Create infographic charts with Adobe ColdFusion

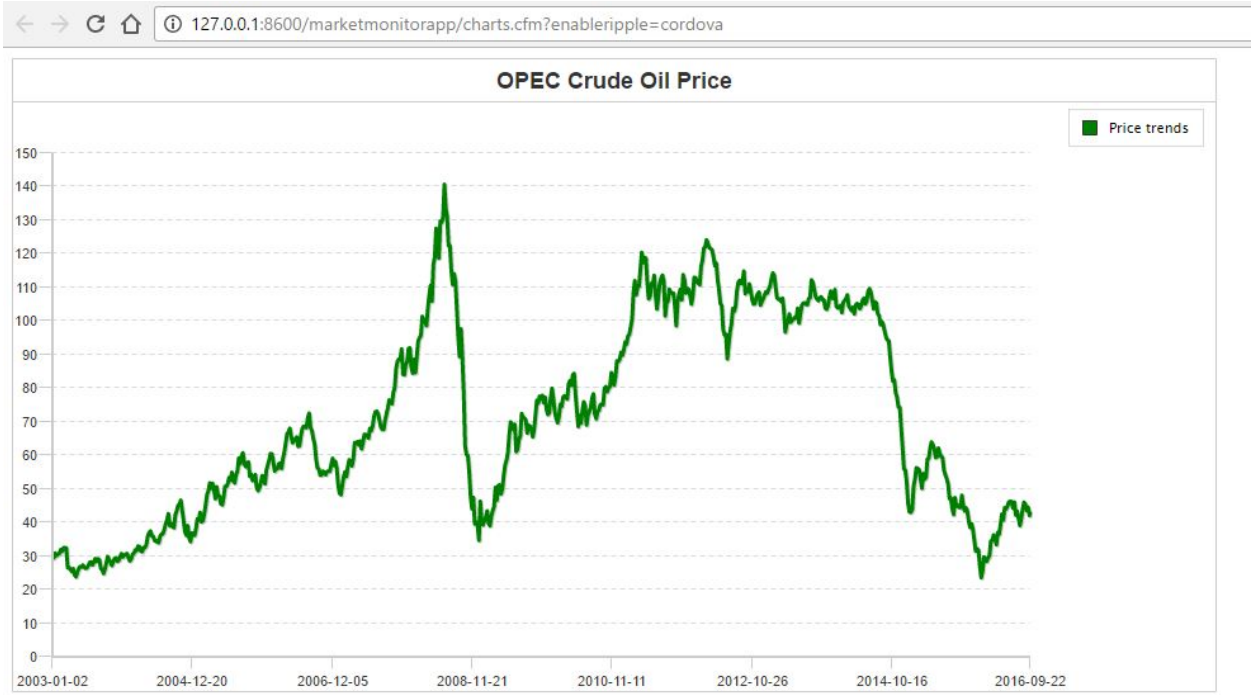
Charts and infographics are indispensable when it comes to making data easy for a layman to visualize and comprehend. ColdFusion offers some amazing features that enable developers to create interactive client side charts that are based on Canvas, SVG or Flash.

In this article we discuss how to make Line, Area, Pie, Scatter and Bar graphs using data from REST APIs, MS Excel spreadsheets and by declaring arrays.

