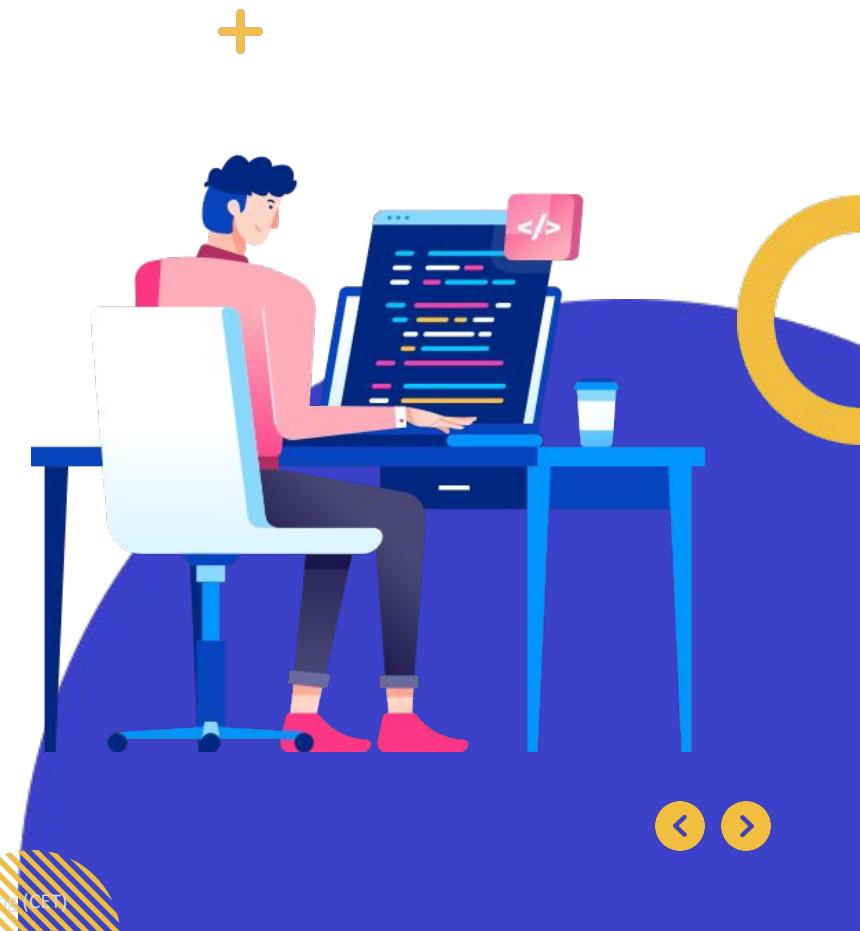
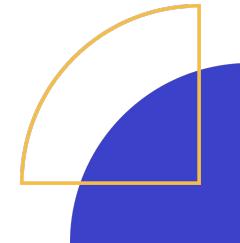
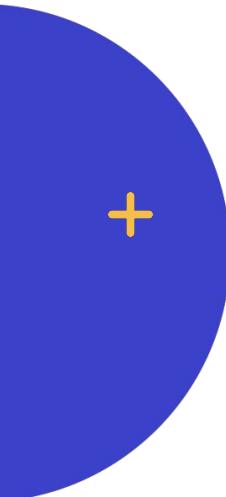
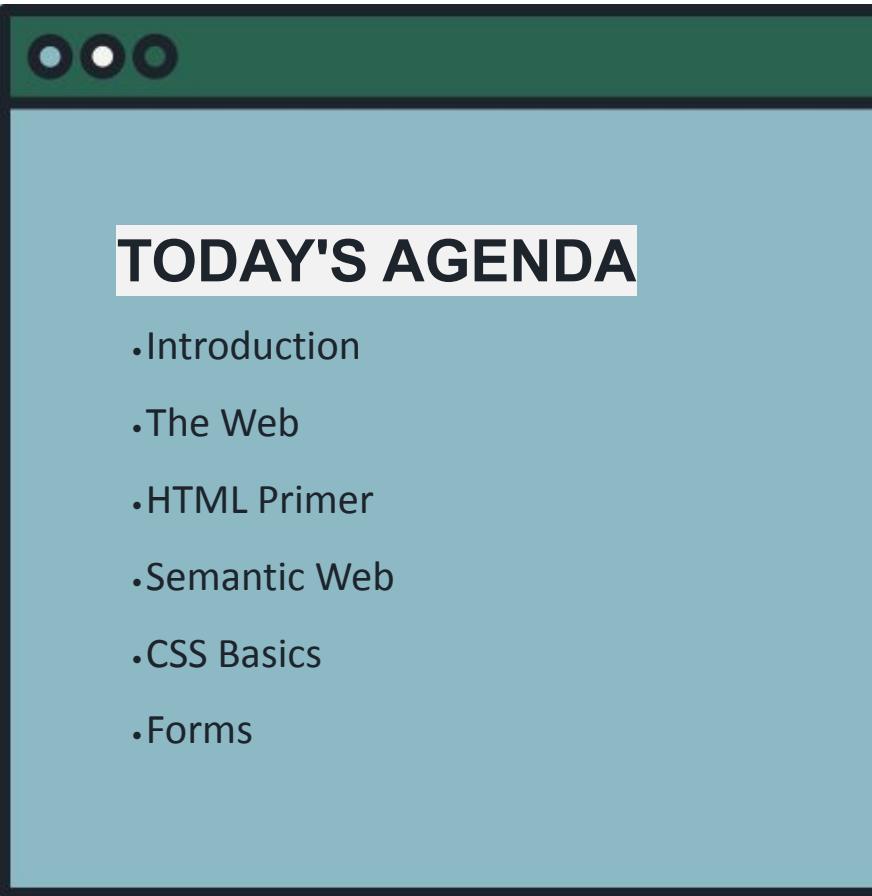


PROGRAMMING FUNDAMENTALS

# HTML CSS CORE

” DIPLOMA IN FULL-STACK DEVELOPMENT  
Certificate in Computing Fundamentals







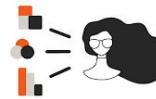
# The WEB

**Some little introductions**



# A Day in the Life of a Software Engineer

**Entry-Level  
Software Engineer**



Implement new features

React  
Ruby  
Python

learn new languages & frameworks



Maintain existing code



Pair programming

ERROR

Resolve simple bugs / errors



Refactor code



Practice test driven development (TDD)

Decide which framework & libraries to use



**Senior  
Software Engineer**

Architect API endpoints & data models



Mentor junior engineers



Attend sprint planning meetings with product managers & designers



Code reviews



Refactor legacy code



Architect scalable systems



# FRONTEND

CSS  
HTML  
Javascript



Web Server  
Database  
MongoDB  
PHP  
Ruby on Rails  
Python  
Application  
Ngix  
IIS Web  
server  
PostGreSql  
Many more...

# BACKEND

# State of the Web

**1,106,671,903**

Currently, there are around **1.11 billion** websites in the World. **18%** of these websites are active, **82%** are inactive.

**201,898,446**

websites are active

**252,000**

new websites are created **every day**

**10,500**

new websites are created **every hour**

**175**

new websites are created **every minute**

**3**

new websites are created **every second**

**2,000+**

new websites by the time you are done reading this article

Source: <https://sitefy.com/how-many-websites-are-there/>



# 3 Core Pillar



Defines the Content  
"Bones"



Assigns the style  
"Skin"



Adds the functionality  
"Brain"





+

## Look back in time

When was FoodPanda website launch?

What was it's first color scheme?

How did FoodPanda mascot look like?

Pau Pau?



# Foodpanda in 2012

The screenshot shows the Foodpanda Singapore homepage. At the top, there's a navigation bar with links for LOGIN | REGISTER | NEWSLETTER | HELP | +65 67238155. Below the navigation is the Foodpanda logo and links for ALL RESTAURANTS and MY ORDERS. On the right side of the header are social media icons for Facebook and Twitter.

The main banner features a cartoon panda holding a bowl of soup and a tray of dumplings. A red badge says "NEW! DISCOUNTS ON SELECTED RESTAURANTS". To the right, there's a search bar with the placeholder "ENTER POSTCODE" and a button labeled "SEARCH NOW!". Below the search bar, it says "FIND RESTAURANTS THAT DELIVER TO YOU".

A section titled "MEDIA BUZZ:" lists various media sources: thesunyatimes, YAHOO SINGAPORE, and FABER AVENUE.

Below the banner, a large call-to-action box contains three steps: 1. ENTER YOUR POSTCODE, 2. SELECT YOUR RESTAURANT, 3. PAY UPON DELIVERY. To the right of these steps is an icon of a delivery truck with the text "YOUR FOOD IS ON THE WAY".

Underneath the call-to-action, there's a section titled "ORDER FOOD IN SINGAPORE FROM 119 RESTAURANTS" with thumbnail images of various restaurant logos. To the right, there's a "WHAT IS FOODPANDA?" section with text explaining the service's mission and a "Discover great food every day with foodpanda!" button.

The footer contains links for foodpanda, LEARN MORE, GET IN TOUCH, and OTHER COUNTRIES. It also includes links for PRESS, CONTACT, TERMS AND CONDITIONS, and PRIVACY POLICY. The footer also features a copyright notice: COPYRIGHT 2012 FOODPANDA.

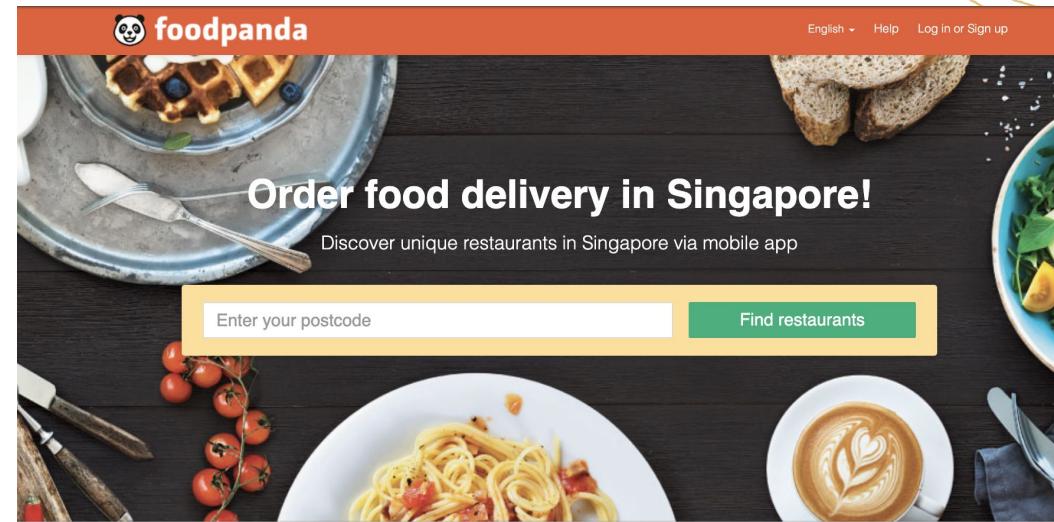
<https://web.archive.org/web/20120503035351/http://www.foodpanda.sg/>

## FoodPanda in 2015

# What Changed?

What's the **focus** of the platform now?

Change in design? Branding?



<https://web.archive.org/web/20151129080209/https://www.foodpanda.sg/>

# FoodPanda in 2017

## What Changed?

What's the **focus** of the platform now?  
Change in design? Branding?



EN | 中文 SEARCH LOGIN

It's the food you love, delivered

Enter your postal code

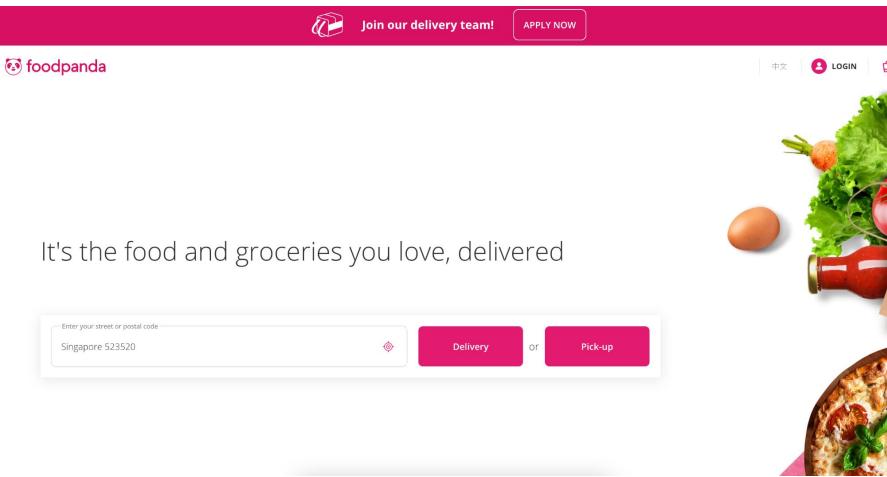
Find us in your city



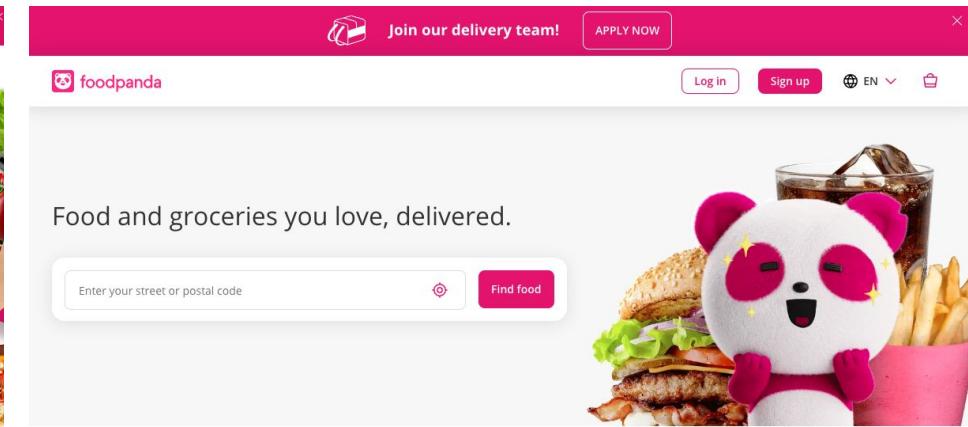
<https://web.archive.org/web/20171206004256/https://www.foodpanda.sg/>

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# FoodPanda TODAY (2023) What Changed over the years?



FoodPanda Last Year (2022)



FoodPanda Last Year (2023)

What's the **focus** for the user  
Change in design? Branding?  
What's critical?  
What other changes can you derive?

