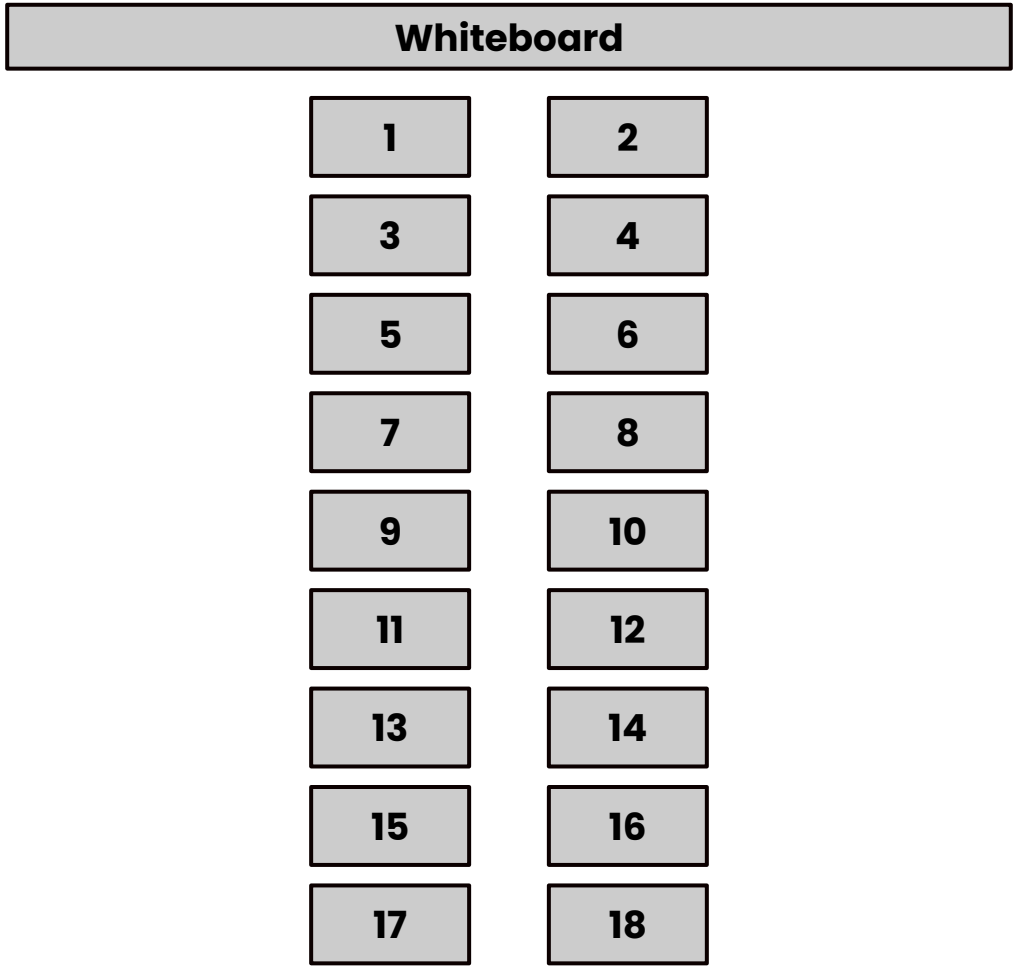
Day 2

Project Heartcode

Hands-on Workshop:
HTML & CSS


Whiteboard
1
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General Overview of Workshop

Day 2

HTML & CSS

Day 3

Bootstrap

Day 4

JavaScript

General Overview of Workshop

Day 5 - Build Your Own Website [Pair Work]

- Build a website with minimum **3 html pages**
- Agenda: **Raise awareness** about your chosen **mental health topic**
  - Anxiety
  - ADHD
  - OCD
  - Eating Disorders
  - Bipolarity
  - PTSD
  - Depression
  - Schizophrenia
  - Paranoia
  - Dissociation and dissociative disorders
- **Deployment** of website

Pre-Requirements

Pre-Requirements

- Installation of Visual Studio Code
  - Refer to VSC Installation Guide [Windows & Mac]
  - Refer to VSC Installation Guide for Chromebook
- Sign up for an account on www.github.com
- Installation of Github Desktop
- Introduction to useful VSC Extensions

Project Heartcode Links

tinyurl.com/Heartcode22

Workshop Materials

https://tinyurl.com/heartcodews

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Introduction, Demonstration & Exercises

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Kahoot!

HTML & CSS

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Wooclap

https://wooclap.com/heartcode22

01

HTML

What is HTML?

- **H**yper**T**ext **M**arkup **L**anguage
- HTML file contains multiple tags
- Tags may have attributes that specifies their properties; and attributes have values

What is HTML?

<head>...</head>

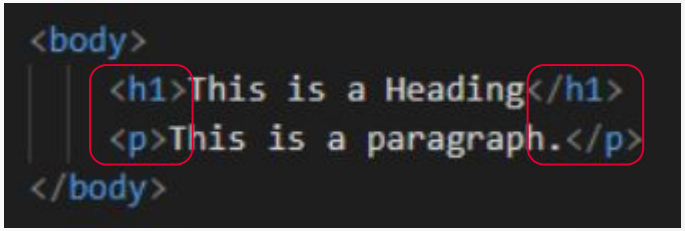
- Placed between <html> and <body> tag
- Container for metadata (data about data)
- Metadata typically define the document title, character set, styles, scripts, and other meta information.

<body>...</body>

- Defines the document's body
- Contains all contents of an HTML document
- Examples: headings, paragraphs, images, hyperlinks, tables, lists

