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CLASS 9TH • COMPUTER SCIENCE

5

Web Development with HTML, CSS and JavaScript

Complete Notes in Printable Format

UNIT 5: WEB DEVELOPMENT WITH HTML, CSS AND JAVASCRIPT

TOPICS COVERED:

1. Web Development
2. Basic Components of Web Development
3. Getting Started with HTML
4. Creating Content with HTML
5. Styling with CSS
6. Introduction to JavaScript

INTRODUCTION

In this unit, the fundamentals of web development, Hyper Text Markup Language (HTML), JavaScript, and Cascading Style Sheets (CSS) will be explained. By the end of this unit, you will be able to understand JavaScript syntax and data types, work with variables, operators, and functions, handle events and user inputs, create simple programs, and develop static web pages using HTML and CSS.

SECTION 1: WEB DEVELOPMENT

Q.1 What is Web Development, and why is it important to learn Web Development?

Answer:

Web Development

The process of creating websites and web applications is called **Web development**. It means using various programming languages and tools to design, build, and maintain websites.

Why Learn Web Development?

Reason	Explanation
Digital Literacy	Learn how websites are made. HTML is like the skeleton of a web page, CSS makes it look nice, and JavaScript makes it interactive. Helps you understand how the internet works.
Career Opportunities	Opens up a wide range of job prospects in the growing IT industry. You can become a web developer, web designer, and more.
Problem-Solving	When you build a website, you solve many problems. If a website is slow, you figure out why and fix it. This helps you think logically.
Creativity	Allows you to create visually appealing and interactive websites. You can design websites with cool layouts, colors, and interactive features.
Entrepreneurship	With web development skills, you can start your own online business. You can build a website to sell products or create web services.

Q.2 What are the basic components of Web Development?

Answer:

1. Front-end Development

This focuses on what users see and interact with on a website.

Technology	Purpose
HTML	Structures the content on web pages (headings, paragraphs, images, links)
CSS	Styles the content (colors, fonts, layout)
JavaScript	Adds interactivity to web pages (forms, animations, games)

2. Back-end Development

This manages the behind-the-scenes functionality of a website, including servers, databases, and application logic.

Technology	Purpose
Web Servers	Store and deliver web pages to users
Databases	Store and manage data (user information, product details)
Back-end Languages	PHP, Python, Ruby (handle tasks like processing forms, managing user logins)

3. Full-Stack Development

A full-stack developer manages both front-end and back-end aspects of a web application.

Example: Login System

- **Front-end:** Creates the User Interface (UI)
- **Back-end:** Handles user authentication and database interaction
- **Full-stack:** Manages both aspects

DID YOU KNOW?

Question	Answer
Q. Who created the first website and what was it about?	Tim Berners-Lee created the first website in 1991. The site was hosted at CERN and explained the World Wide Web project.
Q. Why are full-stack developers in high demand?	Full-stack developers are in high demand because they can manage and develop all aspects of a web application, including both the front-end and back-end, making them versatile and highly valuable.

SECTION 2: GETTING STARTED WITH HTML

Q.3 What is HTML and which tools are required to start HTML development?

Answer:**HTML**

HTML (Hyper Text Markup Language) is the standard language used to create web pages. Think of HTML as the building blocks of a website. Just like LEGO pieces come together to build a structure, HTML tags come together to build a web page.

Setting up a Development Environment

To start creating websites, you need a few basic tools:

Tool	Purpose	Examples
Text Editor	Write your HTML code	Notepad++, Sublime Text, Visual Studio Code
Web Browser	View and test your HTML files	Google Chrome, Mozilla Firefox, Microsoft Edge

DID YOU KNOW?**Q. How should beginners start learning HTML?**

Answer: Beginners should start with a simple text editor and a web browser. Once they become comfortable with HTML, they can explore more advanced development tools.

