eFaber
soluciones inteligentes

Simple Data Visualization with JavaScript

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Conferencia Rails, 2010

Data Visualization

Data

a set of numbers, dates, texts, etc.

Interpretation

Statistics

Information

something we can undestand.

Visualization

information + design

Simple data visualization

Information

something we can undestand.

Visualization

interactive chart

Drawing on the web

- *Before: prepare image on the server and send it to the browser.*
- *Now: the image can be drawn on the client site.*

SVG or Canvas

SVG	*Canvas*
Scalable Vector Graphics	
DOM object	*HTML5*
Interactive	*Not resizable*
Resizeable	*Interactive?*

Simple data visualization

Information

something we can undestand.

JavaScript

Visualization

interactive chart SVG

Example data

Introduction

http://aneventapart.com/alasurvey2009/

alistapart

Misc Feeds (28) Home Work Apple Yahoo! Google Maps YouTube Wikipedia Noticias (84) Populares Bloglines Instapaper Read Later

Introduction

A LIST APART

FINDINGS FROM THE SURVEY FOR PEOPLE WHO MAKE WEBSITES 2009

Introduction

I Age

II Gender

III Ethnicity

IV Job title

V Geographic region

VI Top 20 responding countries

VII Education

VIII Relevance of education

IX Excited by field

X Have a personal site/blog

XI Time personal site/blog online

XII Type of organization

XIII Organization size

XIV Hours worked per week

XV Years in the field

XVI Degree of web work

XVII Years at current job

XVIII Number of years freelancing

XIX Next career move

Findings from the A LIST APART Survey, 2009

Once again, A List Apart and you have teamed up to shed light on precisely who creates websites. Where do we live? What kind of work do we do? What are our job titles? How well or how poorly are we paid? How satisfied are we, and where do we see ourselves going?

Once again, we present our findings on the web, with XHTML table data converted to beauteous charts care of CSS, Jason Santa Maria, and Eric Meyer. Others who worked on these findings include editor Krista Stevens and publisher Jeffrey Zeldman.

Analyses contained in this report should be considered primarily descriptive; no attempt was made to assess causality among survey variables. In plain English, be careful not to extrapolate the observations that follow into predictive or causal relationships.

Who are you?

Come here often? What's your sign?

Respondents were asked basic questions about age, gender, job title, and so on.

Example data

Excited by field?

No	2,5%
Yes - once in a while	25,6%
Yes - frequently	41,9%
Yes - very frequently	29,5%
Don't know	0,5%

A LIST APART Survey 2009, http://aneventapart.com/alasurvey2009/

Bar chart

FIG. IX **Excited by field**

Percentages are based on 26,165 responses to this question (99.1% of all respondents).

As compared to 2008, we seem to be less excited about the field. In 2008, 78.2% of respondents were frequently or very frequently excited by the field; in 2009, 71.4% felt the same.

Bar Chart HTML

```
<table cellpadding="0" cellspacing="0">
    ...
    <tr>
      <th>Yes - once in a while</th>
      <td><div><p style="width: 25.6%"><span>25.6 %</span></p></div></td>
    </tr>
    ...
</table>
```

Example data

Excited by field?

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Yes - frequently	41,9%
Yes - very frequently	29,5%
Don't know	0,5%

