

Basic Web Development Workshop

Objectives

- Understand the basic principles of HTML, CSS and JAVASCRIPT
- Learn the basic functions of the **Atom text editor** to create HTML, CSS, and JAVASCRIPT files
- Create a simple website with HTML, CSS, and JAVASCRIPT
- Master the basic operation of **Github Desktop** — a version control program to upload your works to the Github website

Software Tools for the Workshop

- **Atom Text Editor** (can be downloaded from <https://atom.io>)
- **Github Desktop**
(can be downloaded from <https://desktop.github.com>)



A T O M

1.30.0

[Release notes](#)

macOS

For macOS 10.9 or later

 **Download**

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[Try Atom Beta](#)

A hackable **text editor** for the 21st Century

[Real-time collaboration](#)

[IDE features](#)

[Git and GitHub integration](#)



[Overview](#) [Release Notes](#) [Help](#)

The new native

Extend your GitHub workflow beyond your browser with GitHub Desktop, completely redesigned with Electron. Get a unified cross-platform experience that's completely open source and ready to customize.

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Current Repository
desktop

Current Branch
esc-pr #3972 ✓

Fetch origin
Last fetched 3 minutes ago

Changes	History
Appease linter iAmWillShepherd committed a day ago	Add event handler to dropdown component iAmWillShepherd and Markus Olsson committed c79e71c 1 changed file
Add event handler to dropdown com... iAmWillShepherd and Markus Olsson...	Co-Authored-By: Markus Olsson <niik@users.noreply.github.com>
Move escape behavior to correct co... iAmWillShepherd and Markus Olsson...	app/src/ui/t.../dropdown.tsx
Remove event handler from the br...	@@ -145,6 +145,10 @@ export class ToolbarDropdown extends React.Component< this.state = { clientRect: null } }

Let's Begin

- Sign-up for a **Github** account (the free account)
- Install **Github Desktop** and create a new repository (You can treat the repository as a folder) by creating a new folder associated with it.
- Install **Atom text editor** and open the **Github repository** (i.e. folder) with it.
- You can start creating HTML, CSS, and JAVASCRIPT files with **Atom** and maintain your the **remote** Github and **local** repository for code development and version control.

Let's Begin

NOUN

HTML

ADJECTIVE

CSS

VERB

JS

What does HTML stand for?

(H)yper (T)ext (M)arkup (L)anguage

(M)arkup is a collection of “tags”.

NOUN

HTML

<html>, <head>, <title>, <meta>, <style>, <script>, <body>, <header>, <footer>, <nav>, <main>, <section>, <aside>, <p>,
, <a>, , , , <table>, <div>, <form>

