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**UNIVERSITY**

CELEBRATING 50 YEARS

## Web Design

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# Web Design

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## Designing Websites

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## Web Design

## HTML Multimedia



- Multimedia comes in many different formats. It can be almost anything you can hear or see.  
**Examples:** Pictures, music, sound, videos, records, films, animations, and more.
- Web pages often contain multimedia elements of different types and formats.
- First **web browsers** had support for text only, limited to a single font in a single color.
- Then support for pictures , sounds, animations, and videos and **Plug-ins (extra helper programs )** is handled differently by various browsers..



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## HTML Multimedia



- Multimedia elements (like sounds or videos) are stored in media files.
- Multimedia files also have their own formats and different extensions like: [.swf](#), [.wav](#), [.mp3](#), [.mp4](#), [.mpg](#), [.wmv](#), and [.avi](#).

## Common Video Formats



MP4 is the new and upcoming format for internet video.

MP4 is recommended by YouTube.

MP4 is supported by Flash Players.

MP4 is supported by HTML5.



# Web Design

## HTML Multimedia

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- **.swf (Shockwave Flash File)** → Used for animations and interactive web content (Adobe Flash, now outdated).
- **.wav (Waveform Audio File)** → Uncompressed audio, high quality but large file size.
- **.mp3 (MPEG Layer 3 Audio)** → Compressed audio, widely used for music and sound.
- **.mp4 (MPEG-4 Video)** → Popular video format, supports audio, video, and subtitles.
- **.mpg (MPEG Video File)** → Older compressed video format.
- **.wmv (Windows Media Video)** → Developed by Microsoft, used in Windows applications.
- **.avi (Audio Video Interleave)** → Video format by Microsoft; supports multiple codecs, larger file size than MP4.



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# Sound Formats - Different audio file formats

Format	File	Description
MIDI	.mid .midi	<b>Full form:</b> Musical Instrument Digital Interface. Used in <b>electronic instruments</b> like synthesizers and sound cards. Plays instructions for instruments (not actual sound recording). Works well on computers and music hardware, but <b>not in browsers</b> .
RealAudio	.rm .ram	Developed for <b>streaming audio</b> on the internet. Good for <b>low-bandwidth connections</b> . Mostly used earlier for online radio/music streaming. Not very common today.
WMA	.wma	<b>WMA (Windows Media Audio).</b> Developed by Microsoft. Commonly used in music players. Plays well on Windows computers, but not in web browsers.
AAC	.aac	<b>Full form:</b> Advanced Audio Coding. Developed by Apple. Standard format used in iTunes, iPods, and iPhones. Better sound quality than MP3 at similar file sizes.



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## Sound Formats

Format	File	Description
WAV	.wav	WAV (Waveform Audio File Format). Developed by IBM and Microsoft. Plays well on Windows, Macintosh, and Linux operating systems. Supported by HTML5.
Ogg	.ogg	Ogg. Developed by the Xiph.Org Foundation. Supported by HTML5.
MP3	.mp3	MP3 files are actually <b>the sound part of MPEG files</b> . MP3 is the most popular format for music players. Combines good <b>compression (small files)</b> with high quality. Supported by all browsers.
MPEG-4 or MP4	.mp4	MP4. Developed by the Moving Pictures Expert Group. Commonly used in video cameras and TV hardware. Supported by all browsers and recommended by YouTube.



# Web Design

## Sound Formats



- To play an audio file in HTML, use **the <audio> element**
- The **controls** attribute adds audio controls, like **play, pause, and volume**.
- **Text** between the <audio> and </audio> tags will display in browsers that do not support the <audio> element.
- Multiple **<source> elements** can link to different audio files. The browser will use the first recognized format.

Element					
<audio>	4.0	9.0	3.5	4.0	10.5



## Web Design

### Audio Tag



Multimedia combines different media, such as images, audio, and videos. Users will have a better experience when multimedia is embedded into HTML.

**To embed an audio :**

**Syntax:**

// Embedding audio

```
<audio controls>
<source src="Small_audio.mp3" type="audio/mp3">
</audio>
```



#### controls:

- This attribute adds default playback controls to the audio player, such as **play**, **pause**, **volume**, and **seek bar**. It makes it easy for users to control playback.

#### autoplay:

- This attribute, when present, makes the audio start playing automatically as soon as it's loaded.
- **not all browsers honor autoplay for audio** .
- media types, help the browser **understand the format of the content** being served, ensuring it is handled appropriately.
- The **type** attribute in the **<source>** tag helps the browser identify the format of each audio file.



# Web Design

## Audio Tag



### Example 1:

```
<!DOCTYPE html>
<head>
  <title>Embedding audio in HTML</title>
</head>
<body>
  <audio controls>
    <source src="Small_audio.mp3" type="audio/mp3">
    Your browser does not support the audio tag.
  </audio>
</body>
</html>
```

type="audio/mpeg"  
type="audio/ogg"  
type=" audio/mpeg  
type=" audio/wav



# Web Design

## Audio Tag



### Example 2:

```
<audio controls autoplay>
  <source src="cat.ogg" type="audio/ogg">
  <source src="dog.mp3" type="audio/mpeg">
```

Your browser does not support the audio element.

```
</audio>
```



## Web Design

### Audio Tag



#### Example 3:

```
<audio controls autoplay muted>
  <source src="bird.ogg" type="audio/ogg">
  <source src="duck.mp3" type="audio/mpeg">
```

Your browser does not support the audio element.

```
</audio>
```

- The browser will **try the first source**
- If it **cannot play it**, then it will **try the next one**
- If both fail, it shows the text “*Your browser does not support the audio element.*”



## Web Design

### Video Tag



The HTML `<video>` element is used to show a video on a web page.

