Internet Programming

Module 01- HTML5

- The <div> Element

- The <div> element is often used as a container for other HTML elements.

- The <div> element has no required attributes, but style, class and id are common.

- The <span> Element

- The <span> element is an inline container used to mark up a part of a text, or a part of a document.

HTML class Attribute

- Class attribute is used to specify a class for an HTML element.

- Class attribute is often used to point to a class name in a style sheet. It can also be used by a JavaScript to access and manipulate elements with the specific class name.

HTML Colors

- HTML colors are specified with predefined color names, or with RGB, HEX, HSL, RGBA, or HSLA values.

- In HTML, a color can be specified by using a color name. HTML supports 140 standard color names.

- In HTML, colors can also be specified using RGB values, HEX values, HSL values, RGBA values, and HSLA values.

- `rgb(255, 99, 71)`

- `#ff6347`

- `hsl(9, 100%, 64%)`

HTML Colors

▶ **RGB Color Values**

▶ In HTML, a color can be specified as an RGB value, using this formula:

`rgb(red, green, blue)`

▶ Each parameter (red, green, and blue) defines the intensity of the color with a value between 0 and 255.

▶ For example, rgb(255, 0, 0) is displayed as red, because red is set to its highest value (255), and the other two (green and blue) are set to 0.
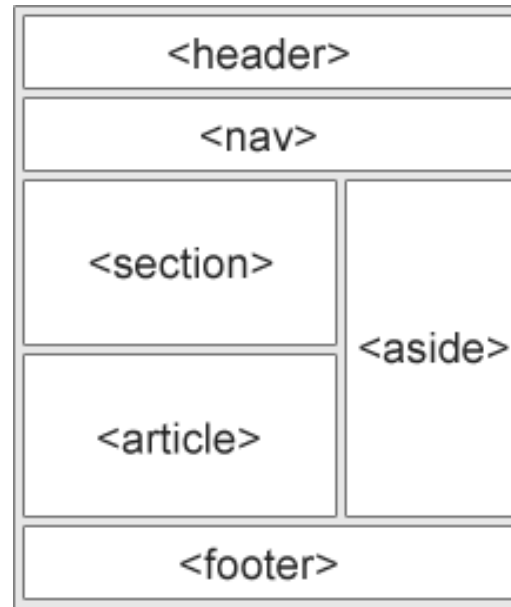
- **HEX Color Values**

- In HTML, a color can be specified using a hexadecimal value in the form:

- ***#rrggbb***

- Where rr (red), gg (green) and bb (blue) are hexadecimal values between 00 and ff (same as decimal 0-255).

- For example, #ff0000 is displayed as red, because red is set to its highest value (ff), and the other two (green and blue) are set to 00.

- To display black, set all color parameters to 00, like this: #000000.

- To display white, set all color parameters to ff, like this: #ffffff.

HTML Semantic Elements

▶ Semantic elements = elements with a meaning.

▶ A semantic element clearly describes its meaning to both the browser and the developer.

▶ Examples of **non-semantic** elements:<div> <span> Tells nothing about its content.

▶ Examples of **semantic** elements:<form> <table> <article> Clearly defines its content.

► In HTML there are some semantic elements that can be used to define different parts of a web page:

- <article>
- <aside>
- <details>
- <figcaption>
- <figure>
- <footer>
- <header>
- <main>
- <mark>
- <nav>
- <section>
- <summary>
- <time>

HTML <section> Element

- defines a section in a document.
- A web page could normally be split into sections for introduction, content, and contact information.
- HTML <article> Element specifies independent, self-contained content.
- An article should make sense on its own, and it should be possible to distribute it independently from the rest of the web site.
- Forum post
- Blog post
- Newspaper article
- **Google Chrome**
- Google Chrome is a web browser developed by Google, released in 2008. Chrome is the world's most popular web browser today!
- **Mozilla Firefox**
- Mozilla Firefox is an open-source web browser developed by Mozilla. Firefox has been the second most popular web browser since January, 2018.

HTML <header> Element

▶ <header> represents a container for introductory content or a set of navigational links.

▶ element typically contains:

• one or more heading elements (<h1> - <h6>)

• logo or icon

• authorship information

➢ You can have several <header> elements in one HTML document. However, <header> cannot be placed within a <footer>, <address> or another <header> element.

