0. Orientation

Timeline

- ❏ **Week 1:** HTML & CSS & Javascript
  - ❏ **Week 2:** Javascript & React
  - ❏ **Week 3:** React, Redux, Typescript
  - ❏ **Week 4:** Individual project
  - ❏ **Week 5:** Node.js, Database, Security, Testing, CICD, GraphQL etc...
  - ❏ **Week 6-7:** Group project

- ❏ Resume
- ❏ Mock interviews
- ❏ Marketing & Job

Core Tools

- ❏ **IDE**: VS Code
- ❏ **Backend JS Runtime**: Node.js
- ❏ **API Platform**: Postman
- ❏ **Version Control System**: Git
- ❏ **Code-hosting Service**: GitHub
- ❏ **Database**: MongoDB Compass
- ❏ **Package Manager**: npm
- ❏ **Optional:** Leetcode, Github, CodeSandbox, Discord

Self Intro

❏ Major / Field of study

❏ LeetCode practice level / Your familiarity with JavaScript

❏ React experience: from work / from academic studies

Suggested VSCODE Extensions

Auto Close Tag ⏱ 2ms
Automatically add HTML/XML close t...
Jun Han ⚙

Auto Rename Tag ⏱ 13ms
Auto rename paired HTML/XML tag
Jun Han ⚙

Bracket Pair Colorization Toggler
Quickly toggle 'Bracket Pair Colorizat...
Dzhavat Ushev ⚙

Color Highlight ⏱ 3ms
Highlight web colors in your editor
✓ Sergii N ⚙

CSS Peek
Allow peeking to css ID and class stri...
Pranay Prakash ⚙

ESLint ⏱ 16ms
Integrates ESLint JavaScript into VS ...
✓ Microsoft ⚙

indent-rainbow ⏱ 0ms
Makes indentation easier to read
✓ oderwat ⚙

JavaScript (ES6) code snippets
Code snippets for JavaScript in ES6 ...
✓ charalampos karypidis ⚙

Live Server ⏱ 3ms
Launch a development local Server w...
Ritwick Dey ⚙

Material Icon Theme ⏱ 7ms
Material Design Icons for Visual Studi...
✓ Philipp Kief ⚙

Path Intellisense ⏱ 7ms
Visual Studio Code plugin that autoc...
Christian Kohler ⚙

Prettier - Code formatter ⏱ 48ms
Code formatter using prettier
✓ Prettier ⚙

Prettier ESLint ⏱ 2ms
A Visual Studio Extension to format J...
Rebecca Vest ⚙

Typescript React code snippets
Code snippets for react in typescript
infeng ⚙

Code Spell Checker
Spelling checker for source code
✓ Street Side Software ⚙

1. HTML

Attention!

This training is **interview-driven**.

To become a qualified developer, *ChatGPT* and *YouTube* will always be your best friends.

Outline

❏　HTML

❏　Structure

❏　Tag

❏　id and class Attributes

❏　Element: **Block and Inline Element**

❏　Semantic Elements

HTML (Hyper Text Markup Language)

❏ HTML is not a programming language

    ❏ It defines the meaning and structure of web content

    ❏ **HTML5:** Most updated version

❏ **Markup**: Refers to the specialized **tags** and **attributes** used to structure and format content on a web page.

    ❏ **tags**: HTML tags are the core of markup. They come in pairs or are self-closing

    ❏ **attributes**: Attributes provide extra information about a tag, like "src" for the image's source or "href" for a link's destination

        ❏ `<img src="image.jpg" alt="img">`

Structure

All Web pages share a common structure
- ❏ <head>: Not seen on the page but is considered to be metadata about the page
    - ❏ meta tag
        - ❏ Supporting information
        - ❏ Defines character encoding
        - ❏ Controls page responsiveness
        - ❏ **SEO** (Search Engine Optimization)
    - ❏ <title>
- ❏ <body>
    - ❏ main content
    - ❏ high-level heading (<h1>)
    - ❏ paragraph (<p>).

