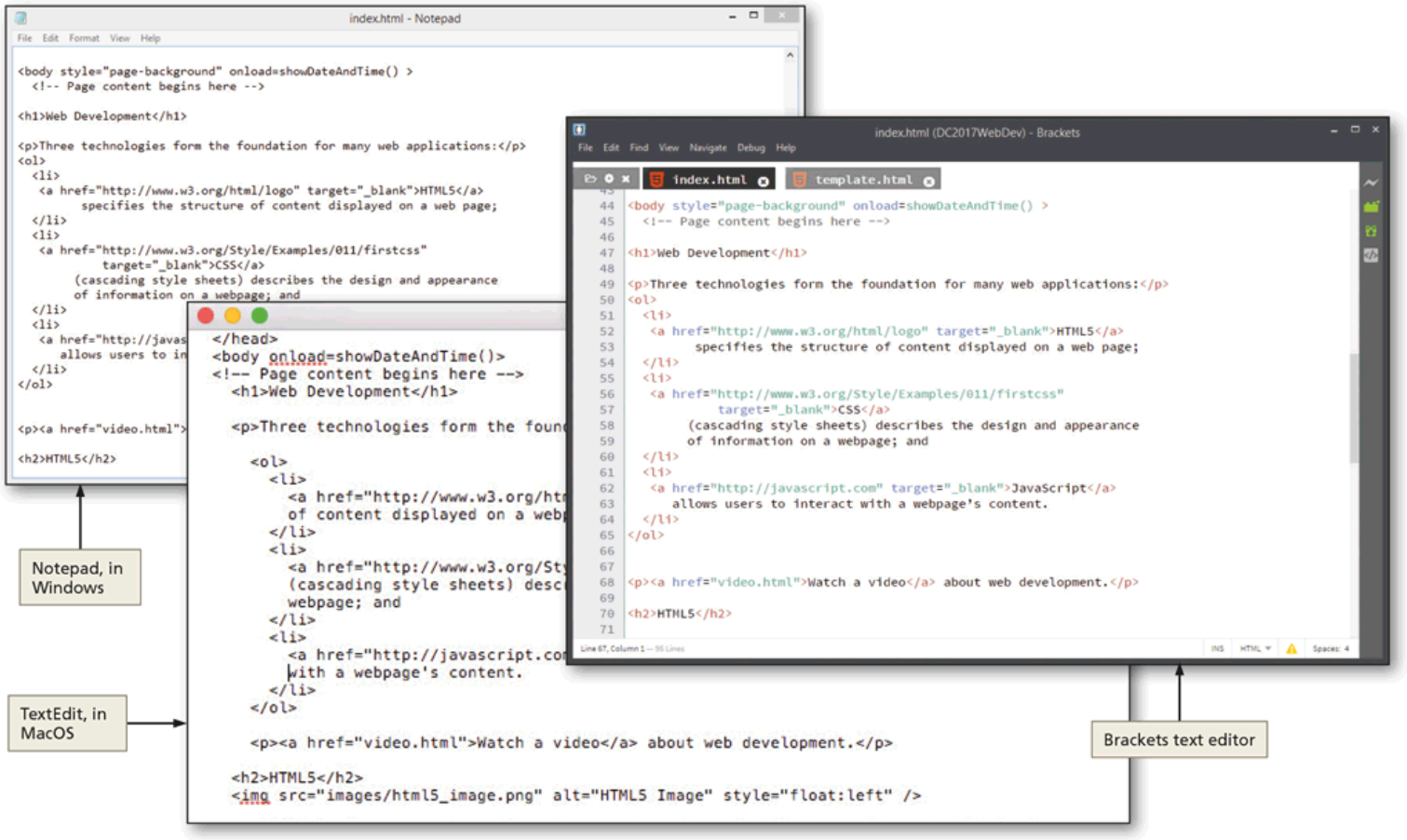
# Introduction to Web Technology


Asst.Prof.Dr. Suvit Poomrittigul

# 1. Tools for Creating a Website

- Text editors
  - Similar to a word processing program, but lacks most text formatting features
  - Operating systems typically include a text editor
  - A code editor is a type of text editor that contains additional features to help web developers write code

# Tools for Creating a Website



# Tools for Creating a Website

## Web development tools

จากแหล่งที่มาในเว็บ

- Chrome DevTools
- Bootstrap
  Programming language: CS…
- Npm
  Programming language: Jav…
- Laravel
  Programming language: PHP
- Django
  Programming language: Pyt…
- Ruby on Rails
  Programming language: Rub…
- Flutter
  Programming language: Dart…
  → cross platform mobile & PC
  used Dart
- Sketch
- Visual Studio Code
  Programming language: C, J…
- GitHub
- JavaScript library
- Postman
- Foundation
  Programming language: CS…
- Tailwind CSS
  Programming language: Typ…
- Grunt
  Programming language: Jav…
- TypeScript
- Sublime Text
  Programming language: Pyt…
- Angular
  Programming language: Typ…
- jQuery
  Programming language: Jav…
- Sass
- React
  Programming language: Jav…
- Atom
- Notepad++
  Programming language: C++
- Vue.js
  Programming language: Typ…

# Tools for Creating a Website

- เว็บสำเร็จรูป, Blog

- Content Management Systems (CMS)
  - Enables and manages the publishing, modification, organization, and access of various forms of documents and other files on a network or the web
  - Web developer creates a theme, and one or more website content administrators enters the content

# Example of CMS

## เว็บสำเร็จรูป

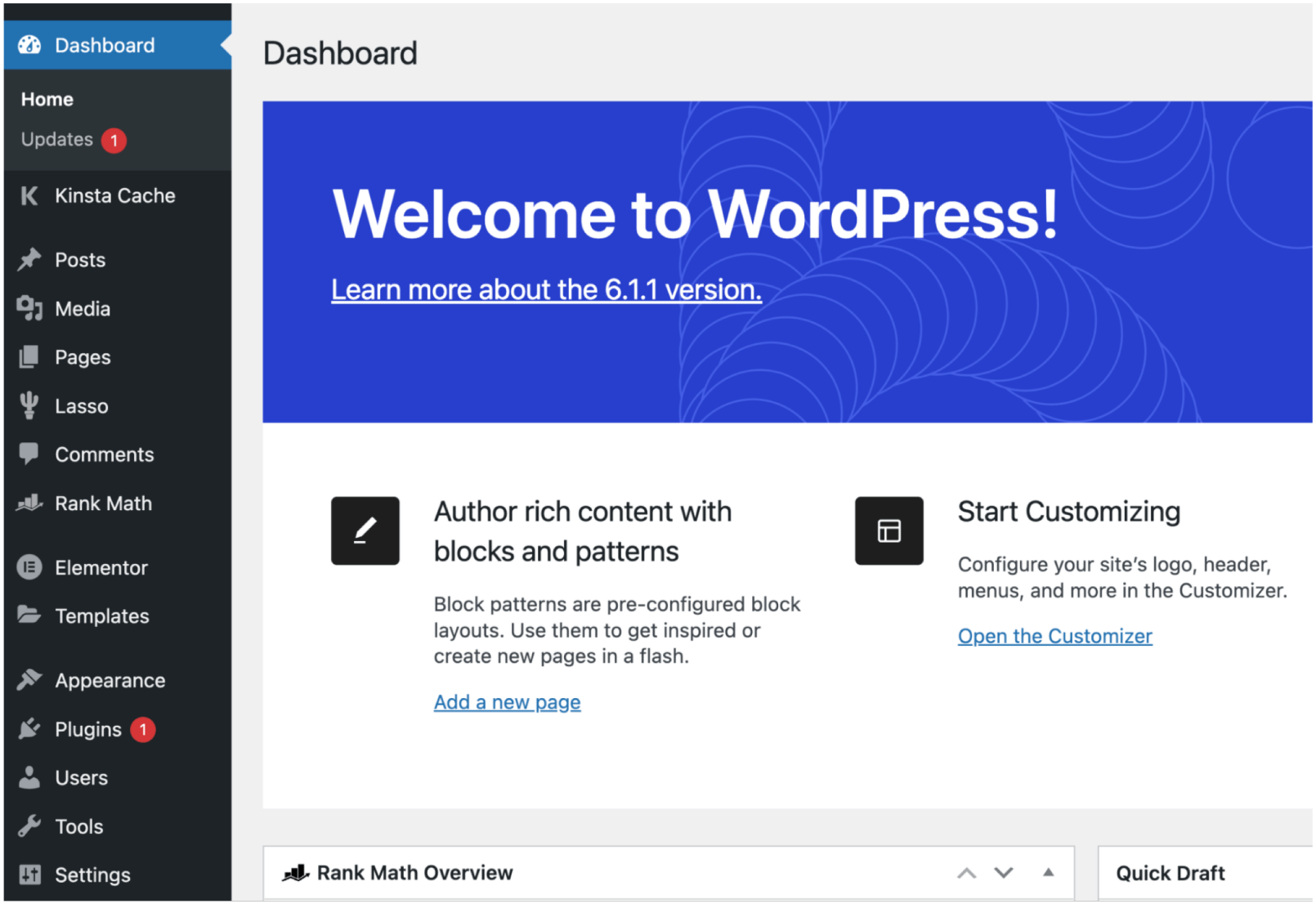
Generate Admin Access ให้

Popular

ex. อัพรูปไป
↳ WordPress
ทำ Gallery ที่มีรูปให้

| | | |
|---|---|---|
| WordPress | Drupal | Joomla |
| Magento | Wix | Squarespace |
| Shopify | TYPO3 | concrete CMS |
| Sitecore | Webflow | Kentico |

# Tools for Creating a Website



# 2. Website Technologies

→ fundamental for static web ไม่ใช่ว่าเป็นต้องมี compiler พิเศษ

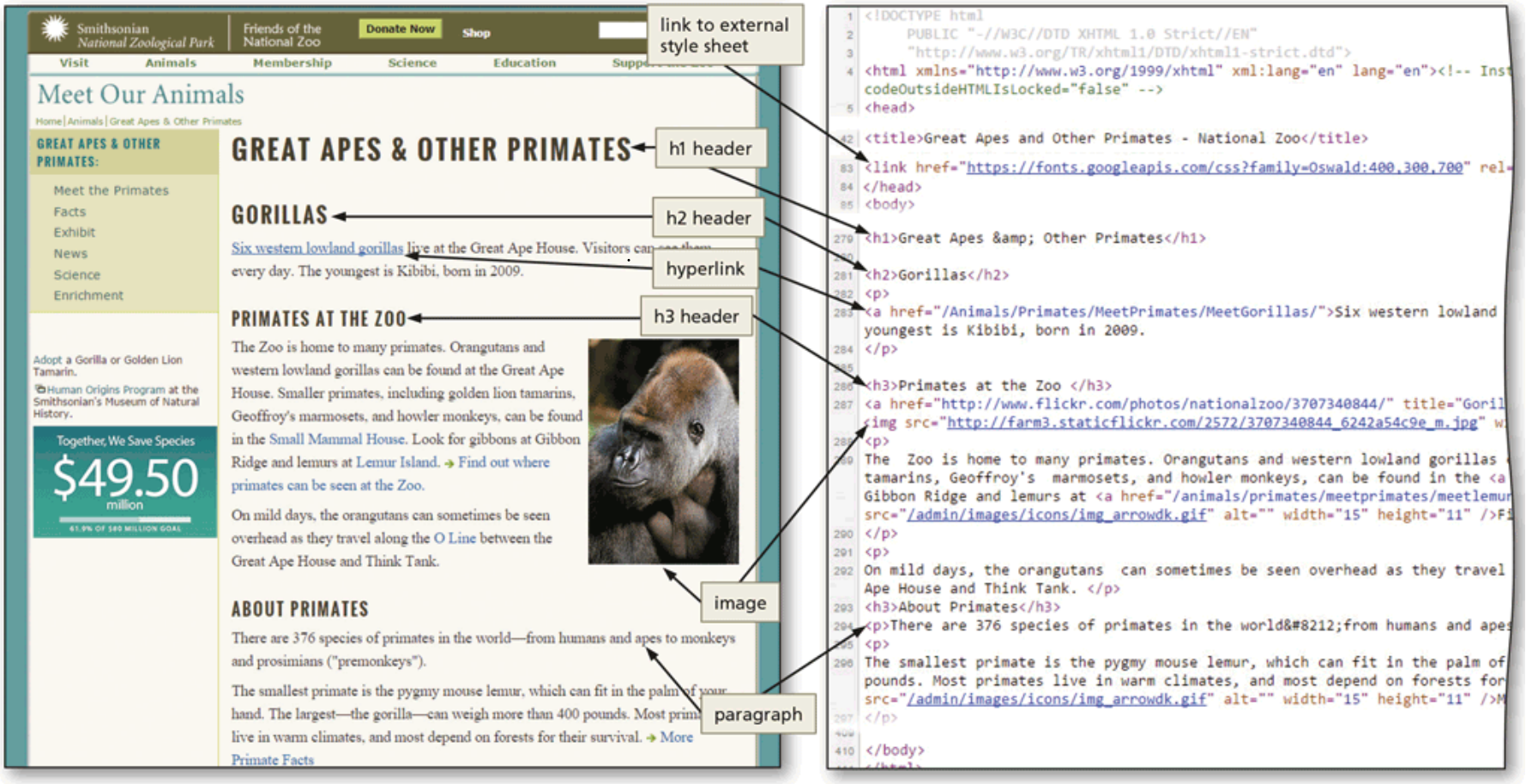
- Hypertext Markup Language (**HTML**) uses a set of codes called **tags** to format documents for display in a browser
- A complementary technology called **cascading style sheets** (**CSS**) contains specifications for the fonts, colors, layout, and placement of these HTML elements on a webpage
- **JavaScript** is a programming language for creating programs that a browser can run to generate content for a website

↳ เป็น Programming Language - ศึกษาเพิ่มเติมได้

# 2. Web Technologies

- **World Wide Web (WWW):** The World Wide Web is based on several different technologies: Web browsers, Hypertext Markup Language (HTML), and Hypertext Transfer Protocol (HTTP).
  ↳ มาตรฐานตัวนึง ถ้าเป็น HTML5 บาง Browser (เก่าๆ) ไม่ support
- **Web Browser:** The web browser is an application software to explore www (World Wide Web). It provides an interface between the server and the client and requests to the server for web documents and services.
  → เอา HTML, JS ไปแปะ , Brodcast ให้คนอื่นมาดูได้
- **Web Server:** Web server is a program which processes the network requests of the users and serves them with files that create web pages. This exchange takes place using Hypertext Transfer Protocol (HTTP).
  * ไว้กระจายข้อมูล
- **Web Pages:** A webpage is a digital document that is linked to the World Wide Web and viewable by anyone connected to the internet has a web browser. ex. Home Page
- **Web Development:** Web development refers to the building, creating, and maintaining of websites. It includes aspects such as web design, web publishing, web programming, and database management. It is the creation of an application that works over the internet i.e. websites.

# Website


link to external style sheet
h1 header
h2 header
hyperlink
h3 header
image
paragraph
Smithsonian National Zoological Park
Friends of the National Zoo
Donate Now
Shop
Visit
Animals
Membership
Science
Education
Meet Our Animals
Home | Animals | Great Apes & Other Primates
GREAT APES & OTHER PRIMATES:
Meet the Primates
Facts
Exhibit
News
Science
Enrichment
GREAT APES & OTHER PRIMATES
GORILLAS
Six western lowland gorillas live at the Great Ape House. Visitors can see them every day. The youngest is Kibibi, born in 2009.
PRIMATES AT THE ZOO
The Zoo is home to many primates. Orangutans and western lowland gorillas can be found at the Great Ape House. Smaller primates, including golden lion tamarins, Geoffroy's marmosets, and howler monkeys, can be found in the Small Mammal House. Look for gibbons at Gibbon Ridge and lemurs at Lemur Island. Find out where primates can be seen at the Zoo.
On mild days, the orangutans can sometimes be seen overhead as they travel along the O Line between the Great Ape House and Think Tank.
ABOUT PRIMATES
There are 376 species of primates in the world—from humans and apes to monkeys and prosimians ("premonkeys").
The smallest primate is the pygmy mouse lemur, which can fit in the palm of your hand. The largest—the gorilla—can weigh more than 400 pounds. Most primates live in warm climates, and most depend on forests for their survival. More Primate Facts
Adopt a Gorilla or Golden Lion Tamarin.
Human Origins Program at the Smithsonian's Museum of Natural History.
Together, We Save Species
$49.50
million
61.9% OF $80 MILLION GOAL
<!DOCTYPE html
PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en"><!-- Inst
codeOutsideHTMLIsLocked="false" -->
<head>
<title>Great Apes and Other Primates - National Zoo</title>
<link href="https://fonts.googleapis.com/css?family=Oswald:400,300,700" rel=
</head>
<body>
<h1>Great Apes & Other Primates</h1>
<h2>Gorillas</h2>

<a href="/Animals/Primates/MeetPrimates/MeetGorillas/">Six western lowland
youngest is Kibibi, born in 2009.

<h3>Primates at the Zoo </h3>
<a href="http://www.flickr.com/photos/nationalzoo/3707340844/" title="Goril
<img src="http://farm3.staticflickr.com/2572/3707340844_6242a54c9e_m.jpg" w

The Zoo is home to many primates. Orangutans and western lowland gorillas
tamarins, Geoffroy's marmosets, and howler monkeys, can be found in the <a
Gibbon Ridge and lemurs at <a href="/animals/primates/meetprimates/meetlemur
src="/admin/images/icons/img_arrowdk.gif" alt="" width="15" height="11" />Fi

On mild days, the orangutans can sometimes be seen overhead as they travel
Ape House and Think Tank. 
<h3>About Primates</h3>
There are 376 species of primates in the world—from humans and apes

The smallest primate is the pygmy mouse lemur, which can fit in the palm of
pounds. Most primates live in warm climates, and most depend on forests for
src="/admin/images/icons/img_arrowdk.gif" alt="" width="15" height="11" />M

</body>

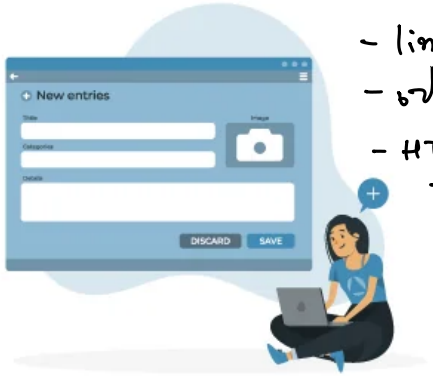
# Static Web VS Dynamic Web

A **static website** is a **type of web page that displays fixed and non-changing information**. These pages do not have the ability to interact with users or to change content in real time. Instead, static web pages are created and published with fixed content, which is the same for all users who visit the page.

- 1 ปีอาจ update 1 ครั้ง
- ไม่ต้องการ realtime


STATIC web

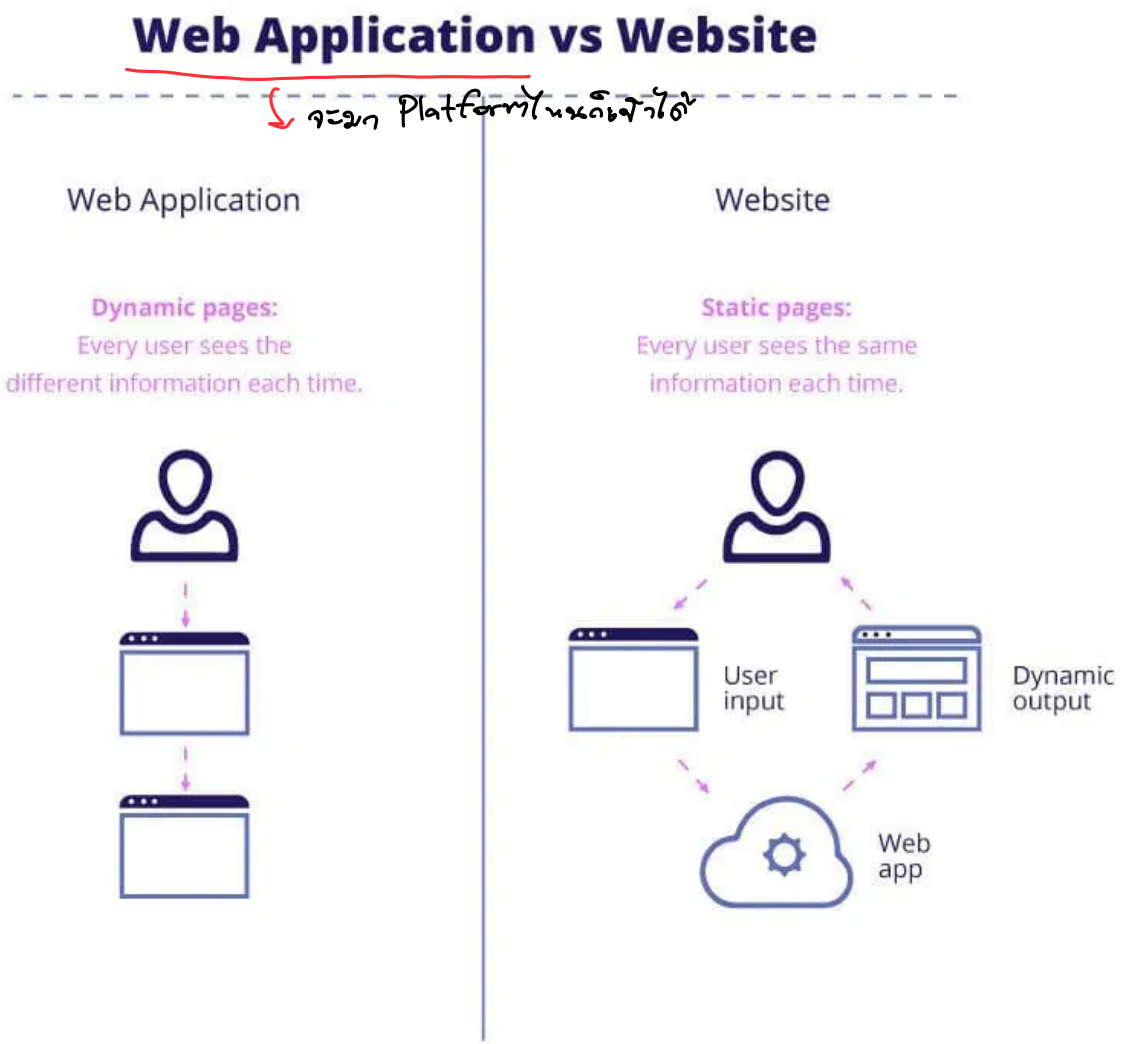
- link กับ Database
- link กับ API Shopee
- ต้องมีปฏิสัมพันธ์ user interaction
- HTML, CSS ไม่พอ
  → ต้อง JS, PHP, Ruby, Python, etc.



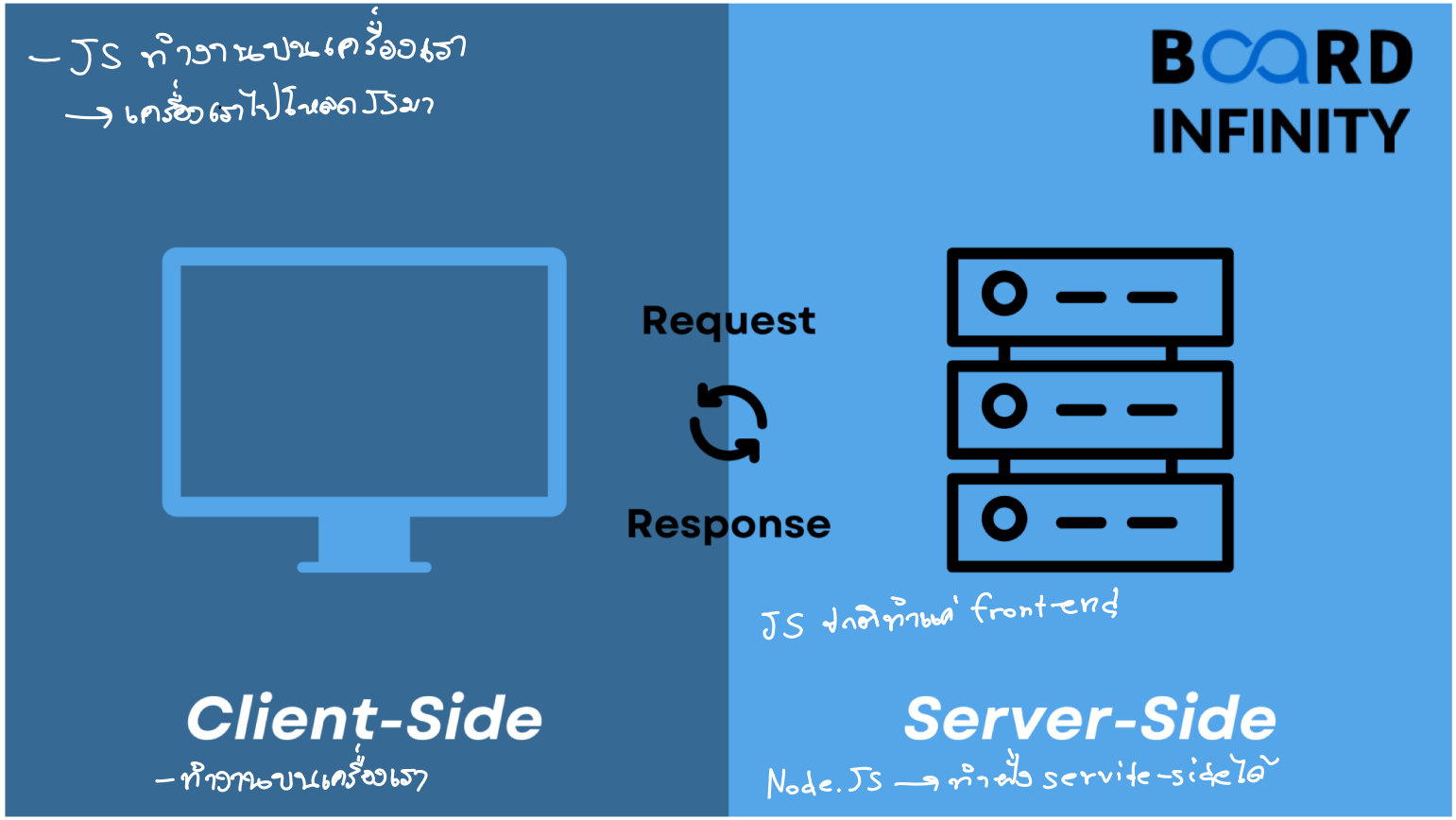

DYNAMIC web

A **dynamic web** page is a **type of website that generates content in real time based on user interaction**. Unlike static web pages, which display the same content to all users, dynamic web pages can be customized and change in real time. This is accomplished by using programming languages, such as PHP, Ruby on Rails, or JavaScript, and connecting to a database.

