وزارة التعليم العالي والبحث العلمي

جامعة برج العرب التكنولوجية
BORG AL ARAB TECHNOLOGICAL UNIVERSITY

Lecture One:

Introduction to Web Development

COURSE TITLE: WEB PROGRAMMING 1

TOPIC: INTRODUCTION TO WEB DEVELOPMENT

SEMESTER: 1 2025/2026 DURATION: 10 WEEKS

What is Web Development?

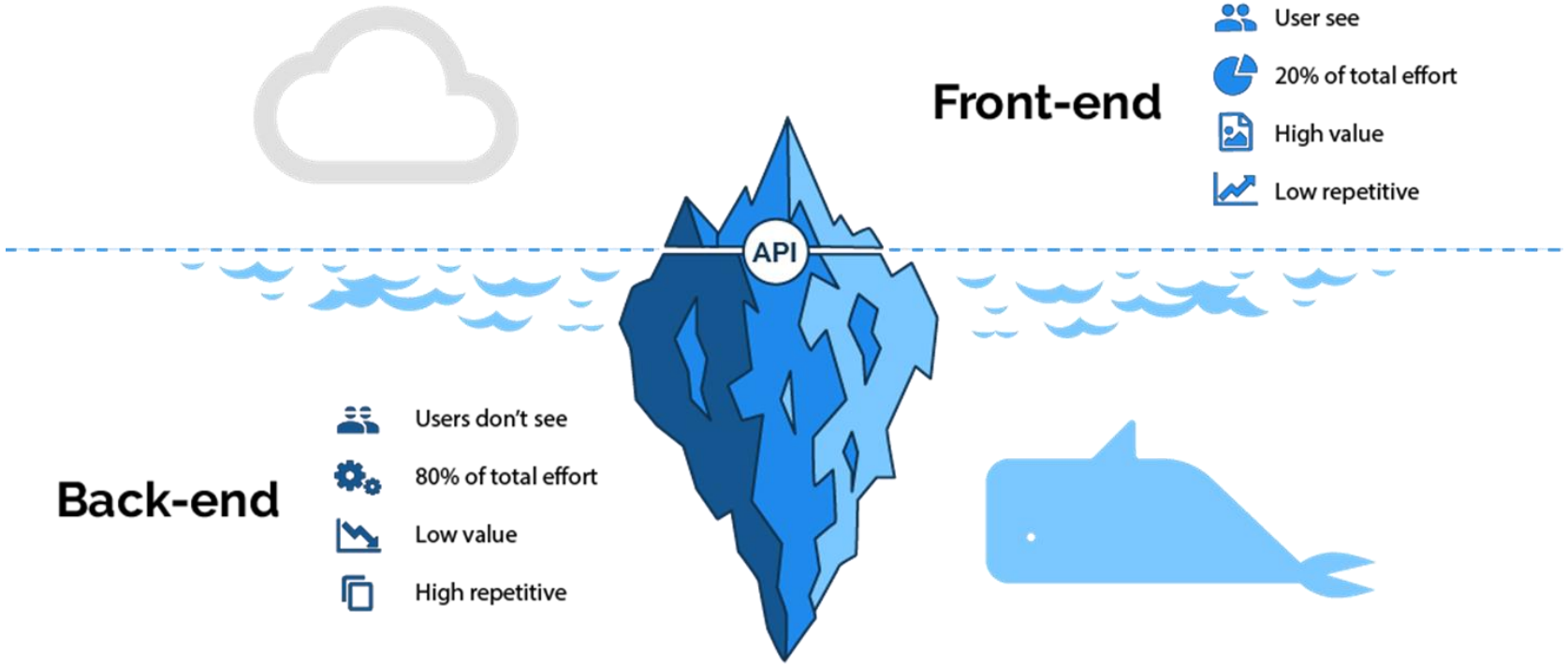
Definition of Web Development

Web development is the process of creating and maintaining websites and web applications on the internet.

It involves a combination of front-end development, back-end development, and database management to deliver a functional and interactive user experience.

What is Web Development?

Overview of Web Technologies



What is Web Development?

Overview of Web Technologies

A front-end developer builds the user interface (UI) of websites and web applications. They use technologies like HTML, CSS, and JavaScript to create the visual and interactive elements that users see and interact.

Front-End Development:

- HTML (Hypertext Markup Language): Defines the structure and content of web pages.
- CSS (Cascading Style Sheets): Controls the presentation and layout of HTML elements.
- JavaScript: A programming language used to add interactivity and dynamic content to web pages.

What is Web Development?

Overview of Web Technologies

What is Web Development?