A LIST APART Survey 2009, http://aneventapart.com/alasurvey2009/

Pie chart

JavaScript Libraries

Protovis

a compete set of elements for data visualization

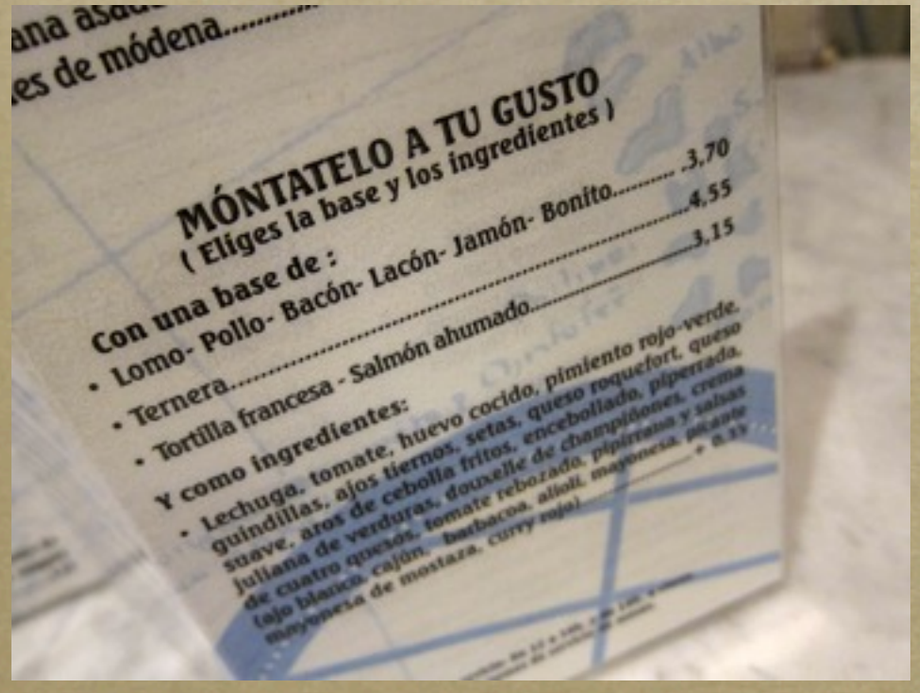
gRaphaël

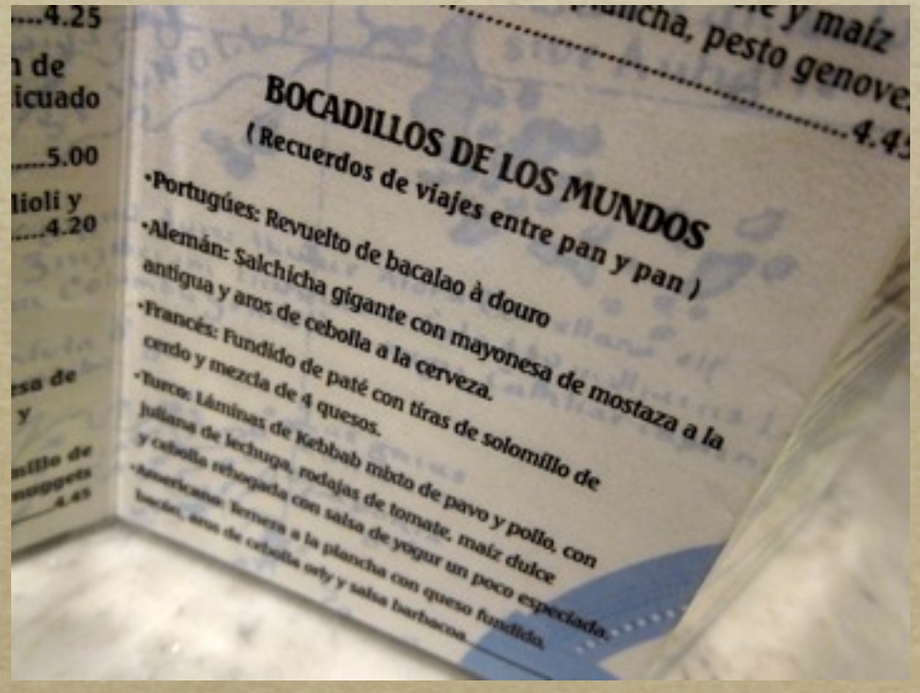
a main library completed with a set of chart specific libraries

JavaScript Libraries

Protovis

gRaphaël





index.html

file:///Users/eli/work/conferencia_rails/charla2010/step_by_step/index.html

Simple data visualization with JavaScript

The data

Excited by field?	
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Yes - once in a while	25.6 %
Yes - frequently	41.9 %
Yes - very frequently	29.5 %
Don't know	0.5 %

A LIST APART Survey 2009,
http://aneventapart.com/alasurvey2009/

Next step »

Load the libraries

Protovis	gRaphaël
prototype.js	prototype.js
protovis-r3.2.js	raphael-min.js g.raphael-min.js g.pie-min.js

Pie chart scaffold

HTML

```
<div id="data_holder">...</div>
<div id="chart_holder"></div>
```

JavaScript

```
var data = getData('data_holder');

/* Sizing and scales. */
var dimensions = $('chart_holder').getDimensions();
var w = dimensions.width,
    h = dimensions.height,
    r = w / 2;
```

Prepare the ‘paper’

Protovis

```
var a = pv.Scale.linear(0, 100)
          .range(0, 2 * Math.PI);

var vis = new pv.Panel()
          .canvas('chart_holder')
          .width(w)
          .height(h);
```

gRaphaël

```
var paper = Raphael('chart_holder', w, h);
```

Draw the pie

Protovis

```
vis.add(pv.Wedge)
        .data(data.values)
        .bottom(w / 2)
        .left(w / 2)
        .innerRadius(0)
        .outerRadius(r - 20 )
        .angle(a)
```

gRaphaël

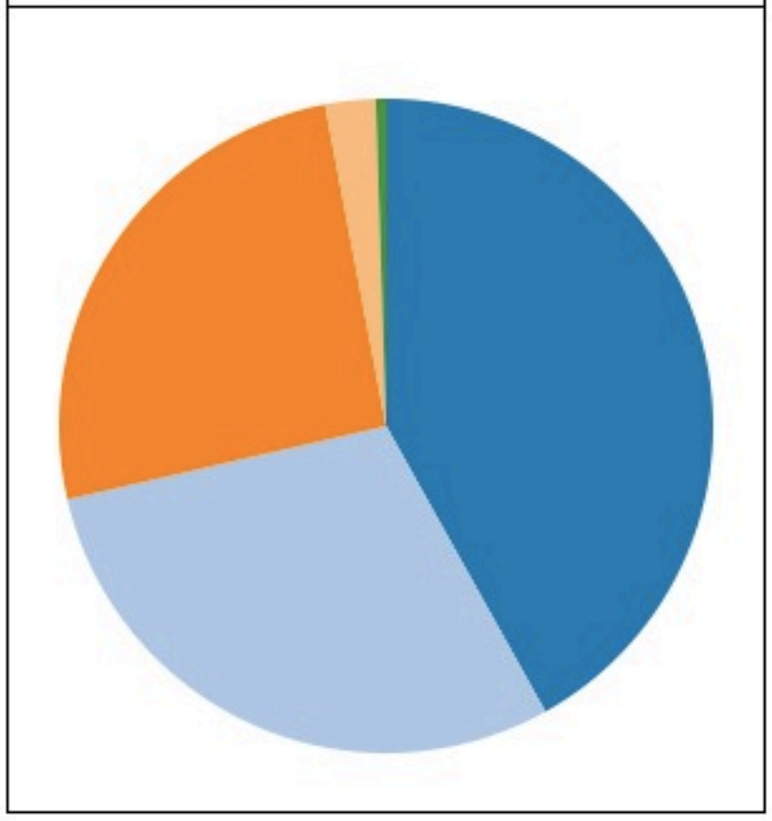
```
paper.g.piechart(r, r, r - 20,
                 data.values);
```