# Web Application



# Client Side Scripting and Server Side Scripting



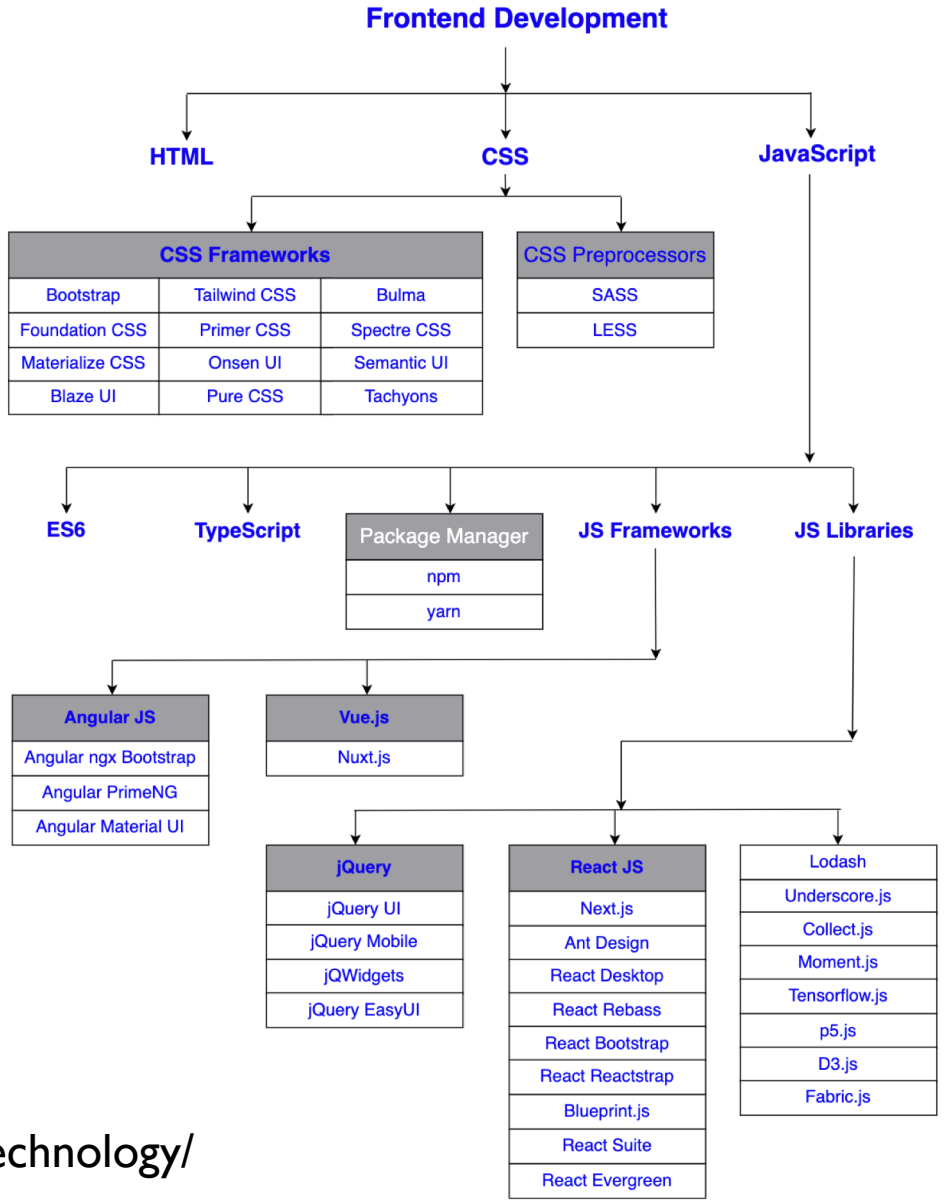

Web Application/Front-End

Web Server/ Website/Back-End

# Client Side Scripts

**Frontend Development:**

The part of a website that the user interacts directly is termed as front end.
It is also referred to as the 'client side' of the application.



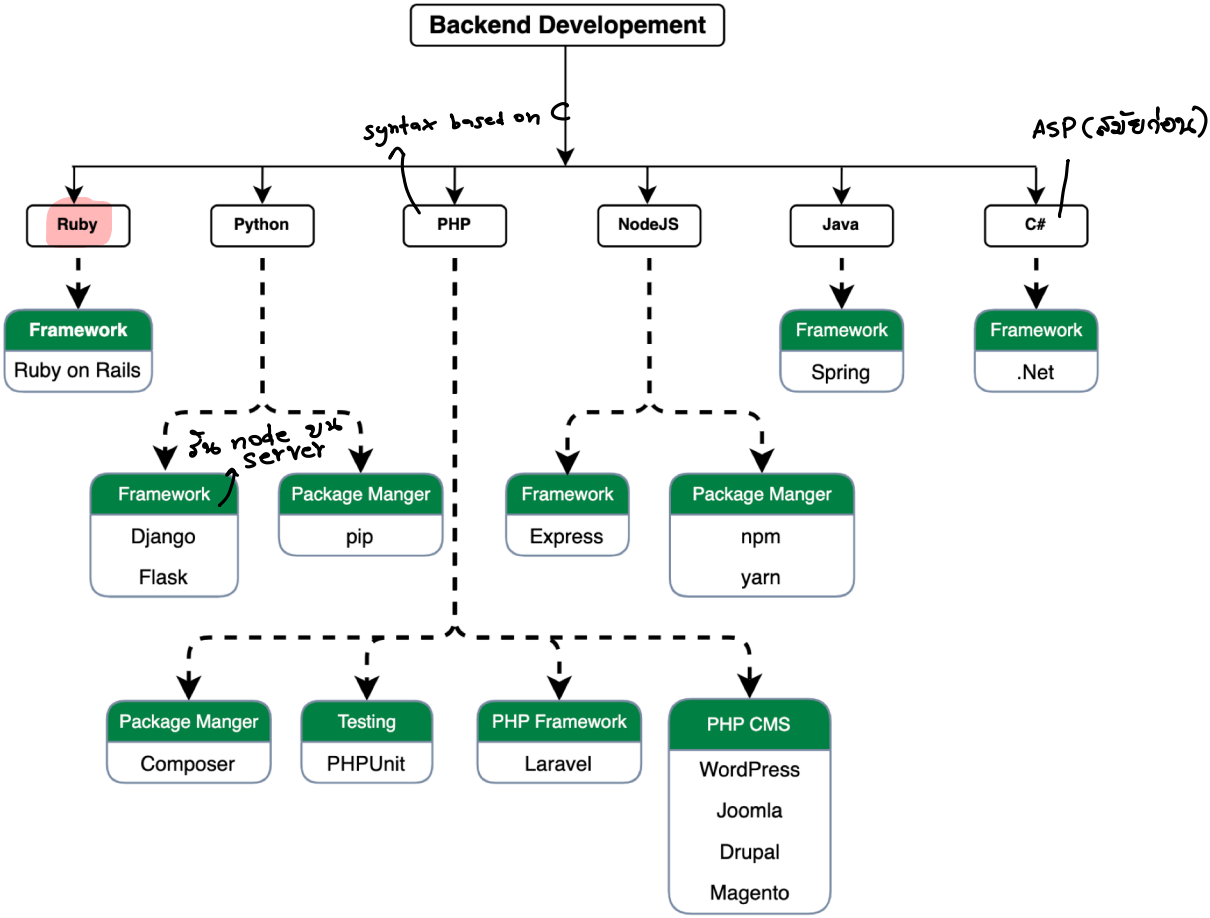

https://www.geeksforgeeks.org/web-technology/

# Server Side Scripts

- จัดการ DB, login ต่างๆ

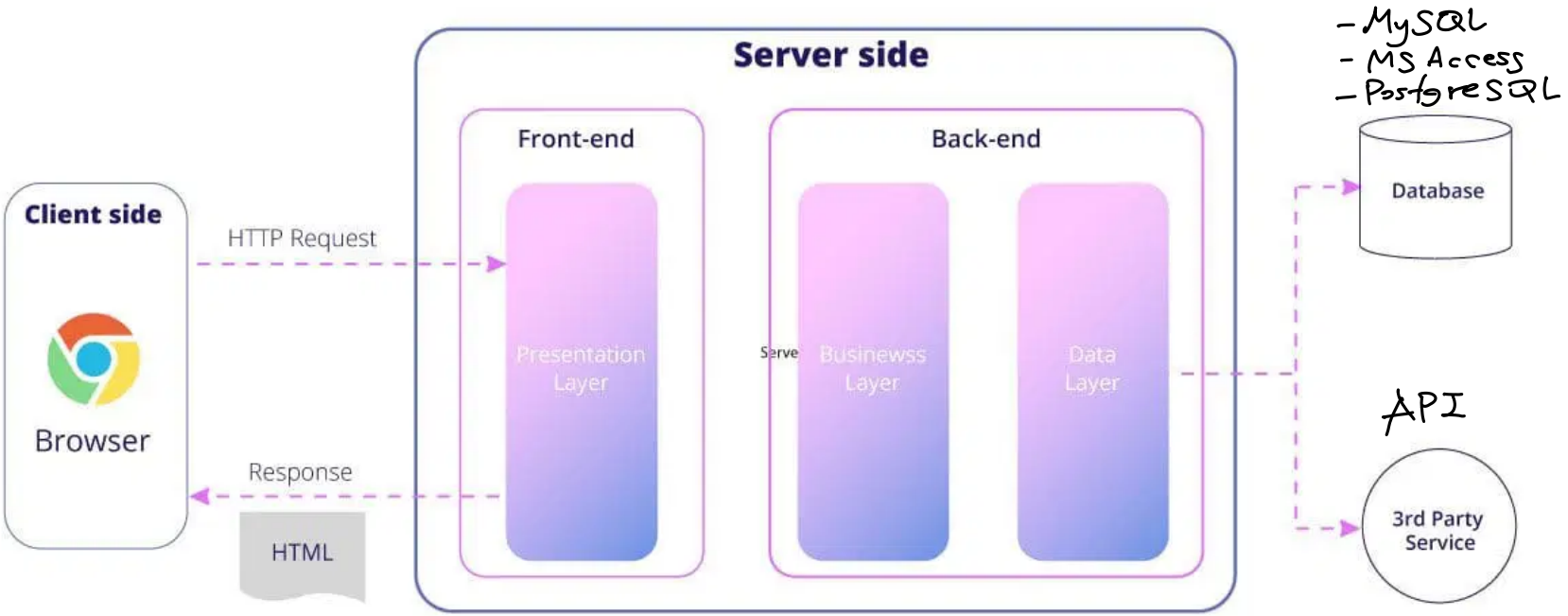
**Backend Development:**

Backend is the 'server side' of a website. It is the part of the website that users cannot see and interact. It is the portion of software that does not come in direct contact with the users. It is used to store and arrange data.




https://www.geeksforgeeks.org/web-technology/

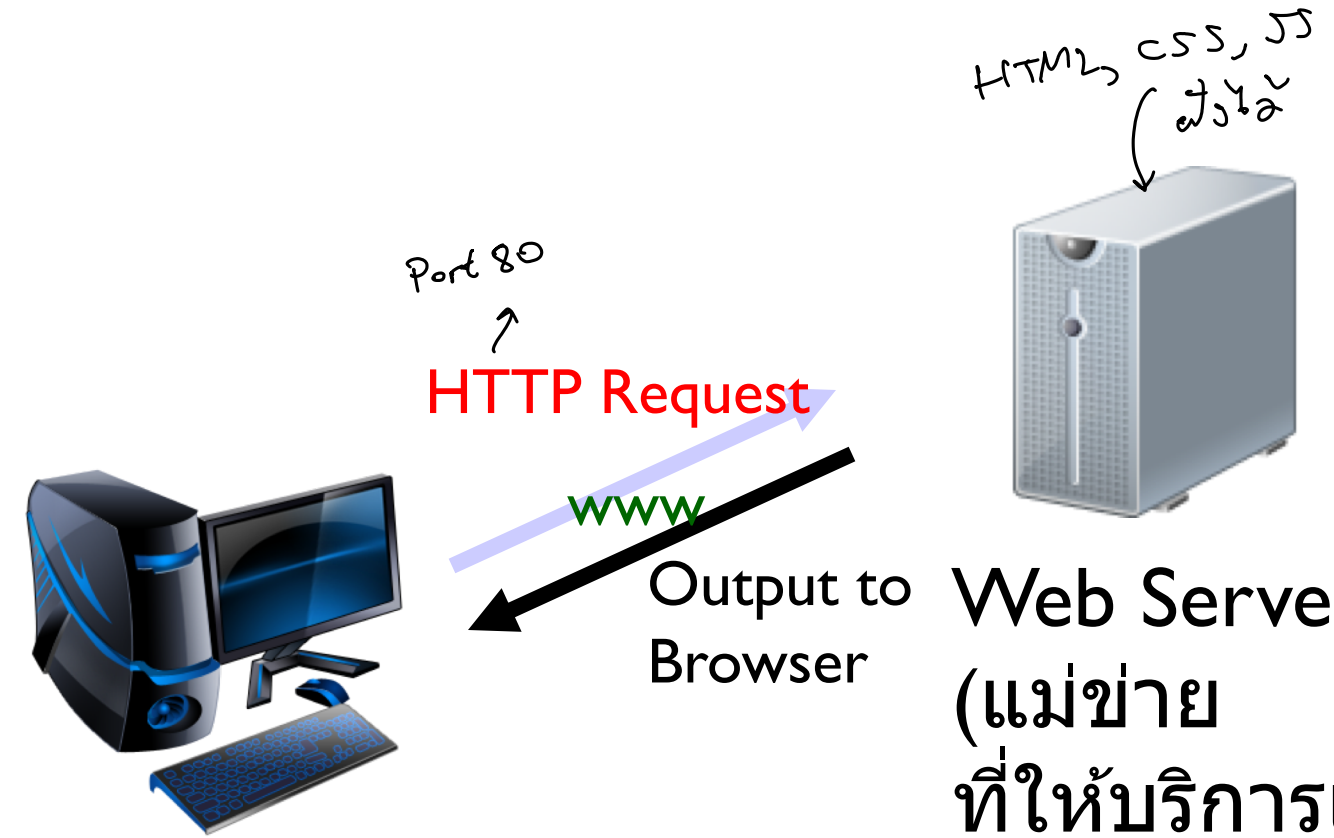
# SERVER SIDE RENDERING (SSR)




- MySQL
- MS Access
- PostgreSQL

mobidev

# Client-WebServer

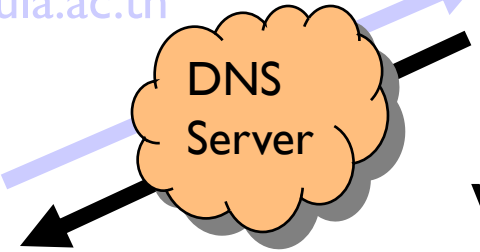


- Web Server Software
  - Microsoft (IIS) ใช้บน Window ได้เลย
  - Linux (Apache)
  - NginX → Both Window & Linux
- Client Software - Web Browser
  - ทำแปลภาษา
    - Internet Explorer(IE)/Microsoft Edge
    - Mozilla Firefox → Linuxใช้กัน
    - Google Chrome
    - Apple Safari

Homepage
→ index.html

HTTP Request

To www.chula.ac.th




Web Output

161.200.1.1

Web Server
(แม่ข่าย
ที่ให้บริการเว็บ)

Client(เครื่องลูกข่าย)

↘ default ทั่วไป index.html
default.html

* ก็จบชื่อ Homepath ในนี้

# HTML

## What is HTML?

•HTML stands for Hyper Text Markup Language
•HTML is the standard markup language for creating Web pages
•HTML describes the structure of a Web page
•HTML consists of a series of elements
•HTML elements tell the browser how to display the content
•HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

Ref: https://www.w3schools.com/html/html_intro.asp

# Website Technologies

## What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

```
<tagname> Content goes here... </tagname>
```

The HTML **element** is everything from the start tag to the end tag:

```
<h1>My First Heading</h1>

<p>My first paragraph.</p>
```

| Start tag | Element content | End tag |
|---|---|---|
| <h1> | My First Heading | </h1> |
|  | My first paragraph. |  |
| <br> | *none* | *none* |

Ref: https://www.w3schools.com/html/html_intro.asp

# Website Technologies

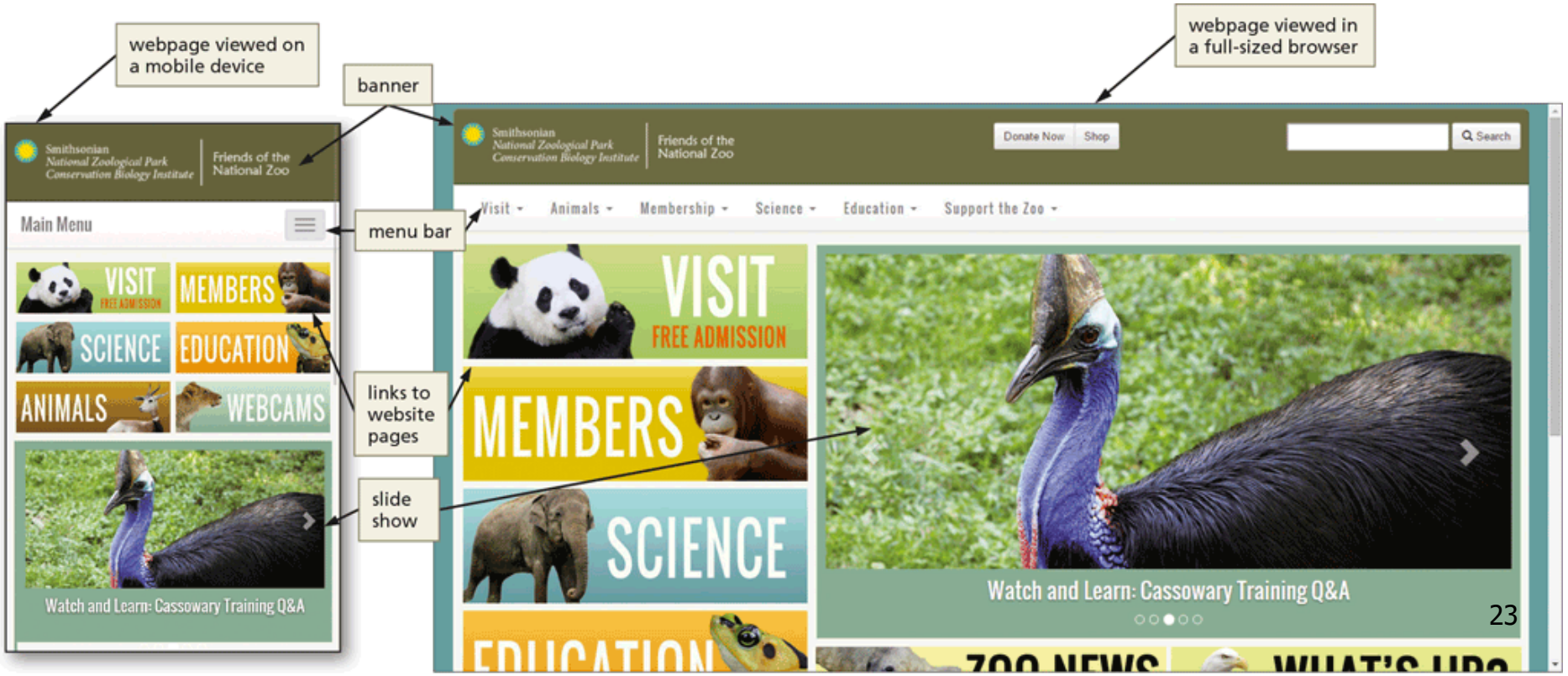
## A Simple HTML Document

### Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

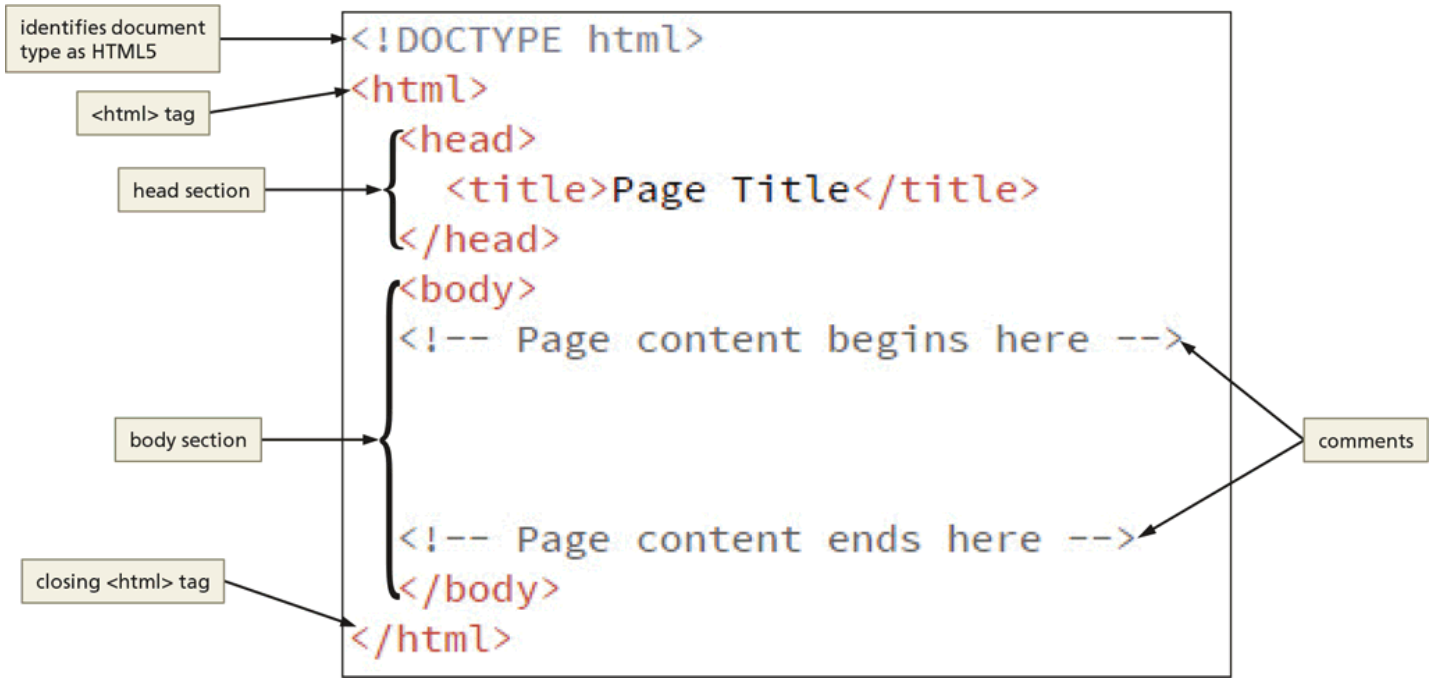
# Website Technologies

- **Responsive webpages** automatically adjust the size of their content to display appropriately relative to the size of the screen of the device on which it is displayed



# 3. Structure of a Webpage

- A webpage's source code contains text marked up with **HTML tags** that instruct a browser how to display that content



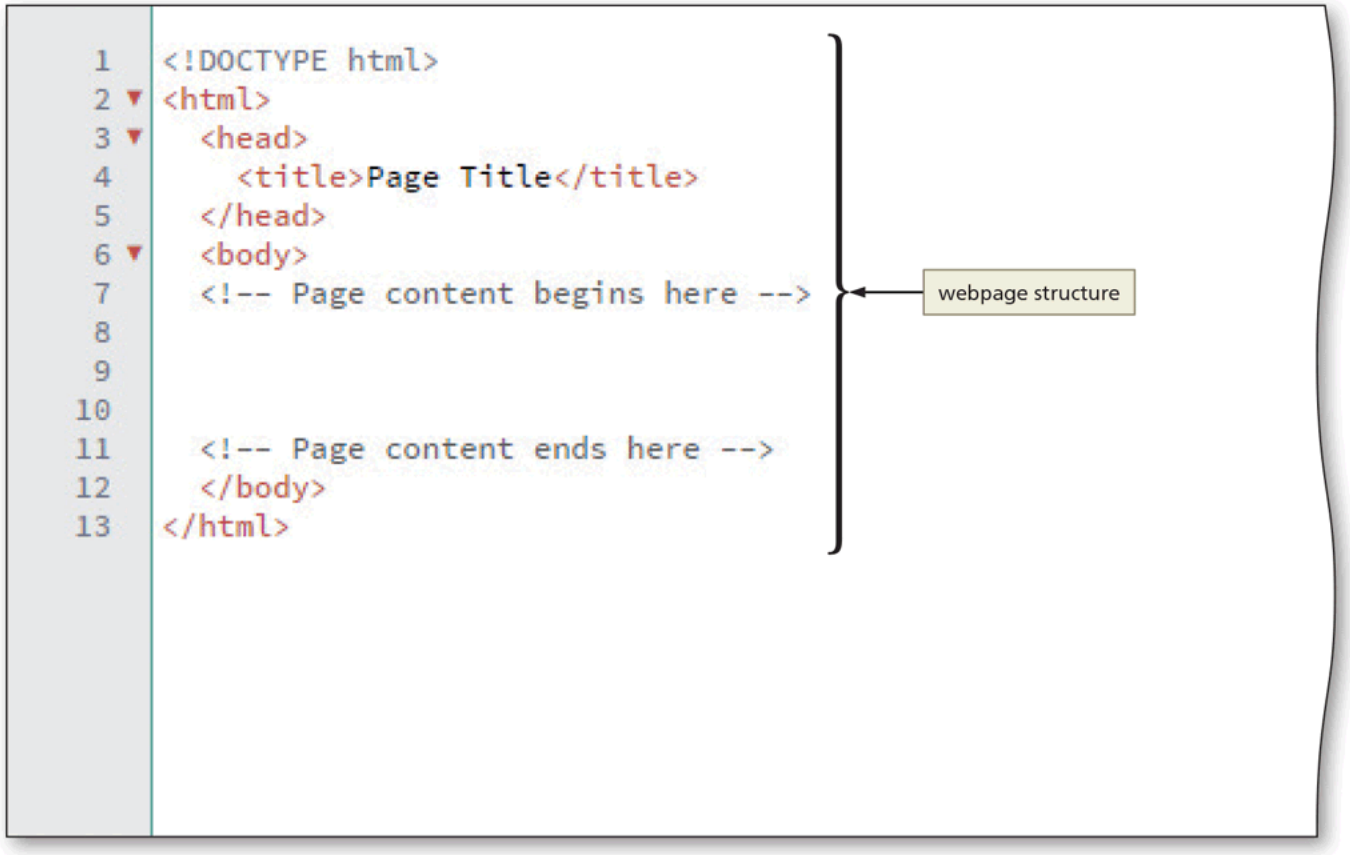
# Structure of a Webpage

- The World Wide Web Consortium (W3C) oversees the specification of HTML Standards
- The W3C provides a free, online HTML5 validator application to ensure that a webpage's HTML tags follow the specifications, or rules, for HTML5