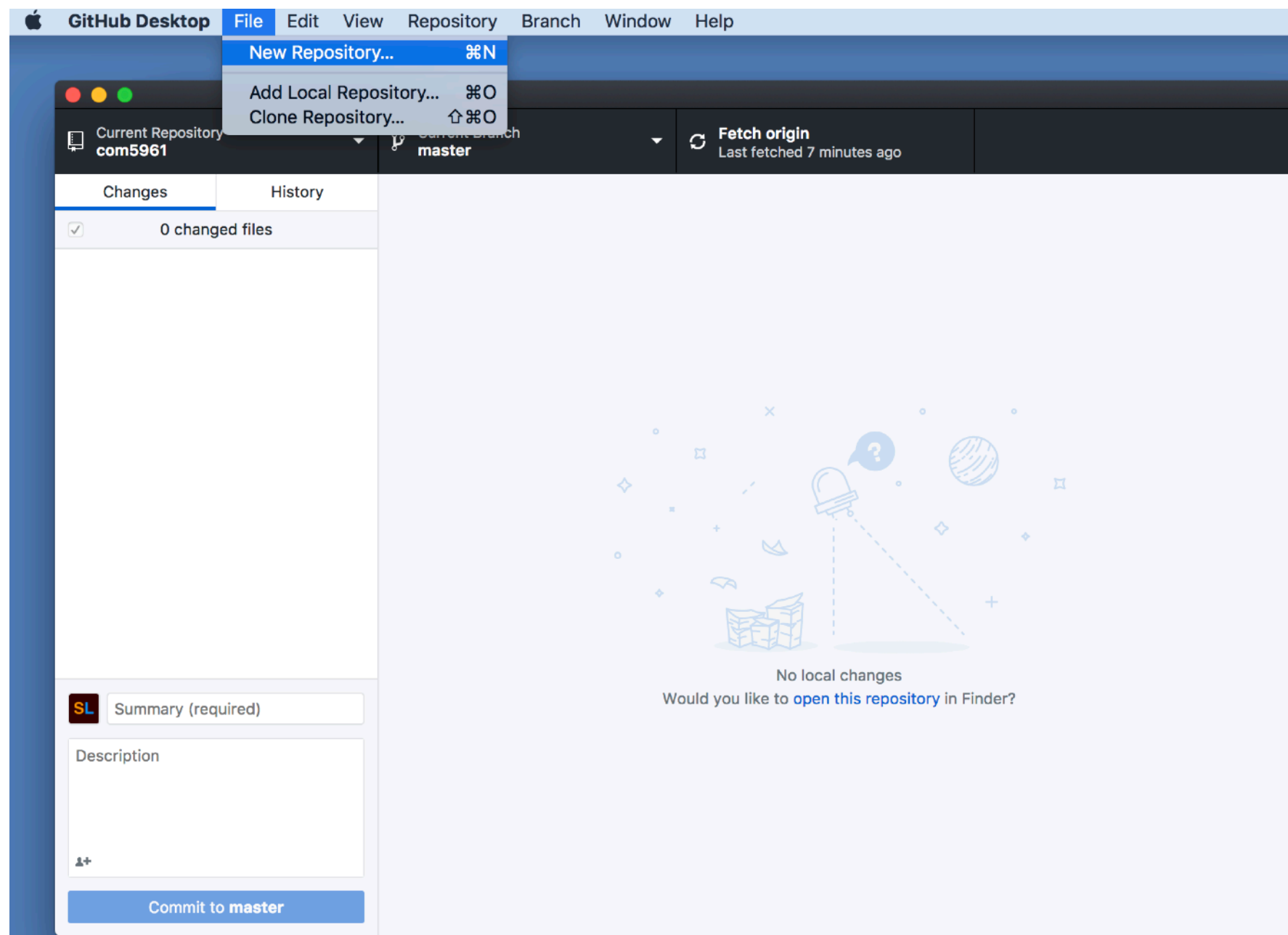
Elements
has
attributes

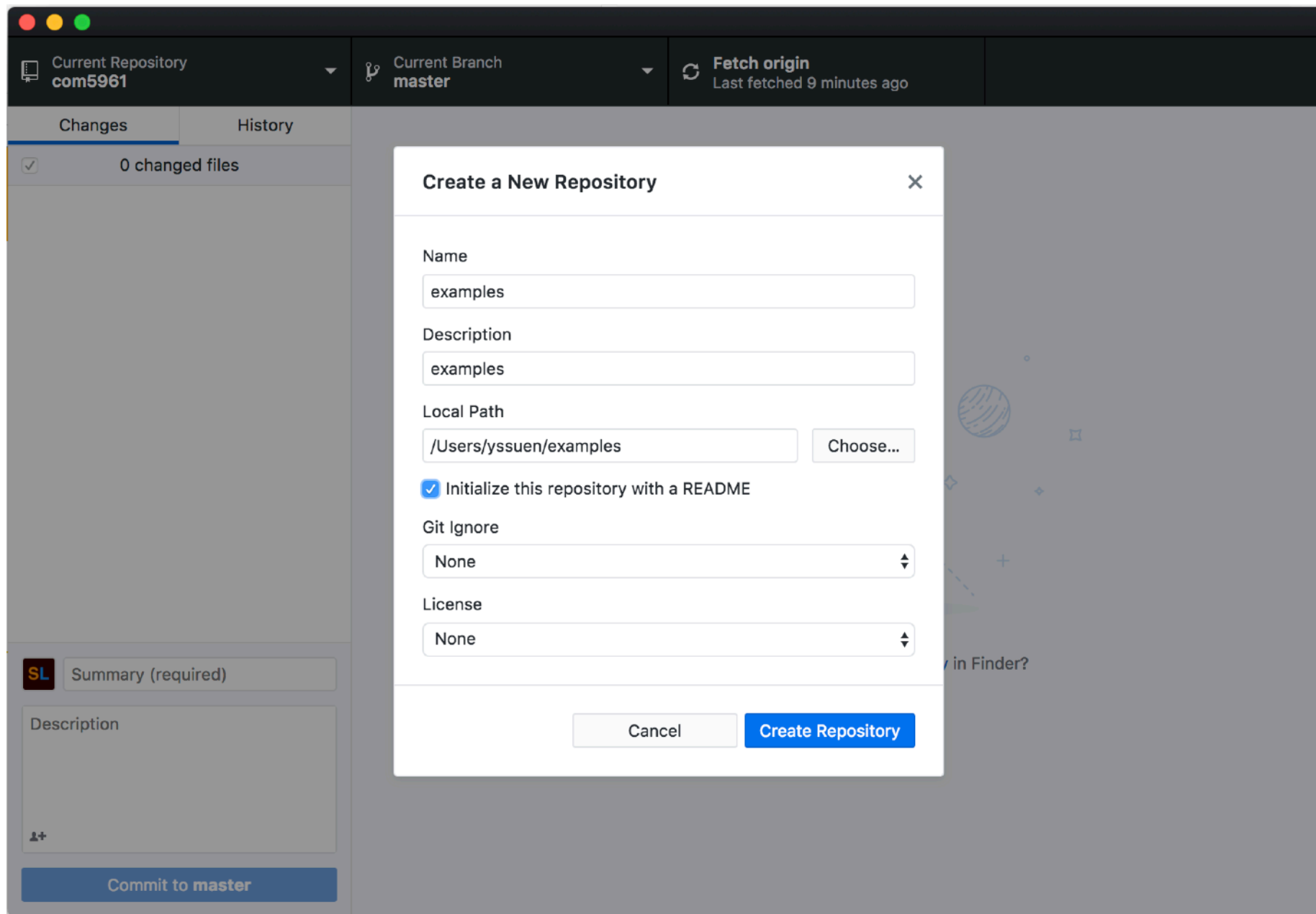
(e.g. color, background-color, position, font-family, font-size, font-style, display, width, margin, border, padding)

First hands-on exercise:

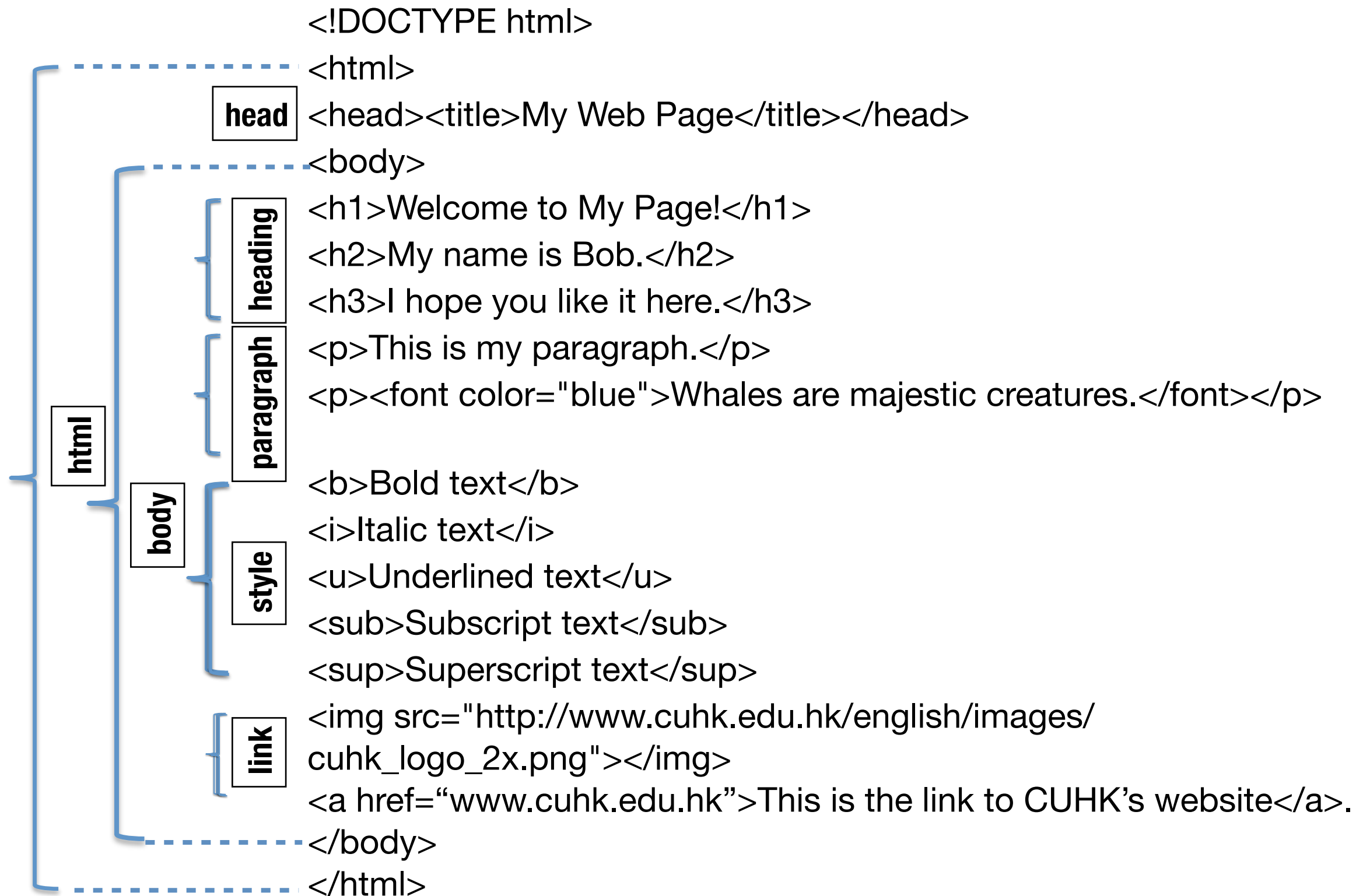
<https://www.wikihow.com/Create-a-Simple-Web-Page-with-HTML> (Step 1 to Step 13)

Congratulation. You created your 1st html document (example1.html). Now it's time to upload it to your remote Github account space.





Code View



Browser View

Welcome to My Page!

My name is Bob.

I hope you like it here.

This is my paragraph.

Whales are majestic creatures.