HTML Tags

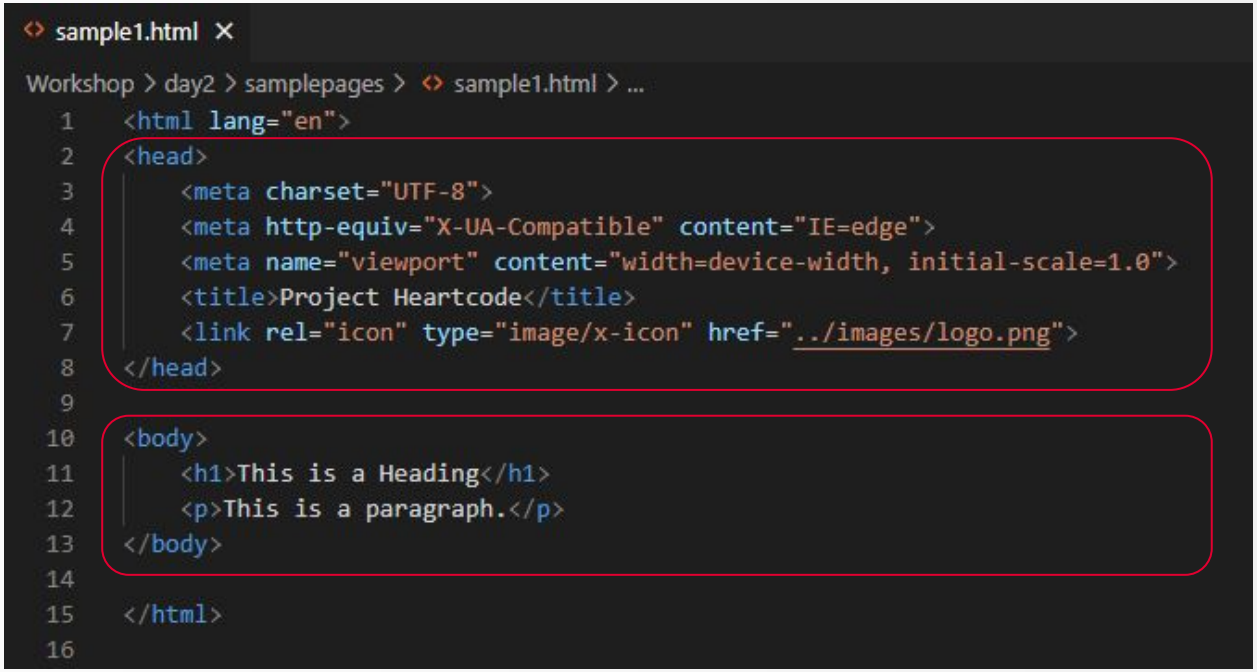
Name of Tag



Closing Tag

Note: Closing tag includes /

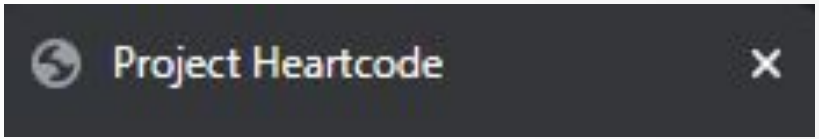
Sample HTML Page



sample1.html

HTML Tags

- <title>Project Heartcode</title>



- <link rel="icon" type="image/x-icon" href="logo.png">

HTML Tags

Tag	Examples
Header	<h1>...</h1>, <h2>...</h2>
Paragraph	...
Image	<img src="...">
Anchor	<a href='homepage.html>My Homepage</a>
Frame	<iframe src="..."> </iframe>
Ordered List	<ol><li>...</li></ol>
Unordered List	<ul><li>...</li></ul>

HTML Tags - Header

Header

```
<body>
    <h1>Welcome to Project Heartcode</h1>
    <h2>Welcome to Project Heartcode</h2>
    <h3>Welcome to Project Heartcode</h3>
    <h4>Welcome to Project Heartcode</h4>
    <h5>Welcome to Project Heartcode</h5>
    <h6>Welcome to Project Heartcode</h6>
</body>
```

HTML Tags - Paragraph

Paragraph

```
<body>
    <p>Today we are learning about HTML & CSS</p>
    <p>Tomorrow we will learn about Bootstrap</p>
</body>
```

Today we are learning about HTML & CSS

Tomorrow we will learn about Bootstrap

HTML Tags - Breaks

- **<hr>** - Defines a thematic break

```
<body>
    <h1>This is heading 1</h1>
    <p>This is some text.</p>
    <hr>
</body>
```

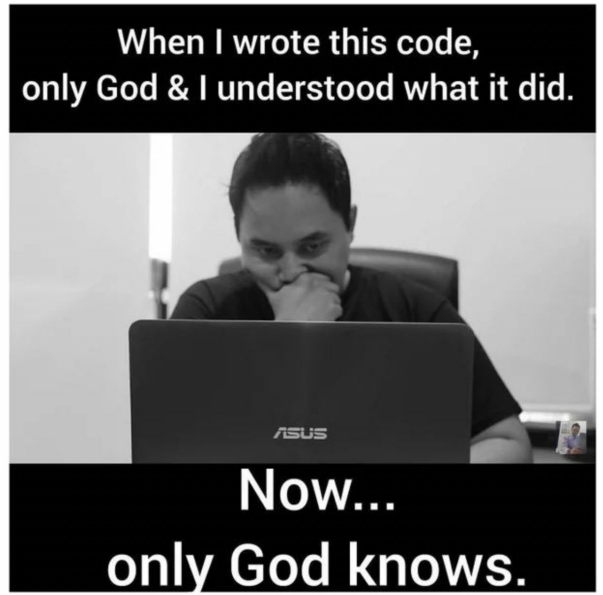
- **
** - Defines a line break

```
<body>
    <h1>This is heading 1</h1>
    <br>
    <p>This is some text.</p>
</body>
```

HTML Tags - Image

Image

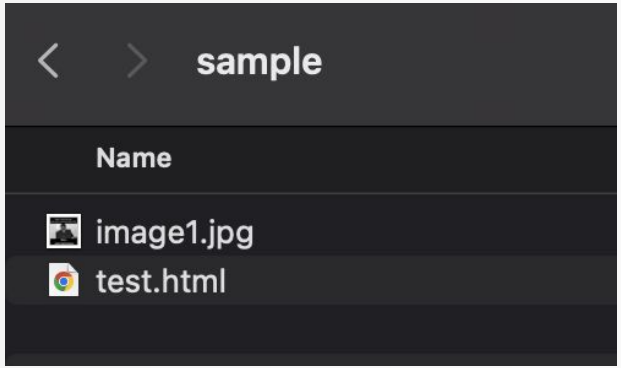
```
<body>
    <img src="image1.jpg" />
</body>
```



HTML Tags - Image

Relative Path

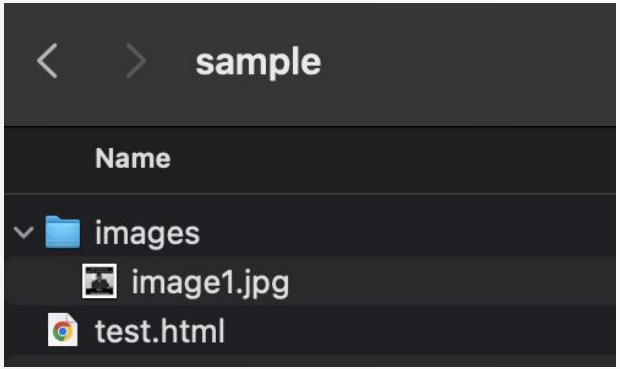
```
<body>
    <img src="image1.jpg" />
</body>
```