# 4. Creating the index.html File

- Run the text editor of your choice
- Navigate to and open the template.html file
- If necessary, enable the word wrap feature so that you can view all the webpage text without scrolling horizontally
- Save the file using the file name, index.html. Do not exit the text editor

# Creating the index.html File



# 4.1 Adding the Webpage Title

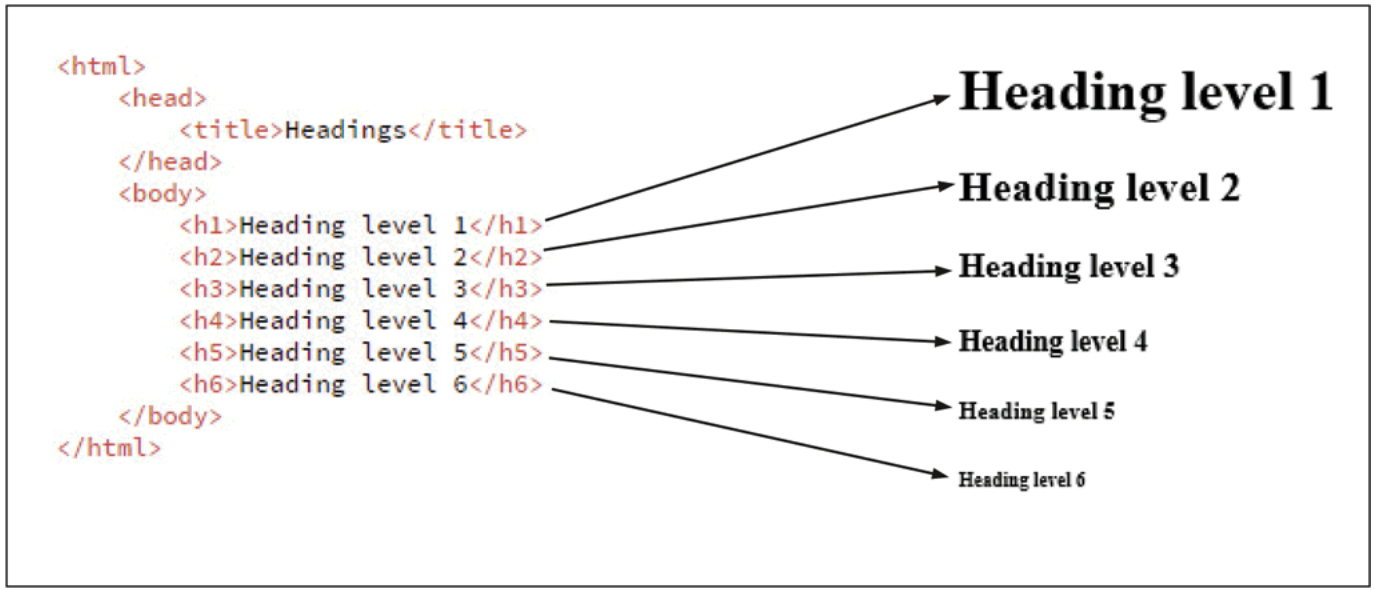
- Select the text, **Page Title**, that appears between the **`<title>`** and **`</title>`** tags
- Type `Mark's Web Development Page` as the title. Replace the name, Mark, with your first name

# 4.2 Headings

- Headings **indicate the different sections** of a webpage. HTML supports six levels of headings, which are identified by the following tags: **`<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`,** and **`<h6>`**

# Headings

```
<html>
    <head>
        <title>Headings</title>
    </head>
    <body>
        <h1>Heading level 1</h1>
        <h2>Heading level 2</h2>
        <h3>Heading level 3</h3>
        <h4>Heading level 4</h4>
        <h5>Heading level 5</h5>
        <h6>Heading level 6</h6>
    </body>
</html>
```



# 4.3 Paragraphs

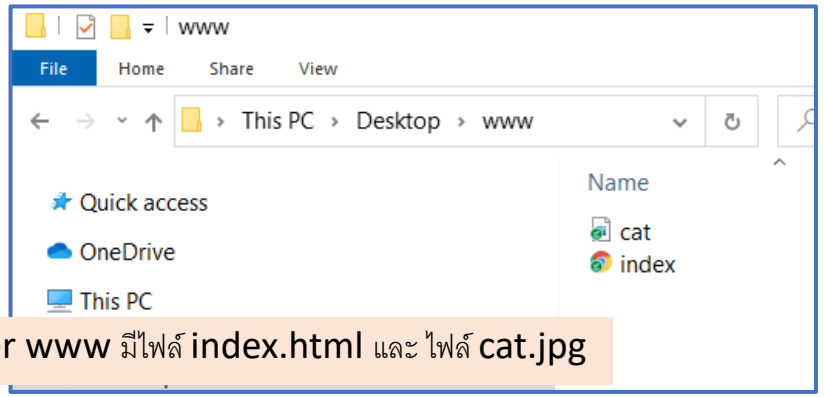
- The ** ** and ** ** tags are used to identify the beginning and ending of Paragraphs
- If you have several paragraphs of text on your webpage, these tags will inform the browser to insert additional line spacing above and below the paragraph so that the text is easier to read when displayed in the browser
  - The browser ignores line breaks and line spacing in the HTML file, so it is important to properly define the paragraphs using the  and  tags

# 4.4 Images

- Images can be either photos or graphics
- Images always are stored as separate files, and references to the images appear in the HTML code using the **`<img>`** tag
- Common attributes for the `<img>` tag describe the location of an image file, alternate text for the image, and a style that indicates how to position the image
- **`<img src="`*`url`*`">`**

# การอ้างอิงตำแหน่งไฟล์รูป ใน html

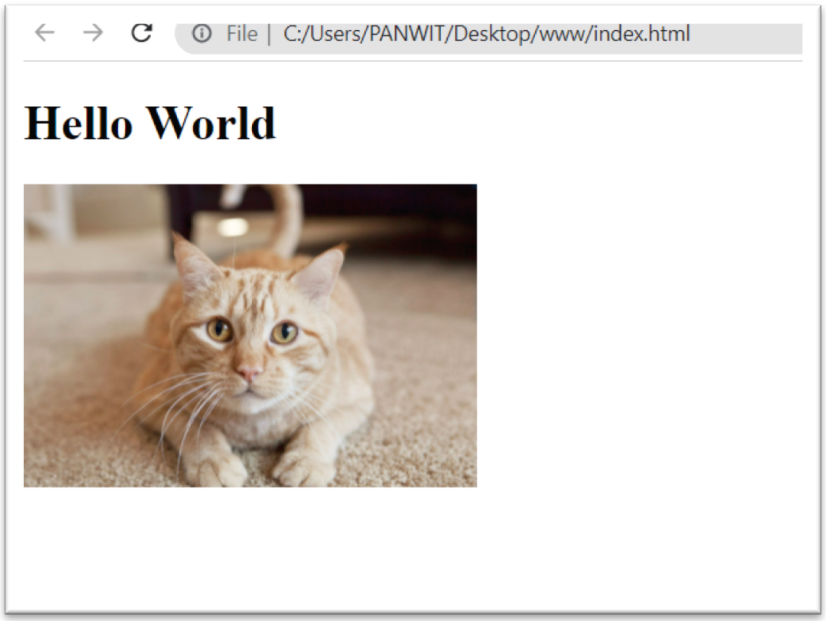
- File นั้นๆ อยู่ใน folder เดียวกัน
  เช่น ไฟล์รูป และไฟล์ index.html
  อยู่ใน folder เดียวกัน




ใน folder www มีไฟล์ index.html และ ไฟล์ cat.jpg

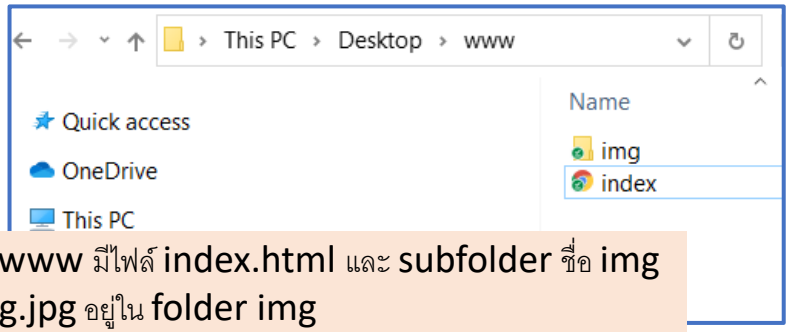
ไฟล์ index.html

```
<!DOCTYPE html>
<html>
     <head>
          <title>My Website Title</title>
     </head>
     <body>
          <h1>Hello World</h1>
          <img src="cat.jpg" height="200" width="300">
     </body>
</html>
```



# การอ้างอิงตำแหน่งไฟล์รูป ใน html

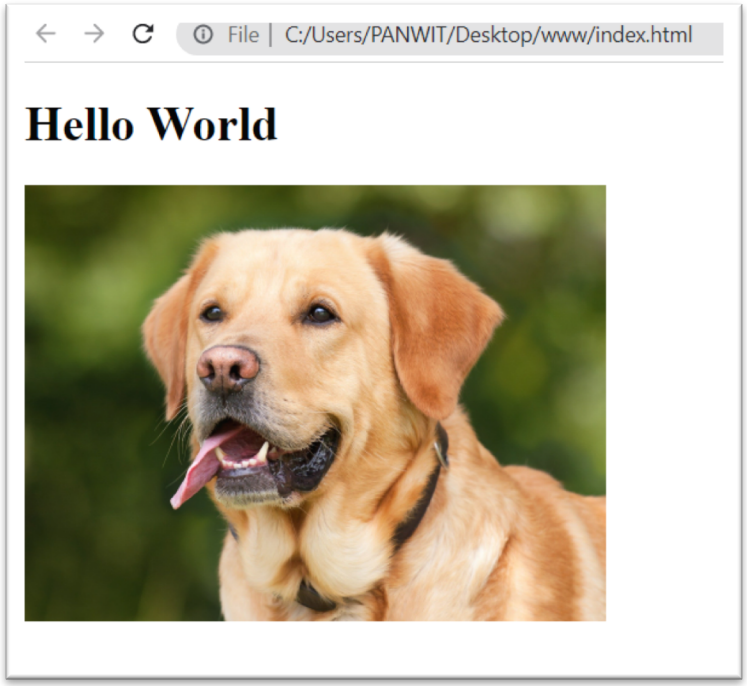
- File นั้นๆ อยู่คนละ folder
  เช่น ไฟล์รูป และไฟล์ index.html
  อยู่คนละ folder




ใน folder www มีไฟล์ index.html และ subfolder ชื่อ img และมีรูป dog.jpg อยู่ใน folder img

ไฟล์ index.html

```
<!DOCTYPE html>
<html>
     <head>
          <title>My Website Title</title>
     </head>
     <body>
          <h1>Hello World</h1>
          <img src="img/dog.jpg" height="288" width="384"
>
     </body>
</html>
```



# 4.5 Links

- A link, or **hyperlink**, can be text or an image in a webpage that a user clicks to navigate to another webpage, download a file, or perform another action, such as running an email app and addressing an email message

HYPERLINK WITH ABSOLUTE REFERENCE

```
<a href="http://www.w3.org" target="_blank">HTML5</a>
```

HYPERLINK WITH RELATIVE REFERENCE

```
<a href="video.html"> Watch a video</a>
```

# 4.6 Unordered and Ordered Lists

**Unordered List**

```
<ul>
  <li>HTML5</li>
  <li>CSS</li>
  <li>JavaScript</li>
</ul>
```

- HTML5
- CSS
- JavaScript

**Ordered List**

```
<ol>
  <li>HTML5</li>
  <li>CSS</li>
  <li>JavaScript</li>
</ol>
```

1. HTML5
2. CSS
3. JavaScript

# Basic HTML

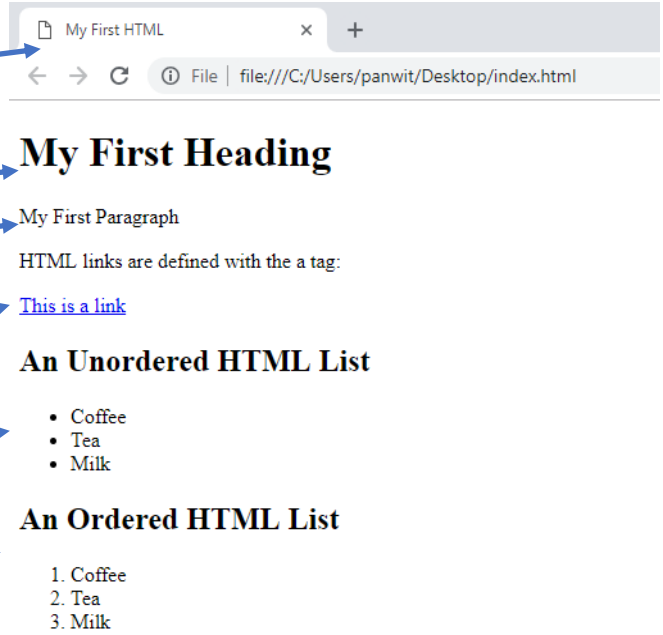
ไฟล์ index.html

แสดงผลที่ Web browser

index - Notepad

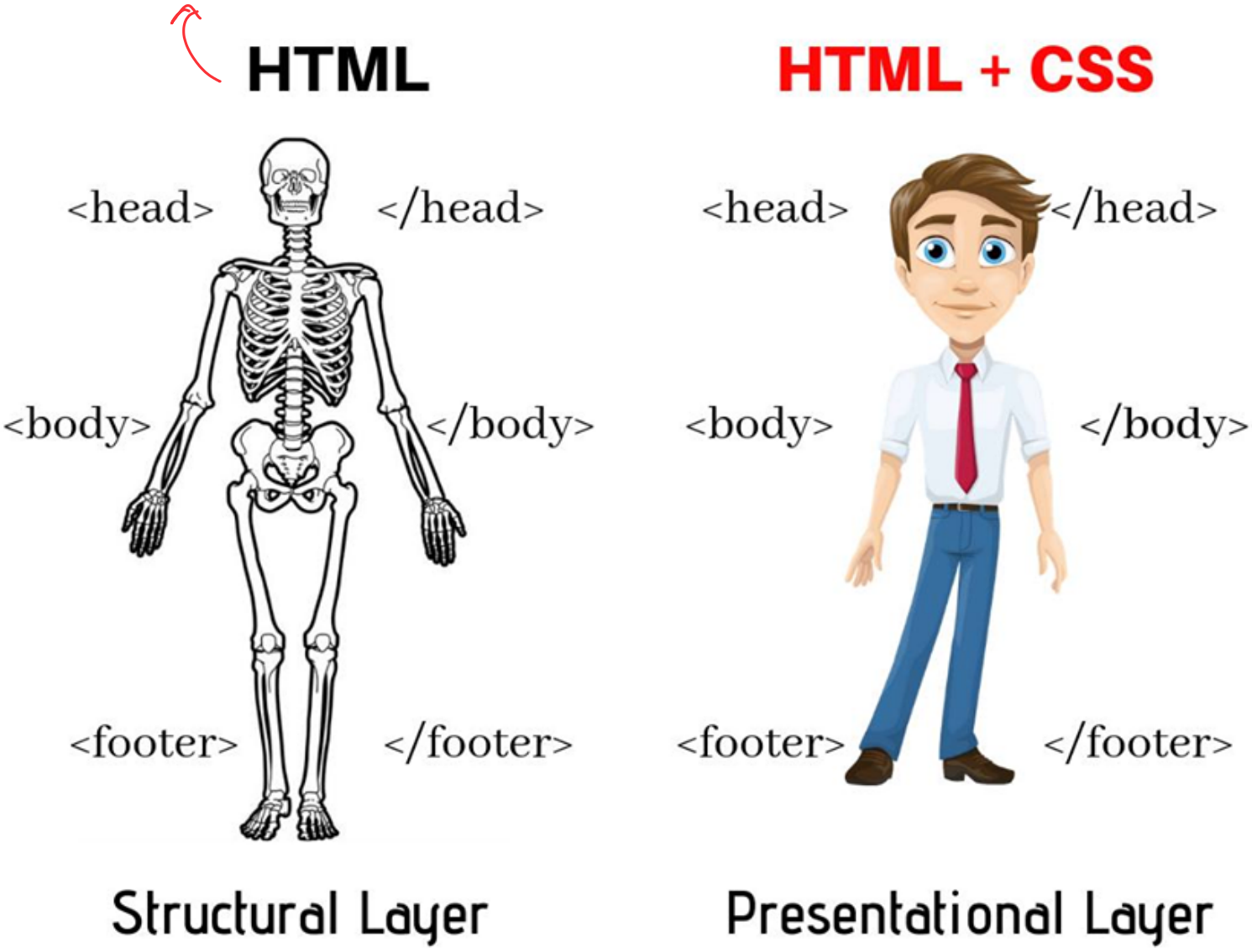
File Edit Format View Help

```
<!DOCTYPE html>
<html>
<head>
<title>My First HTML</title>
</head>
<body  onload=showDateAndTime() >

<h1>My First Heading</h1>

<p>My First Paragraph</p>

<p>HTML links are defined with the a tag:</p>

<a href="https://www.w3schools.com">This is a link</a>

<h2>An Unordered HTML List</h2>

<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>

<h2>An Ordered HTML List</h2>

<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```



# HTML Vs CSS

ทำไม่สวยได้ แต่ทำในหน้าเดียวจะจัดการยาก



# 5. HTML with CSS (Cascading Style Sheet)

**Internal CSS**

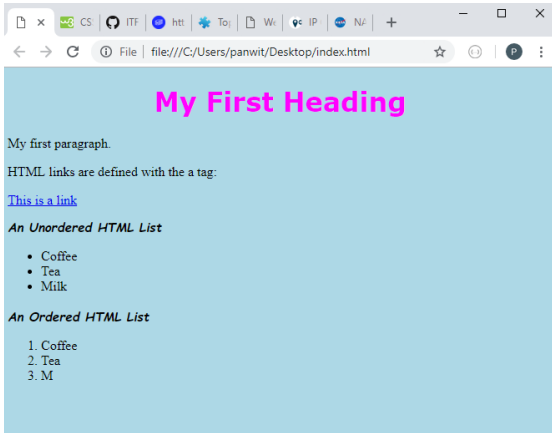
ไฟล์ index.html

index - Notepad

File Edit Format View Help

```
<head>
<title>My First HTML</title>
<style>
body {
    background-color: lightblue;
}

h1 {
    font-family: verdana;
    color: #ff00ff;
    text-align: center;
}

h2 {
    font-family: cursive;
    font-size: 15px;
    font-style: italic
}
</style>
</head>
<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

<p>HTML links are defined with the a tag:</p>

<a href="https://www.w3schools.com">This is a link</a>

<h2>An Unordered HTML List</h2>

<ul>
```

แสดงผลที่ Web browser




- Embedded styles, which define styles in the **<head> section** of the index.html document, **apply to the entire webpage** on which they are defined

# 5.1 Applying Styles with CSS

- Although it is possible to customize these elements of webpages using HTML, CSS makes it easier to specify the appearance of similar elements in the same webpage or same website
- Embedded styles, which define styles in the `<head>` section of the index.html document, apply to the entire webpage on which they are defined

```
<style>
    h1 {
      font-family:sans-serif;
      color:navy;
      font-style:italic;
    }
    h2 {
      font-family:cursive;
      background-color: navy;
      color:papayawhip;
    }
    p {
      font-family:sans-serif;
      color:rgb(56,0,0);
    }
    ol {
      font-family:sans-serif;
      color:rgb(56,0,0);
    }
    body {
      background-color:#bbccff;
    }
    .fancy {
      font-weight:bold;
      color:red;
      font-style:italic;
    }
</style>
```

# 5.2 Adding CSS to the index.html File

styles entered in head section of index.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>Mark's Web Development Page</title>
    <style>

      h1 {
        font-family:sans-serif;
        color:navy;
        font-style:italic;
      }
      h2 {
        font-family:cursive;
        background-color:navy;
        color:papayawhip;
      }
      p {
        font-family:sans-serif;
        color:rgb(56,0,0);
      }
      ol {
        font-family:sans-serif;
        color:rgb(56,0,0);
      }
      body {
        background-color:#bbccff;
      }
      .fancy {
        font-weight:bold;
        color:red;
        font-style:italic;
      }
    </style>

  </head>
  <body>
  <!-- Page content begins here -->
    <h1>Web Development</h1>

    <p>Three technologies form the foundation for many web applications:</p>

      <ol>
```

# 5.3 Styling HTML with CSS

- CSS can be added to HTML elements in 3 ways
  - Inline - by using the style attribute in HTML elements
  - Internal - by using a <style> element in the <head> section
  - External - by using an external CSS file

**Inline**

```
<h1 style="color:blue;">This is a Blue Heading</h1>
```


**Internal**

```
<!DOCTYPE html>
<html>
<head>
<style>
body {background-color: powderblue;}
h1   {color: blue;}
p    {color: red;}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```


**External**

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

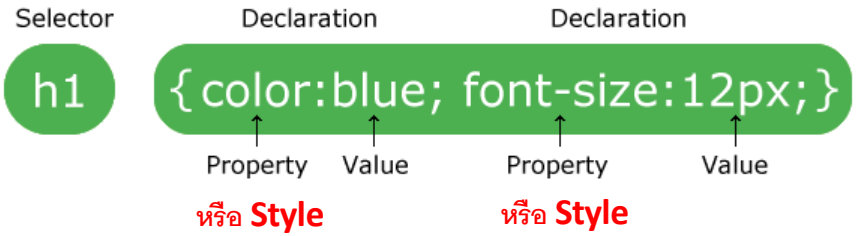
ไฟล์ index.html

```
body {
  background-color: powderblue;
}
h1 {
  color: blue;
}
p {
  color: red;
}
```

ไฟล์ style.css

# 5.4 CSS Syntax

A CSS rule-set consists of a selector and a declaration block:




- The selector points to the HTML element you want to style.
- The declaration block contains one or more declarations separated by semicolons.
- Each declaration includes a CSS **property name** and a **value**, separated by a colon.
- A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

ที่มา https://www.w3schools.com/css/css_syntax.asp

# CSS Selector

CSS selectors are used to "find" (or select) the HTML elements you want to style.

**All CSS Simple Selector**

1. The CSS **element** Selector

```
p {
  text-align: center;
  color: red;
}
```

2. The CSS **id** Selector

```
#para1 {
  text-align: center;
  color: red;
}
```

3. The CSS **class** Selector

```
.center {
  text-align: center;
  color: red;
}
```

4. The CSS **universal** Selector

```
* {
  text-align: center;
  color: blue;
}
```

5. The CSS **group** Selector

```
h1, h2, p {
  text-align: center;
  color: red;
}
```

ที่มา https://www.w3schools.com/css/css_selectors.asp

# Example of Style

ศึกษาเพิ่มเติมได้ที่
https://www.w3schools.com/css/default.asp
https://www.w3schools.com/css/css_font.asp
https://www.w3schools.com/css/css_text.asp

**Table 3 Selected Styles**

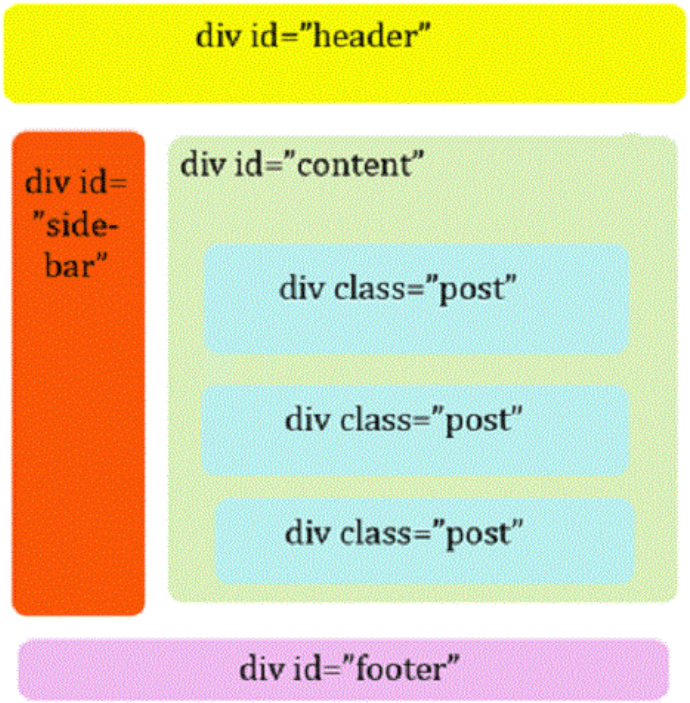
| Style | Example | Description |
|---|---|---|
| `background-color` | `background-color:yellow;` | Specifies the background color of elements, such as `<p>`, `<h1>`, and `<body>` |
| `background-image` | `background-image:url("images/stripes.jpg")` | Sets the background image of a `<body>`, `<p>`, `<h1>`, and other elements to the file whose path is given in the `url()` function |
| `border` | `border: 3 px red;` | Specifies a 4-sided border that is 3 pixels thick |
| `color` | `color:blue;` | Colors can be a web color name, a hexadecimal value, such as `#0000FF`, or an rgb value, such as `rgb(0,0,255)` that specifies the red, green, and blue components of the color |
| `float` | `float:left;` | Specifies whether to place an element to the left or right relative to text; often used to position an image to the left or right of text. |
| `font-family` | `font-family:serif;` | Specifies the font for a paragraph, heading, or other text element; use specific font names, such as `times`, `arial`, and `courier`, or family names, such as `serif`, `sans-serif`, `cursive`, or `monospace` |
| `font-size` | `font-size:10px;` | Specifies font size in pixels |
| `font-style` | `font-style:italic;` | Specifies font style; use normal, italic, or oblique as the value for this style |
| `font-weight` | `font-weight:bold;` | Specifies the font weight for a paragraph, heading, or other text element; use `bold` for thick characters, or numeric values `100` through `900`, in increments of 100; `400` is the same as `normal`, 700 is the same as `bold` |
| `text-align` | `text-align:left;` | Sets alignment for `<h1>`, `<h2>`, or `<h3>` tags; values can be `left`, `center`, or `right` |

# 5.5 Tag 

div หรือ division คือ tag ประเภทหนึ่งของภาษา html

- นำมาใช้แบ่งส่วนต่างๆ ของข้อมูลออกจากกัน
- ใช้สำหรับครอบวัตถุที่ต้องการ เพื่อจัดรูปแบบต่างๆ ให้กับวัตถุในตำแหน่งนั้นๆ
- สามารถใส่ค่าไปตรงๆ ใน div โดยระบุ id หรือ class เพื่อใช้อ้างอิงกับการจัด CSS ได้ตามความเหมาะสม

An HTML page can only have one unique id apply to one specific element, while a class name can be applied to multiple elements.



