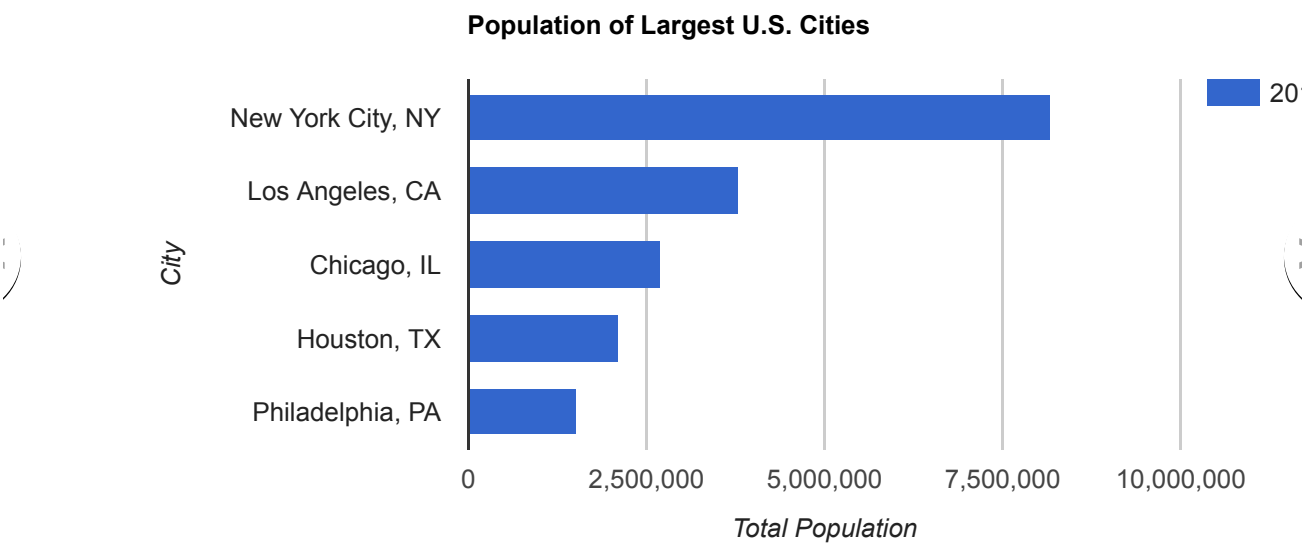
Bar Charts

Overview

Google bar charts are rendered in the browser using SVG (http://www.w3.org/Graphics/SVG/) or VML (http://en.wikipedia.org/wiki/Vector_Markup_Language), whichever is appropriate for the user's browser. Like all Google charts, bar charts display tooltips when the user hovers over the data. For a vertical version of this chart, see the column chart (https://developers.google.com/chart/interactive/docs/gallery/columnchart).

Examples

Basic bar chart with default styling



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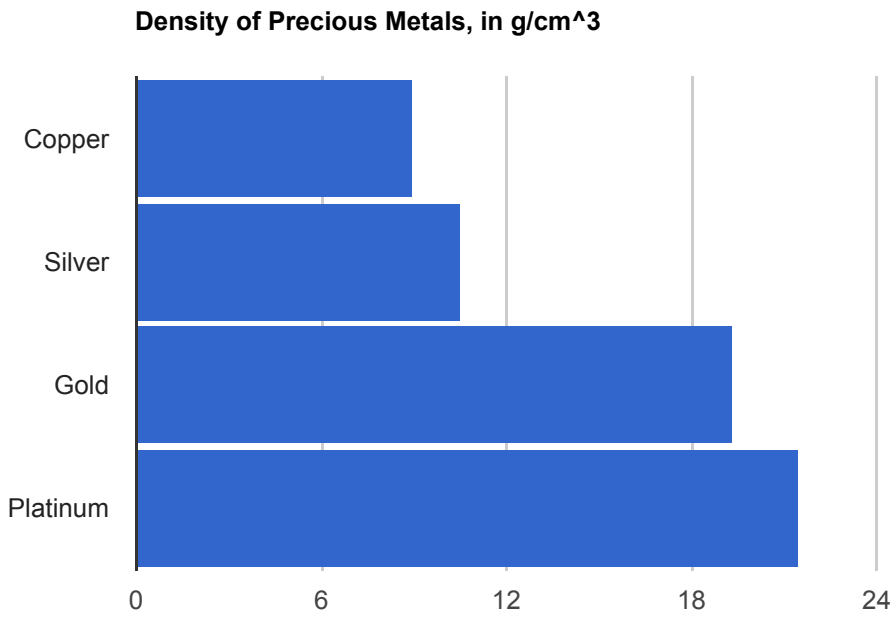
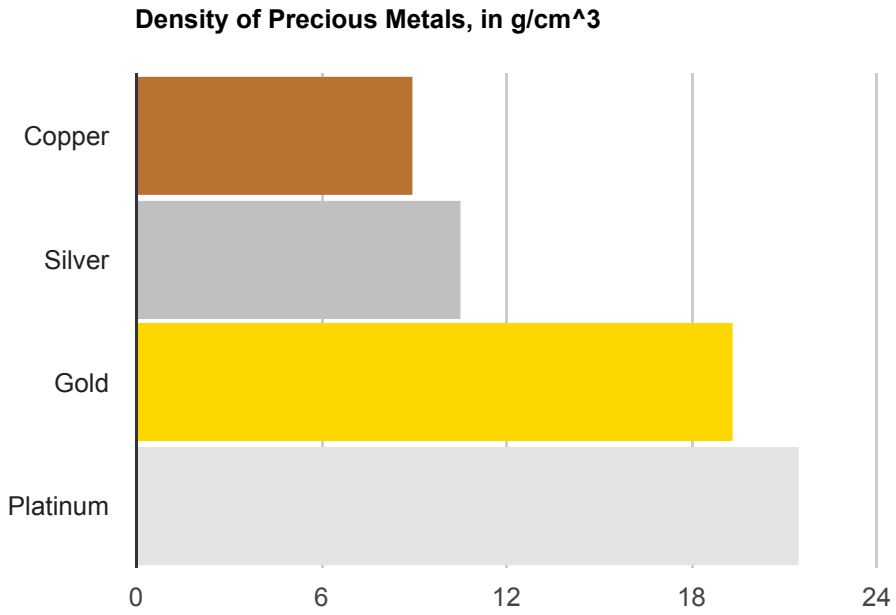
Coloring bars

Let's chart the densities of four precious metals:



Above, all colors are the default blue. That's because they're all part of the same series; if there were a second series, that would have been colored red. We can customize these colors with the *style role* (https://developers.google.com/chart/interactive/docs/roles#stylerole):



There are three different ways to choose the colors, and our data table showcases them all: RGB values, English color names, and a CSS-like declaration:

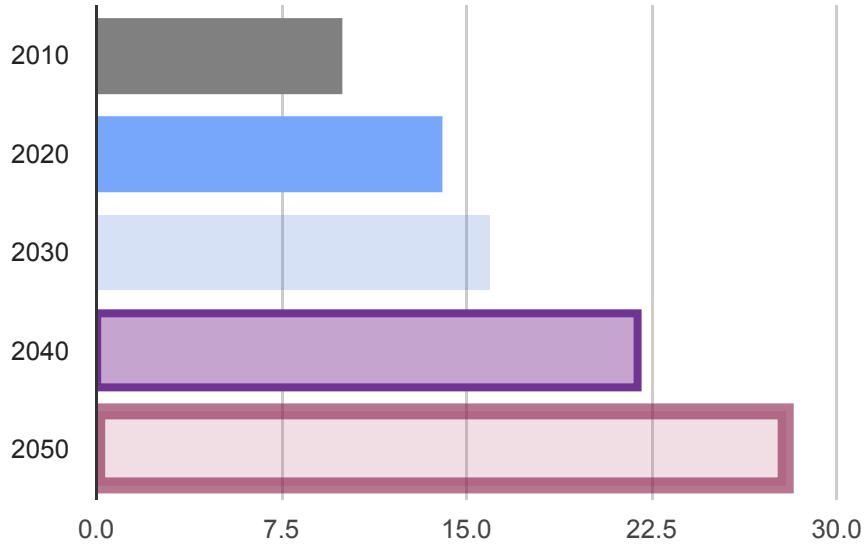
```
      var data = google.visualization.arrayToDataTable([
        ['Element', 'Density', { role: 'style' }],
        ['Copper', 8.94, '#b87333'],            // RGB value
        ['Silver', 10.49, 'silver'],            // English color name
        ['Gold', 19.30, 'gold'],
        ['Platinum', 21.45, 'color: #e5e4e2' ], // CSS-style declaration
      ]);
```

Bar styles

The style role (https://developers.google.com/chart/interactive/docs/roles#stylerole) lets you control several aspects of bar appearance with CSS-like declarations:

- `color`
- `opacity`
- `fill-color`
- `fill-opacity`
- `stroke-color`
- `stroke-opacity`
- `stroke-width`

We don't recommend that you mix styles too freely inside a chart—pick a style and stick with it—but to demonstrate all the style attributes, here's a sampler:



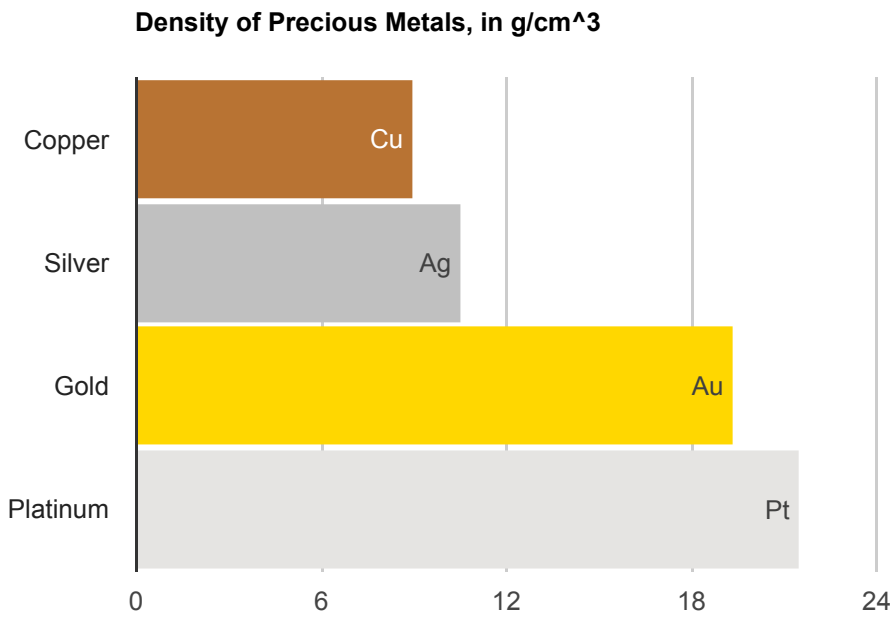
The first two bars each use a specific `color` (the first with an English name, the second with an RGB value). No `opacity` was chosen, so the default of 1.0 (fully opaque) is used; that's why the second bar obscures the gridline behind it. In the third bar, an `opacity` of 0.2 is used, revealing the gridline. In the fourth bar, three style attributes are used: `stroke-color` and `stroke-width` to draw the border, and `fill-color` to specify the color of the rectangle inside. The rightmost bar additionally uses `stroke-opacity` and `fill-opacity` to choose opacities for the border and fill:

```
function drawChart() {
   var data = google.visualization.arrayToDataTable([
     ['Year', 'Visitations', { role: 'style' } ],
     ['2010', 10, 'color: gray'],
     ['2020', 14, 'color: #76A7FA'],
     ['2030', 16, 'opacity: 0.2'],
     ['2040', 22, 'stroke-color: #703593; stroke-width: 4; fill-color: #C5
     ['2050', 28, 'stroke-color: #871B47; stroke-opacity: 0.6; stroke-widt
   ]);
```

Labeling bars

Charts have several kinds of labels, such as tick labels, legend labels, and labels in the tooltips. In this section, we'll see how to put labels inside (or near) the bars in a bar chart.

