Chapter 2: Introduction to HTML

1. List and explain the website design principles.

An effective website design should fulfil its intended function by conveying its particular message whilst simultaneously engaging the visitor. A well-designed website can help build trust and guide visitors to take action. Creating a great user experience involves making sure your website design is optimised for usability (form and aesthetics) and how easy is it to use (functionality). Several factors such as consistency, colours, typography, imagery, simplicity, and functionality contribute to good website design.

1. WEBSITE PURPOSE
   Your website needs to accommodate the needs of the user. Having a simple clear intention on all pages will help the user interact with what you have to offer.
   There are many different purposes that websites may have but there are core purposes common to all websites;

   Describing Expertise
   Building Your Reputation
   Generating Leads
   Sales and After Care

2. SIMPLICITY

   Simplicity is the best way to go when considering the user experience and the usability of your website. Below are ways to achieve simplicity through design.

   COLOUR: Colour has the power to communicate messages and evoke emotional responses. Finding a colour palette that fits your brand will allow you to influence your customer's behaviour towards your brand. Keep the colour selection limited to less than 5 colours. Complementary colours work very well. Pleasing colour combinations increase customer engagement and make the user feel good.

   TYPE: Typography has an important role to play on your website. It commands attention and works as the visual interpretation of the brand voice. Typefaces should be legible and only use a maximum of 3 different fonts on the website.

IMAGERY: Imagery is every visual aspect used within communications. This includes still photography, illustration, video and all forms of graphics. All imagery should be expressive and capture the spirit of the company and act as the embodiment of their brand personality. Most of the initial information we consume on websites is visual and as a first impression, it is important that high-quality images are used to form an impression of professionalism and credibility in the visitors' minds.

3. NAVIGATION

   Navigation is the wayfinding system used on websites where visitors interact and find what they are looking for. Website navigation is key to retaining visitors. If the website navigation is confusing visitors will give up and find what they need elsewhere. Keeping navigation simple, intuitive and consistent on every page is key.

4. F-SHAPED PATTERN READING

   The F- based pattern is the most common way visitors scan text on a website. Eye-tracking studies have found that most of what people see is in the top and left areas of the screen. The F shaped layout mimics our natural pattern of reading in the West (left to right and top to bottom). An effectively designed website will work with a reader's natural pattern of scanning the page.

5. VISUAL HIERARCHY

   Visual hierarchy is the arrangement of elements in order of importance. This is done either by size, colour, imagery, contrast, typography, whitespace, texture and style. One of the most important functions of visual hierarchy is to establish a focal point; this shows visitors where the most important information is.

6. CONTENT

   An effective website has both great design and great content. Using compelling language great content can attract and influence visitors by converting them into customers.

7. GRID BASED LAYOUT

   Grids help to structure your design and keep your content organised. The grid helps to align elements on the page and keep it clean. The grid-based layout arranges content into a clean rigid grid structure with columns, sections that line up and feel balanced and impose order and results in an aesthetically pleasing website.

8. LOAD TIME

Waiting for a website to load will lose visitors. Nearly half of web visitors expect a site to load in 2 seconds or less and they will potentially leave a site that isn't loaded within 3 seconds. Optimising image sizes will help load your site faster.

9. MOBILE FRIENDLY
   More people are using their phones or other devices to browse the web. It is important to consider building your website with a responsive layout where your website can adjust to different screens.

2. Differentiate between HTML and XHTML

HTML	XHTML
HTML stands for Hypertext Markup Language	XHTML stands for Extensible Hypertext Markup Language
It is an SGML application	It is an XML application
Tim Berners-Lee proposed it in 1987	The World Wide Web Consortium recommended it in 2000
HTML is not case sensitive	XHTML is case sensitive
HTML uses a format that is similar to document formats	XHTML uses markup language
HTML can use open tags, such as 	All unclosed tags must be closed in XHTML
HTML is less expressive	XHTML is more expressive as compared to HTML
HTML is not mandatory for a single root element	XHTML documents must contain at least one root element
All content can be included in the body element	All contents must be put in blocks
Attribute values are not significant in HTML	Attribute values are important in XHTML
There is no hard rule on the structure of the elements	The structure of the elements should be followed

