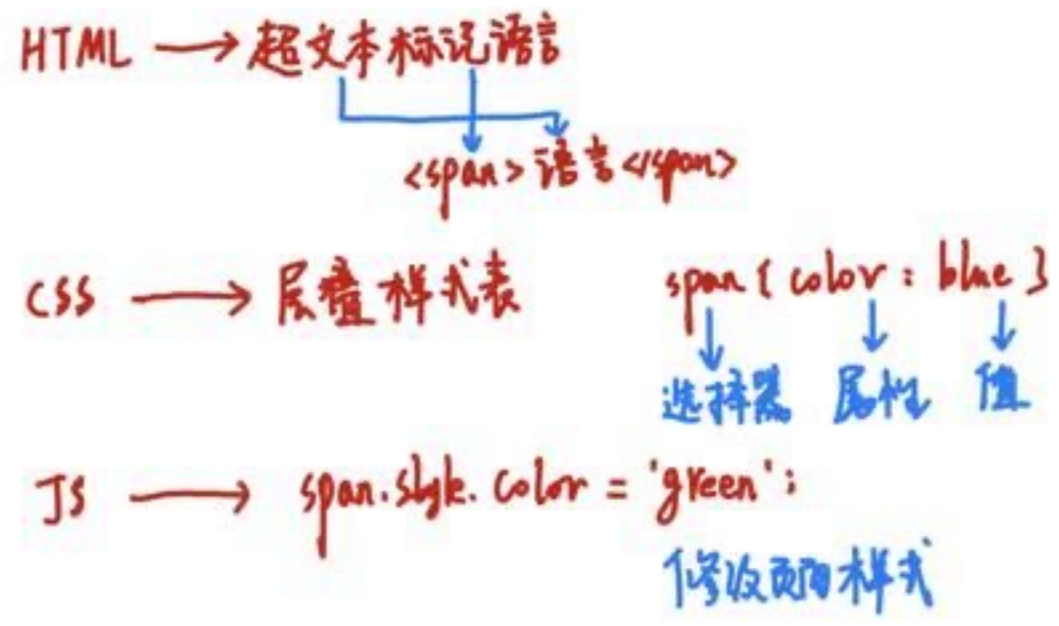
```
h1 {
  color: blue;
  background-color: yellow;
}

p {
  color: red;
}
```

- **Selector**:
  - A selector targets HTML to apply styles to content.
  - It could be HTML tag, id or a Class (start with ".") .
- **Property and value:**
  - **Properties**: These are human-readable identifiers that indicate which stylistic features you want to modify. For example, font-size, width, background-color.
  - **Values**: Each property is assigned a value. This value indicates how to style the property.

https://developer.mozilla.org/en-US/docs/Learn/CSS/First_steps/How_CSS_is_structured

CSS - Styling the Web


Load
HTML
Parse
HTML
Create
DOM tree
Display
Load
CSS
Parse
CSS
Attach style
to DOM nodes



HTML → 超文本标记语言

 语言

CSS → 层叠样式表

span { color : blue }

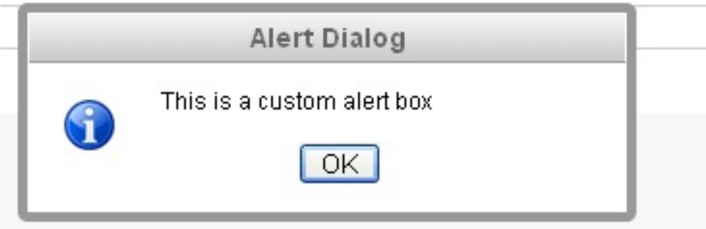
选择器 属性 值

JS → span.style.color = 'green';

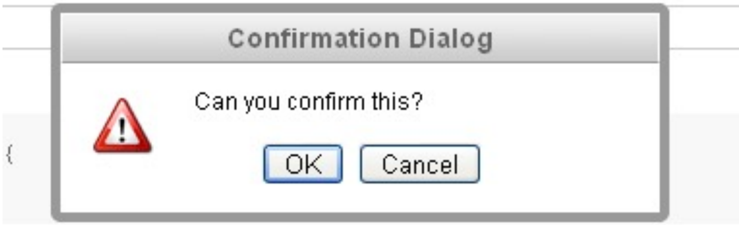
修改后的样式

https://developer.mozilla.org/en-US/docs/Learn/CSS/First_steps/How_CSS_works

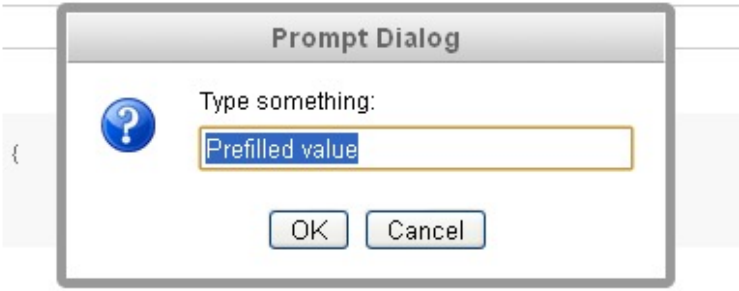
Mocha → LiveScript → JavaScript: JS


Alert Dialog
OK

This is a custom alert box


Confirmation Dialog
OK
Cancel

Can you confirm this?


Prompt Dialog
OK
Cancel

Type something:

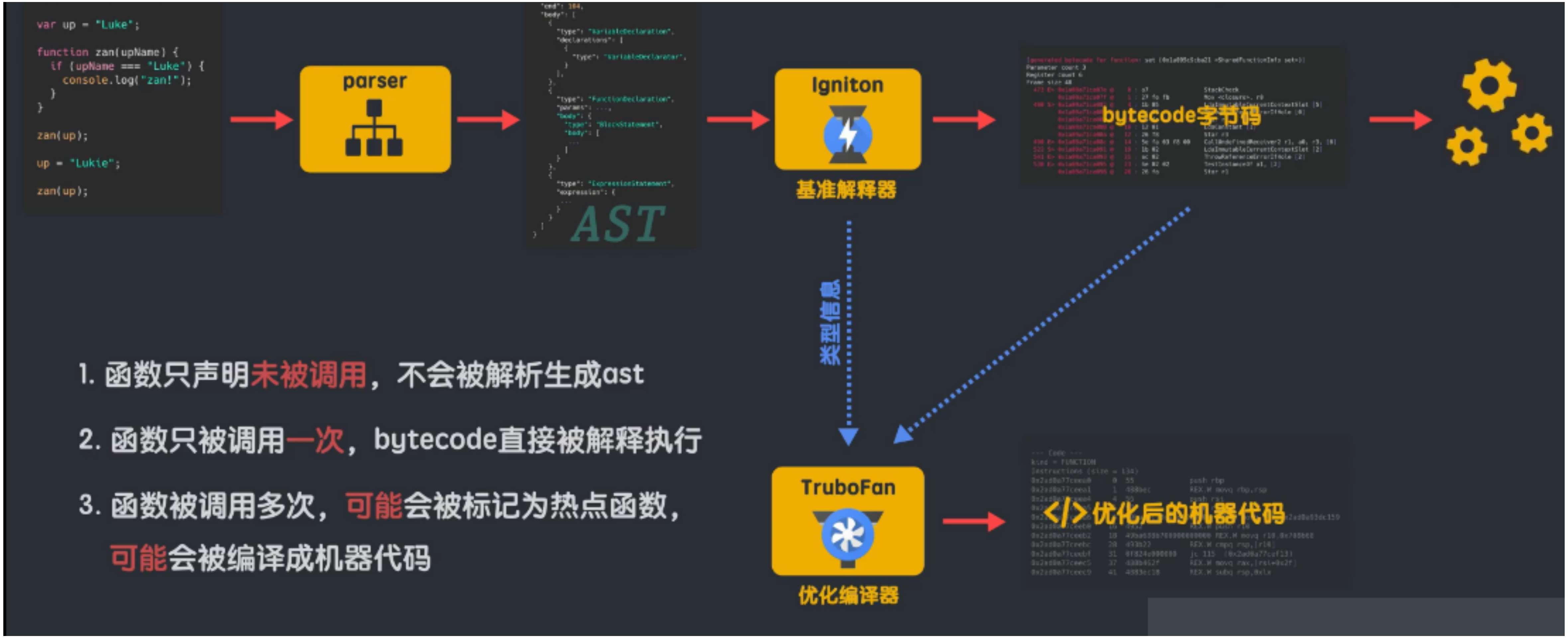
Prefilled value

- **Browser has JS engine which marry the best of an interpreter and a compiler.**
- **JS is a script language and TypeScript is a new choice for front-end.**
- **JS make the web interactive without server included.**

