Subject Code: CS3   Computer Science 3
Module Code: 6.0   What's New in HTML 5
Lesson Code: 6.2   Multimedia tags (video, audio)
Time Frame: 30 mins.

TARGET

Time Allocation: 1 min.

After completing this module, you are expected to:

- Compare the differences of HTML and HTML5
- Demonstrate the use of various HTML5 tags
- Configure the video and audio on a web page with HTML5 elements.

HOOK

Time Allocation: 2 mins.

At the start of the World Wide Web a MIDI file can be added to a web page for a little soundtrack. Not long after, superior choices permitted sound and video designs to be embedded in a web page. Flash, however, got to be the de facto implanted mixed media player, in portion since of its utilize by Youtube and other comparable administrations.

This kind of innovation worked affirm, but it had several problems, including not working well with HTML/CSS features, security issues, and accessibility issues.

A native solution would solve much of this if implemented correctly. Fortunately, a few years later the HTML5 specification had such features added, with the <video> and <audio> elements.

Please note that this module is meant to be an introduction to multimedia Web files, with a strong emphasis on the HTML5 code you need. It does not teach you how to create multimedia content, only how to make it available to your web page.

IGNITE

Time Allocation: 15 mins.

How media formats work

There are two format decisions to make when preparing audio or video content. Firstly, how the media is encoded. Codec, short for code/decode or compress/decompress, refers to the method used for encoding. An example of which are AAC, MP3, H.264 and Vorpis. Only a few, however, are appropriate for the Web.

Secondly, choosing the container format for the media. A holder arrange can hold more than one codec and familiarizing yourself with these formats are important when adding audio or video to a site.

The video formats

For video, the most common options are:

- Ogg container + Theora video codec+ Vorbis audio coded – Commonly named "Ogg Theora", the record incorporates a .ogy suffix. All codecs and holder in this choice are open source making them perfect for web dissemination. Still, a few accept the quality is second rate to other options.

- MPEG-4 container + H.264 video codec + AAC audio codec – This can be by and large alluded to as MPEG-4 and takes .mp4 or .m4v record addition. H.264 is a high- quality and adaptable video coded but it is protected and must be authorized for a fee.

- WebM container + VP8 video coded + Vorbis audio codec - WebM is the most up to date holder organize and employments .webm record extension. Planned to work solely with VP8 and verbs, it has the advantage of being open-source and royalty-free.

Browser creators have not concurred on a single format to support. A few lean toward open source, royalty-free choices like Ogg Theora or WebM whereas others adhere with H.264 because it is of superior quality despite of the royalty requirements. Different form of videos ought to be made to guarantee support over all browsers.

The audio formats

There are a few sound designs to select from but not one format is supported by all browsers.

- MP3. The format with the record extension .mp3 has become to be omnipresent as a music download arrange. The MP3 (short for MPEG-1 Audio Layer 3is protected and requires permit expenses paid by equipment and program companies (not media makers).

- WAV. The WAV arrange (.wav) is additionally a codec and holder in one.

- Ogg container + Vorbis audio codec. As a rule alluded to as Ogg Vorbis, it is served with the .ogg or .oga record extension.

- MPEG 4 container + AAC audio codec. "MPEG4 audio" (.m4a) is not frequently used than MP3.

- WebM container + Vorbis audio codec. The WebM (.webm) format can moreover contain sounds only and open media file format (see http://www.webmproject.org) sponsored by Google; uses the VP8 video codec and Vorbis audio codec.

Adding a video to a page

Before HTML5, to have a video play on a webpage, you would need to use a plugin like Adobe Flash Player. With the introduction of HTML5, you can now place videos directly into the page itself.

The HTML <video> element is used to embed video in web documents and may contain one or more video sources, represented using the src attribute of the source element.