<https://www.foodpanda.sg/>

# Changes over the years

## What Happen? Trends + Tech took place

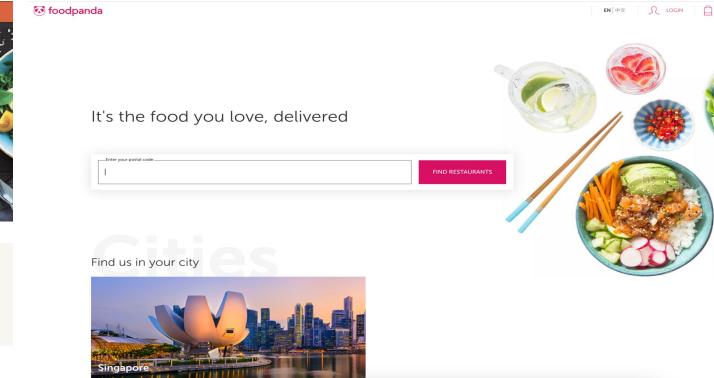
**2012**



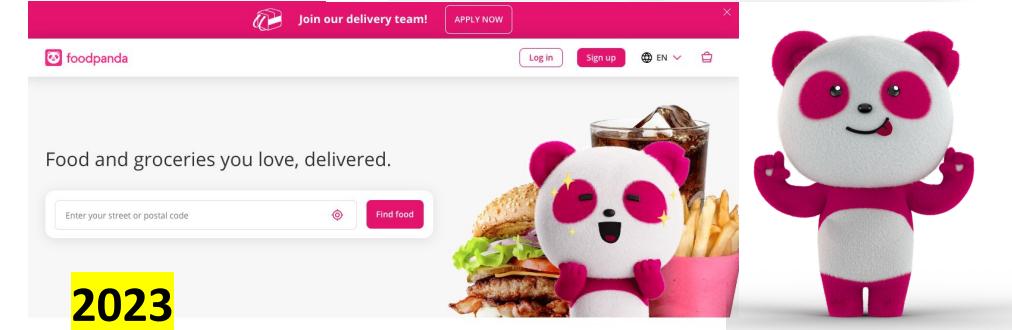
**2015**



**2017**



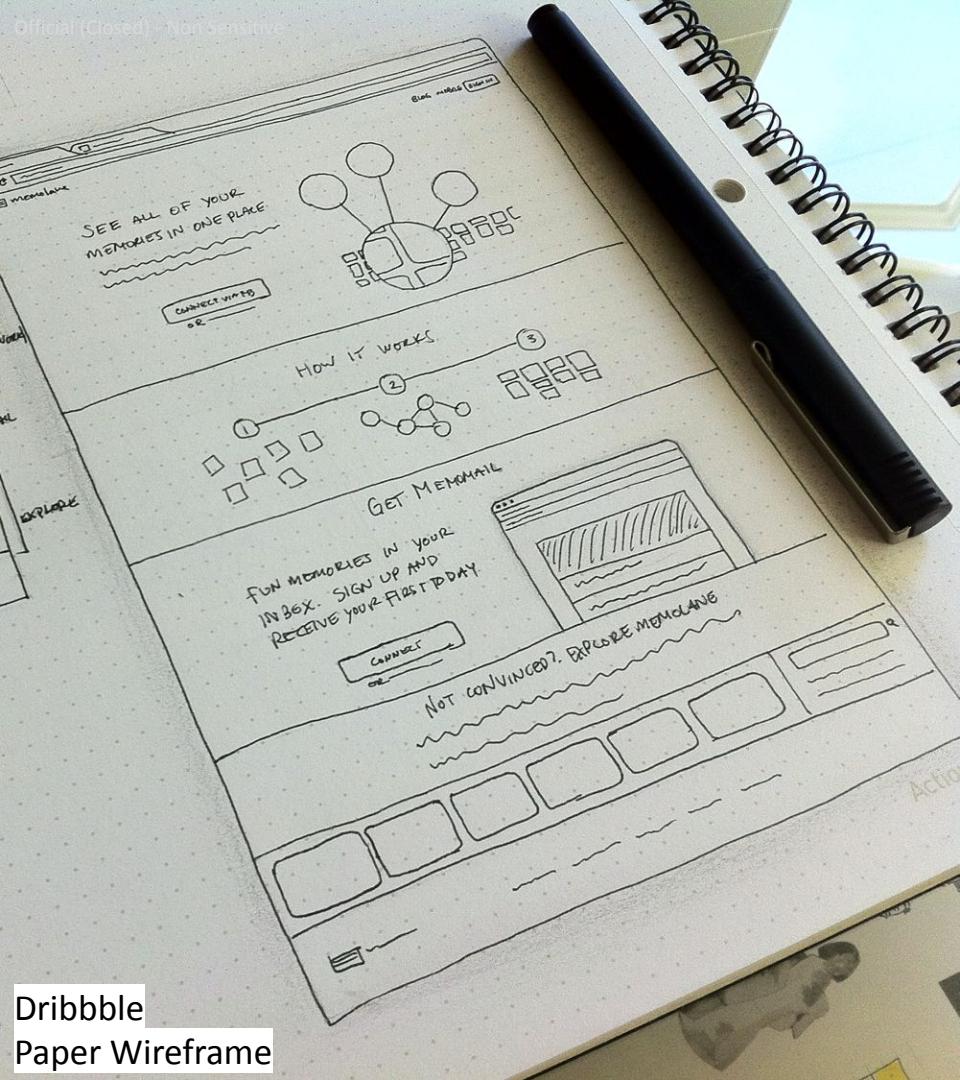
**2023**



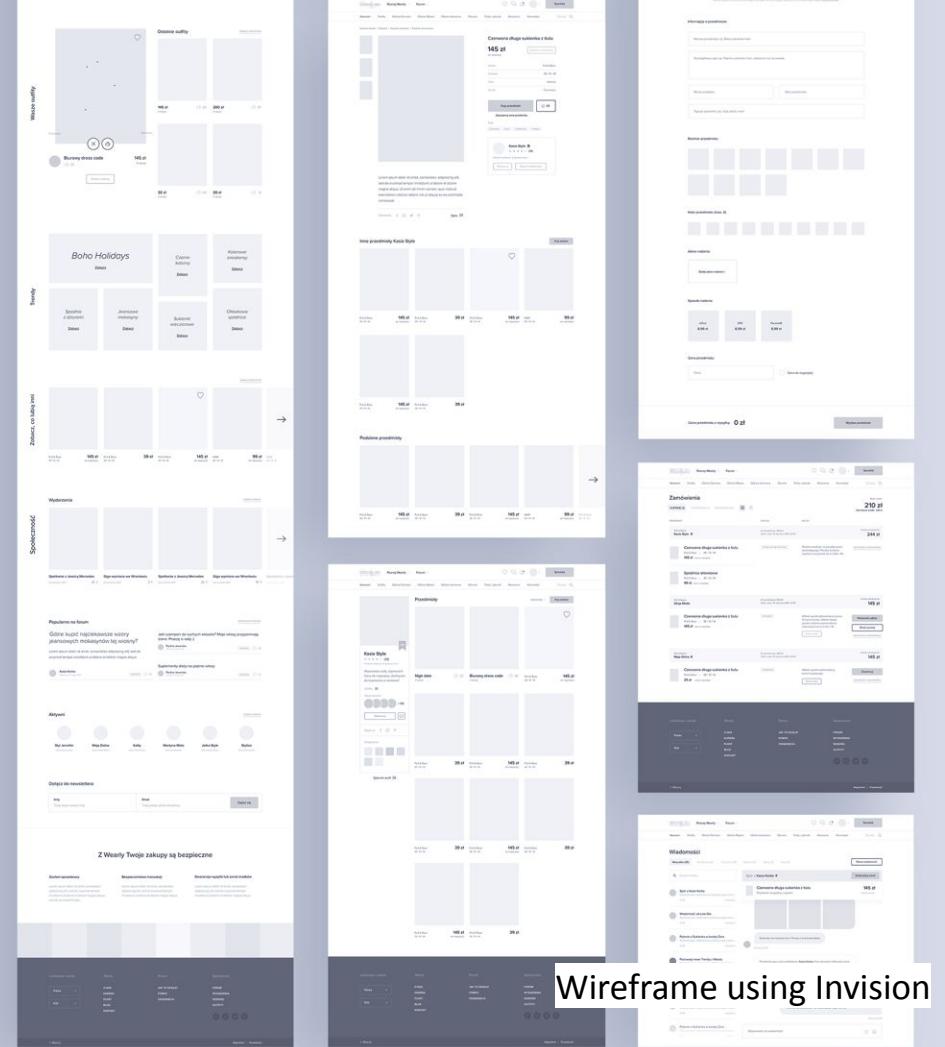


# The Wireframe

**Not a UX class YET but good to know**



Dribbble  
Paper Wireframe



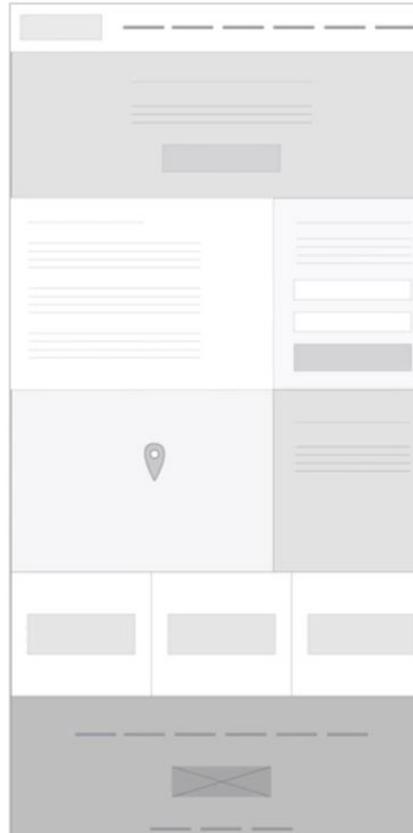
Wireframe using Invision

Wireframes are **not design.**

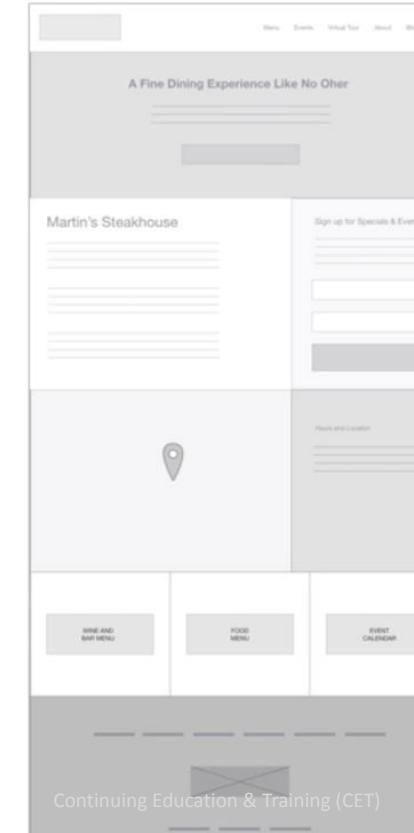
When does **wireframing** happen

# Low to High Fidelity

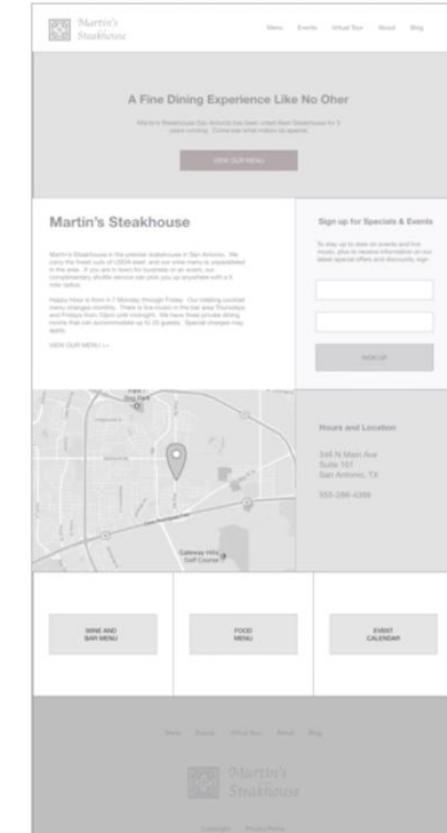
Lo-fi



Mid-fi



High-fi





# HTML Fundamentals

Let's Start



# FRONT-END HUH?

“A mix of programming and layout that powers the visuals and interactions of the web.”

- ✓ The Front End is what the user sees
- ✓ It powers the visuals and interactions of the web
- ✓ It is meant to be pretty, but doesn't always happen that way
- ✓ Made up of HTML, CSS and Javascript



# WHAT DOES A WEB DEVELOPER DO?

## FRONTEND DEVELOPERS

Code the frontend of a website; i.e. the part that the user sees and interacts with.

Bring the web designer's designs to life using HTML, JavaScript and CSS

Ensure responsive design

## BACKEND DEVELOPERS

Work behind-the-scenes, building and maintaining the technology needed to power the frontend

Ensure that everything the frontend developer builds is fully functional

Create and manage the database

## FULL STACK DEVELOPERS

Experts in both backend and frontend development

Guide on strategy and best practices

Well-versed in both business logic and user experience

Reading Source:

<https://careerfoundry.com/en/blog/web-development/what-does-it-take-to-become-a-web-developer-everything-you-need-to-know-before-getting-started/>

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# WEB DESIGNER



What my friends think I do



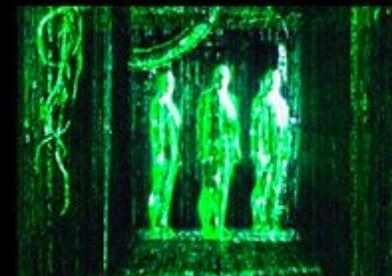
What my mom thinks I do



What society thinks I do



What my clients think I do



What I think I do



What I actually do

# I heard you want to be a web developer



## Here are a few devices to test your site

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Your  
Website

# WHAT'S WEB DEVELOPMENT



- ✓ Creation and management of both websites and web-based applications
- ✓ Front End & Back End
- ✓ It's like magic! ....

**NO...** It's a lot of coding using text files (coding/programming) and debugging/fixing problems 😭

I HATE PROGRAMMING  
I HATE PROGRAMMING  
I HATE PROGRAMMING  
**IT WORKS!**  
I LOVE PROGRAMMING



Layers Assets

# Albums

❖ Slider

... More

# Interactive Prototyping

T For you

O Circle

# Playlists

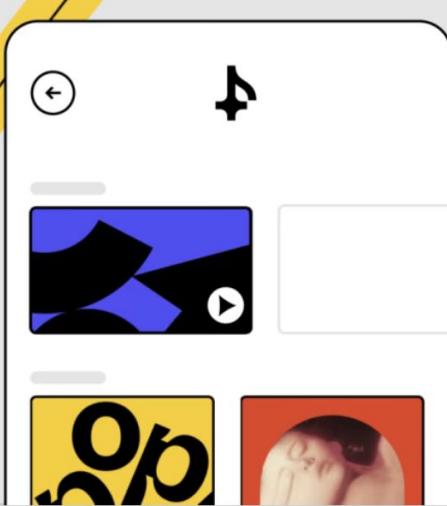
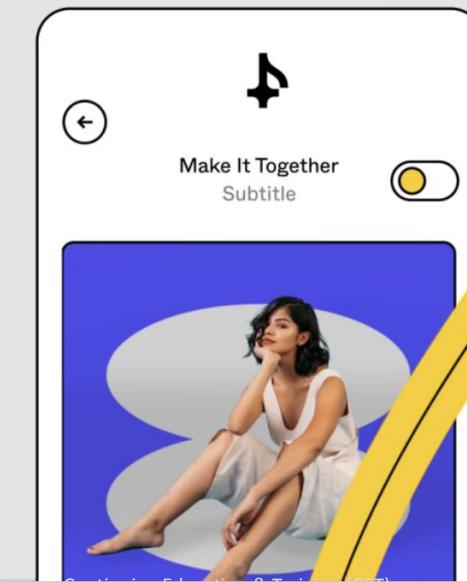
❖ Slider

❖ Play UI

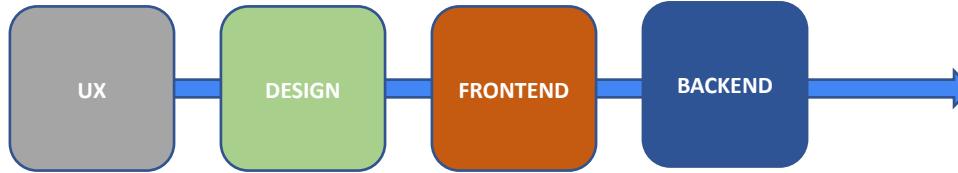
# Nav Bar

# Logo

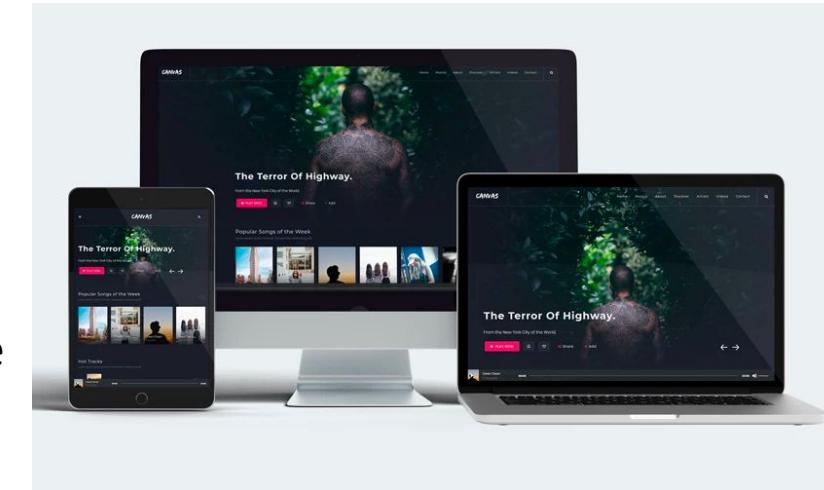
□ Button



# WEB PRODUCTION WORKFLOW



- ✓ Take the design and “magically” turn it into code
- ✓ Uses HTML/CSS to create the structure for a page and add style
- ✓ Add interactions with JavaScript
- ✓ Other responsibilities: accessibility, performance, cross-browser and cross-device functionality



# What is HTML & CSS

Most Websites are created with languages called HTML & CSS

By learning these two powerful languages, you will be able to build websites on your own



<https://www.np.edu.sg>



## Why LEARN?

“How to manage the online store without having to depend on **expensive web designers**”

- *Learner*



# Things to Remember



## The web is possible because of the internet

- Internet been around since the 80s
- Web been around since the 90s

## To use the web, you need:

- A web server, that hosts resources like documents
- URLs that identify those resources on that webserver
- Protocols that can be used to transfer resources
- Web browser, to view documents and use resources

## Why should you learn about HTML, CSS and JavaScript?

- **What** the technologies are
- **Why** they are relevant
- **How** people use them

# 3 Core Pillar



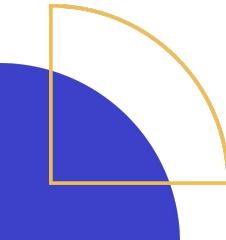
Defines the Content  
"Bones"



Assigns the style  
"Skin"



Adds the functionality  
"Brain"





# HTML

## Hypertext Markup Language

Standard markup language for creating web  
pages and web applications

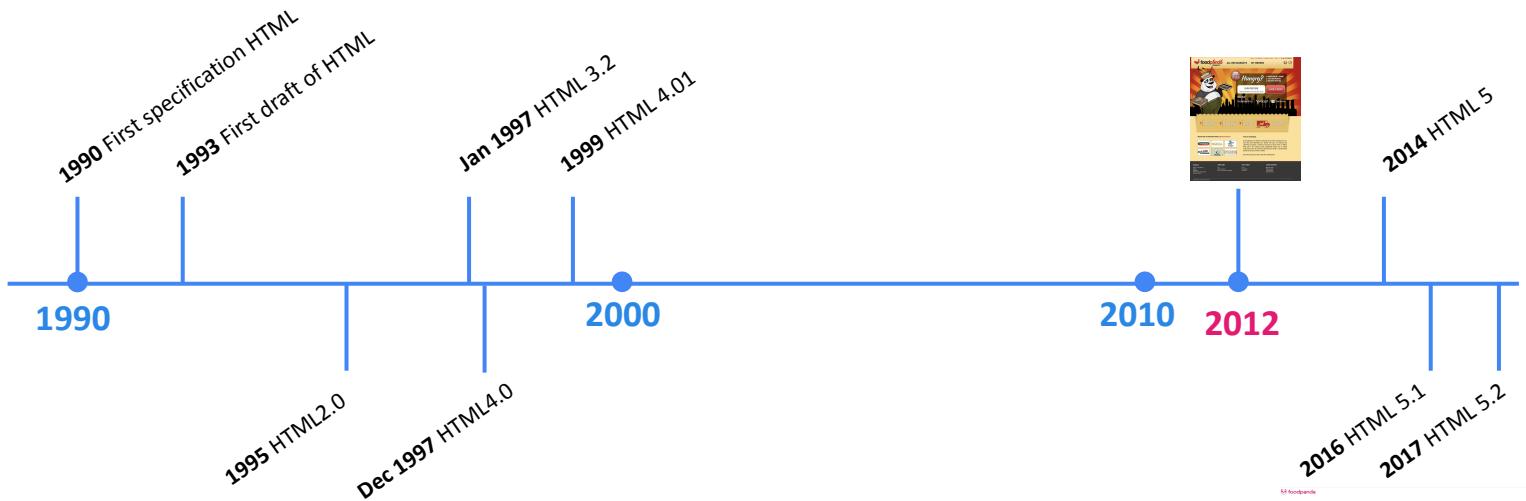
# I started....



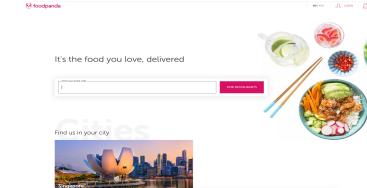
<https://www.youtube.com/watch?v=gsNaR6FRuO0>

The sound of dial-up internet

# History of HTML



For more info: <https://en.wikipedia.org/wiki/HTML>



**"IMPT"**

# Weakly Typed Languages Vs Strongly Typed Languages

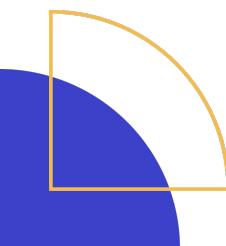
JS(Weakly Typed) Python (strongly typed)



# HTML

`<tag> ... </tag>`

Simply a set of tags on how we describe a website structure  
Tells the browser how to format content



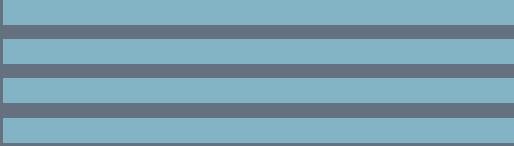
## Surround Content w/ HTML Tags

<tag>



</tag>

<tag>

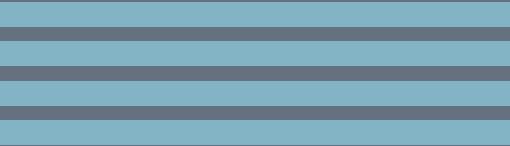


</tag>

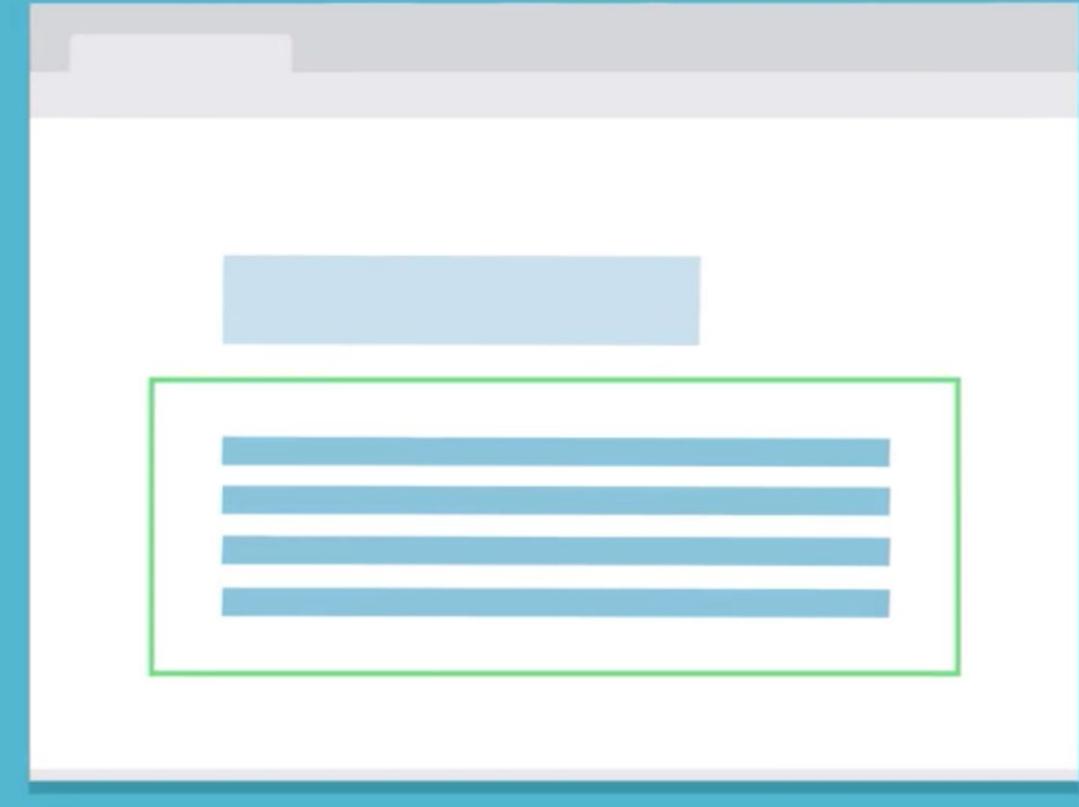


I want this to be a paragraph

< p >



</ p >



We can use HTML to label a section as a paragraph using the <p></p> tags

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# CSS

## Cascading Style Sheets

a language used to describe how an HTML element should look  
when displayed in a browser.

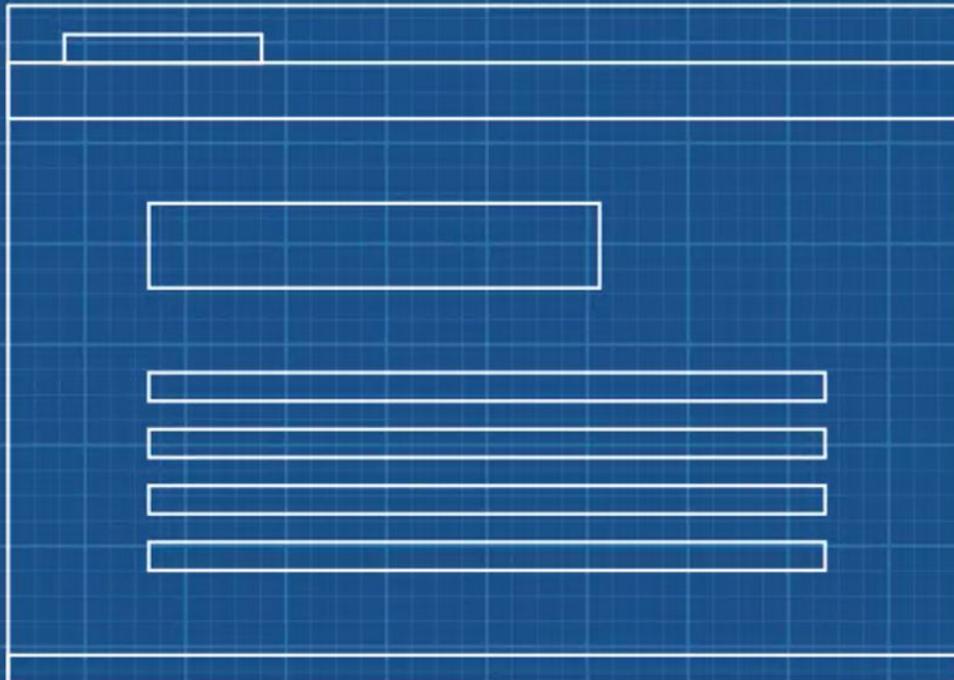
## Changing Font colors using CSS and size

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## Changing Font colors using CSS and size

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Coding a Web Page is like making a blueprint for the browser  
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With CSS, we can tell the browser we the paragraph **fonts** to be white  
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With CSS, we can tell the browser we the paragraph **background** to be black

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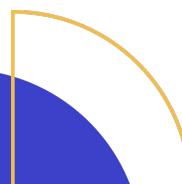


## HTML Fundamentals



## CSS Fundamentals

Defines the **style** of HTML  
"give the first image a red border"  
The "adjectives" of a webpage



# Structure of HTML Documents

We name files as

.htm or .html

<!DOCTYPE html>  
<html>

Indicates it's a  
HTML5 Document

</html>



# Structure of HTML Documents

We name files as  
.htm or .html

```
<!DOCTYPE html>
<html>
  <head>
    <!-- meta information --> _____
  </head>
```

We can include the page title, scripts, styles, metainfo for the document (*not displayed to user*)

```
</html>
```



Not the company META



# META



## Urban Dictionary

“About the thing itself. Seeing the thing from a higher perspective instead of from within the thing, like being self-aware.”

[Source](#)

## Computer Science

“A common prefix that means ‘about’. So, for example, metadata is data that describes other data (data about data).

A metalanguage is a language used to describe other languages. A metafile is a file that contains other files.”

[Source](#)



# META TAGS/Stuff inside the head

Lets the webpage know that we're using **utf-8 character set**

Lets the webpage know the size of the viewport

```
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width">
  <title>Document</title>
  <link href="style.css" rel="stylesheet" type="text/css" />
</head>
```

Changes the title header on your tab

Links your personal stylesheet to this webpage. More on this as we go deeper.