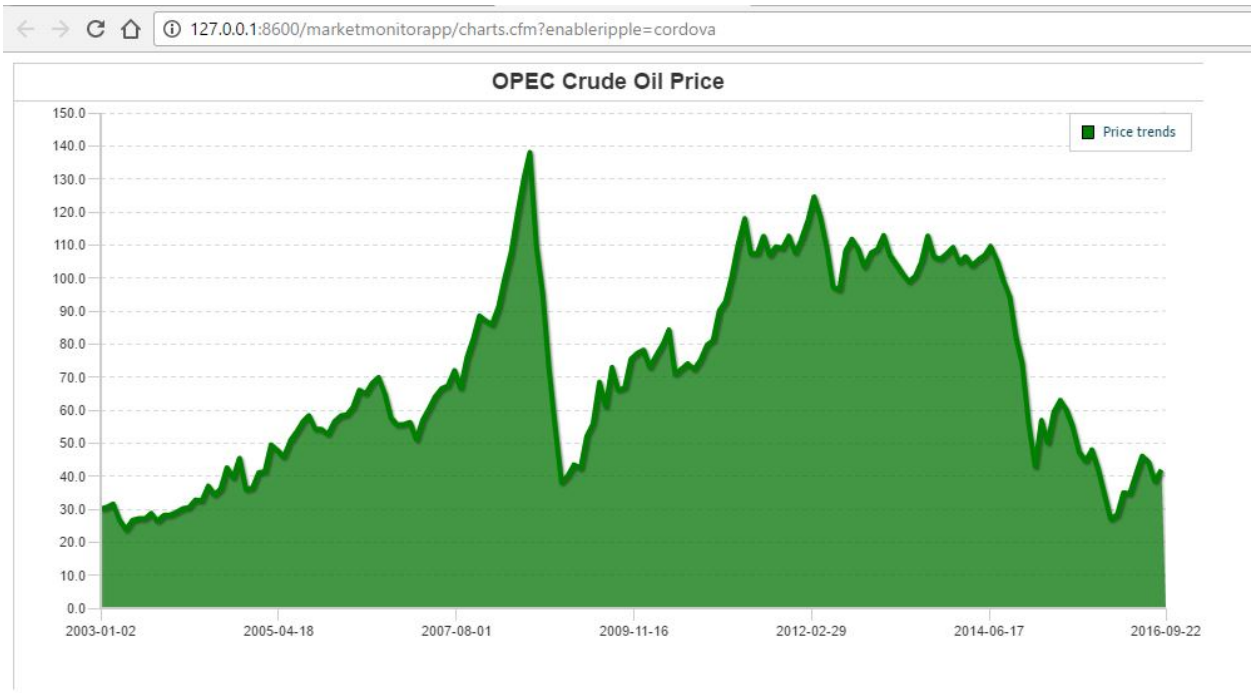
In the example given below, we get data from a REST call in JSON format. We store the data in the variable 'httpResp' and using DeserializeJSON() function we deserialize JSON data to a ColdFusion structure. Read more on DeserializeJSON function here. We can print this structure on the screen using writedump() function.

```
<cfhttp
url="https://www.quandl.com/api/v3/datasets/OPEC/ORB.json?api_key=KGzqJGg3wgx
AbxyvJ5nW" method="get" result="httpResp" timeout="120">
    <cfhttpparam type="header" name="Content-Type" value="application/json"
/>
</cfhttp>
<!—Using cfhttp tag to call REST API that sends data in JSON format -->
<cfscript>

       record=DeserializeJSON(httpResp.FileContent, true, false);

    //DeserializeJSON function is used to deserialize JSON data to CF object
       new_array=record.dataset.data;
       n=arraylen(new_array);
    // creating an array datearray that contains dates for which we have oil
price data
       for (i=1;i<=n;i++){
             datearray[i]=new_array[i][1];
       }

       // creating array of oil price data
       for (i=1;i<=n;i++){
             pricearray[i]=new_array[i][2];
       }

</cfscript>
<!— Now we plot the deserialized data on a chart using cfchart tag -->
<cfchart format="flash" chartwidth="950" chartheight="500" title="OPEC Crude
Oil Price">
      <cfchartseries type="Line" seriescolor="green" serieslabel="Price
trends">
       <cfloop index="i" from="#n#" to="1" step="-1">
<!—We plot all the values by looping through arrays using cfloop tag -->
        <cfchartdata item="#datearray[i]#" value="#pricearray[i]#">
      </cfloop>
      </cfchartseries>
</cfchart>
```