3. Explain any three attributes of <Table> Tag in HTML.

In addition to the Global Attributes, the following is a list of attributes that are specific to the <table> tag:

Attribute	Description	HTML Compatibility
align	Alignment of the table. It can be one of the following values: left, center, right	Deprecated, use CSS
bgcolor	Background color of the table	Deprecated, use CSS
border	Size of the frame surrounding table (in pixels)	Deprecated, use CSS
cellpadding	Space between the content of a cell and the border (in pixels)	Deprecated, use CSS
cellspacing	Size of the space between cells (in pixels)	Deprecated, use CSS
frame	Side of the table frame is displayed. It can be one of the following values: above, hsides, lhs, border, void, below, vsides, rhs, box	Deprecated, use CSS
rules	Lines that should be displayed. It can be one of the following values: none, groups, rows, columns, all	Deprecated, use CSS
summary	Alternative text displayed when table can not be displayed	Deprecated, use CSS
width	Width of the table	Deprecated, use CSS

4. What do you mean by Meta Tags? List and Explain any three meta tags with examples.

The <meta> tag defines metadata about an HTML document. Metadata is data (information) about data.

<meta> tags always go inside the <head> element, and are typically used to specify character set, page description, keywords, author of the document, and viewport settings.

Metadata will not be displayed on the page, but is machine parsable.

Metadata is used by browsers (how to display content or reload page), search engines (keywords), and other web services.

There are three main attributes of meta tags: name, content, and http-equiv. The name attribute specifies the type of information. The content attribute includes the meta-information. (Access this page to learn how to use these two attributes to optimize your web page for search engines.) Lastly, the http-euiv attribute specifies a particular header type.

Examples:

- Define keywords for search engines:

  <meta name="keywords" content="HTML, CSS, JavaScript">

- Define a description of your web page:

  <meta name="description" content="Free Web tutorials for HTML and CSS">

- Define the author of a page:

  <meta name="author" content="John Doe">

- Refresh document every 30 seconds:

  <meta http-equiv="refresh" content="30">

5. Differentiate client side scripting and server side scripting.

Client-side scripting	Server-side scripting
Source code is visible to the user.	Source code is not visible to the user because its output of server-sideside is an HTML page.
Its main function is to provide the requested output to the end user.	Its primary function is to manipulate and provide access to the respective database as per the request.
It usually depends on the browser and its version.	In this any server-side technology can be used and it does not depend on the client.
It runs on the user's computer.	It runs on the webserver.
There are many advantages linked with this like faster. response times, a more interactive application.	The primary advantage is its ability to highly customize, response requirements, access rights based on user.
It does not provide security for data.	It provides more security for data.
It is a technique used in web development in which scripts run on the client's browser.	It is a technique that uses scripts on the webserver to produce a response that is customized for each client's request.
HTML, CSS, and javascript are used.	PHP, Python, Java, Ruby are used.

Client-side scripting	Server-side scripting
No need of interaction with the server.	It is all about interacting with the servers.
It reduces load on processing unit of the server.	It surge the processing load on the server.

6. Explain different design issues at the time of designing an effective website

While creating website some major issues of website designing must be taken into consideration, such as

Planning a website:

Planning plays an important role in the successful completion of any work. Creation of website takes time and resources, so plan must proceeds sequentially and properly. This plan contain the following things

Defining the purpose of website
Knowing the audience of website
Organizing contents of website
Publishing of website
Defining the Purpose of Website

This step stats by defining the goals and objectives of website. Goals are the outcomes that designer want from website to achieve in particular time period. Objectives are the methods that are used to achieve the goals of the website.

Knowing the Audience of Website

Audience refers to the site visitors or customers who visit site for the purpose of viewing the products, information or buying them. Therefor assessment of audience according to their demands, requirements and expectations is very important thing. So content of website must satisfy the needs and expectations of customer or audience.

