

Data Visualization with Flex

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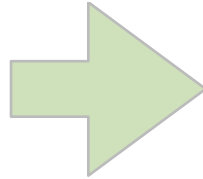
BrightPoint Consulting, Inc.

9/2/2008

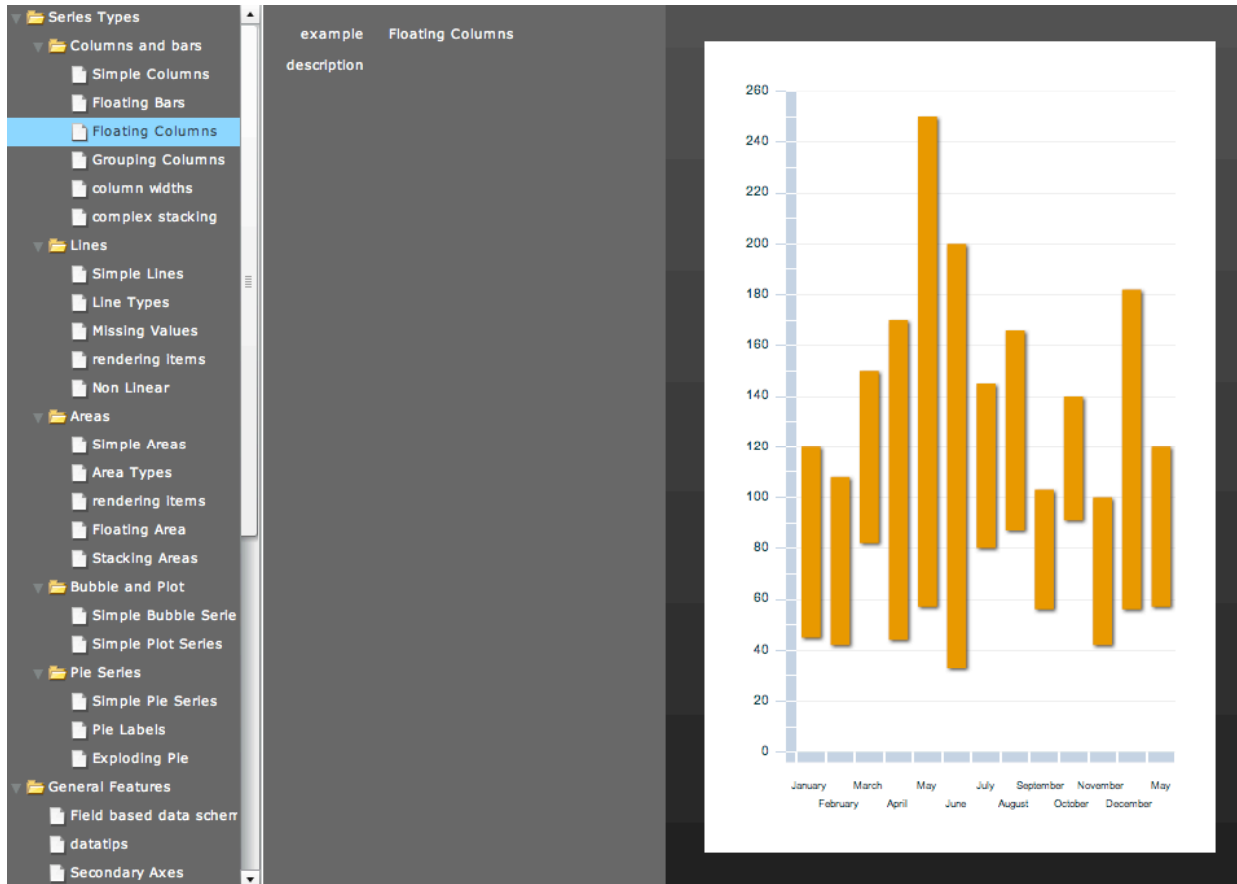




- **Beginning to Advanced Flex Developer**
- **Have used Flex Builder and familiar with MXML and ActionScript 3**
- **Have an interest in learning more about Data Viz with Flex.**



Flex gives us the raw materials, but it is up to us put them together and make them sing.