Except Java in JavaScript, JS look like Java but not behave the same.

https://suleimanyunus.dev/how-javascript-works-the-javascript-engine

JS: V8 engine



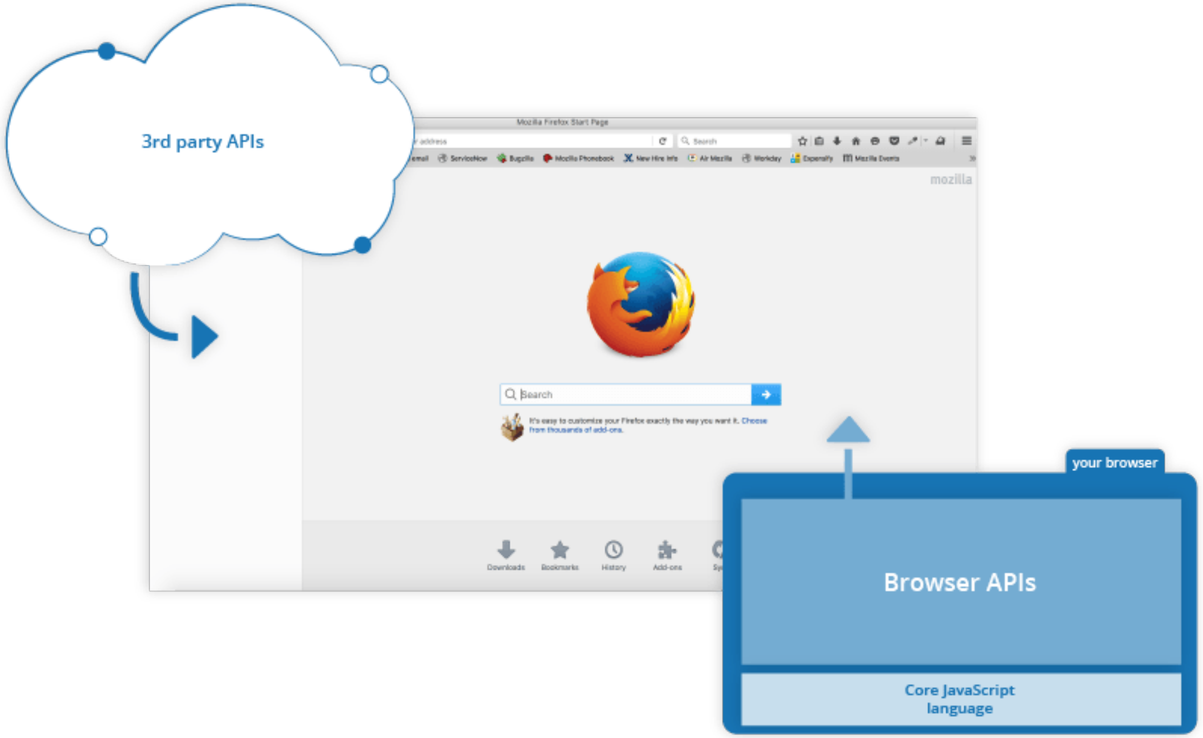
```
var up = "Luke";

function zan(upName) {
  if (upName === "Luke") {
    console.log("zan!");
  }
}

zan(up);

up = "Lukie";

zan(up);
```

parser
AST
Igniton
基准解释器
bytecode字节码
类型信息
TruboFan
优化编译器
</> 优化后的机器代码

1. 函数只声明未被调用，不会被解析生成ast
2. 函数只被调用一次，bytecode直接被解释执行
3. 函数被调用多次，可能会被标记为热点函数，
   可能会被编译成机器代码

https://www.jianshu.com/p/c71c714c27bd

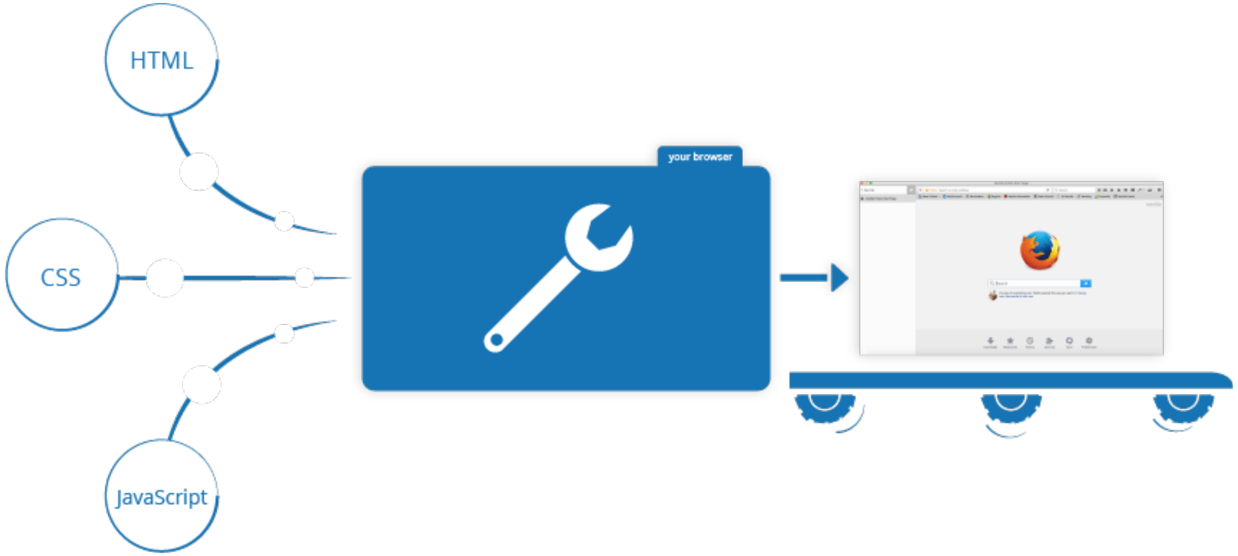
JS APIs - Application Programming Interfaces

