

HTML-5 SVG

SVG:-

- * SVG stands for Scalable Vector Graphics.
- * SVG is a vector-based image format.
- * Mathematical calculations are used to create SVG images.
- * SVG images can be scaled up or down without losing quality.
- * SVG images are commonly used in webpages to display logos, icons, maps etc.
- * SVG has several methods for drawing paths, boxes, circles, text and graphic images.

Viewing SVG Files-

* There are two ways to view SVG Files:-

1. Web browsers:-

Most modern web browsers, such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari, have built-in support for SVG files. Simply double-click the SVG file or drag and drop it into the browser window to view it.

2. SVG Editors:

There are many free and paid SVG editors available that allow to open, edit, and view SVG files. Some popular options include Adobe Illustrator, Inkscape, Sketch, and Figma.

Embedding SVG in HTML:-

* The `<svg>` tag is used to create a SVG image in HTML.

Program to create empty SVG image with green background.

```
<html>
  <body>
    <svg width="200" height="200">
    </svg>
  </body>
</html>
```

Explanation of the Program:-

Syntax:-

```
<svg width="width" height="height">
  [<SVG Elements>]
</svg>
```

`<html>` - is the opening tag of the HTML document which indicates that everything within the document is HTML code.
`<body>` - is the opening tag for the body of the HTML document, with contains the content this is displayed on the webpage.

- We use the `<svg>` tag to create a SVG graphic with a width and height of 200 pixels.
- The style attribute sets the background color to green.

where ,
width and height:- specify the dimensions of the SVG image.
width and height:- can be specified in pixels
or %.

SVG elements :- can be `<line>`, `<rect>`, `<circle>` etc.

HTMLS - SVG Circle:-

* This draws a circle in a SVG image.

Syntax:-

```
<circle cx="cx" cy="cy" r="r" attributes/>
```

Where,

Cx: specifies the x - coordinate of the center of the circle.

Cy: specifies the y - coordinate of the center of the circle.

r : specifies the radius of the circle.

Attributes: specify other properties such as stroke-width, fill color, etc.

HTMLS - SVG Rectangle:-

* This draws a rectangle in a SVG image.

Syntax:-

```
<rect x="x" y="y" width="width" height="height" attributes/>
```

Where,

x = specifies the x - coordinate of the upper-left corner of the rectangle.

y: specifies the y - coordinate of the upper-left corner of the rectangle.

width: specifies the width of the rectangle.

height: specifies the height of the rectangle.

Attributes: specifies other properties such as stroke-color, stroke-width, fill color etc.

HTML 5 - SVG လုပ်ချိန်

Output

$$\text{height} = 100 \times \frac{\text{tall}}{\text{jefferson}}$$

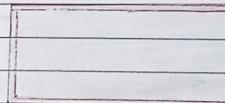
1004
4009
6051

stroke-width = "2px"

height = 75 " full blue" skirt

$\langle \gamma_{\text{cut}} \rangle$

-: +nd +no



```
    if (DOC_TYPE = "HTML")  
    {  
        if (body < 200)  
        {  
            if (height > 100)  
            {  
                rect x = "100" y = "100"  
                width = 100  
                height = 100  
            }  
        }  
    }
```

Syntaxis

* This draws a straight line between two points in a single image.

Singular

$(x_1, y_1) = [x_1, y_1]$, $(x_2, y_2) = [x_2, y_2]$

$y_2 - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1) + y_1$

Where,

X1: specifies the x-coordinate of the starting point
of the line.

In a SUV image.

q1 : specifies the y - coordinate of the starting point of the line.
 x2 : specifies the x - coordinate of the ending point of the line.
 y2 : specifies the y - coordinate of the ending point of the line.
 cx : specifies the x - coordinate of the center of the ellipse.
 cy : specifies the y - coordinate of the center of the ellipse.
 rx : specifies the horizontal radius of the ellipse.
 ry : specifies the vertical radius of the ellipse.
 attributes : specifies other properties such as stroke-color, stroke-width, fill-color etc.
 Example :-

```

<!DOCTYPE html>
<html>
<body>
<svg width="800" height="800">
<ellipse cx="50" cy="50" rx="40" ry="20" fill="blue"/>
</svg>
</body>
</html>

```

q2 : specifies the y - coordinate of the starting point of the line.
 x1 : specifies the x - coordinate of the ending point of the line.
 y1 : specifies the y - coordinate of the ending point of the line.
 cx : specifies the x - coordinate of the center of the ellipse.
 cy : specifies the y - coordinate of the center of the ellipse.
 rx : specifies the horizontal radius of the ellipse.
 ry : specifies the vertical radius of the ellipse.
 attributes : specifies other properties such as stroke-color, stroke-width, fill-color etc.
 Example :-

```

<!DOCTYPE html>
<html>
<body>
<svg width="200" height="200">
<circle cx="150" cy="150" r="50" fill="blue"/>
</svg>
</body>
</html>

```

```
!DOCTYPE html>
<html>
<body>
<svg width="200" height="200" style="border: 1px solid black; border-radius: 50%;">
</svg>
</body>
</html>
```

* The last vertex is automatically connected to the first vertex.