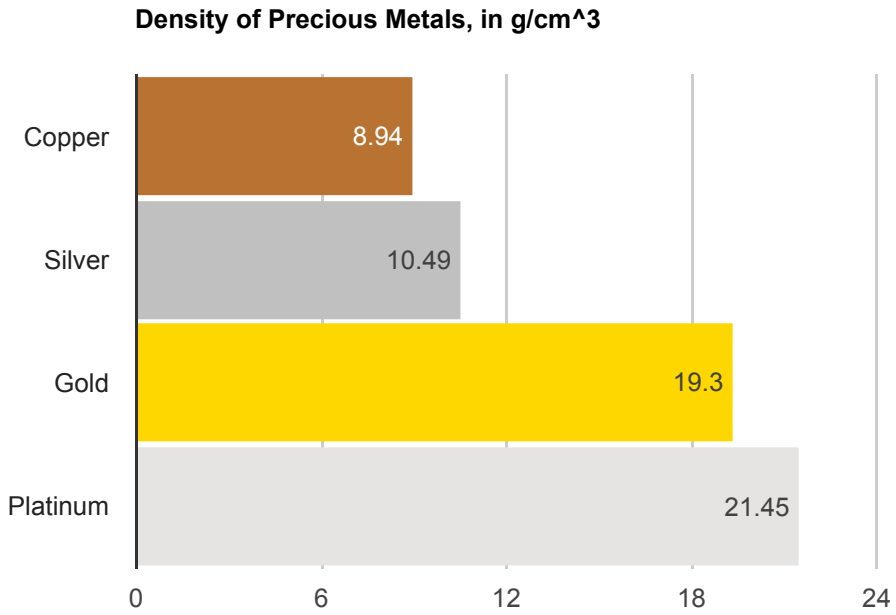
Let's say we wanted to annotate each bar with the appropriate chemical symbol. We can do that with the *annotation* role:



In our data table, we define a new column with `{ role: 'annotation' }` to hold our bar labels:

```
var data = google.visualization.arrayToDataTable([
  ['Element', 'Density', { role: 'style' }, { role: 'annotation' } ],
  ['Copper', 8.94, '#b87333', 'Cu' ],
  ['Silver', 10.49, 'silver', 'Ag' ],
  ['Gold', 19.30, 'gold', 'Au' ],
  ['Platinum', 21.45, 'color: #e5e4e2', 'Pt' ]
]);
```

While users can hover over the bars to see the data values, you might want to include them on the bars themselves:



This is a little more complicated than it should be, because we create a `DataView` to specify the annotation for each bar.

```
<script type="text/javascript">
  google.charts.load("current", {packages:["corechart"]});
  google.charts.setOnLoadCallback(drawChart);
  function drawChart() {
    var data = google.visualization.arrayToDataTable([
      ["Element", "Density", { role: "style" } ],
      ["Copper", 8.94, "#b87333"],
      ["Silver", 10.49, "silver"],
      ["Gold", 19.30, "gold"],
      ["Platinum", 21.45, "color: #e5e4e2"]
    ]);

    var view = new google.visualization.DataView(data);
    view.setColumns([0, 1,
                     { calc: "stringify",
                       sourceColumn: 1,
                       type: "string",
                       role: "annotation" },
                     2]);

    var options = {
      title: "Density of Precious Metals, in g/cm^3",
      width: 600,
      height: 400,
```

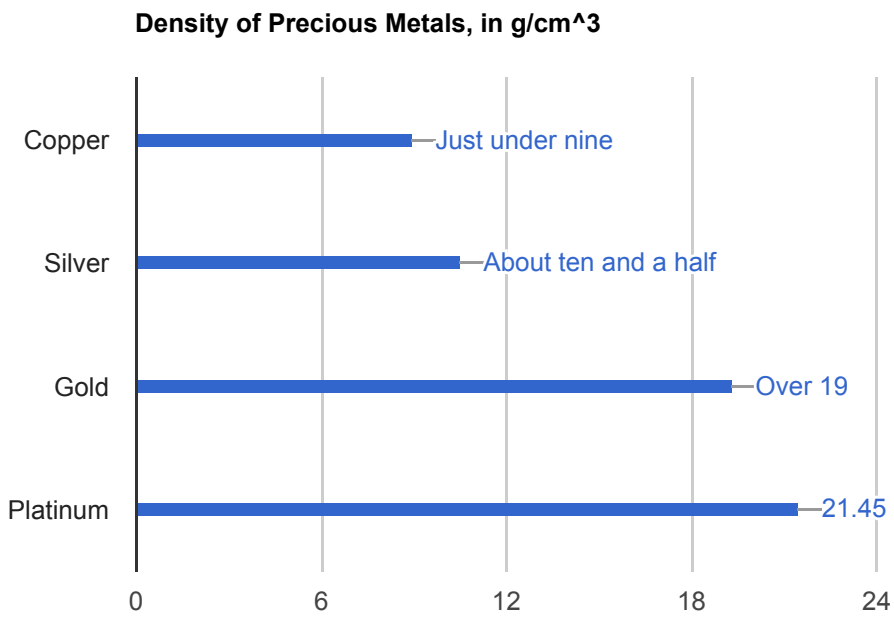
```
        bar: {groupWidth: "95%"},
        legend: { position: "none" },
      };
      var chart = new google.visualization.BarChart(document.getElementById("
      chart.draw(view, options);
  }
  </script>
<div id="barchart_values" style="width: 900px; height: 300px;"></div>
```

If we wanted to format the value differently, we could define a formatter (//developers.google.com/chart/interactive/docs/reference#formatters) and wrap it in a function like this:

```
      function getValueAt(column, dataTable, row) {
        return dataTable.getFormattedValue(row, column);
      }
```

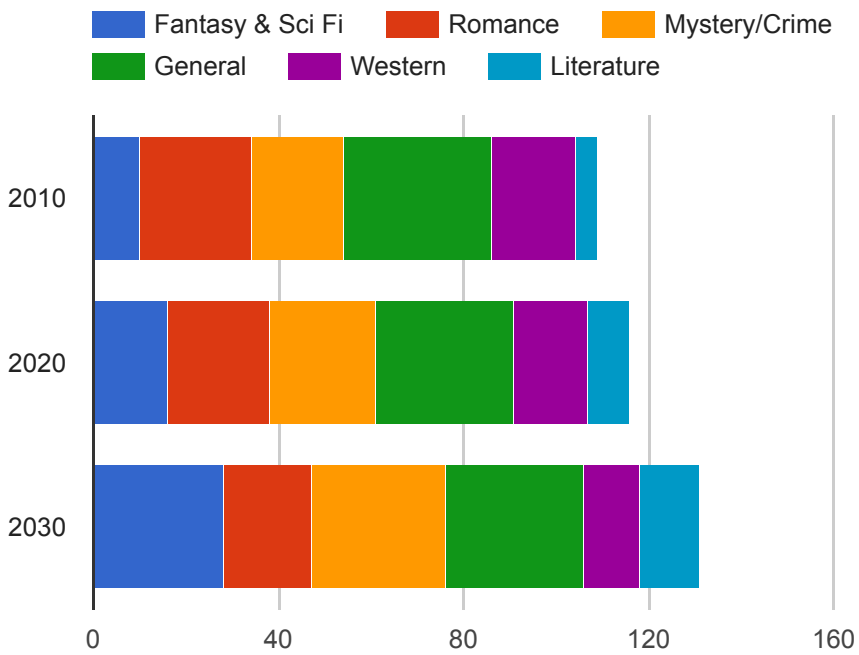
Then we could call it with `calc: getValueAt.bind(undefined, 1)`.

If the label is too big to fit entirely inside the bar, it's displayed outside:



Stacked bar charts

A *stacked bar chart* is a bar chart that places related values atop one another. If there are any negative values, they are stacked in reverse order below the chart's axis baseline. Stacked bar charts are typically used when a category naturally divides into components. For instance, consider some hypothetical book sales, divided by genre and compared across time:



