Lab02: Markup Languages XHTML

Objectives:

- Understand the basics of XHTML, including its syntax, structure, and common elements.
- Learn how XHTML differs from HTML.
- Gain hands-on experience by creating and validating XHTML documents.

Part 1: Understanding XHTML Basics

What is XHTML?

- **XHTML** (Extensible HyperText Markup Language) is a stricter and cleaner version of HTML, designed to follow XML (Extensible Markup Language) rules.
- It ensures web documents are well-formed and consistently structured, making them compatible with a wider range of devices and parsers.

Key Concepts:

1. Hypertext: Refers to the way web pages are interconnected through hyperlinks, allowing users to navigate easily.
2. Markup Language: A system that uses tags to structure text documents. These tags instruct web browsers on how to display content**.**

XHTML Syntax Rules:

1. **Tags:**
   - All tags must be properly closed. Example:

```html
<p>This is a paragraph.</p>
```

   - For self-closing tags, use a slash before the closing angle bracket. Example:

```html
<img src="image.jpg" alt="Image description" />
```

2. **Case Sensitivity:**
   - All tags and attribute names must be written in lowercase. Example:

```html
<title>My XHTML Page</title>
```

3. **Attribute Values:**
   - Attribute values must be enclosed in quotes. Example:

```html
<a href="https://example.com">Link</a>
```

4. **Proper Nesting:**

   - Tags must be correctly nested. Example (Correct)

```html
<p><strong>Bold text</strong> inside a paragraph.</p>
```

   - Incorrect nesting will cause errors.

Benefits of Using XHTML

1. **Consistency**: The strict rules ensure consistent rendering across browsers.
2. **Device Compatibility**: XHTML works well with mobile devices, screen readers, and other XML-based systems.
3. **Error Prevention**: Browsers handle XHTML documents more predictably, reducing unexpected behavior.
4. **Future-Proof**: Complying with XML rules ensures the document is compatible with modern technologies.

Creating XHTML document : To begin coding HTML user needs only two things:

1. A simple text editor (notepad).
2. A web browser.

Summarizing the differences between XHTML and HTML:

Aspect	HTML	XHTML
Definition	HyperText Markup Language, used for creating web pages.	Extensible HyperText Markup Language, a stricter version of HTML.
Syntax Rules	More flexible and forgiving.	Strict rules based on XML standards.
Tag Closing	Not all tags need to be closed (e.g., <img>,).	All tags must be properly closed (e.g., <img />,).
Case Sensitivity	Tags and attributes are not case-sensitive.	Tags and attributes must be written in lowercase.
Attribute Values	Quotes around attribute values are optional.	Attribute values must be enclosed in quotes.
Nesting of Tags	Improper nesting may still work in browsers.	Tags must be properly nested.
Error Handling	Browsers often handle errors gracefully and display content.	Browsers follow XML rules; errors can cause the page to fail to render.
Doctype Declaration	Doctype declaration is optional in modern HTML5.	Doctype declaration is required.
Use Case	Suitable for most web development projects.	Used where strict validation and XML integration are needed.
Self-Closing Tags	Not required for empty elements (e.g., <img>).	Required for empty elements (e.g., <img />).

Part 2: Setting Up Your First XHTML Document

Task 1: Create a Basic XHTML Document

1. Open a text editor (e.g., Notepad, VS Code, or Sublime Text).
2. Type the following at the top of your file:

```
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
```

3. Add the opening <html> tag right after.
4. On the next line, add the <head> section by typing:

```
<head>
 <title>My First XHTML Page</title>
</head>
```

5. Go to the next line and start the <body> section:

```
<body>
 <p>Welcome to my first XHTML document!</p>
</body>
```

6. Close the <html> tag to complete your document:

```
</html>
```

7. Save the file as program01.html Ensure that:
   - You choose "All Files" in the "Save as type" option.
   - The file name ends with `.html`.
8. Open the saved file in your web browser to view the result.

```
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
    <title>My First XHTML Page</title>
</head>
<body>
    <p>Welcome to XHTML!</p>
</body>
</html>
```