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>My First HTML Page</title>
</head>
<body>
  <h1>Hello World!</h1>
</body>
</html>
```
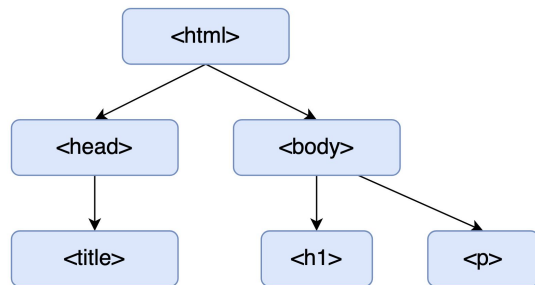
Tags

- ❏ Mark up the start or end of an HTML element
- ❏ A tag is a keyword enclosed by **angle** brackets
  - ❏ Contain both opening and closing tags
    - ❏ <p> = opening tag
    - ❏ </p> = closing tag
  - ❏ **Self-closing**
    - ❏ ,

Tags: <div> <span> <p>

- ❏ The **<div>** tag defines a division or a section in an HTML document
  - ❏ Any sort of content can be put inside the <div> tag
- ❏ Headings: <h1> to <h6>
- ❏ The **<span>** tag is an **inline container**
  - ❏ Used to mark up a part of a text, or a part of a document
- ❏ The **<p>** tag defines a paragraph
  - ❏ Automatically add a single blank line before and after each <p> element

Category	Tags	Purpose
Structure	`<div>` , `<span>`	Grouping and layout
Text Content	`<p>` , `<h1>` – `<h6>` , `<b>` , `<em>`	Paragraphs, titles, emphasis
Formatting	` ` , `<hr>`	Line breaks and visual dividers

Tags: List

❏ **Unordered** List

    ❏ **<ul>** tag to declare the list, with nested **<li>** tags for the list items

    ❏ Used when order doesn't matter (e.g., shopping list)

❏ **Ordered** List

    ❏ **<ol>** tag to declare the list. List items are still wrapped in an **<li>** tag

    ❏ Used when sequence is important (e.g., steps or rankings)

❏ Use the <ul> or <ol> together with the <li> tag to create unordered lists

Tags: Table

- ❏ A table in HTML consists of table cells inside rows and columns
- ❏ <thead>, <tbody>, <tfooter>
- ❏ Row-column structure
  - ❏ <th>: table header, cell contents of header
  - ❏ <tr>: table row
  - ❏ <td>: table data, cell contents of body & footer
- ❏ Formatting
  - ❏ **colspan**: merges multiple columns into one cell
  - ❏ **rowspan**: merges multiple rows into one cell
  - ❏ border="1": visible

Tags: Form(Text inputs)

- ❏ input: do not have a closing tag
  - ❏ type: Input field type
  - ❏ **id**: Unique identifier
  - ❏ name: form submission key
- ❏ label: indicate the <input>'s meaning
  - ❏ **for attribute's value should match <input> element's id value**
- ❏ form: element is used to collect user input
- ❏ select: creates a drop-down list
  - ❏ Radio buttons: select **one** option
  - ❏ check boxes: select **multiple** options
- ❏ button
  - ❏ submit

Input Type	Purpose
`text`	Single-line input
`email`	Email input
`password`	Hidden input
`checkbox`	Multiple selections
`radio`	Choose one from a group
`submit`	Submit the form

Tags: <img> <a> <address> <hr />

- ❏ <a>: The <a> tag in HTML is used to create a hyperlink
- ❏ <img>: The <img> HTML element embeds an image into the document
  - ❏ alt attribute is a description, which is mandatory
- ❏ <address>: The <address> tag defines the contact information
- ❏ Horizontal Line: <hr />
  - ❏ Renders a visual horizontal rule (separator)
- ❏ Line Breaks:
  - ❏ break a line within a paragraph

id and class Attributes

- ❏ id: give any element a **unique identifier**
  - ❏ applying specific styles with CSS
  - ❏ capturing input with some Javascript code
  - ❏ rules:
    - ❏ An id value should only be used for a single element
    - ❏ An id value must not contain any whitespace
    - ❏ A single element cannot have multiple id values
- ❏ class:
  - ❏ The same class value can be used across **multiple** elements
  - ❏ An element can have multiple class values, separated by whitespaces

Element

- ❏ **Element**