# Structure of HTML Documents

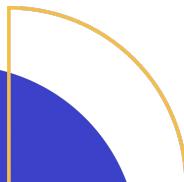
We name files as  
.htm or .html

```
<!DOCTYPE html>
<html>
  <head>
    <!-- meta information -->
  </head>
  <body>
    <!-- the content of the page -->
  </body>
</html>
```

We can include the page title,  
scripts, styles, metainfo for the  
document

Everything that we  
want to display on  
the screen

All web browsers understand these elements and use them to display on the screen



# Elements are instructions to the Browser

<h1>

Header Element

## Heading

<b>

Bold Element

Before you begin to decide to start coding, you must first understand what it is used for. This is just a paragraph with several elements intact

<p>

Paragraph Element

- First Item
- Second Item
- Third Item

<li>

List Element

<tr>

Table Element

Firstname	Last Name
Luke	Skywalk

# Element Description

What does an element look like

## #Rule 1: Surround text with HTML element tags

Tags give a meaning, such as a heading or a link to a text

<h1>

Header Element

The diagram illustrates the structure of an `<h1>` tag. It consists of three main parts: an **Opening Tag** (`<h1>`), **Content** (the text "This is a Heading"), and a **Closing Tag** (`</h1>`). A bracket below the content area is labeled **Content (What is rendered/displayed)**.

**Note:**

*The forward "/" slash when we are closing the tag*

*Strive to only have one <h1> heading in a HTML element*



# The FOLD

**SPECIAL COMMEMORATIVE SECTION**

"All the News  
That's Fit to Print"

**The New York Times**

NEW YORK, MONDAY, JULY 21, 1969

LATE CITY EDITION  
Wednesday, July 22, 1969  
10 CENTS

**MEN WALK ON MOON**

**ASTRONAUTS LAND ON PLAIN;  
COLLECT ROCKS, PLANT FLAG**

**Voice From Moon:  
'Eagle Has Landed'**

**EAGLE** (the lunar module) Moon. Tranquility base here. The Eagle has landed.

**HOUSTON:** Roger, we copy your report. You've got a good one. We're watching you. Thank you.

**TRANQUILITY:** You're doing good, men. Tranquility base here. All systems go. Tranquility base here. We are ready for 11. (The first step in the lunar operation.) One.

**TRANQUILITY:** Eagle, Standby. Stay for 11.

**HOUSTON:** Roger and we are awaiting the one. Tranquility base here. All systems go.

**COLUMBIA:** (the command and service module) We're all set, Houston.

**HOUSTON:** Columbia, we have landed Tranquility base. Eagle is at Tranquility. I read you fine, Jim.

**COLUMBIA:** Yes, I have a good thing.

**TRANQUILITY:** That's a good show.

**COLUMBIA:** Fantastic. It's second best.

**ANGELO CONTROL:** The next major step may well be for the T-2 event. That is at 21 minutes 39 seconds after landing.

**COLUMBIA:** Up intensity command from 22 requires no high jets.

**Nell A. Armstrong moves away from the leg of the landing craft after taking the first step on the surface of the moon**

**A Powdery Surface  
Is Closely Explored**

**BY JOHN NOBLE WILFORD**  
*Staff Writer of The Times*

HOUSTON, Monday, July 21—Two astronauts have landed and walked on the moon.

At the exact moment of 11:41 a.m., eastern time, the Eagle's four-legged ladder module safely and smoothly veered off the landing platform at Tranquility base.

The two astronauts, the first crew to venture beyond Earth's orbit, had been in the cramped, windowless module, reduced to ninth and the thinnest, control room here.

"Houston, Tranquility base here. The Eagle has landed."

"Roger, Tranquility base here. The Eagle has landed," came the reply from Mission Control Center here, Calif. Edward E. Aldrin Jr. of the Air Force was the first to leave the module, followed by Neil A. Armstrong, the command module pilot.

After a brief pause, the two astronauts stepped out onto the powdery surface of the plain of Tranquility base. They were about six and a half hours from the time they had descended to the moon.

Armstrong, dressed in his spacesuit, slowly drove the ladder and descended as he planned the first human footprint on

"That's one small step for man, one giant leap for mankind."

His first step on the moon came at 10:56:20 P.M., after a television audience of 500 million people had witnessed an event that will be an epochal and exciting audience of hundreds of millions of people on earth.

**Tranquility Step That Said**

Mr. Armstrong's initial steps were tentative tests of the lunar soil's thickness and of his ability to move about on the surface.

**By John Noble Wilford**  
*Staff Writer of The Times*

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**THE BUSINESS TIMES**

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**SOLVING PROBLEMS**  
How to lead in the new normal  
LEADERSHIP & MANAGEMENT / 21

**DINING OUT**  
A new direction for Corner House  
FOOD & DRINK / 22

**KEY ENABLER**  
Putting the 'I' back in fintech  
OPINION / 19

**OFFICE MARKET BLUES**  
Silver lining in sight from development projects  
REAL ESTATE / 12

**MARKETS**

STOCK	LAST	CHANGE	% CHG
SINGTEL	\$4.88	-0.01	-2.03
SIA COMP	\$1,573.31	+12.25	+0.80
NAKED	\$27.36	-0.14	-0.51
WPS	\$27.85	+0.01	+0.03
SHINCHONKEI	\$108.01	-18.71	-15.40
DOW	\$34,829.87	+60	+0.17

**MAS ANNUAL REPORT**

**MAS, banks to see how best to wean borrowers off Covid-19 reliefs**

**Support to help alleviate cashflow pressures faced by individuals and businesses cannot continue indefinitely, says MAS MD Ravi Menon**

**By Natalie Chia**  
*Business Times reporter*

**THE MONETARY AUTHORITY OF SINGAPORE** is studying how to balance between supporting the economy and ensuring the health of the financial system, as it withdraws support measures to help firms and households ease the end of the Covid-19 pandemic.

While the support helped alleviate a sharp decline in economic activity last year, it also led to a build-up of debt that could pose risks to the stability of the financial system, said Ravi Menon, the chief executive officer of MAS's annual report released yesterday.

Deutsche Bank's new Asia chief executive officer will be based in Singapore, picking the city over Hong Kong at a volatile time for the Chinese banking industry.

**RATING & FINANCE / 14**

Oil edged higher after closing at a four-month high as the Opec+ alliance agreed to extend output cuts from October to December.

MAS is now encouraging financial institutions and insurers to have bear in mind borrowers and policyholders' less granular financial requirements.

"Our hope is that the extension

monetary system making some economic sense," said Mr Menon.

Singapore's central bank has already withdrawn the pace of rate cuts and is now focusing on the condition of the banking system, which has been hit by the fall in oil prices and the impact of the virus on the economy.

With the economy still recovering from the virus, firms are expected to take longer to return to pre-pandemic levels. "We have to make sure that the support is there for as long as possible," said Mr Menon.

Commercial banks are also encouraged to take a more risk-based approach to lending, or both. Based on previous estimates taken in April, this would mean that about 10 per cent of total mortgage loan values here

"while we are seeing positive sequential growth in the second quarter of this year, the economy will not be sufficient to reverse activity to pre-pandemic levels," said Mr Menon.

Kurt Issel, president of the Asian division of UBS, said that while large companies had seen that business had returned to pre-pandemic levels, smaller firms that had been hit hard by the virus had not.

"Businesses have asked us what they can do to help and we are looking at ways to provide sudden relief that will create big long-term benefits," he said.

The Singapore government has announced a series of measures to help the economy recover from the virus. These include allowing for capital set aside for loan guarantees to be used for other forms of lending, such as corporate bonds and commercial paper.

Nearly 34,000 mortgage loans have also been converted to lower rates, or given a moratorium, or both. Based on previous estimations taken in April, this would mean that about 10 per cent of total mortgage loan values here

have not improved. We can't just rely on the large corporates. Smaller firms are expected to take longer to return to pre-pandemic levels," he said.

With Singapore seeing a much faster recovery than many other countries, some firms are expected to close shop when relief measures dry up.

**• COMMERCIAL BANKS**

Commercial banks are also encouraged to take a more risk-based approach to lending, or both. Based on previous estimates taken in April, this would mean that about 10 per cent of total mortgage loan values here

**MAS reviewing bank's capital plans, including dividend payments**



# The FOLD

AskNP

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OWN YOUR XTRA

MENU    SEARCH  
 COVID-19 Measures  
 DAE For A Level Holders  
 Career Jumpstart

Depending on your browser, operating system, device, what you see above the fold may differ.



Why NP

A Leader in Higher Learning

Oh, The Places We'll Go!

Quick Facts about NP

14,800	23,000	1,800	150,000+
Fu-Dai Courses	Part-time Courses	Short Courses	CDA Units & Institutes
Academic Schools	CIT Academy		
Centres of Innovation	Service Learning	Smart Design	Entrepreneurship
University of Global Engagement	Community-based Learning	Smart Learning	Global Learning
International Programmes	Community Outreach	Smart Learning	Global Learning

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## Why NP



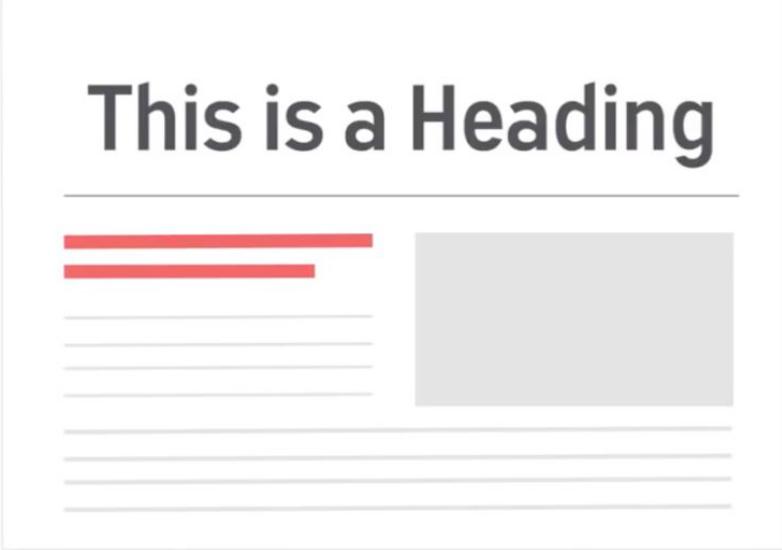
NP website  
(Mobile - above the fold)

# Element Description

What does an element look like

Headline in a  
newspaper

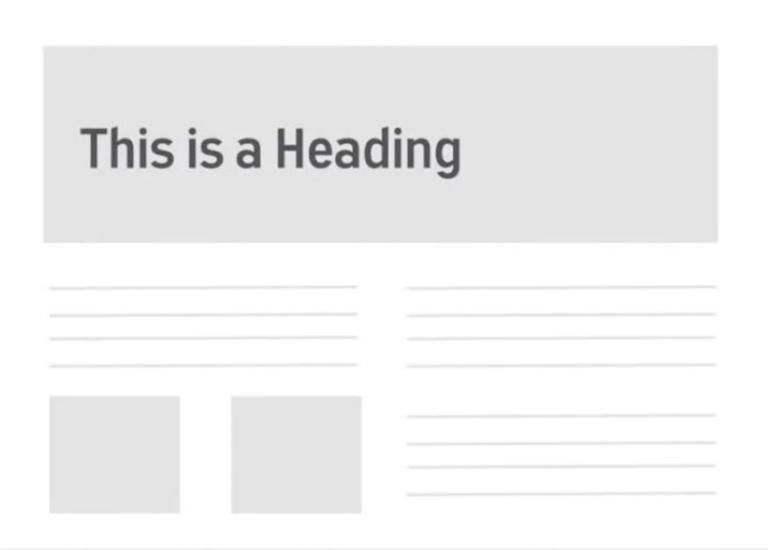
# This is a Heading



`<h1>This is a Heading</h1>`

`<h1>` Headings are the center piece of a screen  
space  
Heading Title in a blog post

# This is a Heading



# Element Description

What does an element look like

<h1>

Header Element

Action starts here

Browser reads the content from left to right

Closing Tag

<h1>This is a Heading</h1>

Display this is big bold  
text

Note:

The forward "/" slash when we are closing the tag

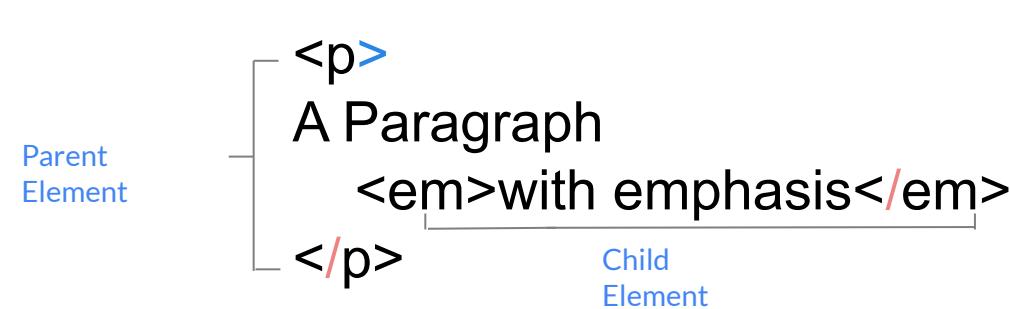
Strive to only have one <h1> heading in a HTML element



# Elements Within Elements

**Child > parent Relationship**

*Nested Relationship*



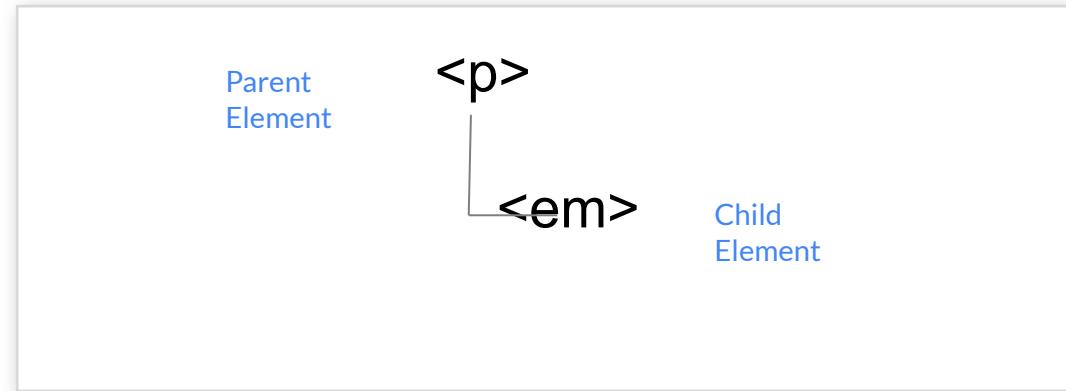
**Note:**

We can always nest multiple elements within the em tag marks elements as important. Em provides emphasis and contextual semantic



# Elements Within Elements

## Structure



*Note:*

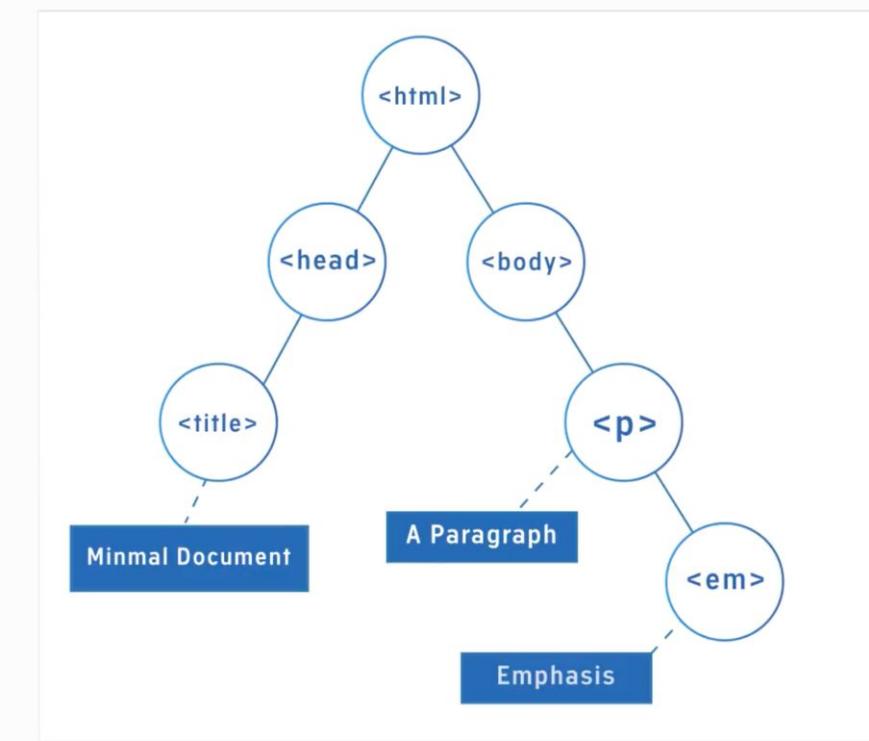
*Parent: Any element that contains another element*

*Child: Contained elements*



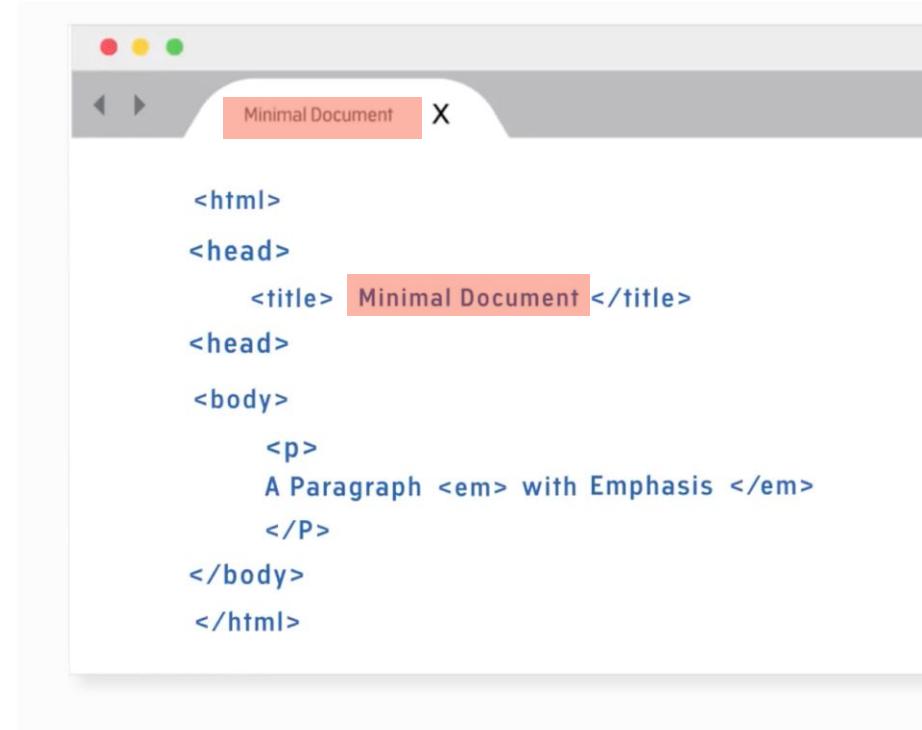
# Elements Within Elements

Structure



# Elements Within Elements

## Structure



A screenshot of a web browser window titled "Minimal Document". The window displays the following HTML code:

```
<html>
  <head>
    <title> Minimal Document </title>
  </head>
  <body>
    <p>
      A Paragraph <em> with Emphasis </em>
    </p>
  </body>
</html>
```

The title "Minimal Document" is highlighted with a red box. The entire code block is enclosed in a white box with a thin black border.

# Other Key Elements

## Required Elements

<html>

<body>

<head>



# Paragraph Element

## Heading

Before you begin to decide to start coding, you must first understand what it is used for. This is **just** a paragraph with several elements intact

- First Item
- Second Item
- Third Item

<p>

### <p> Paragraph Element

Creates space above and below elements  
Block level element  
Paragraph Element  
used for blocks of text when there's two or more sentences



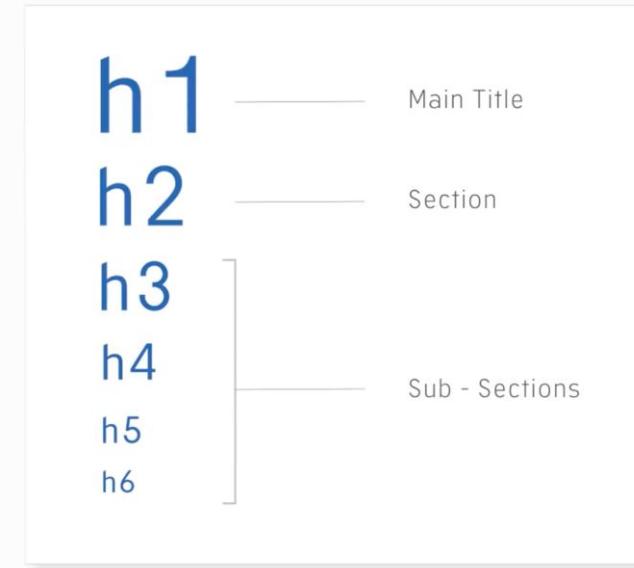
# Headings <h...>



<h1>Most important HEADING</h1>  
<h2>Second Most Important Heading</h2>  
<h3> Third Most Important Heading</h3>  
<h4> Fourth Most Important Heading</h4>  
<h5> Fifth Most Important Heading</h5>  
<h6>Least Important Heading</h6>

Provides visual context and meaning

\*There's no such thing as <h7>...</h7> and beyond...  
Maybe you can try :)



Heading 2 ▾ Arial  
Normal text ▾  
Title ▾  
Subtitle ▾  
Heading 1 ▾  
✓ Heading 2 ▾  
Heading 3 ▾  
Heading 4 ▾  
Options ▾  
Google Docs (Headings)

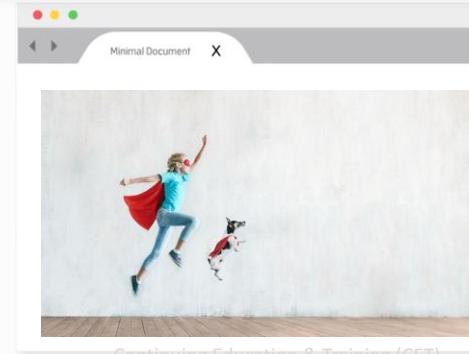
# Image Tag <img>

Used to display an image  
Self-closing tag

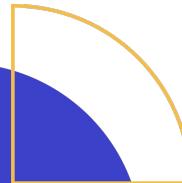
<https://picsum.photos/>

```

```



<https://replit.com/@immalcolm/image-example>





## Image Tag <img>

### Absolute URL

<https://interactivedev.com/logo.png>

Absolute URLs are the type of links you're used to.