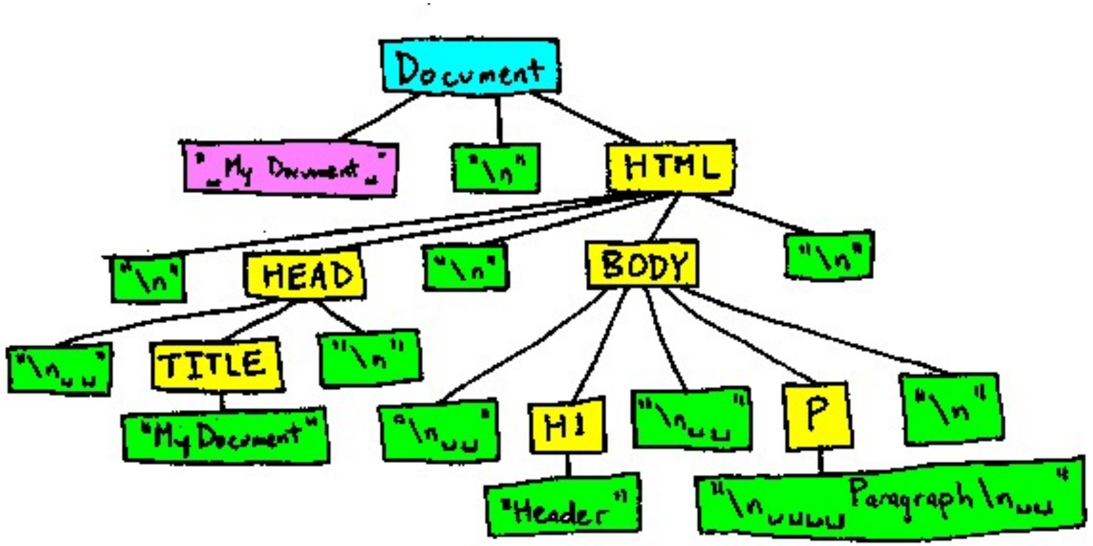

3rd party APIs
your browser
Browser APIs
Core JavaScript language

- **APIs** provide you with extra superpowers to use in your JavaScript code.
- **APIs** are ready-made sets of code building blocks that allow a developer to implement programs that would otherwise be hard or impossible to implement.
- They do the same thing for programming that ready-made furniture kits do for home building — it is much easier to take ready-cut panels and screw them together to make a bookshelf.
- Browser natively support APIs and there are 3rd party APIs.

https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps/What_is_JavaScript

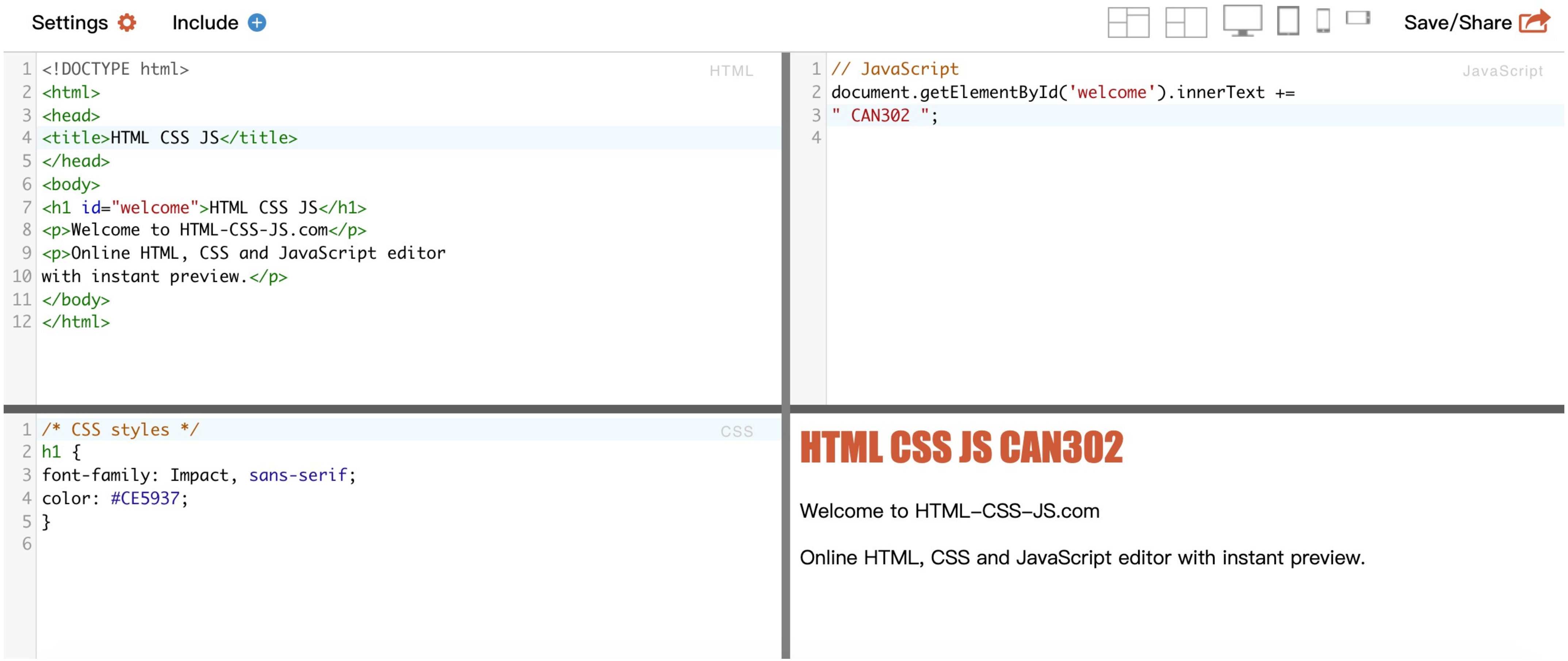
Html CSS and JS together


HTML
CSS
JavaScript
your browser


Document
"␣My Document␣"
"\n"
HTML
"\n"
HEAD
"\n"
BODY
"\n"
"\n␣␣"
TITLE
"\n"
"My Document"
"\n␣␣"
H1
"\n␣␣"
P
"\n"
"Header"
"\n␣␣␣␣Paragraph\n␣␣"

https://developer.mozilla.org/en-US/docs/Learn/JavaScript/First_steps/What_is_JavaScript
https://hurna.io/fr/academy/glossaries/web_http.html

A sample of Html, CSS and JS


Settings
Include
Save/Share
HTML
JavaScript
CSS

```html
<!DOCTYPE html>
<html>
<head>
<title>HTML CSS JS</title>
</head>
<body>
<h1 id="welcome">HTML CSS JS</h1>
<p>Welcome to HTML-CSS-JS.com</p>
<p>Online HTML, CSS and JavaScript editor
with instant preview.</p>
</body>
</html>
```

```javascript
// JavaScript
document.getElementById('welcome').innerText +=
" CAN302 ";
```

```css
/* CSS styles */
h1 {
font-family: Impact, sans-serif;
color: #CE5937;
}
```

HTML CSS JS CAN302

Welcome to HTML-CSS-JS.com

Online HTML, CSS and JavaScript editor with instant preview.