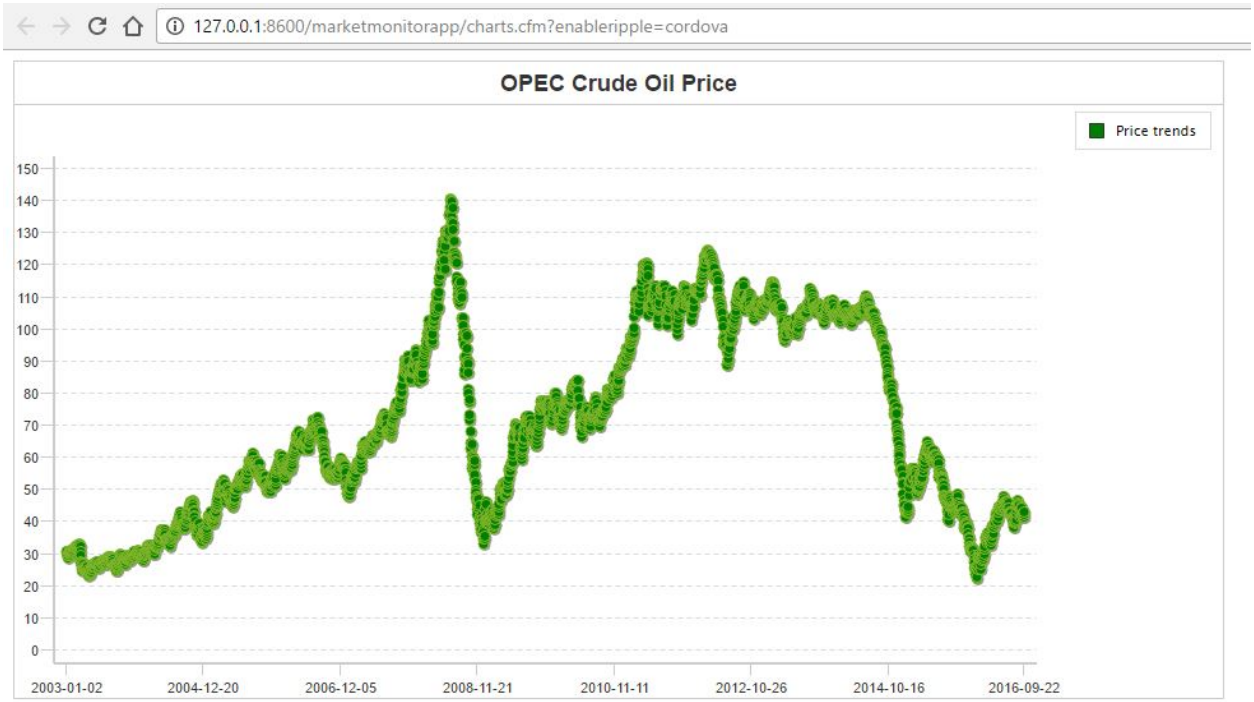
The resulting chart should look like the image given below,



Now, if we change the attribute “type” of the tag <cfchartseries> to Area, the result should be similar to the image shown below,



For attribute type=”Scatter” we get a scatter plot of the data values,



Charts can be displayed as an image of jpg or png format, Flash or in the form of HTML. The attributes “chartwidth” and “chartheight” specify the dimensions of the chart through values in pixels. Attributes “title”, “label”, “xaxislabel” and “yaxislabel” help in adding text to explain the chart and the data that is plotted on it.

Now let us plot multiple graphs in one chart.

```
<cfset china=[1314,
1321,
1328,
1334,
1340,
1347,
1354,
1360,
1367,
1374
]>
<cfset india=[1117,
1134,
1150,
1166,
1186,
1210,
1213,
1223,
1238,
1254
]>
<cfset usa=[298.36,
301.23,
304.09,
306.77,
309.415,
311.768,
314.143,
316.54,
319.072,
321.565
]>
```

If your data is stored in an MS Excel spreadsheet, then you can read data using the <cfspreadsheet> tag. The example for reading data from an MS Excel spreadsheet is given below,

```
<cfspreadsheet
action="read"
name="usdcad"
src="#expandPath('population.xls')#"
columns="1,1-40,1"
format="csv">
<!—cfspreadsheet tag is used to read xls files -->
<cfset usdcadarr=" ">

<cfscript>
   writedump(#usdcad#);
   usdcadarr=Listtoarray(usdcad);
   writedump(#usdcadarr#);
</cfscript>
```