They include http:// or https:// and the full domain name before the directory (/assets/logo.png)

Filenames are **CASE-SENSITIVE**

Image.png != image.png

A good rule of thumb is simply keeping all files as lowercase.

### Relative URL

/logo.png

Relative URLs are shortcuts that allow you to skip the domain name.

It only works if you're linking to a file on the same domain on the current page.

<https://replit.com/@immalcolm/image-example>

[https://developer.mozilla.org/en-US/docs/Learn/Getting\\_started\\_with\\_the\\_web/Dealing\\_with\\_files](https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/Dealing_with_files)

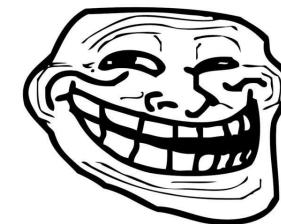


## Image Problem<img>

### The Problem: One size fits all.

You might think to use one large image to fit for all screen sizes from small to large screens. It is not just about the size about also the resolution of the device. Retina screens, 4K, 8K. We can't purposely serve up the highest resolution images, it will be too big! Our poor mobiles with lousy connection will take too long to load such images.

However, it could be a waste of bandwidth and load. We can further optimise this process with responsive images.



**problem?**



## Responsive Image<img>

# RESPONSIVE using resolution switching

We can apply resolution switching for images to fix our problem.

Responsive images that work well on devices with widely **differing screen sizes, resolutions**, and other such features — and look at what tools HTML provides to help implement them. This helps to improve performance across different devices.

```

```

Reading

[https://developer.mozilla.org/en-US/docs/Learn/HTML/Multimedia\\_and\\_embedding/Responsive\\_images](https://developer.mozilla.org/en-US/docs/Learn/HTML/Multimedia_and_embedding/Responsive_images)  
<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/img#attr-srcset>  
<https://web.dev/learn/design/responsive-images/>



# Responsive Image<img> using srcset

## Serve Different Images to Different Devices

We tap on the **srcset** attribute to provide a range of images that will be used when the browser is of a certain screen size

"**src**" attribute is still needed.

"**srcset**" - supplements the "**src**" attributes. Replaces with a different file if the screen size is within it's range

The browser won't download the larger images unless they're needed. That **saves bandwidth**.

```

```

### Width Descriptor

The metadata "**w**" describes the width of each width using the w unit.

One w is one pixel

<https://html.com/attributes/img-srcset/>



# Responsive Image<img> using srcset

## Pixel Density Descriptor

Use the density descriptor to describe the pixel density of the image in relationship to the image in the src attribute. The **density descriptor** is a number followed by the letter x: **1x, 2x, etc.**

```

```

### Pixel Density Descriptor

The metadata "x" describes the pixel density of the device. On a double-density display you can pack two pixels worth of information into the space of one pixel. This keeps images looking sharp on those kinds of displays.

<https://html.com/attributes/img-srcset/>



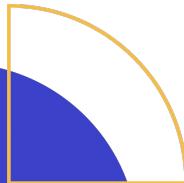
# Responsive Image<img>

It takes a lot of work to have multiple images to handle different viewports and screen sizes. Let's use a generator.

## Responsive Breakpoints Image Generator

Generate a variety of sizes for you.

Tweak the settings to control how many images it generates



**RESPONSIVE BREAKPOINTS**

### Responsive Image Breakpoints Generator v2.0

Follow 229 Share Tweet Share

Easily generate the optimal responsive image dimensions

One image for all screen resolutions and different devices is not enough. An image per pixel is too much - so how can someone automatically choose the optimal responsive image sizes? [Learn more...](#)

**Breakpoints generation settings**

**Resolution** ? From 200 To 1400  
50 200 480 1080 2180 3840

**Size step** ? Size (KB) 20  
5KB 25KB 45KB 65KB 85KB

**Maximum images** ? Quantity 20  
3 10 18 25 33 40

**Retina resolution**  
 Include double resolution (DPR 2.0) images

Or select one of the predefined images



Art-direction - Image aspect-ratio and view-port ratio

<https://www.responsivebreakpoints.com/>

## Too much to understand?

Let's use the generator! <https://www.responsivebreakpoints.com/>



Original

```

```

No	Width	Height	File size
1	200	61	7.9 KB
2	430	130	27.2 KB
3	586	178	46.1 KB
4	728	221	66.7 KB
5	850	258	86.8 KB
6	940	285	104.8 KB



Demo:

<https://replit.com/@immalcolm/sample-responsive-images>

## Uploading Images

If you want to use an image from your computer in your design, upload it to a site like imgur.com and use the public URL they give you.

Be sure to use the URL for the image itself, and not a webpage with the image on it.

Great Resource

<https://picsum.photos/>

# Common HTML5 Elements

**<p>**

Defines a  
paragraph  
Block element

**<h1><h6>**

Title  
<h1>  
Section  
block

**<em>**

emphasis/stress  
text  
italics  
inline

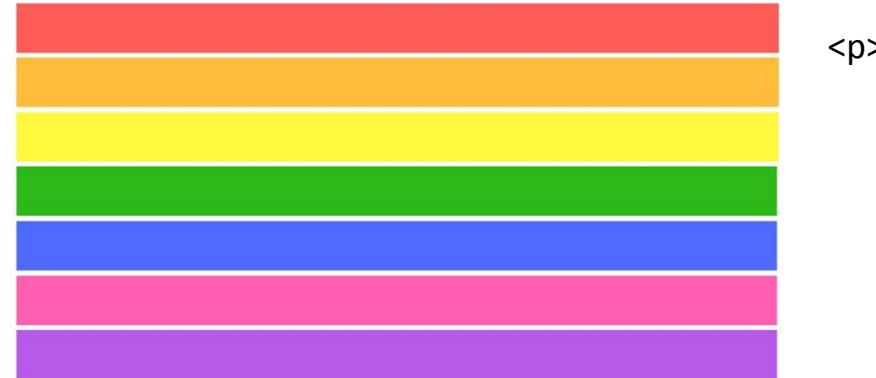
**<strong>**

Gives text  
importance  
Bold  
Section headings  
inline

\*Note: Block elements are elements that create a spacing/line break below themselves

# Common HTML5 Elements

## BLOCK-LEVEL ELEMENTS:



<p>

## INLINE ELEMENTS:



<span>

\*Note: Block elements are elements that create a spacing below themselves

Continuing Education & Training (CET)

# Anatomy of a HTML Page

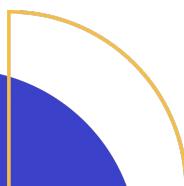
## <Tags>

Tags can also have attributes.

- A name optionally followed by a value.
- An attribute is used to:
  - Select between different options of element function
  - Provide extra information about what the element describes

```
<p class="special">  
    A special paragraph  
</p>
```

Example of a <p> tag with a “class” attribute

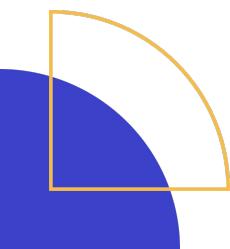


# Common HTML Elements

[Link](#)

## <a>

- Start tags can also have attributes
- a stands for anchor
- anchor/hyperlink element
- Allows linking to:
  - Internal locations on a document (bookmarking)
  - Other documents and resources
  - text in <a> tags displayed in the browser as a link text



```
<a href="https://interactivedev.com"  
title="JumpStart to Interactive  
Development">Interactive Development</a>
```

\*Note: Every link has a destination  
In order to make any link work, you'll need to specify a destination URL in the <a> element by adding the **href** attribute

<https://replit.com/@immalcolm/simple-hyperlink>

[Interactive Development](#)

JumpStart to Interactive Development

# Common HTML Elements

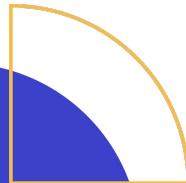
Image

## <img>

- Display an image
- src attribute
  - Internal locations on a document
  - Other documents and resources
- alt attribute
  - Image description
    - Visually impaired users (accessibility)
    - In case of image not loading

```

```



# Common HTML Elements

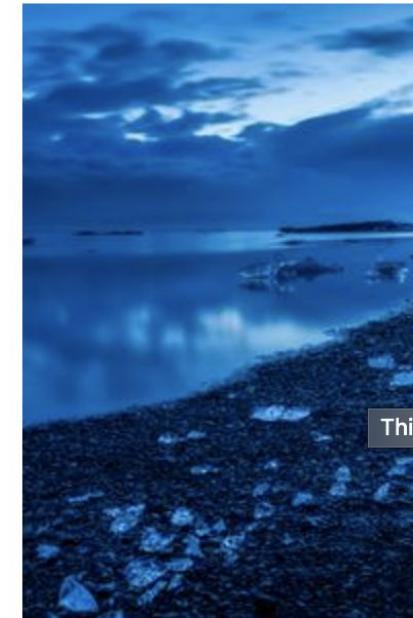
Image

```

```

```

```



*When mouse over*

This image is pretty

 When the image fails, this shows up.

\*Note alt-text makes images accessible + vision-impaired/screen-readers + SEO-friendly



# Lists

## <ul><ol>

### Unordered

```
<ul>
<li>Item 1</li>
<li>Item 2</li>
<li>Item 3</li>
<li>Item 4</li>
</ul>
```

- Item 1
- Item 2
- Item 3
- Item 4

### Ordered

1. Item 1
2. Item 2
3. Item 3
4. Item 4

parent element

```
<ol>
<li>Item 1</li>
<li>Item 2</li>
<li>Item 3</li>
<li>Item 4</li>
</ol>
```

child elements

ul -Unordered list. For listing things that do not need to be in any specific order. Navigation menus are often created with unordered lists, and are styled with CSS to display horizontally.

ol -Ordered list. A list that is automatically numbered.

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/ol>

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/ul>

# Common HTML Elements

div + span

div + span  
SEMANTIC-NEUTRAL

## <div>

A **container/block** unit

Encapsulates other page elements

Divides the HTML documents into sections

## <span>

An **inline** unit

Usually used for small chunks of HTML

Inside a line

e.g inside a paragraph

\*Semantic-neutral elements ***do not provide meaning to the page but provides structure***



# Common HTML Elements

div +

```
<style>
div{
  border: 1px solid red;
}

span{
  border: 1px solid green;
}
</style>

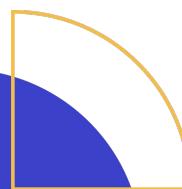
<div>This is a block level element</div>
<span>This is an inline element</span>

<!-- the H1 is a block element --&gt;
&lt;h1&gt;Welcome to &lt;span&gt;Interactive
Development&lt;/span&gt;&lt;/h1&gt;</pre>
```

This is a block level element  
This is an inline element

## Welcome to Interactive Development

<https://replit.com/@immalcolm/divspan-example>



# Common HTML Elements

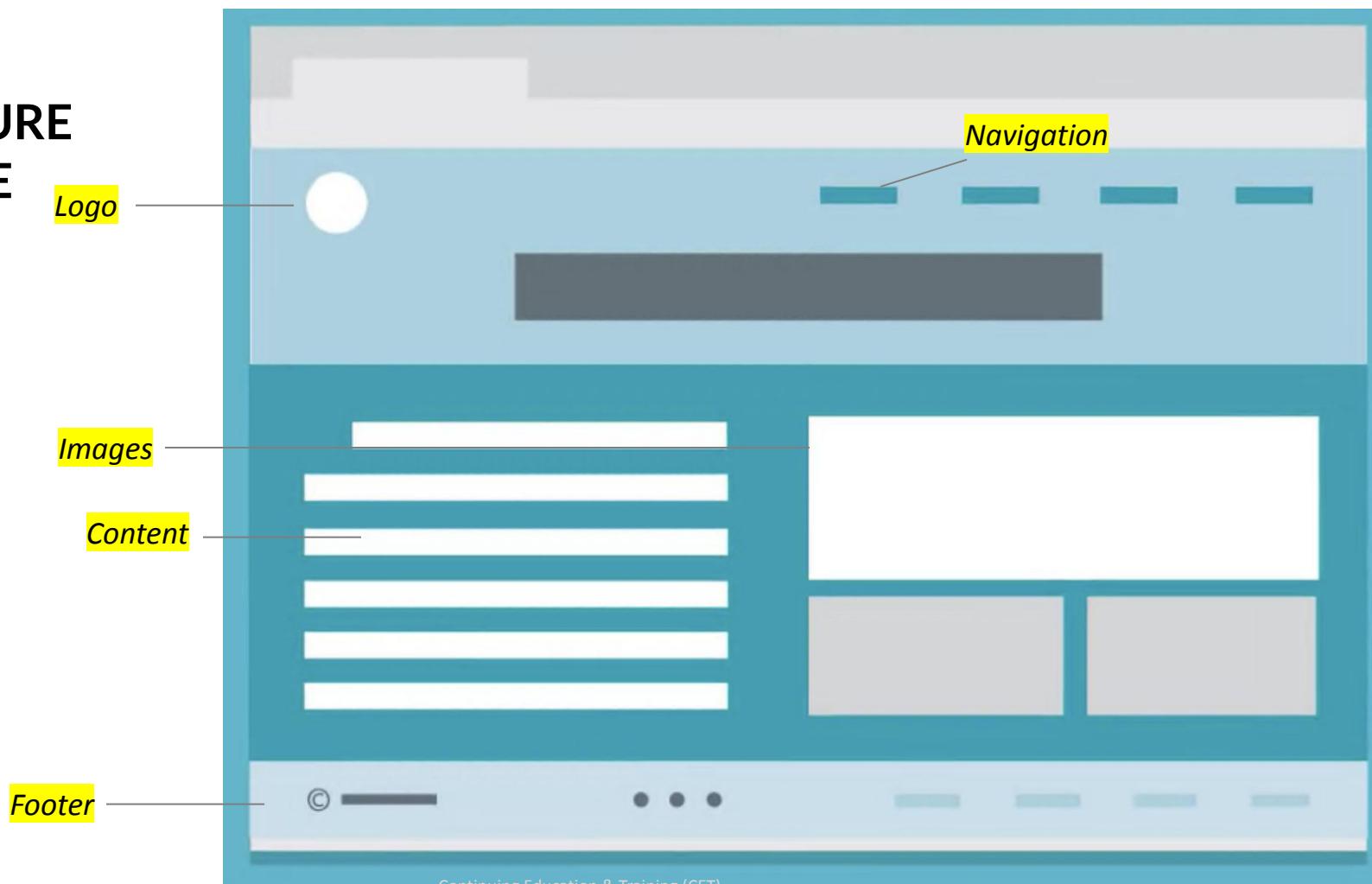
## comment

In programming, we often use comments to explained our code

Comments are not displayed to the browser

```
<!-- this is an example of a comment -->
```

# BASIC STRUCTURE OF A SITE





15- 20 mins

## #EXERCISE

#CODINGTIME #ACTIVITY

## RECIPE CARD

In this activity, you will start to make your own recipe. You will be introduced to five common HTML tags; headings, paragraphs, image, ordered lists and unordered lists.



## Best Chicken Rice Recipe



This is our entry for Jamie Oliver's Search for a Food Tube Star with Uncle Ben's competition. If you're a Singaporean, there's NO CHANCE that you wouldn't know our iconic dish – Chicken Rice.

We all know that Gordon Ramsay came to Singapore a couple weeks back to compete with our local hawkers, and this dish being one of the competing dishes, became our inspiration to pay tribute to the man himself. ????

With all the days of research done on the ultimate chicken rice, this is our tribute, done THE WORD STYLE, to Gordon Ramsay. Enjoy

Mozilla

<http://moqups.com>

## Banana Smoothie

Heading 1

Paragraph

Image

Ingredients:

Heading 2

Unordered list

Method:

Heading 2

Ordered list

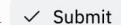
1. List the methods to make the smoothie.

Run your Code



```
index.html
1 <!DOCTYPE html>
2 <html>
3   <head>
4     <meta charset="utf-8">
5     <meta name="viewport" content="width=device-width">
6     <title>Make a Recipe
```

Send it for review



Webview Shell

# Simple Recipe



+

# TABLES

( $\cup \circ \square \circ$ ) $\cup \sim \underline{\underline{1}}$

Does using a table make content clearer and easier to understand?

Model	B76	C75	D92	E88
Price	\$	\$\$	\$\$\$	\$\$\$\$
Rating	★★★★★	★★★★★	★★★★★	★★★★★
Resolution	4608 x 3072	5472 x 3648	6000 x 4000	6720 x 4480

Standings								
#	Team	MP	W	D	L	PD	Pts	Form
1.	Invictus Gaming	16	14	0	2	28:11	14	W W W W L
2.	JD Gaming	16	12	0	4	26:10	12	W W W W W
3.	FunPlus Phoenix	16	12	0	4	27:13	12	L W W W L
4.	Top Esports	16	11	0	5	23:14	11	W W W L L
5.	eStar	16	11	0	5	23:14	11	L W W L L
6.	EDward Gaming	16	9	0	7	23:18	9	L L W L W
7.	Royal Never Give Up	16	8	0	8	20:18	8	L L W L L
8.	Team WE	16	8	0	8	20:21	8	W W L L L
9.	Vici Gaming	16	7	0	9	21:22	7	W L W L L
10.	Bilibili Gaming	16	7	0	9	20:22	7	W W L W W

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/table>

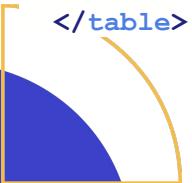
# Common HTML Elements

## TABLES

```

<table>
  <tr>
    <th>Name</th>
    <th>Class</th>
  </tr>
  <tr>
    <td>Uncle Roger</td>
    <td>T01</td>
  </tr>
  <tr>
    <td>Naomi Neo</td>
    <td>T02</td>
  </tr>
  <tr>
    <td>Uncle Raymond</td>
    <td>T03</td>
  </tr>
</table>

```



Element	Name	Purpose	Attributes
<table></table>	Table	Wraps the whole table	
<tr></tr>	TR – table row	Wraps around a set of elements, defining them as belonging to the same row	colspan, rowspan, headers
<th></th>	TH – table header	Defines a header for a column	colspan, rowspan, scope
<td></td>	TD – table data	Marks the actual bits of data	



+

# IFRAMES

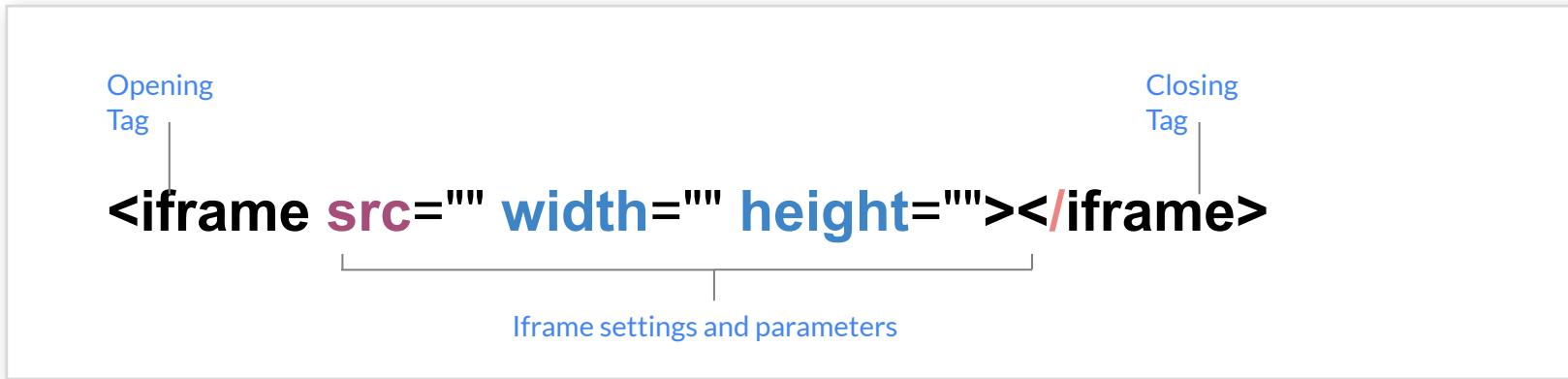


# Common HTML Elements

## IFRAMES

The HTML `<iframe>` tag specifies an inline frame.

An inline frame is used to embed another document within the current HTML document.



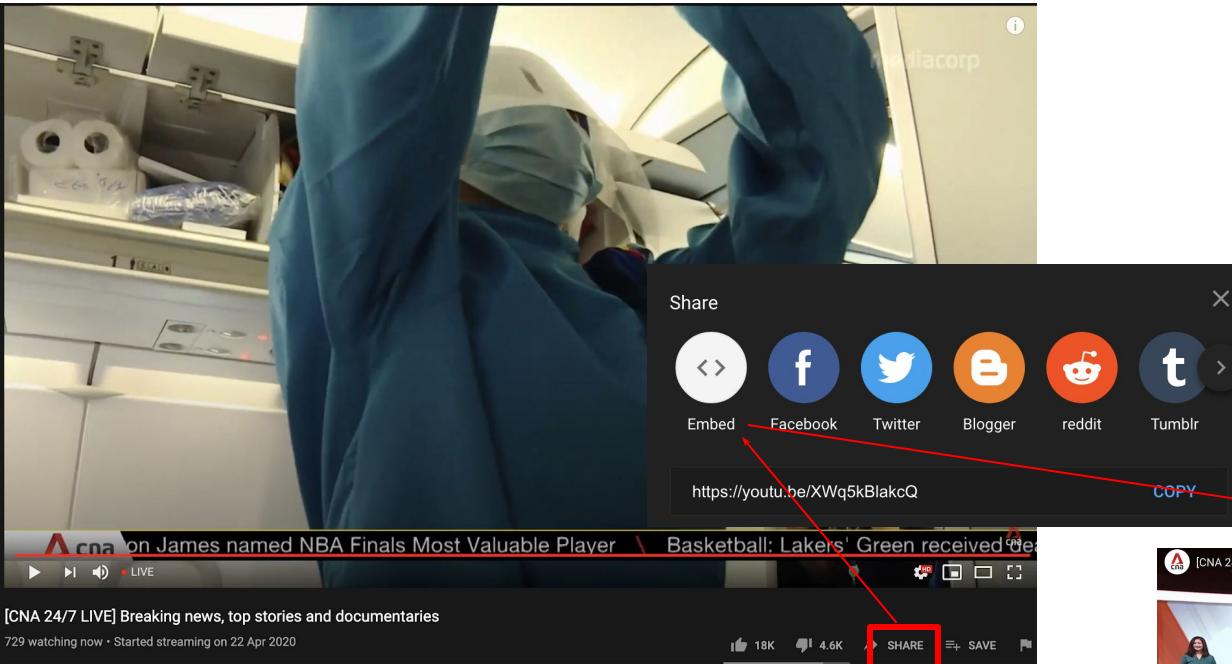
Note:

Iframes are commonly used to embed rich media resources. e.g. Youtube videos

[https://www.w3schools.com/html/html\\_iframe.asp](https://www.w3schools.com/html/html_iframe.asp)

# Common HTML Elements

## IFRAMES



```
<iframe width="560" height="315"
src="https://www.youtube.com/embed/
XWq5kBlakcQ" frameborder="0"
allow="accelerometer; autoplay;
clipboard-write; encrypted-media;
gyroscope; picture-in-picture"
allowfullscreen></iframe>
```

Copy the  
embed code



# HTML Entities

HTML entities are used to display reserved characters in HTML.