https://html-css-js.com/

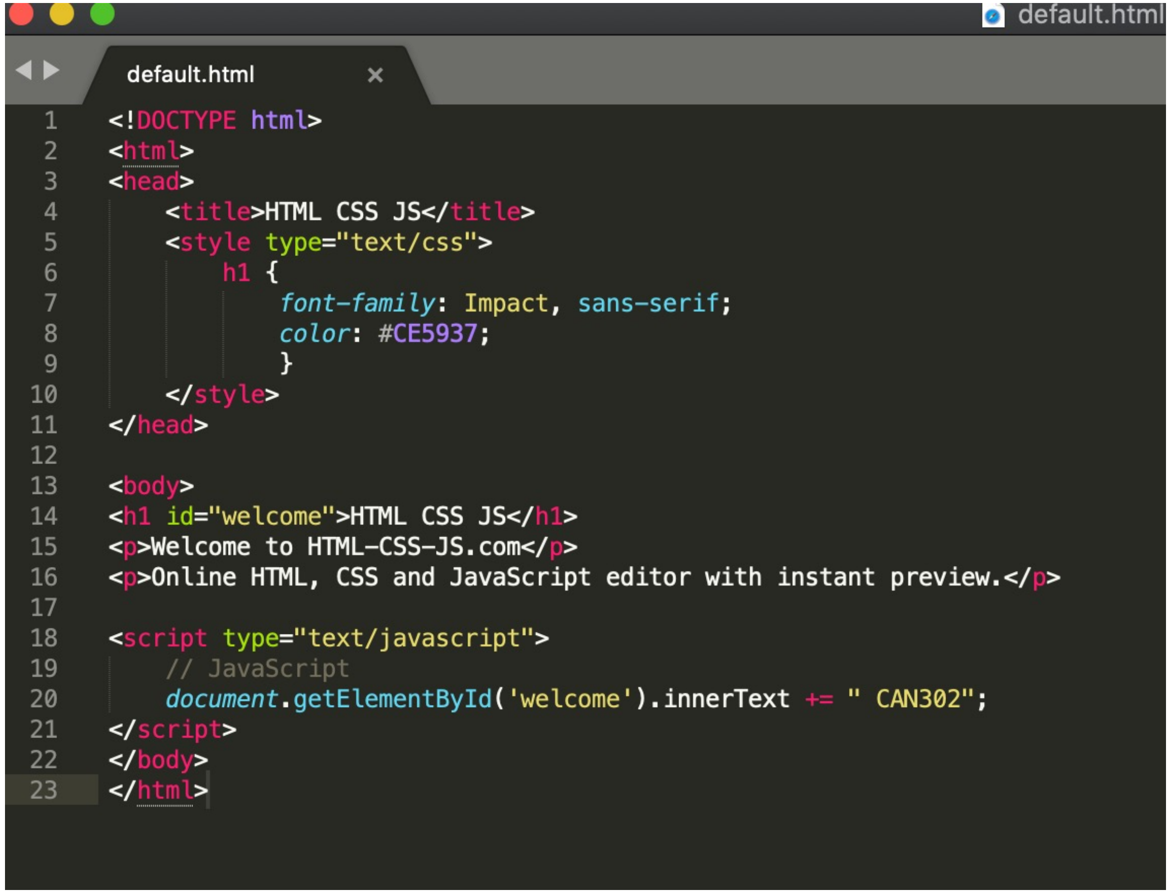
USE IDE to edit the codes

Brackets

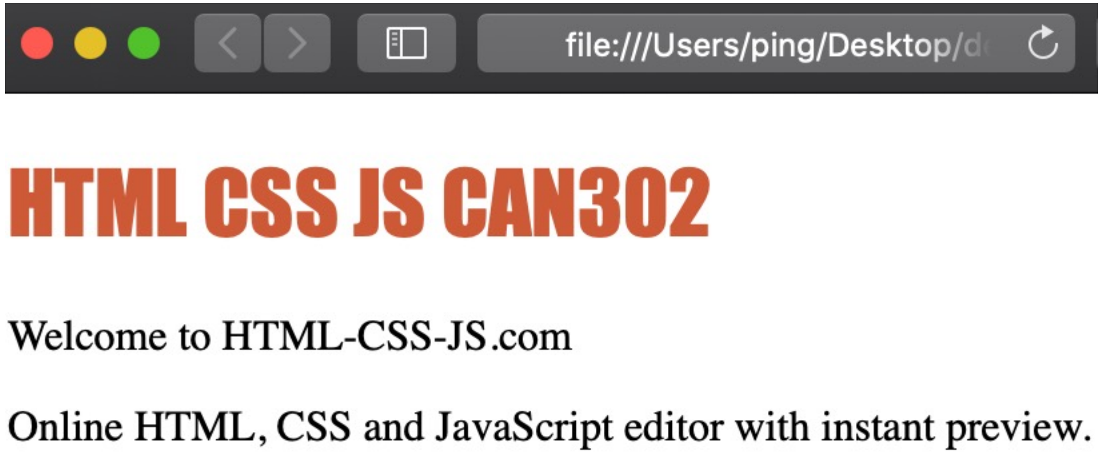
- We can write any code in notepad but the efficiency would be very low.
- IDE (Integrated development environment) will help us to have a better development experience.
- There are many choices, such as VS code, Sublime Text, WebStorm ……
- **Brackets 2.0.1** is the recommended one for CAN302 but you can use the one your are familiar with.

- You can download all files in LMO!!!

All in one


default.html
default.html

```
<!DOCTYPE html>
<html>
<head>
    <title>HTML CSS JS</title>
    <style type="text/css">
        h1 {
            font-family: Impact, sans-serif;
            color: #CE5937;
            }
    </style>
</head>

<body>
<h1 id="welcome">HTML CSS JS</h1>
<p>Welcome to HTML-CSS-JS.com</p>
<p>Online HTML, CSS and JavaScript editor with instant preview.</p>

<script type="text/javascript">
    // JavaScript
    document.getElementById('welcome').innerText += " CAN302";
</script>
</body>
</html>
```


file:///Users/ping/Desktop/d

HTML CSS JS CAN302

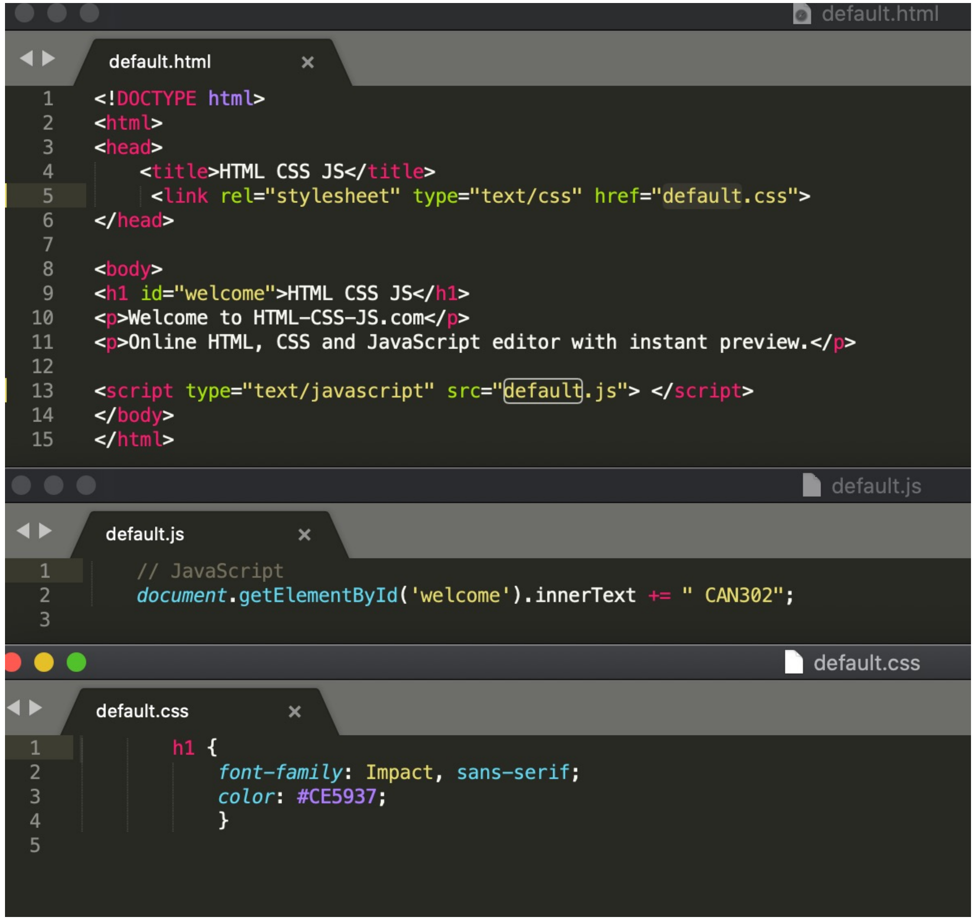
Welcome to HTML-CSS-JS.com

Online HTML, CSS and JavaScript editor with instant preview.