HTML Tags - Image

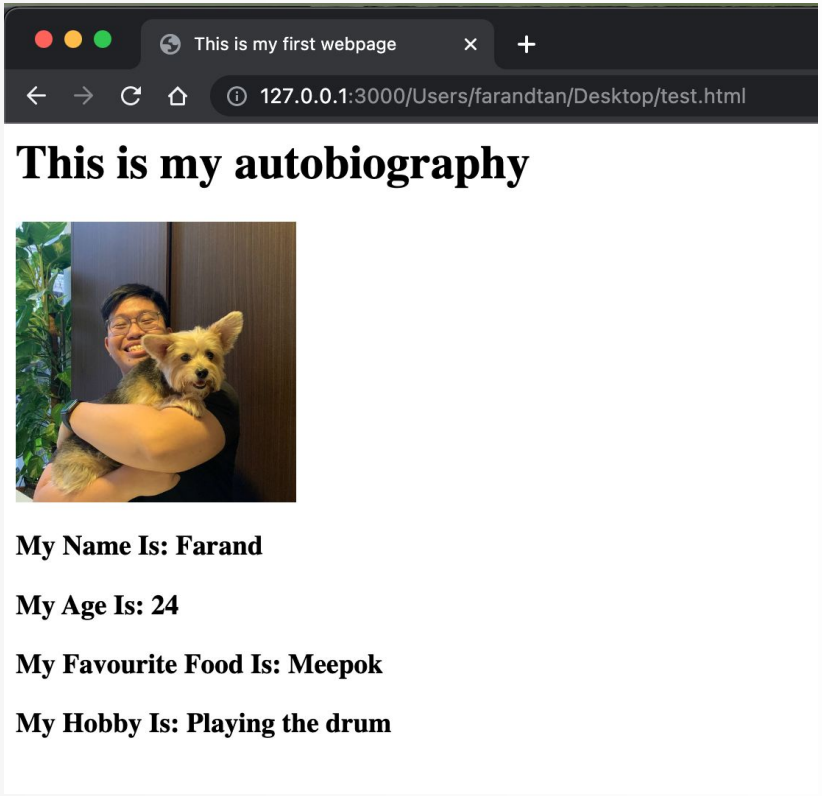
Relative Path

```
<body>
    <img src="images/image1.jpg" />
</body>
```



Let’s make your first webpage!

Your Autobiography!
Example:

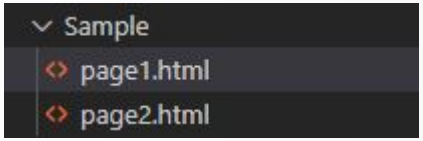


HTML Tags - Anchor & Frame

```
<body>
    <a href="www.google.com">Google</a>
    <br><br>
    <iframe width="560px" height="315px" src="https://www.youtube.com/embed/DrDm7uO4Fu0?rel=0"> </iframe>
</body>
```

Google

HTML Tags - Page Navigation



Folder Structure

```
<body>
    <a href="page2.html">Page 2</a>
</body>
```

page1.html

Page 2

```
<body>
    <h1>Welcome to page 2!</h1>
    <a href="page1.html">Page 1</a>
</body>
```

page2.html

Welcome to page 2!

Page 1

HTML Tags - Lists

Workshop > day2 > samplepages > sample4.html > html

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <title>Example Lists</title>
5   </head>
6
7   <body>
8       <ol>
9           <li>Content 1</li>
10          <li>Content 2</li>
11          <li>Content 3</li>
12      </ol>
13      <ul>
14          <li>Content 1</li>
15          <li>Content 2</li>
16          <li>Content 3</li>
17      </ul>
18  </body>
19
```

Ordered List

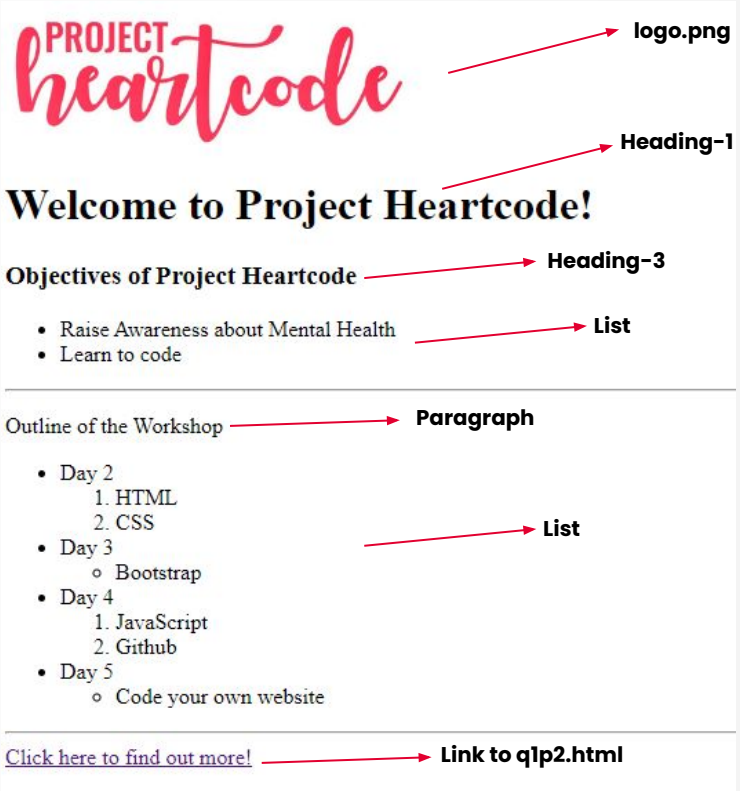
Unordered List

1. Content 1
2. Content 2
3. Content 3

- Content 1
- Content 2
- Content 3

sample2.html

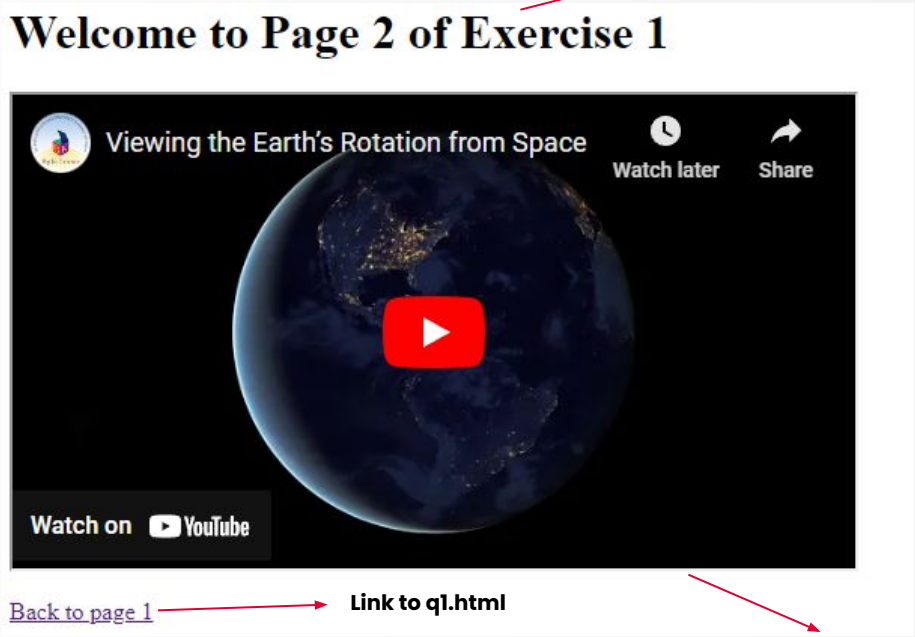
Exercise 1 - HTML Introduction



q1.html

Exercise 1 - HTML Introduction

Heading-1



Link to q1.html

Embed video

q1p2.html

Search for "Viewing the Earth's Rotation from Space" on Youtube

HTML Tags

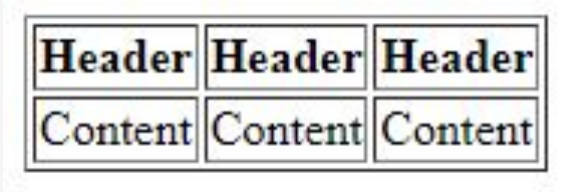
Tag	Examples
Tables	<table><tr><td>...</td></tr></table>
Form	<form action="payment.html" method="GET">...</form> <form action="payment.html" method="POST">...</form>
Input Field	<input type="text">
Drop down list	<select><option>...</option></select>
Button	<button type="submit">Submit</button>
Comments	<!-- ... -->

HTML Tags - Tables

Workshop > day2 > samplepages > sample2.html > html

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <title>Example Table</title>
5   </head>
6
7   <body>
8       <table border="1">
9           <tr>
10              <th>Header</th>
11              <th>Header</th>
12              <th>Header</th>
13          </tr>
14          <tr>
15              <td>Content</td>
16              <td>Content</td>
17              <td>Content</td>
18          </tr>
19      </table>
20  </body>
```

