

Canvas and SVG

Canvas

- Canvas element is a container for canvas graphics, rectangular area on HTML page.
- It gives you an easy and powerful way to draw graphics using JavaScript. It can be used to draw graphs, paths, boxes, circle, images.
- It is resolution dependent bitmap canvas.
- Can have more than one canvas in one document, can be accessed by id.
- Syntax : `<canvas id="can" width="300" height="225"></canvas>`
`var canvas = document.getElementById("can");`

Simple Shape - Fill Rectangle

- To draw something with canvas, need drawing context in which all drawing methods and properties are defined.

For rectangle shape, below methods are provided :

- `fillRect(x, y, width, height)` – draws rectangle filled with fill style.
- `strokeRect(x, y, width, height)` – draws rectangle edges.
- `clearRect(x, y, width, height)` - clears pixel in specified rectangle

`strokeStyle` and `fillStyle` are used to apply fill/stroke styles(css).

Paths

- Each canvas has a path. Defining path is like drawing with pencil.

To draw straight lines, use below methods :

- moveTo(x, y) : moves pencil to specified starting point.
- lineTo(x, y) : draws a line to specified end point
- stroke() : takes path defined by moveTo and lineTo calls and draw on canvas.
- beginPath() : to start another path

Text

- You can also draw text on canvas

Attributes of drawing context :

- font : CSS font rule - That includes font style, font variant, font weight, font size, line height, and font family.
- textAlign : controls text alignment. It is similar to a CSS text-align rule. Possible values are start, end, left, right, and center.
- textBaseline : controls where the text is drawn relative to the starting point. Possible values are top, hanging, middle, alphabetic, ideographic, or bottom.

Gradients

- A gradient is a smooth transition between two or more colors

Canvas drawing context supports two types of gradient :

- `createLinearGradient(x0, y0, x1, y1)`

It paints along a line from (x0, y0) to (x1, y1)

- `createRadialGradient(x0, y0, r0, x1, y1, r1)`

It paints along a cone between two circles. First three parameters are for start circle with origin (x0, y0) with radius r0 and last parameters are for end circle with origin (x1, y1) with radius r1