Browser can directly display the local html files

https://www.cnblogs.com/hh-kk/p/7775261.html

Save html CSS and JS in different files


default.html
default.html
default.js
default.js
default.css
default.css

```html
<!DOCTYPE html>
<html>
<head>
    <title>HTML CSS JS</title>
     <link rel="stylesheet" type="text/css" href="default.css">
</head>

<body>
<h1 id="welcome">HTML CSS JS</h1>
<p>Welcome to HTML-CSS-JS.com</p>
<p>Online HTML, CSS and JavaScript editor with instant preview.</p>

<script type="text/javascript" src="default.js"> </script>
</body>
</html>
```

```javascript
    // JavaScript
    document.getElementById('welcome').innerText += " CAN302";

```

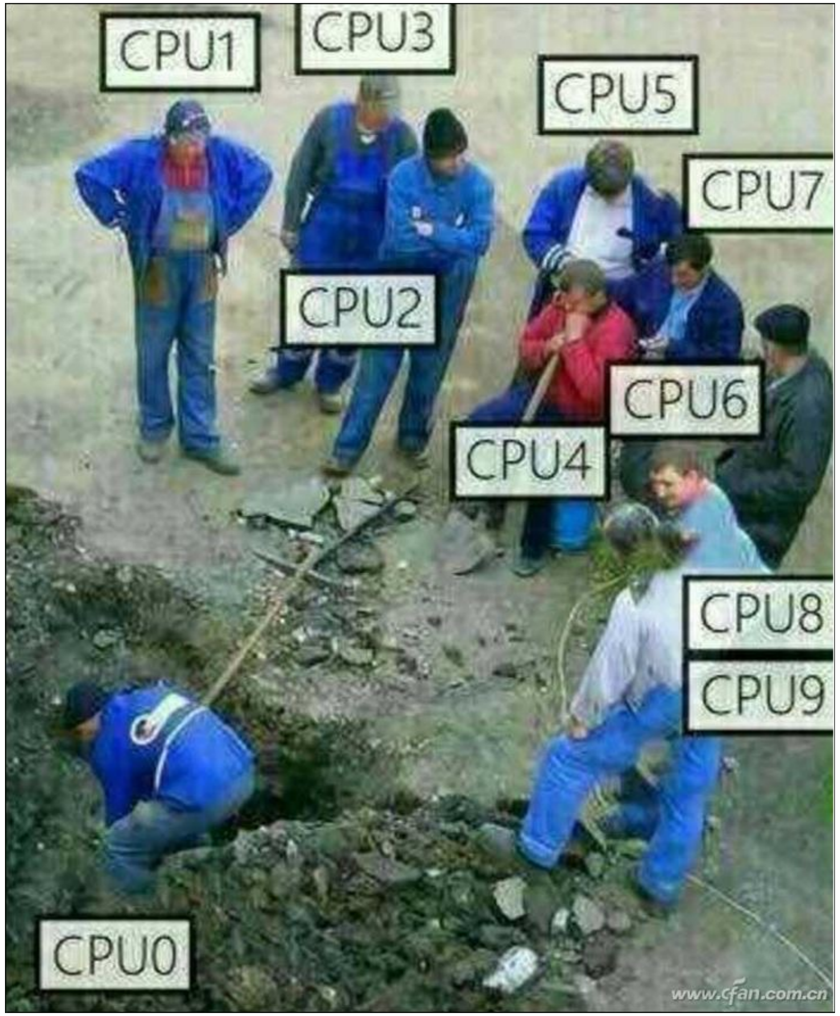
```css
        h1 {
            font-family: Impact, sans-serif;
            color: #CE5937;
            }

```

- A website always has much more than 1 page.
- CSS and JS can be shared by different web pages.
- We can put the CSS and JS in separate files.
- We can use “tags” that bring in CSS and JS files.

- Same as all programing, pls keep the GOOD CODE MANNER.

https://www.bbsmax.com/A/QW5YZ7DGdm/

WAIT: what the SERVER is doing?


CPU1
CPU3
CPU5
CPU7
CPU2
CPU6
CPU4
CPU8
CPU9
CPU0
www.cfan.com.cn

http://www.cfan.com.cn/2021/0825/135538.shtml

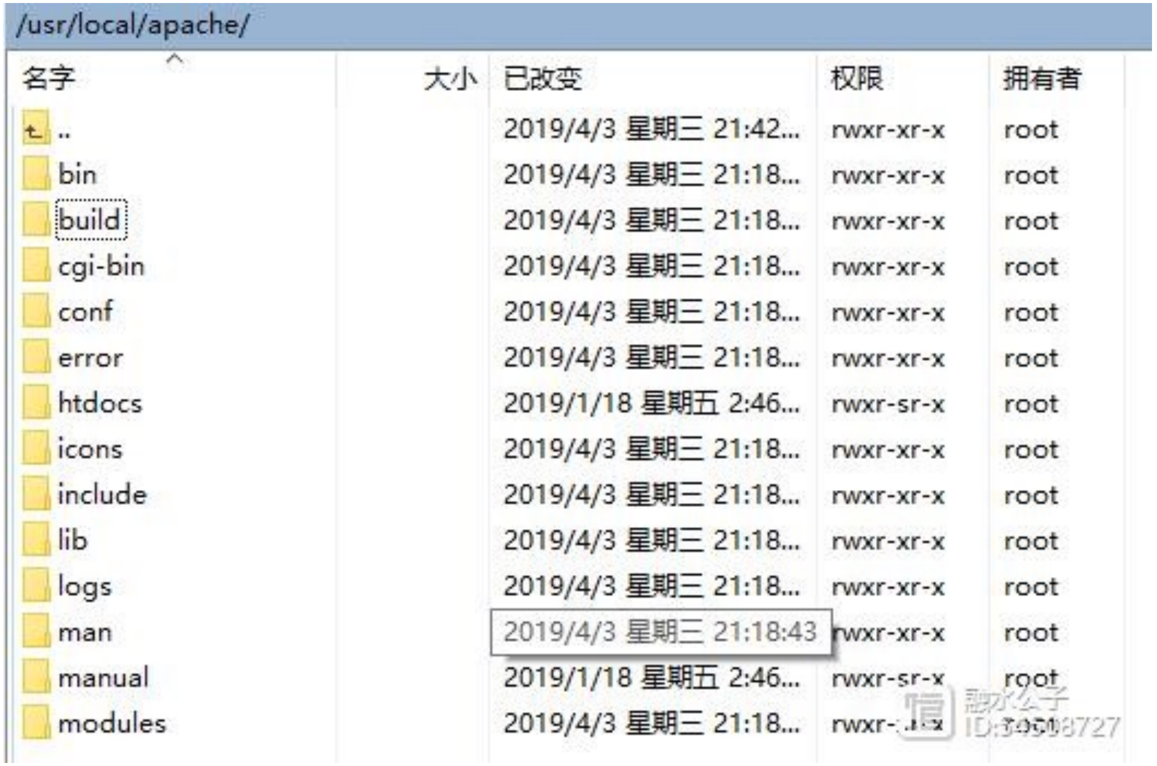
Make our server ready!

XAMPP

- PHP has a relatively low barrier to study.
- XAMPP is an easy to install **Apache server** distribution containing MariaDB, PHP, and Perl. We can make our web and database server ready by simply click “next”!