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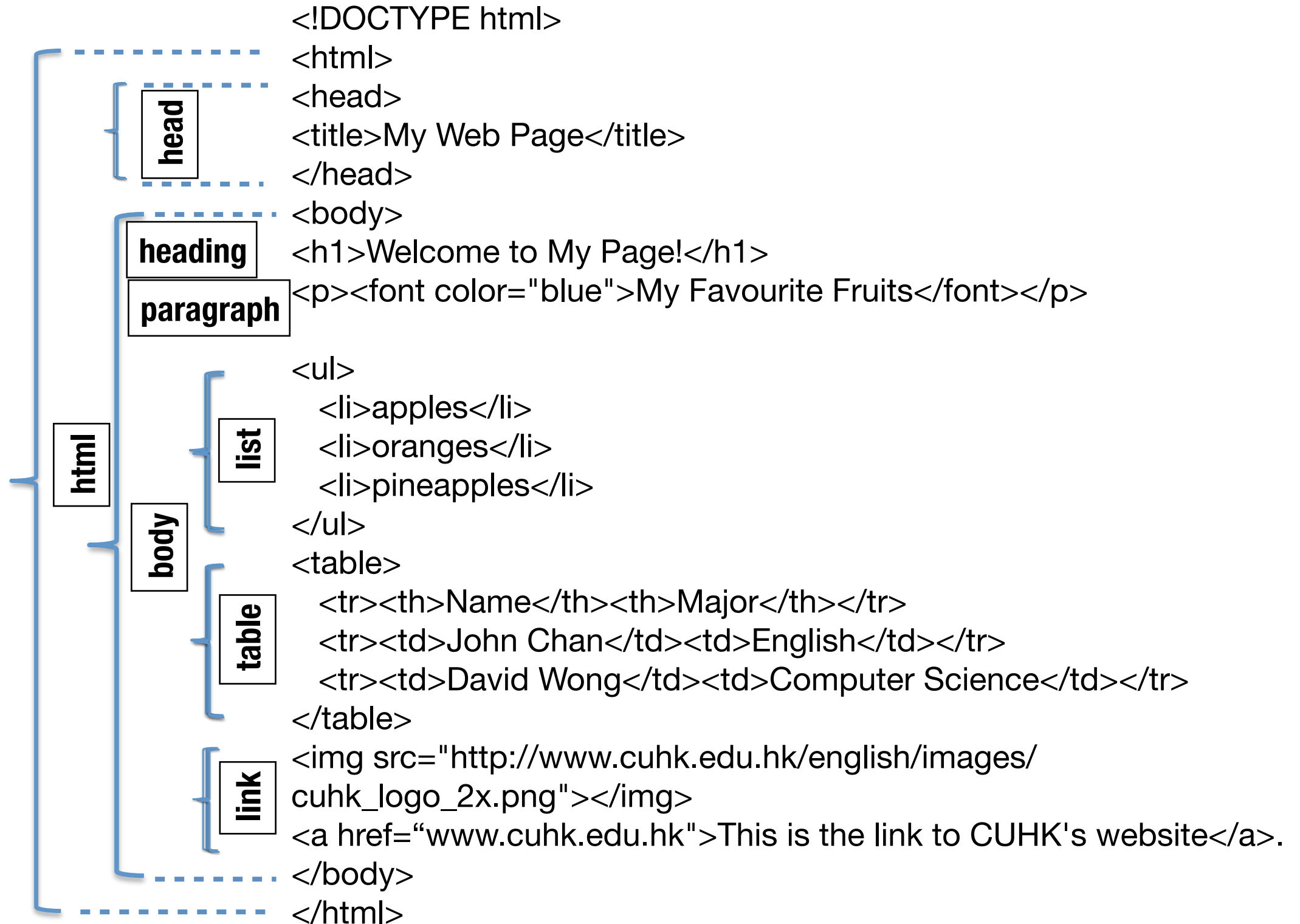
Bold text *Italic text* Underlined text Subscript text^{Superscript text}

[This is the link to CUHK's website.](#)

Second hands-on exercise:

<https://coder-coder.com/how-to-make-simple-website-html/> (Add the list and table codes into example2.html)

Code View



Browser View

Welcome to My Page!

My Favourite Fruits

- apples
- oranges
- pineapples

Name	Major
------	-------

John Chan	English
-----------	---------

David Wong	Computer Science
------------	------------------

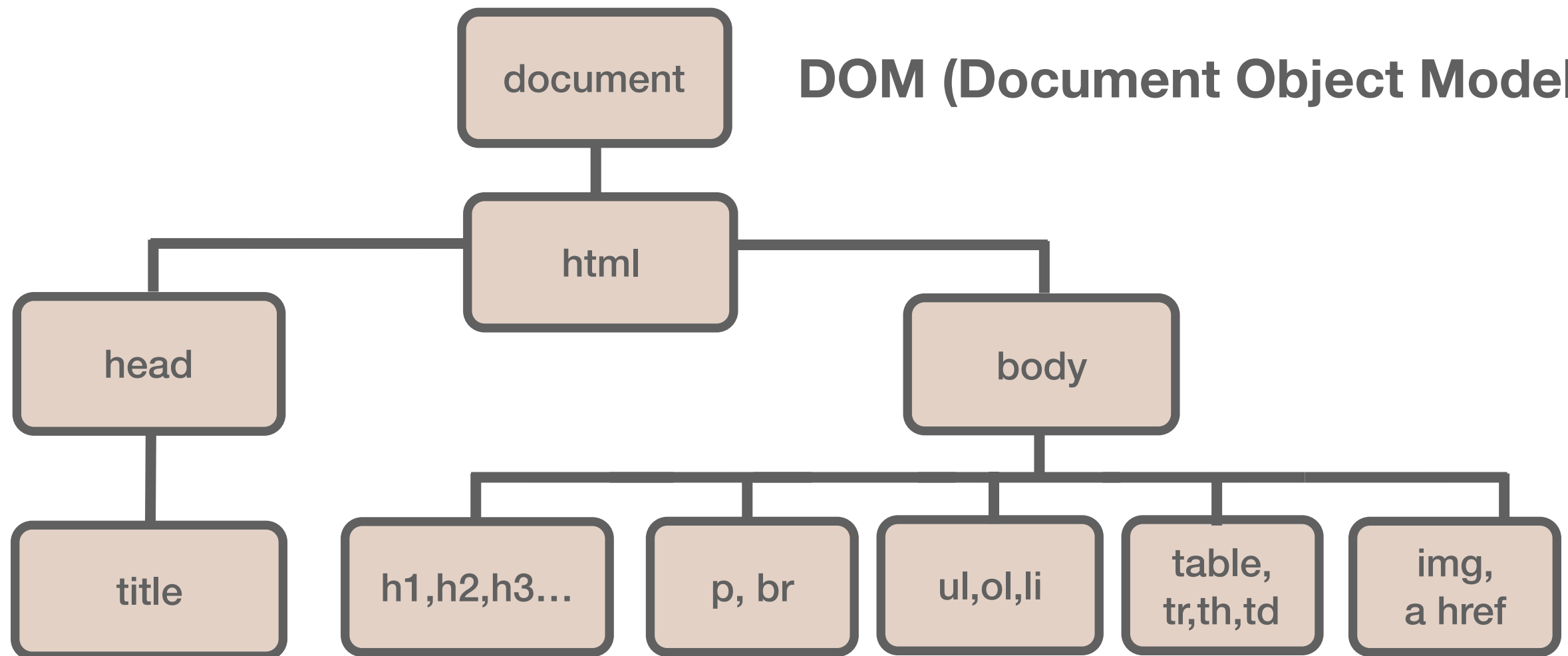


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[This is the link to CUHK's website.](#)

DOM (Document Object Model)



The Grammar of HTML Elements

- Starts with a start tag (e.g. <p>)
- End with an end tag (e.g. </p>)
- Elements content is everything between the start and end tags
- Some elements have empty content and no end tag (e.g.
)
- Most elements have attributes

What does CSS stand for?

(C)ascading (S)tyle (S)heet

CSS Demonstration:

https://www.w3schools.com/css/css_intro.asp

Browser View

Welcome to My Page!

My name is Bob.

I hope you like it here.

This is my paragraph.