<http://www.quietlyscheming.com/blog/charts/chart-sampler/>

Putting the puzzle together
Data Management

Painting the picture
Presenting your Data

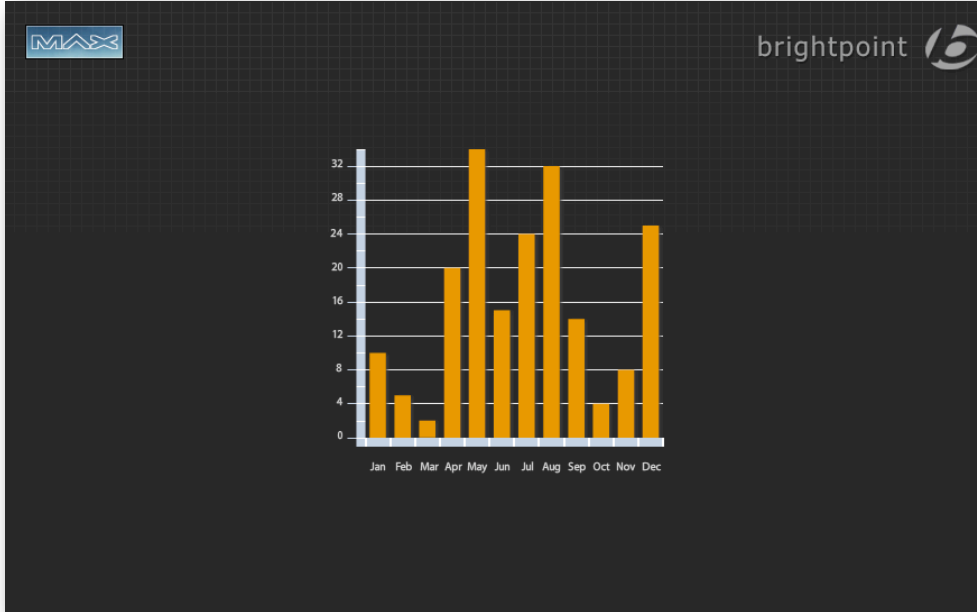
Making it come alive
Adding User Interaction