The `<video>` element in HTML allows you to embed video content directly into web pages.

It supports various video formats, including MP4, WebM, and Ogg.



# Web Design

## Sound Formats



Format	File	Description
MPEG	.mpg .mpeg	MPEG. Developed by the <b>Moving Pictures Expert Group</b> . The first popular video format on the web. Used to be supported by all browsers, but it is not supported in HTML5 (See MP4).
AVI	.avi	<b>AVI (Audio Video Interleave)</b> . Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers.
WMV	.wmv	<b>WMV (Windows Media Video)</b> . Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers.
QuickTime	.mov	<b>QuickTime</b> . Developed by Apple. Commonly used in video cameras and TV hardware. Plays well on Apple computers, but not in web browsers. (See MP4)



# Web Design

## Sound Formats

Format	File	Description
RealVideo	.rm	RealVideo. Developed by Real Media to allow video
	.ram	<b>streaming with low bandwidths.</b> It is still used for online video and Internet TV, but does not play in web browsers.
Flash	.swf	Flash. Developed by Macromedia. Often requires an extra component ( <b>plug-in</b> ) to play in web browsers.
	.flv	
Ogg	.ogg	<b>Theora Ogg.</b> Developed by the <b>Xiph.Org</b> Foundation. Supported by <b>HTML5</b> .
WebM	.webm	<b>WebM.</b> Developed by the <b>web giants</b> , Mozilla, Opera, Adobe, and Google. Supported by <b>HTML5</b> .
MPEG-4 or MP4	.mp4	MP4. Developed by the <b>Moving Pictures Expert Group</b> . Based on QuickTime. Commonly used in newer video cameras and TV hardware. Supported by all <b>HTML5</b> browsers. <b>Recommended by YouTube</b> .

**Note: Only MP4, WebM, and Ogg video are newest HTML5 standard.**



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## How it Works ?



- The **controls** attribute adds video controls, like play, pause, and volume.
  - For video include **width** and **height** attributes.
  - If height and width are not set, the browser does not know the size of the video. The effect will be that the page will change (or flicker) while the video loads.
- **Text** between the `<video>` and `</video>` tags will only display in browsers that do not support the `<video>` element.
- Multiple `<source>` elements can link to different video files. The browser will use the first recognized format.

Element					
<code>&lt;video&gt;</code>	4.0	9.0	3.5	4.0	10.5



## Video - Methods, Properties, and Events

- Start a video automatically use the **autoplay** attribute (does not work in Safari and Opera, or in mobile devices)
- HTML5 defines methods that allows you to load, play, and pause videos, as well as setting duration and **DOM** volume.
- **Syntax:**

```
<video src="" controls> </video>
```

- The **src attribute** specifies the URL of the video file.
- The **controls** attribute adds default video controls (play, pause, volume, etc.).



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## Attributes of video

Attributes	Description
<u>Autoplay</u>	Starts playing the video automatically.
<u>Preload</u>	Provides a hint to the browser about the best user experience.
<u>Loop</u>	Automatically loops the video.
<u>height</u>	It sets the height of the video in CSS pixels.
<u>width</u>	It determines the width of the video display area on the web page.



# Web Design

## Attributes of video

### 1. Autoplay

1. Starts playing the video automatically as soon as it loads.

### 2. Preload

1. Provides a hint to the browser about how much data to preload for the best user experience.

#### 2. Options:

1. none → Don't preload.
2. metadata → Load only video metadata (duration, dimensions).
3. auto → Load the entire video file (default behavior in some browsers).

### 3. Loop

1. Automatically replays the video once it ends.

### 4. height

1. Sets the height of the video display area in CSS pixels.

### 5. width

1. Sets the width of the video display area in CSS pixels.



## Web Design

### Attributes of video



```
<video width="500" height="300" autoplay loop preload="auto" controls>
<source src="sample.mp4" type="video/mp4">
Your browser does not support the video tag.
</video>
```



# Web Design

## Attributes of video

### Controls

It shows the default video controls like play, pause, volume, etc.

### Muted

Mutes the audio.

### Poster

Displays an image preview before video loading.

**preload="auto"**: The browser will load the entire video when the page loads

**preload="metadata"**: The browser will only load the metadata (such as the duration and dimensions of the video).

**preload="none"**: The browser will not load any part of the video until the user initiates



### Example 1:

```
<video width="320" height="240" controls autoplay poster="path-to-your-poster-image.jpg">
```

```
    <source src="movie.mp4" type="video/mp4">
```

```
    <source src="movie.ogg" type="video/ogg">
```

Your browser does not support the video tag.

```
</video>
```

image to be shown before the video starts playing.



### Example 2:

```
<video width="600" controls preload="auto">  
  <source src="your-video-file.mp4" type="video/mp4">  
  Your browser does not support the video tag.  
</video>
```



Web Design

Video

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## Example 2:

```
<!DOCTYPE html>
<html>
<body>
<center>
<h1 style="color:green;">Birds sanctuary </h1>
<h3>HTML video tag</h3>
<p>Adding video on the webpage
```



### Example 2:

```
<video width="450" height="250" controls preload="auto">
  <source src="https://media.birds.org/Canvas.move_.mp4"
  type="video/mp4">

  <source src="https://media.birds.org/Canvas.move_.ogg"
  type="video/ogg">

</video> </center> </body> </html>
```



# THANK YOU

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