Task 2: Add Headings and Paragraphs

1. Update your program01.html file.
2. Add the following code inside the <body> section:

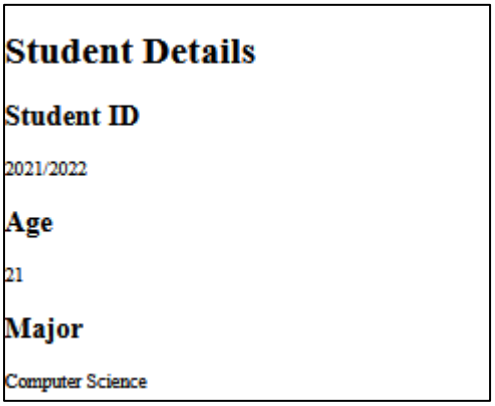
```
<h1> This is an H1 Heading </h1>
<h2>This is an H2 Heading</h2>
<p>This is a paragraph below the headings. </p>
```

3. Refresh the browser to see the changes.

Exercise: Write XHTML code to design a page displaying student information (Student ID, Age, Major) using appropriate heading styles, with the details presented in paragraphs.

1. Open a text editor (e.g., Notepad, VS Code, or Sublime Text).
2. Use <h1> to <h6> tags to define headings (e.g., "Student Details" and other headings like "Student ID," "Age," and "Major").
3. Use the <p> tag for the paragraph text displaying the actual information (e.g., "2021/2022," "21," and "Computer Science").
4. Save the file as program02.html Ensure that:
   - You choose "All Files" in the "Save as type" option.
   - The file name ends with `.html`.
5. Open the saved file in your web browser to view the result.