Organizing Contents of Website

Website is made of multiple web pages that may be a combination of text, images, audio, video, animations and other multimedia elements. Generally a website has a home page and other more pages. When a visitor visits a website, the home page appears first. The contents of website should be arranged in a logical manners means from home page to end page. The information on web page must flow from basic to more detailed contain.

Publishing of Website

Publishing a website is nothing but making it available on Internet for everyone. To do this following thing need to perform

Domain registration and hosting – Register a domain name from the concerned authority and purchase a certain amount of hosting space having some bandwidth.
Upload website on server – A website can be uploaded on a remote server either by using an FTP Program or using a hosting control panel.
Viewing website – Check website in different browsers and on different screens. If it is displayed properly on each platform, then only consider website is working properly.

7. What is a frame set? Show their use with examples.

The <frameset> tag in HTML is used to define the frameset. The <frameset> element contains one or more frame elements. It is used to specify the number of rows and columns in frameset with their pixel of spaces. Each element can hold a separate document.

Syntax:
<frameset cols = "pixels|%|*">

Attributes: The list of frameset attributes are given below:

cols: The cols attribute is used to create vertical frames in a web browser. This attribute is basically used to define the no. of columns and their size inside the frameset tag.
rows: The rows attribute is used to create horizontal frames in the web browser. This attribute is used to define the no. of rows and their size inside the frameset tag.

border: This attribute of frameset tag defines the width of the border of each frame in pixels. Zero value is used for no border.
frameborder: This attribute of frameset tag is used to specify whether a three-dimensional border should be displayed between the frames or not for this use two values 0 and 1, where 0 defines no border and value 1 signifies for yes there will be a border.
framespacing: This attribute of frameset tag is used to specify the amount of spacing between the frames in a frameset. This can take any integer value as a parameter which basically denotes the value in pixel.

Chapter 3: Style sheets

1. **What is CSS? What is the need of the CSS?**

   CSS stands for cascading style sheets. In short, CSS is a design language that makes a website look more appealing than just plain or uninspiring pieces of text. Whereas HTML largely determines textual content, CSS determines visual structure, layout, and aesthetics.

   There are a number of benefits of CSS, including:

   1) Faster Page Speed
   More code means slower page speed. And CSS enables you to use less code. CSS allows you to use one CSS rule and apply it to all occurrences of a certain tag within an HTML document.

   2) Better User Experience
   CSS not only makes web pages easy on the eye, it also allows for user-friendly formatting. When buttons and text are in logical places and well organized, user experience improves.

   3) Quicker Development Time
   With CSS, you can apply specific formatting rules and styles to multiple pages with one string of code. One cascading style sheet can be replicated across several website pages. If, for instance, you have product pages that should all have the same formatting, look, and feel, writing CSS rules for one page will suffice for all pages of that same type.

   4) Easy Formatting Changes
   If you need to change the format of a specific set of pages, it's easy to do so with CSS. There's no need to fix every individual page. Just edit the corresponding CSS stylesheet and you'll see changes applied to all the pages that are using that style sheet.

   5) Compatibility Across Devices
   Responsive web design matters. In today's day and age, web pages must be fully visible and easily navigable on all devices. Whether mobile or tablet, desktop, or even smart TV, CSS combines with HTML to make responsive design possible.

2. **Explain CSS positioning with Example.**

The position property specifies the type of positioning method used for an element (static, relative, fixed, absolute or sticky).

There are five different position values:

static

relative

fixed

absolute

sticky

a) position: static;

HTML elements are positioned static by default.

Static positioned elements are not affected by the top, bottom, left, and right properties.

An element with position: static; is not positioned in any special way; it is always positioned according to the normal flow of the page:

b) position: relative;

An element with position: relative; is positioned relative to its normal position.

Setting the top, right, bottom, and left properties of a relatively-positioned element will cause it to be adjusted away from its normal position. Other content will not be adjusted to fit into any gap left by the element.

c) position: fixed;

An element with position: fixed; is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled. The top, right, bottom, and left properties are used to position the element.