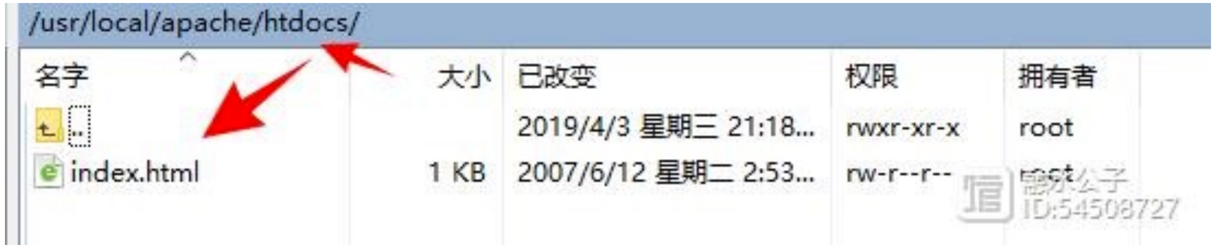
- You can download all files in LMO!!!

Server: “return the html files via http”



/usr/local/apache/

名字	大小	已改变	权限	拥有者
..		2019/4/3 星期三 21:42...	rwxr-xr-x	root
bin		2019/4/3 星期三 21:18...	rwxr-xr-x	root
build		2019/4/3 星期三 21:18...	rwxr-xr-x	root
cgi-bin		2019/4/3 星期三 21:18...	rwxr-xr-x	root
conf		2019/4/3 星期三 21:18...	rwxr-xr-x	root
error		2019/4/3 星期三 21:18...	rwxr-xr-x	root
htdocs		2019/1/18 星期五 2:46...	rwxr-sr-x	root
icons		2019/4/3 星期三 21:18...	rwxr-xr-x	root
include		2019/4/3 星期三 21:18...	rwxr-xr-x	root
lib		2019/4/3 星期三 21:18...	rwxr-xr-x	root
logs		2019/4/3 星期三 21:18...	rwxr-xr-x	root
man		2019/4/3 星期三 21:18:43	rwxr-xr-x	root
manual		2019/1/18 星期五 2:46...	rwxr-sr-x	root
modules		2019/4/3 星期三 21:18...	rwxr-[illegible]	[illegible]



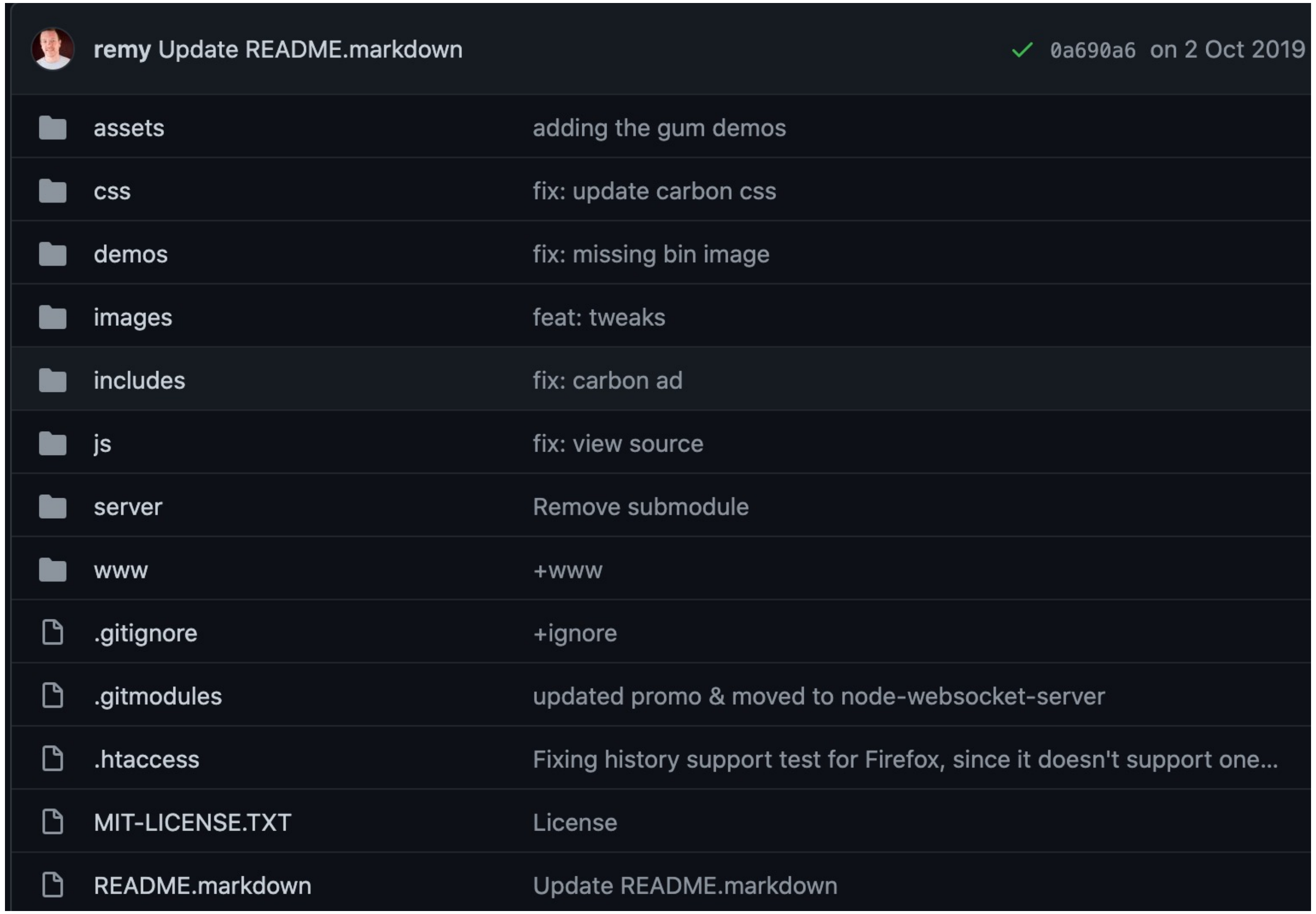
/usr/local/apache/htdocs/

名字	大小	已改变	权限	拥有者
..		2019/4/3 星期三 21:18...	rwxr-xr-x	root
index.html	1 KB	2007/6/12 星期二 2:53...	rw-r--r--	root

- Like normal program, “Web Server” software (here is Apache) was installed on the hard disk of “server”.
- In this case, ”htdocs” is the default folder to store “html” files.

http://www.360doc.com/content/19/0609/23/54508727_841426861.shtml

Organize the files of our website



remy Update README.markdown ✓ 0a690a6 on 2 Oct 2019

assets	adding the gum demos
css	fix: update carbon css
demos	fix: missing bin image
images	feat: tweaks
includes	fix: carbon ad
js	fix: view source
server	Remove submodule
www	+www
.gitignore	+ignore
.gitmodules	updated promo & moved to node-websocket-server
.htaccess	Fixing history support test for Firefox, since it doesn't support one...
MIT-LICENSE.TXT	License
README.markdown	Update README.markdown