- **Arrays**
- **ArrayCollections**
- **XML**
- **DataSet**

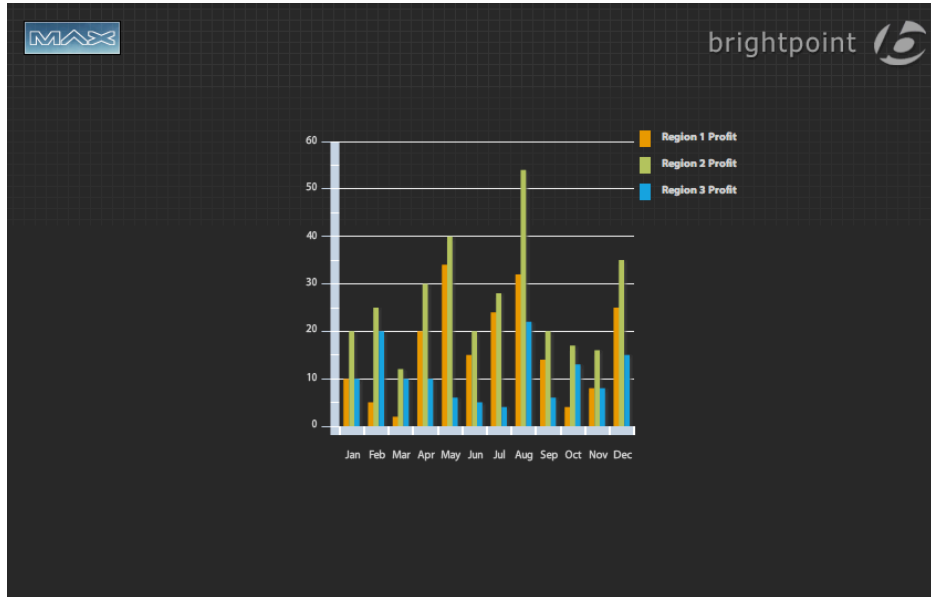
Demo 1 - Data Types



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <mx:Application xmlns:mx="http://www.adobe.com/2006/mxml" layout="absolute">
3   <mx:Style source="assets/style/style.css"/>
4
5 <mx:Script>
6 <![CDATA[
7   import com.brightPoint.data.DataSet;
8   import mx.collections.XMLListCollection;
9   import mx.collections.ArrayCollection;
10  import mx.charts.series.ColumnSeries;
11
12
13  private var myArray:Array=[10,5,2,20,34,15,24,32,14,4,8,25];
14  private var myArrayCollection:ArrayCollection=new ArrayCollection([
15    {month:"Jan",profit:10},
16    {month:"Feb",profit:5},
17    {month:"Mar",profit:2},
18    {month:"Apr",profit:20},
19    {month:"May",profit:34},
20    {month:"Jun",profit:15},
21    {month:"Jul",profit:24},
22    {month:"Aug",profit:32},
23    {month:"Sep",profit:14},
24    {month:"Oct",profit:4},
25    {month:"Nov",profit:8},
26    {month:"Dec",profit:25}
27  ]]);
28
29
30
31
32  private var myXML:XML=<root>
33    <node month="Jan" profit="10"/>
34    <node month="Feb" profit="5"/>
35    <node month="Mar" profit="2"/>
36    <node month="Apr" profit="20"/>
37    <node month="May" profit="34"/>
38    <node month="Jun" profit="15"/>
39    <node month="Jul" profit="24"/>
40    <node month="Aug" profit="32"/>
41    <node month="Sep" profit="14"/>
42    <node month="Oct" profit="4"/>
43    <node month="Nov" profit="8"/>
44    <node month="Dec" profit="25"/>
45  </root>;
46
47  private var myCSV:String=
48    "Month, Profit \n" +
49    "Jan, 10 \n" +
50    "Feb, 5 \n" +
51    "Mar, 2 \n" +
52    "Apr, 20 \n" +
53    "May, 34 \n" +
54    "Jun, 15 \n" +
55    "Jul, 24 \n" +
56    "Aug, 32 \n" +
57    "Sep, 14 \n" +
58    "Oct, 4 \n" +
59    "Nov, 8 \n" +
60    "Dec, 25 \n";
61
62  [Bindable]
63  private var myDataSet:DataSet=new DataSet(myCSV);
```



- **Structuring our Data**
- **Static Series**
- **Dynamic Series**
- **Pivoting a Series**



```
<mx:Script>
<![CDATA[
import com.brightPoint.data.DataSet;
import mx.collections.XMLListCollection;
import mx.collections.ArrayCollection;
import mx.charts.series.ColumnSeries;

private var myArray:Array=[10,5,2,20,34,15,24,32,14,4,8,25];
private var myArrayCollection:ArrayCollection=new ArrayCollection([
{month:"Jan",region1_profit:10, region2_profit:20, region3_profit:10},
{month:"Feb",region1_profit:5, region2_profit:25, region3_profit:20},
{month:"Mar",region1_profit:2, region2_profit:12, region3_profit:10},
{month:"Apr",region1_profit:20, region2_profit:30, region3_profit:10},
{month:"May",region1_profit:34, region2_profit:40, region3_profit:6},
{month:"Jun",region1_profit:15, region2_profit:20, region3_profit:5},
{month:"Jul",region1_profit:24, region2_profit:28, region3_profit:4},
{month:"Aug",region1_profit:32, region2_profit:54, region3_profit:22},
{month:"Sep",region1_profit:14, region2_profit:20, region3_profit:6},
{month:"Oct",region1_profit:4, region2_profit:17, region3_profit:13},
{month:"Nov",region1_profit:8, region2_profit:16, region3_profit:8},
{month:"Dec",region1_profit:25, region2_profit:35, region3_profit:15}
]);