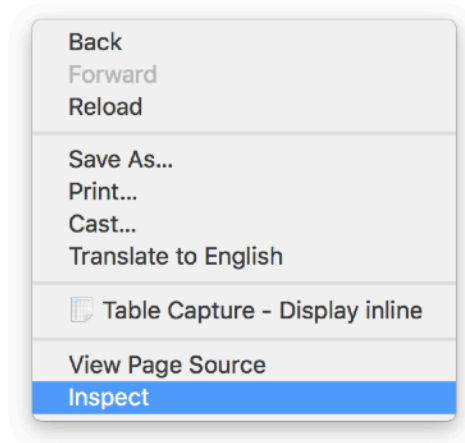
Whales are majestic creatures.



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Bold text *Italic text* Underlined text Subscript text Superscript text

[This is the link to CUHK's website.](#)



Use right mouse click to trigger pop-up window

Browser View

Welcome to My Page!

My name is Bob.

I hope you like it here.

This is my paragraph.

Whales are majestic creatures.



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[This is the link to CUHK's website.](#)

Bold text *Italic text* Underlined text Subscript text ^{Superscript text}

Elements Console Sources Network Performance Memory Application Security Audits JavaScript Profiler

```
<!doctype html>
<html>
  <head>
    <title>My Web Page</title>
  </head>
  <body>
    <h1 style="
      background-color: #CA4D4C;
      color: #fefdff;
">Welcome to My Page!</h1>
... <h2 style="border-style: solid;border-width: 1px;">My name is Bob.</h2> == $0
    <h3>I hope you like it here.</h3>
    <p>This is my paragraph.</p>
    <p>...</p>
    <b>Bold text</b>
    <i>Italic text</i>
    <a href="#">This is the link to CUHK's website.
  </body>
</html>
```

Styles Computed >>

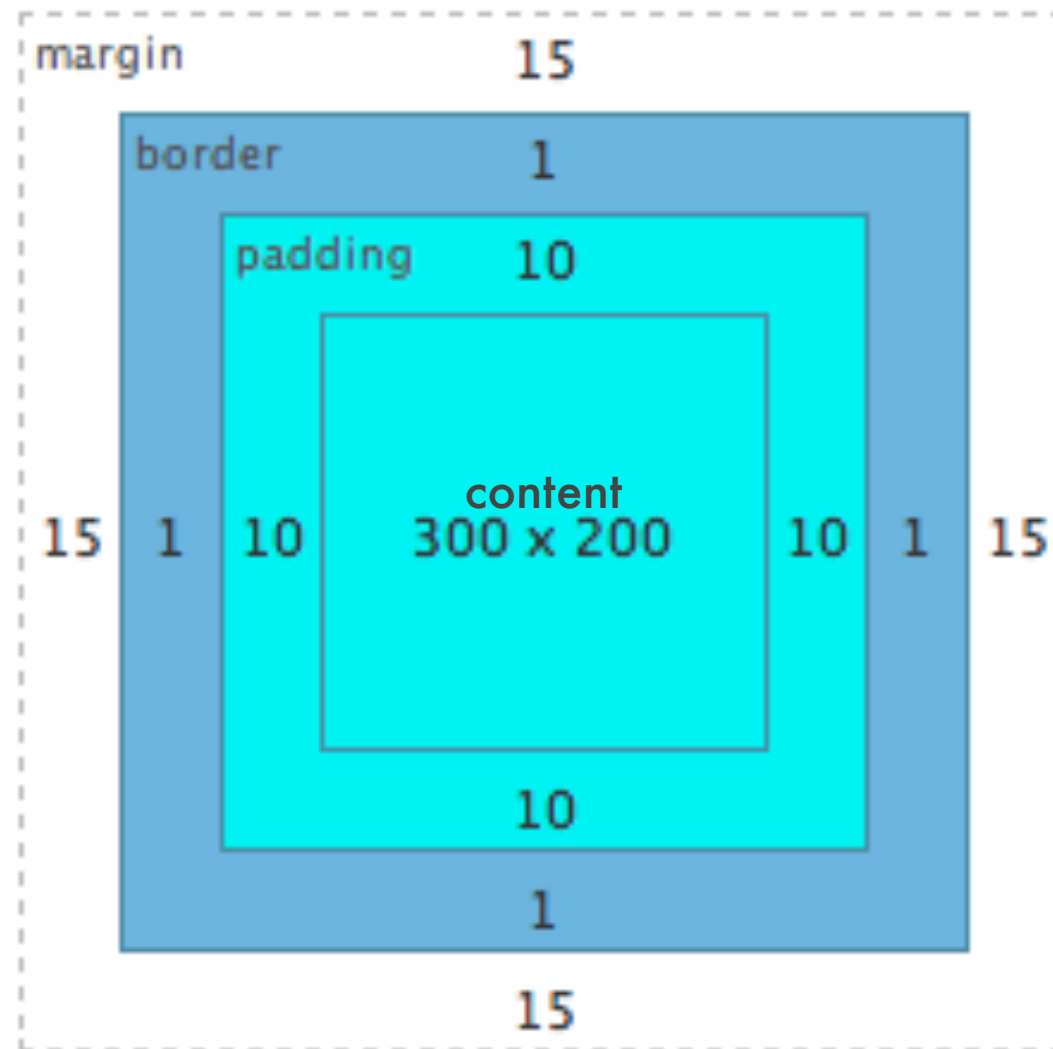
Filter :hov .cls +

element.style {
 border-style: solid;
 border-width: 1px;
}

h2 { user agent stylesheet
 display: block;
 font-size: 1.5em;
 -webkit-margin-before: 0.83em;
 -webkit-margin-after: 0.83em;
 -webkit-margin-start: 0px;
 -webkit-margin-end: 0px;
 font-weight: bold;
}

html body h2

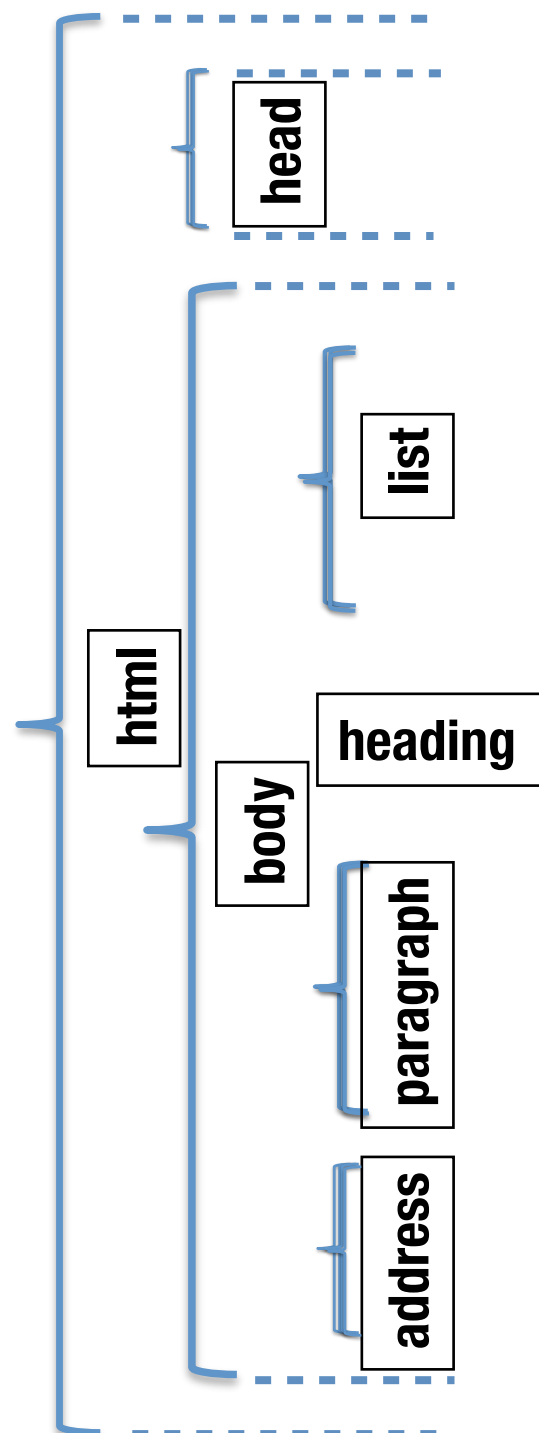
The Box Model



Third hands-on exercise:

