Session: 11

HTML5 Audio and Video

Objectives

- Describe the need for multimedia in HTML5
- List the supported media types in HTML5
- Explain the audio elements in HTML5
- Explain the video elements in HTML5
- Explain the accessibility of audio and video elements
- Describe how to deal with non-supporting browsers

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Introduction

- Traditionally, Web browsers were capable of handling only graphics and text.
- User had to install a distinct program, plug-in, or an ActiveX control to play some video.
- Earlier, Web designers and developers used to set up web pages to play audio and video using Adobe Flash player.
- Multimedia is a combination of various elements such as video, graphics, sound, and text.
- Common way of inserting a multimedia content on Web pages is by embedding a video or audio file in the Web page.
- HTML5 has made lives easier by introducing <audio> and <video> elements

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Supported Media Types in Audio & Video

- Codec is a term referring to a device or a program used for encoding and decoding digital data stream
- There are various video and audio codecs that are used for handling of video and audio files.
- Different codecs have different level of compression quality.
- For storing and transmitting coded video and audio together, a container format is used such as Ogg (.ogv), the Audio Video Interleave (.avi), Flash Video (.flv) …
- Different browsers support different container format. WebM is a new open source video container format supported by Google.

Container	Video Codec	Audio Codec
Mp4	H.264	AAC
Ogg	Theora	Vorbis
WebM	VP8	Vorbis

Audio & Video Formats

- The three supported file formats for the **<audio>** element in HTML5

Browsers Support	MP3	Wav	Ogg
Opera 10.6	No	Yes	Yes
Apple Safari 5	Yes	Yes	No
Google Chrome 6	Yes	Yes	Yes
FireFox 4.0	No	Yes	Yes
Internet Explorer 9	Yes	No	No

- The three supported file formats for the **<video>** element in HTML5.

Browsers Support	MP4	WebM	Ogg
Opera 10.6	No	Yes	Yes
Apple Safari 5	Yes	No	No
Google Chrome 6	Yes	Yes	Yes
FireFox 4.0	No	Yes	Yes
Internet Explorer 9	Yes	No	No

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Audio Element in HTML5

- **AUDIO** element allow to embed music on the Web site.

```
<!doctype html>
<html>
<head>
    <title>audio element</title>
</head>
<body>
    <audio src=”d:\audio.mp3”
            controls autoplay loop >
    html5 audio not supported
    </audio>
</body>
</html>
```

Audio Attributes

Audio Attributes	Description
autoplay	This attribute identifies whether to start or not the audio once the object is loaded
autobuffer	This attribute starts the buffering automatically
controls	This attribute identifies the audio playback controls that should be displayed such as resume, pause, play, and volume buttons
loop	This attribute identifies whether to replay the audio once it has stopped
preload	This attribute identifies whether the audio has to be loaded when the page loads and is ready to execute

Playing Audio Files in older Browsers

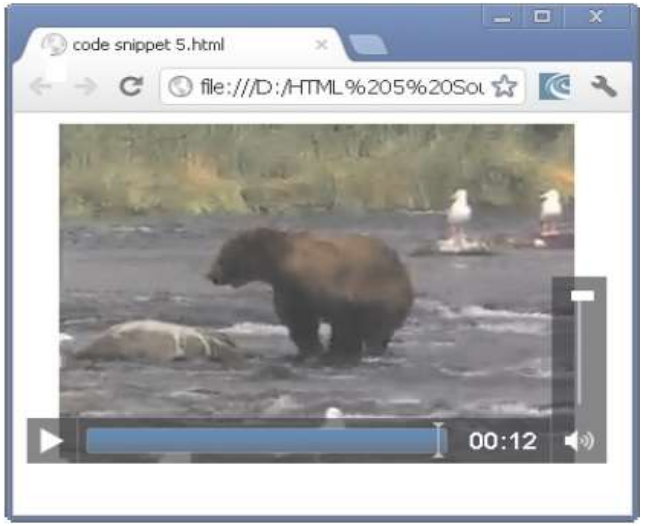
- To play the audio in older browsers, <**embed**> tag will be used.
- <**embed**> has two attributes, **src** and **autostart**
- ***src*** is used to specify the source of the audio.
- ***autostart*** controls the audio and determines whether the audio should play as soon as the page loads.

```
<audio autoplay loop>
        <source src="sampaudio.mp3">
        <source src="sampaudio.ogg">
        <embed src="sampaudio.mp3">
</audio>
```