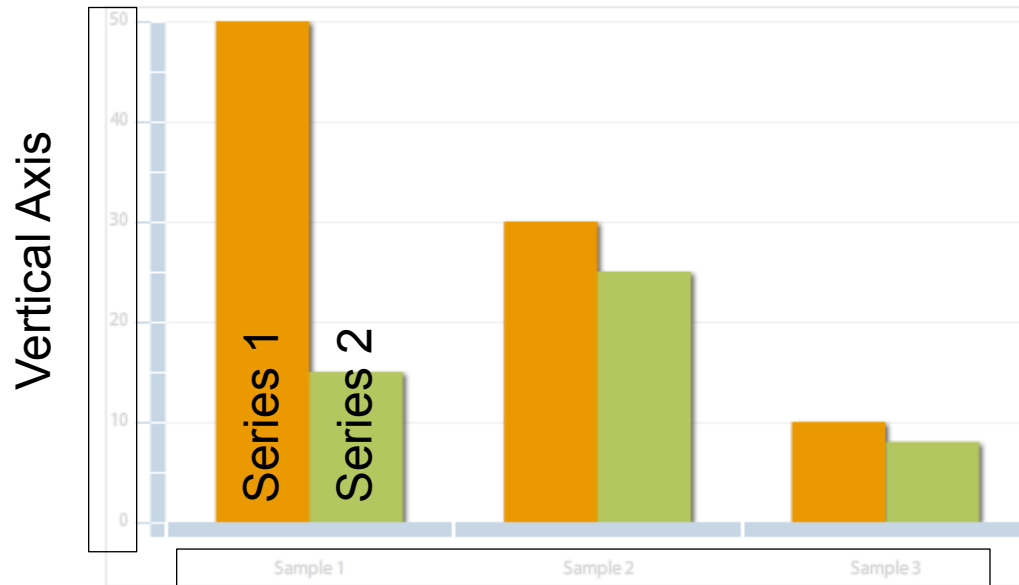
private var myArrayCollectionPivot:ArrayCollection=new ArrayCollection([
{region:"Region 1", jan_profit:10, feb_profit:5, mar_profit:2, apr_profit:20},
{region:"Region 2", jan_profit:20, feb_profit:25, mar_profit:12, apr_profit:30},
{region:"Region 3", jan_profit:10, feb_profit:20, mar_profit:10, apr_profit:10}
]);