```html
<!DOCTYPE html>
<html>
<head>
<style>
/* Style the element with the id "myHeader" */
#myHeader {
  background-color: lightblue;
  color: black;
  padding: 40px;
  text-align: center;
}

/* Style all elements with the class name "city" */
.city {
  background-color: tomato;
  color: white;
  padding: 10px;
}
</style>
</head>
<body>

<h2>Difference Between Class and ID</h2>
<p>An HTML page can only have one unique id applied to one
specific element, while a class name can be applied to multiple
elements.</p>

<!-- A unique element -->
<h1 id="myHeader">My Cities</h1>

<!-- Multiple similar elements -->
<h2 class="city">London</h2>
<p>London is the capital of England.</p>

<h2 class="city">Paris</h2>
<p>Paris is the capital of France.</p>

<h2 class="city">Tokyo</h2>
<p>Tokyo is the capital of Japan.</p>

</body>
</html>
```


การใช้ id ใน CSS จะถูกกำหนดด้วยเครื่องหมาย #

การใช้ class ใน CSS จะถูกกำหนดด้วยเครื่องหมายจุด .

# CSS frameworks

จากแหล่งที่มาในเว็บ

- Bootstrap
- Tailwind CSS
- Foundation
- Bulma
- Pure
- Semantic UI
- Materialize
- Skeleton
- Milligram

ความคิดเห็น

tailwindcss

DocsComponentsBlogShowcase

## Rapidly build modern websites without ever leaving your HTML.

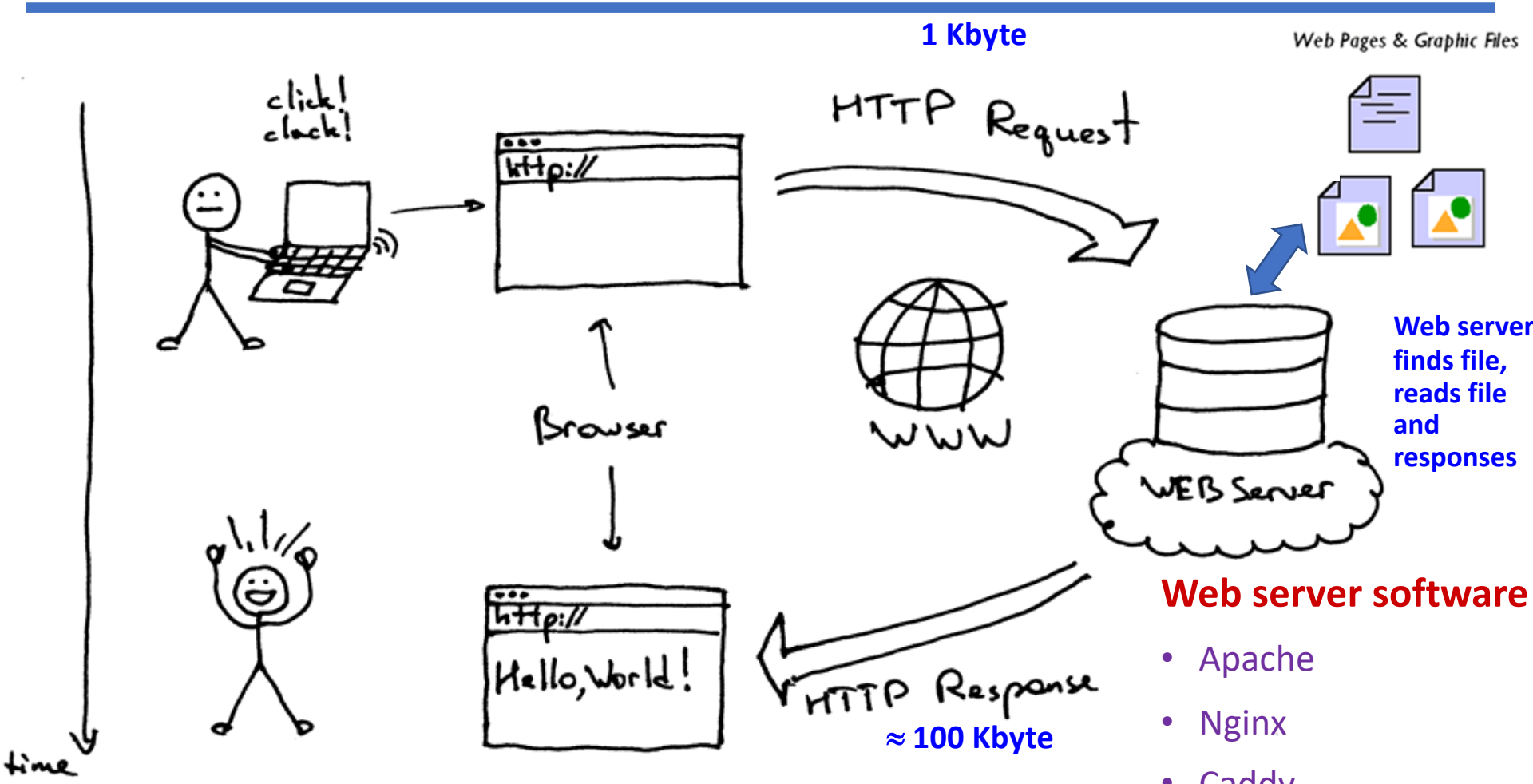
A utility-first CSS framework packed with classes like `flex`, `pt-4`, `text-center` and `rotate-90` that can be composed to build any design, directly in your markup.

Get started

Quick search... ⌘ K

```
<figure class="bg-slate-100 rounded-xl p-8 dark:bg-slate-800"
  <img class="w-24 h-24 rounded-full mx-auto" src="/sarah-day
  <div class="pt-6 tex space-y-4">
    <blockquote>
      <p class="text-lg font-medium">
        “Tailwind CSS is the only framework that I've seen sc
        on large teams. It’s easy to customize, adapts to any
```

# 6. ภาพรวม web client-server

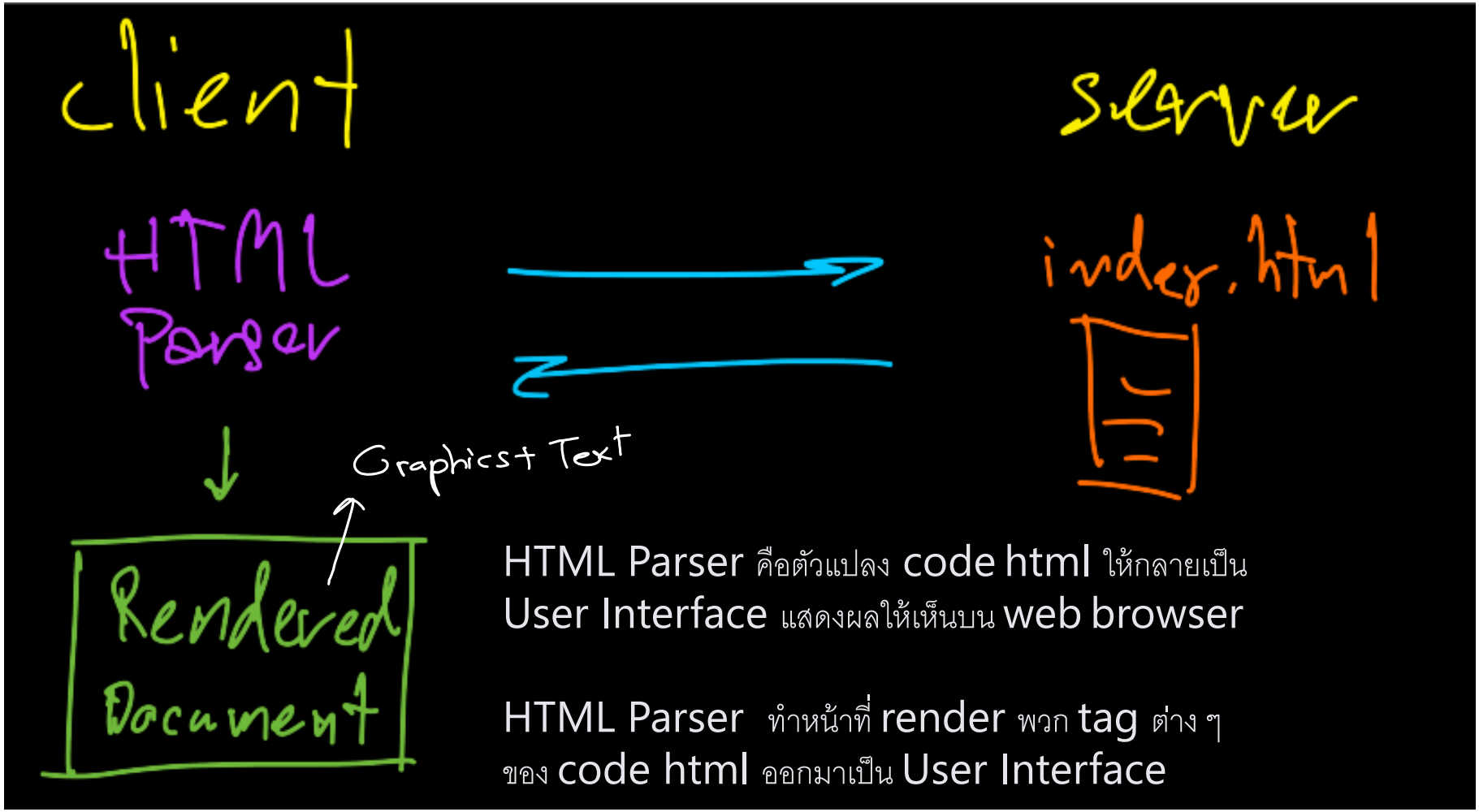



**Web Browser Software**:

- Chrome, Safari, Firefox, Microsoft Edge

**Web server software**

- Apache
- Nginx
- Caddy
- Microsoft IIS

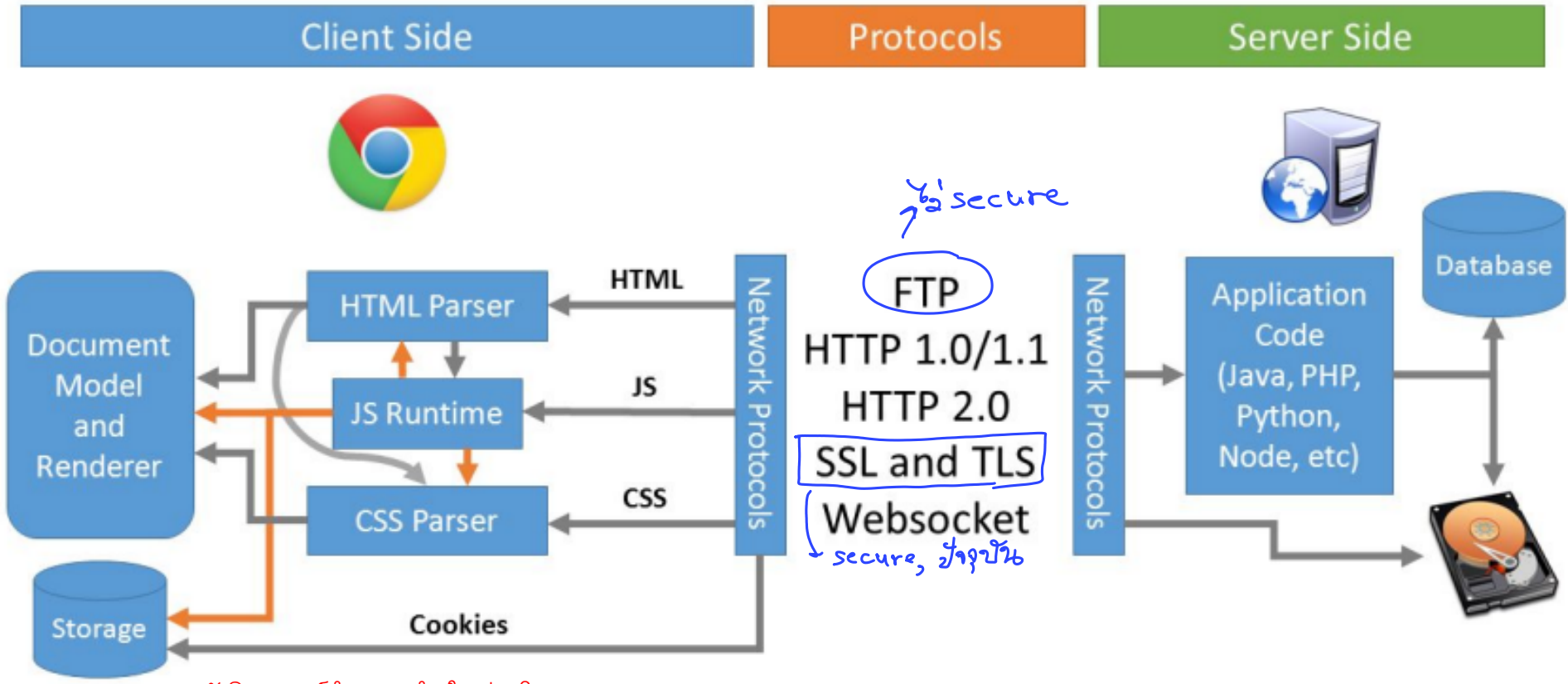



HTML Parser คือตัวแปลง code html ให้กลายเป็น User Interface แสดงผลให้เห็นบน web browser

HTML Parser ทำหน้าที่ render พวก tag ต่าง ๆ ของ code html ออกมาเป็น User Interface

# 7. การทำงานของ Web Browser

– HTML เฉยๆ ไม่ชัว , ImgไรJS ก็ไม่ชัว



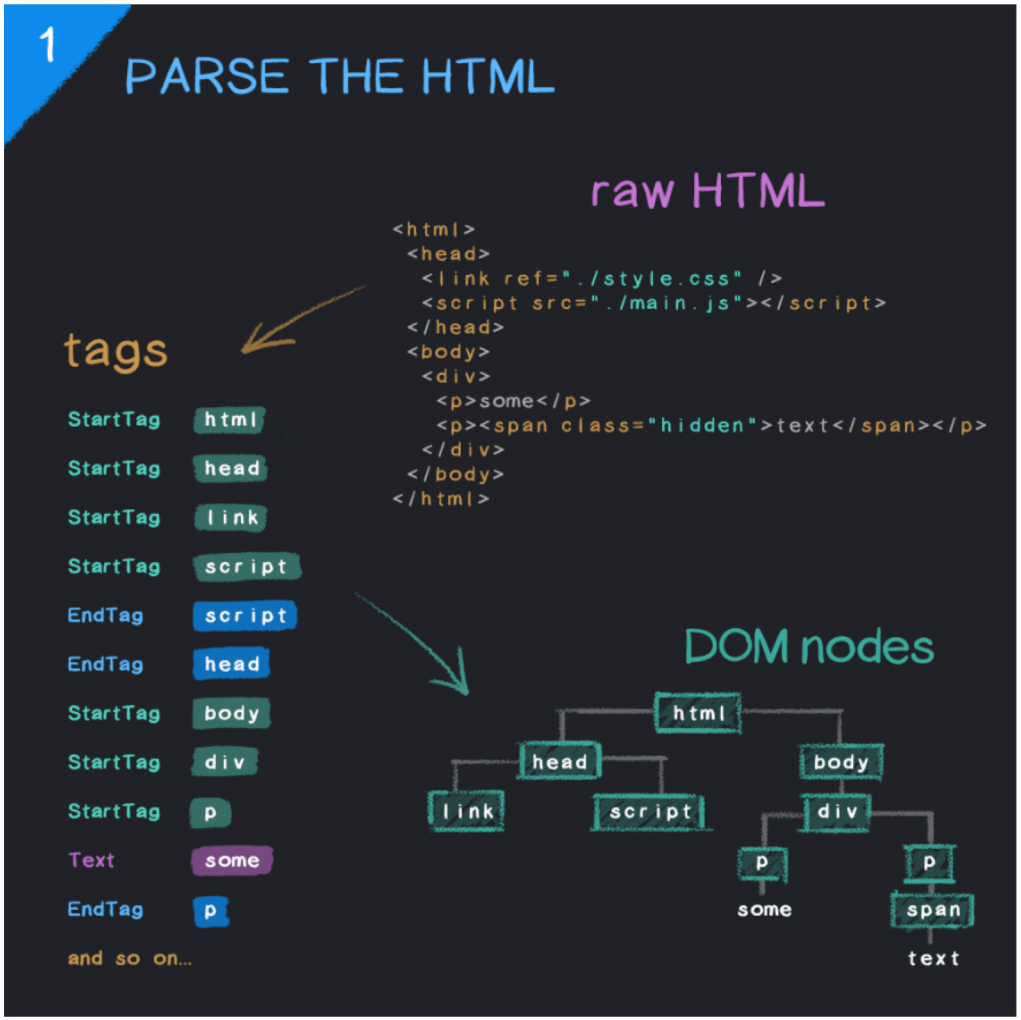

ตัววิเคราะห์คำ แยกคำ ในประโยค

- HTML Parser : ทำหน้าที่ render พวก tag ต่าง ๆ ของ code html ออกมาเป็น DOM
- CSS Parser : ส่วนไหนใน code html เป็น css ก็จะเข้า CSS Parser ออกมาเป็น CSSOM
- JS Runtime : ถ้าใน code html มี JavaScript (js) มันก็จะต้องการ JS runtime environment ในการ run ให้ code js ทำงาน โดยสามารถใช้ js ทำการ อ่าน/แก้ไข html หรือจัดการ css ได้ ซึ่ง browser ทุกตัวบนโลกเดี๋ยวนี้มี js runtime อยู่แล้ว



JavaScript Runtime ทำหน้าเพื่อ อ่าน code ภาษา java script และทำงานตามคำสั่ง เพื่อให้ os ต่างๆ ทำงานได้

# 7. การทำงานของ Web Browser



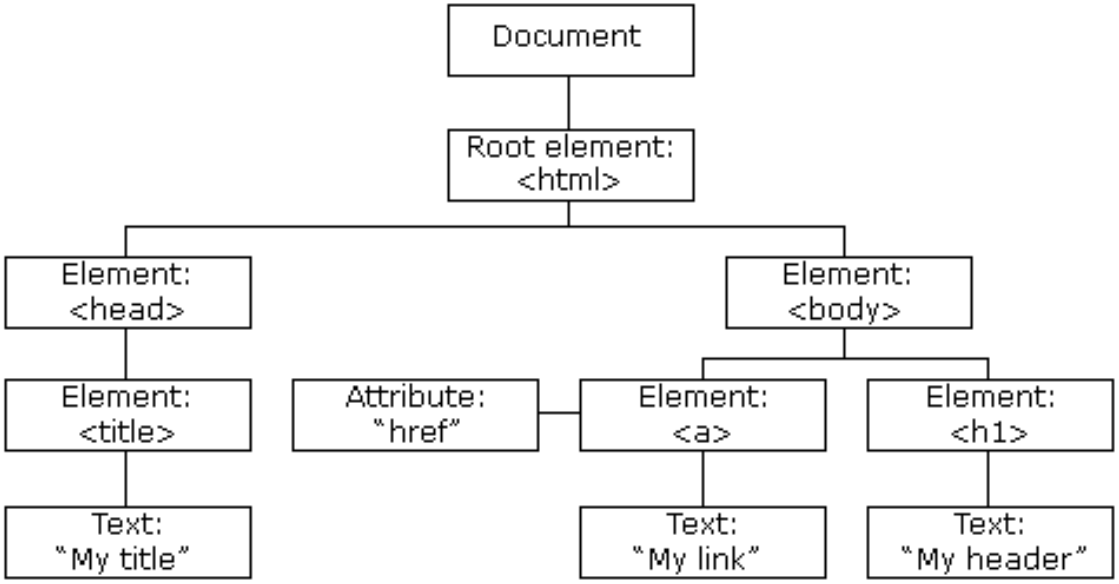
*When a web page is loaded, the browser creates a Document Object Model of the page.*

DOM หรือ Document Object Model คือโครงสร้างของไฟล์ ที่ทาง W3C กำหนดขึ้นเป็นมาตราฐาน

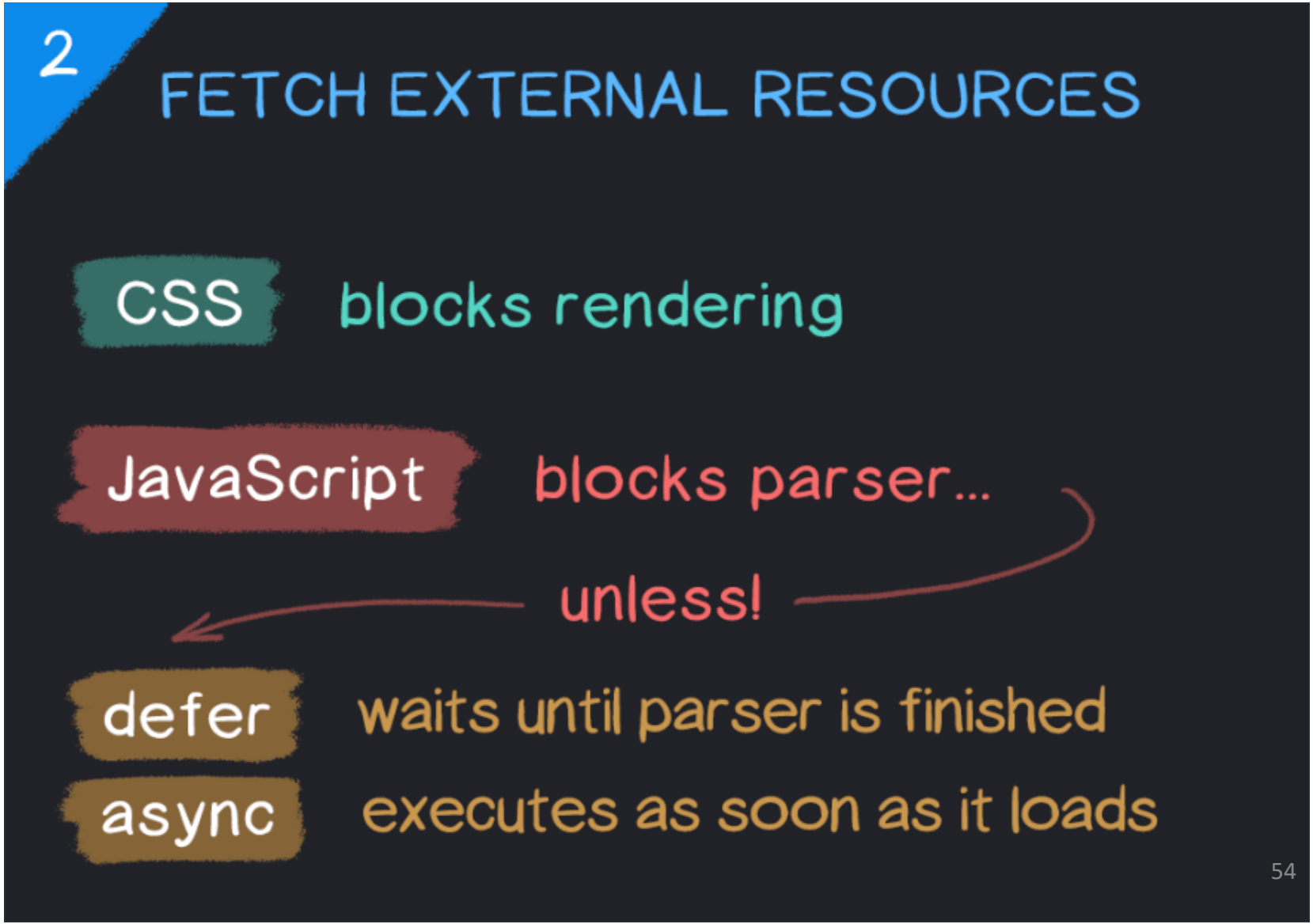
W3C ย่อมาจาก World Wide Web Consortium คือ องค์กรระหว่างประเทศที่ทำหน้าที่จัดระบบมาตรฐานที่ใช้งานบน www