**[https://www.w3.org/Style/Examples/011/
firstcss.en.html](https://www.w3.org/Style/Examples/011/firstcss.en.html)**

Code View



```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
<head>
  <title>My first styled page</title>
</head>

<body>

  <!-- Site navigation menu -->
  <ul class="navbar">
    <li><a href="index.html">Home page</a>
    <li><a href="musings.html">Musings</a>
    <li><a href="town.html">My town</a>
    <li><a href="links.html">Links</a>
  </ul>

  <!-- Main content -->
  <h1>My first styled page</h1>

  <p>Welcome to my styled page!

  <p>It lacks images, but at least it has style.
  And it has links, even if they don't go
  anywhere&hellip;

  <p>There should be more here, but I don't know
  what yet.

  <!-- Sign and date the page, it's only polite! -->
  <address>Made 5 April 2004<br>
    by myself.</address>

</body>
</html>
```

Browser View

- [Home page](#)
- [Musings](#)
- [My town](#)
- [Links](#)

My first styled page

Welcome to my styled page!

It lacks images, but at least it has style. And it has links, even if they don't go anywhere...

There should be more here, but I don't know what yet.

*Made 5 April 2004
by myself.*

Browser View

- [Home page](#)
- [Musings](#)
- [My town](#)
- [Links](#)

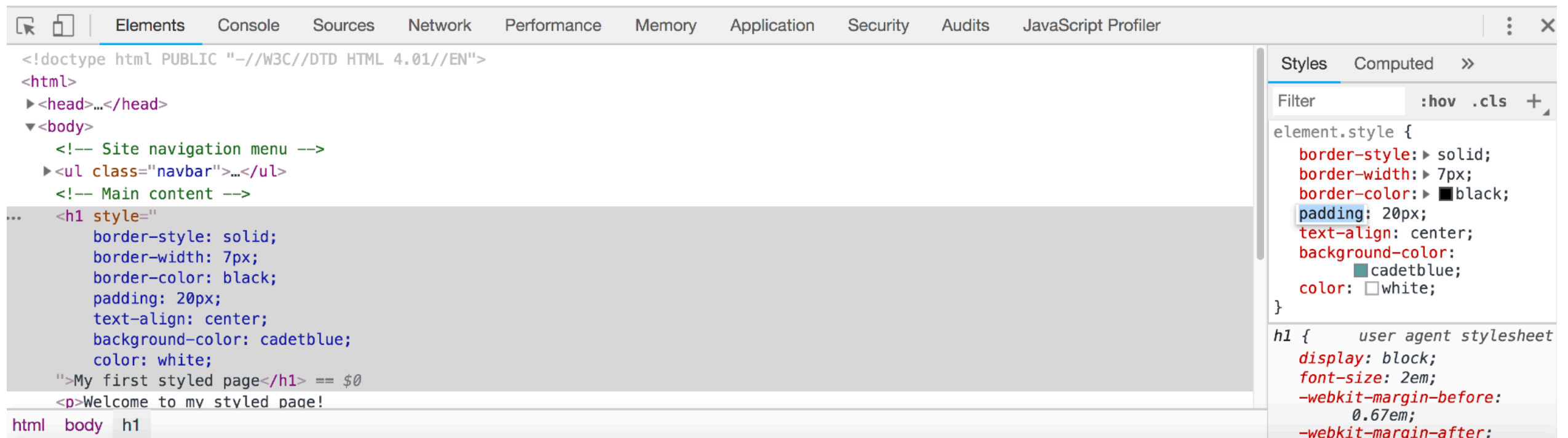
My first styled page

Welcome to my styled page!

It lacks images, but at least it has style. And it has links, even if they don't go anywhere...

There should be more here, but I don't know what yet.

*Made 5 April 2004
by myself.*



```

<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>
<!-- Main content -->
<h1 style="
  border-style: solid;
  border-width: 7px;
  border-color: black;
  padding: 20px;
  text-align: center;
  background-color: cadetblue;
  color: white;
">My first styled page</h1>
<p>Welcome to my styled page!
<p>It lacks images, but at least it has style.
And it has links, even if they don't go
anywhere&hellip;
<p>There should be more here, but I don't know
what yet.
<!-- Sign and date the page, it's only polite! -->
<address>Made 5 April 2004<br>
  by myself.</address>
</body>
</html>

```

In-line style definition

Browser View

- [Home page](#)
- [Musings](#)
- [My town](#)
- [Links](#)

My first styled page

Welcome to my styled page!

It lacks images, but at least it has style. And it has links, even if they don't go anywhere...

There should be more here, but I don't know what yet.

*Made 5 April 2004
by myself.*

The screenshot displays a web browser's developer tools interface. The top navigation bar includes tabs for Elements, Console, Sources, Network, Performance, Memory, Application, Security, Audits, and JavaScript Profiler. The 'Elements' tab is active, showing the document's DOM tree. The HTML structure is as follows:

```
<!doctype html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
  <head>...</head>
  <body>
    <!-- Site navigation menu -->
    <ul class="navbar">...</ul>
    <!-- Main content -->
    ... <h1>My first styled page</h1> == $0
    <p>Welcome to my styled page!
    </p>
    <p>...</p>
    <p>...</p>
    <address>...</address>
  </body>
</html>
```

The 'Styles' pane on the right shows the CSS rules applied to the selected `h1` element. The first rule is from 'example3.html:6' and includes the following properties:

- `border-style`: solid
- `border-width`: 7px
- `border-color`: black
- `padding`: 20px
- `text-align`: center
- `background-color`: cadetblue
- `color`: white

The second rule is from the 'user agent stylesheet' and includes:

- `display`: block
- `font-size`: 2em

The breadcrumb at the bottom of the Elements pane indicates the path: `html > body > h1`.

```
<head><title>Example 3</title>
<style type="text/css">
border-style: solid;
border-width: 7px;
border-color: black;
padding: 20px;
text-align: center;
background-color: cadetblue;
color: white;
</style>
</head>
<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>
<!-- Main content -->
<h1>My first styled page</h1>
<p>Welcome to my styled page!
<p>It lacks images, but at least it has style.
And it has links, even if they don't go anywhere&hellip;
<p>There should be more here, but I don't know what yet.
<!-- Sign and date the page, it's only polite! -->
<address>Made 5 April 2004<br>by myself.</address>
</body>
</html>
```

Internal style-sheet definition

Browser View

- [Home page](#)
- [Musings](#)
- [My town](#)
- [Links](#)

My first styled page

Welcome to my styled page!

It lacks images, but at least it has style. And it has links, even if they don't go anywhere...

There should be more here, but I don't know what yet.