Overview of Web Technologies

Back-End Development:

- **PHP:** A server-side scripting language used for building dynamic web applications.
- **Node.js:** A runtime environment that allows JavaScript to be executed on the server-side.
- **Python, Ruby, Java, etc.:** Other programming languages commonly used for back-end development.

What is Web Development?

Overview of Web Technologies

What is Web Development?

Overview of Web Technologies

Database Management:

- **MySQL, PostgreSQL, MongoDB, etc.:**

  Database systems used to store and manage website/application data.

What is Web Development?

Overview of Web Technologies

What is Web Development?

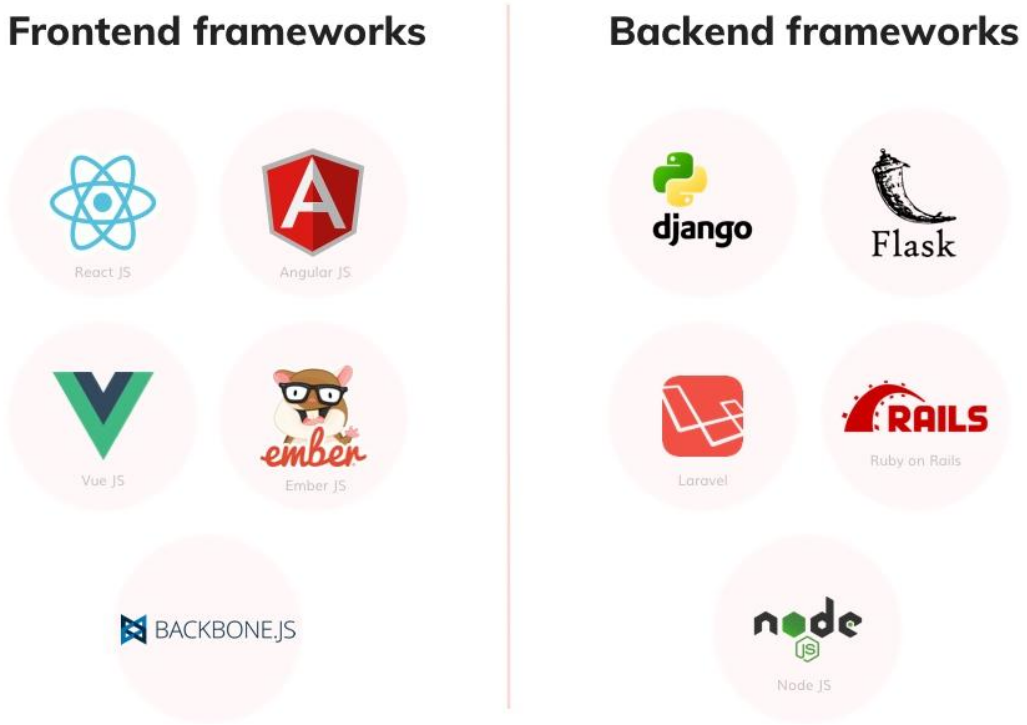
Overview of Web Technologies

Web Frameworks and Libraries:

- **Front-End:** React, Vue.js, Angular, etc., to streamline and simplify front-end development.
- **Back-End:** Express.js, Django, Flask, etc., to provide structure and efficiency for back-end development.

What is Web Development?

Overview of Web Technologies



What is Web Development?