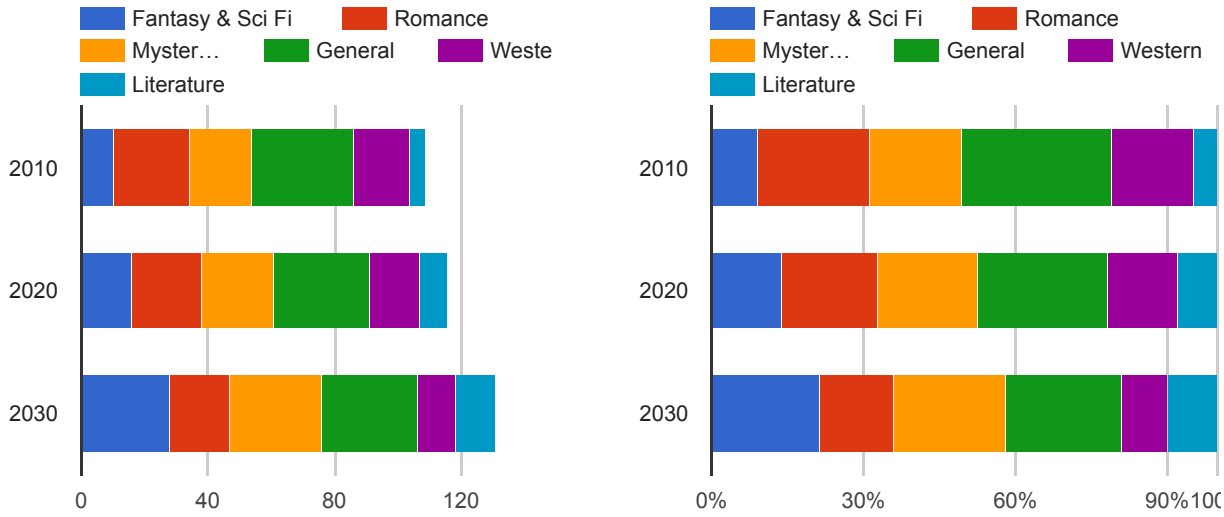
You create a stacked bar chart by setting the `isStacked` option to `true`:

```
var data = google.visualization.arrayToDataTable([
  ['Genre', 'Fantasy & Sci Fi', 'Romance', 'Mystery/Crime', 'General',
   'Western', 'Literature', { role: 'annotation' } ],
  ['2010', 10, 24, 20, 32, 18, 5, ''],
  ['2020', 16, 22, 23, 30, 16, 9, ''],
  ['2030', 28, 19, 29, 30, 12, 13, '']
]);

var options = {
  width: 600,
  height: 400,
  legend: { position: 'top', maxLines: 3 },
  bar: { groupWidth: '75%' },
  isStacked: true
};
```

Stacked bar charts also support 100% stacking, where the stacks of elements at each domain-value are rescaled such that they add up to 100%. The options for this are `isStacked: 'percent'`, which formats each value as a percentage of 100%, and `isStacked: 'relative'`, which formats each value as a fraction of 1. There is also an `isStacked: 'absolute'` option, which is functionally equivalent to `isStacked: true`.

Note in the 100% stacked chart on the right, the tick values are based on the relative 0-1 scale as fractions of 1, but the axis values are displayed as percentages. This is because the percentage axis ticks are the result of applying a format of "#.##%" to the relative 0-1 scale values. When using `isStacked: 'percent'`, be sure to specify any ticks using the relative 0-1 scale.



STACKED | 100% STACKED

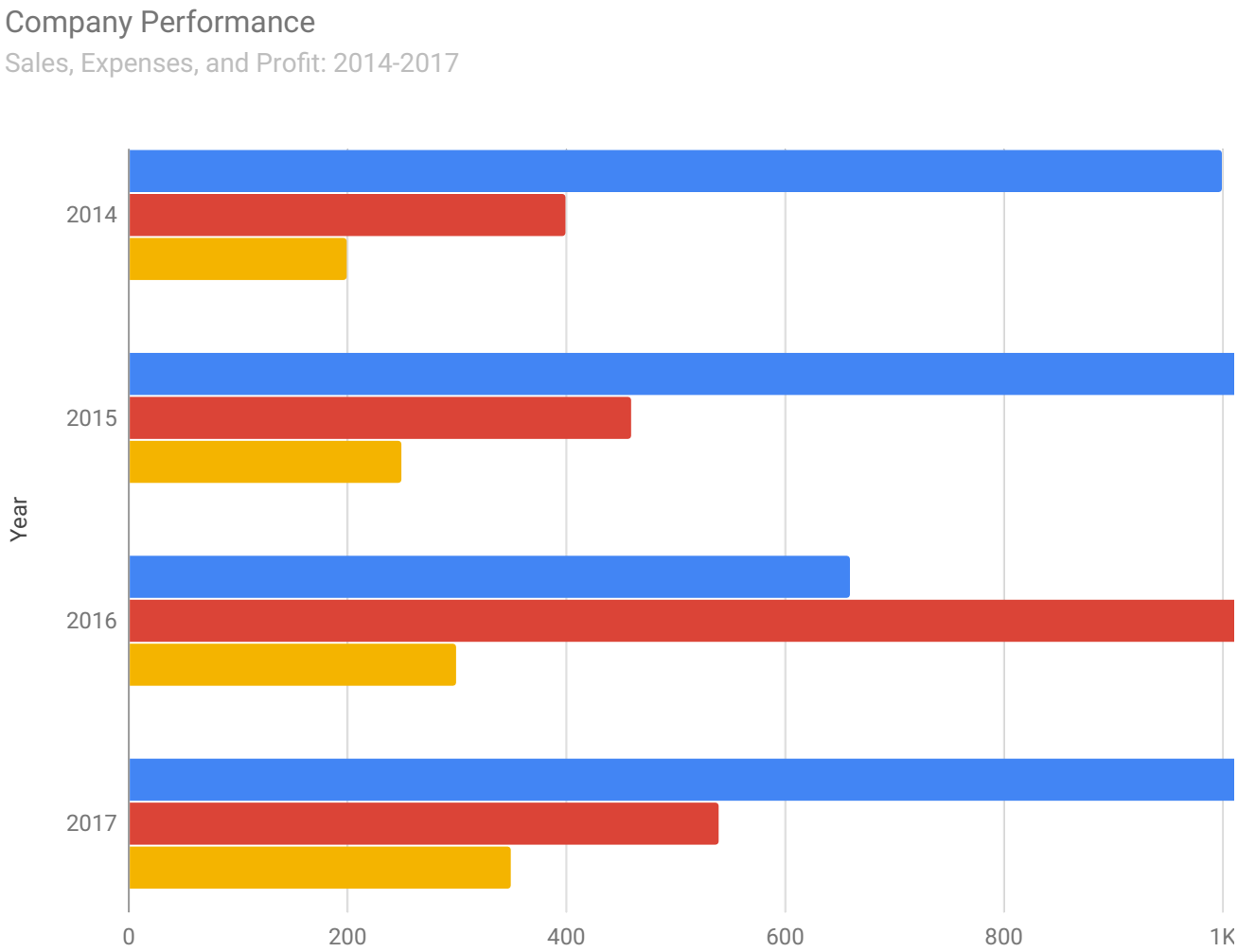
```
var options_fullStacked = {
  isStacked: 'percent',
  height: 300,
  legend: {position: 'top', maxLines: 3},
  hAxis: {
    minValue: 0,
    ticks: [0, .3, .6, .9, 1]
  }
};
```

Creating Material bar charts

In 2014, Google announced guidelines intended to support a common look and feel across its properties and apps (such as Android apps) that run on Google platforms. We call this effort *Material Design*. We'll be providing "Material" versions of all our core charts; you're welcome to use them if you like how they look.

Creating a Material Bar Chart is similar to creating what we'll now call a "Classic" Bar Chart. You load the Google Visualization API (although with the `'bar'` package instead of the `'corechart'` package), define your datatable, and then create an object (but of class `google.charts.Bar` instead of `google.visualization.BarChart`).

Note: Material Charts will not work in old versions of Internet Explorer. (IE8 and earlier versions don't support SVG, which Material Charts require.)



Material Bar Charts have many small improvements over Classic Bar Charts, including an improved color palette, rounded corners, clearer label formatting, tighter default spacing between series, softer gridlines and titles (and the addition of subtitles).

```
<html>
  <head>
    <script type="text/javascript" src="https://www.gstatic.com/charts/loader
    <script type="text/javascript">
      google.charts.load('current', {'packages':['bar']});
      google.charts.setOnLoadCallback(drawChart);

      function drawChart() {
        var data = google.visualization.arrayToDataTable([
          ['Year', 'Sales', 'Expenses', 'Profit'],
          ['2014', 1000, 400, 200],
          ['2015', 1170, 460, 250],
          ['2016', 660, 1120, 300],
          ['2017', 1030, 540, 350]
        ]);

        var options = {
          chart: {
            title: 'Company Performance',
            subtitle: 'Sales, Expenses, and Profit: 2014-2017',
          },
          bars: 'horizontal' // Required for Material Bar Charts.
        };

        var chart = new google.charts.Bar(document.getElementById('barchart_ma

        chart.draw(data, options);
      }
    </script>
  </head>
  <body>
    <div id="barchart_material" style="width: 900px; height: 500px;"></div>
  </body>
</html>
```

The Material Charts are in **beta**. The appearance and interactivity are largely final, but many of the options available in Classic Charts are not yet available in them. You can find a list of options that are not yet supported in [this issue](https://github.com/google/google-visualization-issues/issues/2143) (https://github.com/google/google-visualization-issues/issues/2143).

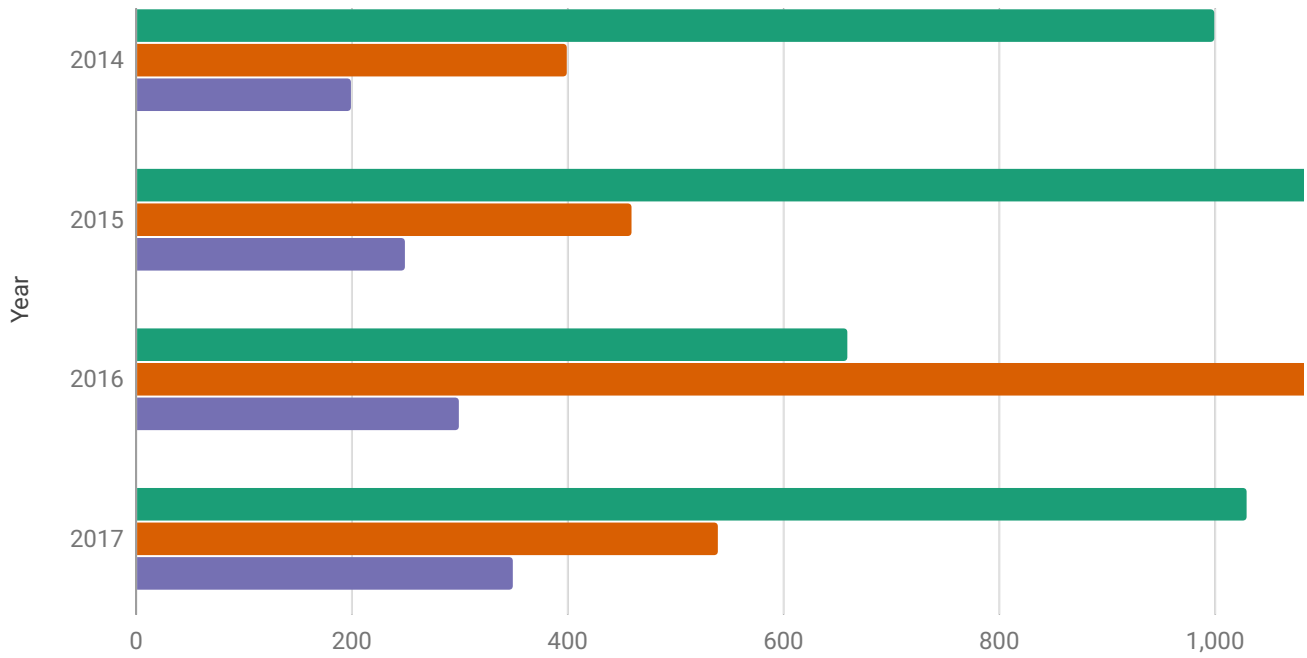
Also, the way options are declared is not finalized, so you must convert your options by replacing this line:

```
chart.draw(data, options);
```

...with this:

```
chart.draw(data, google.charts.Bar.convertOptions(options));
```

Using `google.charts.Bar.convertOptions()` allows you to take advantage of certain features, such as the `hAxis/vAxis.format` preset options.