*Made 5 April 2004
by myself.*

The screenshot displays a web browser's developer tools interface. The top navigation bar includes tabs for Elements, Console, Sources, Network, Performance, Memory, Application, Security, Audits, and JavaScript Profiler. The 'Elements' tab is active, showing the document's DOM tree. The HTML structure is as follows:

```
<html>
  <head>
    <title>My first styled page</title>
    <link rel="stylesheet" type="text/css" href="style.css">
  </head>
  <body>
    <!-- Site navigation menu -->
    <ul class="navbar">...</ul>
    <!-- Main content -->
    ... <h1>My first styled page</h1> == $0
    <p>Welcome to my styled page!
    </p>
    <p>...</p>
    <p>...</p>
    <address>...</address>
  </body>
```

The `<h1>My first styled page</h1>` element is selected, and the 'Styles' pane on the right shows the applied styles:

```
element.style {
}

h1 {
  border-style: solid;
  border-width: 7px;
  border-color: black;
  padding: 20px;
  text-align: center;
  background-color: cadetblue;
  color: white;
}

h1 {
  user agent stylesheet
  display: block;
  font-size: 2em;
```

The breadcrumb at the bottom indicates the path: `html > body > h1`.

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
<head>
  <title>My first styled page</title>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>
<!-- Main content -->
<h1>My first styled page</h1>
<p>Welcome to my styled page!
<p>It lacks images, but at least it has style.
And it has links, even if they don't go
anywhere&hellip;
<p>There should be more here, but I don't know what yet.
<!-- Sign and date the page, it's only polite! -->
<address>Made 5 April 2004<br> by myself.</address>
</body>
</html>
```

External style definition

3 Ways of Style Definition + Cascading Rule

- Inline style definition (Highest priority)
- Internal style definition (Middle priority)
- External style definition (Lowest priority)
- Style defined last has priority over style defined earlier

ADJECTIVE

CSS

Base
Selector

body

Declaration

Declaration

{ color:purple; font-size:12px; }

Property

Value

Property

Value

Now Your Turn to Try

Third hands-on exercise:

**[https://www.w3.org/Style/Examples/011/
firstcss.en.html](https://www.w3.org/Style/Examples/011/firstcss.en.html) (Step 1 to 5)**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
```

```
<html>
```

```
<head>
```

```
  <title>My first styled page</title>
```

```
</head>
```

```
<body>
```

```
<!-- Site navigation menu -->
```

```
<ul class="navbar">
```

```
  <li><a href="index.html">Home page</a>
```

```
  <li><a href="musings.html">Musings</a>
```

```
  <li><a href="town.html">My town</a>
```

```
  <li><a href="links.html">Links</a>
```

```
</ul>
```

```
<!-- Main content -->
```

```
<h1>My first styled page</h1>
```

```
<p>Welcome to my styled page!
```

```
<p>It lacks images, but at least it has style. And it has links, even if they don't go  
anywhere&hellip;
```

```
<p>There should be more here, but I don't know what yet.
```

```
<!-- Sign and date the page, it's only polite! -->
```

```
<address>Made 5 April 2004<br>
```

```
  by myself.</address>
```

```
</body>
```

```
</html>
```

Code View - Step 1

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
<head>
  <title>My first styled page</title>
  <style type="text/css">
    body {
      color: purple;
      background-color: #d8da3d }
  </style>
</head>
<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>

<!-- Main content -->
  :
  :
</body>
</html>
```

Code View - Step 2 (Add colours)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
<head>
  <title>My first styled page</title>
  <style type="text/css">
    body {
      color: purple;
      background-color: #d8da3d }
  h1 {
    font-family: Helvetica, Geneva, Arial,
      SunSans-Regular, sans-serif }
  </style>
</head>
<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>
<!-- Main content -->
  :
  :
</body>
</html>
```

Code View - Step 3 (Add fonts)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN">
<html>
<head>
  <title>My first styled page</title>
  <style type="text/css">
    body {
      color: purple;
      background-color: #d8da3d }
    ul.navbar {
      position: absolute;
      top: 2em;
      left: 1em;
      width: 9em }
    h1 {
      font-family: Helvetica, Geneva, Arial,
        SunSans-Regular, sans-serif }
  </style>
</head>
<body>
<!-- Site navigation menu -->
<ul class="navbar">
  <li><a href="index.html">Home page</a>
  <li><a href="musings.html">Musings</a>
  <li><a href="town.html">My town</a>
  <li><a href="links.html">Links</a>
</ul>
<!-- Main content -->
```

Code View - Step 4 (Add navbar)