```
1  <html> <!-- Root Element -->
2
3    <head>
4      <title>My title</title>
5    </head>
6
7    <body>
8      <a href="test.html">My link</a>
9      <h1>My header</h1>
10   </body>
11
12 </html>
```

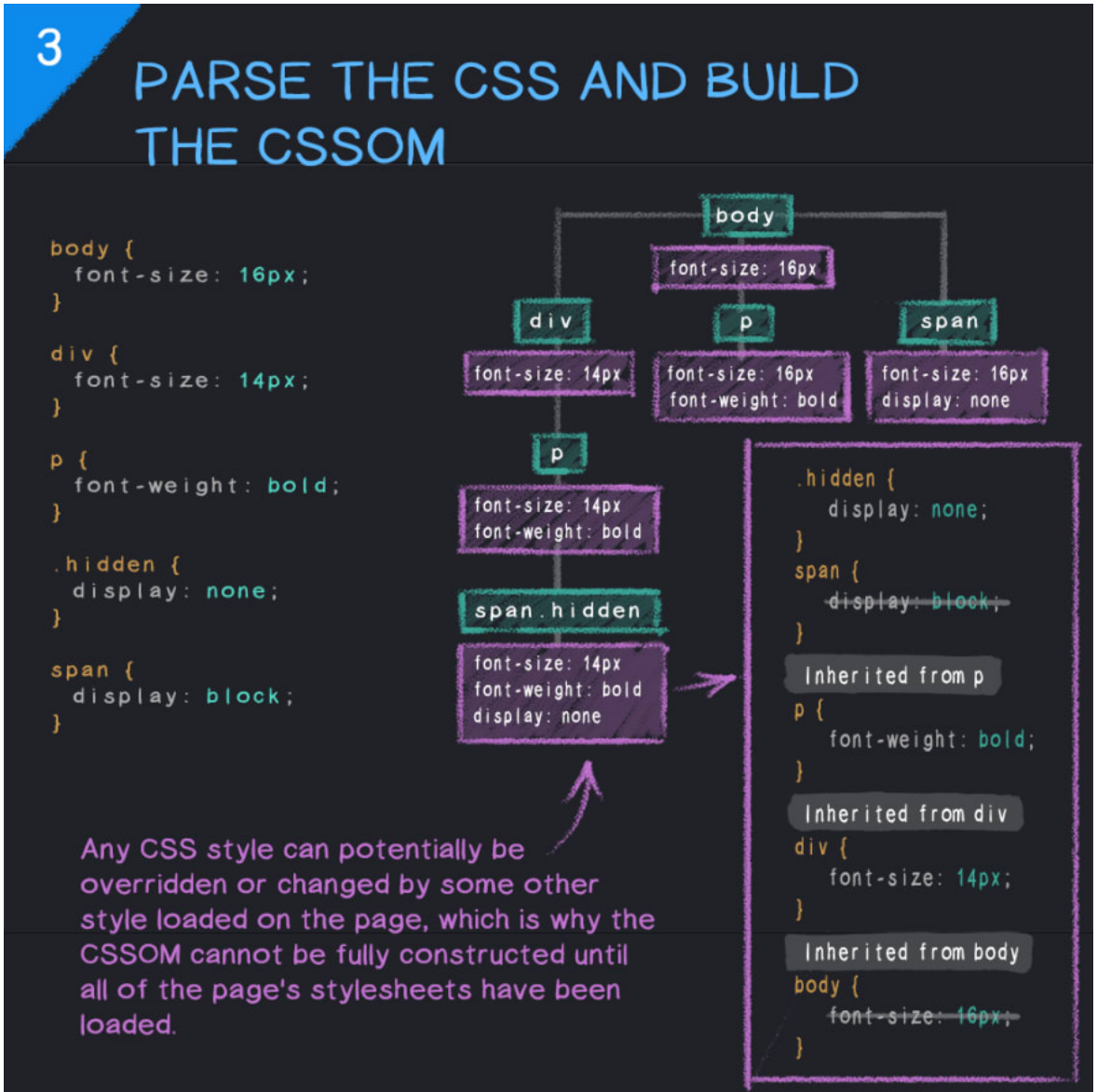
index.html hosted with ❤ by GitHub



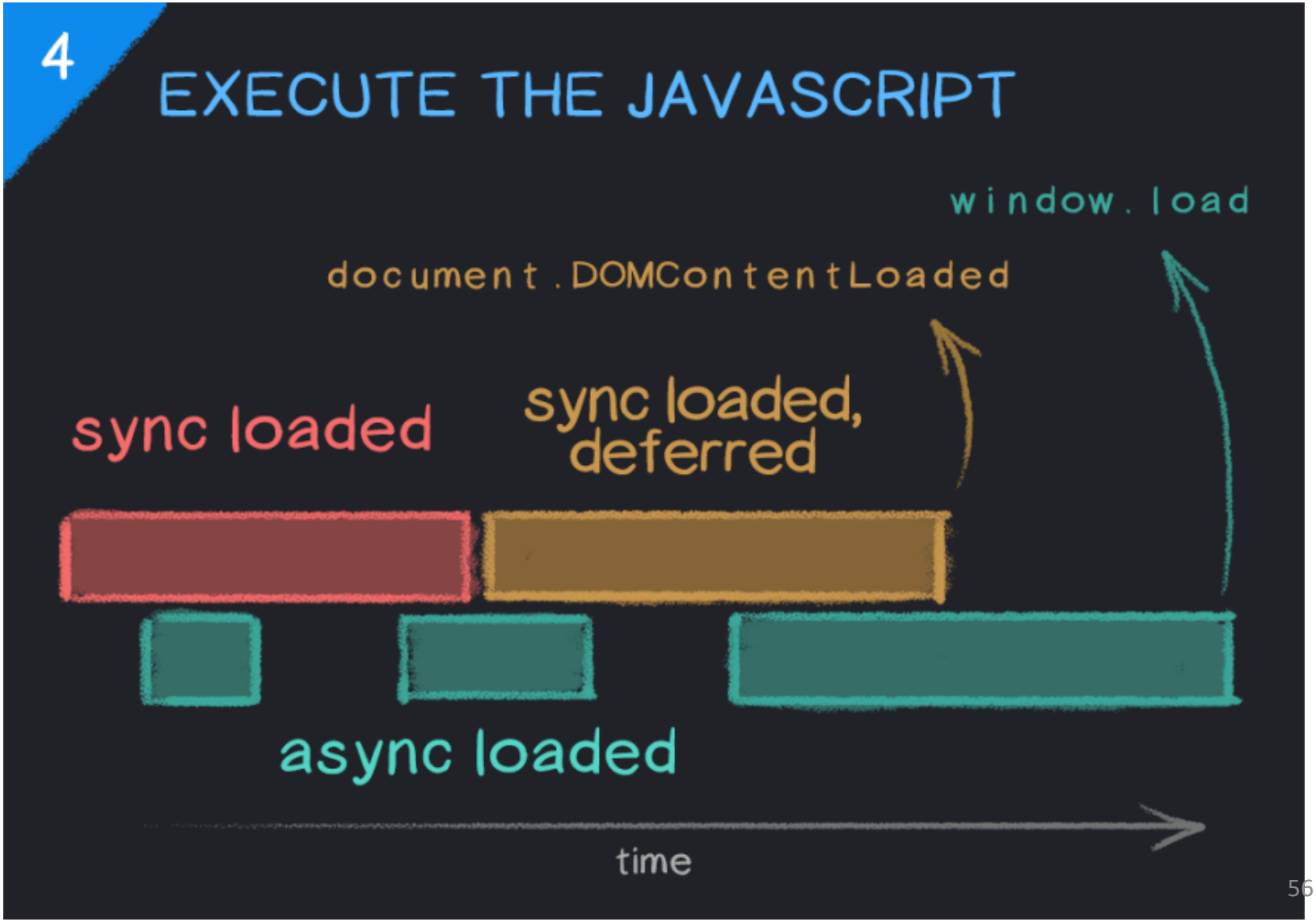
# 7. การทำงานของ Web Browser



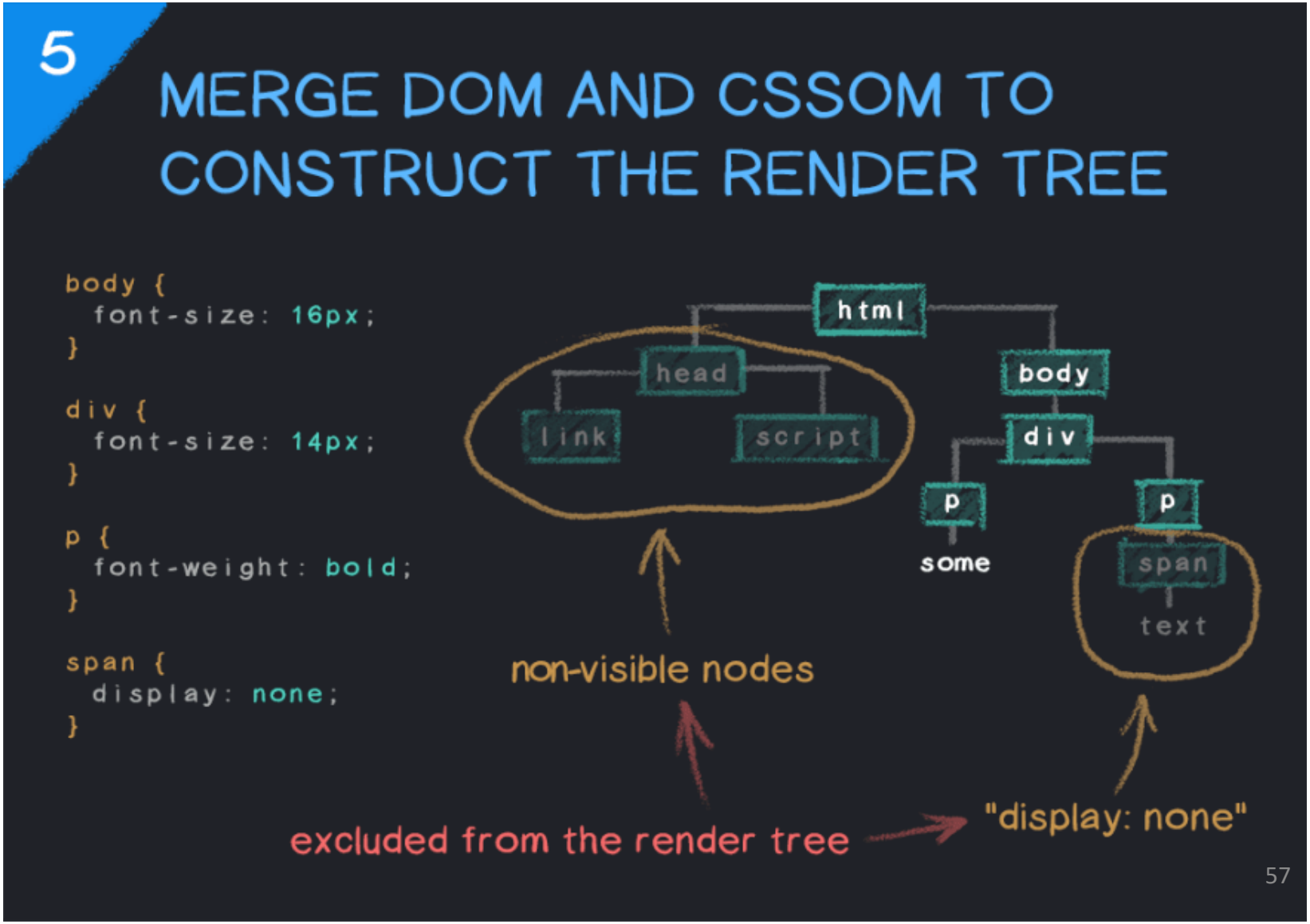
# 7. การทำงานของ Web Browser



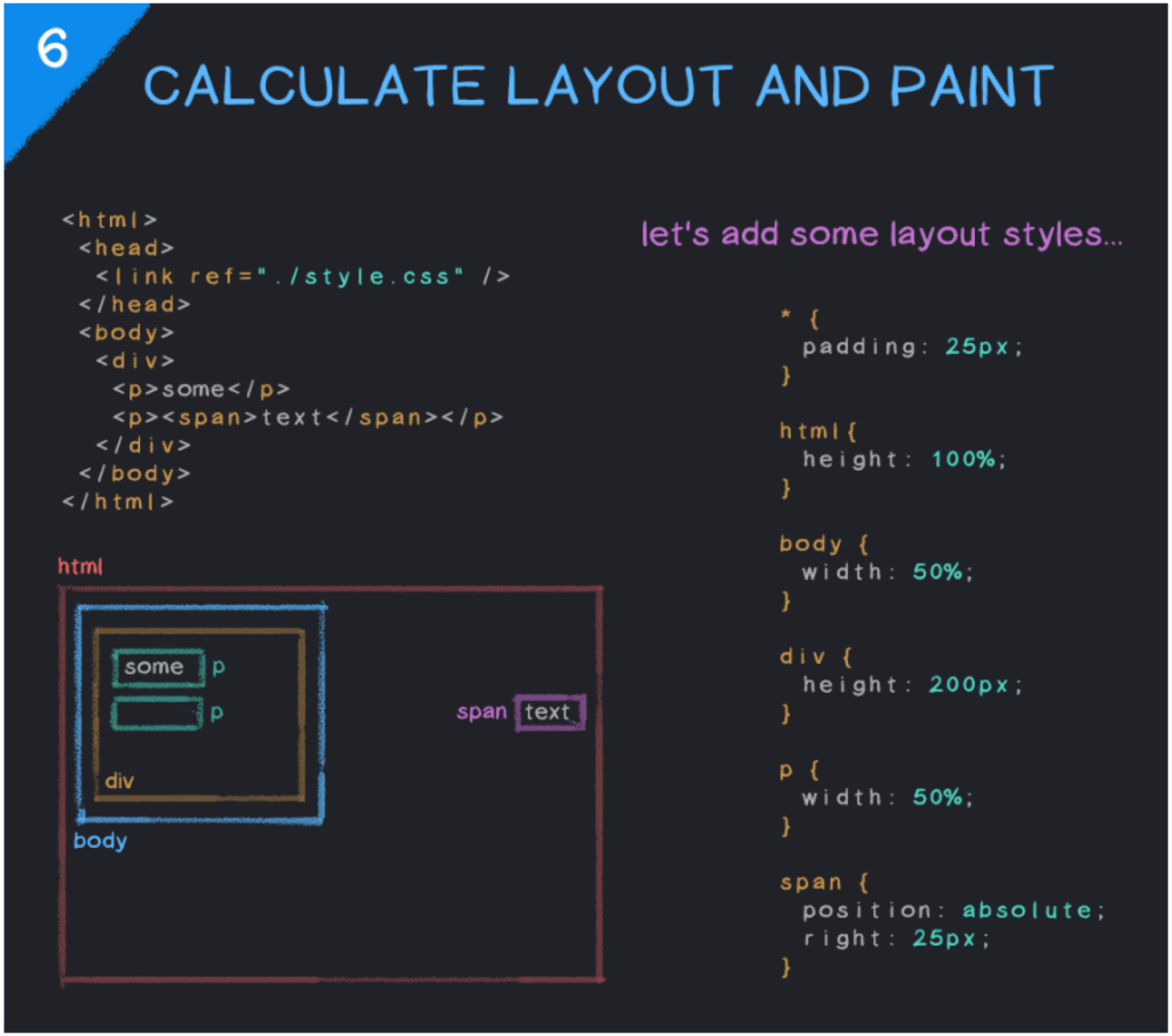
# 7. การทำงานของ Web Browser



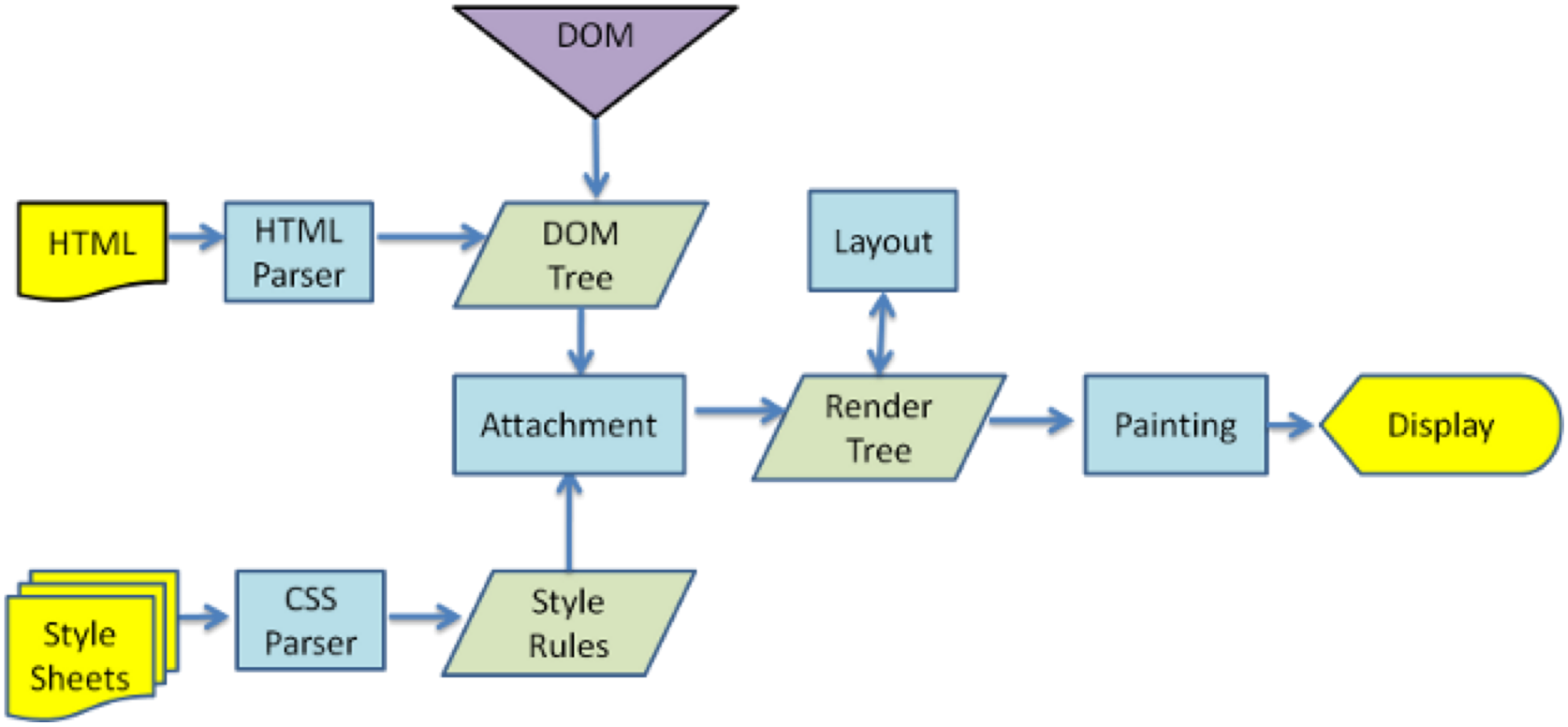
# 7. การทำงานของ Web Browser



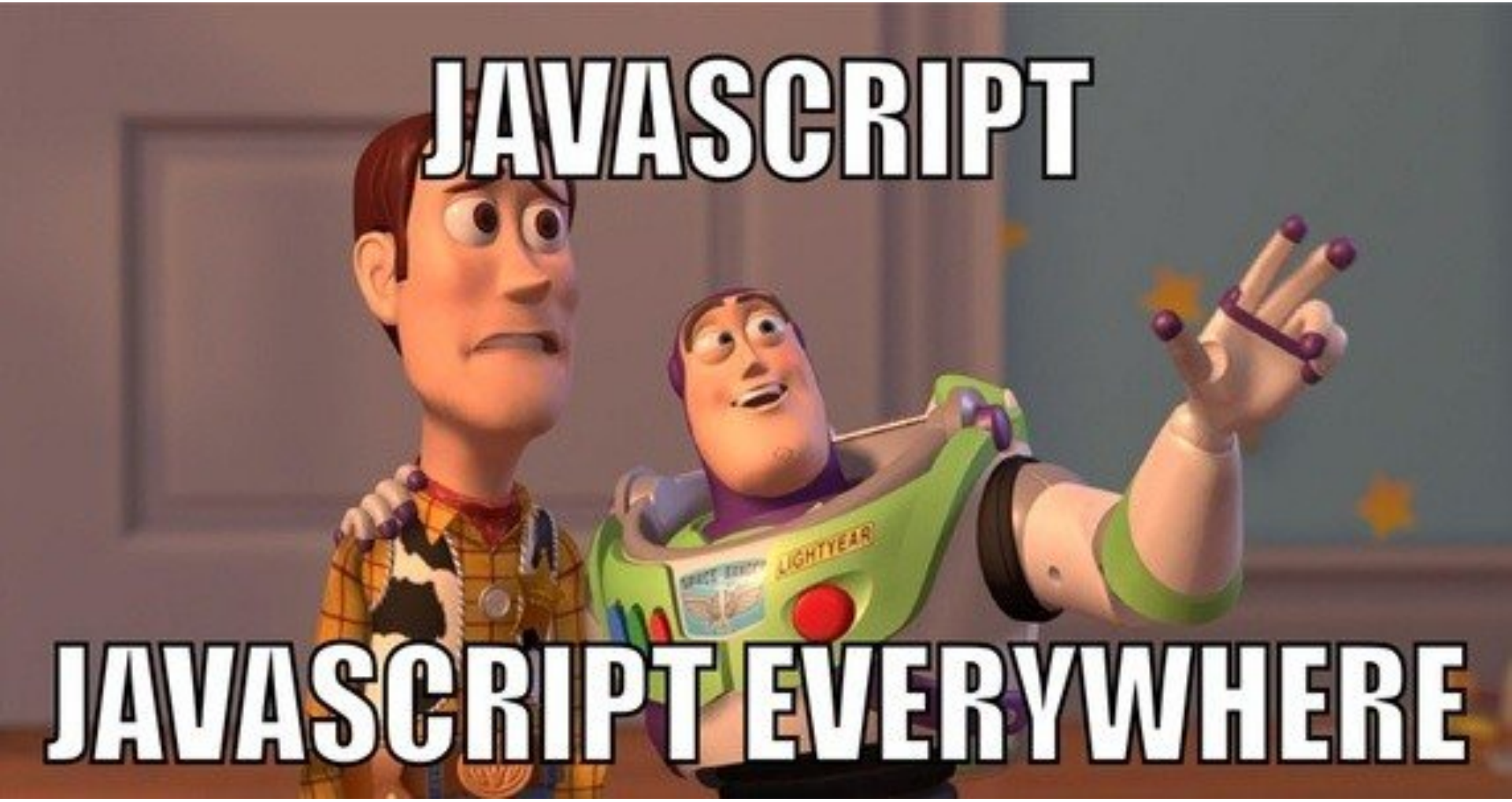
# 7. การทำงานของ Web Browser



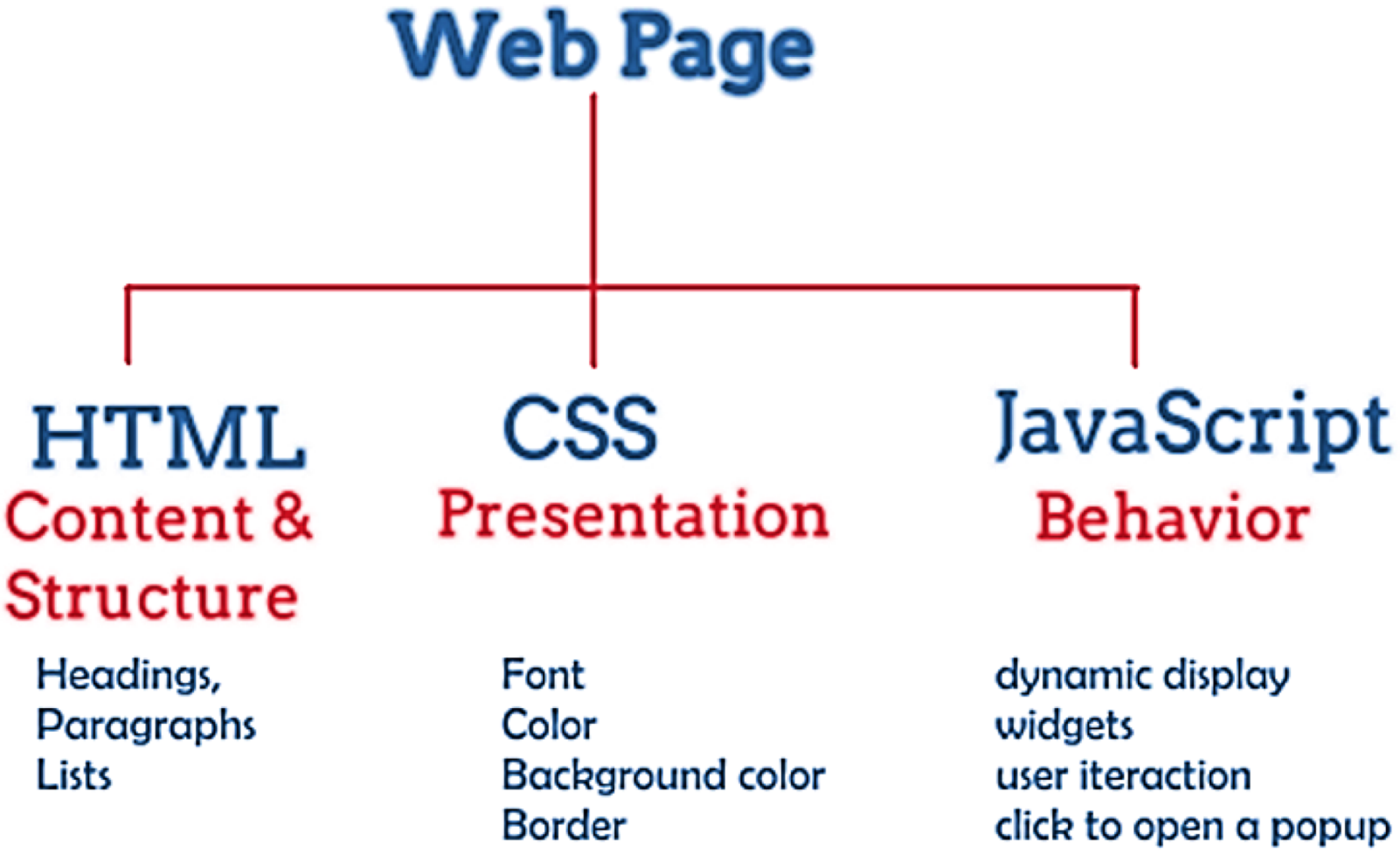
# 7. การทำงานของ Web Browser



# 8. JavaScript



# Html, CSS, JavaScript



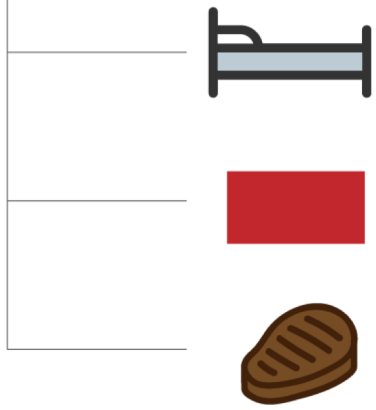
# Html, CSS, JavaScript

HTML

HTML + CSS

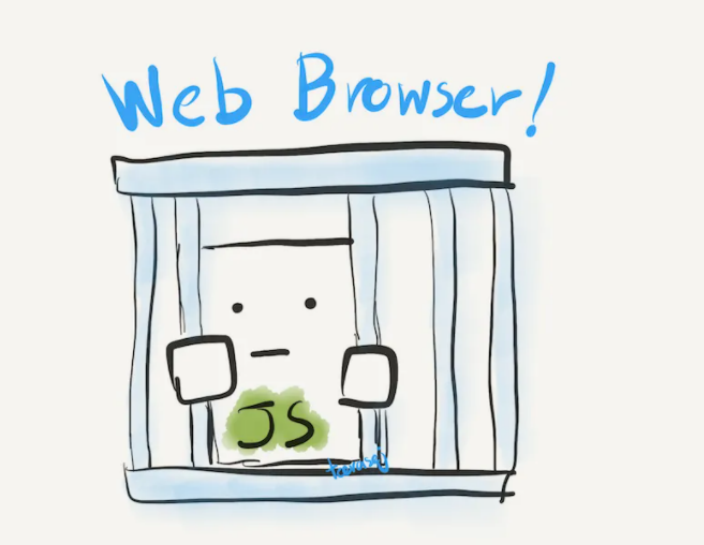
HTML + CSS
+ JAVASCRIPT

*house* **folder**



# 8. JavaScript

- เดิมทีภาษา JavaScript ทำงานที่ Web browser เป็นหลัก โดยทำหน้าที่เปลี่ยนแปลงโครงสร้างของ HTML เป็นหลัก




- JavaScript Can Change HTML Content
- JavaScript Can Change HTML Attribute Values
- JavaScript Can Change HTML Styles (CSS)
- JavaScript Can Hide/Show HTML Elements

# 8. JavaScript

- **JavaScript Can Change HTML Content**

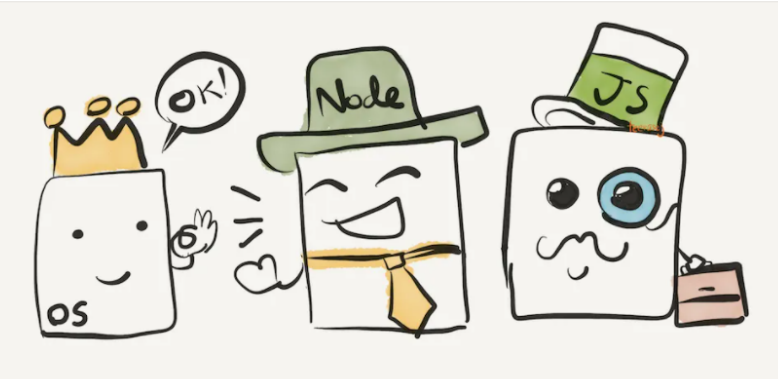
```
<!DOCTYPE html>
<html>
<body>