step1.html

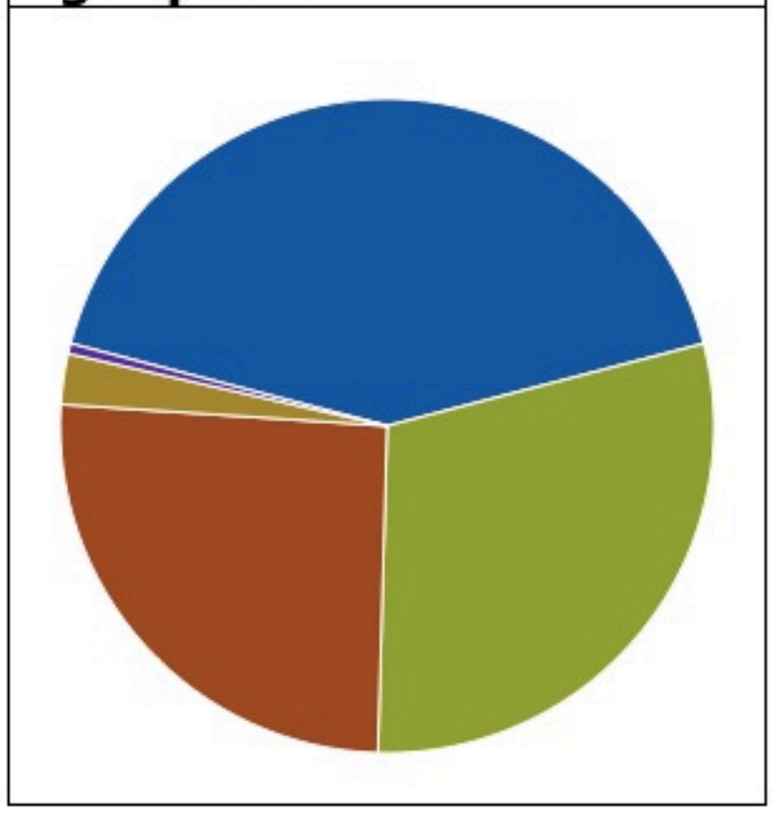
Simple data visualization with JavaScript

Step 1: Draw the pie

Protovis



gRaphaël



Next step »

Conferencia Rails, 2010

Draw the pie with labels

Protovis

```
vis.add(pv.Wedge)
        .data(data.values)
        .bottom(w / 2)
        .left(w / 2)
        .innerRadius(0)
        .outerRadius(r - 20 )
        .angle(a)
      .anchor("center").add(pv.Label)
        .textAngle(0)
        .text(function(d) {
              return d.toFixed(2)
            });
```

gRaphaël

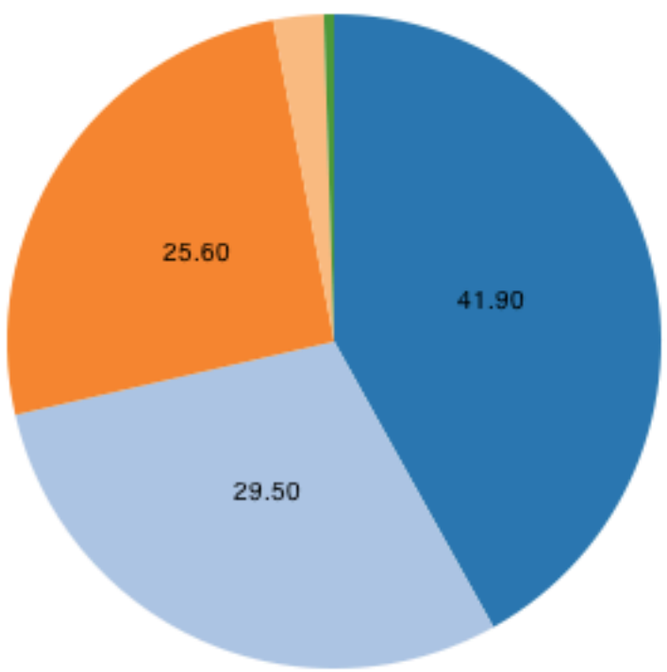
```
paper.g.piechart(r, r, r - 20,
                 data.values,
        {legend:    data.labels,
         legendpos: 'east'});
```

