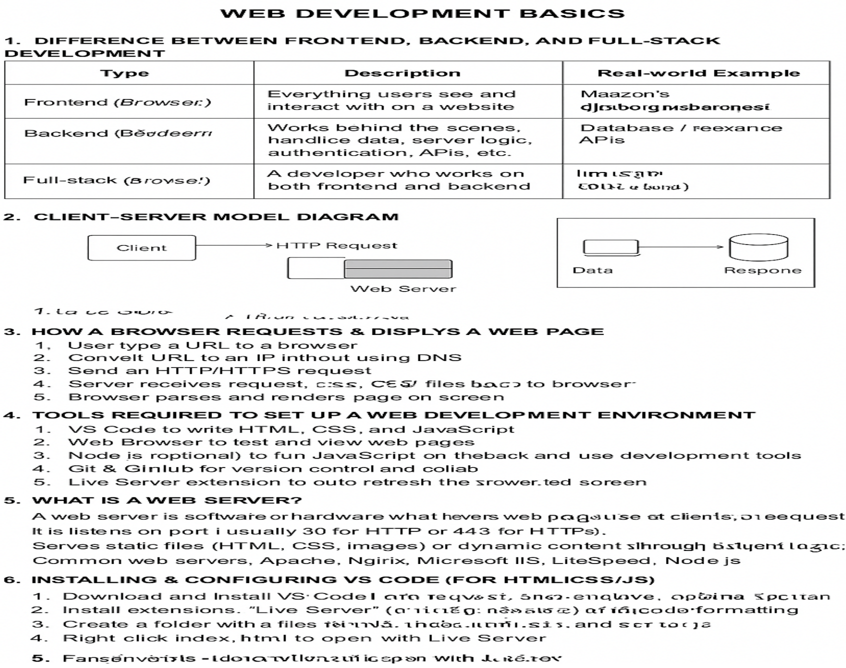
Web Development Basics – Solved Assignment

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

Type	Description	Real-world Example
Frontend	Everything users see and interact with on a website using HTML, CSS, and JS.	Amazon product page.
Backend	Handles server-side logic, authentication, data fetching, and APIs.	Login system & database
Full Stack	Developer works on both frontend and backend.	Building the entire Amazon flow

2. Client–Server Model Diagram



WEB DEVELOPMENT BASICS

1. DIFFERENCE BETWEEN FRONTEND, BACKEND, AND FULL-STACK DEVELOPMENT

Type	Description	Real-world Example
Frontend (*Browser:*)	Everything users see and interact with on a website	Maazon's [illegible]
Backend (*Běvdeern*	Works behind the scenes, handlice data, server logic, authentication, APis, etc.	Database / reexance APis
Full-stack (*Brovse!*)	A developer who works on both frontend and backend	[illegible] [illegible])

2. CLIENT–SERVER MODEL DIAGRAM

1. [illegible]

3. HOW A BROWSER REQUESTS & DISPLYS A WEB PAGE
   1. User type a URL to a browser
   2. Convelt URL to an IP inthout using DNS
   3. Send an HTTP/HTTPS request
   4. Server receives request, [illegible] files [illegible] to browser
   5. Browser parses and renders page on screen

4. TOOLS REQUIRED TO SET UP A WEB DEVELOPMENT ENVIRONMENT
   1. VS Code to write HTML, CSS, and JavaScript
   2. Web Browser to test and view web pages
   3. Node is roptional) to fun JavaScript on theback and use development tools
   4. Git & Ginlub for version control and coliab
   5. Live Server extension to outo retresh the [illegible] soreen

5. WHAT IS A WEB SERVER?

   A web server is software or hardware what hevers web [illegible] at clients, [illegible].
   It is listens on port i usually 30 for HTTP or 443 for HTTPs).
   Serves static files (HTML, CSS, images) or dynamic content [illegible]
   Common web servers, Apache, Ngirix, Micresoft IIS, LiteSpeed, Node js

6. INSTALLING & CONFIGURING VS CODE (FOR HTMLICSS/JS)
   1. Download and Install VS Code [illegible]
   2. Install extensions. "Live Server" ([illegible]) [illegible] code formatting
   3. Create a folder with a files [illegible] and [illegible]
   4. Right click index, html to open with Live Server
   5. [illegible] with [illegible]

The browser (client) sends a request to the web server. The server processes the request, may interact with the database, and sends back a response to be displayed on the client.

3. How a Browser Requests and Displays a Web Page

1. User enters a URL in the browser.
2. Browser converts URL to IP using DNS.
3. Browser sends HTTP/HTTPS request to the web server.
4. Server processes and responds with HTML, CSS, JS.
5. Browser parses and renders the content to display the web page.

4. Tools Required to Set Up a Web Development Environment

Tool	Purpose
VS Code	Code editor for writing HTML, CSS, and JS.
Browser	Preview and test web pages.

Node.js	Run JavaScript and manage packages.
Git & GitHub	Version control and collaboration.
Live Server Extension	Auto-refresh browser on save.