NO FORMAT | SCIENTIFIC NOTATION | DECIMAL | SHORT

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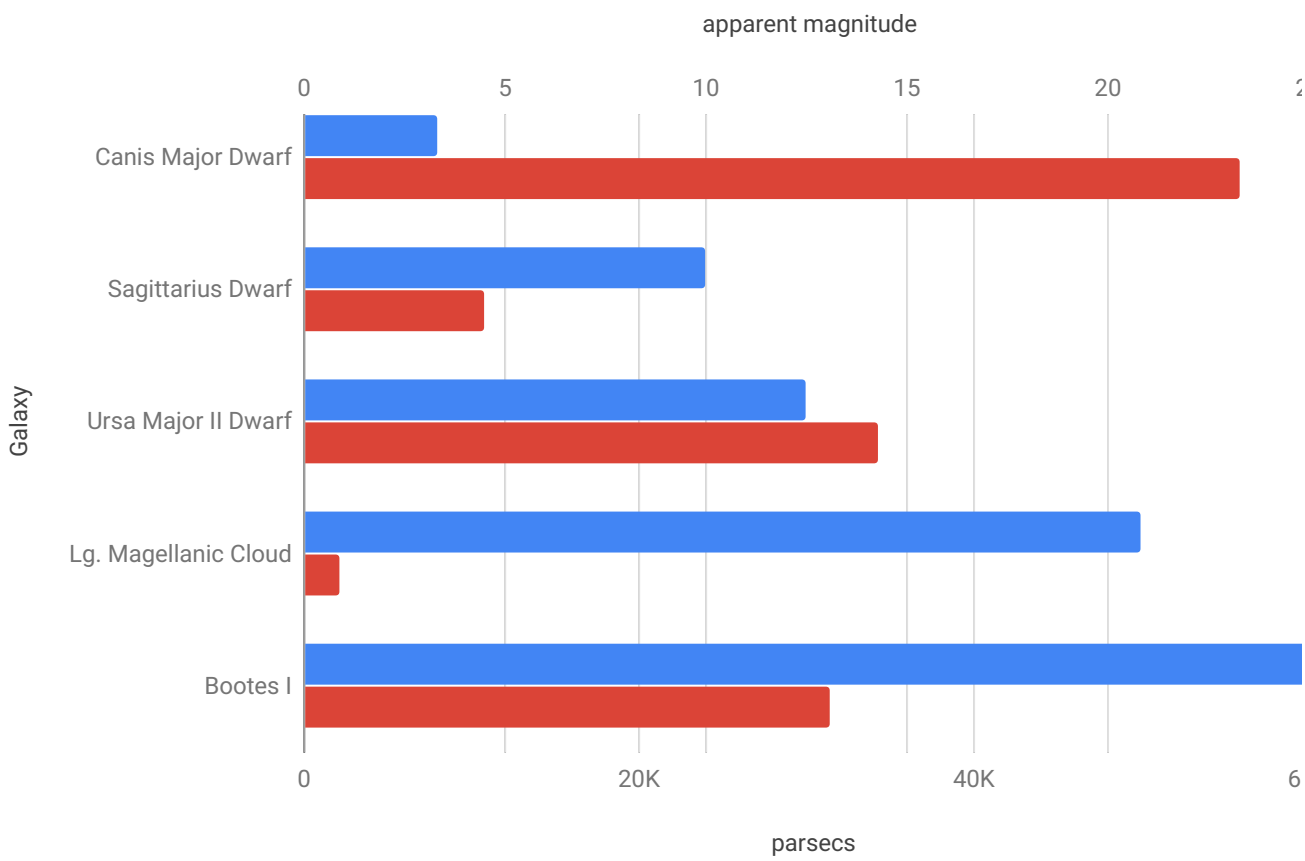
Dual-X charts

Note: Dual-X axes are available only for Material charts (i.e., those with package `bar`).

Sometimes you'll want to display two series in a bar chart, with two independent x-axes: a top axis for one series, and a bottom axis for another:



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Note that not only are our two x-axes labeled differently ("parsecs" versus "apparent magnitude") but they each have their own independent scales and gridlines. If you want to customize this behavior, use the `hAxis.gridlines` options.

In the code below, the `axes` and `series` options together specify the dual-X appearance of the chart. The `series` option specifies which axis to use for each (`'distance'` and `'brightness'`; they needn't have any relation to the column names in the datatable). The `axes` option then makes this chart a dual-X chart, placing the `'apparent magnitude'` axis on the top and the `'parsecs'` axis on the bottom.

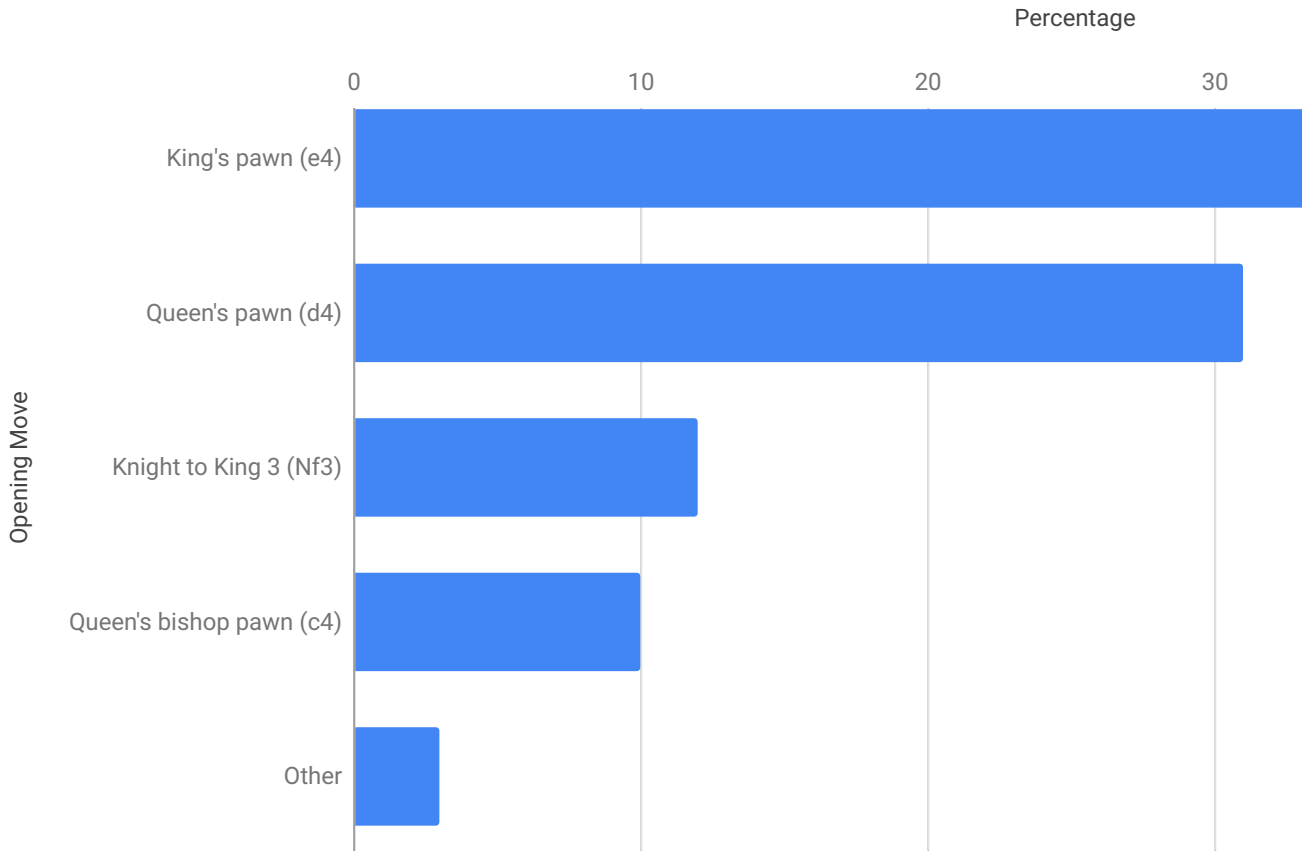
```
<html>
  <head>
    <script type="text/javascript" src="https://www.gstatic.com/charts/loader
    <script type="text/javascript">
      google.charts.load('current', {'packages':['bar']});
      google.charts.setOnLoadCallback(drawStuff);

      function drawStuff() {
```

```
        var data = new google.visualization.arrayToDataTable([
          ['Galaxy', 'Distance', 'Brightness'],
          ['Canis Major Dwarf', 8000, 23.3],
          ['Sagittarius Dwarf', 24000, 4.5],
          ['Ursa Major II Dwarf', 30000, 14.3],
          ['Lg. Magellanic Cloud', 50000, 0.9],
          ['Bootes I', 60000, 13.1]
        ]);

        var options = {
          width: 800,
          chart: {
            title: 'Nearby galaxies',
            subtitle: 'distance on the left, brightness on the right'
          },
          bars: 'horizontal', // Required for Material Bar Charts.
          series: {
            0: { axis: 'distance' }, // Bind series 0 to an axis named 'distar
            1: { axis: 'brightness' } // Bind series 1 to an axis named 'brigl
          },
          axes: {
            x: {
              distance: {label: 'parsecs'}, // Bottom x-axis.
              brightness: {side: 'top', label: 'apparent magnitude'} // Top x-
            }
          }
        };

      var chart = new google.charts.Bar(document.getElementById('dual_x_div'))
      chart.draw(data, options);
    };
    </script>
  </head>
  <body>
    <div id="dual_x_div" style="width: 900px; height: 500px;"></div>
  </body>
</html>
```

Top-X charts

Note: Top-X axes are available only for Material charts (i.e., those with package **`bar`**).