step2.html

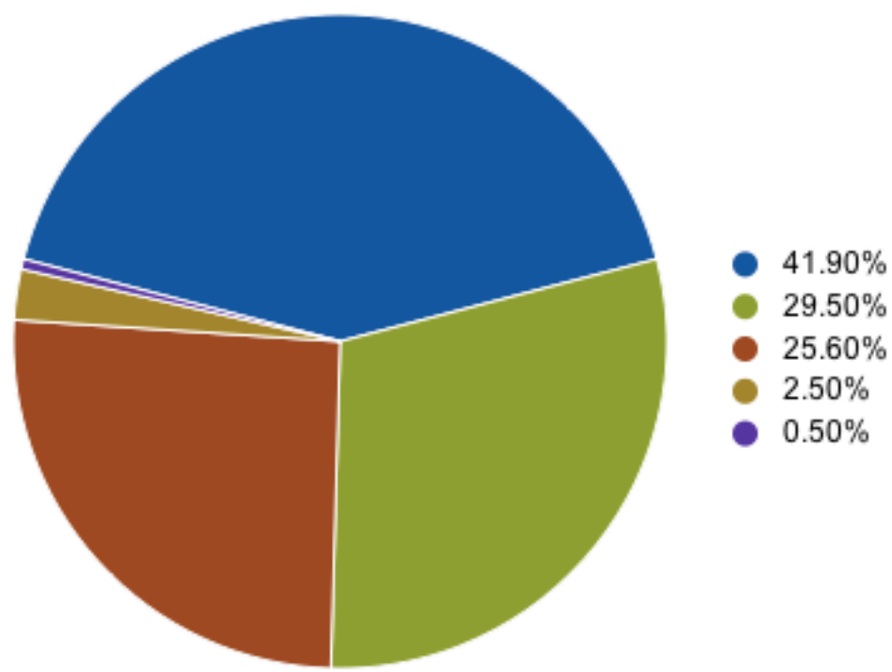
Simple data visualization with JavaScript

Step 2: Add labels

Protovis



gRaphaël



Next step »

Make the pie interactive

Protovis

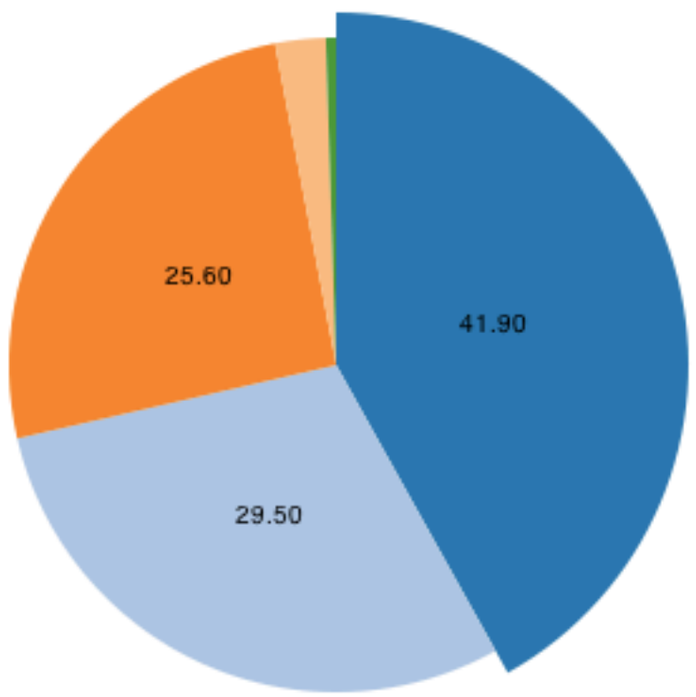
```
vis.add(pv.Wedge)
      .data(data.values)
      .def("o", -1)
      .bottom(w / 2)
      .left(w / 2)
      .innerRadius(0)
      .outerRadius(r - 20 )
      .outerRadius(function() {
          return r - ((this.o() == this.index) ? 10 : 20)
       })
      .angle(a)
      .event("mouseover", function() {return this.o(this.index)})
      .event("mouseout", function() {return this.o(-1)})
  .anchor("center").add(pv.Label)...
```

step3.html

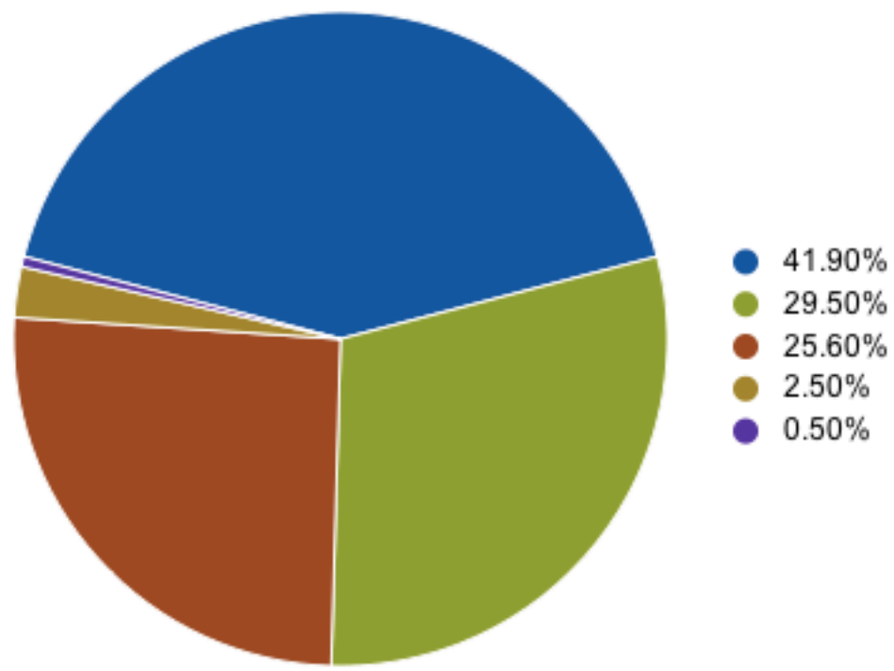
Simple data visualization with JavaScript

