

FACTFILE: GCE DIGITAL TECHNOLOGY

AS2: FUNDAMENTALS OF DIGITAL TECHNOLOGY

WEBSITE DEVELOPMENT 1

Learning Outcomes

Students should be able to:

- Explain how webpages are created using Hypertext Markup Language (HTML)
- Understand the purpose of a range of HTML tags: paragraph, image, anchor, ordered list, unordered list and hyperlinks;
- Explain how a cascading style sheet (CSS) is used in web development;
- Distinguish between client-side and server-side processing

Content in Website Development 1

- ✓ Creating webpages using HTML
- ✓ Using tags in a HTML document
- ✓ Using Cascading Style sheets in web development
- ✓ Client-side and Server-side processing

Creating webpages using HTML

Hypertext markup language (HTML) is a markup language used to create webpages and web applications. A markup language makes use of tags. These are keywords that define the structure of a webpage and how the browser must display the content of the web page. The tags are not displayed.

If a browser reads a tag that it does not understand it will ignore it. Without HTML tags a browser could not display text or load images.

HTML tags usually have an opening tag with attributes and a closing tag that has a forward slash. This is an example of an HTML element using the anchor tag which facilitates hyperlinks:

< a href="mypage.html"> Click here for my page **<\a>**

The table below shows the structure of the HTML element above.

	Component
< a href="mypage.html">	Opening tag
<\a>	Closing tag
href	Attribute name
"mypage.html"	Attribute value
Click here for my page	Enclosed tag content

HTML documents can be created using a simple text editor. However, most people use web page editors and web development packages to create webpages. These packages insert the HTML tags automatically.

Using tags in a HTML document

Some more common HTML tags are contained in the table below.

	Tag	Sample Output
<p>Paragraph Tag</p> <p>The paragraph tag structures the appearance of text into paragraphs.</p> <p>For example : <code><p></code> I am studying GCE Digital Technologies. It is a CCEA specification<code></p></code></p> <p><code><p></code> I am enjoying studying the HTML section of the course<code></p></code></p>	<code><p>.....</p></code>	<p>I am studying GCE Digital Technologies. It is a CCEA specification</p> <p>I am enjoying studying the HTML section of the course</p>
<p>Image Tag</p> <p>The image tag is used to insert an image into a webpage. Images are link to the webpage and then inserted.</p> <p>There are two required attributes src and alt.</p> <ul style="list-style-type: none"> ✓ src is the URL for the image ✓ alt is the alternate text for the image <p>For example:</p> <pre></pre> <p>Note this tag does not have a closing tag.</p>	<code>....</code>	<p>This tag will insert a picture called mypic.gif onto the webpage. The height and width of the image is specified in pixels.</p>
<p>Anchor Tag</p> <p>The anchor tag is used to create hyperlinks which link to other pages.</p> <p>For example</p> <pre>< a href="mypage.html">Click here for my page </pre>	<code><a>....</code>	<p>Click here for my page</p> <p>When the text above is clicked the user will be taken to "mypage.html"</p>
<p>Ordered List Tag</p> <p>The <code></code> tag is used to create an ordered list on an HTML page. Lists can be numbered or lettered. Each element in the list must use the <code></code> tag.</p> <p>For example:</p> <pre><ol type="1"> French Digital Technologies Maths </pre> <pre><ol type="A"> French Digital Technologies Maths </pre>	<pre>....</pre> <pre>....</pre>	<p>Using the type 1 list</p> <ol style="list-style-type: none"> 1. French 2. Digital Technologies 3. Maths <p>Using the type A list</p> <ol style="list-style-type: none"> A. French B. Digital Technologies C. Maths

<p>Unordered List The tag is used to create an unordered list on an HTML page. Lists items will be marked with a bullet point. Each element in the list must use the tag.</p> <pre><ul style="list-style-type:disc"> French Digital Technologies Maths </pre> <p>The list-style-type property defines the style of the item marker. Disc gives a bullet point. The property can take the following values: circle, square and none.</p>	<pre>.... ...</pre>	<p>Using disc</p> <ul style="list-style-type: none"> French Digital Technologies Maths <p>Using circle</p> <ul style="list-style-type: none"> French Digital Technologies Maths <p>Using square</p> <ul style="list-style-type: none"> French Digital Technologies Maths
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More on Hyperlinks

Hyperlinks allow users to click and move from one webpage to another. There are other attributes.