**********output**********



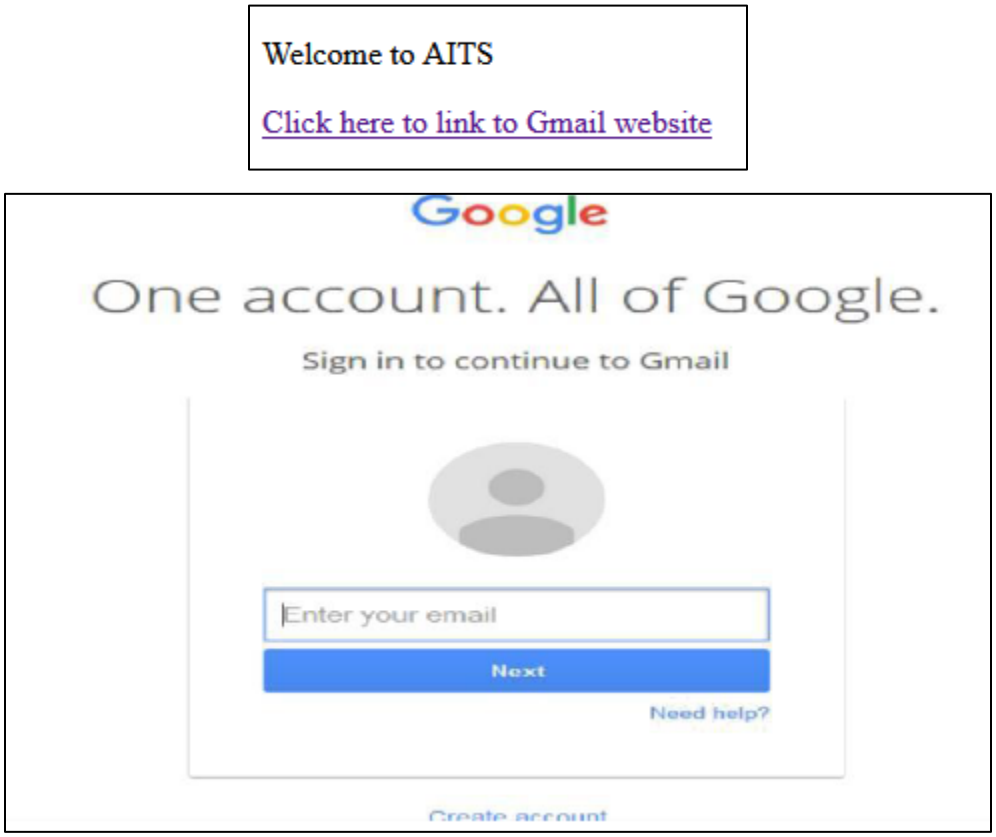
Task 3: Create a Hyperlink

1. Add the following code inside the <body> tag:
   Visit Example
2. Save and refresh your browser. Click the link to test it.

Exercise: Create a Web Page Using the Anchor Tag with its Attributes for External Links in XHTML:

1. Open a text editor (e.g., Notepad, VS Code, or Sublime Text).
2. In the text editor, create a new file and name it program03.html
3. Add an anchor tag `<a>` to provide an external link:
   - To link to the Gmail website, use the `<a>` tag with the `href` attribute to specify the URL (`http://www.gmail.com`).
4. Open the saved file in your web browser to view the result.

**********output**********



Task 4: Add an Image

1. Save an image in the same folder as your XHTML file.
2. Add this code inside the <body> tag:

```
<img src="your_image.jpg" alt="Description of the image" />
```

3. Replace your_image.jpg with the actual image file name.

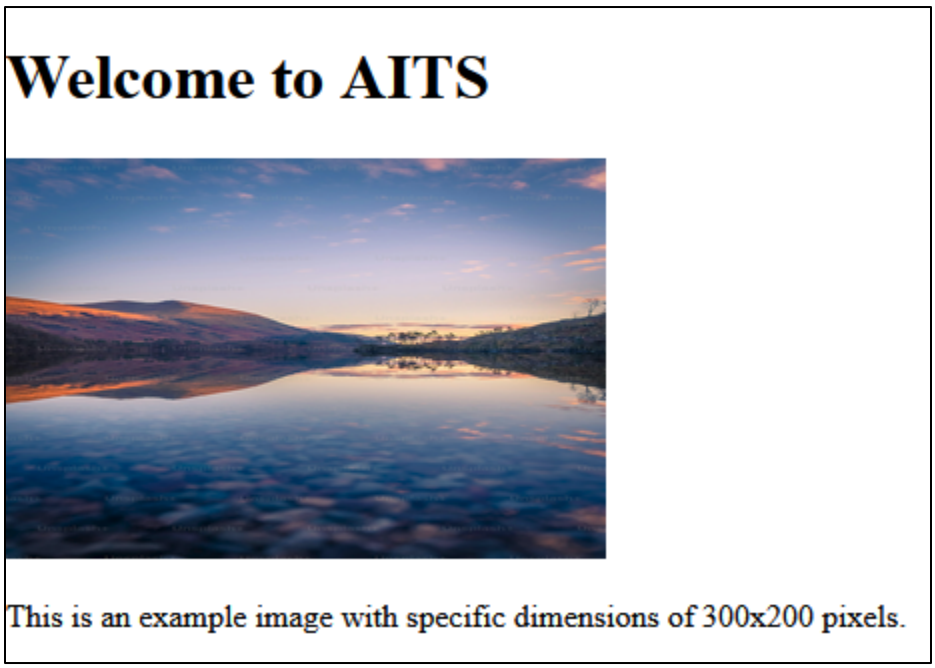
Exercise: Add an Image to an XHTML Page with Width and Height Attributes

1. Open a text editor (e.g., Notepad, VS Code, or Sublime Text).
2. Add the following code inside the <body> tag to display the image:

```
<img src="your_image.jpg" alt="Description of the image" />
```

   - **Replace your_image.jpg with the actual image file name.**
3. Experiment with the width and height attributes of the <img> tag to change the size of the image**.**
4. Save the file as program04.html Ensure that:
   - You choose "All Files" in the "Save as type" option.
   - The file name ends with `.html`.
5. Open the saved file in your web browser to view the result.