Step 3: Interactive pie

Protovis



gRaphaël



Conferencia Rails, 2010

Make the pie interactive

gRaphaël

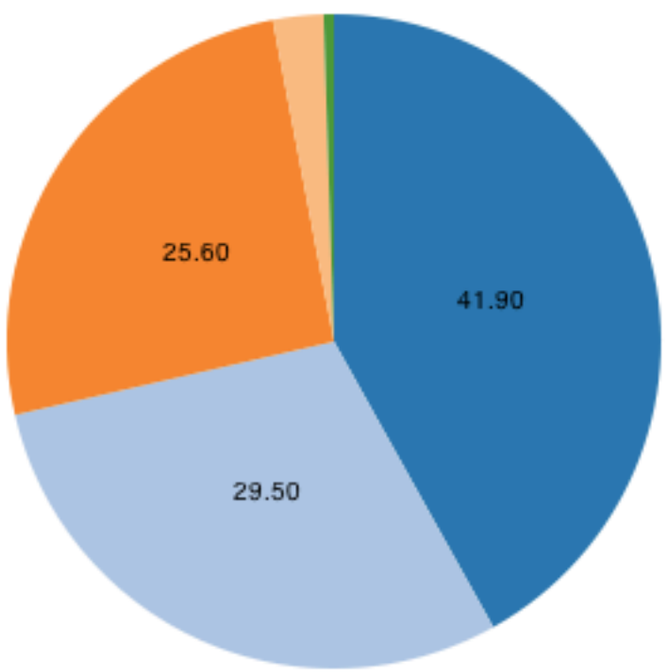
```
var pie = paper.g.piechart(r, r, r - 20,
                   data.values,
            {legend:    data.labels,
             legendpos: 'east'});

pie.hover(function () {
                this.sector.stop();
                this.sector.scale(1.1, 1.1, this.cx, this.cy);
            }, function () {
                this.sector.animate({scale: [1, 1, this.cx, this.cy]},
                                    500, "bounce");
            });
```

step3.html

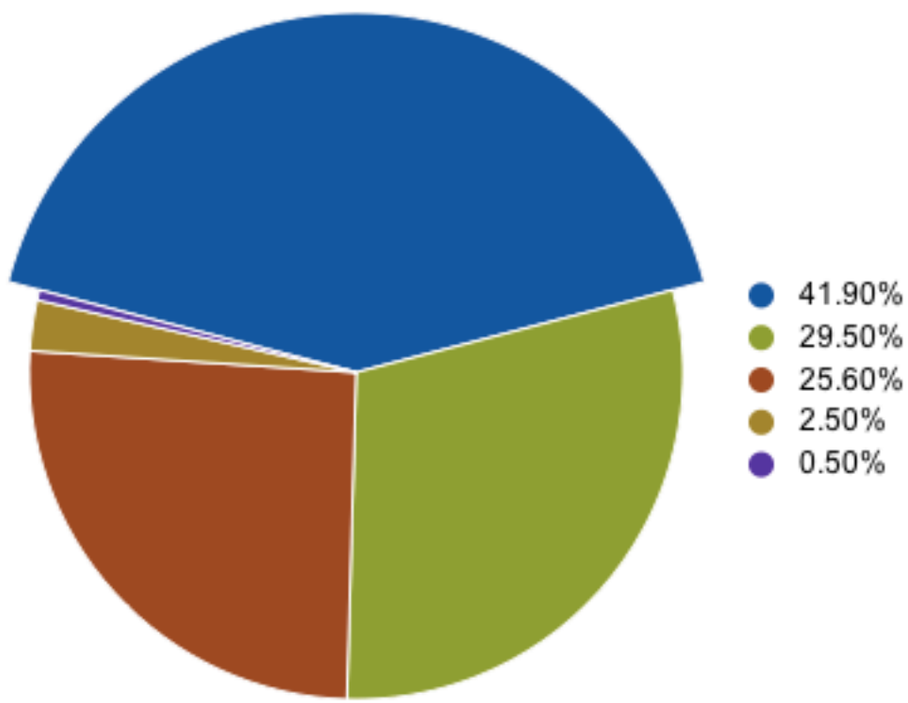
Simple data visualization with JavaScript