```
<html>
<head>
  <title>My first styled page</title>
  <style type="text/css">
    :
  ul.navbar {
    position: absolute;
    top: 2em;
    left: 1em;
    width: 9em }
  h1 {
    font-family: Helvetica, Geneva, Arial,
      SunSans-Regular, sans-serif }
  ul.navbar li {
    background: white;
    margin: 0.5em 0;
    padding: 0.3em;
    border-right: 1em solid black }
  ul.navbar a {
    text-decoration: none }
  a:link {
    color: blue }
  a:visited {
    color: purple }
  </style>
  :
```

Code View - Step 5 (Styling the navbar)

ADJECTIVE

CSS

Custom (e.g. class or id)
Selector

Declaration

Declaration

.box

class

#nav

id

{ color:blue; font-size:12px; }

Property

Value

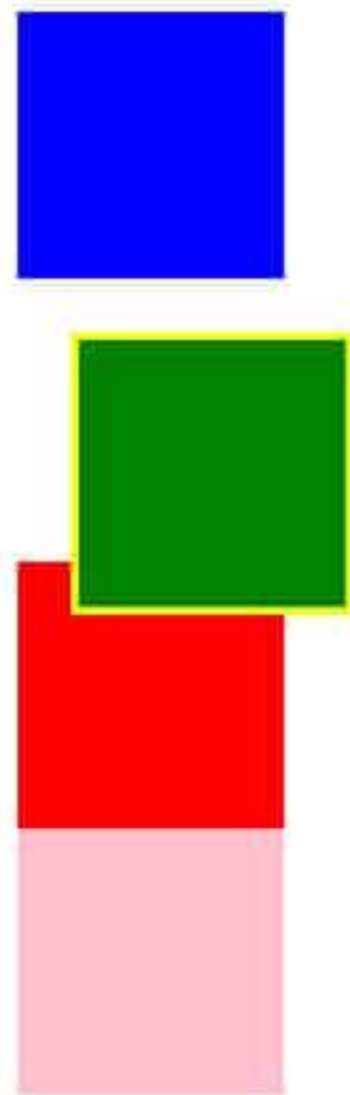
Property

Value

Put the Internal Style Definition into an External File

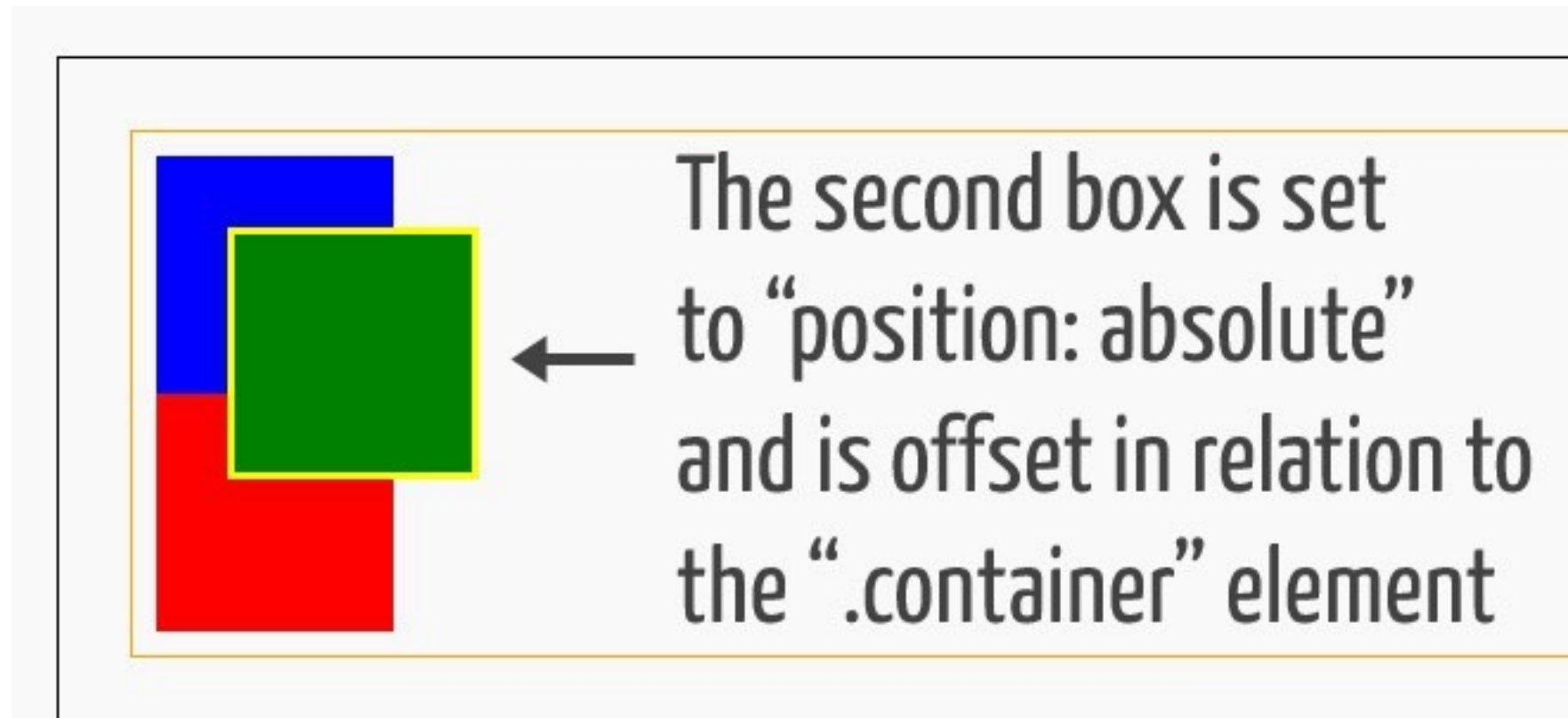
4 Ways of Positioning Display Box

- Static - default position of a box following the normal document flow (not affected by top, left, right, bottom pos.)
- Fixed - it always stay on the same location as defined by the positions (top and left or bottom or right) even the page is scrolled. Unlike absolute, its parent is the viewport.
- Relative - relative when used with top and left position pair or bottom and right position pair will allow the object box to be moved to a new location relative to its current position (not container).
- Absolute - take the positioning out of the document flow and place it at a location (top and left position) as defined in relationship to its containing (or parent) element (context). The container/parent should be set to relative.

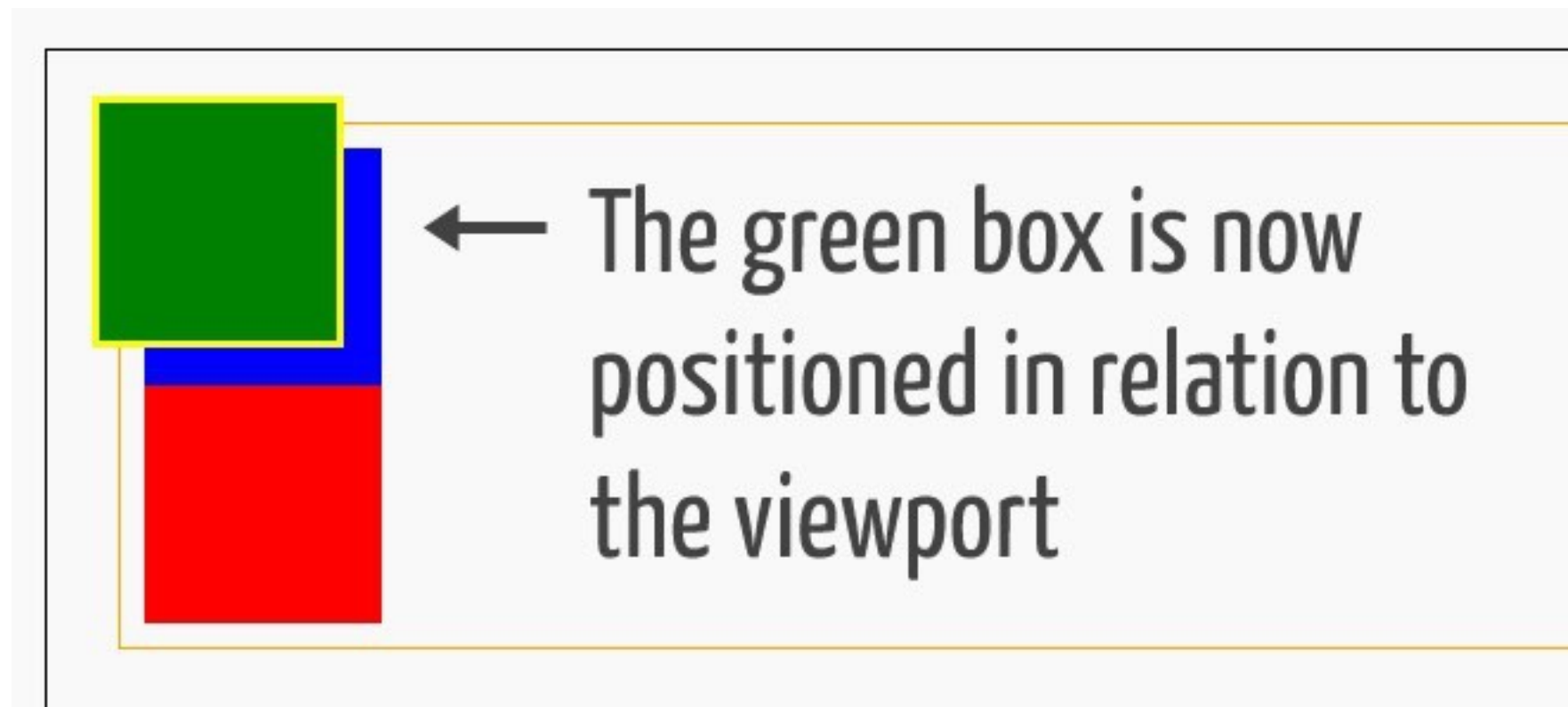