5. What is a Web Server?

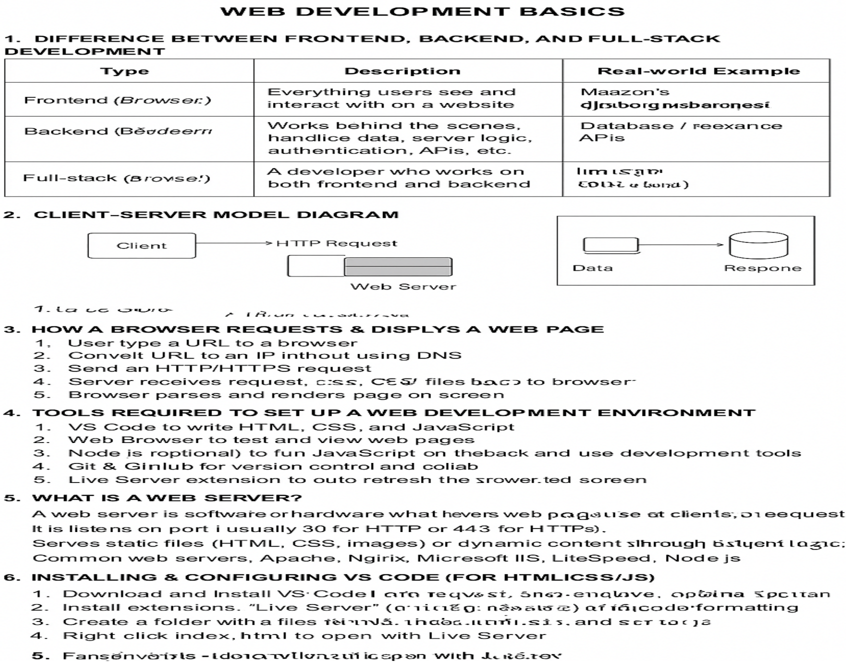
A web server is software or hardware that delivers web pages to clients over HTTP/HTTPS. It can serve static content (HTML/CSS/images) or dynamic content via backend logic. Common examples: Apache, Nginx, Node.js, Microsoft IIS, LiteSpeed.

6. Roles in a Web Project

• Frontend Developer: Builds UI with HTML, CSS, and JS.
• Backend Developer: Manages APIs, server logic, and database integration.
• Database Administrator (DBA): Designs and maintains databases, handles security and backups.

7. Installing and Configuring VS Code

Steps: 1. Install VS Code. 2. Add Live Server extension. 3. Create HTML, CSS, JS files. 4. Open with Live Server to auto-refresh in browser.



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8. Difference between Static and Dynamic Websites

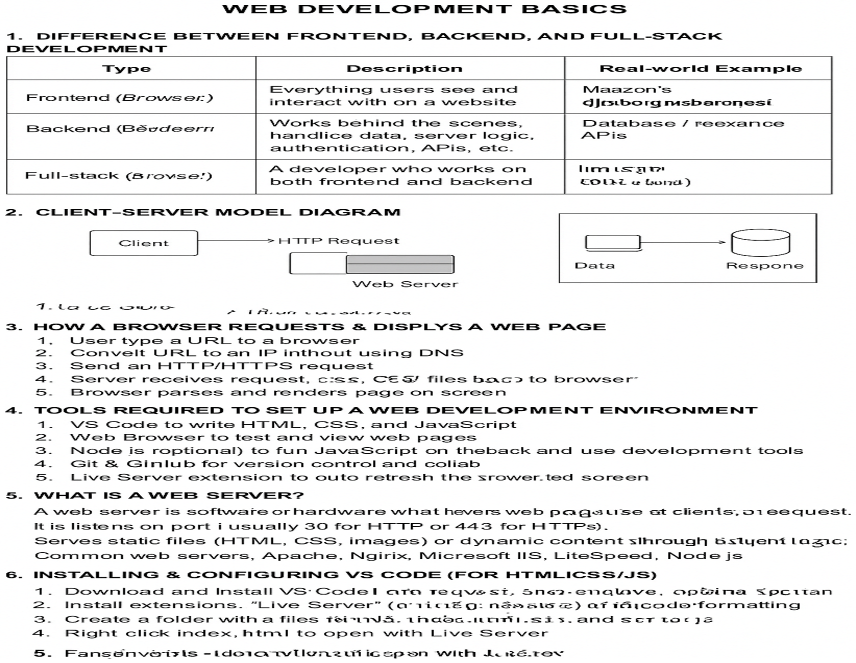
Type	Description	Example
Static Website	Fixed content, updated only by editing code.	Personal portfolio site
Dynamic Website	Content changes dynamically using server/database.	Facebook, Amazon

9. Web Browsers and Rendering Engines

Browser	Rendering Engine
Google Chrome	Blink
Mozilla Firefox	Gecko
Safari	WebKit
Microsoft Edge	Blink
Opera	Blink

10. Basic Web Architecture Flow

Client (browser) → sends HTTP request → Server (backend) → communicates with Database/API → returns data → server responds → browser renders final page.



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