sample3.html



Header	Header	Header
Content	Content	Content

<tr> stands for **table row**

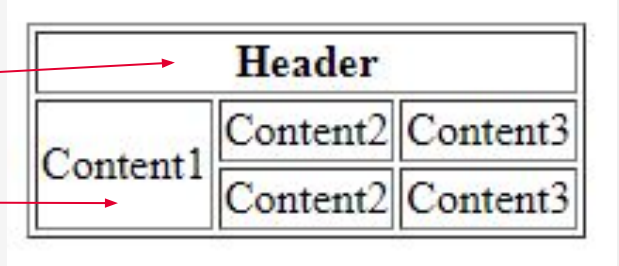
<th> stands for **table header**

<td> stands for **table data**

HTML Tags - Tables

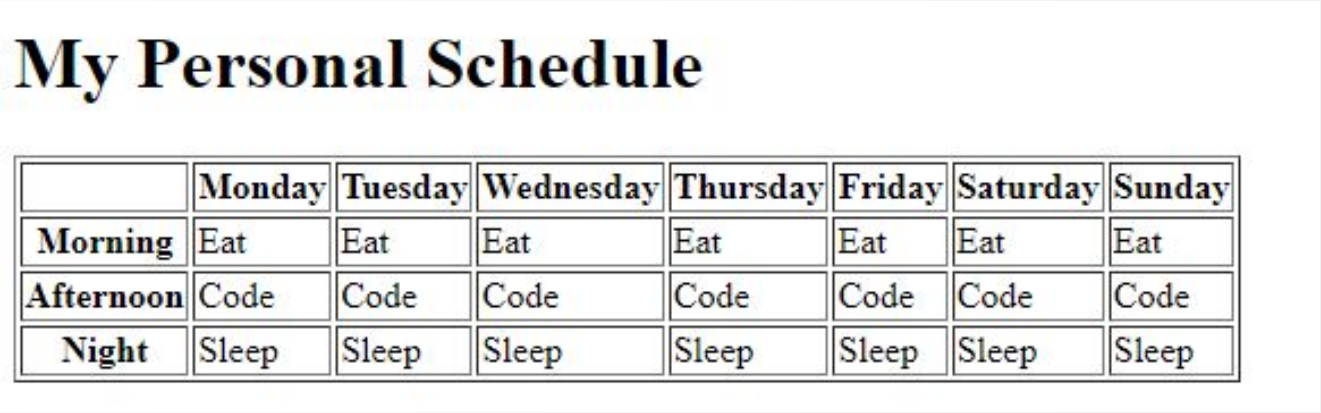
Workshop > day2 > samplepages > sample3.html > html

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <title>Example Table</title>
5   </head>
6
7   <body>
8       <table border="1">
9           <tr>
10              <th colspan="3">Header</th>
11          </tr>
12          <tr>
13              <td rowspan="2">Content1</td>
14              <td>Content2</td>
15              <td>Content3</td>
16          </tr>
17          <tr>
18              <td>Content2</td>
19              <td>Content3</td>
20          </tr>
21      </table>
22  </body>
```



sample4.html

Exercise 2 – My Personal Schedule



My Personal Schedule

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning	Eat	Eat	Eat	Eat	Eat	Eat	Eat
Afternoon	Code	Code	Code	Code	Code	Code	Code
Night	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep	Sleep

q2a.html

Exercise 2 - My Personal Schedule

My Personal Schedule

Ideal Schedule							
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
Morning	Washup, Breakfast & Exercise					Sleep In	
Afternoon	Code	Code and debug				Dramas and Computer Games	
Night		Sleep Early					

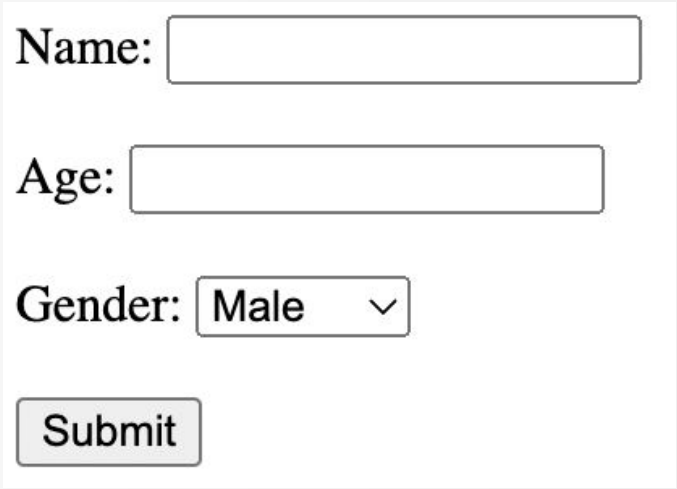
q2b.html

Hint: Make use of colspan and rowspan

HTML Tags - Form

