Image Maps

There are two types of images used in Webpages

- Vector
- Bitmap.

* Vectors create images and specify colours using mathematical co-ordinates with lines, curves and shapes.
You can scale the size of a vector graphic without losing image quality.
Vector graphic files are typically small in size.
They are created using software tools, such as macromedia flash, Macromedia freehand and adobe illustrator.

* Bitmaps are graphics that create images and specify colours using thousands of small dots called Pixels.

If a bitmap is more detailed, its file size can become quite large. Any attempt to scale down the bitmap by removing Pixels reduces the quality of its image
Bitmaps are created by software tools, such as JASC Paint shop Pro.

HOTSPOTS.

AN Image map is a webpage image that has clickable regions, known as 'HOT-SPOTS'.
A set of co-ordinates and a URL reference are used to define the position of each hotspot, and its associated links location.

* Each Hotspot functions as a hyperlink to another page or page section.
When a user clicks on a hotspot, the file designated by the URL is loaded.
The defined hotspot area is not visible on a webpage.
When a user moves the cursor over a hotspot, the cursor changes to the pointing hand that indicates a hyperlink.

* Initially, Image map files were stored and processed on the server. Now, image map information can be processed on both the client side and the server side
You can create both client-side and server side image maps.
Client side image maps are preferred over server side ones because server side image maps require a CGI script.

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* The syntax used to define a client side map for an image is as follows

```
<map name = "mapname" id = "mapname">
    <area shape = "shape" co-ords = "coordinates" href = "url"/>
       "                 "                 "
       "                 "                 "
</map>
<img src = "image map.gif" usemap = "#mapname"/>
```

* The <img> usemap attribute implies that the image placed in the web page will use a map.
The hash symbol, #, in the usemap attribute value implies that the mapname value represents an image map defined within the same HTML file

* The <map> tag, being a container tag, requires a closing tag </map>.
The <map> tag encloses <area> tags, which are standalone tags that define hotspot regions of the image map
Accepted values for the <area> tag shape attribute are
  - rect for a rectangular are
  - Circle for a circular area
  - Polygon for all other shapes

* The number and meaning of co-ordinates specified in the co-ords attribute value vary with the shape attribute value.
The href attribute value is a URL that specifies a link page that will load when the user clicks on a defined ~~spot~~ hotspot area.

You can define any desired number of hotspot regions within an image map.

* You can define an image map with the <map> tag, either before or after the related <img> tag. The main advantage of a client side map is that all the code relating to the image map can be placed directly into an HTML file

* In XHTML, you need to include an additional id attribute in the <map> tag. This attribute has the same purpose as the name attribute. If you omit the id attribute, your code will not validate as XHTML 1.0

* Any two points define a rectangle. Each Point is represented by a horizontal 'x' co-ordinate and a vertical 'y' co-ordinate
Therefore, four co-ordinates representing the upper left and the lower right corners of the rectangle are used to define it

- Syntax

```
<area shape="rect" co-ords="X1,Y1,X2,Y2"
href = url/"">
```

The four co-ordinates depend on the pixel size of the image. If you enlarge an image, you need to change the coordinates to suit

* A Circular Hotspot is defined by a pair of co-ordinates and Radius
  X1, Y1, Rad.

<area shape = "circle" coords = "X1, Y1, Rad"
href = "url" />

* To define an area that is neither a circle nor a rectangle, you need to use Polygon as the value for the shape attribute.
You also need to specify co ordinates for each point that defines the Polygon

Syntax:
<area shape = "Polygon" co-ords = "X1 Y1 X2 Y2 Xn Yn"
href = "url" />

* You may use up to 100 pairs of coordinates to define a Polygon. The co-ordinates should define the points of the Polygon in sequence. Any change in the sequence or switching of co-ordinates will alter the shape of the image

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* To insert an image on a web page and define a hotspot region in this image

```
<map name = "navigate">
<area shape = "rect" coords = "18, 35, 160, 192"
      href = "http://www.thing.com"> </map>
<img border = "0" src = "images/image.jpg"
      width = "521" height = "216"
      usemap = "#navigate"
      alt = "This is the navigation bar">
```

* The <img> tag inserts a image.jpg file (Dim: 521 x 216)

It is necessary to know the width and height of an image to calculate image map co-ordinates. Add the width and height attributes to the <img> tag to ensure the image is of proper size.

* the alt attribute allows you to provide appropriate alternative text for the image. The alt attribute is required for the code to validate as XHTML.

* The code declares that there is no border (border = "0").

* The use map attribute, with the # navigate value, refers the inserted image to the MAP instructions. The <MAP> tag includes the name attribute, which is set to navigate so that the code is XHTML compliant

* The image map co-ordinates for the inserted image are defined using the <area> tag.
The alt attribute has been used for the <area> tag so that users who have text-only browsers or settings are able to navigate the image map.
The image map links to a unique URL

* The web page with the image map is displayed when linked.
Clicking the image map will take you to the corresponding target area defined by the URL specified in the <map> tag