**Lesson 1: Introduction to Web Development**

**What is Web Development?**

Web development is the process of building and maintaining websites and web applications. It encompasses everything from creating simple static web pages to complex dynamic applications for e-commerce, social networking, and more.

There are three primary areas of web development:

1. **Front-End Development**: This involves everything users see on a website — the layout, design, animations, and interactions. It’s built using technologies like HTML, CSS, and JavaScript.
2. **Back-End Development**: This focuses on server-side operations. It involves databases, server logic, and integration with external services.
3. **Full-Stack Development**: A combination of front-end and back-end development. Full-stack developers have knowledge of both aspects.

**The Building Blocks of the Web**

**HTML (HyperText Markup Language)**

HTML is the standard language for creating web pages. It structures the content using elements like <h1>, <p>, <img>, and more.

Example:

html

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<h1>Welcome to LearnHub</h1>

<p>This is a beginner’s guide to web development.</p>

**CSS (Cascading Style Sheets)**

CSS controls the visual presentation of HTML. It lets you set colors, fonts, spacing, layouts, and more.

Example:

css

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body {

background-color: #f0f0f0;

font-family: Arial, sans-serif;

}

**JavaScript**

JavaScript adds interactivity to websites. From button clicks to fetching live data — it brings websites to life.

Example:

javascript

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document.getElementById("btn").addEventListener("click", function() {

alert("Hello, world!");

});

**The Web Development Process**

1. **Planning**: Understanding user needs, defining goals, and creating wireframes.
2. **Design**: Creating mockups and prototypes using tools like Figma or Adobe XD.
3. **Development**: Writing the code — HTML for structure, CSS for style, and JS for interaction.
4. **Testing**: Ensuring the site works across all browsers and devices.
5. **Deployment**: Publishing the website on a web server or cloud platform.
6. **Maintenance**: Regular updates, performance improvements, and security patches.

**Roles in Web Development**

* **Web Designer**: Focuses on visual aspects and user experience.
* **Front-End Developer**: Converts designs into interactive pages.
* **Back-End Developer**: Builds the application logic and database structure.
* **DevOps Engineer**: Manages deployment, infrastructure, and server health.
* **QA Engineer**: Tests the website to find bugs and usability issues.

**Popular Tools and Frameworks**

* **HTML/CSS/JS Libraries**: Bootstrap, Tailwind CSS, jQuery
* **JavaScript Frameworks**: React, Angular, Vue.js
* **Back-End Technologies**: Node.js, PHP, Python (Django/Flask), Ruby on Rails
* **Databases**: MySQL, PostgreSQL, MongoDB
* **Version Control**: Git and GitHub

**Careers in Web Development**

Web development offers various career paths:

* **Freelance Web Developer**
* **Full-Time Software Engineer**
* **UI/UX Designer with Code Knowledge**
* **Startup Founder with Tech Skills**

Salaries vary by location, experience, and specialization. Entry-level developers might start around $40,000–$60,000/year, while senior full-stack developers can earn over $120,000/year.

**Why Web Development?**

* **High Demand**: Every business needs a web presence.
* **Creative and Technical**: Combines logic with creativity.
* **Flexible Career**: Remote jobs, freelance options, or entrepreneurship.
* **Open Source Community**: Tons of free tools, tutorials, and support.

**Quiz – Lesson 1: Introduction to Web Development**

**Multiple Choice Questions**

1. What language is primarily used to structure web pages?
   * A) CSS
   * B) Java
   * C) HTML
   * D) SQL
2. Which of these adds style to a website?
   * A) JavaScript
   * B) HTML
   * C) Python
   * D) CSS
3. Which of these is a front-end framework?
   * A) Django
   * B) React
   * C) Flask
   * D) Laravel
4. Which language is commonly used for server-side development?
   * A) JavaScript
   * B) CSS
   * C) HTML
   * D) Excel
5. Which of the following is NOT a phase of web development?
   * A) Coding
   * B) Painting
   * C) Testing
   * D) Deployment

**Answers**

1. C) HTML
2. D) CSS
3. B) React
4. A) JavaScript
5. B) Painting