```
<body>
    <form action="" method="GET">
        Name: <input type="text" name="name">
        <br><br>
        Age: <input type="number" name="age">
        <br><br>
        Gender:
        <select name="gender">
            <option value="male">Male</option>
            <option value="female">Female</option>
        </select>
        <br><br>
        <input type="submit" value="Submit">
    </form>
</body>
```

sample5.html



https://www.w3schools.com/html/html_forms.asp

HTML Tags - Form

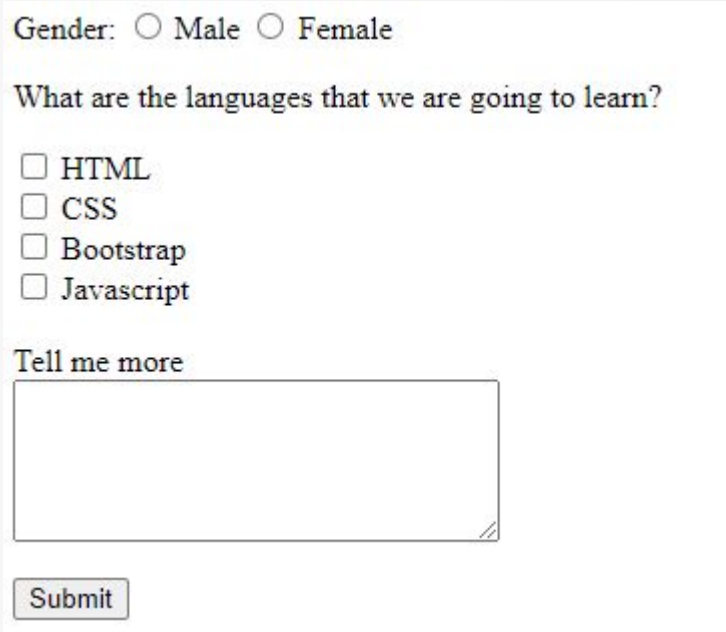
```
<form action="" method="">
    Gender:
    <input type="radio" id="male" name="gender" value="male">
    <label for="male">Male</label>
    <input type="radio" id="female" name="gender" value="female">
    <label for="Female">Female</label>

    <p>What are the languages that we are going to learn?</p>
    <input type="checkbox" id="answer1" name="answer1" value="HTML">
    <label for="answer1"> HTML</label><br>
    <input type="checkbox" id="answer2" name="answer2" value="CSS">
    <label for="answer2"> CSS</label><br>
    <input type="checkbox" id="answer3" name="answer3" value="Bootstrap">
    <label for="answer3"> Bootstrap</label><br>
    <input type="checkbox" id="answer4" name="answer4" value="JavaScript">
    <label for="answer4"> Javascript</label><br>

    <br>Tell me more<br>
    <textarea name="message" rows="5" cols="30"></textarea>
    <br><br>

    <input type="submit" value="Submit">
</form>
```

sample6.html



https://www.w3schools.com/html/html_forms.asp

HTML Tags - Button

```
<body>
    <button type="button">Click Me!</button>
</body>
```

HTML Tags - Comments

```
<!DOCTYPE html>
<html lang="en">

<head>
    <title>Project Heartcode</title>
    <link rel="icon" type="image/x-icon" href="../images/logo.png">
    <!-- THIS IS A COMMENT -->
</head>

<body>
    <!-- PLEASE INSERT YOUR CODE BELOW -->
    <h1>This is heading 1</h1>
    <br>
    <p>This is some text.</p>
</body>

</html>
```

Exercise 3 - Form Creation

Watch the following Video and provide some feedback in the form below!

Input Type: Text

Name:

Was the Video Insightful?

Input Type: Radio

Yes No

What are some examples of Mental Health Issues?

Input Type: Checkbox

- Anxiety
- ADHD
- OCD
- Depresssion
- Eating Disorders

General Comments

Textarea

Submit

Input Type: Submit

Exercise 4 - Your Autobiography pt. 2

Continue your autobiography by adding

1. An **ordered list** of your favourite foods
2. An **unordered list** of your hobbies
    a. Add a **video of that hobby**
3. A **form** for people to send messages to you

Styling Related Tags

Tag	Examples	Remarks
Block	...	Add an ID/Class to a block (e.g. for styling purposes)
Inline	...	Similar to div but smaller
Navigation	<nav>...</nav>	For styling navigation links

02

CSS

What is CSS?

- CSS stands for **C**ascading **S**tyle **S**heets
- Emphasis placed on "Style"
- Describes the presentation of a HTML document
  - Change colors
  - Fonts
  - Alignments etc..

3 Ways to use CSS

1

Inline Style

CSS code is placed directly into an HTML element within the <body> section of the webpage

2

Internal Style Sheet

CSS code is placed into a separate, dedicated area within the <head> section of the webpage

3

External Style Sheet

CSS code is placed into a separate file and then linked to a webpage

CSS: Inline Style

- CSS code is **placed directly into a HTML element** within the **<body> section of a webpage**
- To define an inline CSS, add the style attribute into an HTML element with the CSS declaration as the attribute
- Inline style **ONLY applies to one tag**

Example

```
<body>
  <h1 style="color: blue;">Hello Friends!</h1>
  <h1>Goodbye!</h1>
</body>
```

CSS: Inline Style

Advantages of using Inline CSS

- Useful for viewing changes instantly
- Adding style for CSS rules that only apply to one or a few elements
- Inline Style will **ALWAYS override style properties** that is defined in internal or external style sheet

Example

