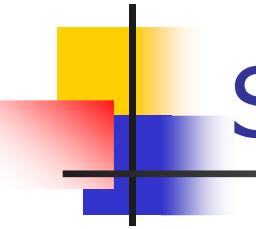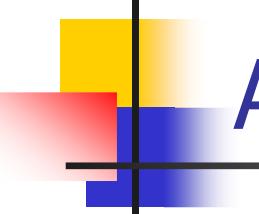# SVG basic features

Jaana Holvikivi

Metropolia
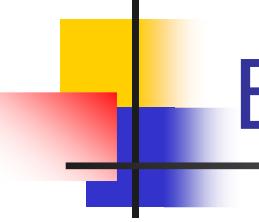
SVG Scalable Vector Graphics

- W3C recommendation 1.1 year 2003
- Mobile profiles SCG Basic and SVG Tiny
- http://www.svgi.org/
- 2D vector graphics
- Combination with styles (CSS)
- Dynamic interfacing using DOM & Javascript, XHTML
- Supported by newest browsers Mozilla/Firefox 2 & Opera 9, but
  IE (also 8.0)requires Adobe SVGViewer

Advantages of using SVG

- SVG files can be read and modified by a large range of tools (XML text files)

- SVG files are smaller and more compressible than JPEG and GIF images

- SVG images are scalable

- SVG images can be printed with high quality at any resolution

- SVG images are zoomable (and the image can be zoomed without degradation)

- Text in SVG is selectable and searchable (excellent for making maps)

- SVG works with Java technology and APIs
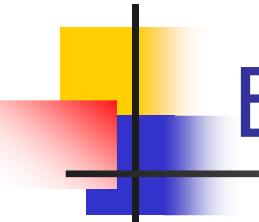
Basic features

Vector graphics, raster graphics & text

The painter's model:

- Viewing window
- Drawing surface, canvas; rendering order
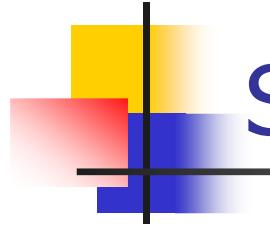- Coordinates

Grouping

Paths and curves

Example shapes : rectangle and circle

```xml
<?xml version="1.0" standalone="no"?>
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 1.1//EN"
   "http://www.w3.org/Graphics/SVG/1.1/DTD/svg11.dtd">

<svg width="100%" height="100%" version="1.1"
   xmlns="http://www.w3.org/2000/svg">
<rect width="300" height="200"
   style="fill:rgb(0,155,155);stroke-width:1;
   stroke:rgb(0,11,11)"/>

<circle cx="100" cy="50" r="40" stroke="black" stroke-
   width="2" fill="red"/>

</svg>
```
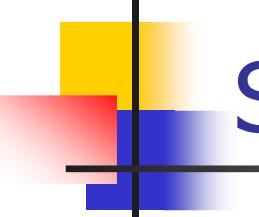
Shapes and positioning

Ellipse:
<ellipse cx="300" cy="150" rx="200" ry="80"
style="fill:rgb(200,100,50); stroke:rgb(0,0,100);stroke-width:2"/>

Positioning from top left corner

<rect x="20" y="20" width="250" height="250"
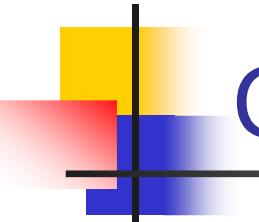style="fill:blue;stroke:pink;stroke-width:5; fill-opacity:0.1;stroke-opacity:0.9"/>

Rounded corners:
<rect x="20" y="20" rx="20" ry="20" width="250" height="100"
style="fill:red;stroke:black; stroke-width:5;opacity:0.5"/>

SVG drawing features

- Shapes: rectangle, circle, ellipse, line, polygon, polyline, path
- Filters
- Gradients, filling
- Text
- Bitmaps, masking
- Animation

Geographical data and SVG

- GML data can be transformed into SVG by special tools
- MapInfo and ESRI offer maps in SVG- format
- Google Maps API has an SVG option
- Maps can be modified on client work station:
  - Colors, dataset
  - Layer control
  - Zooming, moving the image