Lecture No: 4 PART2
Topic: Image Mapping, Audio and Videos

What is Image Map?

An **image map** is a way of defining "hot spot" links within an image on a Web page. This means that, rather than having the whole image behave as one link, you can have lots of different links within the one image.

The usemap attribute

- How do you turn an image into an image map?

To associate an image map with an image, simply add the *usemap* attribute to the *img* tag for the image.

The map tag

The other half of the image map is the map definition itself. In this definition, you tell the browser where the hot spots are in the image, and what the hot spots need to link to.

Syntax

```
<map name="map-name">
 <area   shape="area shape"
         coords="area coordinates"
         href="area hyperlink" or nohref="nohref"
         target="hyperlink target"
         title="area title"
  alt="alternate text"/>
 <area   shape="area shape" ...
 </map>
```

shape="rect | circle | poly | default"

Specifies the shape of the area. Possible values are:

- rect (a rectangular shape),
- circle (a circular shape),
- poly (an arbitrary polygon, with 3 or more points), or
- default (which represents the remaining area of the image not defined by any area tags).

coords="*area-coordinates*"

Specifies the coordinates that define the corners of the shape. The coordinates depend on the shape specified in the shape attribute:

Shape	Coordinates
`rect`	`coords="x1,y1,x2,y2"` (The top left and bottom right corners of the rectangle)
`circle`	`coords="x,y,r"` (The centre and radius of the circle)
`poly`	`coords="x1,y1,x2,y2,x3,y3,..."`(The corners of the polygon)

Note that all coordinate values are relative to the *top left* corner of the image. In other words, the top left corner always has coordinates (0,0).

Note also that the default shape type does not need any coordinates.

href="*area-hyperlink*"

This is the URL that you'd like to link the hot spot to. It works just like a standard <a href=...> tag.

target="*hyperlink-target*"

This is the optional target window or frame to open the linked URL in. Again, it works just like the target attribute in a standard <a href=...> tag.

title="*area-title*"

This attribute allows you to give the area a title. When the mouse is rolled over this hot spot, the browser will usually pop up a tool tip displaying this title.

Background Image

To add a background image on an HTML element, use the CSS property background-image:

Example:

```
<body style="background-image:url('clouds.jpg')">
    <h2>Background Image</h2>
</body>
```

HTML Multimedia

- Multimedia on the web is sound, music, videos, movies, and animations.
- Web pages often contain multimedia elements of different types and formats.

Browser Support

- The first web browsers had support for text only, limited to a single font in a single color.
- Later came browsers with support for colors and fonts, and images!
- Audio, video, and animation have been handled differently by the major browsers. Different formats have been supported, and some formats require extra helper programs (plug-ins) to work.

Multimedia Formats

- Multimedia elements (like audio or video) are stored in media files.
- The most common way to discover the type of a file, is to look at the file extension.
- Multimedia files have formats and different extensions like: .swf, .wav, .mp3, .mp4, .mpg, .wmv, and .avi

VIDEOS

Video Formats

- **MP4 is the format for internet video.**
- **MP4 is recommended by YouTube.**
- **MP4 is supported by Flash Players.**
- **MP4 is supported by HTML5**

Format	File	Description
MPEG	.mpg .mpeg	MPEG. Developed by the Moving Pictures Expert Group. The first popular video format on the web. Used to be supported by all browsers, but it is not supported in HTML5.
AVI	.avi	AVI (Audio Video Interleave). Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers.
WMV	.wmv	WMV (Windows Media Video). Developed by Microsoft. Commonly used in video cameras and TV hardware. Plays well on Windows computers, but not in web browsers.
QuickTime	.mov	QuickTime. Developed by Apple. Commonly used in video cameras and TV hardware. Plays well on Apple computers, but not in web browsers.
RealVideo	.rm	RealVideo. Developed by Real Media to allow video streaming with low bandwidths. It

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

The HTML <video> Element

- The HTML5 <video> element specifies a standard way to embed a video in a web page.

Example:

- <video width="320" height="240" controls>
  <source src="Feast.mp4" type="video/mp4">
  Your browser does not support the video tag.
  </video>

controls attribute

- The controls attribute adds video controls, like play, pause, and volume.
- It is a good idea to always include width and height attributes. If height and width are not set, the page might flicker while the video loads.
- The <source> element allows you to specify alternative video files which the browser may choose from. The browser will use the first recognized format.
- The text between the <video> and </video> tags will only be displayed in browsers that do not support the <video> element.