```
<body>
  <h1 style="color: blue;">Hello Friends!</h1>
  <h1>Goodbye!</h1>
</body>
```

CSS: Internal Style Sheet

- A **<style> section** is added **within the <head>** of the HTML page
- All the CSS declarations will go within this section
- Styles declared in the <style> section will **affect all matching elements on the page**

Example

```
<head>
  <style>
    h1 {
      color: blue;
    }
  </style>
</head>

<body>
  <h1>Hello Friends!</h1>
  <h2>Goodbye!</h1>
</body>
```

CSS: Internal Style Sheet

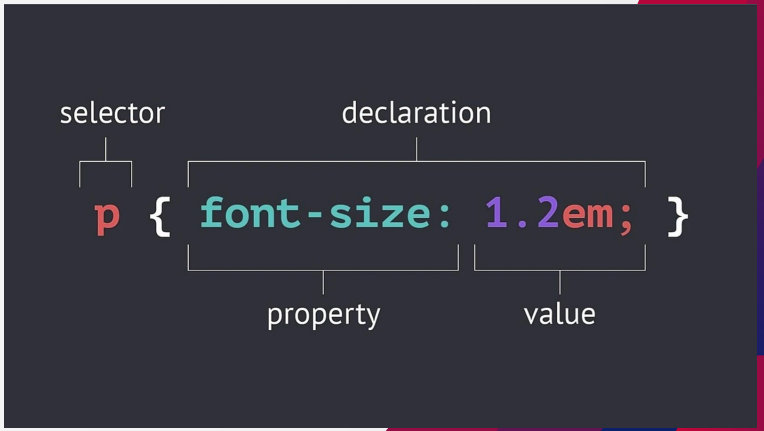
Syntax of CSS

- **selector { property: value; }**
- Inside a selector, we can define as many properties as we wish to
- A semicolon (;) must be placed after each CSS declaration

Example

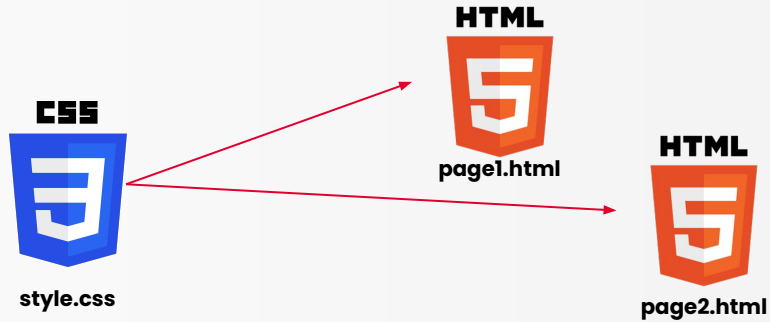
```
p { color: blue; }
h1 { font-style: italic; }

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



CSS: External Style Sheet

- CSS declaration will be done in a **separate file (e.g. style.css)**
- CSS file will be **imported into the current HTML page**
- **Multiple web pages can make use of the same style sheet**
- Styles declared in an external style sheet will affect all matching elements on all web pages linked to same style sheet



CSS: External Style Sheet

style.css

```
p {
    color: blue;
}

h1 {
    font-style: italic;
}
```

sample7.html

```
<!DOCTYPE html>
<html lang="en">

<head>
    <title>Project Heartcode</title>
    <link href="style.css" type="text/css" rel="stylesheet">
</head>

<body>
    <h1>This is a Heading</h1>
    <p>This is a paragraph.</p>
</body>

</html>
```

CSS Syntax: Selector

Type Selector (Element)

```
p {
        color: blue;
        text-align: center;
        font-style: bold;
}

h1, h2 {
        color: blue;
        text-align: left;
}
```

id Selector

```
#emphasis {
        font-style: bold;
}
```

Usage:

```
<p id="emphasis">
        This is a very important sentence
</p>
```

CSS Syntax: Selector

Class Selector

```
.normal {
        color: black;
}

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

Usage:

```
<p class="normal"> Hello everyone</p>
<p class="normal center"> This is a centralized hello everyone </p>
```

Universal Selector (*)

```
* {
        font-style: bold;
}
```

NOTE: Universal Selector will target all elements on the page

Cascading

A browser processes all CSS code, including all three ways introduced earlier (inline, internal style sheet, external style sheet)

The following cascading precedence order is applied:

1. Inline Style has **first priority**
2. Internal Style Sheet has **second priority**
3. External Style Sheet has **third priority**
4. Web Browser default has **lowest priority**

Conflict Resolving

Inline Rule

```
<h1 style="color: blue"
style="color: red;">
Hello World!</h1>
```

For inline style, **first one** applies

Last Rules

```
p {
    color: blue;
}

p {
    color: red;
}
```

If two selectors are identical, the **latter of the two will take precedence**

Specificity

```
* {
    font-family: Arial;
}

h1 {
    font-family: 'Times New Roman';
}
```

The **more specific rule will take precedence** over more generic ones

Important

```
p {
    color: blue !important;
}

p {
    color: red;
}
```

You can **add !important** after any property that should be considered more important than other rules

CSS: Properties

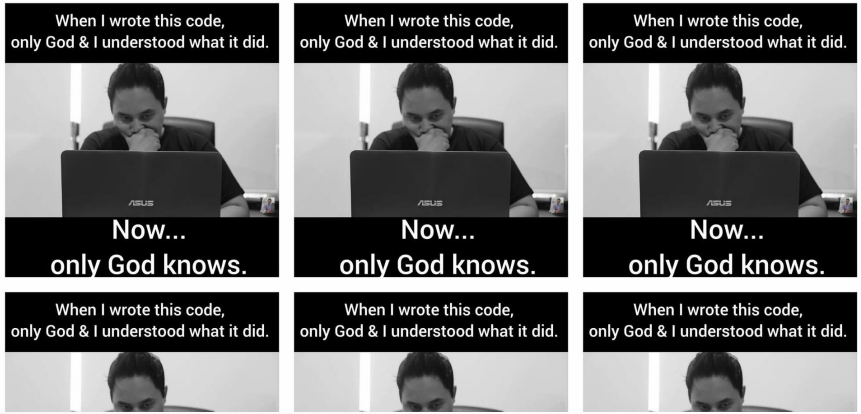
- In CSS, there are many properties to alter the style of an element

https://www.w3schools.com/cssref/

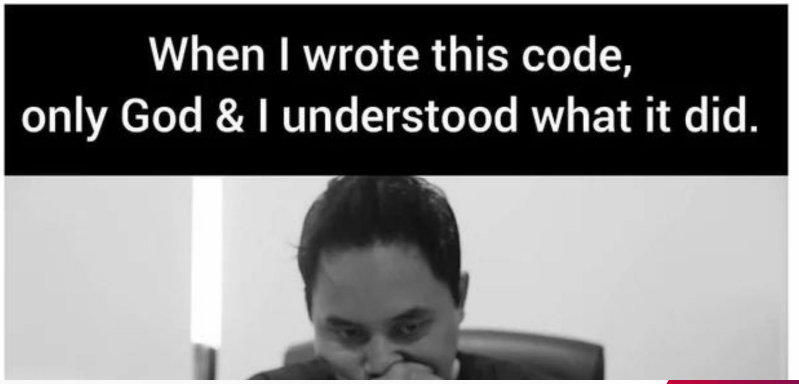
```
.card {
  font-size: 18px;
  width: 250px;
  background: #fff;
  position: relative;
  letter-spacing: 1px;
  height: 350px;
  border: 1px solid #eee;
  font-weight: 500;
  padding: 10px;
  color: #111;
  margin: 5px 10px;
  line-height: 20px;
  border-radius: 5px;
  transition: transform(5px);
  text-align: left;
  box-shadow: 5px 10px 18px #888888;
  font-family: 'Roboto', sans-serif;
  display: flex;
}
```

CSS: Background Image