A fixed element does not leave a gap in the page where it would normally have been located.

d) position: absolute;

An element with position: absolute; is positioned relative to the nearest positioned ancestor (instead of positioned relative to the viewport, like fixed).

However; if an absolute positioned element has no positioned ancestors, it uses the document body, and moves along with page scrolling.

e)position: sticky;

An element with position: sticky; is positioned based on the user's scroll position.

A sticky element toggles between relative and fixed, depending on the scroll position. It is positioned relative until a given offset position is met in the viewport - then it "sticks" in place (like position:fixed).

3. **What is Cascading Style Sheet (CSS)? Explain different types of CSS with examples.**

Cascading Style Sheet(CSS) is used to set the style in web pages that contain HTML elements. It sets the background color, font-size, font-family, color, … etc property of elements on a web page.

There are three types of CSS which are given below:
Inline CSS
Internal or Embedded CSS
External CSS

Inline CSS: Inline CSS contains the CSS property in the body section attached with element is known as inline CSS. This kind of style is specified within an HTML tag using the style attribute.

Internal or Embedded CSS: This can be used when a single HTML document must be styled uniquely. The CSS rule set should be within the HTML file in the head section i.e the CSS is embedded within the HTML file.

External CSS: External CSS contains separate CSS file which contains only style property with the help of tag attributes (For example class, id, heading, … etc). CSS property written in a separate file with .css extension and should be linked to the HTML document using link tag. This means that for each element, style can be set only once and that will be applied across web pages.

4. **Explain Class and ID Selector is CSS with examples.**

In CSS, class and ID selectors are used to identify various HTML elements. The main benefit of setting class or ID is that you can present the same HTML element differently, depending on its class or ID.

Class selector

The class selector selects elements with a specific class attribute. It matches all the HTML elements based on the contents of their class attribute. The '.' symbol, along with the class name, is used to select the desired class.

Syntax:

```
.class-name {
/* Define properties here */
}
```

ID selector

The ID selector matches an element based on the value of its id attribute. In order for the element to be selected, its ID attribute must exactly match the value given in the selector. The # symbol and the id of the HTML element name are used to select the desired element.

Syntax:

```
#idname {
/* Define properties here */
}
```

Example:

Selector

```
.center {
  text-align: center;
  color: red;
}
```

ID selector

```
#para1 {
  text-align: center;
```

```
  color: red;
}
```

5. Differentiate between inline, internal and external CSS

We can incorporate CSS into the webpage in three ways:

Inline
Internal
External CSS file

Inline

The inline CSS styles are added to the HTML tag using the style attribute.

The inline CSS is not recommended because we need to add style individually for each HTML tag. It will be hard to maintain the style.

Example

```
<!DOCTYPE html>
<html>
<body style="background-color:tomato;">
  <h1 style="color:white;padding:30px;">Educative io Inline styles</h1>
</body>
</html>
```

In the code above, we add the style attribute to the body and h1 tags. This applies the style to that element.

Internal

The internal CSS means inside the head tag. We can include the <style> tag to define the style for the webpage.

The limitation of the internal CSS is that we cannot use the defined style on another HTML page. We need to include the same <style> section on every HTML page.

Example

```
<html>
  <head>
```

```
  <style>
    body {
     background-color: blue;
    }
    div {
     color: white;
     padding: 60px;
    }
  </style>
 </head>
 <body>
  <div id=""/>Educative io Inilne css</div>
 </body>
</html>
```

We define the styles inside the head element in the above code.

External CSS

In external CSS, we define the styles in a specific file(file extension should be .css) and link that to our web pages using the link tag.

This is a recommended way of including styles on a webpage because we can define the common CSS styles in specific files and include that file in all web pages.

Example

```
<html>
 <head>
  <link rel="stylesheet" type="text/css"
href="https://darny.github.io/csstemplate/style.css" />
 </head>
 <body>
  <button class="button"/>Sample button</button>
 </body>
</html>
```

Explanation

In line 3, we link the style.css file using the link tag in the above HTML file.This loads the styles from the style.css file.