If you want to put the X-axis labels and title on the top of your chart rather than the bottom, you can do that in Material charts with the **`axes.x`** option:



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```
<html>
  <head>
    <script type="text/javascript" src="https://www.gstatic.com/charts/loader
    <script type="text/javascript">
      google.charts.load('current', {'packages':['bar']});
      google.charts.setOnLoadCallback(drawStuff);

      function drawStuff() {
        var data = new google.visualization.arrayToDataTable([
          ['Opening Move', 'Percentage'],
          ["King's pawn (e4)", 44],
          ["Queen's pawn (d4)", 31],
          ["Knight to King 3 (Nf3)", 12],
          ["Queen's bishop pawn (c4)", 10],
          ['Other', 3]
        ]);

        var options = {
          title: 'Chess opening moves',
```

```
          width: 900,
          legend: { position: 'none' },
          chart: { title: 'Chess opening moves',
                   subtitle: 'popularity by percentage' },
          bars: 'horizontal', // Required for Material Bar Charts.
          axes: {
            x: {
              0: { side: 'top', label: 'Percentage'} // Top x-axis.
            }
          },
          bar: { groupWidth: "90%" }
        };

        var chart = new google.charts.Bar(document.getElementById('top_x_div'
        chart.draw(data, options);
      };
    </script>
  </head>
  <body>
    <div id="top_x_div" style="width: 900px; height: 500px;"></div>
  </body>
</html>
```

Loading

The **`google.charts.load`** package name is **`"corechart"`**.

```
google.charts.load("current", {packages: ["corechart"]});
```

For Material Bar Charts, the **`google.charts.load`** package name is **`"bar"`**.

```
google.charts.load("current", {packages: ["bar"]});
```

The visualization's class name is **`google.visualization.BarChart`**.

```
var chart = new google.visualization.BarChart(container);
```

For Material Bar Charts, the visualization's class name is **`google.charts.Bar`**.

```
var chart = new google.charts.Bar(container);
```

Data format

Rows: Each row in the table represents a group of bars.

Columns:

	Column 0
Purpose:	• Y-axis group labels (discrete (https://developers.google.com/chart/i) • Y-axis values (continuous (https://developers.google.com/chart/i)
Data Type:	• string (discrete (https://developers.google.com/chart/i) • number, date, datetime or timeofday (continuous (https://developers.google.com/chart/i)
Role:	domain
Optional column roles (https://developers.google.com/chart/interactive/docs/roles) :	*None*

Configuration options

Name	
animation.duration	The duration of the animation, in milliseconds. For details, see the anin

	(https://developers.google.com/chart/interactive/docs/animation). **Type:** number **Default:** 0
animation.easing	The easing function applied to the animation. The following options ar • 'linear' - Constant speed. • 'in' - Ease in - Start slow and speed up. • 'out' - Ease out - Start fast and slow down. • 'inAndOut' - Ease in and out - Start slow, speed up, then slow down. **Type:** string **Default:** 'linear'
animation.startup	Determines if the chart will animate on the initial draw. If **`true`**, the cha animate to its final state. **Type:** boolean **Default** false
annotations.alwaysOutside	In Bar (https://developers.google.com/chart/interactive/docs/gallery/b (https://developers.google.com/chart/interactive/docs/gallery/colum draws all annotations outside of the Bar/Column. **Type:** boolean **Default:** false
annotations.datum	For charts that support annotations (https://developers.google.com/cl **`annotations.datum`** object lets you override Google Charts' choice f individual data elements (such as values displayed with each bar on a color with **`annotations.datum.stem.color`**, the stem length with **`annotations.datum.stem.length`**, and the style with **`annotatio`** **Type:** object **Default:** color is "black"; length is 12; style is "point".
annotations.domain	For charts that support annotations (https://developers.google.com/cl **`annotations.domain`** object lets you override Google Charts' choice domain (the major axis of the chart, such as the X axis on a typical line with **`annotations.domain.stem.color`**, the stem length with **`annotations.domain.stem.length`**, and the style with **`annotati`** **Type:** object **Default:** color is "black"; length is 5; style is "point".

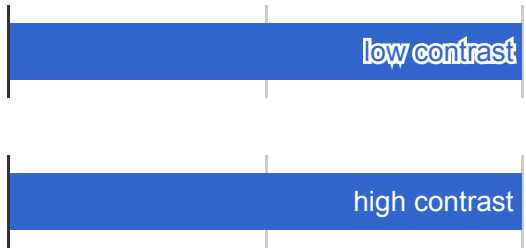
annotations.boxStyle	For charts that support annotations (https://developers.google.com/cl **`annotations.boxStyle`** object controls the appearance of the boxe
	
	`var options = {`
	`  annotations: {`
	`  boxStyle: {`