```
<style>
    body {
        background-image: url("../images/image1.jpg");
    }
</style>
```




```
<style>
    body {
        background-image: url("../images/image1.jpg");
        background-size: cover;
    }
</style>
```

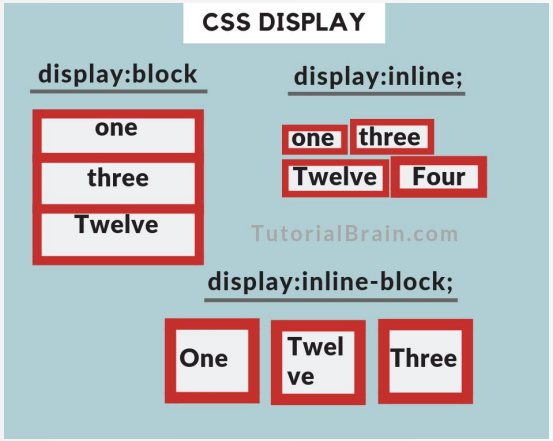


https://www.w3schools.com/cssref/pr_background-image.asp

CSS: Properties

CSS Display Properties

Specifies how an element is displayed with respect to other elements. Every HTML element has a default display value.



block: displayed on a new line

inline: displayed inline with the previous element

none: hidden (used with JavaScript to hide/show elements depending on logic)

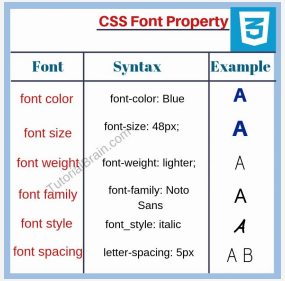
CSS: Properties

CSS Font Properties

Font-family - dictates which font to use (e.g. Arial, Times New Roman)

Font-style - dictates which style to use (e.g. bold, italic)

Font-size - dictates which size the font is displayed (e.g. 16px)



CSS Background Properties

Background-color - color of background

Background-image - insert image as background

Background-attachment - sets whether the background is fixed or scrolls with the page

Background-repeat - how many times you want the background to repeat

CSS: Design

- **Pixels** - px (font and images)
- **Unit relative to its parent element** - em (fonts)
- **Unit relative to HTML document** - rem (fonts)

```
<ol>
    <li style="font-size: 16px;">Pixels</li>
    <li style="font-size: 2em;">em</li>
    <li style="font-size: 2rem;">rem</li>
</ol>
```

1. Pixels
2. em
3. rem

https://www.w3schools.com/cssref/css_units.asp

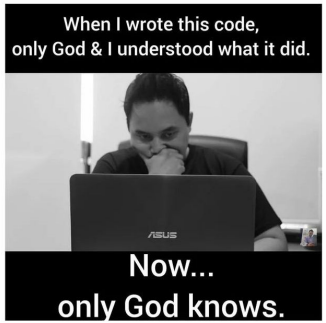
CSS: Design

- **Viewport HEIGHT** - vh (images)
- **Viewport WIDTH** - vw (images)
- **Percentage (relative to parent)** - % (images)

```
    <style>
        img {
            height: 100%;
        }
    </style>
</head>

<body>
    <img src="../images/image1.jpg" />
</body>

</html>
```



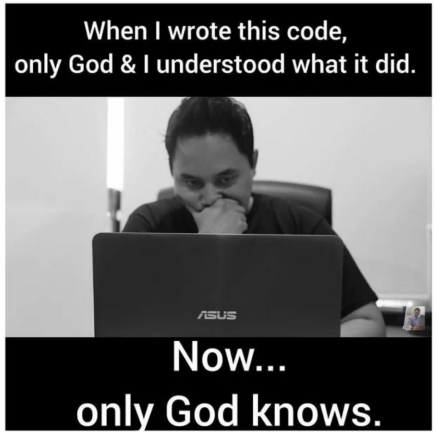
https://www.w3schools.com/cssref/css_units.asp

CSS: Design

- **Viewport HEIGHT** - vh (images)
- **Viewport WIDTH** - vw (images)
- **Percentage (relative to parent)** - % (images)

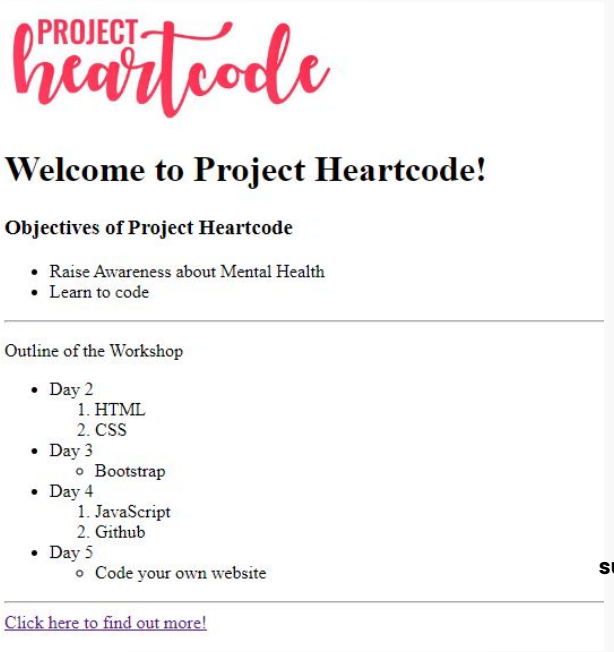
```
    <style>
        img {
            height: 100vh;
        }
    </style>
</head>