Some examples of reserved characters are '<' , '>' and '&

```
<p>&nbsp; space at the start</p>

<p>no space at the start</p>

<p>i can even place these reserved characters: &sol; , &lt; and &gt; </p>
```

space at the start

no space at the start

i can even place these reserved characters: / , < and >

Name	Character(s)	Glyph
Aacute;	U+000C1	Á
Aacute	U+000C1	Á
aacute;	U+000E1	á
aacute	U+000E1	á
Abreve;	U+00102	Ă

[List of HTML Entities](#)

<https://developer.mozilla.org/en-US/docs/Glossary/Entity>

[https://www.w3schools.com/charsets/ref\\_emoji.asp](https://www.w3schools.com/charsets/ref_emoji.asp)



15- 20 mins

## #EXERCISE

#CODINGTIME #ACTIVITY

## RECIPE CARD II

Based on your earlier code, add in embedded video resources, tables to showcase more info



## Best Chicken Rice Recipe



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Mozilla

<http://moqups.com>

## Banana Smoothie

Heading 1

Paragraph

Image

Ingredients:

Heading 2

Unordered list

Method:

Heading 2

Ordered list

1. List the methods to make the smoothie.

Run your Code



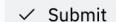
index.html

```

1  <!DOCTYPE html>
2  <html>
3    <head>
4      <meta charset="utf-8">
5      <meta name="viewport"
6        content="width=device-width">
7      <title>Make a Recipe

```

Send it for review



Webview

Shell

+

# Simple Recipe

# Learning Points

- Name your files using lower-case (in web dev, files are hosted on the server. Having About.html about.html are treated differently by the server.)
- Name your files with intent and meaning (e.g Contact Us page should be contact-us.html and not page3.html)
- Have spaces in your file names? Replace them with dashes "-" instead. This reduces conflict when people are typing and it's also easier to recognise.
- In web development, **ALWAYS** ensure that you have the proper file extension.
- For Windows users, it is highly recommended you enable file extensions in your system. (luckily you are using a Mac)

## Windows Users

You see an existing HTML file in the file browser, it is called services. Then you decide to give it an extension services.html. You have file extensions hidden. The full file name will be called services.html.html

Properly naming your files goes a long way

<https://www.howtogeek.com/205086/beginner-how-to-make-windows-show-file-extensions/>  
<https://support.winzip.com/hc/en-us/articles/115011457948-How-to-configure-Windows-to-show-file-extensions-and-hidden-files>

# Additional Reading

## Additional Reading References

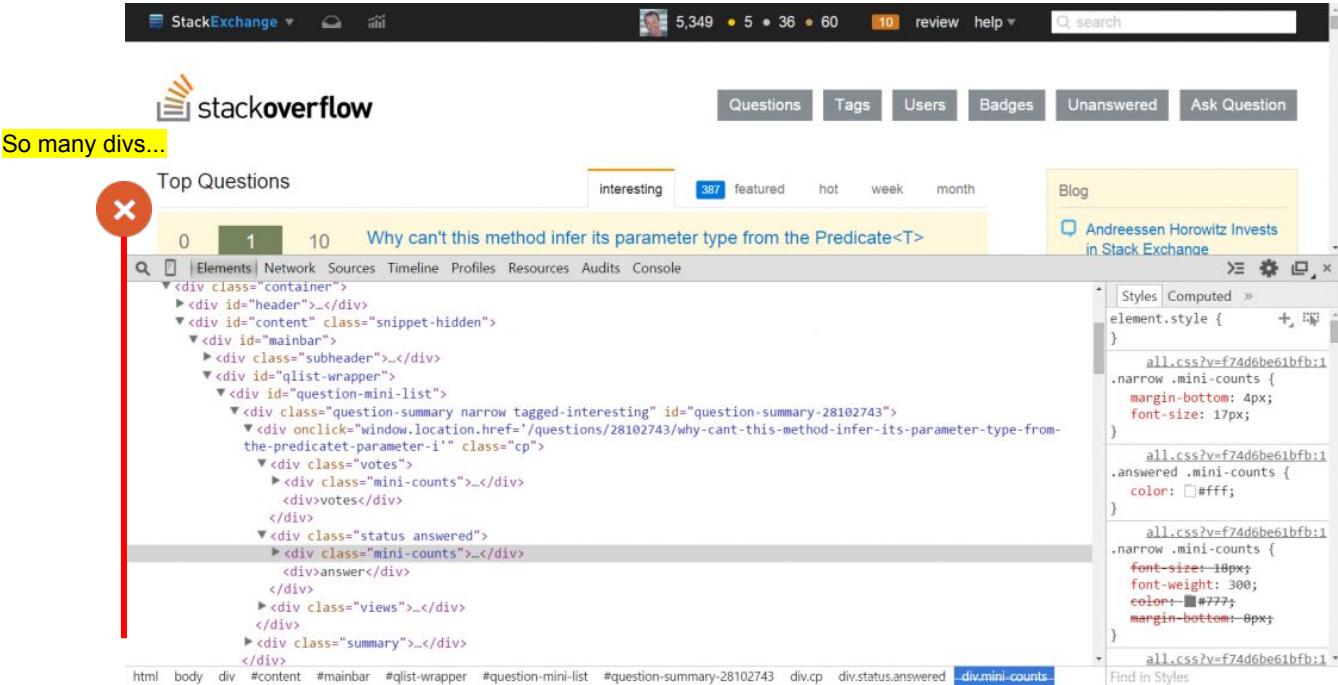
- [https://askanydifference.com/difference-between-absolute-and-relative-path/#Comparison\\_Table\\_Between\\_Absolute\\_and\\_Relative\\_Path](https://askanydifference.com/difference-between-absolute-and-relative-path/#Comparison_Table_Between_Absolute_and_Relative_Path)
- <https://learn.microsoft.com/en-gb/training/modules/develop-web-apps-with-vs-code/>
- <https://cloudfour.com/thinks/responsive-images-the-simple-way/>
- <https://css-tricks.com/a-guide-to-the-responsive-images-syntax-in-html/>



# SEMANTIC WEB

The div element itself has no inherent meaning.

It is simply a container, and there's often a more specific semantic choice.



# HTML5 Semantics

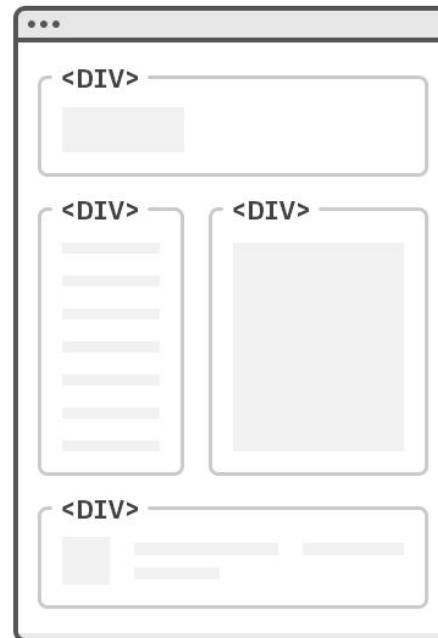


Source: Pluralsight.com

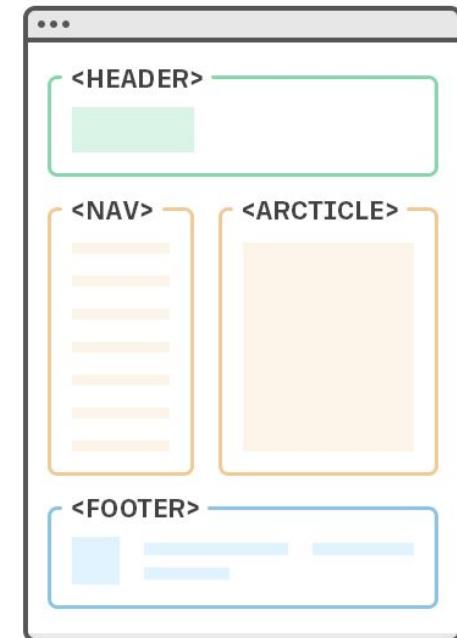
The HTML `<div>` element is the generic container for flow content, which **does not inherently represent anything**. It can be used to group elements for styling purposes...or because they share attribute values ... It should be used only when no other semantic element is appropriate.

<https://www.hackterms.com/div%20soup>

## Without Semantic HTML



## With Semantic HTML



# HTML5 Semantics

Semantics relates to syntax

Semantics is the meaning behind words,  
phrases. In our case it is the HTML.

< p > tag tells us that the content is a  paragraph

< h1 > tag tells us the text inside it is the top level heading of the page

Search Engine looks for keywords + meaning  
**WHERE DO THEY LOOK?**

Your code. They look for Semantics through HTML5

We do not do this

< h1 > this is a paragraph text < /h1 >



Just to make the text large and bold

## ACCESSIBILITY

More accessible to users who rely on assistive technologies to use the web. For example, users with visual impairments use screen readers which literally read out loud the words on a page

[https://www.w3schools.com/html/html5\\_semantic\\_elements.asp](https://www.w3schools.com/html/html5_semantic_elements.asp)

# HTML5 Semantics

## Search Engines

Search engines will consider its contents as important keywords to influence the page's search rankings  
(Search Engine Optimization)

## Developers

Suggests to the developer the type of data used  
Semantic naming mirrors proper custom element/component naming

Maintaining code will be easily and new developers can understand the HTML file faster

## Users

Can be used to help visually impaired users navigate a page

# HTML5 Semantics

<header>

<nav>

<article>

<section>

# <header>

\*Not to be confused with <head>  
<header> usually used for  
navigation or introductory content

Can be used at the top of page  
content to encapsulate navigation,  
logos

```
<header>
  <h1> Most Important Heading Here</h1>
  <h3> Less Important Heading Here</h3>
  <p> Additional Content Here</p>
</header>
```

Reading Resource:

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/header>

# <article>

<header> tags are often used in article tags

Contains 1 or more heading tags  
<h1>... <h6>

Commonly used for news content, blog posts or independent content piece

```
<article>
  <header>
    <h1> Most Important Heading Here</h1>
    <h3> Less Important Heading Here</h3>
    <p> Additional Content Here</p>
  </header>
</article>
```

Reading

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/article>

# <article>



<article>

<h1> This is a Heading </h1>  
<p> This is a Paragraph  
about the wedding </p>

</article>

<p> This is a Seperate Paragraph </p>

## <nav>

Usually for location of the menu links  
This is for key navigation elements in the site and **NOT** for every link in a site.

```
<nav>
<a href ="/html/"> html </a> |
<a href ="/css/"> css </a> |
<a href ="/js/"> JavaScript</a> |
<a href ="/jquery/"> jQuery </a> |

</nav>
```

Reading:

<https://developer.mozilla.org/en-US/docs/Web/HTML/Element/nav>

## <aside>

For content that is indirectly related to your main content

Commonly seen in sidebars or call out boxes

<https://repl.it/@malcolmyam/wk02-semantic-demo>

President Donald Trump and former Vice President Joe Biden, the Democratic nominee, faced off in the final presidential debate of the 2020 election cycle from Belmont University in Nashville on Thursday night, marking the candidates' last chance to pitch themselves to tens of millions of voters in primetime before Nov. 3.

### Top Stories

Fact-checking Trump and Biden during 2nd presidential debate 4 hours ago

Who won the final presidential debate?

# Common Elements

<header>

<nav>

<article>

<section>

<table>

<details>

<figure>

<form>

<header>

<aside>

<mark>

<main>

Reading:

[https://developer.mozilla.org/en-US/docs/Glossary/Semantics#semantics\\_in\\_html](https://developer.mozilla.org/en-US/docs/Glossary/Semantics#semantics_in_html)

+

CSS

# CSS

## Cascading Style Sheets (CSS)

- Defines the **style** of HTML
  - "make all text green"
  - "give the first image a red border"
- The "adjectives" of a webpage



## Without CSS

Turn on more accessible mode  
Skip Ribbon Commands  
Skip to main content  
Turn off Animations  
Sign In

- Menu
- Search

Type your keyword here

- About NP
- **Diplomas**
- Academic Schools
- Admissions & Aid
- Student Life
- The Sandbox
- Dialogue in the Dark
- Virtual Tour
- Directions
- Contact

### Login

- Full-Time Student
- Part-Time Student
- Alumni
- Staff
- Parents

- Early Admissions Exercise

NGEE ANN POLY  
A poly like no other.

#MyKindOfXtra



I am a/an...

## With CSS



AskNP



# INSPECTOR MODE

```

<!doctype html>
<!--[if IE 8]>
<html xmlns="http://www.w3.org/1999/xhtml" class="ie8
wp-toolbar"
    lang="en-US"    >
<![endif]-->
<!--[if !(IE 8) ]><!-->
<html xmlns="http://www.w3.org/1999/xhtml" class="wp-
toolbar gr__localhost" lang="en-US">
    <!--<![endif]-->
    ><head>...</head>
    <body class="wp-admin wp-core-ui js plugins-php auto-
fold admin-bar branch-5-2 version-5-2-2 admin-color-
fresh locale-en-us customize-support svg" data-gr-c-s-
loaded="true">
        <script type="text/javascript">
            document.body.className =
            document.body.className.replace('no-js','js');
        </script>
        <!--[if lte IE 8]>
            <script type="text/javascript">
                document.body.className =
                document.body.className.replace( /(^|\s)(no-)??
customize-support(?=\s|$)/, '' ) + ' no-customize-

```

Styles	Computed	Event Listeners	DOM Breakpoints
Filter	:hover		
element.style {			
}			
.tablenav {		load-styles...er=!	
clear: both;			
height: 30px;			
margin: 6px 0 4px;			
vertical-align: middle;			
}			
a, div {		load-styles...er=!	
outline: 0;			
}			
div {		user agent sty	
display: block;			
}			
Inherited from div#wpwrap			
#wpwrap {		load-styles...er=!	
height: auto;			
min-height: 100%;			
width: 100%;			

# DEVICE MODE



The device mode allows you to toggle devices for preview and testing

Alternatively

<https://tools.pingdom.com/>

The screenshot shows the Device Mode interface in a browser. At the top, there are two device preview sections: one for an iPad (768 x 1024 pixels) and one for an iPhone 6/7 (414 x 736 pixels). Both screens display a dark-themed landing page for a project management tool. The iPad screen shows four numbered steps (1-4) with descriptions: 'Brief & guidelines', 'Implementation of a designated task', 'Analysis & feedback on the work done', and 'Help in product development'. The iPhone screen shows the same steps, with step 1 highlighted. Below the device previews is a dropdown menu titled 'No throttling' which lists four options: 'No throttling' (selected), 'Mid-tier mobile', 'Low-end mobile', and 'Offline'. A 'Speech' button is also present in the dropdown.

# CSS

CSS



Colour



Size



Position

HTML



Content

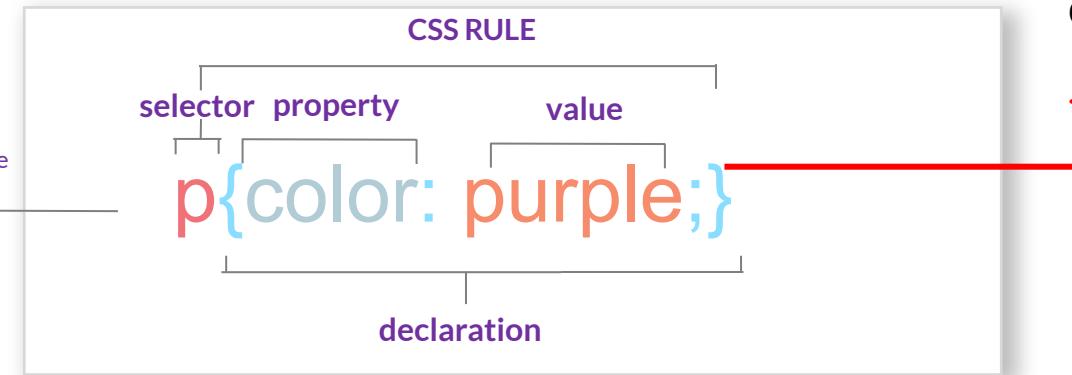


Structure

# CSS Rule

selector { property: value;}

curly braces, all styles inside these  
will apply to the HTML elements  
that belong to the selector



*Rule for paragraph selector.*

**Affects all paragraphs in the webpage**

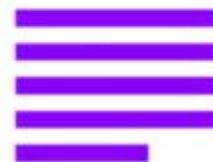
This is a plain old paragraph. However,  
we can jazz it up with some CSS. Let's get  
those selectors working and firing away.

<https://repl.it/@malcolmyam/wk02-simple-css#index.html>

# CSS Rule

```
p{color: purple;}
```

P



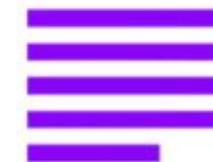
P



P



P



## CSS Rule

```
p{color: red;}
```



## CSS: Inline Style (Method 1)

```
<p style="text-align:  
left;">Just a sentence</p>
```

## CSS: Style Element (Method 2)

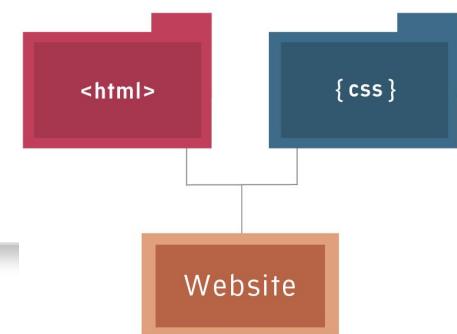
```
<head>
  <style>
    *, body{
      font-family: Arial, Helvetica, sans-serif;
    }
    p{color: green; }
  </style>
</head>
```

# CSS: Link Element/External Style Sheet (Method 3)

## MOST PREFERRED METHOD

```
<head>
  <link rel="stylesheet"
        href="basic.css" type="text/css">
</head>
```

- The href attribute points to the external file.
- The CSS file must have a .css extension.
- rel attribute defines the relationship between the HTML and CSS files.
- rel="stylesheet" means that this file imports the style for the current page.



# Ways to include styles in HTML

## INLINE STYLE

- Apply directly to individual elements with a HTML element's style attribute
- Targets only that element

## <style>

- Should appear as a child of the <head> element on your page
- Styles all occurrences of a target that are on the page

## <link>

- Set of style rules defined in an external file
- Should appear as child of the <head> element of your page
- Styles all occurrences of a target that are on a page
- Central external point for styling many pages

## @import

- Set of style rules defined in an external file
- Should appear as a first rule in an external stylesheet
- Used to chain multiple external files together

# Link Element



```
<head>
  <link rel="stylesheet" href="basic.css" type="text/css">
</head>
```

Link  
Stylesheet



# COLORS

```

h1{
    color: purple;
}

h2{
    color: cornflowerblue;
}

h3{
    color: darkorchid;
}

```

<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>

This is h1

This is confidence

Mini h3 here

aliceblue	antiquewhite	aqua	aquamarine	azure	beige
bisque	black	blanchedalmond	blue	blueviolet	brown
burlwood	cadetblue	chartreuse	chocolate	coral	cornflowerblue
cornsilk	crimson	cyan	darkkhaki	darkcyan	darkgoldenrod
darkgray	darkgreen	darkkhaki	darkmagenta	darkolivegreen	darkorange
darkorchid	darkred	darksalmon	darkseagreen	darkslateblue	darkslategray
darkturquoise	darkviolet	deeppink	deepskyblue	dimgray	dodgerblue
firebrick	floralwhite	forestgreen	fuchsia	gainsboro	ghostwhite
gold	goldenrod	gray	green	greenyellow	honeydew
hotpink	indianred	indigo	ivory	khaki	lavender
lavenderblush	lawngreen	lemonchiffon	lightblue	lightcoral	lightcyan
lightgoldenrodyellow	lightgray	lightgreen	lightpink	lightsalmon	lightseagreen
lightskyblue	lightslategray	lightsteelblue	lightyellow	lime	limegreen
linen	magenta	maroon	mediumaquamarine	mediumblue	mediumorchid
mediumpurple	mediumseagreen	mediumslateblue	mediumspringgreen	mediumturquoise	mediumvioletred
midnightblue	mintcream	mistyrose	moccasin	navajowhite	navy
oldlace	olive	olivedrab	orange	orangered	orchid
palegoldenrod	palegreen	paleturquoise	palevioletred	papayawhip	peachpuff
peru	pink	plum	powderblue	purple	rebeccapurple
red	rosybrown	royalblue	saddlebrown	salmon	sandybrown
seagreen	seashell	sienna	silver	skyblue	slateblue
slategray	snow	springgreen	steelblue	tan	teal
thistle	tomato	turquoise	violet	wheat	white
	whitesmoke	yellow	yellowgreen		

Base 142  
Colors

<http://www.colors.commutercreative.com/>

# COLORS

Hexadecimal mode

#+ String of 6 hexadecimal numbers (from 0-F) 16.7 million colors  
#ffffff – white | #000000 - black

```
h1{  
    color: □#000000;  
}  
  
h2{  
    color: □#4b0082;  
}  
  
h3{  
    color: □#ff1493;  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

**This is h1**

**This is confidence**

**Mini h3 here**

# COLORS

## RGB

3 Channels: Red, Green and Blue (Each ranges from 0 –

```
h1{  
    color: □rgb(0,0,0);  
}  
  
h2{  
    color: □rgb(75,0,130);  
}  
  
h3{  
    color: □rgb(255,20,147);  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