  - ❏ opening tag + content + closing tag (or just the tag if it's self-closing).
  - ❏ **Inline vs. Block Element**
    - ❏ **Block-level elements**
      - ❏ take up the **full width** of a web page
      - ❏ start on a new line
      - ❏ Affected by a margin on all sides
      - ❏ e.g: Headings (<h1>-<h6>), Lists (<ol>, <ul>), Paragraphs (<p>)
    - ❏ **Inline elements**
      - ❏ do not start a new line
      - ❏ Only takes up as much width as necessary
      - ❏ Only affected by a left & right margin
      - ❏ e.g: Anchors (<a>), Images (<img>), Bolding text (<strong>)

Semantic Elements

❏ Convey meaning about the content they wrap

Tag	Purpose/Use
`<header>`	Introductory content for a page or section.
`<nav>`	Main navigation links.
`<main>`	Central content unique to the page.
`<section>`	A thematic grouping of content.
`<article>`	Independent, self-contained content (like a blog post).
`<aside>`	Side content related to the main content (like a sidebar).
`<footer>`	Footer for a page or section.

❏ **non**-semantic elements

❏ `<div>` and `<span>` don't carry inherent meaning

Additional materials

❏   HTML Tutorial: https://www.w3schools.com/html/default.asp

Homework - Requirement

❏ Submission Method:

   ❏ Peer mock interviews between groups; record and upload.

❏ Short Answer Questions Requirement:

   ❏ Close your eyes and remove your headphones.

❏ Coding Requirement:

   ❏ Simulate an interview, explaining as you code

Homework - Class Code

❏ Write the code as taught in class, take a screenshot of your code, and post it in the Wechat group. **It's due the same night.**

Homework - W3 schools HTML Quiz

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

Please attach the screenshot of your results and post it in the Wechat group.

Homework - Short Answer Questions

1. What is HTML?

2. What is the importance of the meta tag?

3. What HTML element is used to tell the user what this form field is for?

4. What is the <form> tag used for in HTML?

5. What is the purpose of using the <p> tag in HTML?

6. What are self-closing elements in HTML? Give some examples

7. What is a block element? How is it different from inline elements?

8. Are the HTML tags and elements the same thing?

9. What are semantic HTML tags and why are they important?

Homework - Coding Question 1

Task: Create a user profile form using HTML only (no JavaScript required). The form should include the following elements:

1. A text input for the user's full name.
2. A set of radio buttons for gender selection (e.g., Male, Female, Other).
3. A dropdown (select) for favorite programming language with at least 3 options.
4. An input of type file for the profile picture, and display the selected image using an <img> tag.
5. A submit button to submit the form.
6. Use proper <form> structure and labels for accessibility

User Profile Form

Full Name:

Christine

Gender: ○ Male ● Female ○ Other

Favorite Programming Language:

JavaScript

Profile Picture:

Choose File IMG_7364.jpg

Submit

Homework - Coding Question 2

Task: Implement the following table. (Hint: colspan & rowspan)

<table>
<thead>
<tr>
<th colspan="1">Header 1</th>
<th colspan="2">Header 2 and 3</th>
</tr>
</thead>
<tbody>
<tr>
<td rowspan="2">Row 1 and 2, Cell 1</td>
<td>Row 1, Cell 2</td>
<td>Row 1, Cell 3</td>
</tr>
<tr>
<td colspan="2">Row 2, Cell 2 and 3</td>
</tr>
<tr>
<td>Row 3, Cell 1</td>
<td>Row 3, Cell 2</td>
<td>Row 3, Cell 3</td>
</tr>
</tbody>
</table>

Table