Refer to the sample code below to know on how to embed a video file:

The source code:

```html
<!DOCTYPE html>
<html lang="en">

    <head>
      <meta charset="UTF-8">
      <title>The HTML5 video Tag</title>
    </head>

<body>

    <video width="640" height="480" poster="posterpic.jpg" controls>

        <source src= "https://download.blender.org/peach/trailer/
        trailer_400p.ogg" type="video/ogg">

        <source src= "https://download.blender.org/peach/trailer/
        trailer_400p.mp4" type="video/mpeg">

        Your browser does not support the video element. Kindly update
        it to the latest version.

    </video>

</body>
</html>
```

This will produce the following result:

Video is from the Big Buck Bunny (https://peach.blender.org/trailer-page/)

All modern browsers support the <video> element but not all browsers support the same video file format. MP4 files are the most widely accepted format while other formats like WebM and Ogg are supported in Chrome, Firefox, and Opera.

To ensure a video plays in most browsers, it's best practice to encode them into both Ogg and MP4 formats and include both in the <video> element like in the example above. Browsers will use the first recognized format.

If, for some reason, the browser does not recognize any of the formats, the text "Your browser does not support the video element. Kindly update it to the latest version" will be displayed instead.

Let us discuss in detail some of the attributes used in the above given example:

width="*n*px"
height="*n*px"

Indicates the estimate of the box the inserted media player takes up on the screen. By and large, it is best to set the measurements to precisely coordinate the pixel measurements of the movie. The movie will resize to coordinate the measurements set here.

poster="url of image"

Gives the location of a still picture to utilize in place of the video before it plays.

controls

Including the controls attribute prompts the browser to show its built-in media controls, by and generally a play/pause button, a "seeker" that lets you move to a position inside the video, and volume controls. Custom player interface can be made utilizing CSS and JavaScript for consistency over browsers. How to do that is beyond the scope of this module but is explained in the given link: *https://freshman.tech/custom-html5-video/*.

autoplay

Causes the video to automatically start playing once it has downloaded enough of the media file to play through without stopping. However, autoplay should be avoided to let the user decide when the video should start.

The video and sound component can utilize the loop property to replay the video until it is muted. To play the video track without audio, the element parts of the media group (like a video and synchronized sign language interpretation) should to preload to tell the browser whether the information should be recovered as before long as the page loads. (preload="auto") is retrieved or hold up until the play button is pressed by the user (preload="none"). Assigning preload="metadata" loads media file information, but not the media themselves. To manage the auto setting can be determined by a device. For example, the browser on a smartphone set to auto, even without preloading media, will protect the use of data by the user.

Adding audio to a page

The HTML <audio> element is used to embed sound content in documents. It may contain one or more audio sources, represented using the src attribute or the <source> element: the browser will choose the most suitable one.
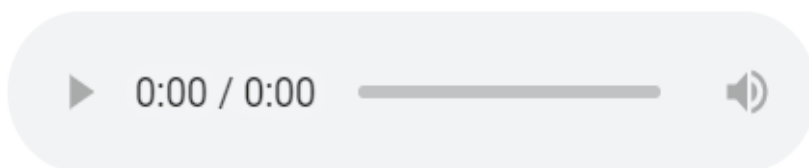
HTML5 most commonly used audio formats are ogg, mp3, and wav. You can use the <source> tag to specify media along with media type and many other attributes. An audio element allows multiple source elements, and the browser will use the first recognized format.

The source code:

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8">
        <title>The HTML5 audio Element</title>
    </head>