<h2>What Can JavaScript Do?</h2>

<p id="demo">JavaScript can change HTML content.</p>

<button type="button" onclick="document.getElementById('demo').innerHTML
= 'Hello JavaScript!'">Click Me!</button>

</body>
</html>
```


# 8. JavaScript

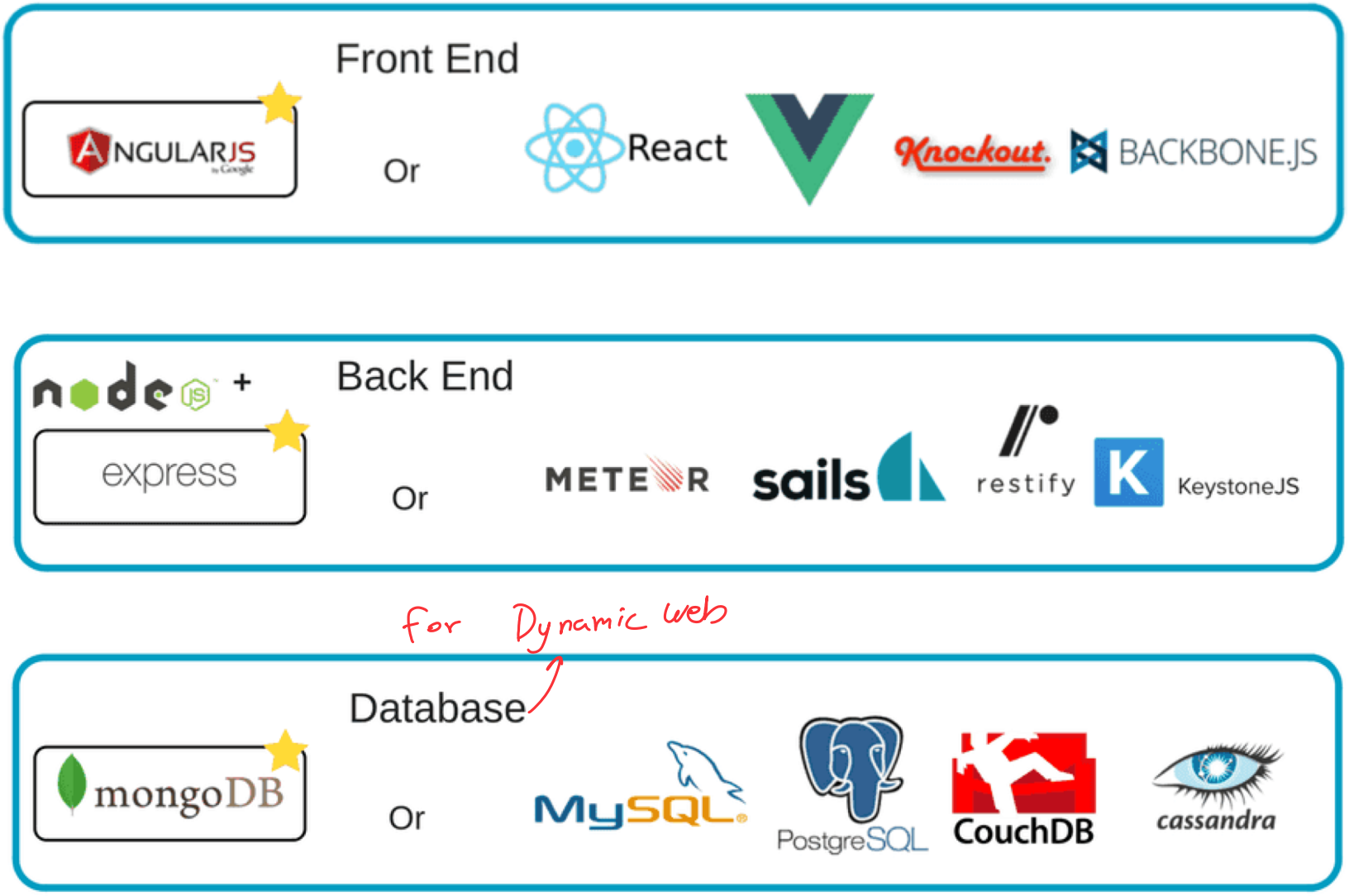
- ต่อมา ผู้คนอยากให้ JavaScript ทำงานนอก Web Browser ได้ เพื่อเพิ่มความสามารถของมัน จึงมีคนคิดค้นสร้างสิ่งที่เรียกว่า Node

- Node หรือ Node.js คือ JavaScript Runtime ที่ถูกสร้างด้วย
  Chrome'V8 JavaScript Engine

- โดย JavaScript Runtime ทำหน้าเพื่อ อ่าน code ภาษา java script และทำงานตามคำสั่ง เพื่อให้ OS ต่างๆ ทำงานได้

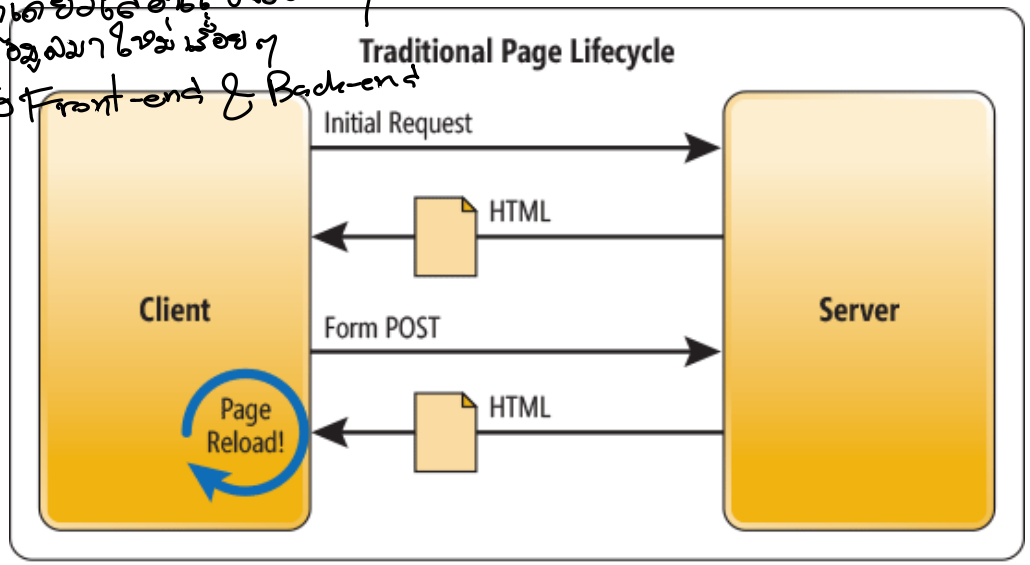


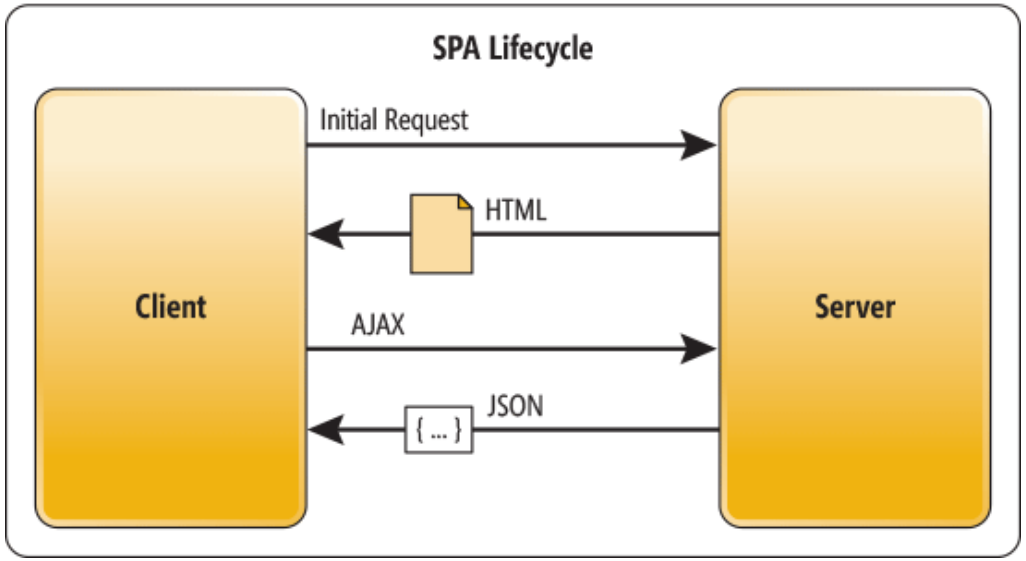
# Full Stack JavaScript Tools and Technologies



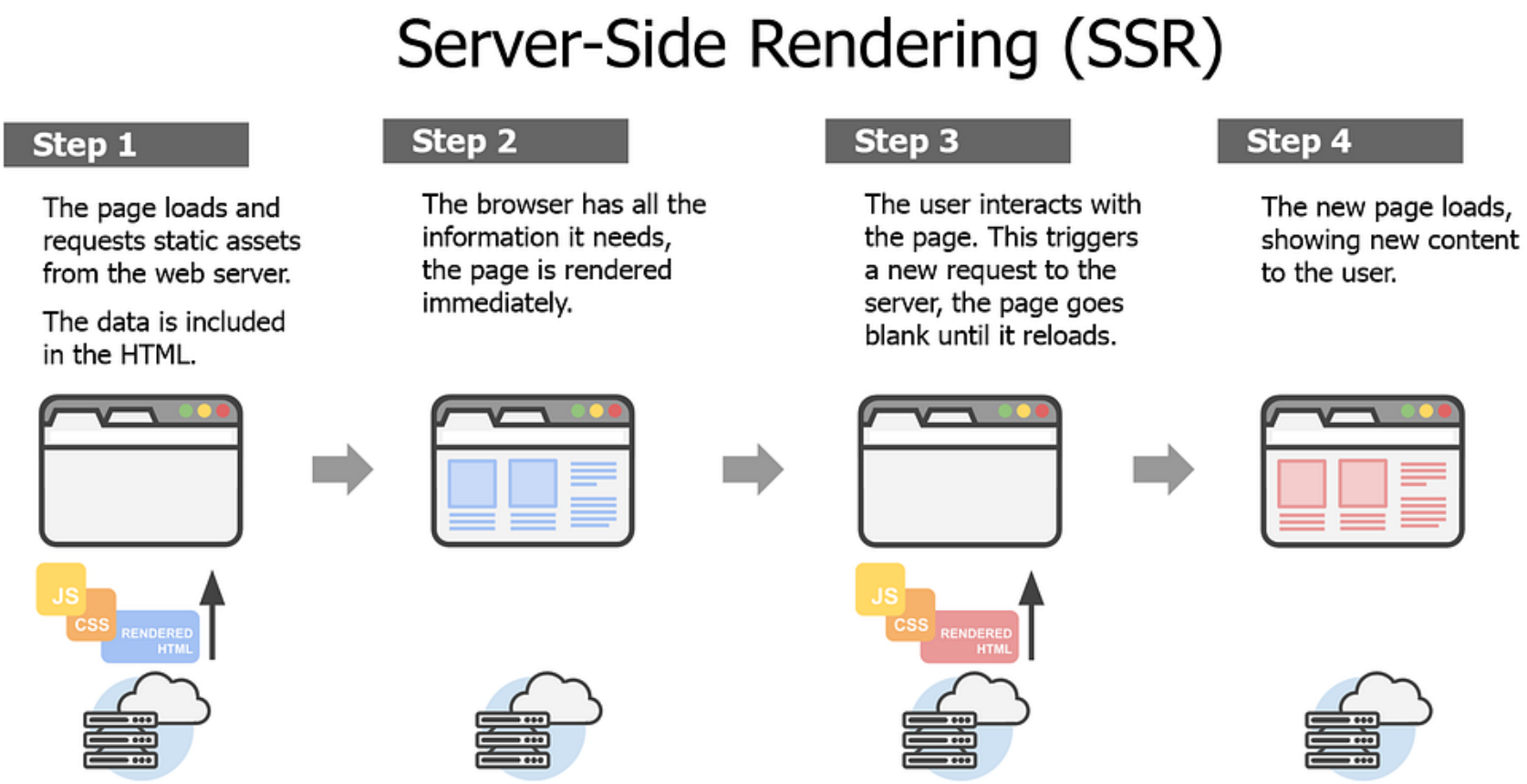
# 9. Single Page Application

- Facebook หน้าเดียวเลื่อนไปเรื่อย ๆ
→ reload ข้อมูลมาใหม่เรื่อย ๆ
→ ติดต่อกับ Front-end & Back-end

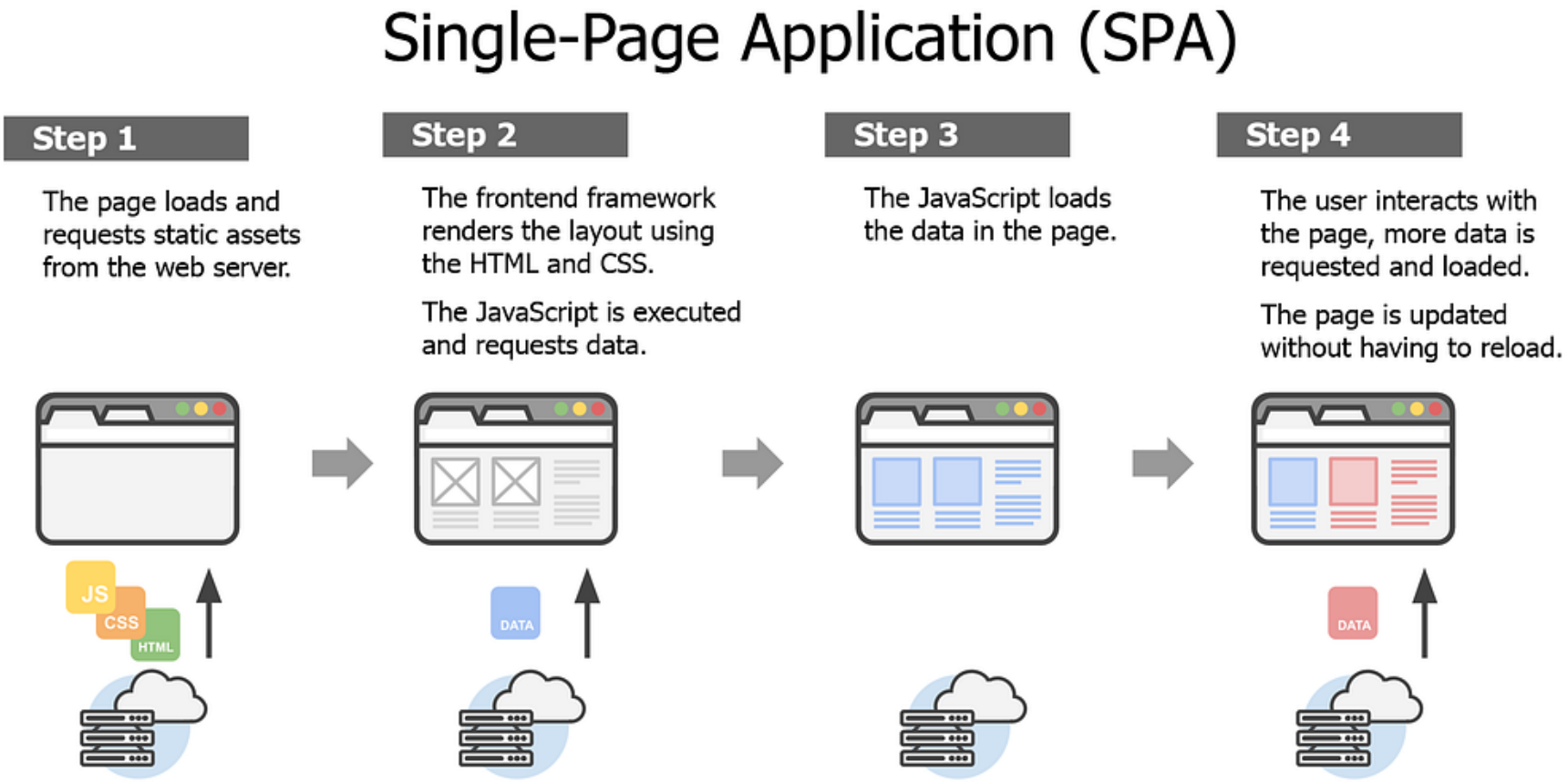


# Single Page Application



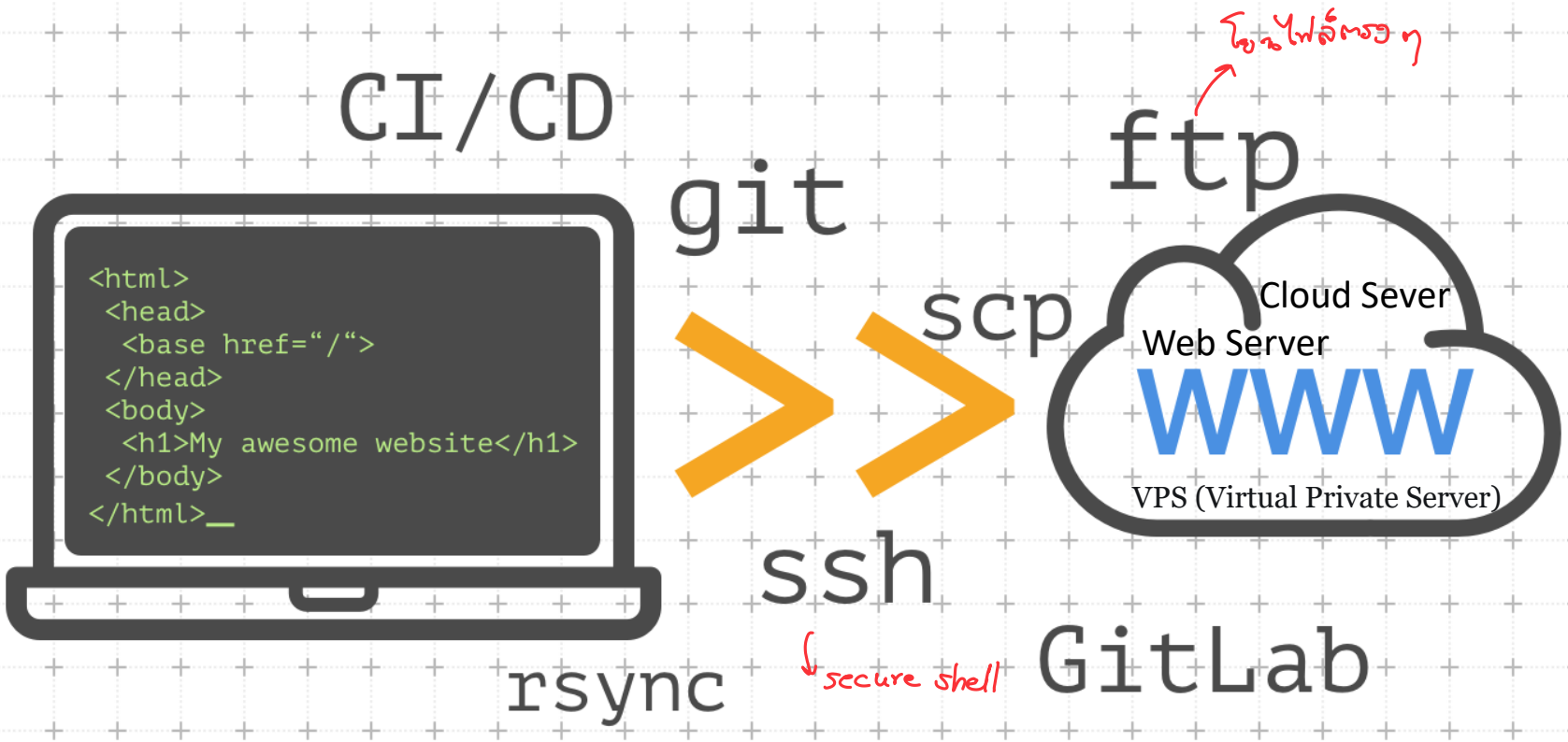
# Single Page Application



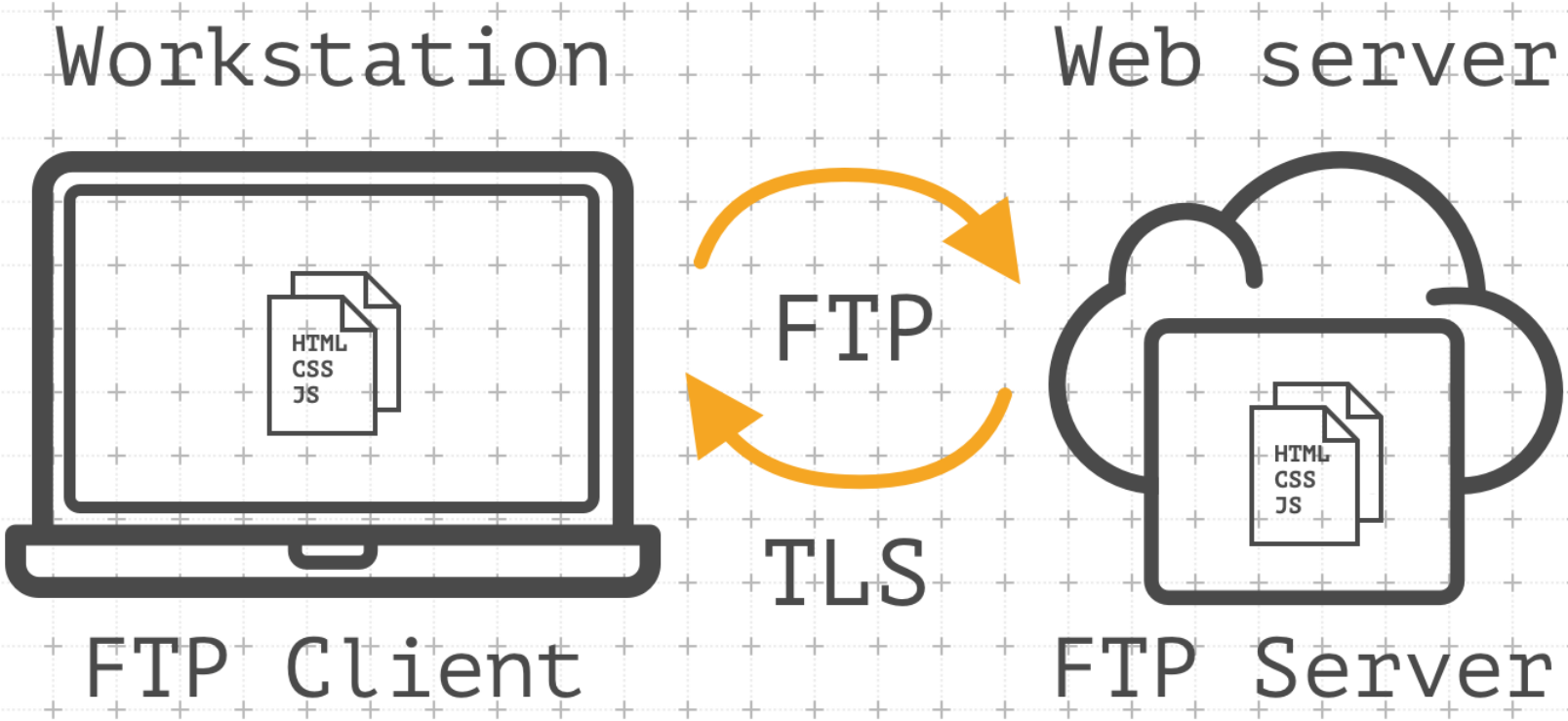
# Single Page Application


บาง web/App อาจจะไม่ได้ใช้ architecture แบบ single page app. แต่ว่า

# Web Deployment Examples



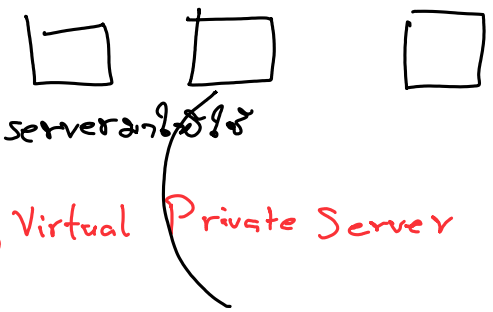
# Web Deployment using FTP




FTP (File Transfer Protocol) is a standard network protocol used for the transfer of files from one host to another over a TCP-based network, such as the Internet.

TLS (Transport Layer Security)
SFTP/SSL (ปัจจุบันในการใช้งาน)

# FTP(File Transfer Protocol)



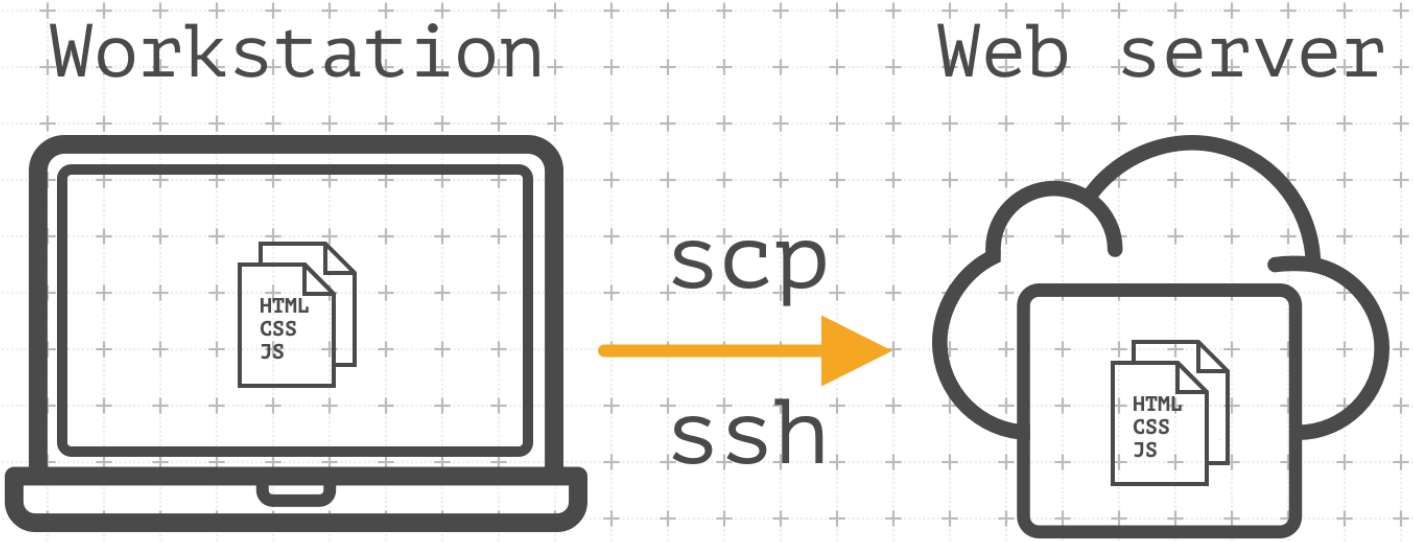

FTP Request


Download/Upload File

FTP Server (แม่ข่ายที่ให้บริการFile)

Client(เครื่องลูกข่าย)

# Web Deployment using SCP/SSH




**SCP** (stands for 'secure copy') - allow copying files from a local host to a remote host using ssh protocol.

Secure Shell (SSH) a cryptographic network protocol for operating network services securely over an unsecured network. Its most notable applications are remote login and command-line execution.