This is h1

This is confidence

Mini h3 here

# COLORS

## RGB**A**

Just like RBG, but with an alpha(transparency) channel. Ranges from 0.0-1.0

```
h1{  
    color: #rgba(11, 99, 150, 1);  
}  
  
h2{  
    color: #rgba(11, 99, 150, 0.6);  
}  
  
h3{  
    color: #rgba(11, 99, 150, 0.2);  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

This is h1

This is confidence

Mini h3 here

# ID Attribute

Hash Symbol

#myElement

ID Name

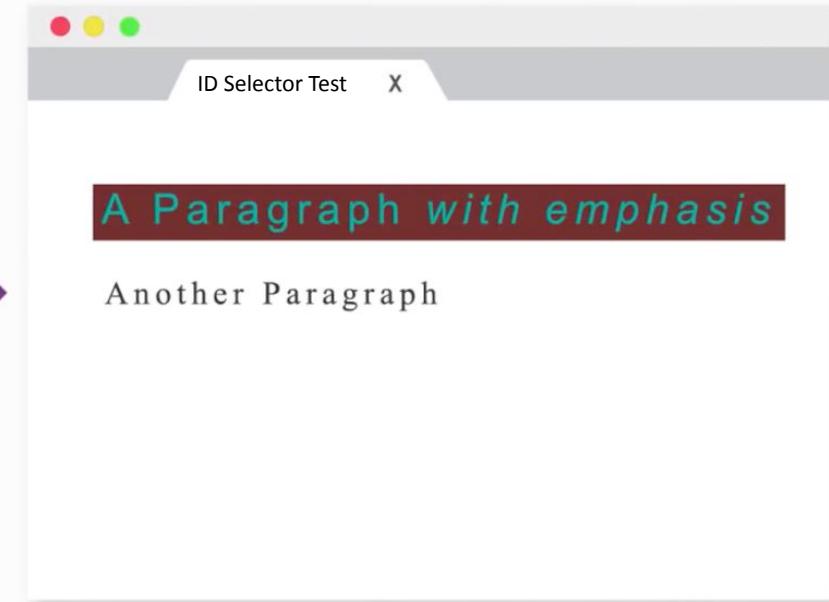
# ID Attribute

```
<!DOCTYPE html>
<html>
<head>
<title>ID Selector Test</title>
<style>
#myElement{font-family:Arial, Helvetica, sans-serif;color:#23FBFF;background-color: #6E3B04;}
</style>
</head>
<body>
<p id="myElement">
A paragraph <em> with emphasis</em>
</p>

<p>
Another Paragraph
</p>
</body>
</html>
```

id selector

id attribute



# Class Attribute

Period

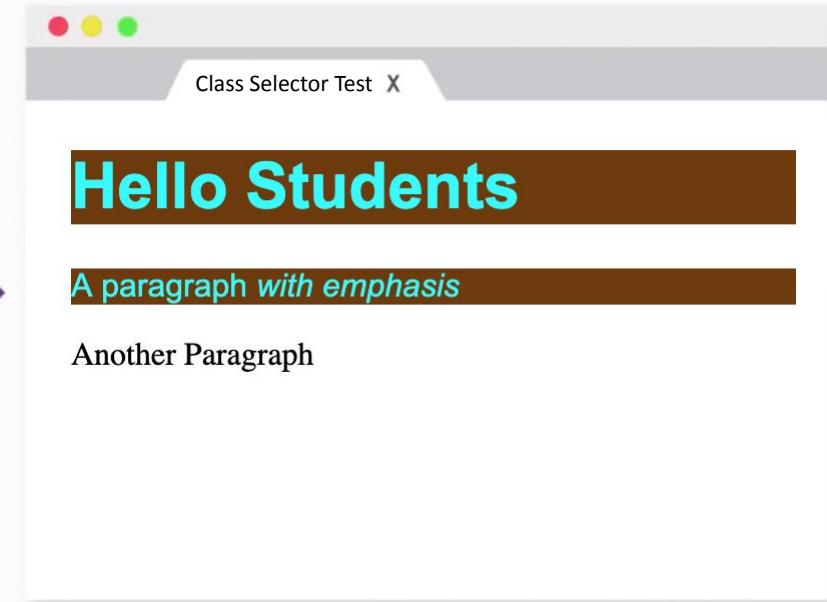
.myClass

Class Name

# Class Attribute

```
<!DOCTYPE html>
<html>
<head>
<title>Class Selector Test</title>
<style>
.myClass{font-family:Arial, Helvetica, sans-serif;
color: #23FBFF;background-color: #6E3B04;}
</style>
</head>
<body>
<h1 class="myClass">Hello Students</h1>
<p class="myClass">
A paragraph <em> with emphasis</em>
</p>

<p>Another Paragraph</p>
</body>
</html>
```



# Class Attribute

In CSS, an ID is #

```
// change the color of the element with id "main"  
#main {  
    color: black  
}  
// change the color of the element with class special  
.special {  
    color: black  
}
```

You can specify a HTML tag and a class to be more specific

```
// for all <p> with the class special
```

```
p.special {
```

```
}
```

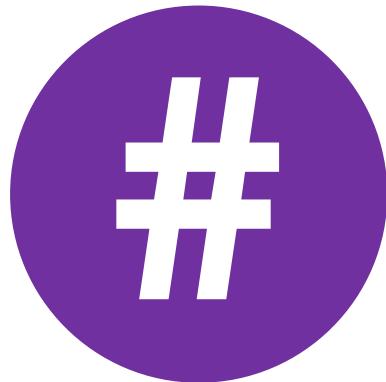
You can target a children element that is in a parent element

```
// all <a> inside the ID "main" html element
```

```
#main a {
```

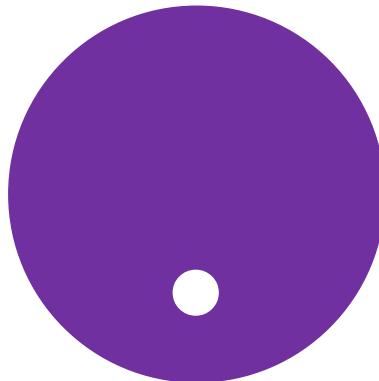
```
}
```

# ID Attribute - TARGETING AN INDIVIDUAL



- ◆ **#header { }** Selects any element with the **id** "header", e.g. <p id="header"></p>
- ◆ Unique to that element
- ◆ Hash symbol
- ◆ The "#" is how you tell CSS "this is an id."
  - ◆ Selector name matches element ID value, prefixed with # symbol

# Class Attribute - TARGETING A GROUP



- ◆ .warning { color: red; } Selects any element with the **class name** “warning”, e.g.<p class="warning"></p>
- ◆ Used to style an element grouping
- ◆ Targets one or more element's class attribute
- ◆ Elements can be of different type
- ◆ The “.” is how you tell CSS “this is a class name.”
- ◆ An element can have only 1 id but multiple classes, so you can take advantage of that for greater flexibility.

e.g.<p class="desc intro">hi</span>aka  
class chaining

# Pseudo Classes

A set of "pseudo classes" can style anchor elements depending on their state.

```
a:link { /* unvisited link */ color: red; }  
a:visited { /* visited link */ color: blue; }  
a:hover { /* moused over link */ color: green; }  
a:active { /* current link */ color: purple; }  
a:focus { /* focused link */ color: purple; }
```

# Best Practices

**Some rules to follow** when making IDs and class names:

- ◆ **Describe the content**, not the presentation ("warning", not "redbox").
- ◆ Use **all lowercase, and hyphens when needed for readability** ("header-info", not "headerInfo").
- ◆ Use hyphens to show that a class or ID is part of something else. (e.g. "footer", "footer-copyright", and "footer-logo").
- ◆ Preferably **NO camel case**

# Colors Again

The "color" property **changes the text color**. Colors can be specified either by name, for the most common colors, or by hexadecimal value.

```
color: red;  
color: #ff0000;  
color: rgb(255, 0, 0);
```

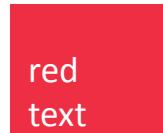
```
<p style="color: red">red  
text</p>
```

red text

The "background-color" property changes the **background color**. Besides the BODY element, all elements default to a transparent background.

```
background-color: black;  
background-color: #000000;  
background-color: rgb(0,0,0);
```

```
<p style="background-color: red; color:  
white;">red text</p>
```



“

—

# Typography

is the art and technique of  
**Arranging type to make written  
language readable and beautiful**

\_WIKI

# Fonts in CSS A look at the possible font properties

## Fonts

```
.theme-font{  
    font: 1.2em "Fira Sans", sans-serif; /* all properties*/  
    font-family: "Helvetica", Arial, sans-serif;  
    font-size: 19px; /* px,em,%, xx-small to xx-large */  
    font-style: italic; /* normal, italic, oblique */  
    font-variant: normal /* normal, small-caps */;  
    font-weight: bold; /* bold, bolder, lighter, normal, 100-900 */  
    line-height: 1.5em; /* line height b/w two lines of text */  
    text-align: center; /* alignment of text within the box */  
}
```

Fonts with a space in their names are to use  
**quotes**  
**"Fira Sans"**

# Google Fonts

# Google Fonts

<https://fonts.googleapis.com/>

EMBED CUSTOMIZE

## Open Sans

- light 300
- light 300 Italic*
- regular 400
- regular 400 Italic*
- semi-bold 600
- semi-bold 600 Italic*
- bold 700
- bold 700 Italic*
- extra-bold 800
- extra-bold 800 Italic***

EMBED CUSTOMIZE

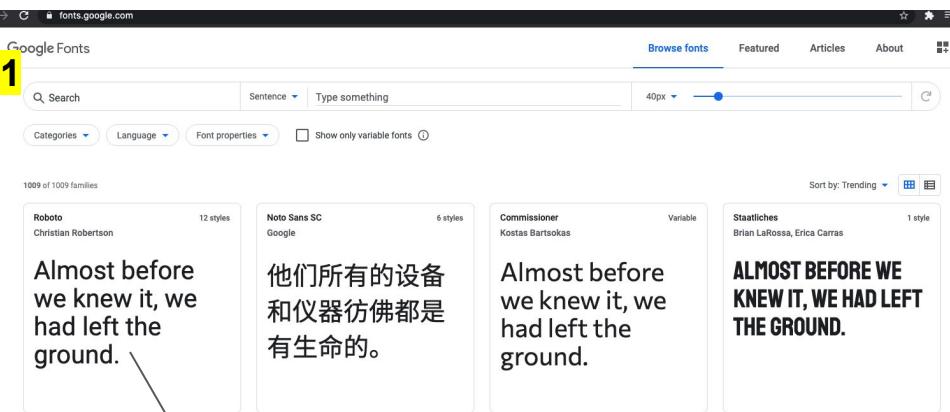
Load Time Fast

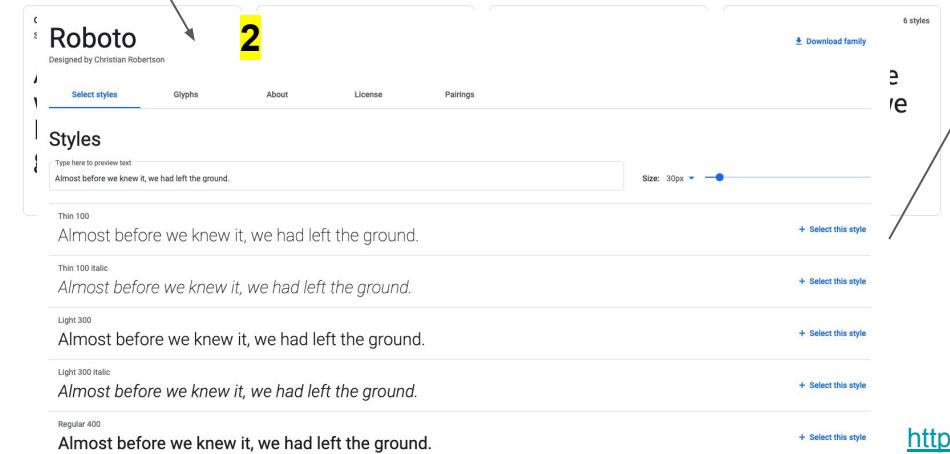
### Embed Font

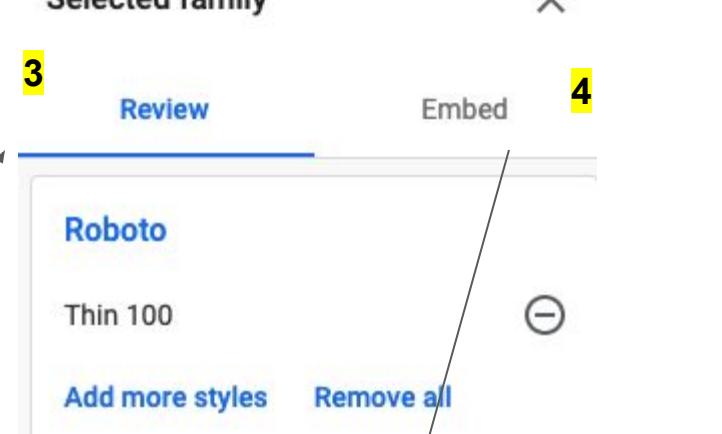
To embed your selected fonts into a webpage, copy this code into the <head> of your HTML document.

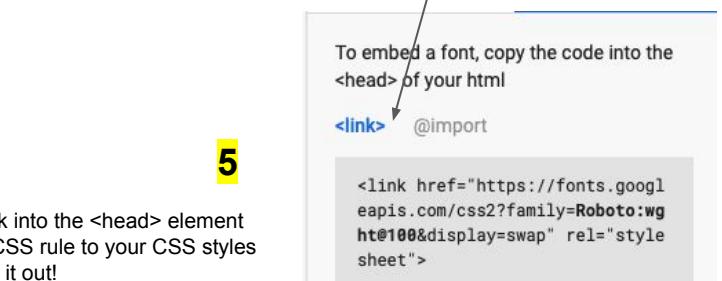
STANDARD @IMPORT

```
<link href="https://fonts.googleapis.com/css?family=Open+Sans" rel="stylesheet">
```

**1** Google Fonts 

**2** Roboto 

**3** Selected family 

**4** Embed 

**5** Place link into the <head> element  
Add on CSS rule to your CSS styles  
Now test it out!

<https://replit.com/@immalcolm/simple-googlefonts>

CSS rules to specify families

```
font-family: 'Roboto', sans-serif;
```

# Serif vs Sans Serif



# Serif vs Sans Serif

# Serif

**Body Copy** - Pri definiebas ullamcorper et an. In quo ridens rationibus, ea amet rationibus vix. Discere reprimique mea.



Print

# Sans Serif

## HEADLINES



Digital, Web

Source: <http://blog.glasscanopy.com/>



10 minutes

# Pixact.ly

Welcome to Pixactly.

An online tool that tests how well you know your pixels.

Draw a box that matches the dimensions given and receive a score based on  
how close you are. The lower the score... the better! Sounds easy, right?

Pixactly.



10 minutes

Enter

[Let's go to Pixact.ly](https://pixact.ly)

# Font Pairing

 Font Combinations

## Typography made easy

Find a font combination for your design needs

Select a starter font



<https://www.canva.com/font-combinations/>

 Font Combinations

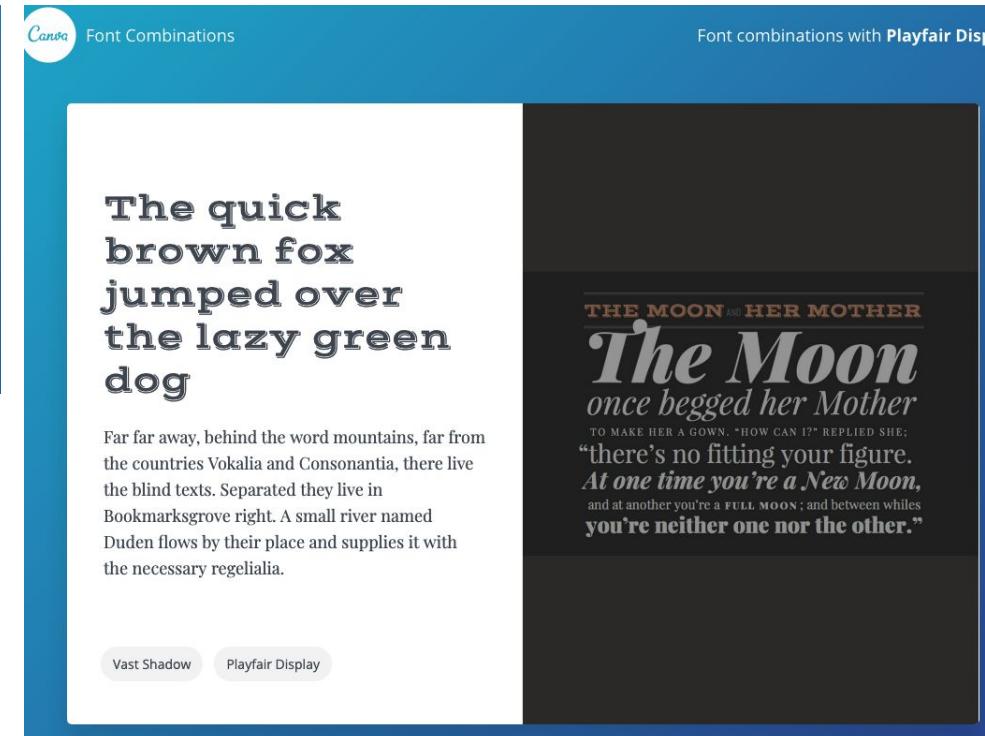
### The quick brown fox jumped over the lazy green dog

Far far away, behind the word mountains, far from the countries Vokalia and Consonantia, there live the blind texts. Separated they live in Bookmarksgrove right. A small river named Duden flows by their place and supplies it with the necessary regelialia.

Vast Shadow      Playfair Display

Font combinations with **Playfair Display**

THE MOON AND HER MOTHER  
**The Moon**  
once begged her Mother  
TO MAKE HER A GOWN. "HOW CAN I?" REPLIED SHE:  
"there's no fitting your figure.  
**At one time you're a New Moon**,  
and at another you're a FULL MOON; and between whilsts  
**you're neither one nor the other.**"



# Serif vs Sans Serif

## FONT SUPPORT LEVELS

### Sans-serif

Arial		<a href="#">Arial Black</a>		Arial Narrow		<a href="#">Arial Rounded MT Bold</a>	
■ Win: 99.84%	■ Mac: 98.74%	■ Win: 98.08%	■ Mac: 96.22%	■ Win: 88.39%	■ Mac: 94.77%	■ Win: 59.53%	■ Mac: 95.14%
Avant Garde		<a href="#">Calibri</a>		Candara		<a href="#">Century Gothic</a>	
■ Win: 0%	■ Mac: 1.08%	■ Win: 83.41%	■ Mac: 38.74%	■ Win: 83.08%	■ Mac: 34.41%	■ Win: 87.62%	■ Mac: 53.15%
Franklin Gothic Medium		<a href="#">Futura</a>		Geneva		<a href="#">Gill Sans</a>	
■ Win: 99.18%	■ Mac: 2.1%	■ Win: 1.26%	■ Mac: 94.41%	■ Win: 2.08%	■ Mac: 99.64%	■ Win: 58.54%	■ Mac: 95.5%
Helvetica		<a href="#">Impact</a>		Lucida Grande		<a href="#">Optima</a>	
■ Win: 7.34%	■ Mac: 100%	■ Win: 0%	■ Mac: 95.14%	■ Win: 0%	■ Mac: 100%	■ Win: 2.52%	■ Mac: 93.69%
Segoe UI		<a href="#">Tahoma</a>		Trebuchet MS		<a href="#">Verdana</a>	
■ Win: 75.36%	■ Mac: 0%	■ Win: 99.95%	■ Mac: 91.71%	■ Win: 99.67%	■ Mac: 97.12%	■ Win: 99.84%	■ Mac: 99.1%

Source:

<https://www.cssfontstack.com/>

### Serif

Big Caslon		<a href="#">Bodoni MT</a>		<a href="#">Book Antiqua</a>		<a href="#">Calisto MT</a>	
■ Win: 0%	■ Mac: 92.61%	■ Win: 55.81%	■ Mac: 0%	■ Win: 86.09%	■ Mac: 49.01%	■ Win: 58.43%	■ Mac: 46.31%
Cambria		<a href="#">Didot</a>		<a href="#">Garamond</a>		<a href="#">Georgia</a>	
■ Win: 83.35%	■ Mac: 35.32%	■ Win: 0%	■ Mac: 93.51%	■ Win: 86.47%	■ Mac: 49.91%	■ Win: 99.4%	■ Mac: 97.48%
Goudy Old Style		<a href="#">Hoefler Text</a>		<a href="#">Lucida Bright</a>		<a href="#">Palatino</a>	
■ Win: 58.11%	■ Mac: 47.57%	■ Win: 0.99%	■ Mac: 92.61%	■ Win: 76.12%	■ Mac: 99.64%	■ Win: 99.29%	■ Mac: 86.13%
Perpetua		<a href="#">Rockwell</a>		<a href="#">Rockwell Extra Bold</a>		<a href="#">Baskerville</a>	
■ Win: 66.54%	■ Mac: 0%	■ Win: 65.94%	■ Mac: 0%	■ Win: 66.1%	■ Mac: 0%	■ Win: 60.35%	■ Mac: 93.33%
Times New Roman							
■ Win: 99.67%	■ Mac: 97.48%						

<style>

```
body {background-color: lightyellow;}
h1 {color: black;font-family: Calibri}
p {font-family: Calibri;font-size: 15px;}
h2 {color: black;font-family: Calibri}
```

```
li {font-family: Calibri;}
table{font-family: Calibri;}
</style>
```

Student's code from Recipe. Note there's no backup font

# Arial CSS Font Stack

Stack Name

Arial

Fonts in Stack:

Arial, Helvetica Neue, Helvetica, sans-serif

Compatibility

Win: 99.84% Mac: 98.74%

Font

Arial Full Stack

Size

Select One:

Weight

Select One:

Style

Select One:

Variant

Select One:

Line Height

Select One:

Apply To

Header

Save Heading Setting

HTML:

CSS:

h1 {

```
font-family: Arial, "Helvetica Neue", Helvetica, sans-serif;
font-size: 24px;
font-style: normal;
font-variant: normal;
font-weight: 500;
line-height: 26.4px;
```

## Preview Your Fonts

Your headline is in Arial

This is a sub heading in Arial.

This paragraph is in Arial. Keep reading for how to use the buttons to the left. Change your settings, and choose what section you want the font to apply to. Once you are pleased with the settings for that section you can click save. Your selections will remain as you look for another font for another section of this preview.

Another sub heading in Arial.

The setting for a paragraph continues down here. There is a blockquote next to it. You may want to make that stand out. The setting for a paragraph continues down here.

There is a blockquote next to it. You may want to make that stand out. The setting for a paragraph continues down here. There is a blockquote next to it. You may want to make that stand out.