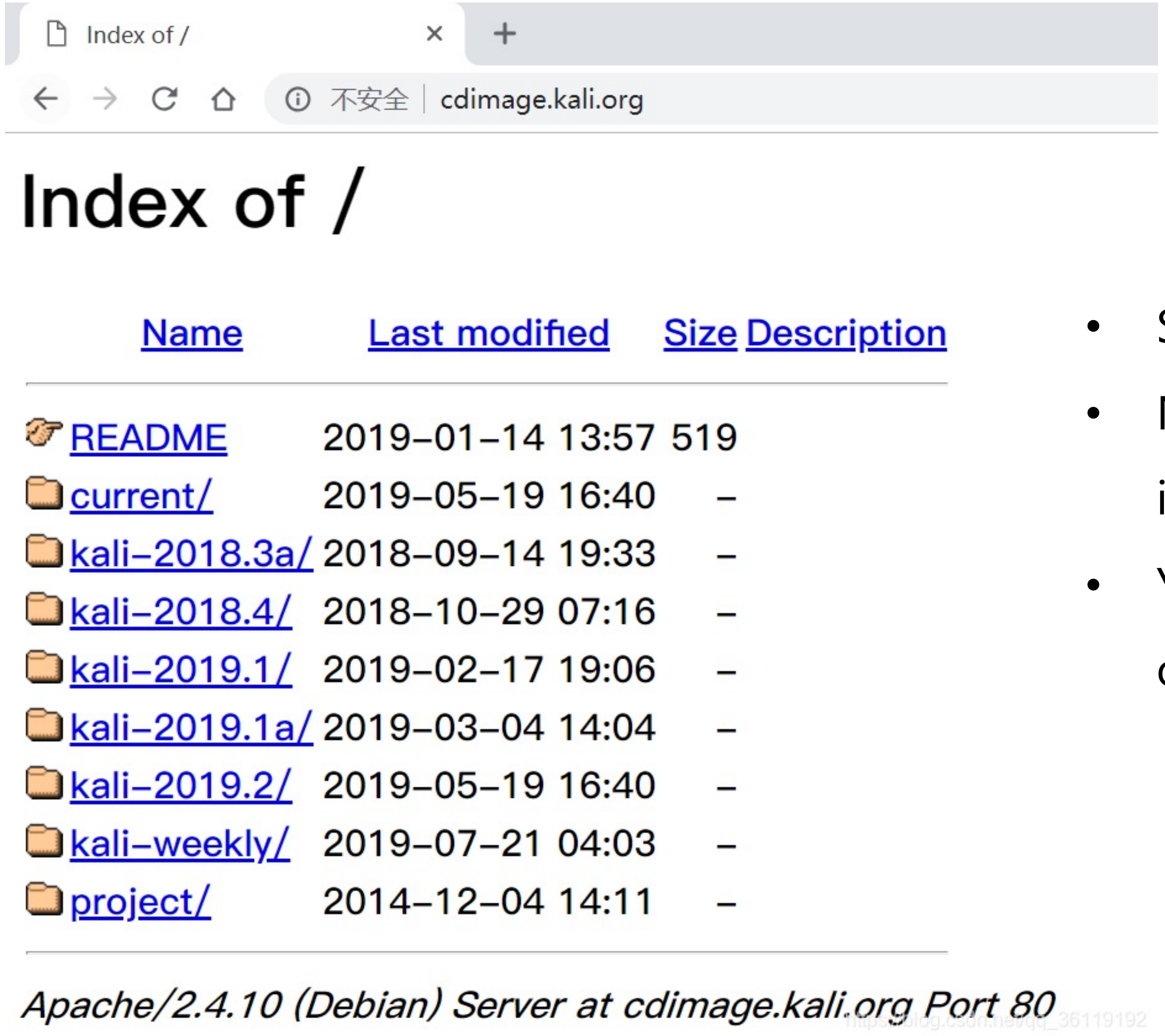
- There are many ways to organize the files of a website.
- One usual way is putting same type files in one folder, like css, js, image and www(html).

https://github.com/remy/html5demos

How to publish the web?

- Copy all files to the server!

List of all folders



Index of /

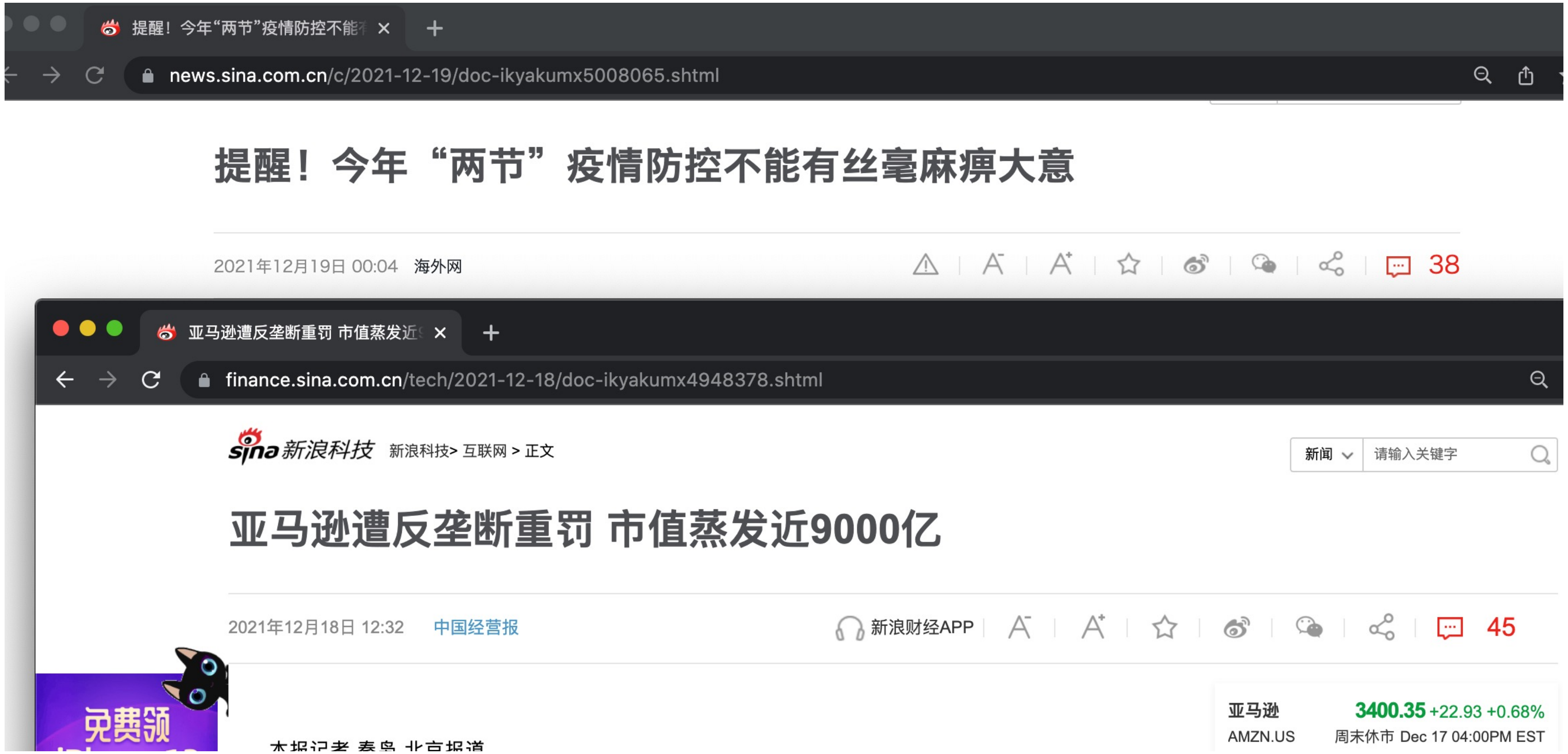
Name	Last modified	Size	Description
README	2019-01-14 13:57	519	
current/	2019-05-19 16:40	-	
kali-2018.3a/	2018-09-14 19:33	-	
kali-2018.4/	2018-10-29 07:16	-	
kali-2019.1/	2019-02-17 19:06	-	
kali-2019.1a/	2019-03-04 14:04	-	
kali-2019.2/	2019-05-19 16:40	-	
kali-weekly/	2019-07-21 04:03	-	
project/	2014-12-04 14:11	-	

Apache/2.4.10 (Debian) Server at cdimage.kali.org Port 80

https://blog.csdn.net/qq_36119192

- Severs like Apache, it can allow to show all folders.
- Normally we want to avoid it since many “hidden” info will be leakage.
- You can see in this example, all contents are organized in different folders.

