

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

Frontend: Works on user interface (HTML, CSS, JS). Example: Amazon homepage design.

Backend: Handles server-side logic and database. Example: Login verification in Amazon.

Full-Stack: Works on both frontend and backend. Example: A portfolio website built fully by one developer.

2. Simple Client-Server Model (Text Diagram)

Client (Browser) ↓ HTTP Request Server (Backend) ↓ Fetch Data Database ↑ Response (HTML/CSS/JS) Client Displays Page

3. How a Browser Requests and Displays a Web Page

- 1 User enters a URL in browser
- 2 Browser sends HTTP request to server
- 3 Server processes and may fetch data from DB
- 4 Server sends HTML/CSS/JS response
- 5 Browser renders web page (HTML → CSS → JavaScript)

4. Tools Required for Web Development

- Code Editor (VS Code) - for writing code
- Browser (Chrome, Firefox) - for testing
- Version Control (Git, GitHub) - for tracking changes
- Package Manager (npm/yarn) - for libraries/frameworks
- Local Server (XAMPP/Node.js) - for running locally
- Terminal/CLI - for executing commands

5. What is a Web Server?

A web server delivers web pages using HTTP/HTTPS.

Examples: Apache, Nginx, Microsoft IIS, Node.js

6. Roles in a Project

- Frontend Developer - builds UI with HTML, CSS, JS
- Backend Developer - manages server logic, APIs
- Database Administrator - manages database performance, security, backups

7. Install & Configure VS Code

Steps: Install VS Code → Add Extensions (Live Server, Prettier, HTML CSS Support, JS Snippets) → Create HTML, CSS, JS files in a project folder.

Screenshot: (You can capture from your own setup after installing VS Code).

8. Static vs Dynamic Websites

Static Website: Fixed content, only HTML/CSS. Example: Portfolio site.

Dynamic Website: Content changes dynamically with server/database. Example: Facebook.

9. Five Web Browsers & Rendering Engines

- Google Chrome - Blink engine
- Mozilla Firefox - Gecko engine
- Microsoft Edge - Blink engine
- Apple Safari - WebKit engine
- Opera - Blink engine

Rendering engines differ in speed, CSS/JS support, and compliance with web standards.

10. Basic Web Architecture Flow (Text Diagram)

Client (Browser) ↓ Request Web Server (Backend) ↓ ----- | | v v Database APIs/Services ↑
↑ ----- ↑ Response (HTML/JSON) Client Displays Page