private var myCSV:String=
"Month, Region1_Profit, Region2_Profit, Region3_Profit \n" +
"Jan, 10, 20, 10 \n" +
"Feb, 5, 25, 20 \n" +
"Mar, 2, 12, 10 \n" +
"Apr, 20, 30, 10 \n" +
"May, 34, 40, 6 \n" +
"Jun, 15, 20, 5 \n" +
"Jul, 24, 28, 4 \n" +
"Aug, 32, 54, 22 \n" +
"Sep, 14, 20, 6 \n" +
"Oct, 4, 17, 13 \n" +
"Nov, 8, 16, 8 \n" +
"Dec, 25, 35, 15";
]]>
</mx:Script>
```



- **CSS**
- **Series Fills**
- **Axis Styles**
- **Background Elements**
- **Annotation Elements**
- *Demo*

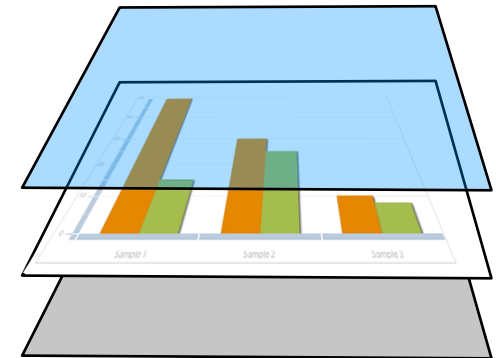
Need a nice example to show these things



Horizontal Axis

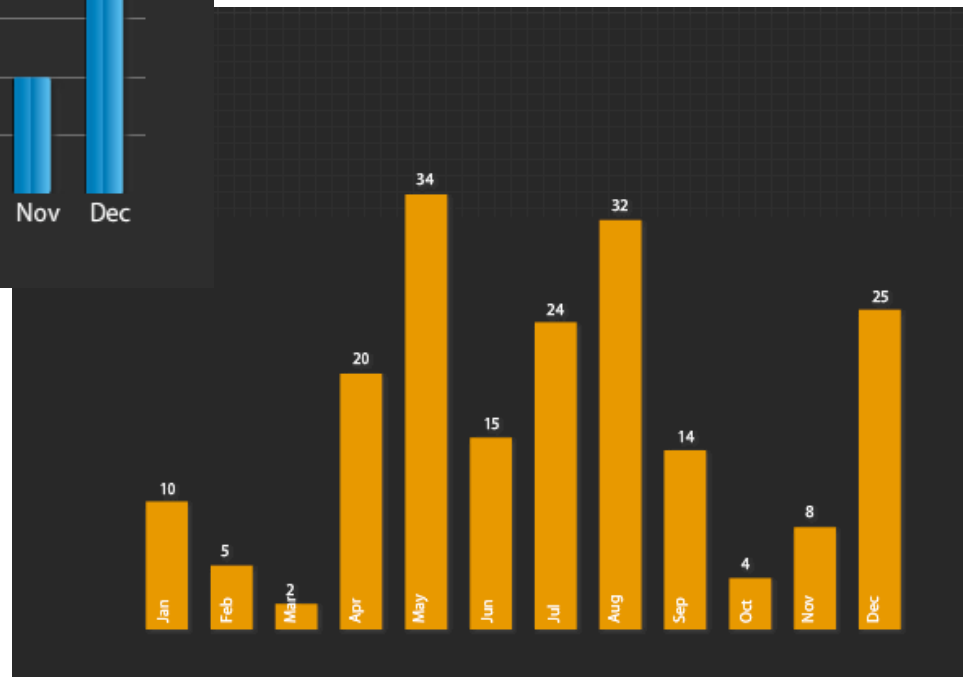
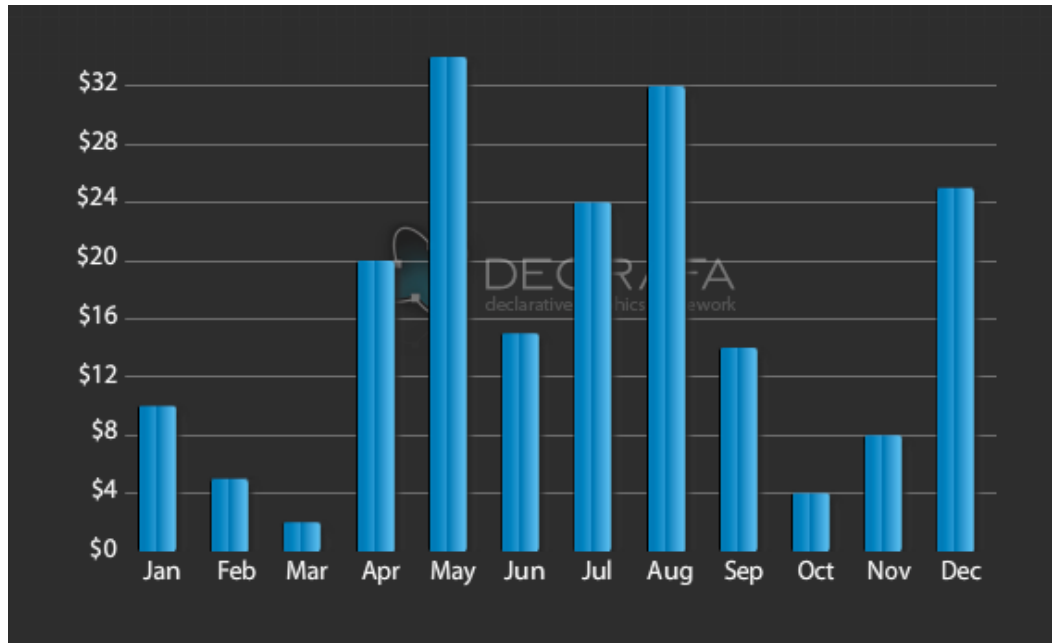
- Label Renderer
- Ticks
- Stroke
- Gutters
- etc

Annotation Elements



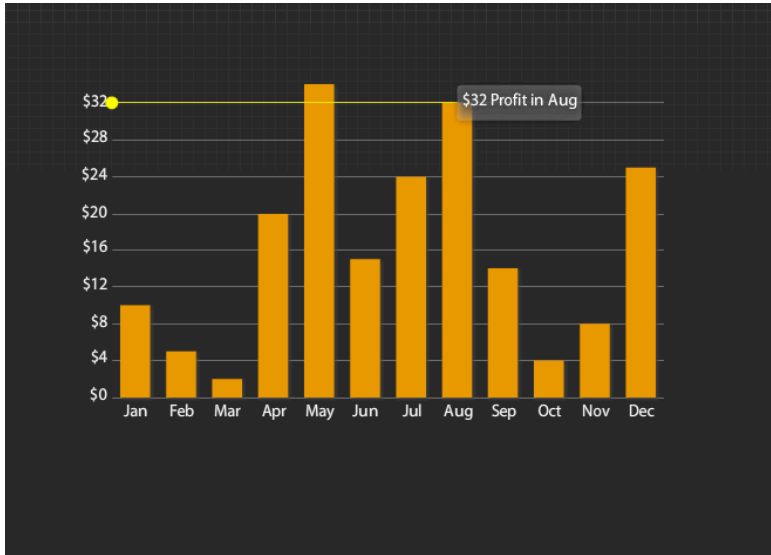
Background Elements

Demo 3 - Styling your Charts





- **Tool Tips**
- **ChartClick Events**
- **Annotation Elements**
- ***Demo***