Q.4 How can you create and view a simple "Hello, World!" HTML web page?**Answer:****Creating a "Hello, World!" HTML Application**

To create a basic HTML application that displays a message on a web page, follow these simple steps:

Steps:

1. Open your text editor (Notepad, Notepad++, Sublime Text, or Visual Studio Code)
2. Write the following HTML code into your text editor
3. Save your file with a .html extension (e.g., My_first_website.html)

HTML Code Example:

```
html
```

```
<!DOCTYPE html>
<html>
<head>
<title>Hello World HTML Page</title>
</head>
<body>
<h1>Hello, World!</h1>
<p>This is my first HTML web page.</p>
</body>
</html>
```

Explanation of the Code:

Tag	Purpose
<!DOCTYPE html>	Declares the document type as HTML5
<html>	Root element of the HTML page
<head>	Contains meta-information about the page
<title>	Sets the title shown in the browser tab
<body>	Contains the actual content visible in the browser
<h1>	Defines a large/main heading
<p>	Defines a paragraph

Q.5 What are HTML tags and how are they categorized?

Answer:

HTML Tags

Elements that make up an HTML document are called **tags**. They define the structure and content of a web page.

Categories of HTML Tags:

Type	Description	Example
Paired Tags	Come in pairs - opening and closing tags	<code><p> ... </p></code>
Singular Tags (Self-closing)	Do not need closing tags	<code>,
</code>

SECTION 3: CREATING CONTENT WITH HTML

Q.6 How is content created in HTML, and what is the role and importance of headings on a web page?

Answer:

Creating Content with HTML

Content in HTML is the main information on a web page that users read and interact with. It includes text, images, videos, links, and other elements that convey the purpose and message of the page.

Headings

Headings in HTML range from `<h1>` to `<h6>` and are used to define the structure and hierarchy of content on a web page.

Importance of Headings:

1. **Organizing Content:** Helps organize content into sections and subsections
 - `<h1>` is typically used for the main title
 - `<h2>` to `<h6>` are used for subheadings in decreasing order of importance
2. **Search Engine Optimization (SEO):** Search engines use headings to understand the structure and main topics of a web page
3. **Consistent Formatting:** Ensures consistent formatting across different browsers and devices

EXAMPLE

html

`<!DOCTYPE html>`

```
<html>
<head>
<title>Importance of Headings in HTML</title>
</head>
<body>
<h1>Main Title (h1)</h1>
<p>This is the main title of the page.</p>
<h2>Subheading 1 (h2)</h2>
<p>This is a subheading under the main title.</p>
<h3>Subheading 2 (h3)</h3>
<p>This is a subheading under Subheading 1.</p>
</body>
</html>
```

Q.7 How are paragraphs and links created in HTML, and what are their purposes on a web page?

Answer:

1. Paragraphs

Paragraphs in HTML are used to organize and separate text into readable sections. Each paragraph creates a block of text with space above and below it.

Syntax: <p>Paragraph text here.</p>

2. Links

Links in HTML are used to connect one web page to another. They allow you to click on words or images to navigate to different parts of the same web page or to other web pages on the internet.

Syntax: Link Text

EXAMPLE

Type	Code	Purpose
Web Link	<code>Visit Example.com</code>	Navigates to a website
Email Link	<code>Send Email</code>	Opens email program to send a message

Q.8 How are images and lists added in HTML?

Answer:

1. Images

Images are important in HTML because they make web pages more attractive and engaging. They also help with branding and accessibility.

Syntax: ``

2. Lists

Lists improve readability by breaking complex ideas into simpler parts.

List Type	Tag	Description
Ordered List	<code></code>	Displays items in a numbered order
Unordered List	<code></code>	Displays items with bullet points

EXAMPLE

html

```
<!-- Ordered List -->
```

```
<ol>
```

```
<li>First item</li>
```

```
<li>Second item</li>
```

```
<li>Third item</li>
```

```
</ol>
```

```
<!-- Unordered List -->
```

```
<ul>
```

```
<li>Item 1</li>
```

```
<li>Item 2</li>
```

```
<li>Item 3</li>
```

```
</ul>
```

Q.9 How are tables created in HTML, and what are the purposes of the different table tags?

Answer:

Creating Tables in HTML

Tables in HTML are used to display data in a structured format, allowing for easy comparison and organization of information.