```
$ scp -C dist/index.html ubuntu@webserver:/opt/webserver/www/example.com/
index.html                                    100%  670    22.1KB/s   00:00

$ scp -rC dist/* ubuntu@webserver:/opt/webserver/www/example.com/
404.html                                      100%  660    21.3KB/s   00:00
main.min.css                                  100%  770    25.6KB/s   00:00
main.css                                      100% 1337    44.5KB/s   00:00
keyboard.jpg                                  100%  240KB   1.3MB/s   00:00
index.html                                    100%  670    21.7KB/s   00:00
main.min.js                                   100%  125     4.2KB/s   00:00
main.js                                       100%  168     5.5KB/s   00:00
```

FileZilla
https://filezilla-project.org

## FileZilla - The free FTP solution

FileZilla - The free FTP solution for both client and server. Filezilla is open source software distributed free of charge.

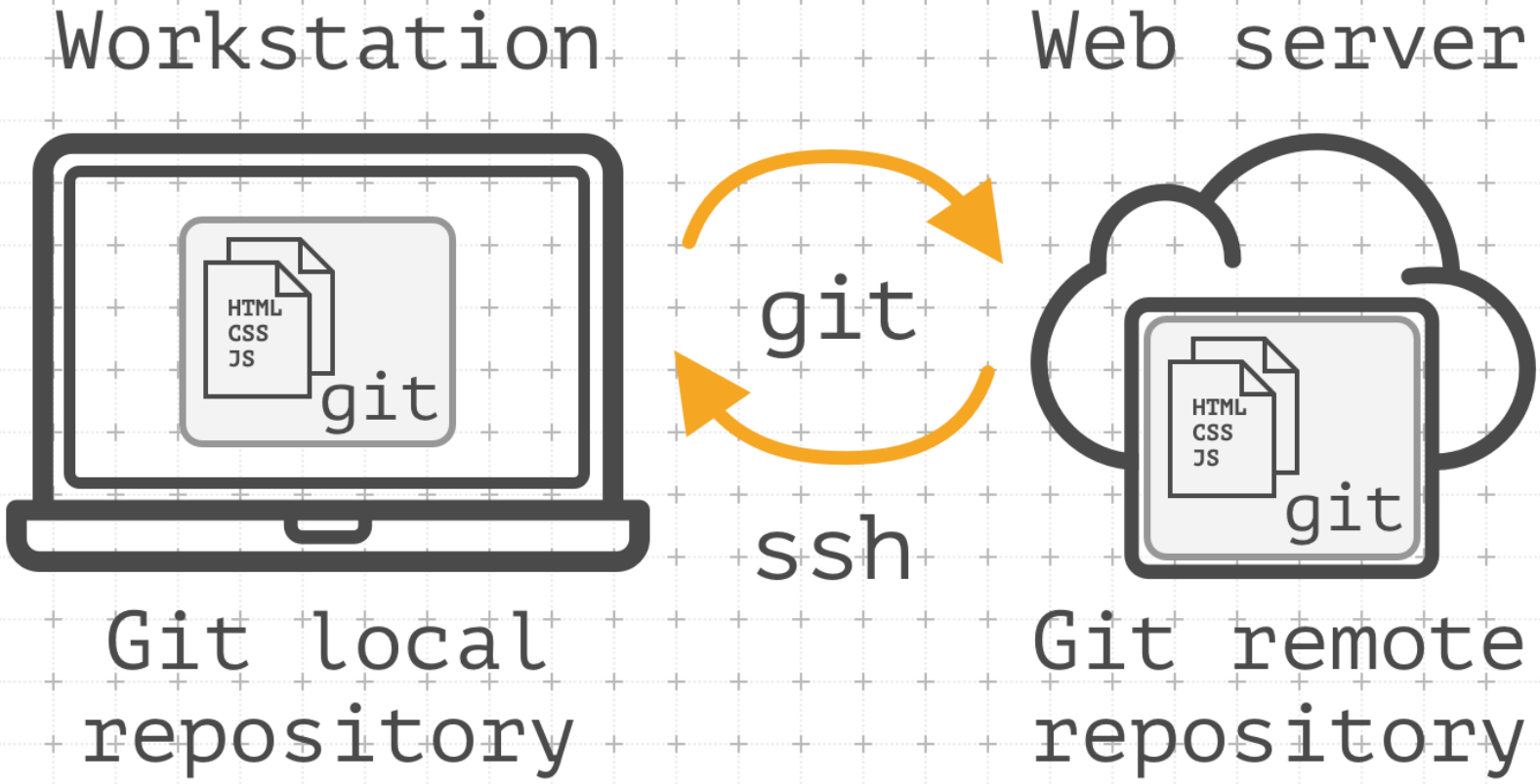
Download FileZilla Client | Download FileZilla Server | Client Features | Screenshots

WinSCP
https://winscp.net › eng › docs › free_ftp_...

## Free FTP Client for Windows

10 ก.ย. 2567 — WinSCP is an open source free FTP client for Windows. You can get it from WinSCP download page. Latest stable WinSCP version is 6.3.5.

# Web Deployment using SSH/GIT




```
$ ssh user@remote-host
$ sudo mkdir /opt/webserver/www/example.com
$ sudo chown ubuntu:ubuntu /opt/webserver/www/example.com
$ git init --bare ~/myawesomewebsite.git
Initialized empty Git repository in /home/ubuntu/myawesomewebsite.git

$ cd ~/myawesomewebsite.git
```

# Secure Shell (SSH)

Remote Desktop with Command Line
- Windows Cmd
- MacOS Terminal
- Putty


SSH admin@161.200.1.1


Web Server

Client(เครื่องลูกข่าย)

```
$ ssh user@remote-host
$ sudo mkdir /opt/webserver/www/example.com
$ sudo chown ubuntu:ubuntu /opt/webserver/www/example.com
$ git init --bare ~/myawesomewebsite.git
Initialized empty Git repository in /home/ubuntu/myawesomewebsite.git

$ cd ~/myawesomewebsite.git
```

# Web Server Installation

- **OS** (Ubuntu Server/ Windows Server) Secure กว่า Win 11 ปกติ
- **Web Server Software** (Apache/NginX/IIS)

Optional – Dynamic/BackEnd

- **Database – DBMS** (MySQL/MariaDB/MSaccess)
- **Server Side Script - Interpreter/Complier/Node** (PHP/Node.JS/ASP.NET/Python)

# CMS – WordPress - Installation

- **OS** (Ubuntu Server/ Windows Server)
- **Web Server Software** (Apache/NginX)
- **Database – DBMS** (MySQL/MariaDB)
- **Server Side Script – Interpreter** (PHP)

https://wordpress.org/about/requirements/


## Requirements

To run WordPress, it's recommended your host supports:

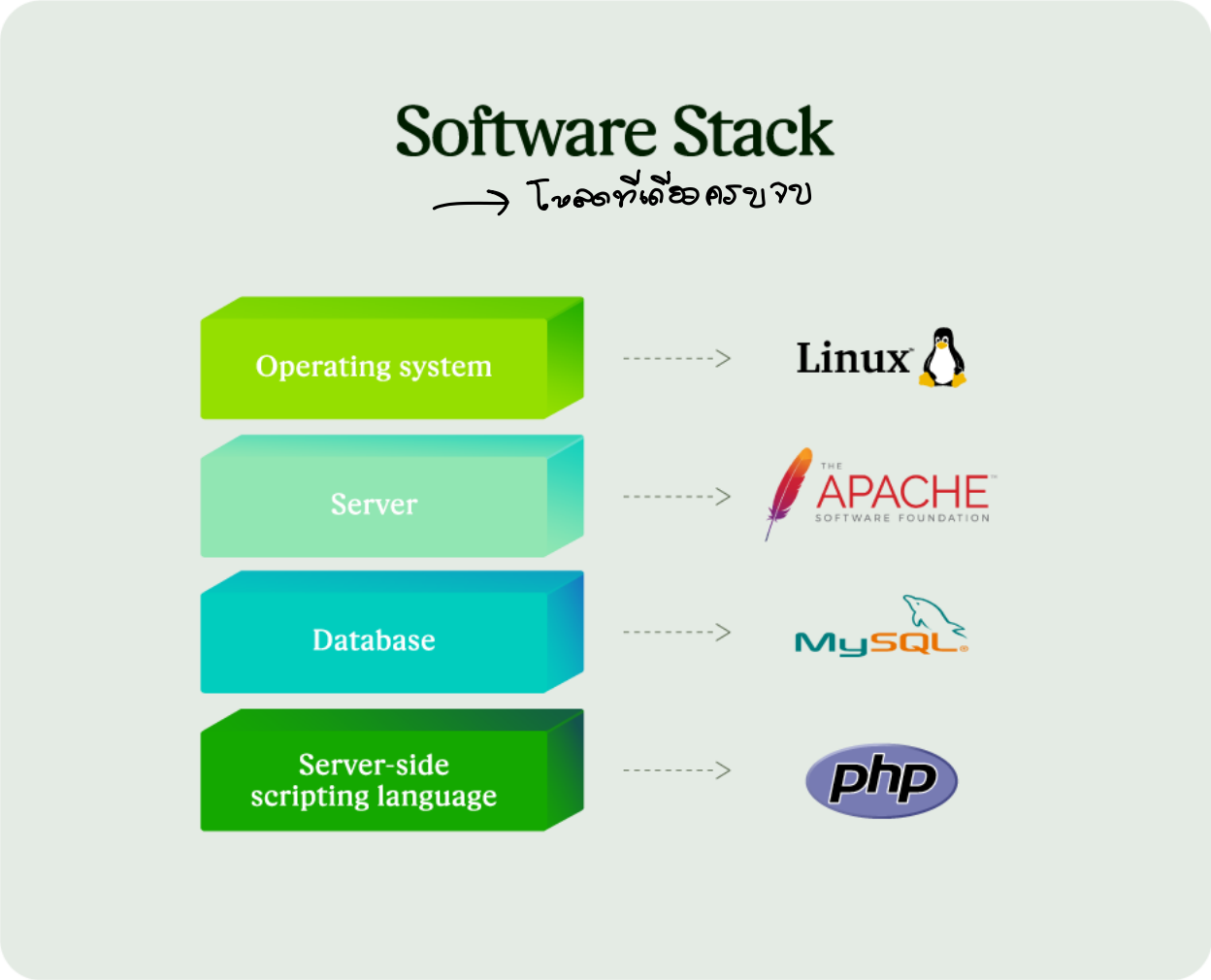
WordPress requirements

- PHP version 7.4 or greater.
- MySQL version 8.0 or greater OR MariaDB version 10.5 or greater.
- HTTPS support

That's really it. Apache or Nginx is recommended as the most robust and featureful server for running WordPress, but any server that supports PHP and MySQL will do. That said, for the smoothest experience in setting up—and running—your site, each host on the hosting page supports the above and more with no problems.

For detailed PHP extension recommendations, see the Hosting Handbook.

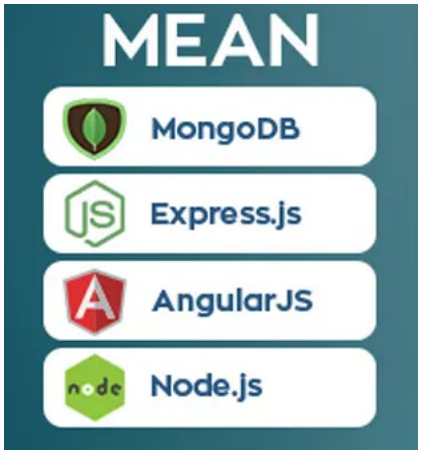
# Software Stack



# Software Stack Examples

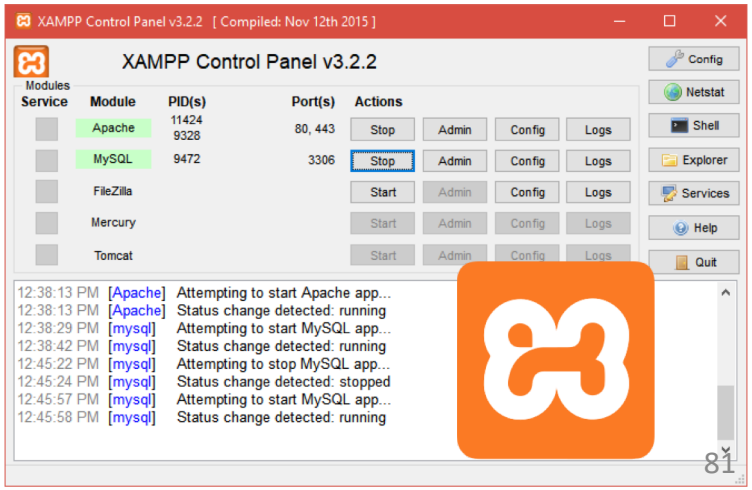
**LAMP**: Linux/Apache/MySQL/PHP


**MEAN**: MongoDB/Express.js/AngularJS/Node.js




**Ruby Stack**: Ruby/Ruby on Rails/RVM (Ruby Virtual Machine)/MvSQL/Apache/PHP


**XAMPP** Apache + MariaDB + PHP + Perl



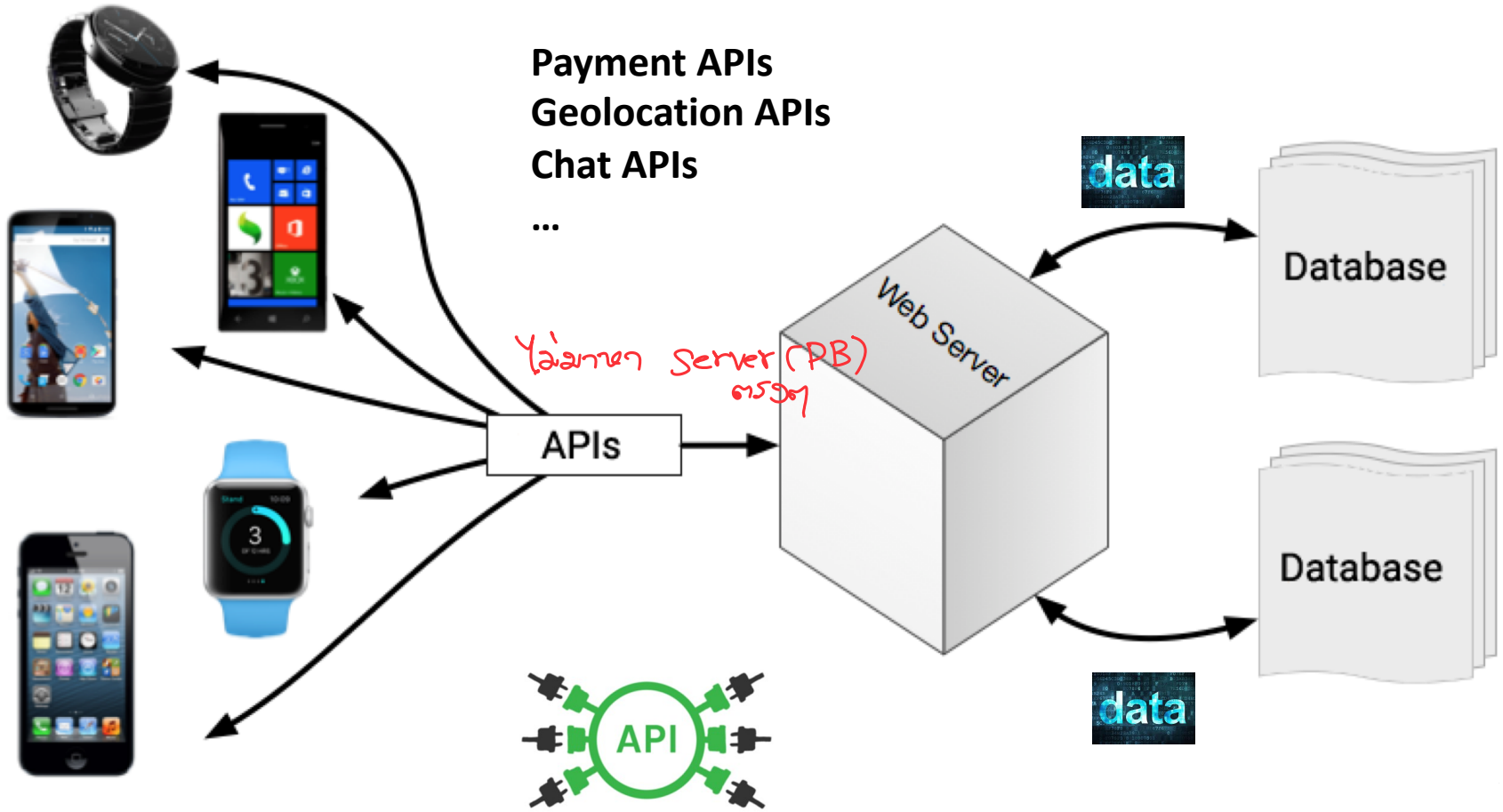
# 10. Introduction to API

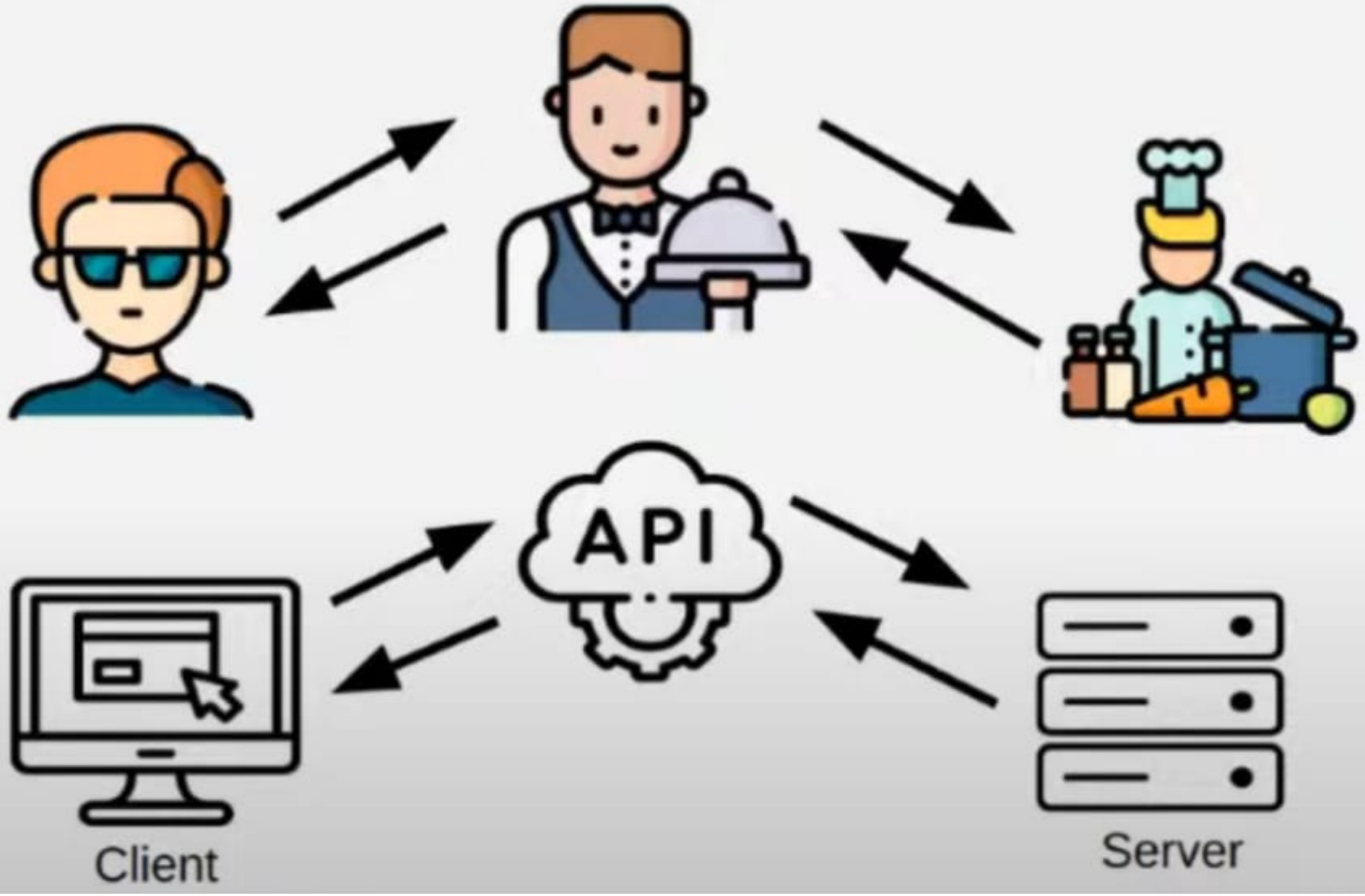
โรงไฟฟ้า ผลิตไฟฟ้า เพื่อให้บริการไฟฟ้า

คำถาม ถ้าไม่มีปลั๊กตัวเมียมาให้ เราจะใช้ไฟฟ้า อย่างไร ?

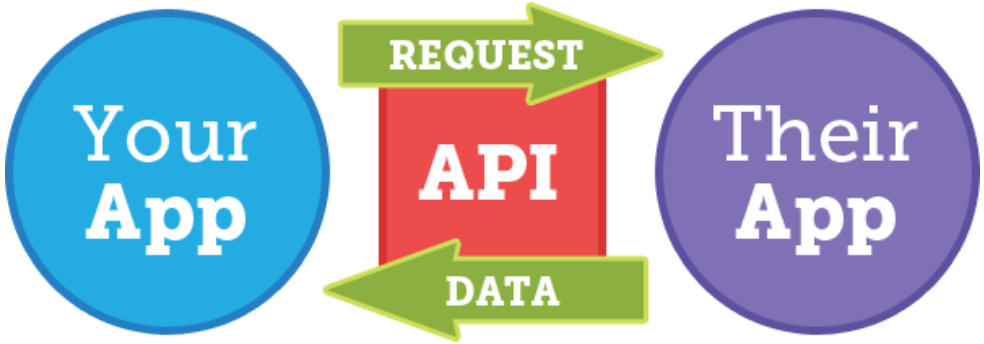
# 10. Introduction to API

API ย่อมาจาก Application Programming Interface




API
Client
Server

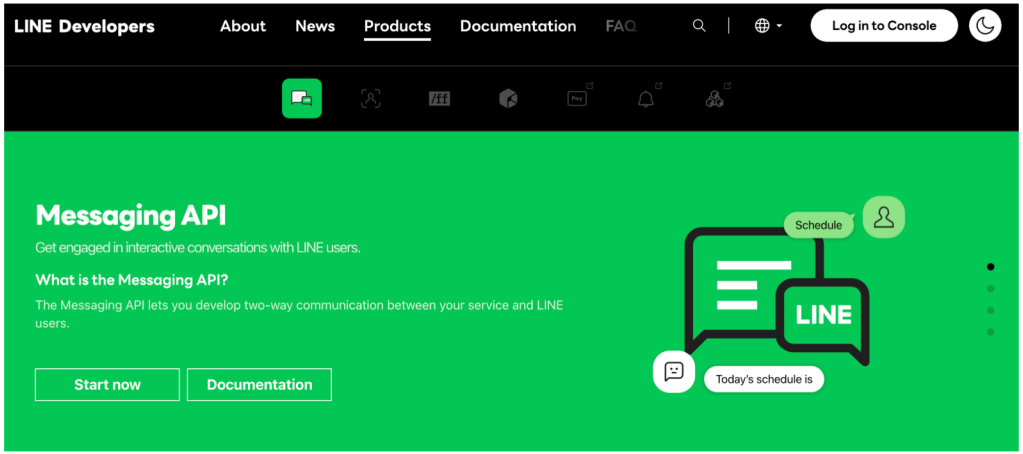
# An API allows one piece of software talk to another.

# ตัวอย่าง API

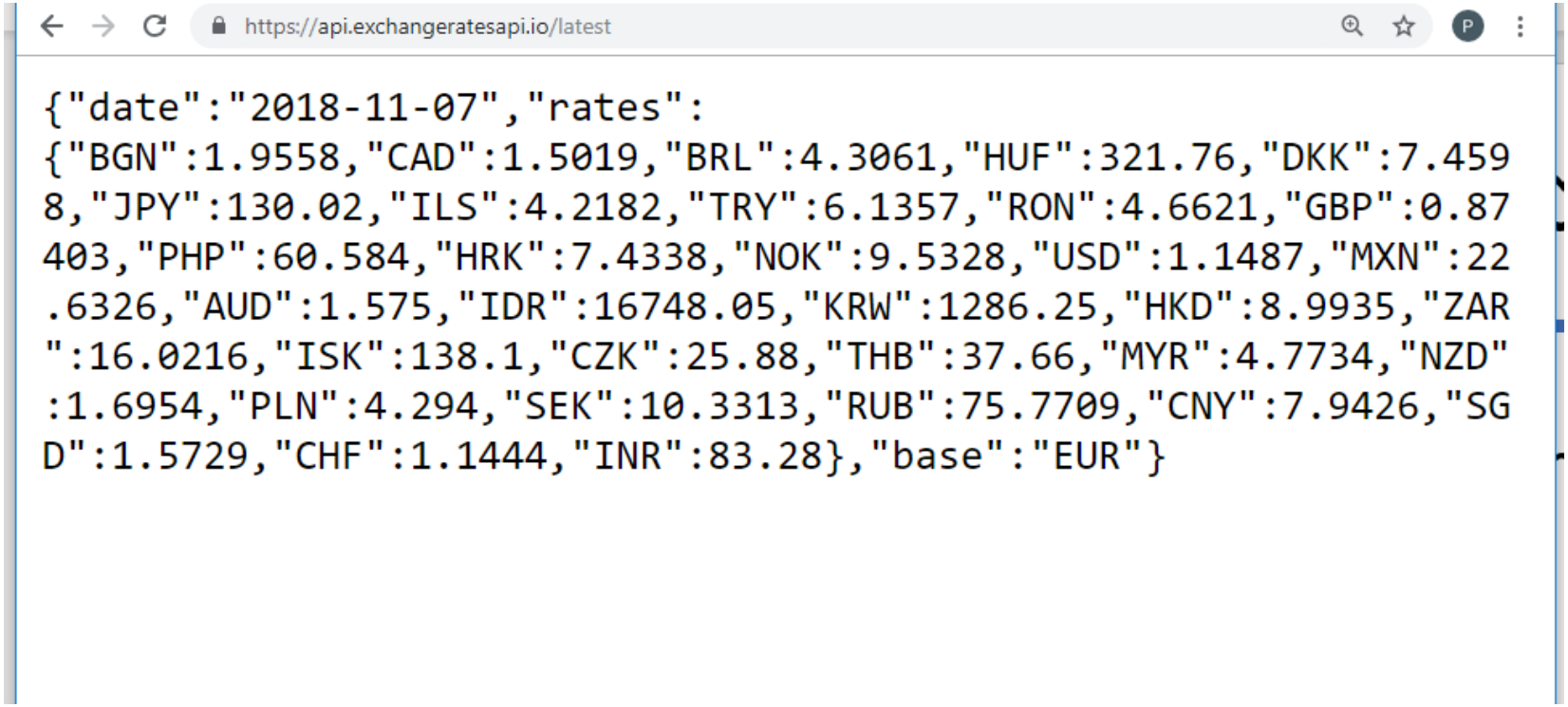

Google Maps APIs

YouTube
Data API v3




# ตัวอย่าง API ให้ข้อมูล อัตราแลกเปลี่ยน

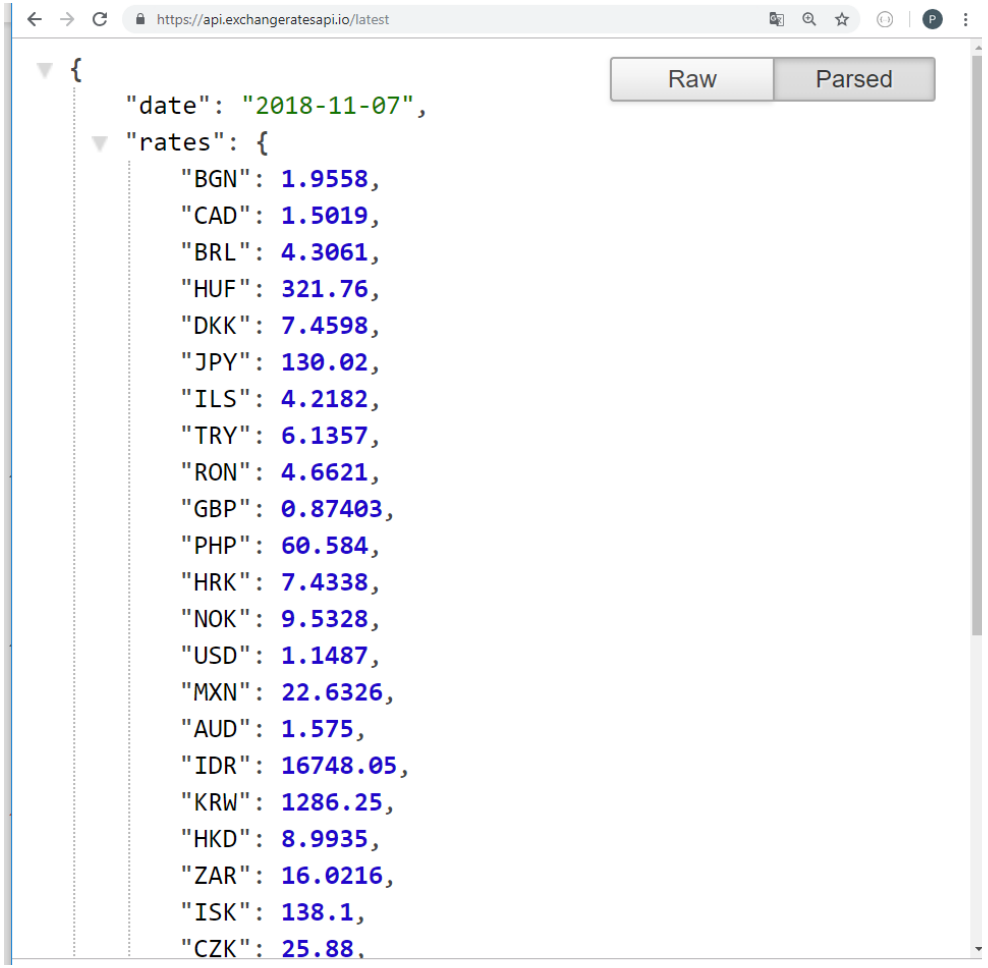
https://api.exchangeratesapi.io/latest



# ตัวอย่าง API ให้ข้อมูล อัตราแลกเปลี่ยน

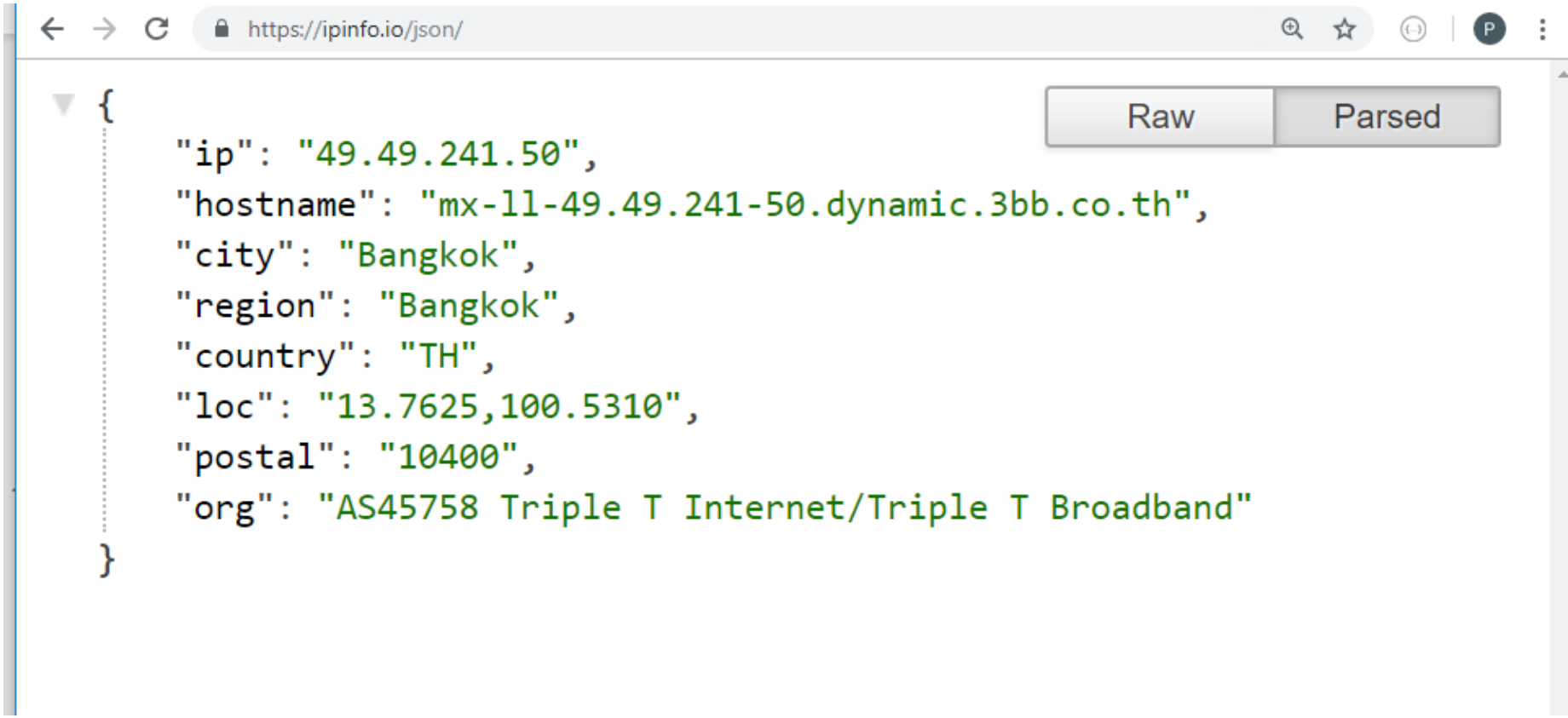
https://api.exchangeratesapi.io/latest

ติดตั้ง plugin **json formatter**



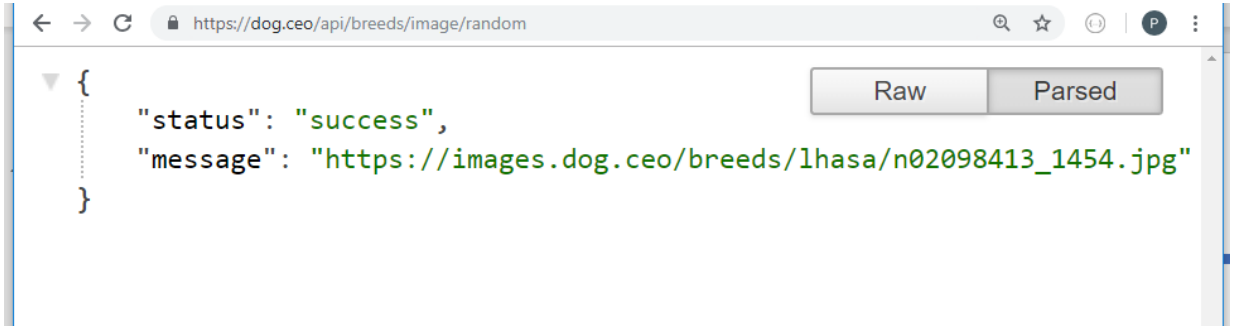
# ตัวอย่าง API ให้ข้อมูล IP Address

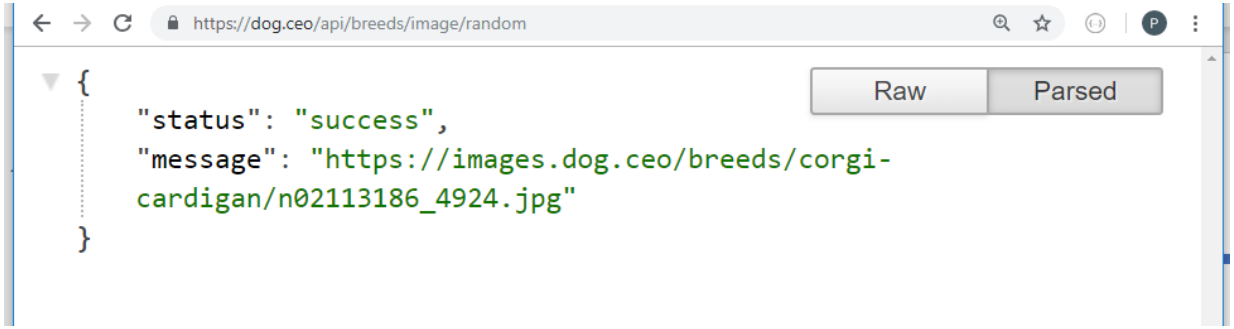
https://ipinfo.io/json/



# ตัวอย่าง API ให้ข้อมูล Random ภาพสุนัข

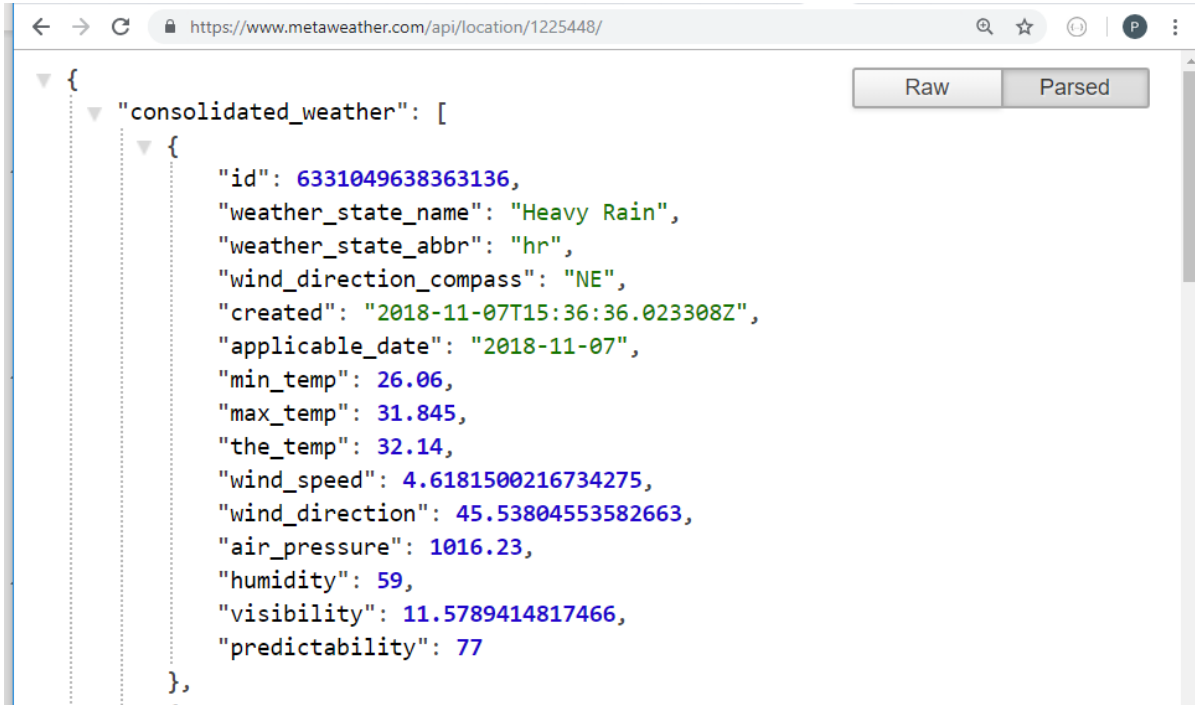
https://dog.ceo/api/breeds/image/random



# ตัวอย่าง API ให้ข้อมูล สภาพอากาศ

https://www.metaweather.com/api/location/1225448/




ตัวอย่าง API อื่น ๆ สามารถดูได้จาก

https://github.com/toddmotto/public-apis หรือค้นจาก google

# การเขียน html ดึงค่าข้อมูล ผ่าน API

https://api.exchangeratesapi.io/latest

ไฟล์ index.html