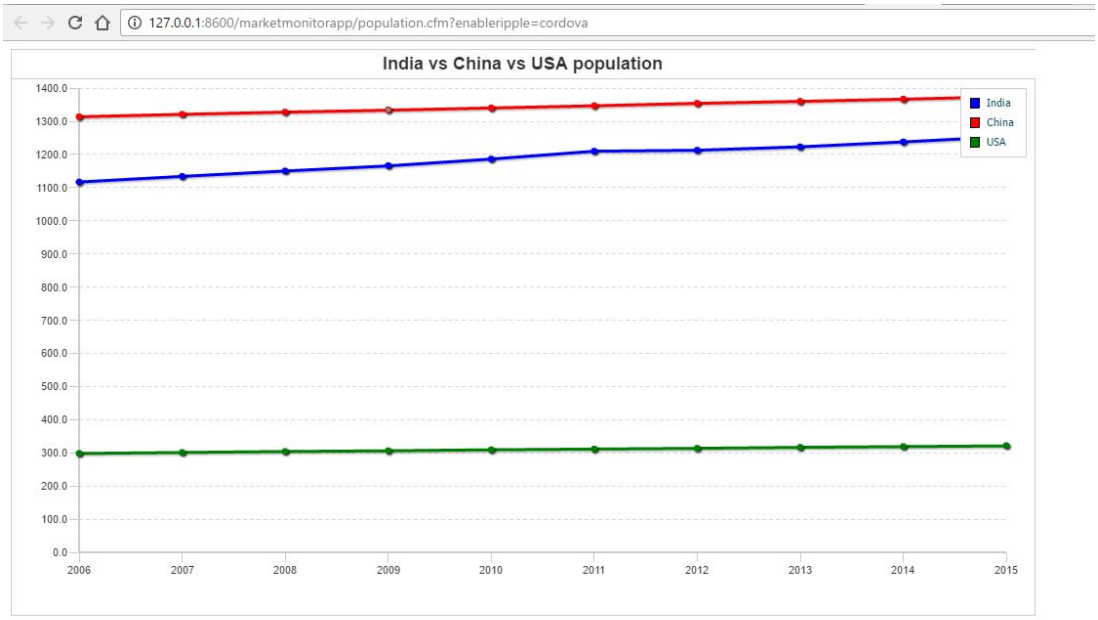
In the code snippet shown above, we read the file population.xls and then convert the csv list to array form using the Listtoarray() function.

The code for plotting the graph is shown below,

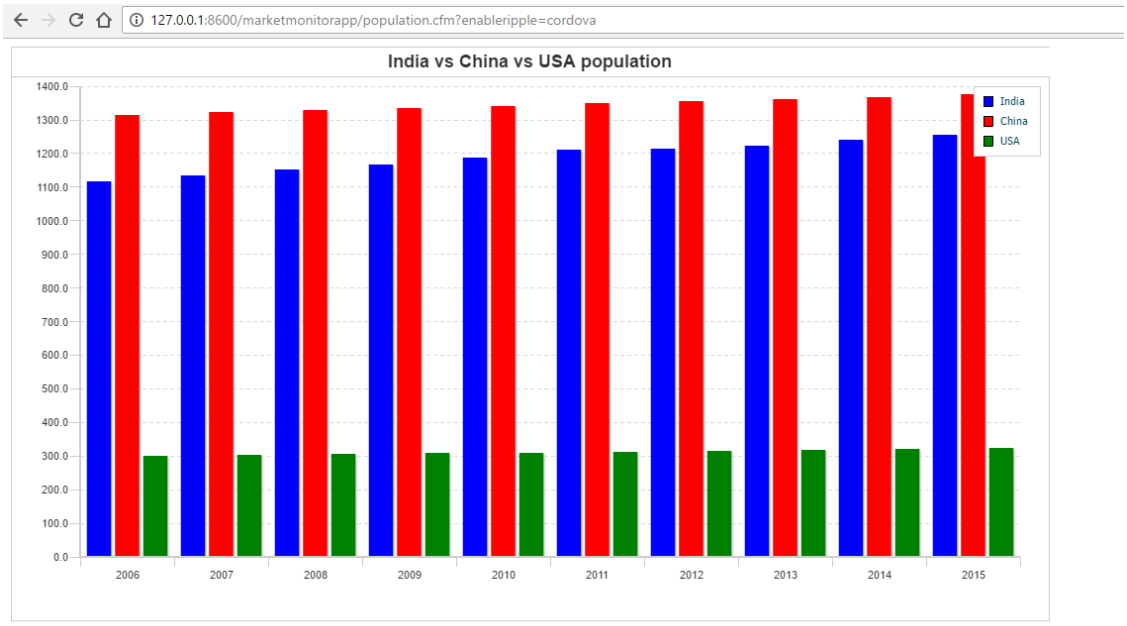
```
<cfchart
format="flash"
chartwidth="1050"
chartheight="580"
title="India vs China vs USA population"
yaxistype="scale"
showborder="true">
      <cfchartseries type="Curve" seriescolor="blue" serieslabel="India">
       <cfloop index="i" from="2006" to="2015">
        <cfchartdata item="#i#" value="#india[i-2005]#">
      </cfloop> <!-- To plot India's population from year 2006 to 2016 -->
      </cfchartseries>
      <cfchartseries type="Curve" seriescolor="red" serieslabel="China">
       <cfloop index="i" from="2006" to="2015">
        <cfchartdata item="#i#" value="#china[i-2005]#">
      </cfloop> <!-- To plot China's population from year 2006 to 2016-->
      </cfchartseries>
      <cfchartseries type="Curve" seriescolor="green" serieslabel="USA">
       <cfloop index="i" from="2006" to="2015">
        <cfchartdata item="#i#" value="#usa[i-2005]#">
      </cfloop> <!-- To plot USA's population from year 2006 to 2016 -->
      </cfchartseries>
</cfchart>
```