Overview of Web Technologies

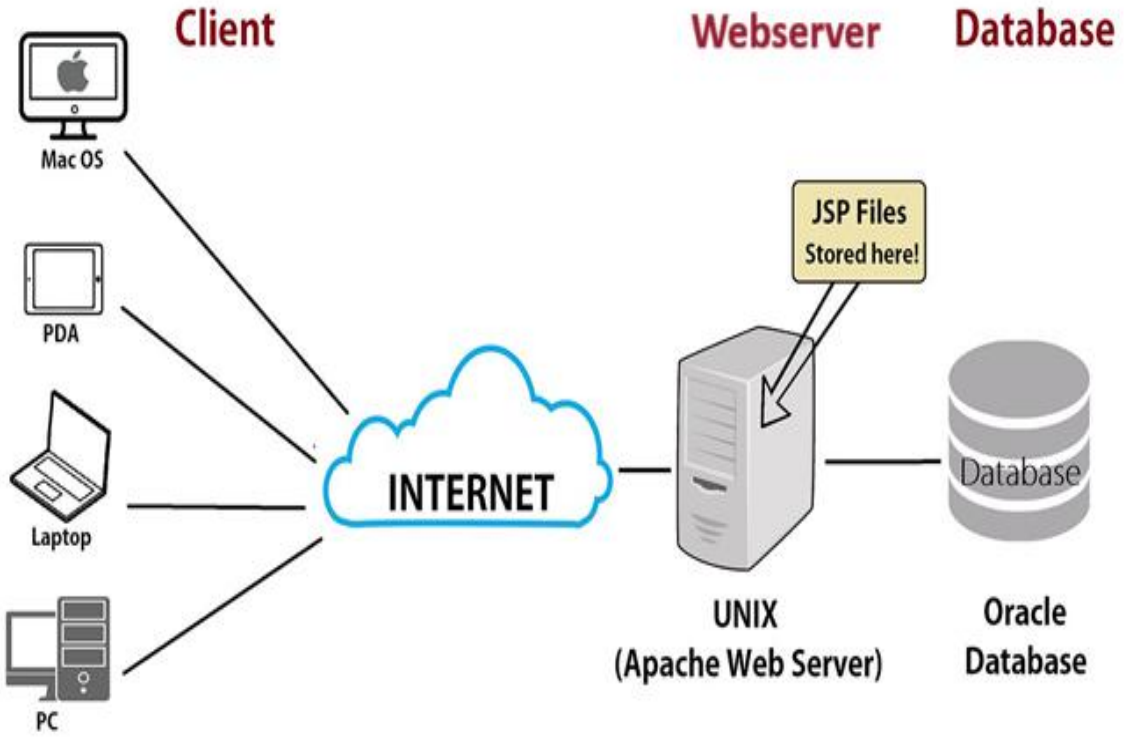
Web Servers and Hosting:

• Apache, Nginx, IIS, etc.: Web servers that handle HTTP requests and responses.

• Hosting Services: Platforms that allow websites and web applications to be accessible on the internet.

What is Web Development?

Overview of Web Technologies



Web Browsers and Their Role

Introduction to Web Browsers

Web browsers are software applications that allow users to access and interact with content on the World Wide Web.

They act as a gateway between users and the internet, enabling users to request web pages from remote servers and display them on their devices.

Browsers interpret different types of content, including HTML, CSS, JavaScript, images, and multimedia, to create a user-friendly experience.

Web Browsers and Their Role

Common Web Browsers

Web Browsers and Their Role

Rendering HTML and CSS in Browsers

• **HTML Rendering:** Browsers request HTML documents from the web server and interpret the HTML code to create the Document Object Model (DOM), representing the page's structure.

• **CSS Rendering:** After constructing the DOM, browsers apply CSS styles to format and style elements on the page, controlling colors, fonts, spacing, and layout.

• **Responsive Web Design:** Browsers support responsive web design by using CSS media queries to adjust the page layout and appearance based on the user's device screen size.

• **JavaScript Execution:** Browsers execute embedded JavaScript code, enabling interactivity and dynamic content. JavaScript allows manipulation of the DOM, responding to user actions, and facilitating real-time communication with servers.

Setting Up the Development Environment

- Choosing a Text Editor (e.g., Visual Studio Code, Sublime Text)

Setting Up the Development Environment

- Installing and Using Web Browsers (e.g., Google Chrome, Mozilla Firefox)
- Be familiar to Developer Tools (e.g., Chrome Developer Tools)

Introduction to HTML

What is HTML?

- HTML stands for Hypertext Markup Language.
- It is the standard markup language used to create the structure and content of web pages.
- HTML uses tags to define elements and their attributes, indicating how content should be displayed in a web browser.

Introduction to HTML

HTML Document Structure

1. **<!DOCTYPE>:** The document type declaration, which specifies the HTML version used in the document.
2. **<html>:** The root element of an HTML document that wraps all the content.
3. **<head>:** The head element contains metadata about the document, such as the title, character set, and links to external resources like stylesheets and scripts.
4. **<body>:** The body element contains the visible content of the web page, including headings, paragraphs, images, and other elements.

Introduction to HTML

Essential HTML Tags

1. **<h1>, <h2>, ..., <h6>:** Heading elements, where <h1> represents the highest level of heading and <h6> the lowest.
2. **<p>:** Paragraph element for organizing text content into paragraphs.
3. **<ul>:** Unordered list element to create bulleted lists.
4. **<ol>:** Ordered list element to create numbered lists.
5. **<li>:** List item element, used inside <ul> or <ol> to define individual list items.