Video Element in HTML5

- is a new feature added in HTML5.
- is for embedding the video content on the Web page.
- if not supported by the browser then the content between the start tag and end tag is displayed.
- *src* attribute is used to link to the video file.

```
<body>
    <video src="D:\movie.mp4">
        Your browser does not
        support the video.
    </video>
</body>
```



Video Attributes

- Attributes that can be used with the **<video>** element:

Video Attributes
autoplay
muted
controls
loop
preload

- ***preload*** attribute allows the browser to download or buffering the video while the Web page containing the video is being downloaded.
- ***preload*** attribute has the following values: None, Metadata & Auto

Setting the Video Size

- Size of the video can be specified with the ***height*** and ***width*** attribute
- If these attributes are not provided then the browser sets the video with the key dimensions of the video.

```
<style>
    video{
      background-color: black;
      border: medium double black;
    }
</style>

<body>
<video src="D:\Codes\movie.mp4"
   controls preload = "auto"
   width = "360" height = "340">
   Your browser does not support
   the video.
</video>
```

Converting the Video Files

- There are many problems with browser for supporting the various video formats on the Web sites.
- The video formats supported by the significant browsers:
  - **Ogg/Theora** - is an open source, royalty-free, and patent-free format available, supported by Opera, Chrome, and Firefox…
  - **WebM** - is a royalty-free and patent-free format supported by Google. This format is supported by Opera, Chrome, and Firefox.
  - **H.264/MP4** - are supported on iPhone and Google Android devices.
- Micro Video Controller - converter creates all files that the user requires for HTML5 <video> element that works on the cross browser.

Accessibility of Audio & Video Elements

- Normally, users can listen to the audio by using headphones/speakers.
- Users can understand the language in which the media was delivered.
- Users can successfully play and download the media.
- However, sometime users cannot view or hear the media content because of :
  - their working environment / device restrictions.
  - unfamiliar with the language that the content is delivered.
  - having hearing and visual impairment
  - having to use keyboards and screen readers to access the content on Web.

Track Element 1-3

- Track element provides an easy, standard way to add captions, subtitles, chapters, and screen reader descriptions to the <audio> and <video> elements.
- Track elements are also used for other types of timed metadata.
- Source data for this track element is in a form of a text file that is made up of a list of timed cues.
- Cue is a pointer at an accurate time point in the length of a video.
- Cues contain data in formats such as Comma-Separated Values (CSV) or JavaScript Object Notation (JSON).
- Track element is not supported in many major browsers and is now available in IE 10 and Chrome 18+.

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Track Element 2-3

- Following table lists the track element attributes.

Container	Description
src	Contains the URL of the text track data
srclang	Contains the language of the text track data
kind	Contains the type of content for which the track definition is used
default	Indicates that this will be the default track if the user does not specifies the value
label	Specifies the title to be displayed for the user

Track Element 3-3

- The Code Snippet demonstrates how a track element is used in combination with <**video**> element for providing subtitles.

```
<video controls>
   <source src="myvideo.mp4" type="video/mp4" />
   <source src="myvideo.webm" type="video/webm" />
   <track src="eng.vtt" label="English subtitles"
          kind="subtitles" srclang="en" >
</video>
```

```
<video controls>
   <source src="myvideo.mp4" type="video/mp4" />
   <source src="myvideo.webm" type="video/webm" />
   <track src="de.vtt" label="German subtitles"
          kind="subtitles" srclang="de" >
</video>
```

Summary

- Multimedia is a combination of various elements such as video, graphics, sound, and text.
- There are various media types used for audio and video files.
- The <audio> element will help the developer to embed music on the Web site and allow the user to listen to music.
- Users can play the audio in older browsers using the <embed> tag.
- The VIDEO element is used for embedding the video content on the Web page.
- Preload attribute identifies whether the audio has to be loaded when the page loads and is ready to execute.
- WebM is a new open source video container format supported by Google.

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