```
      // Color of the box outline.
      stroke: '#888',
      // Thickness of the box outline.
      strokeWidth: 1,
      // x-radius of the corner curvature.
      rx: 10,
      // y-radius of the corner curvature.
      ry: 10,
      // Attributes for linear gradient fill.
      gradient: {
        // Start color for gradient.
        color1: '#fbf6a7',
        // Finish color for gradient.
        color2: '#33b679',
        // Where on the boundary to start and
        // end the color1/color2 gradient,
        // relative to the upper left corner
        // of the boundary.
        x1: '0%', y1: '0%',
        x2: '100%', y2: '100%',
        // If true, the boundary for x1,
        // y1, x2, and y2 is the box. If
        // false, it's the entire chart.
        useObjectBoundingBoxUnits: true
      }
    }
  }
};
```

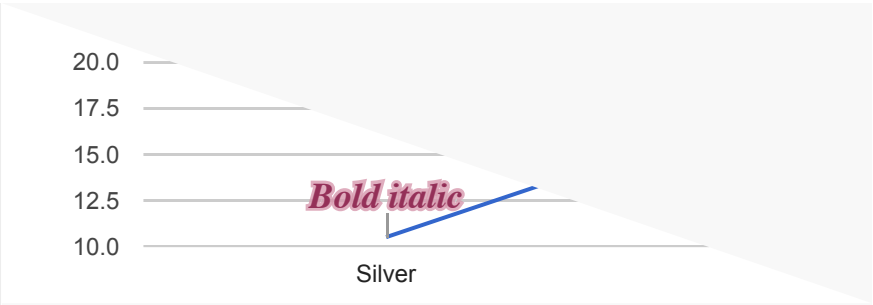
This option is currently supported for area, bar, column, combo, line, ar
supported by the Annotation Chart
(https://developers.google.com/chart/interactive/docs/gallery/annota

Type: object
Default: null

annotations.highContrast	For charts that support annotations (https://developers.google.com/cl **`annotations.highContrast`** boolean lets you override Google Cha color. By default, **`annotations.highContrast`** is true, which causes

	color with good contrast: light colors on dark backgrounds, and dark o **`annotations.highContrast`** to false and don't specify your own ar will use the default series color for the annotation:  **Type:** boolean **Default:** true
annotations.stem	For charts that support annotations (https://developers.google.com/cl **`annotations.stem`** object lets you override Google Charts' choice fo color with **`annotations.stem.color`** and the stem length with **`ann`** that the stem length option has no effect on annotations with style **`'l`** annotations, the stem length is always the same as the text, and for **`'l`** stem extends across the entire chart. **Type:** object **Default:** color is "black"; length is 5 for domain annotations and 12 for
annotations.style	For charts that support annotations (https://developers.google.com/cl **`annotations.style`** option lets you override Google Charts' choice either **`'line'`** or **`'point'`**. **Type:** string **Default:** 'point'

annotations.textStyle	For charts that support annotations (https://developers.google.com/cl
	`annotations.textStyle` object controls the appearance of the tex
	`var options = {`
	`  annotations: {`
	`  textStyle: {`
	`  fontName: 'Times-Roman',`
	`  fontSize: 18,`
	`  bold: true,`
	`  italic: true,`
	`  // The color of the text.`
	`  color: '#871b47',`
	`  // The color of the text outline.`
	`  auraColor: '#d799ae',`
	`  // The transparency of the text.`
	`  opacity: 0.8`
	`  }`
	`  }`
	`};`

	 This option is currently supported for area, bar, column, combo, line, ar supported by the Annotation Chart (https://developers.google.com/chart/interactive/docs/gallery/annota **Type:** object **Default:** null
axisTitlesPosition	Where to place the axis titles, compared to the chart area. Supported v • in - Draw the axis titles inside the chart area. • out - Draw the axis titles outside the chart area. • none - Omit the axis titles. **Type:** string **Default:** 'out'
backgroundColor	The background color for the main area of the chart. Can be either a si example: `'red'` or `'#00cc00'`, or an object with the following proper **Type:** string or object **Default:** 'white'
backgroundColor.stroke	The color of the chart border, as an HTML color string. **Type:** string **Default:** '#666'
backgroundColor.strokeWidth	The border width, in pixels. **Type:** number **Default:** 0
backgroundColor.fill	The chart fill color, as an HTML color string. **Type:** string **Default:** 'white'
bar.groupWidth	The width of a group of bars, specified in either of these formats: • Pixels (e.g. 50). • Percentage of the available width for each group (e.g. '20%'), where no space between them.

	Type: number or string **Default:** The golden ratio (http://en.wikipedia.org/wiki/Golden_ratio), a
bars	Whether the bars in a **Material** Bar Chart (https://developers.google.com/chart/interactive/docs/gallery/barcha horizontal. This option has no effect on Classic Bar Charts or Classic C **Type:** 'horizontal' or 'vertical' **Default:** 'vertical'
chartArea	An object with members to configure the placement and size of the ch drawn, excluding axis and legends). Two formats are supported: a num A simple number is a value in pixels; a number followed by % is a perce `{left:20,top:0,width:'50%',height:'75%'}` **Type:** object **Default:** null
chartArea.backgroundColor	Chart area background color. When a string is used, it can be either a h English color name. When an object is used, the following properties c • `stroke`: the color, provided as a hex string or English color name. • `strokeWidth`: if provided, draws a border around the chart area of color of `stroke`). **Type:** string or object **Default:** 'white'
chartArea.left	How far to draw the chart from the left border. **Type:** number or string **Default:** auto
chartArea.top	How far to draw the chart from the top border. **Type:** number or string **Default:** auto
chartArea.width	Chart area width. **Type:** number or string **Default:** auto
chartArea.height	Chart area height. **Type:** number or string **Default:** auto
chart.subtitle	For **Material** Charts (https://developers.google.com/chart/interactive/ this option specifies the subtitle. Only Material Charts support subtitles **Type:** string

	Default: null
chart.title	For **Material** Charts (https://developers.google.com/chart/interactive/ this option specifies the title. **Type:** string **Default:** null
colors	The colors to use for the chart elements. An array of strings, where eac string, for example: `colors:['red','#004411']`. **Type:** Array of strings **Default:** default colors
dataOpacity	The transparency of data points, with 1.0 being completely opaque and histogram, bar, and column charts, this refers to the visible data: dots i rectangles in the others. In charts where *selecting data* creates a dot, s this refers to the circles that appear upon hover or selection. The comb and this option has no effect on other charts. (To change the opacity o opacity (https://developers.google.com/chart/interactive/docs/gallery **Type:** number **Default:** 1.0
enableInteractivity	Whether the chart throws user-based events or reacts to user interacti throw 'select' or other interaction-based events (but *will* throw ready or hovertext or otherwise change depending on user input. **Type:** boolean **Default:** true
explorer	The `explorer` option allows users to pan and zoom Google charts. `e` default explorer behavior, enabling users to pan horizontally and vertica and out by scrolling. This feature is **experimental** and may change in future releases. ★ **Note:** The explorer only works with continuous axes (such as numbers **Type:** object **Default:** null
explorer.actions	The Google Charts explorer supports three actions: • `dragToPan`: Drag to pan around the chart horizontally and verticall horizontal axis, use `explorer: { axis: 'horizontal' }`. Sir • `dragToZoom`: The explorer's default behavior is to zoom in and out `explorer: { actions: ['dragToZoom', 'rightClickTo` across a rectangular area zooms into that area. We recommend usi

	whenever **dragToZoom** is used. See **explorer.maxZoomIn**, **expl** **explorer.zoomDelta** for zoom customizations. • **rightClickToReset**: Right clicking on the chart returns it to the **Type:** Array of strings **Default:** ['dragToPan', 'rightClickToReset']
explorer.axis	By default, users can pan both horizontally and vertically when the **exp** want to users to only pan horizontally, use **explorer: { axis: 'ho** **explorer: { axis: 'vertical' }** enables vertical-only panning **Type:** string **Default:** both horizontal and vertical panning
explorer.keepInBounds	By default, users can pan all around, regardless of where the data is. T beyond the original chart, use **explorer: { keepInBounds: true** **Type:** boolean **Default:** false
explorer.maxZoomIn	The maximum that the explorer can zoom in. By default, users will be a they'll see only 25% of the original view. Setting **explorer: { maxZo** zoom in only far enough to see half of the original view. **Type:** number **Default:** 0.25
explorer.maxZoomOut	The maximum that the explorer can zoom out. By default, users will be that the chart will take up only 1/4 of the available space. Setting **expl** would let users zoom out far enough that the chart would take up only **Type:** number **Default:** 4
explorer.zoomDelta	When users zoom in or out, **explorer.zoomDelta** determines how r the number, the smoother and slower the zoom. **Type:** number **Default:** 1.5
focusTarget	The type of the entity that receives focus on mouse hover. Also affects mouse click, and which data table element is associated with events. C • 'datum' - Focus on a single data point. Correlates to a cell in the dat • 'category' - Focus on a grouping of all data points along the major a data table. In focusTarget 'category' the tooltip displays all the category values. Th values of different series. **Type:** string

	Default: 'datum'
fontSize	The default font size, in pixels, of all text in the chart. You can override chart elements. **Type:** number **Default:** automatic
fontName	The default font face for all text in the chart. You can override this usin elements. **Type:** string **Default:** 'Arial'
forceIFrame	Draws the chart inside an inline frame. (Note that on IE8, this option is in i-frames.) **Type:** boolean **Default:** false

hAxes	Specifies properties for individual horizontal axes, if the chart has mult object is a **`hAxis`** object, and can contain all the properties supported override any global settings for the same property.
	
	To specify a chart with multiple horizontal axes, first define a new axis **`series.targetAxisIndex`**, then configure the axis using **`hAxes`**. Th series 1 to the bottom axis and specifies a custom title and text style f
	
	`series:{1:{targetAxisIndex:1}}, hAxes:{1:{title:'Los 'red'}}}`
	
	This property can be either an object or an array: the object is a collect numeric label that specifies the axis that it defines--this is the format s of objects, one per axis. For example, the following array-style notation shown above:
	
	`hAxes: { {}, // Nothing specified for axis 0 { title:'Losses', textStyle: { color: 'red' } } // Axis 1`
	
	Type: Array of object, or object with child objects
	Default: null

hAxis	An object with members to configure various horizontal axis elements.

	object, you can use object literal notation, as shown here: `{ title: 'Hello', titleTextStyle: { color: '#FF0000' } }` **Type:** object **Default:** null
hAxis.baseline	The baseline for the horizontal axis. **Type:** number **Default:** automatic
hAxis.baselineColor	The color of the baseline for the horizontal axis. Can be any HTML colo `'#00cc00'`. **Type:** number **Default:** 'black'
hAxis.direction	The direction in which the values along the horizontal axis grow. Specif values. **Type:** 1 or -1 **Default:** 1
hAxis.format	A format string for numeric axis labels. This is a subset of the ICU patt (http://icu-project.org/apiref/icu4c/classDecimalFormat.html#_details `{format:'#,###%'}` will display values "1,000%", "750%", and "50%" can also supply any of the following: • `{format: 'none'}`: displays numbers with no formatting (e.g., 8 • `{format: 'decimal'}`: displays numbers with thousands separa • `{format: 'scientific'}`: displays numbers in scientific notati • `{format: 'currency'}`: displays numbers in the local currency • `{format: 'percent'}`: displays numbers as percentages (e.g., 8 • `{format: 'short'}`: displays abbreviated numbers (e.g., 8M) • `{format: 'long'}`: displays numbers as full words (e.g., 8 millio The actual formatting applied to the label is derived from the locale the more details, see loading charts with a specific locale (https://developers.google.com/chart/interactive/docs/library_loading . .

	Type: string **Default:** auto
hAxis.gridlines	An object with members to configure the gridlines on the horizontal ax object, you can use object literal notation, as shown here: `{color: '#333', count: 4}` **Type:** object **Default:** null
hAxis.gridlines.color	The color of the horizontal gridlines inside the chart area. Specify a val **Type:** string **Default:** '#CCC'
hAxis.gridlines.count	The number of horizontal gridlines inside the chart area. Minimum valu automatically compute the number of gridlines. **Type:** number **Default:** 5

hAxis.gridlines.units	Overrides the default format for various aspects of date/datetime/time
	with chart computed gridlines. Allows formatting for years, months, da
	milliseconds.
	
	General format is:
	
	`gridlines: {`
	`  units: {`
	`  years: {format: [/*format strings here*/]},`
	`  months: {format: [/*format strings here*/]},`
	`  days: {format: [/*format strings here*/]}`
	`  hours: {format: [/*format strings here*/]}`
	`  minutes: {format: [/*format strings here*/]}`
	`  seconds: {format: [/*format strings here*/]},`
	`  milliseconds: {format: [/*format strings here*/]`
	`  }`
	`}`
	
	Additional information can be found in Dates and Times
	(https://developers.google.com/chart/interactive/docs/datesandtime
	
	Type: object
	Default: null