The ‘showborder’ attribute in the <cfchart> tag is used to add a border to the chart. We use the <cfloop> tag to plot the year and population of a country for that year. The output for the code given above should look like the chart shown below.

To plot multiple graphs in a chart, you need to include as many <cfchartseries> tags within the <cfchart> tag.



Now change the attribute ‘type’ in <cfchart> tag in the code given above to Bar. The result should look like the image given below.

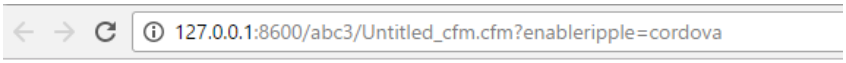


Now let us try and make a pie chart. In the example given below, we plot the data of online marketing spending on video, mobile and social media advertisements for the year 2012 and 2016.

The code for this example is shown below,

```
<cfset data12=[3.32,4.43,5.84]>
<cfset data16=[7.98,14.05,12.5]>
<p> Global online advertisement spending for year 2012 (in billion Eu-
ros)</p><br>
<p> Video ads - 3.32 billion</p>
<p> Mobile ads - 3.32 billion</p>
<p> Social Media ads - 3.32 billion</p><br>
<cfchart type="Pie"  format="flash" >
      <cfchartseries type="Pie">
            <cfchartdata item="Video ads" value="#data12[1]#">
            <cfchartdata item="Mobile ads" value="#data12[2]#">
            <cfchartdata item="Social network ads" value="#data12[3]#">
      </cfchartseries>
</cfchart>
<br>
<br>
<p> Global online advertisement spending for year 2016 (in billion Eu-
ros)</p><br>
<p> Video ads - 7.98 billion</p>
<p> Mobile ads - 14.05 billion</p>
<p> Social Media ads - 12.5 billion</p><br>
<cfchart type="Pie"  format="flash" >
      <cfchartseries type="Pie">
            <cfchartdata item="Video ads" value="#data16[1]#">
            <cfchartdata item="Mobile ads" value="#data16[2]#">
            <cfchartdata item="Social network ads" value="#data16[3]#">
      </cfchartseries>
</cfchart>
```

The graph output for the code given above should look like this,

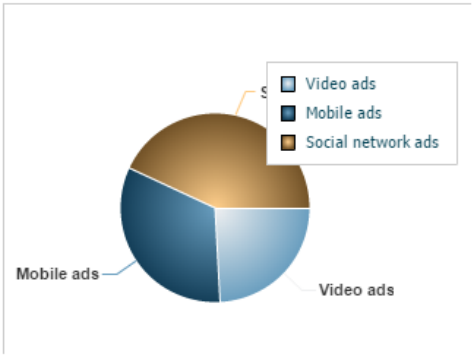


Global online advertisement spending for year 2012 (in billion Euros)

Video ads - 3.32 billion

Mobile ads - 3.32 billion

Social Media ads - 3.32 billion

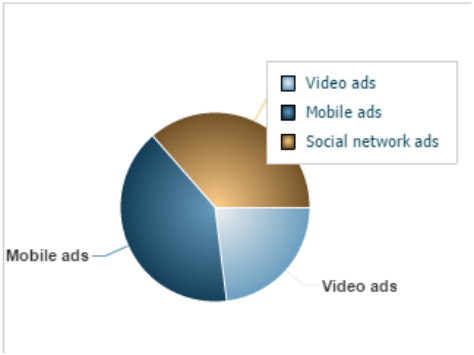


Global online advertisement spending for year 2016 (in billion Euros)

Video ads - 7.98 billion

Mobile ads - 14.05 billion

Social Media ads - 12.5 billion



ColdFusion offers several amazing attributes that enhance the data visualization experience and make data comprehension task a lot simpler.