Essentials of SVG

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The following short note explains the most useful things to know when writing vector graphics to SVG.

First, we start with a skeleton of an SVG file (which uses the XML data format):

```
<svg width='300px' height='300px' viewBox='0 0 100 100'
     xmlns='http://www.w3.org/2000/svg'>
     <circle style='stroke:none;fill:red'  cx='10' cy='10' r='2'/>
     <path style='stroke:black;fill:none'  d='M10 10L20 20 L30 10Z'/>
</svg>
```

In this very simple example, there are already several useful things we can see here:

- `width` and `height` give the size of the SVG in pixels relative to the host document.
- `viewBox` gives the size of the shape in SVG units (not pixels). It has four numbers giving the left side, top side, width, and height. Y coordinates run downwards.
- `circle` draws a circle. `cx`, `cy`, and `r` gives the center's X coordinate, its Y coordinate, and its radius, all in SVG units.
- `path` gives the shape of the path in a compact form specified as the `d` attribute. Each path is broken up into commands, which are detailed further in the SVG specification. The most important of these are perhaps M, L, and Z: the M command moves the pen; the L command draws with the pen, moving it to a new position; and the Z command closes the shape. In general, numbers given in the path specification is in SVG units, relative to the SVG document itself.
- `style` gives styling instructions for the path or circle. Perhaps the most important style rules are `stroke`, `fill`, and `stroke-width`, and the following are examples of the `style` attribute, which are mostly self-explanatory: `style='stroke:red;stroke-width:1px'`, `style='stroke:none;'`, `style='fill:blue;'`, `style='fill:none;'` (here `px` means an SVG unit, relative to the SVG document itself).
- An SVG document can have any number of `path` and/or `circle` elements, and each one is a separate shape.

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