```
/* This text is in Arial */
.class {
    font-family: Arial, Helvetica Neue, Helvetica, sans-serif;
}
```

Make other Arial text stand out!

Golden Ratio

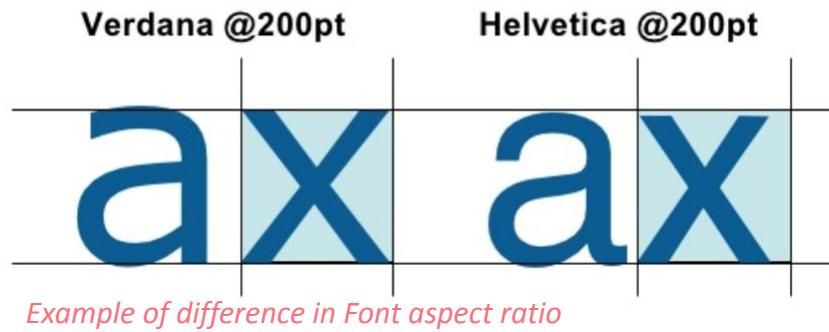
Apply Golden Ratio to font sizes and line height based on paragraph font size.

Source: <https://www.cssfontstack.com/>

Reset

# FONT STACKING

- Think about fallback fonts
- Platform usage (Windows, Mac, Linux etc)
- Font aspect ratio
  - If you use fonts with different aspect ratios, Some people may see your site with smaller fonts



```
body{  
    font-family: Verdana, Arial, sans-serif  
}
```

Larger aspect ratio  
Smaller aspect ratio

# Fonts

The "font-size" property specifies the size of a font. It can be specified as a fixed size in various units, a percentage, or as a predefined keyword.

```
font-size: 1.5em;  
font-size: 12px;  
font-size: 100%;  
font-size: larger;
```

The "em" unit lets you set the size of the text relative to the text around it. This makes the page resize nicely in proportion if the user changes their default font-size. The default size is "1em" or 16px.

```
p { font-size: 0.9em; }  
strong { font-size: 1.5em; }
```

# Fonts

The "px" unit lets you size font in terms of pixels, which is the unit also used to size images and other elements. It is easier to understand than em, but doesn't work as well when printing or resizing.

```
h2 { font-size: 17px; }
```

There are various keywords that can be used if you're not as worried about the precise sizing: xx-small, x-small, small, medium, large, x-large, xx-large.

```
p.footnote { font-size: small; }
```

The size can also be specified as a percentage, which works similar to "ems", and can be used in conjunction with other units.

```
body { font-size: 12px; }
h1 { font-size: 200%; }
h1 a { font-size: 75%; }
```

# Fonts

The "font-style" property specifies the font style of the text, either "normal" by default or "italic".

```
font-style: italic;
```

The "font-weight" property specifies the thickness of the font.

The default is "normal" and the typical override is "bold". You can also specify "bolder", "lighter", or a number from 100 to 900.

```
font-weight: bold;
```

A "shorthand" property in CSS lets you specify multiple properties in one property, for conciseness purposes. Instead of specifying each "font-" property separately, you can **bundle them up** in one "font" property.

```
table { font-weight: bold;  
        font-style: italic;  
        font-size: 10px;  
        font-family: sans-serif; }
```

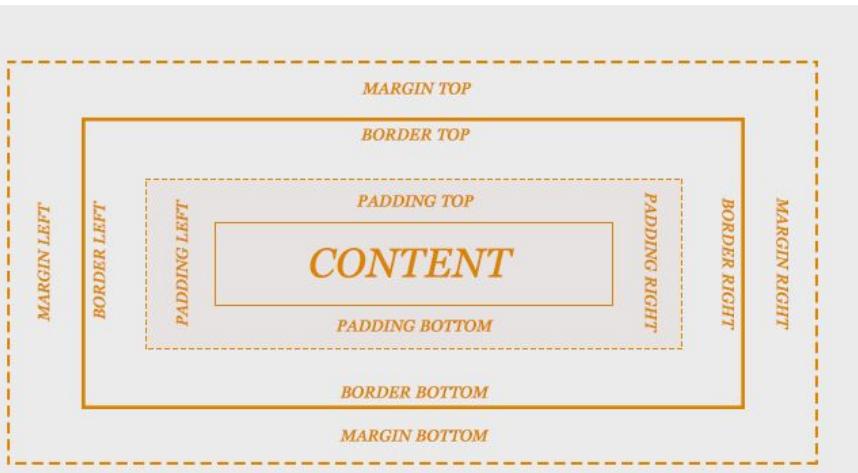
Those four rules can be written as:

```
table { font: italic bold 10px  
           sans-serif; }
```

## Additional Reading

<https://developer.mozilla.org/en-US/docs/Web/CSS/font>

# Box Model



Essential to understanding and creating layout

- ◆ Margin: Pixel boundary **outside** the box
- ◆ Padding: Pixel boundary **inside** the box

```
/*count works clockwise. Top Right Bottom left */
margin: 10px; /*10px around box shorthand*/
margin: 10px 5px; /* top+bottom 10px, left + right 5px;*/
margin: 10px 10px 10px 10px;
padding: 10px;
```

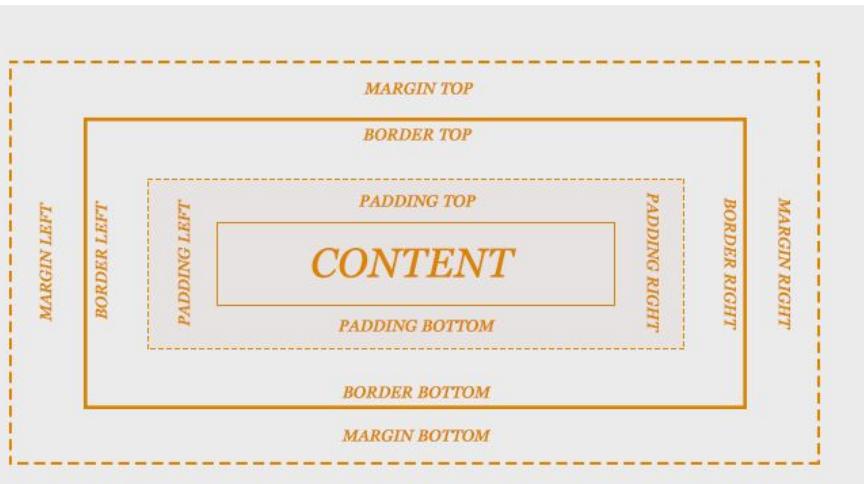
```
</div>
<span tabindex="0" style="position: absolute; left: 835.5px; top: 271px; display: none;"></span>
<div class="goog-menu goog-menu-vertical docs-material goog-menu-noaccel" role="menu" aria-haspopup="true" style="user-select: none; visibility: visible; left: 517px; top: 97px; display: none;">...</div>
<div class="goog-menu goog-menu-vertical docs-fontmenu" role="menu" aria-haspopup="true" style="user-select: none; display: none;">...</div>
<div class="docs-tiled-sidebar docs-material docs-tiled-sidebar-disabled" role="region" aria-labelledby="docs-tiled-sidebar-title" tabindex="0" docs-stickyfocus="true" style="top: 64px; height: 335px; right: 56px;">...</div> == $0
<div tabindex="0" style="position: absolute;"></div>
<div class="goog-menu goog-menu-vertical goog-menu-noaccel" role="menu" aria-haspopup="true" style="user-select: none; visibility: visible; left: 547px; top: 97px; display:
```

Styles    Computed    Event Listeners >

position	64
margin	-
border	-
padding	-
	300 x 335
1269	-
	-
	56
	0

<https://replit.com/@immalcolm/simple-boxmodel>

# Box Model



```
</div>
<span tabindex="0" style="position: absolute; left: 835.5px; top: 271px; display: none;"></span>
▶ <div class="goog-menu goog-menu-vertical docs-material goog-menu-noaccel" role="menu" aria-haspopup="true" style="user-select: none; visibility: visible; left: 517px; top: 97px; display: none;">...</div>
▶ <div class="goog-menu goog-menu-vertical docs-fontmenu" role="menu" aria-haspopup="true" style="user-select: none; display: none;">...</div>
▶ <div class="docs-tiled-sidebar docs-material docs-tiled-sidebar-disabled" role="region" aria-labelledby="docs-tiled-sidebar-title" tabindex="0" docs-stickyfocus="true" style="top: 64px; height: 335px; right: 56px;">...</div> == $0
<div tabindex="0" style="position: absolute;"></div>
▶ <div class="goog-menu goog-menu-vertical goog-menu-noaccel" role="menu" aria-haspopup="true" style="user-select: none; visibility: visible; left: 547px; top: 97px; display:
```

Now try right click and inspect your html code.  
Navigate to any section of content and view it's computed mode.  
Click on any area of the box and modify the settings. See and observe what happens.

The screenshot shows the browser's developer tools with the 'Computed' tab selected. It displays the computed styles for a menu item, including position: absolute, left: 64px, top: 64px, width: 300px, height: 335px, and a background color of #f0f0f0. Red arrows point from the text above to the 'position' and 'padding' sections of the computed styles panel.

Style	Value
position	absolute
margin	-
border	-
padding	-
width	300
height	335

<https://replit.com/@immalcolm/simple-boxmodel>

# CSS3 Web Gradients

#DE6262

# FFB88C

CSS3 gradients let you display smooth transitions between two or more specified colors.

CSS3 gradients can reduce download time and bandwidth usage.

Elements with gradients look better when zoomed, as gradients are generated by the browser

Gradient: Kashmir #614385 → #516395

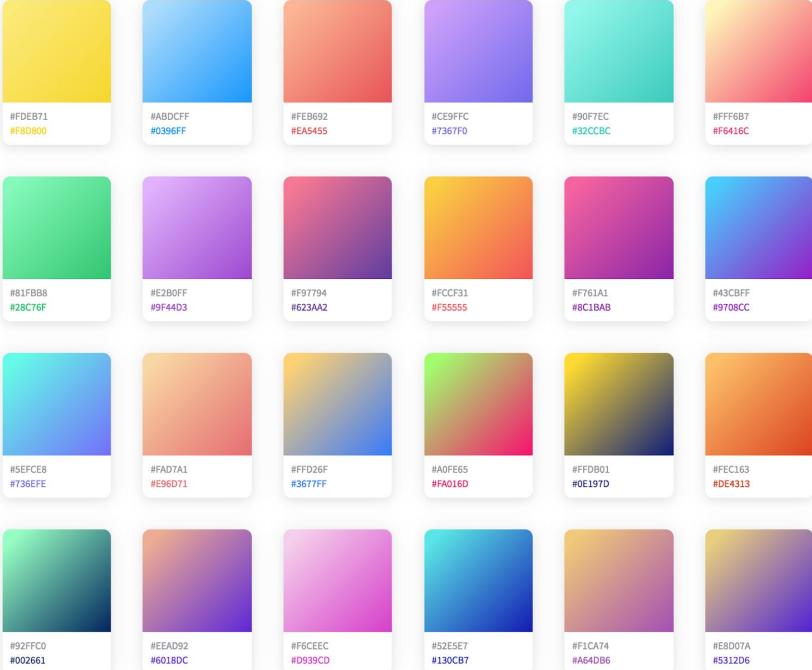
Reading Reference: [https://www.w3schools.com/css/css3\\_gradients.asp](https://www.w3schools.com/css/css3_gradients.asp)

Linear gradients (down/up/left/right/diagonally)

Radial Gradients (defined by the center)

Gradient: Kashmir #614385 → #516395

Reading Reference: [https://www.w3schools.com/css/css3\\_gradients.asp](https://www.w3schools.com/css/css3_gradients.asp)



coolhue

Coolest handpicked Gradient Hues for your next  
super ⚡ amazing stuff

Reference:  
<https://webkul.github.io/coolhue/>



180°



180°



180°



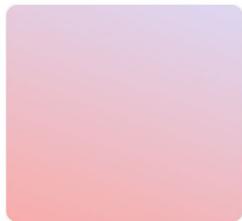
147°



# Grariant



Reference: <https://www.grariant.com/>



19°



19°



19°



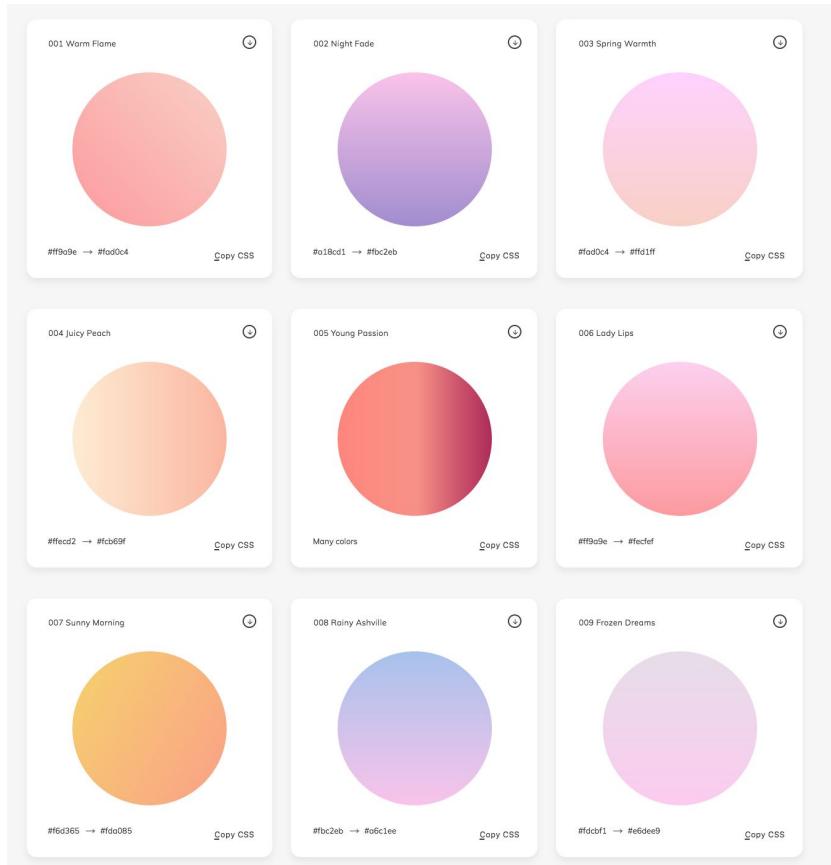
0°



0°



0°



Do you often look for cool background gradients for your UI?

**WebGradients** is a free collection of 180 linear gradients that you can use as content backdrops in any part of your website. Easy copy CSS3 crossbrowser code and use it in a moment! We've also prepared a .PNG version of each gradient.

As a bonus, there are packs for **Sketch & Photoshop**.

Reference: <https://webgradients.com/>



**symodd is an Agadir based  
digital & audiovisual production  
agency**



```
background: #ff9966; /* fallback for old browsers */  
background: -webkit-linear-gradient(to left, #ff5e62, #ff9966); /* Chrome 10-25, Safari 5.1-6 */  
background: linear-gradient(to left, #ff5e62, #ff9966); /* W3C, IE 10+/ Edge, Firefox 16+, Chrome 26+, Opera 12+, Safari 7+ */
```

OrangeCoral

<https://uigradients.com/#OrangeCoral>

```
background: #d9a7c7; /* fallback for old browsers */  
background: -webkit-linear-gradient(to right, #ffffcd, #d9a7c7); /* Chrome 10-25, Safari 5.1-6 */  
background: linear-gradient(to right, #ffffcd, #d9a7c7); /* W3C, IE 10+/ Edge, Firefox 16+, Chrome 26+, Opera 12+, Safari 7+ */
```

BrokenHearts

<https://uigradients.com/#BrokenHearts>

```
background: #0cebeb; /* fallback for old browsers */  
background: -webkit-linear-gradient(to right, #29ffc6, #20e3b2, #0cebeb); /* Chrome 10-25, Safari 5.1-6 */  
background: linear-gradient(to right, #29ffc6, #20e3b2, #0cebeb); /* W3C, IE 10+/ Edge, Firefox 16+, Chrome 26+, Opera 12+, Safari 7+ */
```

Subu

<https://uigradients.com/#Subu>

```
background: #2C3E50; /* fallback for old browsers */  
background: -webkit-linear-gradient(to right, #4CA1AF, #2C3E50); /* Chrome 10-25, Safari 5.1-6 */  
background: linear-gradient(to right, #4CA1AF, #2C3E50); /* W3C, IE 10+/ Edge, Firefox 16+, Chrome 26+, Opera 12+, Safari 7+ */
```

DeepSea Space

<https://uigradients.com/#DeepSeaSpace>

**HP** — Get an extra 5% off select HP Laptops and Desktops! Use Code: FIVE

AB

## Can I use



Settings

x Feature: WebP image format

# WebP image format - UNOFF

Image format that supports lossy and lossless compression, as well as animation and alpha transparency.

## Usage

Globa

% of all users

<https://caniuse.com>

# Learning Points

## Additional Reading References

<https://dev.to/whitep4nth3r/whats-the-difference-between-and-in-css-23p4>

<https://css-tricks.com/snippets/css/a-guide-to-flexbox/>

<https://flexboxfroggy.com/>

+

**FORMS**



# The <form> Tag

```
<form action="someurl.php" method="post">  
    |   <!-- All our inputs will go in here -->  
    |</form>
```

**action** – the URL to send form data to

**method** – the type of HTTP request

*Until we work with a database noSQL/mongoDB/backend  
languages, our forms are actually quite "sad" :(*

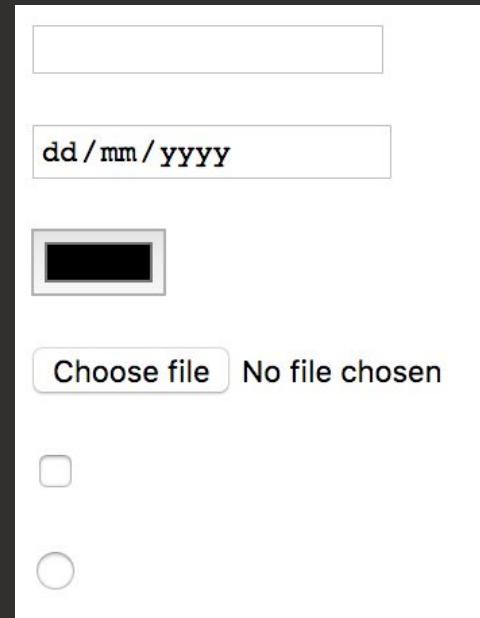
<https://developer.mozilla.org/en-US/docs/Learn/Forms>

# The <input> Tag

The input tag creates interactive controls.

The "type" attribute determines the type of input

```
<input type="text">  
  
<input type="date">  
  
<input type="color">  
  
<input type="file">  
  
<input type="checkbox">  
  
<input type="radio">
```



The image shows a white rectangular area containing six examples of HTML input elements. From top to bottom: 1. A standard text input field with a light gray border. 2. A date input field with a placeholder 'dd/mm/yyyy'. 3. A color input field, which is a small square with a black-to-white gradient. 4. A file input field consisting of a 'Choose file' button and a text label 'No file chosen'. 5. A checkbox input field, represented by a small square outline. 6. A radio input field, represented by a small circle outline.

# A Simple Form

```
<form action="/some-url" method="POST">
  <input type="text" placeholder="hinting text">
  <input type="password" placeholder="Password Pls!">
  <button>Login</button>
  <input type="submit" value="Login Me In">
</form>
```

## Sign In

hinting text	Password Pls!	Login	Login Me In
--------------	---------------	-------	-------------

Let's try sending data.

\*UX: When designing forms it's a whole process.  
Got to think about the platform, device, readability, audience  
Also think about are the fields **REALLY NECESSARY?**

Recommending reading:

[https://static.lukew.com/webforms\\_lukew.pdf](https://static.lukew.com/webforms_lukew.pdf)

# Labels

Let's us add captions to the form elements

Labels are really important for making site accessible (visual impairment, etc)

Username:  Password:

```
<form action="/some-url" method="GET">
  <label>Username:
    <input type="text" placeholder="hinting text" name="username">
  </label>
  <label>Password:
    <input type="password" placeholder="Password Pls!" name="password">
  </label>

  <button>Login</button>
  <input type="submit" value="Login Me In">
</form>
```

```
<form action="/some-url" method="GET">
  <label for="username">Username:</label>
  <input type="text" placeholder="hinting text" name="username" id="username">
  <label for="password">Password:</label>
  <input type="password" placeholder="Password Pls!" name="password" id="password">
  <button>Login</button>
  <input type="submit" value="Login Me In">
</form>
```

Alternate syntax, using "for" and "id" attributes

# Validations

- The 'required' attribute validates that an input is not empty
- There are also type validations. Try changing "type" from "text" to "email"

```
<!-- not every single browser allows form validation -->
<form action="/some-url" method="GET">
    <label for="email">Email:</label>
    <input type="email" placeholder="Email.." name="email" id="email" required>
    <label for="password">Password:</label>
    <input type="password" placeholder="Password Pls!" name="password" id="password" required>
    <button>Login</button>
    <input type="submit" value="Login Me In">
</form>
```

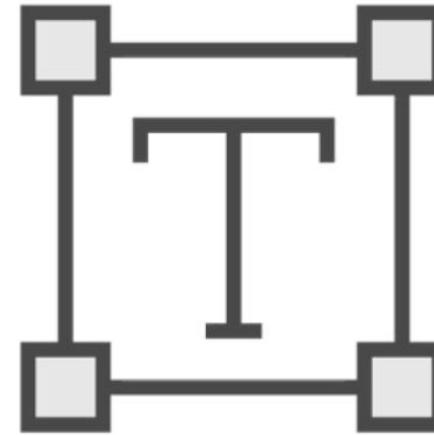
The image contains two side-by-side screenshots of a web application's login form. Both screenshots show a light gray background with a white form area. The left screenshot shows an 'Email:' label followed by a text input field containing the letter 'a'. A red border surrounds the input field, and a red exclamation mark icon is positioned to its left. Below the input field is a tooltip message: 'Please include an '@' in the email address. 'a' is missing an '@''. The right screenshot shows a similar setup with a 'Password:' label and a text input field containing 'Password Pls!'. This input field also has a red border and a red exclamation mark icon to its left. Below it is a tooltip message: 'Please fill in this field.'

Reading Reference: <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input>

# Basic Input Categories



Single Line Text



Multiple Line Text

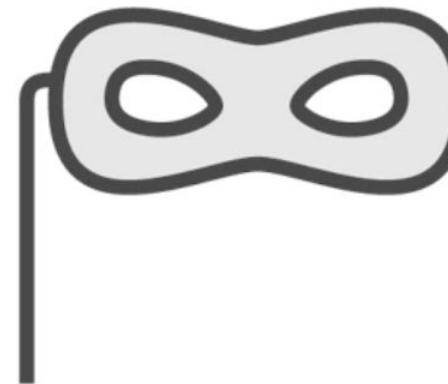


Selection

# Basic Single Line Input Fields



Text / Search



Hidden



Password

# Additional Input Fields

Allows us to put more semantic meaning to the inputs

<https://replit.com/@immalcolm/form-basic>

Email

URL

Telephone

Number

Date

Time



## TODAY'S AGENDA

- .Accessing the CSS
  - .Box Model
- 



# Cascading Style Sheets (CSS)

- Defines the **style** of HTML
  - "make all text green"
  - "give the first image a red border"
- The "adjectives" of a webpage



# Cascading Style Sheets (CSS)

1. Write properly structured CSS documents
2. Understand various CSS implementations
3. Creating CSS documents



# The General Rule