HTML <video> Autoplay

- To start a video automatically use the autoplay attribute:
- <video width="320" height="240" autoplay>
  <source src="movie.mp4" type="video/mp4">
  Your browser does not support the video tag.
  </video>
- The autoplay attribute does not work in mobile devices.

HTML Video - Browser Support

- In HTML5, there are 3 supported video formats: MP4, WebM, and Ogg

Browser	MP4	WebM	Ogg
Internet Explorer	YES	NO	NO
Chrome	YES	YES	YES
Firefox	YES	YES	YES
Safari	YES	NO	NO

AUDIO

Audio Formats

Format	File	Description
MIDI	.mid .midi	MIDI (Musical Instrument Digital Interface). Main format for all electronic music devices like synthesizers and PC sound cards. MIDI files do not contain sound, but digital notes that can be played by electronics. Plays well on all computers and music hardware, but not in web browsers.
RealAudio	.rm	RealAudio. Developed by Real Media to allow streaming of audio with low bandwidths.

	.ram	Does not play in web browsers.
WMA	.wma	WMA (Windows Media Audio). Developed by Microsoft. Commonly used in music players. Plays well on Windows computers, but not in web browsers.
AAC	.aac	AAC (Advanced Audio Coding). Developed by Apple as the default format for iTunes. Plays well on Apple computers, but not in web browsers.
Ogg	.ogg	Ogg. Developed by the Xiph.Org Foundation. Supported by HTML5.
MP3	.mp3	MP3 files are actually the sound part of MPEG files. MP3 is the most popular format for music players. Combines good compression (small files) with high quality. Supported by all browsers. MP3 is the abbreviation for 'MPEG Audio Layer III' ('MPEG' stands for 'Motion Pictures Expert Group')
MP4	.mp4	MP4 is a video format, but can also be used for audio. MP4 video is the upcoming video format on the internet. This leads to automatic support for MP4 audio by all browsers.

The HTML <audio> Element

- Before HTML5, audio files could only be played in a browser with a plug-in (like flash).
- The HTML5 <audio> element specifies a standard way to embed audio in a web page.
- Example:
- <audio controls>
- <source src="RememberMe.mp3" type="audio/mpeg">
- Your browser does not support the audio element.
- </audio>

controls attribute

- The controls attribute adds audio controls, like play, pause, and volume.
- The <source> element allows you to specify alternative audio files which the browser may choose from. The browser will use the first recognized format.
- The text between the <audio> and </audio> tags will only be displayed in browsers that do not support the <audio> element

HTML Audio - Browser Support

Browser	MP3	Wav	Ogg
Internet Explorer	YES	NO	NO
Chrome	YES	YES	YES
Firefox	YES	YES	YES
Safari	YES	YES	NO

HTML Helpers (Plug-ins)

- Helper applications (plug-ins) are computer programs that extend the standard functionality of a web browser.
- Examples of well-known plug-ins are Java applets.
- Plug-ins can be added to web pages with the <object> tag or the <embed> tag.
- Plug-ins can be used for many purposes: display maps, scan for viruses, verify your bank id, etc.
- To display video and audio: Use the <video> and <audio> tags.

The <object> Element

- The <object> element is supported by all browsers.
- The <object> element defines an embedded object within an HTML document.
- It is used to embed plug-ins (like Java applets, PDF readers, Flash Players) in web pages.
  Example:

```
<object width="400" height="200" data="banners.swf"></object>
```

- The <object> element can also be used to include HTML in HTML:
  Example:
  ```
  <object width="100%" height="500px" data="images1.html"></object>
  ```
- Or images if you like:
  Example:
  ```
  <object data="panda.png"></object>
  ```

The <embed> Element

- The <embed> element is supported in all major browsers.
- The <embed> element also defines an embedded object within an HTML document.
- Web browsers have supported the <embed> element for a long time. However, it has not been a part of the HTML specification before HTML5.
  Example:
  ```
  <embed width="400" height="50" src="banners.swf">
  ```
  - Note that the <embed> element does not have a closing tag. It cannot contain alternative text.
- The <embed> element can also be used to include HTML in HTML:
  Example:
  ```
  <embed width="100%" height="500px" src="images1.html">
  ```
- Or images if you like:
  Example:
  ```
  <embed src="panda.png">
  ```

References:

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