<body>
    <img src="../images/image1.jpg" />
</body>
```



https://www.w3schools.com/cssref/css_units.asp

Exercise 1 - CSS Introduction



border: solid blue
background: lightblue
width: 20em
list style type: circle
font size: 1.25em

red, italics

Bold, 1.5 rem, purple, underline

border: double red
background: lightcoral
width: 20em
font size: 1.25em

days - bolded
sub points - lower-roman

font size: 1.5rem
on hover: purple

Using either **Internal Style Sheet / External Style Sheet**

The Box Model

- In CSS, every HTML element is a box
- A box consist of: the **content**, the **padding**, the **border**, and the **margin**
- Every part of the box can be decorated through CSS

The Box Model

Margin

An area outside the border, margin is transparent

Border

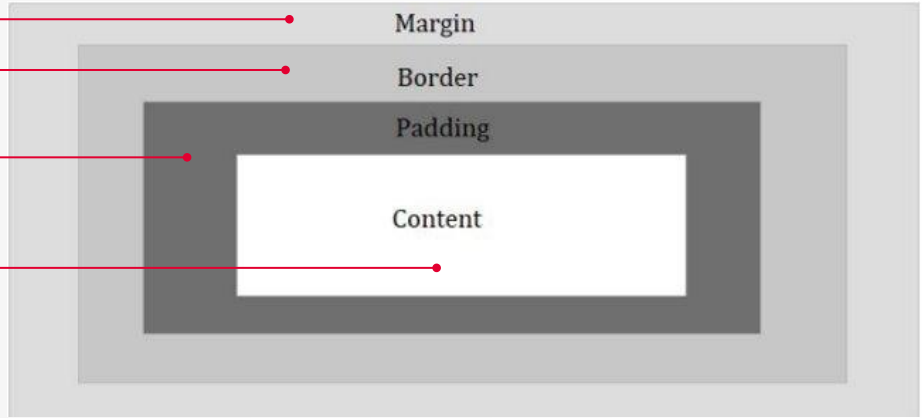
Border that goes around the padding and content

Padding

Area around the content and inside the border; padding is transparent

Content

Text / images

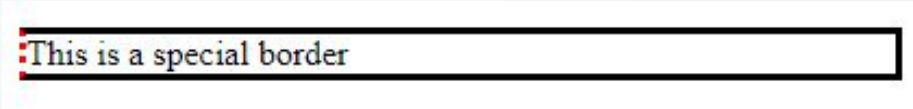


Decorating Border

Make use of the following properties to specifically style the left, right, top or bottom of a border separately:

- border-left
- border-right
- border-top
- border-bottom

```
.centerdiv3 {
        width: 400px;
        margin: auto;
        border: 3px solid black;
        border-left: 3px dotted red;
}
```

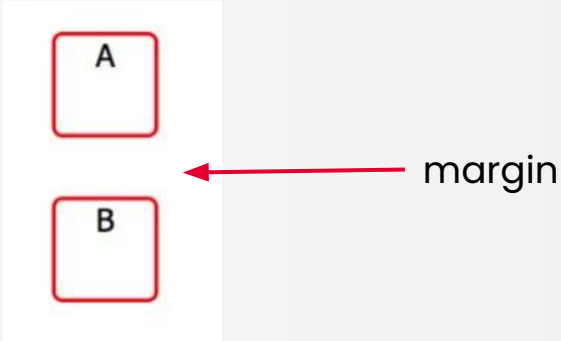


Decorating Margin

Make use of the following properties to create space around an element's content, outside of its border

- margin-left
- margin-right
- margin-top
- margin-bottom

```
.box {
        text-align: center;
        width: 150px;
        height: 150px;
        border-radius: 10%
        border: 2px solid red;
        margin-top: 30px;
        margin-bottom: 30px;
        margin-right: 50px;
        margin-left: 50px;
}
```

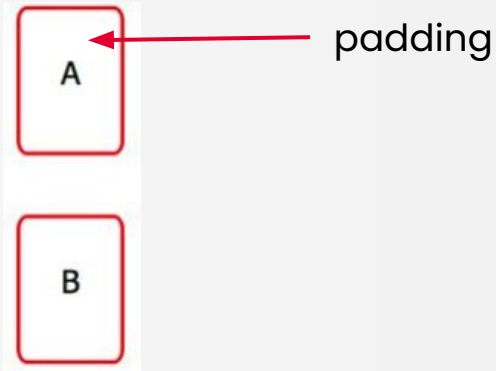


Decorating Padding

Use the following properties to generate space around an element's content, inside the border (padding)

- padding-top
- padding-right
- padding-bottom
- padding-left

```
.box {
        text-align: center;
        width: 150px;
        height: 150px;
        border-radius: 10%
        border: 2px solid red;
        padding-top: 22px;
}
```



Decorating

Additionally, property values can be specified using the following:

- **auto** – horizontally center the element within its container
- **length** – specifies a margin in px, pt, cm, etc.
- **%** - specifies a margin in % of the width of the containing element
- **inherit** – specifies that the margin should be inherited from the parent element

```
.box {
        text-align: center;
        width: 150px;
        height: 150px;
        border-radius: 10%
        border: 2px solid red;
        /* top right bottom left */
        margin: 30px 50px 30px 50px;
}
```

Exercise 2 - Border, Margin, Padding

Modify the internal style sheet of ex4.html so that it looks something like the image at the right

Images are given in the file

HINT: Make use of margin & padding

Exercise 3 - Decorate a Page

HINTS:
Font: Arial
Alignments: center
Table: dashed

I love Project Heartcode

Project HeartCode is a community service project organised by Singapore Management University, School of Computing and Information Systems.

What did i learn from today's workshop?

1. **HTML -** HTML Guide from W3Schools
2. **CSS -** CSS Guide from W3Schools

Our Workshop Timetable for Today

Timetable	
HTML	1000 - 1300 ✅
Lunch	1300 - 1400 ✅
CSS	1400 - 1700 ✅

wooclap

https://wooclap.com
HEARTCODE1

Key Takeaways

1. **HTML** for content; **CSS** for style
2. **3** Types of CSS – **Inline CSS**, **Internal Style Sheet**, **External Style Sheet**
3. **Internal Style Sheet** applies to **one page**; **External Style Sheet** applies to **all linked pages**
4. A style sheet is a set of rules of the form:
   selector { property: value; }

Thank You!

Do you have any questions?