hAxis.minorGridlines	An object with members to configure the minor gridlines on the horizo hAxis.gridlines option.

	Type: object **Default:** null
hAxis.minorGridlines.color	The color of the horizontal minor gridlines inside the chart area. Specif **Type:** string **Default:** A blend of the gridline and background colors
hAxis.minorGridlines.count	The number of horizontal minor gridlines between two regular gridlines **Type:** number **Default:** 0

hAxis.minorGridlines.units	Overrides the default format for various aspects of date/datetime/time with chart computed minorGridlines. Allows formatting for years, mont seconds, and milliseconds.
	
	General format is:
	
	`gridlines: {`
	`  units: {`
	`  years: {format: [/*format strings here*/]},`
	`  months: {format: [/*format strings here*/]},`
	`  days: {format: [/*format strings here*/]}`
	`  hours: {format: [/*format strings here*/]}`
	`  minutes: {format: [/*format strings here*/]}`
	`  seconds: {format: [/*format strings here*/]},`
	`  milliseconds: {format: [/*format strings here*/]`
	`  }`
	`}`
	
	Additional information can be found in Dates and Times (https://developers.google.com/chart/interactive/docs/datesandtime
	
	Type: object
	Default: null

hAxis.logScale	**`hAxis`** property that makes the horizontal axis a logarithmic scale (req Set to true for yes. **Type:** boolean **Default:** false
hAxis.scaleType	**`hAxis`** property that makes the horizontal axis a logarithmic scale. Ca • null - No logarithmic scaling is performed. • 'log' - Logarithmic scaling. Negative and zero values are not plotted setting **`hAxis: { logscale: true }`**.

	• 'mirrorLog' - Logarithmic scaling in which negative and zero values a negative number is the negative of the log of the absolute value. V linear scale. **Type:** string **Default: null**

hAxis.textStyle	An object that specifies the horizontal axis text style. The object has th
	
	`{ color: <string>,`
	`fontName: <string>,`
	`fontSize: <number>,`
	`bold: <boolean>,`
	`italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`** **`fontSize`**.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>, size>}`**

hAxis.textPosition	Position of the horizontal axis text, relative to the chart area. Supporte **Type:** string **Default:** 'out'
hAxis.ticks	Replaces the automatically generated X-axis ticks with the specified ar should be either a valid tick value (such as a number, date, datetime, or an object, it should have a **`v`** property for the tick value, and an optional string to be displayed as the label. Examples: • **`hAxis: { ticks: [5,10,15,20] }`** • **`hAxis: { ticks: [{v:32, f:'thirty two'}, {v:64, f`** • **`hAxis: { ticks: [new Date(2014,3,15), new Date(20`** • **`hAxis: { ticks: [16, {v:32, f:'thirty two'}, {v:64 }`** **Type:** Array of elements **Default:** auto
hAxis.title	**`hAxis`** property that specifies the title of the horizontal axis. **Type:** string **Default:** null
hAxis.titleTextStyle	An object that specifies the horizontal axis title text style. The object ha

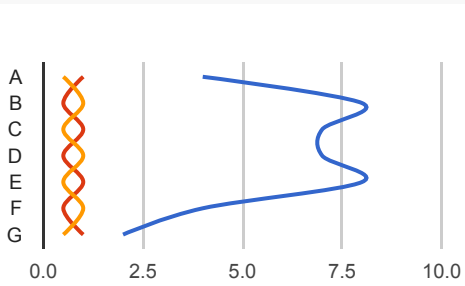
	`{ color: <string>,`
	`  fontName: <string>,`
	`  fontSize: <number>,`
	`  bold: <boolean>,`
	`  italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: '**`red`**' or '**`#00`**
	`fontSize`.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>,`**
	`size>}`

hAxis.maxValue	Moves the max value of the horizontal axis to the specified value; this v Ignored if this is set to a value smaller than the maximum x-value of th **`hAxis.viewWindow.max`** overrides this property. **Type:** number **Default:** automatic
hAxis.minValue	Moves the min value of the horizontal axis to the specified value; this v Ignored if this is set to a value greater than the minimum x-value of the **`hAxis.viewWindow.min`** overrides this property. **Type:** number **Default:** automatic
hAxis.viewWindowMode	Specifies how to scale the horizontal axis to render the values within th string values are supported: • 'pretty' - Scale the horizontal values so that the maximum and minir bit inside the left and right of the chart area. This will cause **`haxis`** **`haxis.viewWindow.max`** to be ignored. • 'maximized' - Scale the horizontal values so that the maximum and left and right of the chart area. This will cause **`haxis.viewWindo`** **`haxis.viewWindow.max`** to be ignored. • 'explicit' - A deprecated option for specifying the left and right scale (Deprecated because it's redundant with **`haxis.viewWindow.mi`** **`haxis.viewWindow.max`**.) Data values outside these values will b **`hAxis.viewWindow`** object describing the maximum and minimur **Type:** string **Default:** Equivalent to 'pretty', but **`haxis.viewWindow.min`** and **`haxi`** precedence if used.
hAxis.viewWindow	Specifies the cropping range of the horizontal axis. **Type:** object

	Default: null
hAxis.viewWindow.max	The maximum horizontal data value to render. Ignored when **`hAxis.viewWindowMode`** is 'pretty' or 'maximized'. **Type:** number **Default:** auto
hAxis.viewWindow.min	The minimum horizontal data value to render. Ignored when **`hAxis.viewWindowMode`** is 'pretty' or 'maximized'. **Type:** number **Default:** auto
height	Height of the chart, in pixels. **Type:** number **Default:** height of the containing element
isStacked	If set to true, stacks the elements for all series at each domain value. **N** (https://developers.google.com/chart/interactive/docs/gallery/colum (https://developers.google.com/chart/interactive/docs/gallery/areach (https://developers.google.com/chart/interactive/docs/gallery/steppe Charts reverses the order of legend items to better correspond with the (E.g. series 0 will be the bottom-most legend item). This **does not** appl (https://developers.google.com/chart/interactive/docs/gallery/barcha The **`isStacked`** option also supports 100% stacking, where the stacks value are rescaled to add up to 100%. The options for **`isStacked`** are: • **`false`** — elements will not stack. This is the default option. • **`true`** — stacks elements for all series at each domain value. • **`'percent'`** — stacks elements for all series at each domain value add up to 100%, with each element's value calculated as a percenta • **`'relative'`** — stacks elements for all series at each domain value they add up to 1, with each element's value calculated as a fraction • **`'absolute'`** — functions the same as **`isStacked: true`**. For 100% stacking, the calculated value for each element will appear in The target axis will default to tick values based on the relative 0-1 scale **`'relative'`**, and 0-100% for **`'percent'`** (**Note:** when using the **`'per`** values are displayed as percentages, however the actual values are the because the percentage axis ticks are the result of applying a format o values. When using **`isStacked: 'percent'`**, be sure to specify any

	0-1 scale values). You can customize the gridlines/tick values and forn **`hAxis/vAxis`** options. 100% stacking only supports data values of type **`number`**, and must ha **Type:** boolean/string **Default:** false
legend	An object with members to configure various aspects of the legend. To you can use object literal notation, as shown here: `{position: 'top', textStyle: {color: 'blue', fontSiz` **Type:** object **Default:** null
legend.position	Position of the legend. Can be one of the following: • 'bottom' - Below the chart. • 'left' - To the left of the chart, provided the left axis has no series ass the legend on the left, use the option **`targetAxisIndex: 1`**. • 'in' - Inside the chart, by the top left corner. • 'none' - No legend is displayed. • 'right' - To the right of the chart. Incompatible with the **`vAxes`** option • 'top' - Above the chart. **Type:** string **Default:** 'right'
legend.alignment	Alignment of the legend. Can be one of the following: • 'start' - Aligned to the start of the area allocated for the legend. • 'center' - Centered in the area allocated for the legend. • 'end' - Aligned to the end of the area allocated for the legend. Start, center, and end are relative to the style -- vertical or horizontal -- c 'right' legend, 'start' and 'end' are at the top and bottom, respectively; fo would be at the left and right of the area, respectively. The default value depends on the legend's position. For 'bottom' legend legends default to 'start'. **Type:** string **Default:** automatic
legend.textStyle	An object that specifies the legend text style. The object has this forma

	`{ color: <string>,`
	`  fontName: <string>,`
	`  fontSize: <number>,`
	`  bold: <boolean>,`
	`  italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`**
	`fontSize`.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>,`**
	`size>}`

reverseCategories	If set to true, will draw series from bottom to top. The default is to drav **Type:** boolean **Default:** false
orientation	The orientation of the chart. When set to **`'vertical'`**, rotates the axe instance) a column chart becomes a bar chart, and an area chart grow  **Type:** string **Default:** 'horizontal'

series	An array of objects, each describing the format of the corresponding s
	values for a series, specify an empty object {}. If a series or a value is n
	be used. Each object supports the following properties:
	
	• **`annotations`** - An object to be applied to annotations for this seri
	for instance, the **`textStyle`** for the series:
	
	`series: {`
	`  0: {`
	`  annotations: {`
	`  textStyle: {fontSize: 12, color: 'red' }`
	`  }`
	`  }`
	`}`

	See the various **annotations** options for a more complete list of v
	• **color** - The color to use for this series. Specify a valid HTML color
	• **labelInLegend** - The description of the series to appear in the ch
	• **targetAxisIndex** - Which axis to assign this series to, where 0 is opposite axis. Default value is 0; set to 1 to define a chart where dif against different axes. At least one series much be allocated to the different scale for different axes.
	• **visibleInLegend** - A boolean value, where true means that the s and false means that it should not. Default is true.
	
	You can specify either an array of objects, each of which applies to the can specify an object where each child has a numeric key indicating wh example, the following two declarations are identical, and declare the f from the legend, and the fourth as red and absent from the legend:
	
	`series: [ {color: 'black', visibleInLegend: false}, {}, {}, {color: 'red', visibleInLegend: false} ]`
	`series: { 0:{color: 'black', visibleInLegend: false}, 3:{color: 'red', visibleInLegend: false} }`
	
	Type: Array of objects, or object with nested objects
	Default: {}

theme	A theme is a set of predefined option values that work together to achi visual effect. Currently only one theme is available: • 'maximized' - Maximizes the area of the chart, and draws the legend chart area. Sets the following options: `chartArea: {width: '100%', height: '100%'}, legend: {position: 'in'}, titlePosition: 'in', axisTitlesPosition: 'in', hAxis: {textPosition: 'in'}, vAxis: {textPosition` **Type:** string **Default:** null
title	Text to display above the chart. **Type:** string **Default:** no title

titlePosition	Where to place the chart title, compared to the chart area. Supported v • in - Draw the title inside the chart area. • out - Draw the title outside the chart area. • none - Omit the title. **Type:** string **Default:** 'out'

titleTextStyle	An object that specifies the title text style. The object has this format:
	
	`{ color: <string>,`
	`fontName: <string>,`
	`fontSize: <number>,`
	`bold: <boolean>,`
	`italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`**
	`fontSize`.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>,`**
	`size>}`

tooltip	An object with members to configure various tooltip elements. To spec can use object literal notation, as shown here: `{textStyle: {color: '#FF0000'}, showColorCode: true}` **Type:** object **Default:** null
tooltip.ignoreBounds	If set to **`true`**, allows the drawing of tooltips to flow outside of the bou **Note:** This only applies to HTML tooltips. If this is enabled with SVG to the chart bounds will be cropped. See Customizing Tooltip Content (https://developers.google.com/chart/interactive/docs/customizing_t **Type:** boolean **Default:** false
tooltip.isHtml	If set to true, use HTML-rendered (rather than SVG-rendered) tooltips. S (https://developers.google.com/chart/interactive/docs/customizing_t ★ **Note:** customization of the HTML tooltip content via the tooltip columr (https://developers.google.com/chart/interactive/docs/roles#tooltipr Bubble Chart (https://developers.google.com/chart/interactive/docs/g

	Type: boolean **Default:** false
tooltip.showColorCode	If true, show colored squares next to the series information in the toolt **`focusTarget`** is set to 'category', otherwise the default is false. **Type:** boolean **Default:** automatic

tooltip.textStyle	An object that specifies the tooltip text style. The object has this forma
	
	`{ color: <string>,`
	`fontName: <string>,`
	`fontSize: <number>,`
	`bold: <boolean>,`
	`italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`**
	`fontSize`.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>,`**
	`size>}`

tooltip.trigger	The user interaction that causes the tooltip to be displayed: • 'focus' - The tooltip will be displayed when the user hovers over the • 'none' - The tooltip will not be displayed. • 'selection' - The tooltip will be displayed when the user selects the e **Type:** string **Default:** 'focus'