****************output****************



Task 5: Add an Unordered List

1. Add this code inside the <body> tag:

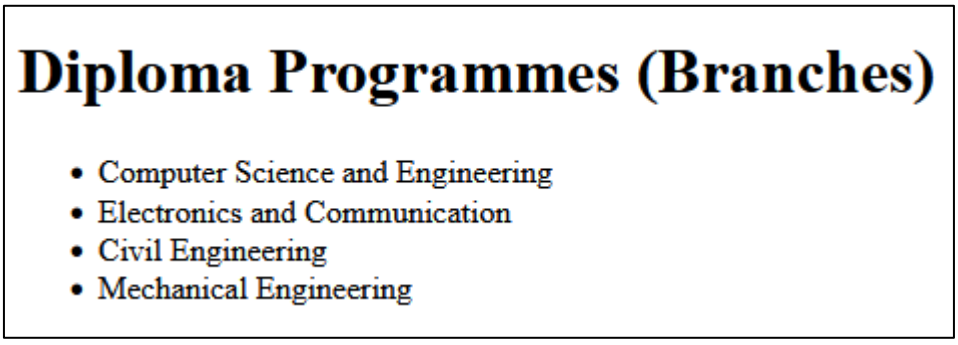
```
<ul>
  <li>Item 1</li>
  <li>Item 2</li>
  <li>Item 3</li>
</ul>
```

2. Save and view the changes.

Exercise1: Create a Web Page Showing an Unordered List of Names of All the Diploma Programmes (Branches) in Your Institution Using XHTML

1. Open a text editor (e.g., Notepad, VS Code, or Sublime Text).
2. Use the `<ul>` tag to create an unordered list:
   - The `<ul>` tag is used to define an unordered list.
3. Inside the `<ul>` tag, use `<li>` to list each branch:
   - The `<li>` tag is used to specify each list item inside the unordered list.
4. Save the file as program05.html Ensure that:
   - You choose "All Files" in the "Save as type" option.
   - The file name ends with `.html`.
5. Open the saved file in your web browser to view the result.

**********output**********



Exercise2: Create an Ordered List (<ol>) with at least three items of your favorite food

Task 6: Structuring with Tables

1. Add this code inside the <body> tag:

```
<table border="1">
  <tr>
    <th>Name</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Reem</td>
    <td>25</td>
  </tr>
  <tr>
    <td>Khaled</td>
    <td>30</td>
  </tr>
</table>
```

2. Save and view the changes.

Exercise1: Create a Web Page Showing a Table of Student Information Using XHTML

Procedure:

1. Open a Text Editor
   Open a text editor such as Notepad, VS Code, or Sublime Text.
2. Write XHTML Code
   Write XHTML code to create a table displaying the following details for students:
   - Name
   - ID
   - Major
3. Use the <table> Tag Use the <table> tag to define the table structure.
4. Add Table Headings and Data
   - Use <th> inside <tr> to define the headings (Name, ID, Major).
   - Use <td> inside <tr> to add student details as data.

5. Save the file as program06.html Ensure that:
    - You choose "All Files" in the "Save as type" option.
    - The file name ends with `.html`.
6. Open the saved file in your web browser to view the result.

**********output**********

Name	ID	Major
Kholoud	20200000	software engineering
Shuaa	20200001	software engineering

Exercise: Add another row to the table with your name and Id and your Major.

Task 7: Create a Simple Form

1. Add this code inside the <body> tag:

```
<form action="submit_form.php" method="post">
  <label for="username">Name:</label>
  <input type="text" id="username" name="username" />
  <br />
  <label for="email">Email:</label>
  <input type="email" id="email" name="email" />
  <br />
  <input type="submit" value="Submit" />
</form>
```

2. Save and view the changes.

****************output****************

Name:
Email:
Submit

Validating Your XHTML

Validate Your Code

1. Go to W3C Markup Validation Service.
2. Upload your XHTML file or paste the code.
3. Fix any errors identified by the validator.