Example:

```
<article>
  <header>
    <h1>What Does WWF Do?</h1>
    <p>WWF's mission:</p>
  </header>
  <p>WWF's mission is to stop the degradation of our planet's natural
environment,
  and build a future in which humans live in harmony with nature.</p>
</article>
```

HTML <footer> Element

▶ The <footer> element defines a footer for a document or section.

▶ The <footer> element typically contains:

· authorship information

· copyright information

· contact information

· sitemap

· back to top links

· related documents

▶ ```html
<footer>
  <p>Author: Hege Refsnes</p>
  <p>hege@example.com</p>
</footer>
```

# HTML <nav> Element

- HTML <nav> Element  defines a set of navigation links.

- NOT all links of a document should be inside a `<nav>` element. The `<nav>` element is intended only for major block of navigation links.

## ► HTML <aside> Element

- <aside>element defines some content aside from the content it is placed in (like a sidebar).

- content should be indirectly related to the surrounding content.

# HTML <figure> and <figcaption> Elements

- The <figure>tag specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.

- The <figcaption> tag defines a caption for a <figure> element.

- The <figcaption> element can be placed as the first or as the last child of a <figure> element.

- <figure>

-   <img src="tiger.jpg" alt="Trulli">

-   <figcaption>Fig.1 - Tiger.</figcaption>

- </figure>

**Places to Visit**

Puglia's most famous sight is the unique conical houses (Trulli) found in the area a

Fig.1 - Tiger.

# Meter Tag - HTML Semantic tags

The `<meter>` tag defines a scalar measurement within a known range, or a fractional value. This is also known as a gauge.

Examples: Disk usage, the relevance of a query result, etc.

```
<label for="disk_c">Disk usage C:</label>
```

```
<meter id="disk_c" value="2" min="0" max="10">2 out of
10</meter><br>
```

```
<label for="disk_d">Disk usage D:</label>
```

```
<meter id="disk_d" value="0.6">60%</meter>
```

The meter element

The meter element is used to display a gauge:

Disk usage C: ▬▬
Disk usage D: ▬▬▬▬

HTML <progress> Tag

The <progress> tag represents the completion progress of a task.

```
<label for="file">Downloading progress:</label>
```

```
<progress id="file" value="32" max="100"> 32% </progress>
```

The <progress> tag is not suitable for representing a gauge (e.g. disk space usage or relevance of a query result). To represent a gauge, use the <meter> tag instead.

The progress element

Downloading progress: ▭

HTML Audio

▶ **HTML audio tag** is used to define sounds such as music and other audio clips. Currently there are three supported file format for HTML 5 audio tag.

1. mp3

2. wav

3. ogg

▶ HTML5 supports <video> and <audio> controls. The Flash, Silverlight and similar technologies are used to play the multimedia items.

Ex. **<audio** controls**>**

  <source src="koyal.mp3" type="audio/mpeg"**>**

Your browser does not support the html audio tag.

</audio>

Attributes of HTML Audio Tag

Attribute	Description
controls	It defines the audio controls which is displayed with play/pause buttons.
autoplay	It specifies that the audio will start playing as soon as it is ready.
loop	It specifies that the audio file will start over again, every time when it is completed.
muted	It is used to mute the audio output.
preload	It specifies the author view to upload audio file when the page loads.
src	It specifies the source URL of the audio file.

HTML Video Tag

▶ HTML 5 supports <video> tag also. The HTML video tag is used for streaming video files such as a movie clip, song clip on the web page.

▶ Currently, there are three video formats supported for HTML video tag:

1. mp4

2. webM

3. ogg

Attributes of HTML Video Tag

Attribute	Description
controls	It defines the video controls which is displayed with play/pause buttons.
height	It is used to set the height of the video player.
width	It is used to set the width of the video player.
poster	It specifies the image which is displayed on the screen when the video is not played.
autoplay	It specifies that the video will start playing as soon as it is ready.
loop	It specifies that the video file will start over again, every time when it is completed.
muted	It is used to mute the video output.
preload	It specifies the author view to upload video file when the page loads.
src	It specifies the source URL of the video file.

Questions

- Write a Program using the given HTML semantic Tags

- 1)Meter tag showing a value of 70%

- 2)aside tag for right side of web page

- 3)form tag for password

- 4)form tag for telephone

- 5)Progress tag

HTML Drag and Drop

- **HTML Drag and Drop** (DnD) is a feature of HTML5. It is a powerful user interface concept which *is used to copy, reorder and delete items with the help of mouse*. You can hold the mouse button down over an element and drag it to another location. If you want to drop the element there, just release the mouse button.

- If you want to achieve the Drag and Drop functionality in traditional HTML4, you must either have to use complex JavaScript programming or other JavaScript frameworks like jQuery etc.

Events for Drag and Drop feature

Event	Description
Drag	It fires every time when the mouse is moved while the object is being dragged.
Dragstart	It is a very initial stage. It fires when the user starts dragging object.
Dragenter	It fires when the user moves his/her mouse cursur over the target element.
Dragover	This event is fired when the mouse moves over an element.
Dragleave	This event is fired when the mouse leaves an element.
Drop	Drop It fires at the end of the drag operation.
Dragend	It fires when user releases the mouse button to complete the drag operation.

HTML5 Drag and Drop Example

1) Make an Element Draggable

First of all: To make an element draggable, set the draggable attribute true.