The second box is set to “position: relative” and is offset using top and left values.

Source: CSS Positioning: A Comprehensive Look (<http://blog.teamtreehouse.com/css-positioning>)



Source: CSS Positioning: A Comprehensive Look
(<http://blog.teamtreehouse.com/css-positioning>)



Source: CSS Positioning: A Comprehensive Look
(<http://blog.teamtreehouse.com/css-positioning>)

The Grammar of CSS

- Styles define how to display HTML elements
- Each style description is made up of a Selector and Declaration
- Selector defines which HTML element should be used for display and the declaration defines how
- Each declaration contains properties and values
- There are base and custom selectors (ID and CLASS are customer selectors)
- Style definition can be placed inline, in the head section or in an external file (e.g. style.css)

VERB

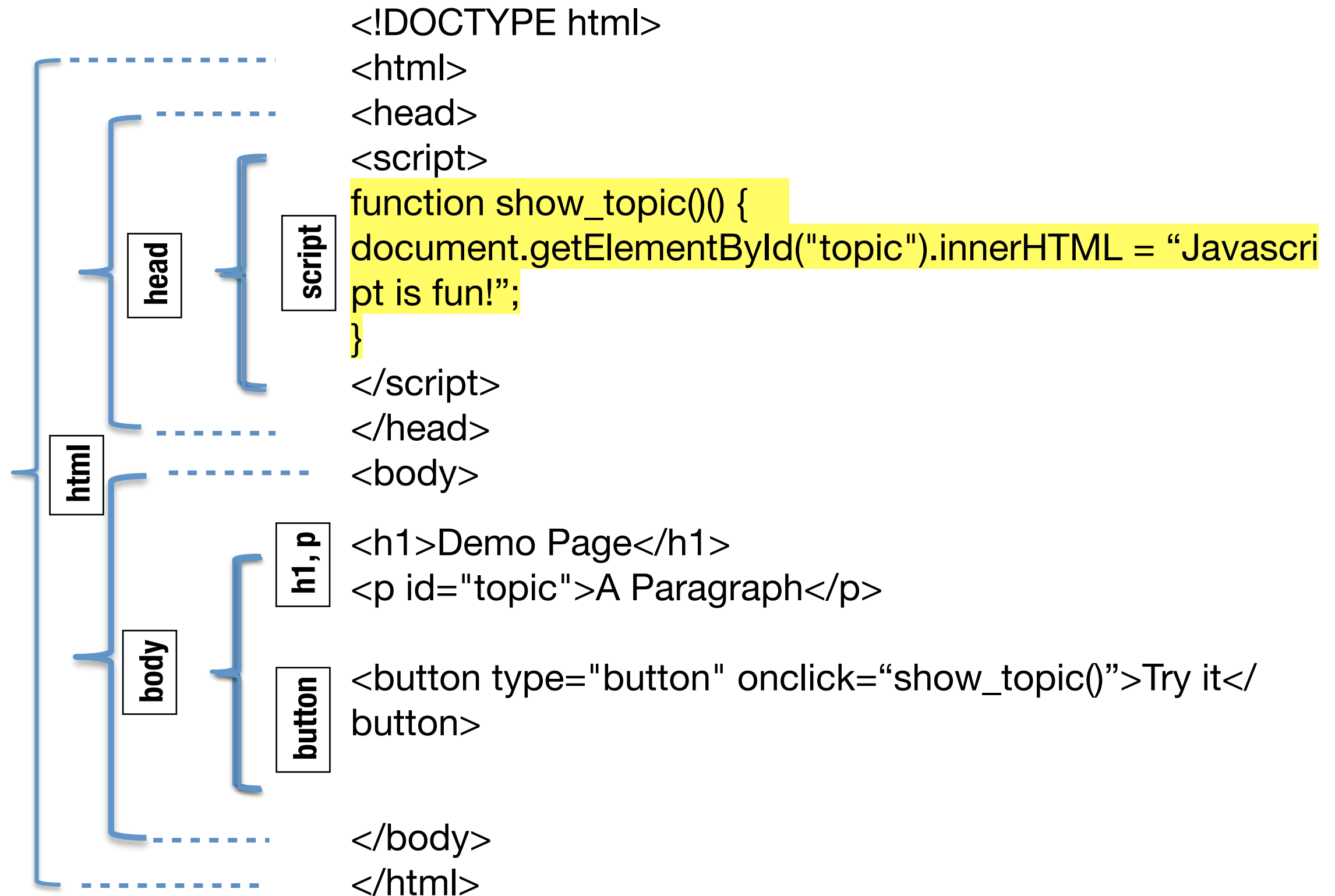
JS

JavaScript = act on an object or respond to
an event triggered by an object

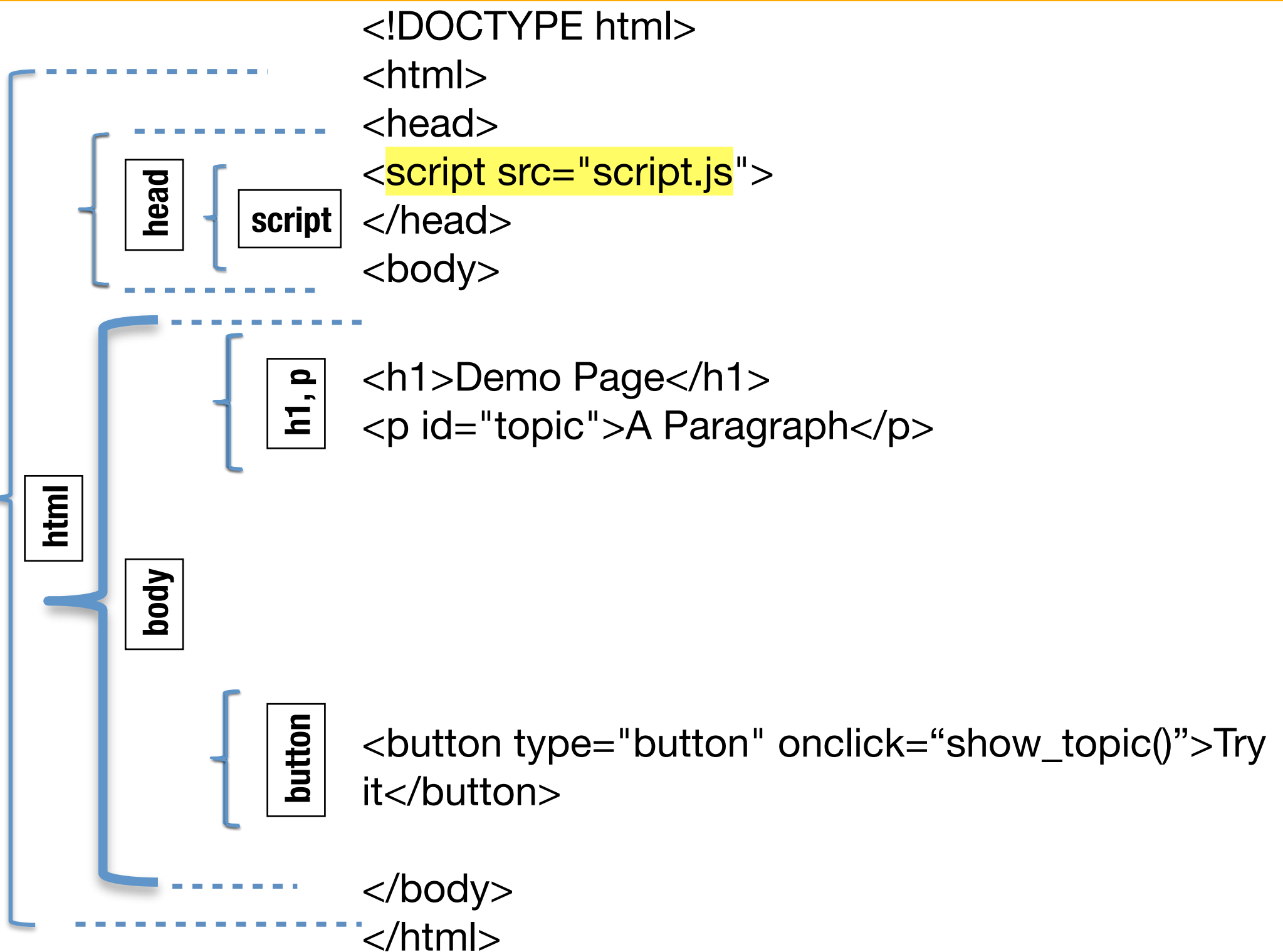
First hands-on exercise on JavaScript:

<https://www.javascript.com/try>

Code View



Code View



The Grammar of JavaScript

- JavaScript is a programming language that can be used to write functions placed inside html or in an external file that can be linked to the html file
- Popular JavaScript libraries are external files (e.g. jQuery)
- JavaScript is usually placed between the <script> and </script> tags inside the <head> section
- JavaScript codes can be understood as a collection of functions that respond to events triggered by internal browser activities and external user interactions
- JavaScript can be used to manipulate HTML elements and CSS styles

Thank You!