```
File  Edit  Format  View  Help
<html>
<head>
        <title>Welcome to JSON</title>
        <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
</head>
<body>

        <script type="text/javascript">
                $.getJSON('https://api.exchangeratesapi.io/latest', function(response) {
                        document.getElementById("data").innerHTML = response.rates.THB
                        document.getElementById("data1").innerHTML = response.date
                });
        </script>

        <div style = "color:red"   id="data" > </div>
        <div style = "color:blue"  id="data1"> </div>


</body>
</html>
```

Request

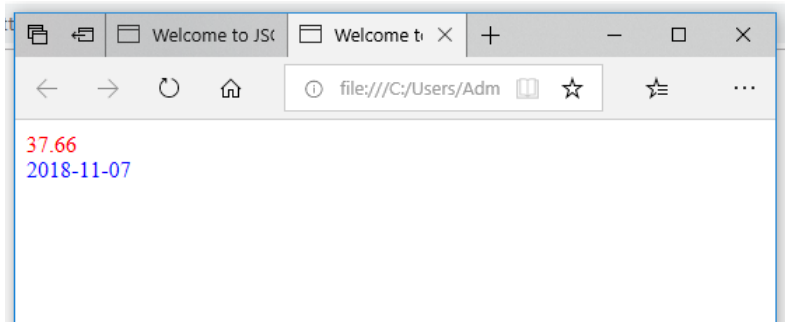
Data

https://api.exchangeratesapi.io/latest


```
    "PHP": 60.584,
    "HRK": 7.4338,
    "NOK": 9.5328,
    "USD": 1.1487,
    "MXN": 22.6326,
    "AUD": 1.575,
    "IDR": 16748.05,
    "KRW": 1286.25,
    "HKD": 8.9935,
    "ZAR": 16.0216,
    "ISK": 138.1,
    "CZK": 25.88,
    "THB": 37.66,
    "MYR": 4.7734,
    "NZD": 1.6954,
    "PLN": 4.294,
    "SEK": 10.3313,
    "RUB": 75.7709,
    "CNY": 7.9426,
    "SGD": 1.5729,
    "CHF": 1.1444,
    "INR": 83.28
},
"base": "EUR"
```


เปิดไฟล์ ผ่าน **Web browser**

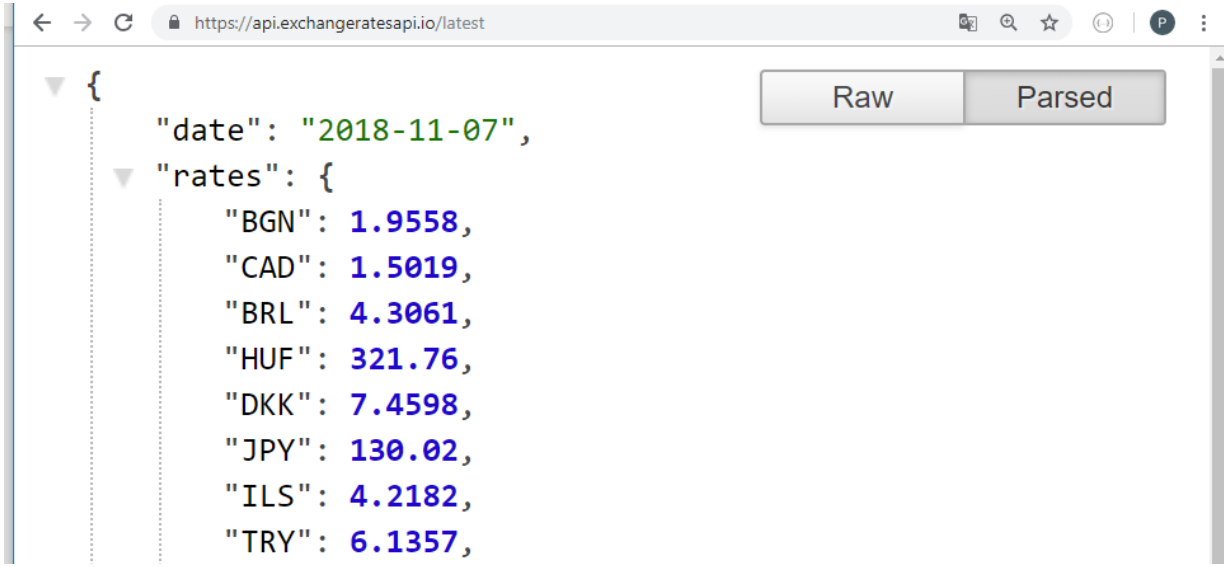
แสดงผล



# 9.1 REST API

**REST** หรือ Representational State Transfer เป็นวิธีในการสร้าง Web Service รูปแบบหนึ่งที่อาศัย HTTP Method (GET, POST, PUT, DELETE) ในการทำงาน และส่งผลกลับมาในรูปแบบของ JSON หรือ XML

เช่น https://api.exchangeratesapi.io/latest



# REST API

## ตัวอย่าง API Document

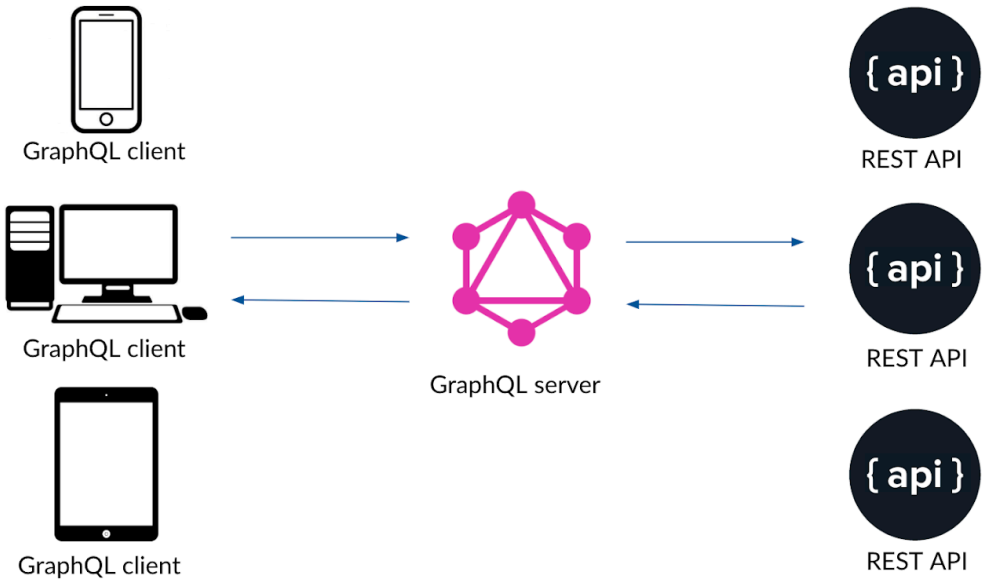
**workshop$Order** Entity CRUD operations

| | | |
|---|---|---|
| GET | `/entities/workshop$Order` | Gets a list of entities: workshop$Order |
| POST | `/entities/workshop$Order` | Creates new entity: workshop$Order |
| GET | `/entities/workshop$Order/{entityId}` | Gets a single entity by identifier: workshop$Order |
| PUT | `/entities/workshop$Order/{entityId}` | Updates the entity: workshop$Order |
| DELETE | `/entities/workshop$Order/{entityId}` | Deletes the entity: workshop$Order |
| GET | `/entities/workshop$Order/search` | Find entities by filter conditions: workshop$Order |
| POST | `/entities/workshop$Order/search` | Find entities by filter conditions: workshop$Order |

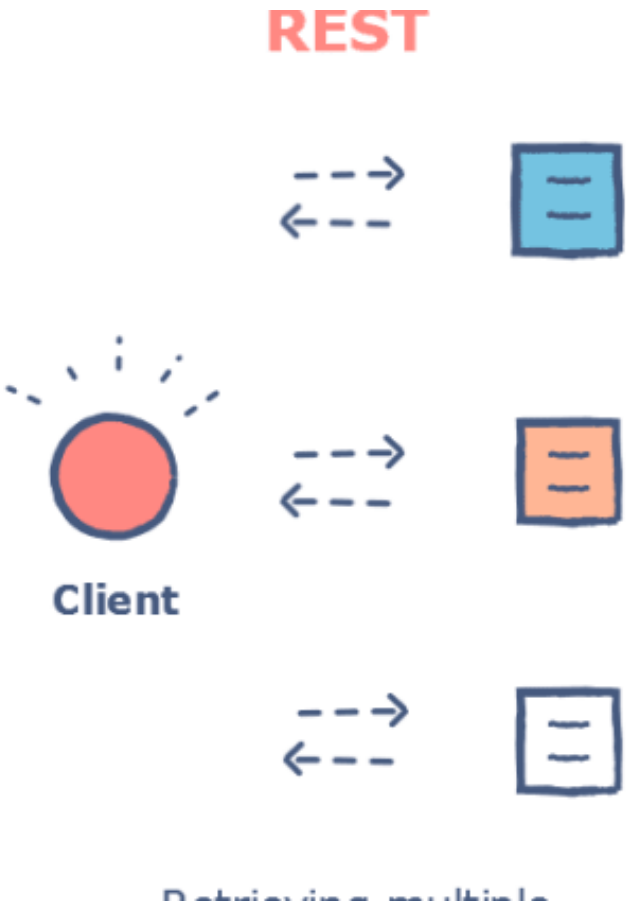
# 11. GraphQL

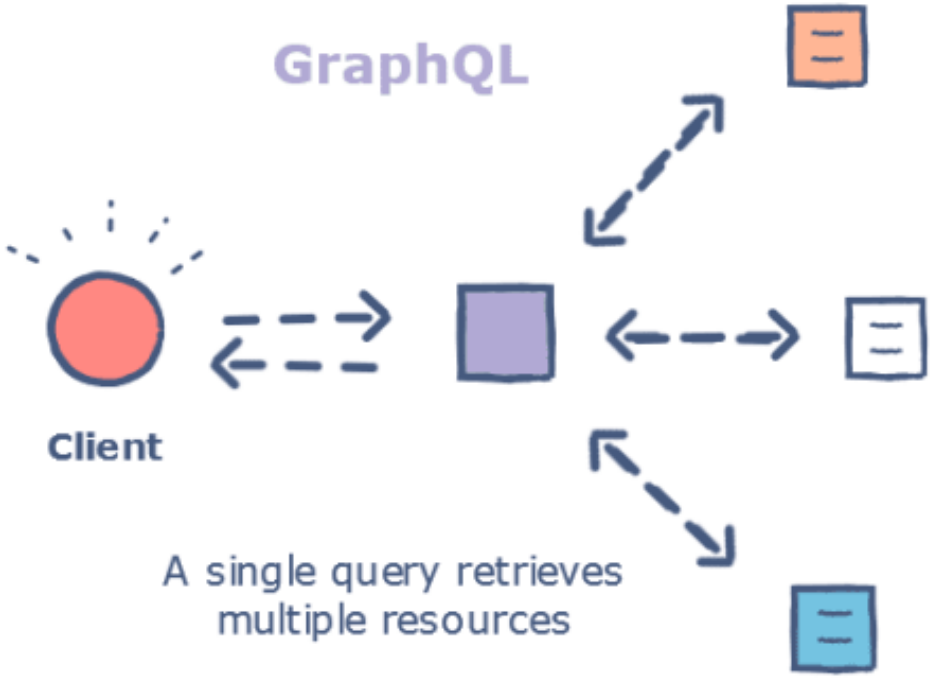
- เนื่องจาก การดึงค่าแบบ Rest API บางครั้งข้อมูลมากเกินความจำเป็น บางครั้งต้องดึงหลายครั้ง เพื่อนำข้อมูลมาประมวลผล หรือเอามาประกอบกัน จึงทำให้เกิดแนวคิด ของ GraphQL

*“ GraphQL is a query language for APIs and a runtime for fulfilling those queries with your existin*



# GraphQL


REST
Client


GraphQL
Client
A single query retrieves
multiple resources