index.html
index.html > html
1 <!DOCTYPE html>
2 <html lang="en">
3 <head>
4 <meta charset="UTF-8">
5 <meta name="viewport" content="width=device-width,
6 <title>Document</title>
7 </head>
8 <body>
9
10 </body>
11 </html>

index.html Extension: Live Server

index.html > html

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4       <meta charset="UTF-8">
5       <meta name="viewport" content="width=device-width,
6       <title>Document</title>
7   </head>
8   <body>
9       <h1>    Ahmed       </h1>
10      <h2>    Ashraf      </h2>
11      <h3>    Hossam      </h3>
12  </body>
13  </html>
```

وزارة التعليم العالي والبحث العلمي

جامعة برج العرب التكنولوجية
BORG AL ARAB TECHNOLOGICAL UNIVERSITY

Ahmed

Ashraf

Hossam

index.html > html > body > img

```
1   <!DOCTYPE html>
2   <html lang="en">
3     <head>
4       <meta charset="UTF-8" />
5       <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6       <title>ahmed</title>
7     </head>
8     <body>
9       <h1>drones</h1>
10      <p>
11        Lorem ipsum dolor sit, amet consectetur adipisicing elit. Fugiat commodi
12        laborum porro ullam ducimus fuga ipsam cupiditate aperiam laboriosam, vel
13        enim eveniet saepe sed. Eligendi tempore aliquid non est quidem!
14      </p>
15      <img src="1.png" alt="" >
16    </body>
17  </html>
```

Introduction to CSS

What is CSS?

- CSS stands for Cascading Style Sheets.
- It is a style sheet language used to control the presentation and layout of HTML documents.
- CSS allows web developers to apply styles such as colors, fonts, spacing, and positioning to HTML elements, enhancing the visual appearance of web pages.

Introduction to CSS

CSS Syntax and Rules

- CSS consists of rules that target HTML elements and define their styles.
- CSS rule consists of a selector and a set of declarations enclosed in curly braces.
- The selector identifies the HTML element(s) to which the styles should be applied.
- Declarations are property-value pairs that specify how the element should be styled.

Introduction to CSS

Linking CSS to HTML (Inline, Internal, External)

Inline CSS: You can apply CSS styles directly to an HTML element using the "style" attribute.

Internal CSS: Internal CSS is defined within the <style> element in the head section of an HTML document. All styles defined in the <style> element will apply to the entire HTML document.

External CSS: For larger projects, it is more practical to use external CSS files. Create a separate .css file and link it to the HTML document using the <link> element in the head section.

1. Inline CSS

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>ahmed</title>
  </head>
  <body>
    <h1  style="color: red;"  >drones</h1>
    <p>
      Lorem ipsum dolor sit, amet consectetur adipisicing elit. Fugiat commodi <br>
      laborum porro ullam ducimus fuga ipsam cupiditate aperiam laboriosam, vel <br>
      enim eveniet saepe sed. Eligendi tempore aliquid non est quidem!
    </p>
    <img src="1.pn" alt="drone" >
  </body>
</html>
```

2. Internal CSS

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

    <style>

        h1{
            color: red;
        }


    </style>


  </head>
  <body>
    <h1  >drones</h1>
    <p>
      Lorem ipsum dolor sit, amet consectetur adipisicing elit. Fugiat commodi <br>
      laborum porro ullam ducimus fuga ipsam cupiditate aperiam laboriosam, vel <br>
      enim eveniet saepe sed. Eligendi tempore aliquid non est quidem!
    </p>
    <img src="1.pn" alt="drone" >
  </body>
</html>
```

3. External CSS

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>ahmed</title>
    <link rel="stylesheet" href="style.css">


  </head>
  <body>
    <h1  >drones</h1>
    <p>
      Lorem ipsum dolor sit, amet consectetur adipisicing elit. Fugiat commodi <br>
      laborum porro ullam ducimus fuga ipsam cupiditate aperiam laboriosam, vel <br>
      enim eveniet saepe sed. Eligendi tempore aliquid non est quidem!
    </p>
    <img src="1.pn" alt="drone" >
  </body>
</html>
```