```

);

dataLabel.text="$" + hd.chartItem.item["region1_profit"] + " Profit in " + hd.chartItem.item["month"];

//Add our annotation box
canvas.addDataChild(
    labelBox,hd.chartItem.item["month"],
    new CartesianCanvasValue(hd.chartItem.item["region1_profit"],-15));

//Draw our highlight line
canvas.moveTo(
    new CartesianCanvasValue(myChart.dataProvider.source[0]["month"],-15),
    hd.chartItem.item["region1_profit"]);

canvas.lineTo(hd.chartItem.item["month"], hd.chartItem.item["region1_profit"]);

//Draw our circle on left axis
canvas.beginPath(0xFFFF00,1);
canvas.drawCircle(
    new CartesianCanvasValue(myChart.dataProvider.source[0]["month"],-20),
    hd.chartItem.item["region1_profit"],5);
canvas.endFill();
}

private function chart_onItemRollOut():void {
    annotationCanvas.removeAllChildren();
    annotationCanvas.clear();
}

private function chart_onItemRollOver2(e:ChartItemEvent):void {
    var ac:ArrayCollection=new ArrayCollection();
    var hd:HitData=e.hitData;

    ac.addItem({region:"Region 1", profit: hd.chartItem.item.region1_profit});
    ac.addItem({region:"Region 2", profit: hd.chartItem.item.region2_profit});
    ac.addItem({region:"Region 3", profit: hd.chartItem.item.region3_profit});

    this["myBarChart"].dataProvider=ac;
}

private function chart_onItemRollOut2(e:ChartItemEvent):void {
    this["myBarChart"].dataProvider=null;
}

```



Value

Size

Face

Rim (Bezel)

Tick Marks

Tick Alpha

Alert Values (comma delimited list)

Alert Colors (comma delimited list - one less than Alert Values)

Alert Alphas (comma delimited list - one less than Alert Values)

Min/Max Angle

Indicator

Indicator crown

Skin Gauge Skin Dial Skin

Label Y Offset

Label X Offset

Use Bounce Effect

Value Scale Linear Log

* - left click the mouse down and move over the gauge to adjust the value

- www.brightpointinc.com
- www.twgonzalez.com
- **360|Flex Advanced Data Viz Preso:**
<http://www.twgonzalez.com/blog/?p=59>
- **Degrafa:** www.degrafa.org