Step 3: Interactive pie

Protovis



gRaphaël



Conferencia Rails, 2010

Final result

pie_chart.html

Simple Data Visualization with JavaScript

Protovis example

Excited by field?	
No	2.5 %
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A LIST APART Survey 2009,
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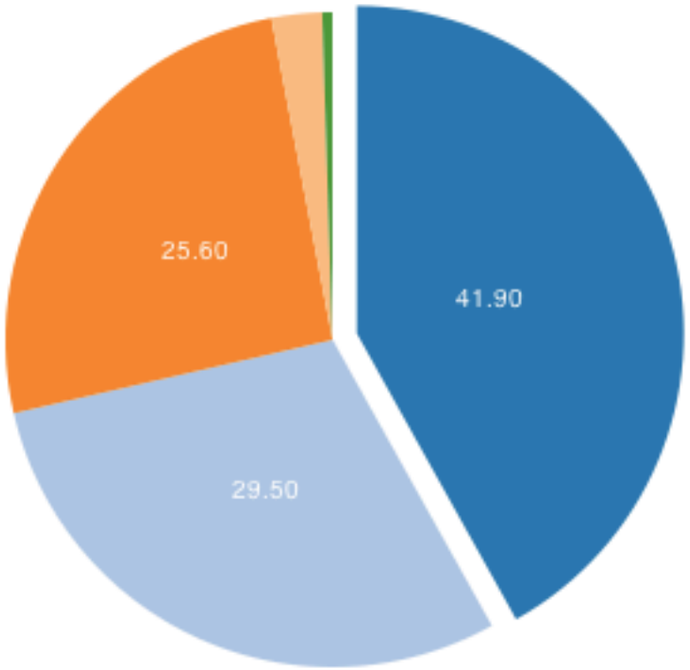

pie_chart.html

Simple data visualization with JavaScript

Raphaël example: Pie chart

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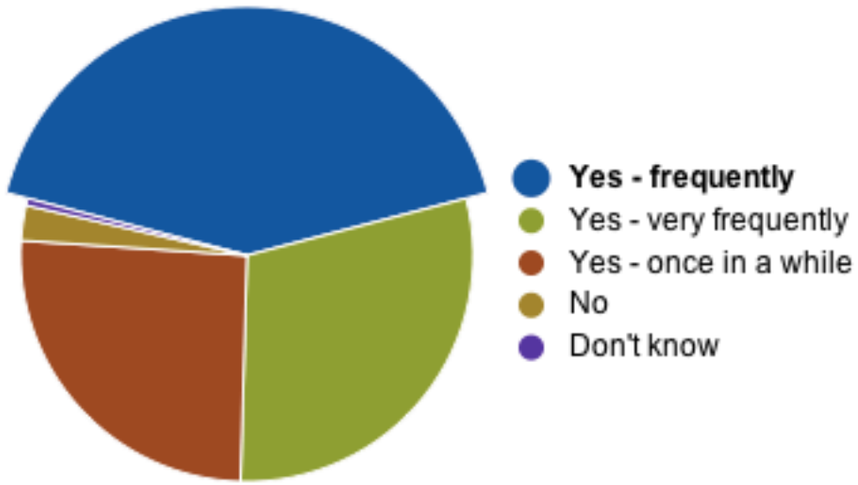