style.css > h1

```css
h1{
    color: red;
}
```

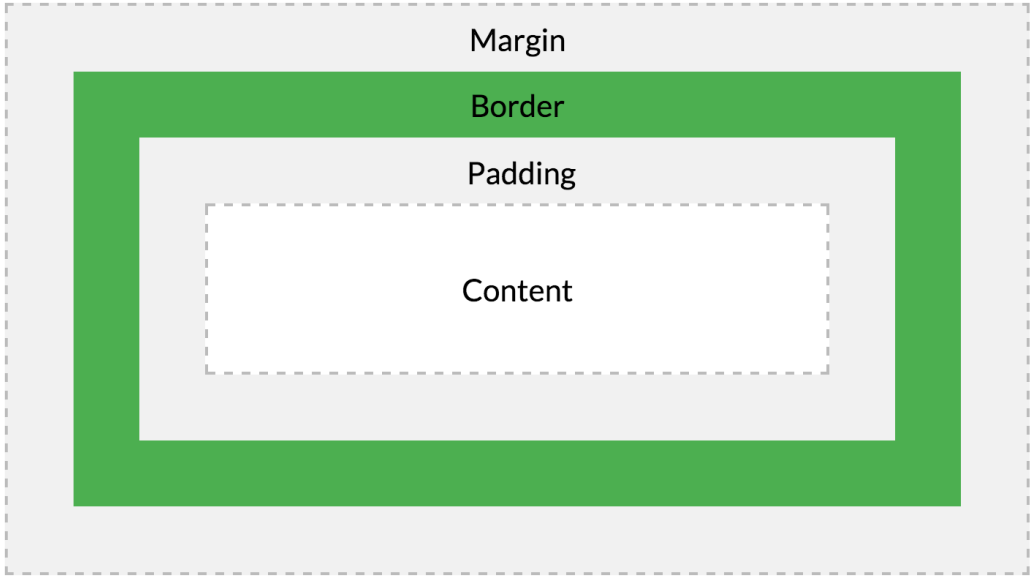
Output

drones

Lorem ipsum dolor sit, amet consectetur adipisicing elit. Fugiat commodi laborum porro ullam ducimus fuga ipsam cupiditate aperiam laboriosam, vel enim eveniet saepe sed. Eligendi tempore aliquid non est quidem!

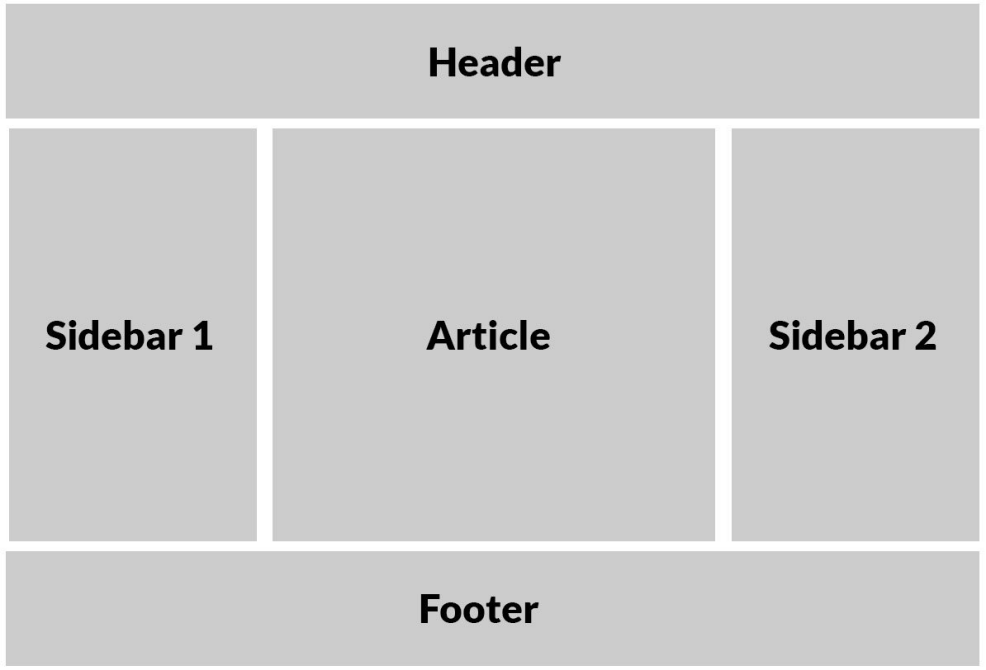
Web Page Layout with CSS

- Understanding the Box Model
- Working with Margins, Padding, and Borders



Web Page Layout with CSS

- Building Simple Page Layouts



Summary of Week 1

1. Introduction to Web Development: Significance and creation of websites and web apps.
2. The Internet: Understanding its infrastructure and client-server architecture.
3. Web Browsers: Role in rendering web pages, popular browsers.
4. Development Environment: Choosing text editor, installing browsers, using developer tools.
5. Introduction to HTML: Structure and essential tags (<h1>, <p>, <ul>, <li>).
6. Creating First Web Page: Step-by-step guide, previewing in the browser.
7. Introduction to CSS: Styling HTML elements, CSS syntax, and rules.

Next Week (Week 2): Exploring HTML5 and CSS basics for dynamic and visually appealing web pages, including more advanced CSS styling and web page layout techniques.


THANK
YOU