Check the URL of two news


提醒！今年“两节”疫情防控不能

news.sina.com.cn/c/2021-12-19/doc-ikyakumx5008065.shtml

提醒！今年“两节”疫情防控不能有丝毫麻痹大意

2021年12月19日 00:04 海外网 38

亚马逊遭反垄断重罚 市值蒸发近

finance.sina.com.cn/tech/2021-12-18/doc-ikyakumx4948378.shtml

新浪科技> 互联网 > 正文

亚马逊遭反垄断重罚 市值蒸发近9000亿

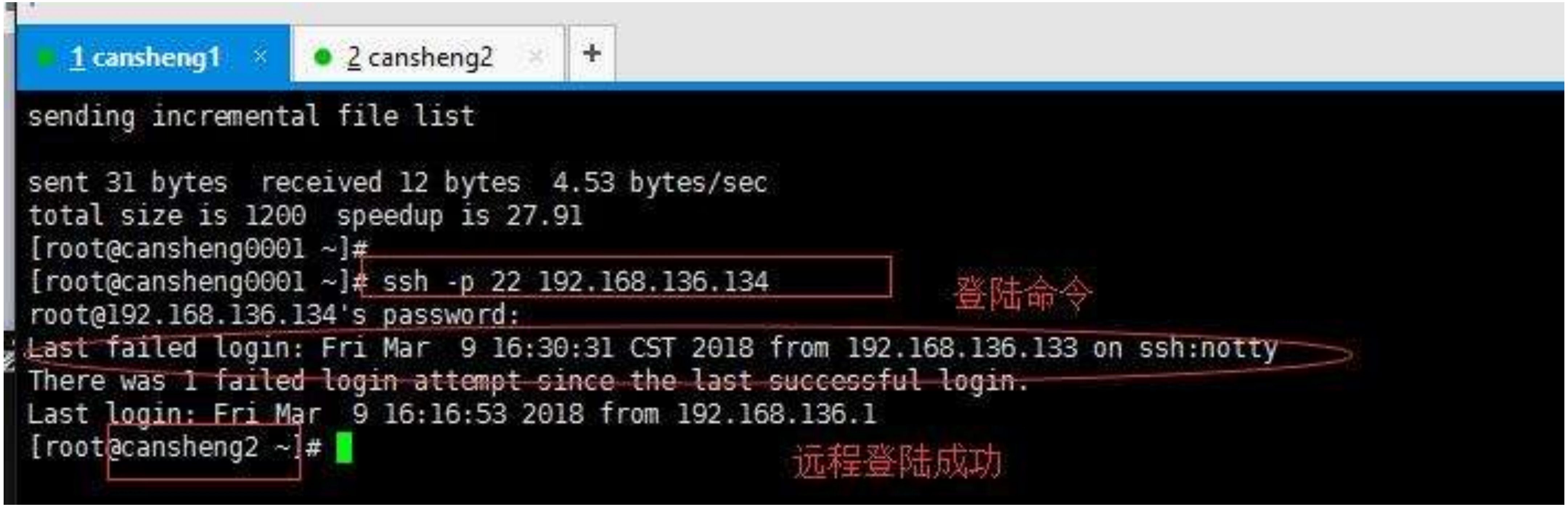
2021年12月18日 12:32 中国经营报 45

本报记者 秦岛 北京报道

亚马逊 AMZN.US 3400.35 +22.93 +0.68% 周末休市 Dec 17 04:00PM EST

- See the URL address, it may corresponding to the folder on the server.
- For news sites, the day time is always used.
- The web content need to be updated remotely can automatically.

Use SSH to access the server remotely



```
sending incremental file list

sent 31 bytes  received 12 bytes  4.53 bytes/sec
total size is 1200  speedup is 27.91
[root@cansheng0001 ~]#
[root@cansheng0001 ~]# ssh -p 22 192.168.136.134
root@192.168.136.134's password:
Last failed login: Fri Mar  9 16:30:31 CST 2018 from 192.168.136.133 on ssh:notty
There was 1 failed login attempt since the last successful login.
Last login: Fri Mar  9 16:16:53 2018 from 192.168.136.1
[root@cansheng2 ~]#
```

登陆命令

远程登陆成功

- SSH is a powerful tool for most maintenance engineers.
- Remote control is always the high risk point of server.

Challenge: frequently update the products

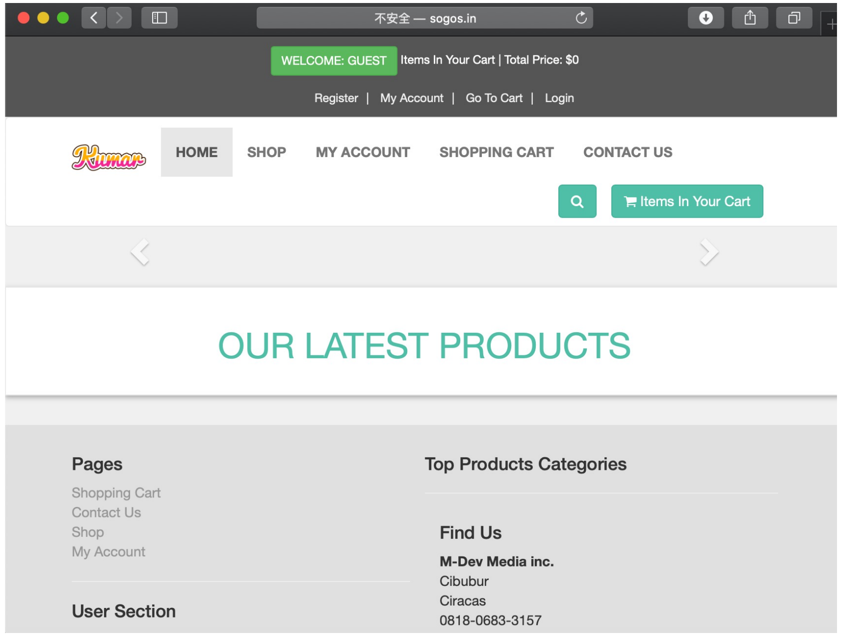
- It is not possible to update/publish webpages so frequent.
- Think about database technology.

One more thing: Bootstrap

- Quickly design and customize responsive mobile-first sites with Bootstrap, the world’s most popular front-end **open source toolkit**, featuring Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful JavaScript plugins.
- Many pre-defined classes in Bootstrap includes CSS, **fonts** ad JS (earlier version use jQuery).
- With Bootstrap, develop the front-end project can be much easier.

https://getbootstrap.com/

M-Dev Store


不安全 — sogos.in
WELCOME: GUEST
Items In Your Cart | Total Price: $0
Register | My Account | Go To Cart | Login
Kumar
HOME
SHOP
MY ACCOUNT
SHOPPING CART
CONTACT US
Items In Your Cart

OUR LATEST PRODUCTS

Pages

Shopping Cart
Contact Us
Shop
My Account

User Section

Top Products Categories

Find Us

M-Dev Media inc.
Cibubur
Ciracas
0818-0683-3157

M-Dev Store.zip

- The most important thing is not how to program but how you architect the whole thing.
- For the beginner, it is better to start with the “easy” project but cover all aspects.
- M-Dev Store is an excellent tutorial to follow since it is somehow ”easy” but covered the knowledges of webpage, server program and database.
- Follow it step by step, you can build an online shop by yourself.
- The starting files are in the zip pacakage.

Tutorial videos are here:
https://www.bilibili.com/video/BV1nK4y1U7Eg