```
selector{  
    property: value;  
    anotherProperty: value;  
}
```

Once again, it's key pair value  
**key: value**

# Example

```
/* this is a comment in css. only this is allow */
/* Make all h1's purple and 56px font*/
h1{
    color: □purple;
    font-size: 56px;
}

/* Give all img's a 3px red border */
img{
    border-color: □red;
    border-width: 3px;
}
```

# Where do we write our styles?

## Inline

```
<h3 style="color: □pink">Let's make me pink</h3>  
<p style="color: □black">I'm black. boring.</p>
```

*Use when  
"desperate"*

## Style

**Tag**

```
<style type="text/css">  
  li{  
    color: □red;  
  }  
</style>
```

*Use when you are starting  
out*

## External Stylesheet

```
<link rel="stylesheet" type="text/css" href="style.css">
```

*Most commonly, best  
practice.*

# Colors

```
h1{  
    color: purple;  
}  
  
h2{  
    color: cornflowerblue;  
}  
  
h3{  
    color: darkorchid;  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

This is h1  
This is confidence  
Mini h3 here

# Colors

147 Base Colors for HTML

aliceblue	antiquewhite	aqua	aquamarine	azure	beige
bisque		blanchedalmond	blue	blueviolet	brown
burlywood	cadetblue	chartreuse	chocolate	coral	cornflowerblue
cornsilk	crimson	cyan	darkblue	darkcyan	darkgoldenrod
darkgray	darkgreen	darkkhaki	darkmagenta	darkolivegreen	darkorange
darkorchid	darkred	darksalmon	darkseagreen	darkslateblue	darkslategray
darkturquoise	darkviolet	deeppink	deepskyblue	dimgray	dodgerblue
firebrick	floralwhite	forestgreen	fuchsia	gainsboro	ghostwhite
gold	goldenrod	gray	green	greenyellow	honeydew
hotpink	indianred	indigo	ivory	khaki	lavender
lavenderblush	lawngreen	lemonchiffon	lightblue	lightcoral	lightcyan
lightgoldenrodyellow	lightgray	lightgreen	lightpink	lightsalmon	lightseagreen
lightskyblue	lightslategray	lightsteelblue	lightyellow	lime	limegreen
linen	magenta	maroon	mediumaquamarine	mediumblue	mediumorchid
mediumpurple	mediumseagreen	mediumslateblue	mediumspringgreen	mediumturquoise	mediumvioletred
midnightblue	mintcream	mistyrose	moccasin	navajowhite	navy
oldlace	olive	olivedrab	orange	orangered	orchid
palegoldenrod	palegreen	paleturquoise	palevioletred	papayawhip	peachpuff
peru	pink	plum	powderblue	purple	rebeccapurple
red	rosybrown	royalblue	saddlebrown	salmon	sandybrown
seagreen	seashell	sienna	silver	skyblue	slateblue
slategray	snow	springgreen	steelblue	tan	teal
thistle	tomato	turquoise	violet	wheat	white
	whitesmoke	yellow	yellowgreen		

Image source: [www.crockford.com/wrrld/color.html](http://www.crockford.com/wrrld/color.html)

# Colors

Hexadecimal mode

#+ String of 6 hexadecimal numbers (from 0-F)

```
h1{  
    color: □#000000;  
}  
  
h2{  
    color: □#4b0082;  
}  
  
h3{  
    color: □#ff1493;  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

This is h1

This is confidence

Mini h3 here

<https://www.colorzilla.com/>

# Colors

RGB

3 Channels: Red, Green and Blue (Each ranges from 0 – 255)

```
h1{  
    color: □rgb(0,0,0);  
}  
  
h2{  
    color: □rgb(75,0,130);  
}  
  
h3{  
    color: □rgb(255,20,147);  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

**This is h1**  
**This is confidence**  
**Mini h3 here**

<https://www.colorzilla.com/>

# Colors

RGB

Just like RBG, but with an alpha(transpareAcy) channel. Ranges from 0.0-1.0

```
h1{  
    color: rgba(11, 99, 150, 1);  
}  
  
h2{  
    color: rgba(11, 99, 150, 0.6);  
}  
  
h3{  
    color: rgba(11, 99, 150, 0.2);  
}
```

```
<h1>This is h1</h1>  
<h2>This is confidence</h2>  
<h3>Mini h3 here</h3>
```

**This is h1**

**This is confidence**

Mini h3 here

# Background

The background property can also set a background

```
body{  
    background: url(https://cdn.pixabay.com/photo/2018/01/05/02/42/background-3062023\_960\_720.jpg);  
}  
  
div{  
    background: □rgba(0,0,0,0.7);  
}  
  
p{  
    color: ■white;  
}  
  
background-repeat: no-repeat;  
background-size: cover;
```

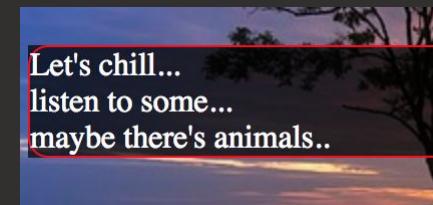
```
<div>  
    <p>Let's chill...<br/>  
        listen to some...<br/>  
        maybe there's animals..</p>
```



# Border

Adding some more styles

```
border: 1px solid red;  
border-top: ....  
border-bottom: ...  
border-right: ...  
border-left: ...  
border-radius: 5px
```



# ID Selector

Selects an element with a given ID. **Only one per page!**

It is a **best practise** to make your **IDs unique**.

You will know more in Javascript lesson

```
<div>
    <p>You say yes</p>
    <p>You say no</p>
</div>
```

```
<div>
    <p>You say goodbye</p>
    <p id="special">N i Say HellO!</p>
</div>
```

```
div{
    background: □purple;
}

#special{
    color: □yellow;
}
```

You say yes

You say no

You say goodbye

N i Say HellO!

```
<div id="main">Main section</div>
```

Assign a unique name to a HTML element

An ID, once assigned, shouldn't be repeated

In CSS, an ID is #

```
// change the color of the element with id "main"
#main {
    color: black
}
// change the color of the element with class special
.special {
    color: black
}
```

You can specify a HTML tag and a class to be more specific

// for all <p> with the class special

```
p.special {
```

}

You can target a children element that is in a parent element

// all <a> inside the ID "main" html element

```
#main a {
```

}

# Class Selector

Selects all elements with a given class

```
<div>
  <p class="highlight">You say yes</p>
  <p>You say no</p>
</div>

<div>
  <p class="highlight">You say goodbye</p>
  <p>N i Say HellO!</p>
</div>
```

```
div{
  background: purple;
}
.highlight{
  background: yellow;
}
```

You say yes

You say no

You say goodbye

N i Say HellO!

```
<div class="blue"class="blue"class="blue green"
```

Assign a **name** to a HTML element

Unlike id, classes can be **reused**

Classes can be **stacked**

# Difference between Class & ID

A class name can be used by multiple HTML elements, while an id name must only be used by one HTML element within the page

```
<!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>A class name can be used by multiple HTML elements, while an id name must only be used by one HTML element within the page:</p>

<!-- An element with a unique id -->
<h1 id="myHeader">My Cities</h1>

<!-- Multiple elements with same class -->
<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>
```

## Difference Between Class and ID

A class name can be used by multiple HTML elements, while an id name must only be used by one HTML element within the page:

### My Cities

#### London

London is the capital of England.

#### Paris

Paris is the capital of France.

#### Tokyo

Tokyo is the capital of Japan.

Source: <https://www.w3schools.com/>

```
input [type="text"] {color:red;}
```

Styling elements with specific attributes like your forms

We tap onto the form's attribute (type, name) to  
selector a particular form input

# CSS Forms

The look of an HTML form can be greatly improved with CSS

Input with icon/image

```
<!DOCTYPE html>
<html>
<head>
<style>
input[type=text] {
    width: 100%;
    box-sizing: border-box;
    border: 2px solid #ccc;
    border-radius: 4px;
    font-size: 16px;
    background-color: white;
    background-image: url('searchicon.png');
    background-position: 10px 10px;
    background-repeat: no-repeat;
    padding: 12px 20px 12px 40px;
}
</style>
</head>
<body>

<h2>Input field with an icon inside</h2>

<form>
    <input type="text" name="search" placeholder="Search..">
</form>

</body>
</html>
```

**Input field with an icon inside**



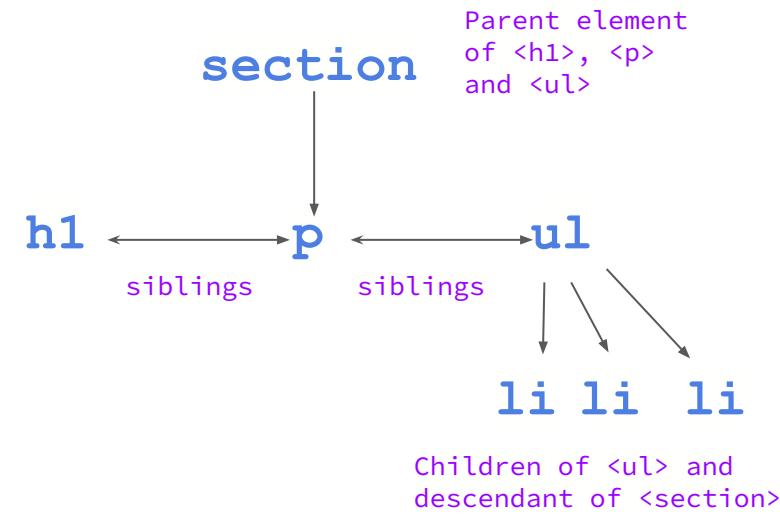
A screenshot of a web browser showing a search input field. The input field has a light gray border and rounded corners. Inside the field, there is a small magnifying glass icon followed by the placeholder text "Search..". The entire input field is contained within a rectangular box with a thin gray border.

Source: <https://www.w3schools.com/>

Continuing Education & Training (CET)

# Nested Elements

```
<section>
  <h1>Heading</h1>
  <p>Paragraph</p>
  <ul>
    <li>List item</li>
    <li>List item</li>
    <li>List item</li>
  </ul>
</section>
```



# CSS Combinators

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.

There are four different combinators in CSS:

descendant selector (space)

child selector (>)

adjacent sibling selector (+)

general sibling selector (~)

# Descendant Selector

```
/* Selects only the paragraphs contained within a section*/
```

```
section p{...}
```



Descendant element

```
<section>  
  <p>...</p>  
</section>  
<p>...</p>  
<p>...</p>
```

# Descendant Selector

```
/* Selects only links, inside of a paragraph, inside of section */
```

```
section p a { ... }
```

↓  
**Descendant element**

```
<section>
```

```
  <p>There's a <a href="#">link</a> inside this paragraph.</p>
```

```
  <p>Paragraph</p>
```

```
  <a href="#">Link</a>
```

```
</section>
```

```
<a href="#">Link</a> → Not affected
```

# Descendant Selector

```
.container h1{}
```

```
.container span{}
```

```
<section class="container">  
  <h1>Heading</h1>  
  <p>Paragraph with a <span>span</span></p>  
</section>
```

## Descendant Selector

You can go as many levels you want with descendant selectors

It is best to use at **most 3 levels**

# Grouping Selectors

```
/* applies to all h1 elements */  
h1{...}
```

```
/* applies to any element with this class */  
.class{...}
```

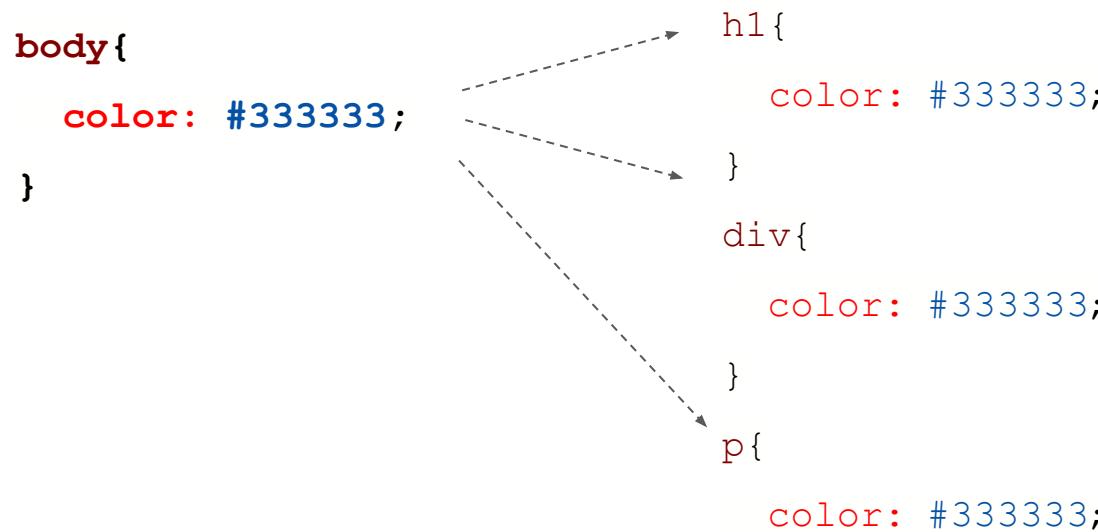
```
/* applies to both h1 and h2 elements (grouping) */  
h1, h2{...} /*take note of the spaces when grouping */
```

```
/* applies to all of these elements */  
h1, h2, .class, #id{...}
```

<https://replit.com/@immalcolm/simple-grouping-selectors>

# Inheritance

CSS styles can be inherited from the parent elements



All these descendants/child elements **inherit the body style** of color #333333 by default.

<https://repl.it/@malcolmyam/simple-grouping-selectors#index.html>

[https://developer.mozilla.org/en-US/docs/Learn/CSS/Building\\_blocks/Cascade\\_and\\_inheritance](https://developer.mozilla.org/en-US/docs/Learn/CSS/Building_blocks/Cascade_and_inheritance)

# CSS Combinators

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.

There are four different combinators in CSS:

descendant selector (space)

child selector (>)

adjacent sibling selector (+)

general sibling selector (~)

[https://www.w3schools.com/css/css\\_combinators.asp](https://www.w3schools.com/css/css_combinators.asp)

# Specificity

**Specificity** determines how browsers decide which CSS rule takes precedence

```
p{color:red;}  
.example{color: blue;}
```

```
<p class="example">Red or blue?<p>
```

# Specificity

Specificity determines how browsers decide which CSS rule takes precedence

1. Universal (\*)
2. type (p)
3. class (.example)
4. id (#example)

<https://replit.com/@immalcolm/specificity-demo>

**Learn more about specificity**  
<https://specificity.keegan.st/>

# Cascade

The cascade in Cascading Style Sheets refer to how style rules are applied based on specificity and source order

# Cascade

Style declarations cascade and are read from top to bottom

```
p {  
    font-size: 12px;  
}  
  
/* This style will take precedence */  
  
p {  
    font-size: 16px;  
}
```

# Cascade

```
p {  
    color: black;  
    font-size: 12px;  
    font-size: 16px; /*This style will take precedence */  
}
```



Last order and depth determines what rule  
is applied

<https://replit.com/@immalcolm/specification-demo>

# Cascade & Specificity

```
/* This style takes precedence - it has a higher specificity*  
.example{  
    font-size: 16px;  
}  
  
p{  
    font-size: 12px;  
}
```

# Importance !Important

The **!important** keyword overrides source order and specificity.

Added just before the end of the rule declaration before semicolon;

```
p{  
    font-size: 12px !important; /*This style will take precedence */  
}  
  
.example{  
    font-size:16px;  
}
```

# Importance !Important

The **!important** keyword overrides source order and specificity.

Added just before the end of the rule declaration before semicolon;

The only way to override **!important** is with another **!important**

This can get messy in the long run.

```
p {  
    font-size: 12px !important;  
}  
  
p {  
    font-size: 18px !important; /*This style will take precedence */  
}
```

# CSS Combinators

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.

There are four different combinators in CSS:

descendant selector (space)

child selector (>)

adjacent sibling selector (+)

general sibling selector (~)

[https://www.w3schools.com/css/css\\_combinators.asp](https://www.w3schools.com/css/css_combinators.asp)



ANY

#EXERCISE

# PLAY CSS GAME

How far can you go in 10 mins?  
30mins?



LET'S PLAY

<https://flukeout.github.io/>

The screenshot shows the CSS Diner game interface. At the top, it says "Select the plates". Below that is a button labeled "Help, I'm stuck!". In the center is an illustration of a wooden table with two white plates on it. On the left, the "CSS Editor" shows the following code:

```
1 Type in a CSS selector
2 {
3 /* Styles would go here. */
4 }
5
6 /*
7 Type a number to skip to a level.
8 Ex - "5" for level 5
9 */
10
11
12
13
14
15
16
17
18
19
20
```

On the right, the "HTML Viewer" shows the following code:

```
1 <div class="table">
2   <plate />
3   <plate />
4 </div>
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

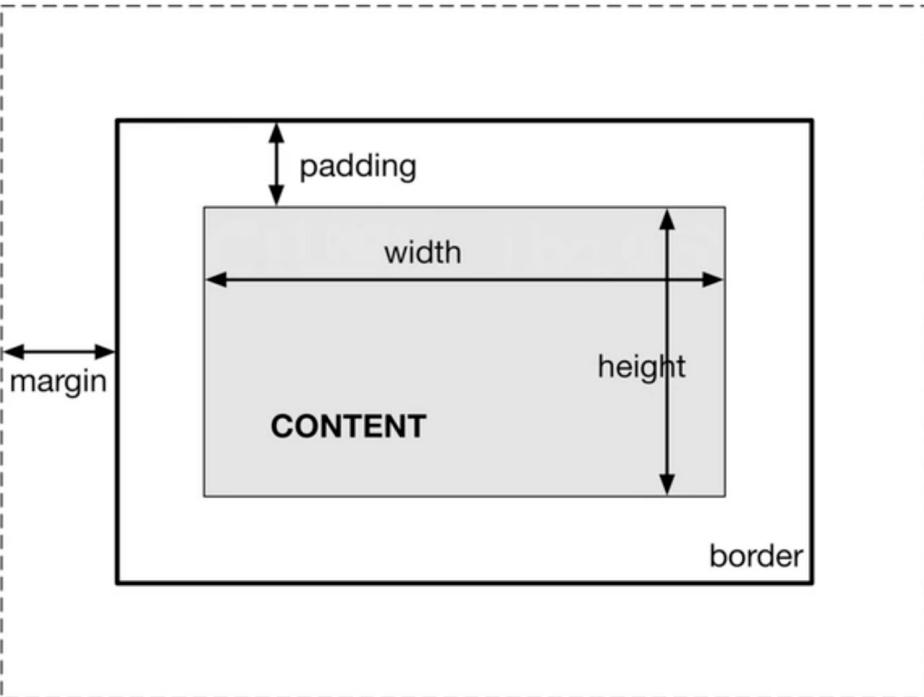
At the top right, it says "Level 1 of 32 ✓". To the right of the editor, there's a sidebar titled "Type Selector" with the text: "Selects all elements of type A. Type refers to the type of tag, so <div>, <p> and <ul> are all different element types.". Below that is an "Examples" section with the text: "div selects all <div> elements." and "p selects all <p> elements."



# +

# BOX MODEL AGAIN

# +



# CSS Box Model

**Content:** text, images, etc

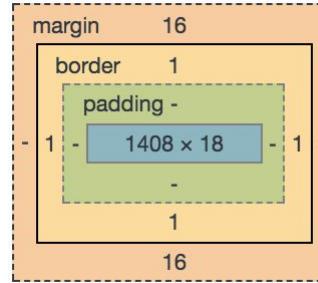
**Padding:** transparent area around the content, inside of box

**Border:** goes around the padding & content

**Margin:** space between boxes

Some paragraph here

```
p {  
    display: block;  
    -webkit-margin-before: 1em;  
    -webkit-margin-after: 1em;  
    -webkit-margin-start: 0px;  
    -webkit-margin-end: 0px;  
}
```



**Normalize . A Great Reset script to include**  
<https://necolas.github.io/normalize.css/>

**Great reading source**

<https://meyerweb.com/eric/tools/css/reset/>

# Default boxes

Several elements have their own default values.

Example: the paragraph shown here has some defaults and could differ from browser to browser.

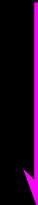
**Hence need to reset them for all browsers to look the same**

```
html, body, div, span, applet, object, iframe,  
h1, h2, h3, h4, h5, h6, p, blockquote, pre,  
a, abbr, acronym, address, big, cite, code,  
del, dfn, em, img, ins, kbd, q, s, samp,  
small, strike, strong, sub, sup, tt, var,  
b, u, i, center,  
dl, dt, dd, ol, ul, li,  
fieldset, form, label, legend,  
table, caption, tbody, tfoot, thead, tr, th, td,  
article, aside, canvas, details, embed,  
figure, figcaption, footer, header, hgroup,  
menu, nav, output, ruby, section, summary,  
time, mark, audio, video {  
    margin: 0;  
    padding: 0;  
    border: 0;  
    font-size: 100%;  
    font: inherit;  
    vertical-align: baseline;  
}
```

## Include your CSS files in this order

```
<link rel="stylesheet" href="css/normalize.css">
```

```
<link rel="stylesheet" href="css/main.css">
```



# Learning Points

## Additional Reading References

- <https://necolas.github.io/normalize.css/>
- <https://meyerweb.com/eric/tools/css/reset>