Table Tags:

Tag	Full Form	Purpose
<table>	Table	Defines the table
<tr>	Table Row	Defines a row in the table
<td>	Table Data	Defines a cell in the table
<th>	Table Header	Defines a header cell in the table

EXAMPLE

```
html
```

```
<table border="1">
```

```
<tr>
```

```
<th>Name</th>
```

```
<th>Age</th>
```

```
<th>City</th>
```

```
</tr>
```

```
<tr>
```

```
<td>Ali</td>
```

```
<td>16</td>
```

```
<td>Lahore</td>
```

```
</tr>
```

```
<tr>
<td>Sara</td>
<td>15</td>
<td>Karachi</td>
</tr>
</table>
```

Q.10 What are HTML comments, and how are they used in a web page?

Answer:

HTML Comments

HTML comments are used for:

- Explaining the purpose of a specific section of code
- Leaving reminders for future edits
- Temporarily disabling code for testing purposes

Syntax:

html

```
<!-- This is a comment -->
```

EXAMPLE

html

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>Unique School</title>
```

```
</head>
```

```
<body>
```

```
<!-- This is a comment explaining the heading below -->
```

```
<h1>Welcome to UGI</h1>
```

```
<!-- The paragraph below is temporarily disabled -->
```

```
<!-- <p>This text will not appear on the webpage.</p> -->
```

```
</body>
```

</html>

Note: Comments are not displayed in the browser.

SECTION 4: STYLING WITH CSS

Q.11 What is CSS, and how does it help in styling web pages? Explain the basic structure of CSS.

Answer:

1. CSS (Cascading Style Sheets)

CSS is a language used to apply different styles and designs to web pages. It is very important for improving the visual appearance of webpages and enhancing user experience.

CSS allows web developers to control:

- Colors
- Fonts
- Layout
- Overall design of HTML elements

2. Basic Structure of CSS

A CSS rule consists of a **selector** and **declarations**.

Syntax:

```
css
selector {
property: value;
}
```

EXAMPLE

```
css
h1 {
color: blue;
font-size: 24px;
```

}

Key CSS Concepts:

Concept	Description
Selector	Specifies which HTML elements the styles apply to
Declaration	Defines the specific styles to be applied
Property	The style attribute to change (e.g., color, font-size)
Value	The value for the property (e.g., blue, 24px)

QUICK REFERENCE: HTML TAGS**Basic HTML Structure**

Tag	Purpose
<!DOCTYPE html>	Declares HTML5 document type
<html>	Root element of the page
<head>	Contains meta-information
<title>	Sets browser tab title
<body>	Contains visible content

Content Tags

Tag	Purpose
<h1> to <h6>	Headings (largest to smallest)
<p>	Paragraph
<a>	Link
	Image
	Unordered (bulleted) list
	Ordered (numbered) list
	List item
<table>	Table
<tr>	Table row
<td>	Table data cell
<th>	Table header cell

Other Tags

Tag	Purpose
<!-- -->	Comment (not displayed)
 	Line break (self-closing)

COMPLETE HTML EXAMPLE

```

html
<!DOCTYPE html>
<html>
<head>
<title>My First Web Page</title>
</head>
<body>
<!-- Main Heading -->

```

```
<h1>Welcome to My Website</h1>
<!-- Paragraph -->
<p>This is my first web page created with HTML.</p>
<!-- Subheading -->
<h2>My Favorite Things</h2>
<!-- Unordered List -->
<ul>
<li>Reading books</li>
<li>Playing cricket</li>
<li>Learning new things</li>
</ul>
<!-- Image -->

<!-- Link -->
<p>Visit <a href="https://www.example.com">Example.com</a> for more
information.</p>
<!-- Table -->
<table border="1">
<tr>
<th>Name</th>
<th>Favorite Food</th>
</tr>
<tr>
<td>Ali</td>
<td>Biryani</td>
</tr>
<tr>
<td>Sara</td>
<td>Pizza</td>
</tr>
</table>
```

</body>

</html>

SUMMARY

Topic	Key Points
Web Development	Process of creating websites using HTML, CSS, and JavaScript
Front-end	What users see and interact with (HTML, CSS, JavaScript)
Back-end	Behind-the-scenes functionality (servers, databases)
Full-stack	Both front-end and back-end development
HTML	Structures web page content using tags
CSS	Styles web pages (colors, fonts, layout)
JavaScript	Adds interactivity to web pages

End of Unit 5 Notes