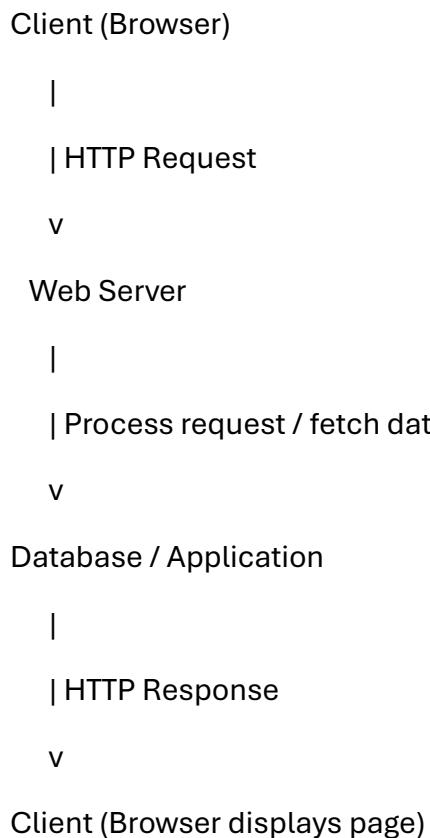


Web Development Assignment - 1

1. Difference between Frontend, Backend, and Full-Stack Development

Type	Description	Technologies	Real-World Example
Frontend	Handles the user interface and user experience	HTML, CSS, JavaScript, React, Angular, Vue	The layout, buttons, and forms on Amazon
Backend	Handles server-side logic, database operations, and APIs	Node.js, Python, PHP, SQL, Java	User login authentication on Gmail
Full-Stack	Handles both frontend and backend , building complete applications	Combination of frontend + backend technologies	An e-commerce website managing UI, server, and database

2. Client-Server Model Diagram



3. How a Browser Requests and Displays a Web Page

1. User enters a URL in the browser.
 2. Browser sends a **DNS request** to resolve the server's IP address.
 3. Browser sends an **HTTP/HTTPS request** to the server.
 4. Server responds with **HTML, CSS, JavaScript, and media files**.
 5. Browser **parses HTML** into the DOM, applies **CSS styling**, and runs **JavaScript** for interactivity.
 6. The web page is displayed to the user.
-

4. Tools Required for Web Development Environment

Tool	Purpose
VS Code / Sublime Text	Code editor to write HTML, CSS, JavaScript
Browser (Chrome, Firefox, Edge)	Test and preview web pages
Node.js / npm	Run JavaScript outside browser, manage packages
Git & GitHub	Version control to track code changes
Local Server (XAMPP, WAMP, Live Server)	Test dynamic pages locally

5. What is a Web Server?

A **web server** is software or hardware that delivers web pages to clients via HTTP/HTTPS.

- **Examples:** Apache HTTP Server, Nginx, Microsoft IIS, LiteSpeed
-

6. Roles in a Web Project

Role	Responsibilities
Frontend Developer	Build the user interface and make responsive web pages
Backend Developer	Implement server-side logic, APIs, authentication, data processing

Role	Responsibilities
Database Administrator (DBA)	Design, manage, and maintain databases, ensure data integrity and security

7. Installing VS Code for Web Development

1. Download VS Code from <https://code.visualstudio.com>.
2. Install VS Code on your system.
3. Install extensions:
 - o **HTML CSS Support**
 - o **JavaScript (ES6) code snippets**
 - o **Live Server** (for real-time preview)
4. Open a project folder → Create index.html → Click **Go Live** to preview pages in browser.

HTML CSS Support
ecmeli | ⚡ 27,042,547 | ★★★★☆(106) | ❤ Sponsor
CSS Intellisense for HTML

Visual Studio Code CSS Intellisense for HTML

Tests: passing

HTML `id` and `class` attribute completion for Visual Studio Code.

Features

- HTML `id` and `class` attribute completion
- Supports completion from in file defined styles
- Supports specifying remote and local style sheets
- Supports any language for completion
- Supports go to definition for selectors
- Validates class attributes on demand

Supported Languages

Supported languages can be configured with the `css.enabledLanguages` global setting. By default `html` is enabled:

```
{
  "css.enabledLanguages": ["html"]
}
```

Marketplace

Identifier: ecmeli.vscode-html-css
Version: 2.0.13
Published: 2016-07-15, 02:32:33
Last Updated: 2025-01-24, 12:47:31
Released: 2025-01-24, 12:47:31

Categories

Programming Languages

Resources

Marketplace Issues Repository License ecmeli

Add Context... Add context (#), extensions (@), or Agent ▾

Signed out Port: 5500

Live Server
Ritwick Dey | ⚡ 69,370,041 | ★★★★★(511)
Launch a development local Server with live reload feature for static & dynamic pages

Installation

Identifier: ritwickdey.liveserver
Version: 5.7.9

Build with agent mode.

The screenshot shows the Visual Studio Code interface. In the Explorer sidebar, there are two files: 'name.html' and 'timetable.html'. The 'name.html' file is open in the main editor area, displaying the following HTML code:

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>name</title>
</head>
<body>
    <h1> Lakhlan Lal </h1>
</body>
</html>
```

In the bottom right corner of the editor, there is an AI integration panel with the heading "Build with agent mode." It includes a message stating "AI responses may be inaccurate." and a button to "Generate instructions to onboard AI onto your codebase." Below this, there are buttons for "Add Context..." and "Agent". At the bottom of the screen, status bar information includes "Ln 11, Col 8", "Spaces: 4", "UTF-8", "CRLF", "HTML", "Signed out", and "Port : 5500".

8. Difference Between Static and Dynamic Websites

Type	Definition	Example
Static Website	Content is fixed, same for all users, no server-side processing	Portfolio website
Dynamic Website	Content is generated on-the-fly based on user input or database	Facebook, Amazon

9. Web Browsers and Rendering Engines

Browser	Rendering Engine
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Google Chrome Blink

Mozilla Firefox Gecko

Safari WebKit

Microsoft Edge Blink

Opera Blink

Note: Rendering engines interpret HTML, CSS, and JS to display web pages. Different engines may render the same page slightly differently.

10. Basic Web Architecture Flow

Client (Browser)

|

HTTP/HTTPS Requests

|

Web Server

/ \

Application Database

| |

APIs / Logic

|

HTTP/HTTPS Responses

|

Client (Browser)