Conferencia Rails, 2010

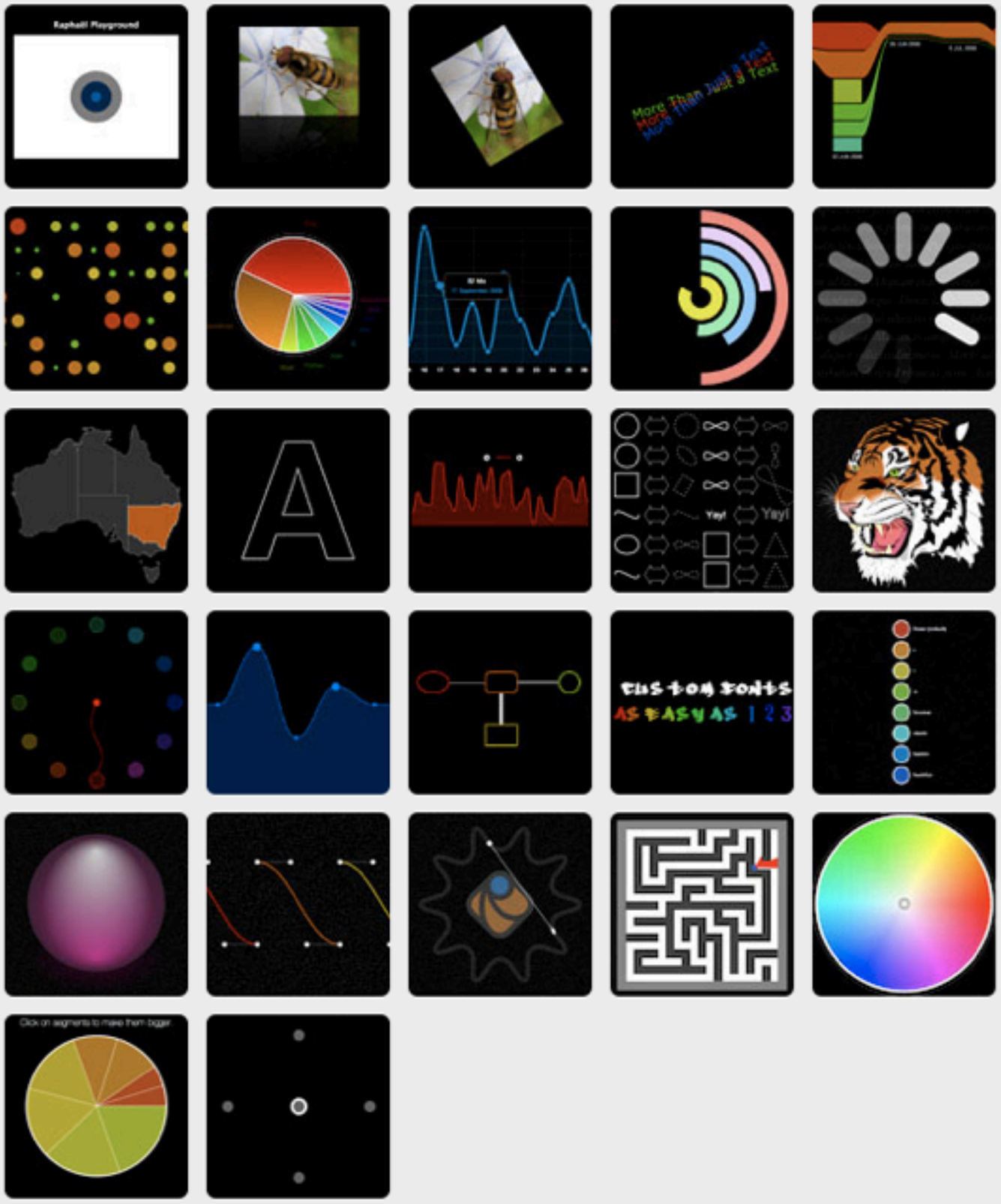
Sources

http://github.com/elika/code_cr2010

Raphaël—JavaScript Library

http://raphaeljs.com/

Demos

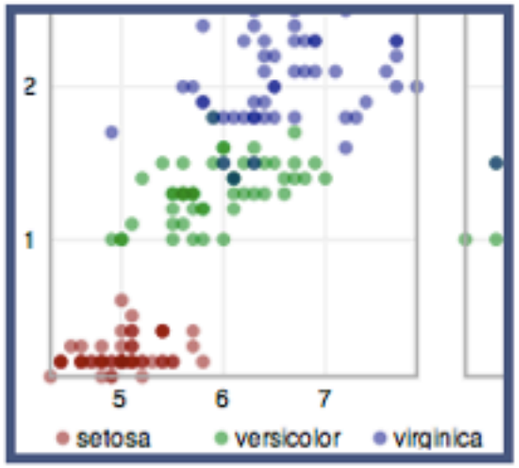


T-shirts & Stickers

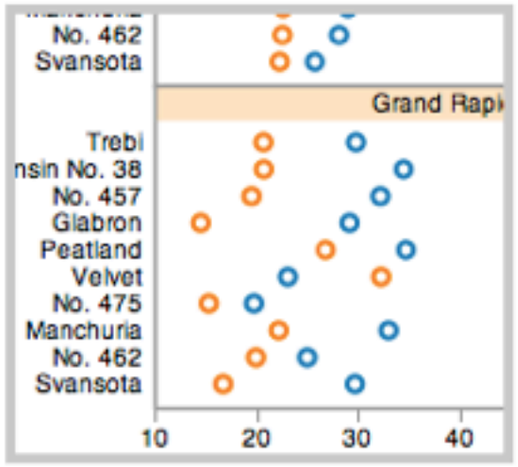
Protovis – Examples

http://vis.stanford.edu/protovis/ex/

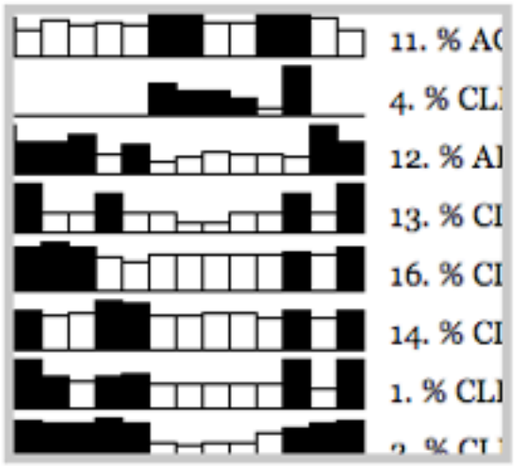
protovis



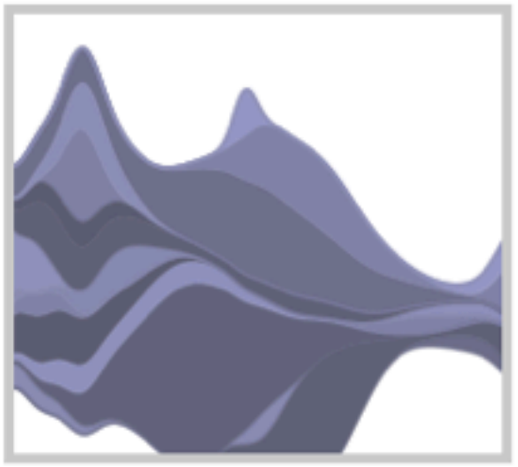
Anderson's Flowers



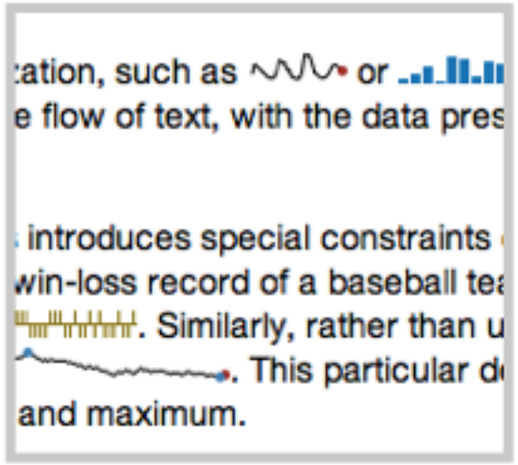
Becker's Barley



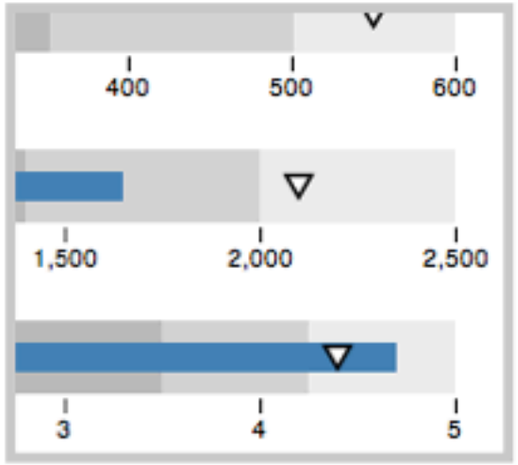
Bertin's Hotel



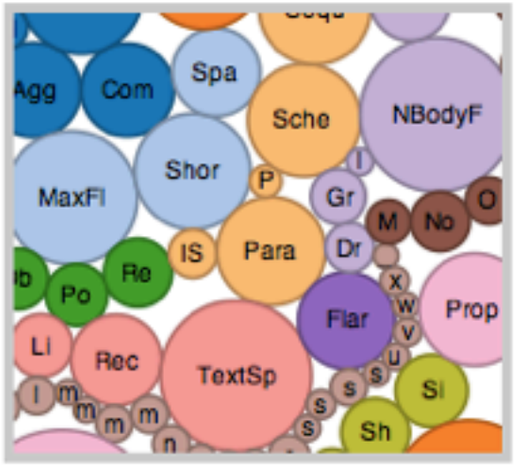