(body)

(html)

Ex:-

<body>

fill="blue"

<svg width="200" height="200" style="border: 1px solid black; border-radius: 50%;">

* This draws a closed shape, which consists of series of connected straight lines.

points:- specifies the vertices of the polygon attributes: specifies the other properties such as stroke-color, stroke-width, fill-color etc

- * Each coordinate is separated by a comma.
- * Multiple vertices are separated by spaces.
- * The first vertex represents the starting point of the polygon.



Output:-

HTML - SVG Polygon:-

Syntax:-

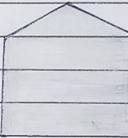
```
<polygon points="x1,y1 x2,y2 x3,y3">
```

Attributes]

Where,
points:- specifies the vertices of the polygon
attributes:- specifies the other properties such as
stroke-color, stroke-width, fill-color etc



point of the polygon



Output:
 <html>
 <body>
 <svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/>
 </body>
 </html>

* This draws an open shape, which consists
of a series of connected straight lines.

HTML S - SVG Polyline

- * Unlike polygon, the last vertex is not connected to the first vertex.
- * The first vertex represents the starting point of the polyline.
- * Multiple vertices are separated by spaces.
- * Each coordinate is separated by a comma.
- * Points - specifies the vertices of the polyline.
- Attributes - specifies other properties such as stroke-color, stroke-width, fill-color, etc.
- stroke - specifies other properties such as stroke-color, stroke-width, fill-color, etc.
- Multiple vertices are separated by commas.
- The first vertex represents the starting point of the polyline.
- Unlike polygon, the last vertex is not connected to the first vertex.

 <svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/>
 </svg>
 <body>
 <html>
 <head>
 <title>Polyline</title>
 </head>
 <body>
 <h1>Polyline</h1>
 <p>A series of connected straight lines</p>

 <pre><svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/></pre>
 </body>
 </html>
 </body>
 </html>



Syntax:-

<polyline points="cx1, cy1 . cx2, cy2 . cx3, cy3" />

Where,
Points - specifies the vertices of the polyline.
Attributes - specifies other properties such as stroke-color, stroke-width, fill-color, etc.

150,150 100,180 50,150 "fill:red" />
 <polyline points="50,150 100,180 50,150" style="fill:red;"/>

Ex:-
 <html>
 <body>
 <h1>Polyline</h1>
 <p>A series of connected straight lines</p>

 <pre><svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/></pre>
 </body>
 </html>

 <svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/>
 </svg>
 <body>
 <html>
 <head>
 <title>Polyline</title>
 </head>
 <body>
 <h1>Polyline</h1>
 <p>A series of connected straight lines</p>

 <pre><svg width="200" height="200" style="border: 1px solid black; width: 100%; height: 100%; display: block; margin: auto; border-radius: 10px; background-color: #f0f0f0; position: relative; z-index: 1;"/></pre>
 </body>
 </html>
 </body>
 </html>

Where,

`id`: This is a unique identifier for the gradient.
`cx, cy`: specifies the center of the radial gradient.
specifies the radius of the radial gradient.
defines the position and color of the gradient.
specifies the position of the color along the gradient.
specifies the color of the gradient.

Ex:-

```
<!DOCTYPE html>
<html>
  <body>
    <svg width="200" height="200">
      <defs>
        <radialGradient id="grad 2" cx="50%" cy="50%" r="50%">
          <stop offset="0%" style="stop-color:red;" />
          <stop offset="100%" style="stop-color:green;" />
        </radialGradient>
      </defs>
      <rect x="25" y="25" width="150" height="100"
            fill="url(#grad 2)" />
    </svg>
  </body>
</html>
```

HTML 5 - SVG Star:-

* To Create star shape,
1. use a polygon element and
2. Specify vertices of the star.

Ex:-

```
<!DOCTYPE html>
<html>
  <body>
    <svg width="200" height="200">
      <polygon points="100,50 120,95 170,95
                 130,125 150,170 100,140 50,170 70,125
                 30,95 80,95" fill="blue"/>
    </svg>
  </body>
</html>
```