```
<img draggable="true">
```

2)What to Drag - ondragstart and setData()

Then, specify what should happen when the element is dragged.

In the example above, the ondragstart attribute calls a function, drag(event), that specifies what data to be dragged.

The dataTransfer.setData() method sets the data type and the value of the dragged data:

```
function drag(ev) {
  ev.dataTransfer.setData("text", ev.target.id);
}
```

In this case, the data type is "text" and the value is the id of the draggable element ("drag1").

3) Where to Drop

Use ondragover event.

▶ By default, data/elements cannot be dropped in other elements. To allow a drop, we must prevent the default handling of the element.

▶ This is done by calling the event.preventDefault() method for the ondragover event

▶ *event*.preventDefault()

4) Do the Drop

When the dragged data is dropped, a drop event occurs.

```javascript
function drop(ev) {
  ev.preventDefault();
  var data = ev.dataTransfer.getData("text");
  ev.target.appendChild(document.getElementById(data));
}
```

· Call preventDefault() to prevent the browser default handling of the data (default is open as link on drop)

· Get the dragged data with the dataTransfer.getData() method. This method will return any data that was set to the same type in the setData() method

· The dragged data is the id of the dragged element ("drag1")

· Append the dragged element into the drop element

University Questions

- Write HTML5 code to drag a specific image and drop it on a specific location.
- Write HTML5 code for embedding audio and video elements in the web page.

CSS Introduction

- CSS stands for Cascading Style Sheets

- CSS describes how HTML elements are to be displayed on screen, paper, or in other media

- CSS saves a lot of work. It can control the layout of multiple web pages all at once

- External stylesheets are stored in CSS files

► Why use CSS?

► CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

- HTML was NEVER intended to contain tags for formatting a web page!
- HTML was created to describe the content of a web page, like:
- <h1>This is a heading</h1>
- <p>This is a paragraph.</p>
- When tags like <font>, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large websites, where fonts and color information were added to every single page, became a long and expensive process.
- To solve this problem, the World Wide Web Consortium (W3C) created CSS.
- CSS removed the style formatting from the HTML page!

CSS Syntax

- The selector points to the HTML element you want to style.
- The declaration block contains one or more declarations separated by semicolons.
- Each declaration includes a CSS property name and a value, separated by a colon.
- Multiple CSS declarations are separated with semicolons, and declaration blocks are surrounded by curly braces.

Example

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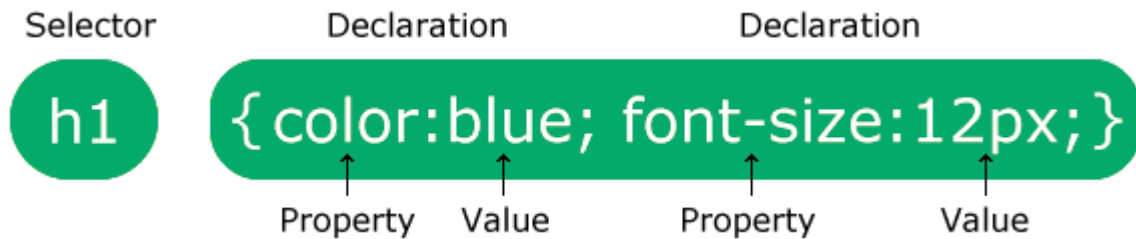p {
  color: red;
  text-align: center;
}
```

- p is a selector in CSS (it points to the HTML element you want to style: <p>).
- color is a property, and red is the property value
- text-align is a property, and center is the property value