The target attribute specifies where to open the page.

For example : Visit CCEA

HTML CODE	Output in Browser
<pre><!DOCTYPE html> <html> <body> - Visit CCEA <p>If you set the target attribute to "_blank", the link will open in a new browser window or tab.</p> </body> </html></pre>	<p>Visit CCEA</p> <p>If you set the target attribute to “_blank”, the link will open in a new browser window or tab</p>

Images can be used as hyperlinks

HTML CODE	Output in Browser
<pre><!DOCTYPE html> <html> <body> <p>The image is a link. Click on it to visit my page.</p> </body> </html></pre>	<p>The image is a link. Click on it to visit my page.</p> 

The declaration block contains properties followed by their value.

A simple CSS example.

HTML CODE	Output in Browser
<pre><!DOCTYPE html> <html> <head> <style> h1, h2, p { text-align: center; color: red; } </style> </head> <body> <h1>GCE Digital Technologies!</h1> <h2>Website Development</h2> <p>A CSS statement is made up of a selector and a declaration block. </p> </body> </html></pre>	

An example of a HTML page which references an external CSS.

HTML CODE	Output in Browser
<pre><!DOCTYPE html> <html> <head> <link rel="stylesheet" href="style.css"> </head> <body> <h1>Welcome to Digital Technologies</h1> <p>This page references an external CSS</p> </body> </html></pre> <p>Here is the content of style.css</p> <pre>body { background-color: white; } h1 { color: blue; } p { color: black; }</pre>	

Client-side and Server-side processing

The client-server model of networking splits the processing workload between the server computer, which provides resources and services and the client computer which requests services. Applications are installed on the server and used at the client computer.

Examples of servers are web servers and file servers. Devices linked to these servers are clients for example laptops, smartphones and other mobile devices.

Client-side scripting and processing enables interaction on a webpage. The code needed to handle user-input is downloaded and executed by the browser or a plug-in on the client computer. An example of a client-side interaction is when a user clicks on a button or enters data into a form. Javascript is a client-side programming language.

Server-side scripting and processing sends data to the server across the internet. The server then runs an application that processes the information and returns the results, typically a webpage. PHP is a server-side programming language.

Webpages can contain interactive elements. Processing of the interactions can be server-side or client-side. Data transmission can be enhanced by more client-side processing. In the case of a travel booking, the booking form is completed and validated at the client computer then sent to the server to complete the booking. This is more effective as the server will receive a correctly completed booking form. It will not have to be returned due to errors on the form. The server can complete the booking since it has the data on availability.

Questions

1 Describe how webpages are created using HTML [6]

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2 Using notepad or another text editor, create a webpage which contains information about you and the subjects that you study. Your webpage should contain an ordered list and a style definition. [6]

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3 What is the function of the following tags in HTML?
a) b) <a> c) <p> [6]

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Practical Task

A simple website is required for a small company which sells six varieties of cupcakes. Three pages are required as follows:

- (i) A home page giving details about the company.
- (ii) A page showing a picture and price for each variety of cupcake.
- (iii) A page showing contact details for the company.

Each page should link to all others using hyperlinks.

Create the website using a text editor of your choice.

Extension task

Create a style sheet which can be accessed externally by the three pages on the website. Use it to control the appearance of the website.

Bibliography

BCS Academy Glossary Working Party, 2013, *BCS Glossary of Computing and ICT*, 13th Edition, Swindon, BCS Learning and Development Ltd