Streamgraphs



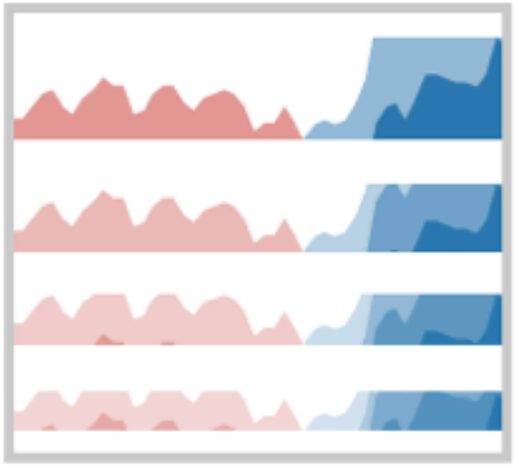
Sparklines



Bullet Charts

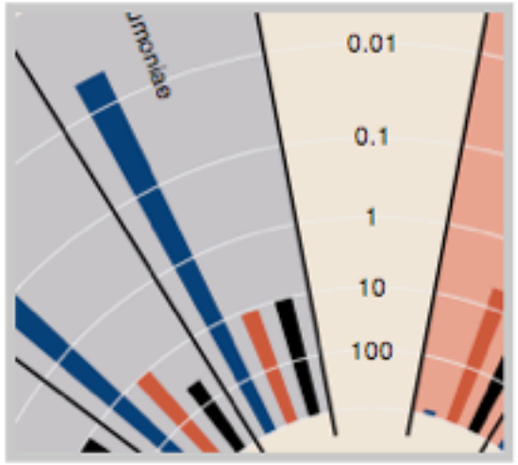


Bubble Charts

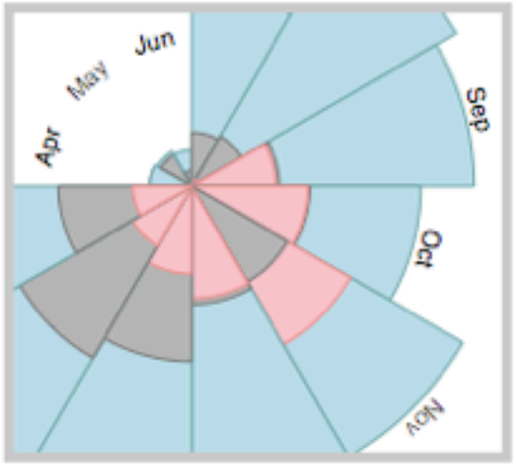


Sizing the Horizon

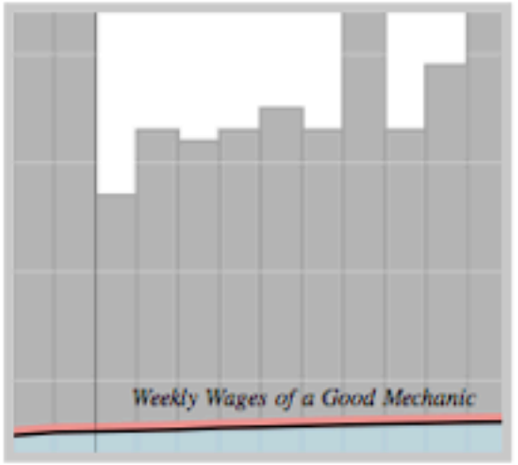
Candlestick Charts



Burtin's Antibiotics



Nightingale's Rose



Playfair's Wheat

Abrir "http://vis.stanford.edu/protovis/ex/flowers.html" en una pestaña nueva

Summary

gRaphaël

- *very **easy to use***
- *a lot of charting functions available*
- *some customization options*

Protovis

- *very **customizable***
- *detailed documentation*
- *many examples*

Thanks!