    <body>
        <audio controls="controls">
            <source src="images/html5-audio-mp3.mp3" type="audio/mpeg">
            <source src="images/html5-audio-mp3.ogg" type="audio/ogg">
        </audio>
    </body>
</html>
```

This will produce the following result:

Some of the attributes that could be used with the audio tag as shown below:

Audio Attributes	Description
autoplay	This will start playing the audio when some parts of it are already downloaded from the server
controls	This will display the control panel to include the play, pause buttons
loop	This will enable the audio to be played continuously unless stopped or paused by a user.
muted	This will mute the audio that is being played.
preload	This attribute could be set using any of the three values: none, metadata and auto, and will determine if the audio is to be loaded when a webpage is loaded.
src	This specifies the source of the audio. Values could be a complete URL or path/filename.

Time Allocation: 10 mins.

It's your time to apply what you have learned.

Text is from Terry Felke-Morris (Seventh Edition), Web Development and Design Foundations with HTML5. England, Pearson

Create the above page with the following configurations:

1. The title of the webpage should be your full name (Surname, Firstname).

2. Configure CSS for the body element. Set the text to center align, 0 and 15% margin, 75% width, and 2px solid blue border.

3. The first heading, "Lighthouse Island Bistro", has a background color of light gray, a top margin of 20 pixels, and 0 paddings.

4. The second heading, "the best coffee on the coast", also has a background color of light gray, italicized, and has 0 margins and paddings.

5. The advertisement phrase, "Experience the melodramatic sipping of the coast's best coffee, while dancing in the waves with the Lighthouse Cruise.", should be displayed as shown in the image, printed in monospace font.

6. Insert the lighthouse.m4v video on the webpage. The video should display no controls and should be played automatically once the page is loaded.

For the video needed, use the link below:

lighthouse.m4v(*http://triosdevelopers.com/~J.Riz/Lighthouse/lighthouse.m4v*)

Note: This is a **graded activity**. Save your file as **Section_FullName_HTML5Video.html** and send your final solution to_____

This activity will be graded using the following rubric:

REQUIREMENTS	POINTS	Total
The whole document aligned center, with 0 margin for top, bottom, and 15% margin for left, right. Applies 75% width, and 2px solid blue border.	Complied – 2 pt Incomplete – 0 pt	
The first heading has a background color of light gray, a top margin of 20 pixels, and 0 paddings.	Complied – 2 pt Incomplete – 0 pt	
The second heading has a background color of light gray italicized, with 0 margins and paddings.	Complied – 2 pt Incomplete – 0 pt	
The advertisement phrase displayed as shown in the image and printed in monospace font.	Complied – 1 pt Incomplete – 0 pt	
The video displayed no controls and played automatically once the page was loaded.	Complied – 3 pt Incomplete – 0 pt	
Total Points	**10**	

KNOT

Time Allocation: 2 mins.

In summary,

- After you get ready sound or video substance for web conveyance, there are two organize choices to create.
  - The first is how the media is encoded. The strategy utilized for encoding is called the coded which is short for "code/decode" or "compress/decompress." Second, you need to select the holder arrange for the media…you can think of it as a ZIP record that holds the compressed media and its metadata together in a package.
- HTML5 **<video>** element provides a standard way to embed video in web pages.
- For video, the most frequently used formats are:
  - "Ogg container + Theora video codec + Vorbis audio codec.
  - MPEG-4 container + H.264 video codec + AAC audio codec.
  - WebM container + VP8 video codec + Vorbis audio codec."
- The HTML <audio> element is used to embed sound content in documents.
- HTML5 most commonly used audio formats are ogg, mp3, and wav.

REFERENCES

Felke-Morris, T. (2015). Web Multimedia and Interactivity (7th ed., pp. 475-509). Pearson.

HTML5 Audio and Video Tags, TutorialsPoint, HTML5 Audio and Video Tags Tutorial. (n.d.). HTML5 Audio and Video Tags. https://www.freetimelearning.com/html5/html5-audio-video-tags.php

Html5 video: How to embed video in your html. (2020). *FreeCodeCamp.org.* https://www.freecodecamp.org/news/html5-video/.

Robbins, J. (2012). Learning Web Design A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics (4th ed., pp. 181-203). O'Reilly Media. Inc.

Video and audio content. (n.d.). MDN Web Docs. https://developer.mozilla.org/en-US/docs/Learn/HTML/Multimedia_and_embedding/Video_and_audio_content

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