trendlines	Displays trendlines (https://developers.google.com/chart/interactive/
	charts that support them. By default, linear trendlines are used, but this
	`trendlines.`*`n`*`.type` option.
	
	Trendlines are specified on a per-series basis, so most of the time your
	
	`var options = {`
	`trendlines: {`
	`0: {`
	`type: 'linear',`
	`color: 'green',`
	`lineWidth: 3,`
	`opacity: 0.3,`
	`showR2: true,`

	visibleInLegend: true } } } **Type:** object **Default:** null
trendlines.n.color	The color of the trendline (https://developers.google.com/chart/intera expressed as either an English color name or a hex string. **Type:** string **Default:** default series color
trendlines.n.degree	For trendlines (https://developers.google.com/chart/interactive/docs/ '**polynomial**', the degree of the polynomial (**2** for quadratic, **3** for cu degree may change from 3 to 2 in an upcoming release of Google Cha **Type:** number **Default:** 3
trendlines.n.labelInLegend	If set, the trendline (https://developers.google.com/chart/interactive/c appear in the legend as this string. **Type:** string **Default:** null
trendlines.n.lineWidth	The line width of the trendline (https://developers.google.com/chart/interactive/docs/gallery/trendli **Type:** number **Default:** 2
trendlines.n.opacity	The transparency of the trendline (https://developers.google.com/chart/interactive/docs/gallery/trendli 1.0 (opaque). **Type:** number **Default:** 1.0
trendlines.n.pointSize	Trendlines (https://developers.google.com/chart/interactive/docs/gal by stamping a bunch of dots on the chart; this rarely-needed option lets dots. The trendline's **lineWidth** option will usually be preferable. How you're using the global **pointSize** option and want a different point s **Type:** number **Default:** 1
trendlines.n.pointsVisible	Trendlines (https://developers.google.com/chart/interactive/docs/gal by stamping a bunch of dots on the chart. The trendline's **pointsVis**

	the points for a particular trendline are visible. **Type:** boolean **Default:** true
trendlines.n.showR2	Whether to show the coefficient of determination (https://developers.google.com/chart/interactive/docs/gallery/trendli tooltip. **Type:** boolean **Default:** false
trendlines.n.type	Whether the trendlines (https://developers.google.com/chart/interacti `'linear'` (the default), `'exponential'`, or `'polynomial'`. **Type:** string **Default:** linear
trendlines.n.visibleInLegend	Whether the trendline (https://developers.google.com/chart/interactiv equation appears in the legend. (It will appear in the trendline tooltip.) **Type:** boolean **Default:** false
vAxis	An object with members to configure various vertical axis elements. To you can use object literal notation, as shown here: `{title: 'Hello', titleTextStyle: {color: '#FF0000'}}` **Type:** object **Default:** null
vAxis.baseline	`vAxis` property that specifies the baseline for the vertical axis. If the b grid line or smaller than the lowest grid line, it will be rounded to the clo This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** number **Default:** automatic
vAxis.baselineColor	Specifies the color of the baseline for the vertical axis. Can be any HTM `'red'` or `'#00cc00'`. This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** number **Default:** 'black'
vAxis.direction	The direction in which the values along the vertical axis grow. Specify -

	values. **Type:** 1 or -1 **Default:** 1
vAxis.format	A format string for numeric or date axis labels. For number axis labels, this is a subset of the decimal formatting ICU p (http://icu-project.org/apiref/icu4c/classDecimalFormat.html#_details `{format:'#,###%'}` will display values "1,000%", "750%", and "50%" can also supply any of the following: • `{format: 'none'}`: displays numbers with no formatting (e.g., 8 • `{format: 'decimal'}`: displays numbers with thousands separ • `{format: 'scientific'}`: displays numbers in scientific notati • `{format: 'currency'}`: displays numbers in the local currency • `{format: 'percent'}`: displays numbers as percentages (e.g., 8 • `{format: 'short'}`: displays abbreviated numbers (e.g., 8M) • `{format: 'long'}`: displays numbers as full words (e.g., 8 millio For date axis labels, this is a subset of the date formatting ICU pattern (http://icu-project.org/apiref/icu4c/classSimpleDateFormat.html#_det `{format:'MMM d, y'}` will display the value "Jul 1, 2011" for the da The actual formatting applied to the label is derived from the locale the more details, see loading charts with a specific locale (https://developers.google.com/chart/interactive/docs/library_loading . This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** string **Default:** auto
vAxis.gridlines	An object with members to configure the gridlines on the vertical axis. object, you can use object literal notation, as shown here: `{color: '#333', count: 4}` This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** object **Default:** null
vAxis.gridlines.color	The color of the vertical gridlines inside the chart area. Specify a valid

	Type: string **Default:** '#CCC'
vAxis.gridlines.count	The number of vertical gridlines inside the chart area. Minimum value i compute the number of gridlines. **Type:** number **Default:** 5

vAxis.gridlines.units	Overrides the default format for various aspects of date/datetime/time with chart computed gridlines. Allows formatting for years, months, da milliseconds.
	
	General format is:
	
	`gridlines: {`
	`  units: {`
	`  years: {format: [/*format strings here*/]},`
	`  months: {format: [/*format strings here*/]},`
	`  days: {format: [/*format strings here*/]}`
	`  hours: {format: [/*format strings here*/]}`
	`  minutes: {format: [/*format strings here*/]}`
	`  seconds: {format: [/*format strings here*/]},`
	`  milliseconds: {format: [/*format strings here*/]`
	`  }`
	`}`
	
	Additional information can be found in Dates and Times (https://developers.google.com/chart/interactive/docs/datesandtime
	
	Type: object
	Default: null

vAxis.minorGridlines	An object with members to configure the minor gridlines on the vertica vAxis.gridlines option. This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** object **Default:** null
vAxis.minorGridlines.color	The color of the vertical minor gridlines inside the chart area. Specify a **Type:** string **Default:** A blend of the gridline and background colors
vAxis.minorGridlines.count	The number of vertical minor gridlines between two regular gridlines.

	Type: number **Default:** 0

vAxis.minorGridlines.units	Overrides the default format for various aspects of date/datetime/time with chart computed minorGridlines. Allows formatting for years, mont seconds, and milliseconds.
	
	General format is:
	
	`gridlines: {`
	`  units: {`
	`  years: {format: [/*format strings here*/]},`
	`  months: {format: [/*format strings here*/]},`
	`  days: {format: [/*format strings here*/]}`
	`  hours: {format: [/*format strings here*/]}`
	`  minutes: {format: [/*format strings here*/]}`
	`  seconds: {format: [/*format strings here*/]},`
	`  milliseconds: {format: [/*format strings here*/]`
	`  }`
	`}`
	
	Additional information can be found in Dates and Times (https://developers.google.com/chart/interactive/docs/datesandtime
	
	Type: object
	Default: null

vAxis.logScale	If true, makes the vertical axis a logarithmic scale. Note: All values mus This option is only supported for a `continuous` (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** boolean **Default:** false
vAxis.scaleType	**`vAxis`** property that makes the vertical axis a logarithmic scale. Can b • null - No logarithmic scaling is performed. • 'log' - Logarithmic scaling. Negative and zero values are not plotted setting **`vAxis: { logscale: true }`**. • 'mirrorLog' - Logarithmic scaling in which negative and zero values a negative number is the negative of the log of the absolute value. V linear scale. **Type:** string **Default:** null
vAxis.textPosition	Position of the vertical axis text, relative to the chart area. Supported v

	Type: string **Default:** 'out'

vAxis.textStyle	An object that specifies the vertical axis text style. The object has this
	
	`{ color: <string>,`
	`fontName: <string>,`
	`fontSize: <number>,`
	`bold: <boolean>,`
	`italic: <boolean> }`
	
	The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`**
	`fontSize`.
	
	Type: object
	Default: **`{color: 'black', fontName: <global-font-name>,`**
	`size>}`

vAxis.ticks	Replaces the automatically generated Y-axis ticks with the specified ar should be either a valid tick value (such as a number, date, datetime, or an object, it should have a **`v`** property for the tick value, and an optional string to be displayed as the label. Examples: • **`vAxis: { ticks: [5,10,15,20] }`** • **`vAxis: { ticks: [{v:32, f:'thirty two'}, {v:64, f`** • **`vAxis: { ticks: [new Date(2014,3,15), new Date(20`** • **`vAxis: { ticks: [16, {v:32, f:'thirty two'}, {v:64`** **`}`** This option is only supported for a **`continuous`** (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** Array of elements **Default:** auto
vAxis.title	**`vAxis`** property that specifies a title for the vertical axis. **Type:** string **Default:** no title

vAxis.titleTextStyle	An object that specifies the vertical axis title text style. The object has
	
	`{ color: <string>,`
	`fontName: <string>,`
	`fontSize: <number>,`
	`bold: <boolean>,`

	`italic: <boolean> }` The **`color`** can be any HTML color string, for example: **`'red'`** or **`'#00`** **`fontSize`**. **Type:** object **Default:** **`{color: 'black', fontName: <global-font-name>,`** **`size>}`**
vAxis.maxValue	Moves the max value of the vertical axis to the specified value; this will Ignored if this is set to a value smaller than the maximum y-value of th **`vAxis.viewWindow.max`** overrides this property. This option is only supported for a **`continuous`** (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** number **Default:** automatic
vAxis.minValue	Moves the min value of the vertical axis to the specified value; this will Ignored if this is set to a value greater than the minimum y-value of the **`vAxis.viewWindow.min`** overrides this property. This option is only supported for a **`continuous`** (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** number **Default:** null
vAxis.viewWindowMode	Specifies how to scale the vertical axis to render the values within the c values are supported: • 'pretty' - Scale the vertical values so that the maximum and minimu inside the top and bottom of the chart area. This will cause **`vaxis.`** **`vaxis.viewWindow.max`** to be ignored. • 'maximized' - Scale the vertical values so that the maximum and mi and bottom of the chart area. This will cause **`vaxis.viewWindow`** **`vaxis.viewWindow.max`** to be ignored. • 'explicit' - A deprecated option for specifying the top and bottom sc (Deprecated because it's redundant with **`vaxis.viewWindow.mi`** **`vaxis.viewWindow.max`**. Data values outside these values will b **`vAxis.viewWindow`** object describing the maximum and minimur This option is only supported for a **`continuous`** (https://developers.google.com/chart/interactive/docs/customizing_a **Type:** string **Default:** Equivalent to 'pretty', but **`vaxis.viewWindow.min`** and **`vaxi`** precedence if used.

vAxis.viewWindow	Specifies the cropping range of the vertical axis. **Type:** object **Default:** null
vAxis.viewWindow.max	• For a `continuous` (https://developers.google.com/chart/interactive/docs/customizir The maximum vertical data value to render. • For a `discrete` (https://developers.google.com/chart/interactive/docs/customizir The zero-based row index where the cropping window ends. Data p be cropped out. In conjunction with **`vAxis.viewWindowMode.mi`** [min, max) that denotes the element indices to display. In other wor **`index < max`** will be displayed. Ignored when **`vAxis.viewWindowMode`** is 'pretty' or 'maximized'. **Type:** number **Default:** auto
vAxis.viewWindow.min	• For a `continuous` (https://developers.google.com/chart/interactive/docs/customizir The minimum horizontal data value to render. • For a `discrete` (https://developers.google.com/chart/interactive/docs/customizir The zero-based row index where the cropping window begins. Data will be cropped out. In conjunction with **`vAxis.viewWindowMode`** range [min, max) that denotes the element indices to display. In oth **`min <= index < max`** will be displayed. Ignored when **`vAxis.vi`** 'maximized'. Ignored when **`vAxis.viewWindowMode`** is 'pretty' or 'maximized'. **Type:** number **Default:** auto
width	Width of the chart, in pixels. **Type:** number **Default:** width of the containing element

Methods

Method

`draw(data, options)`	Draws the chart. The chart accepts further method calls only after the (#Events)event is fired. `Extended description` (https://developers.google.com/chart/interactive/docs/reference#vis **Return Type:** none
`getAction(actionID)`	Returns the tooltip action object with the requested **`actionID`**. **Return Type:** object

`getBoundingBox(id)`	Returns an object containing the left, top, width, and height of chart ele
	The format for **`id`** isn't yet documented (they're the return values of eve
	(https://developers.google.com/chart/interactive/docs/events)), but h
	some examples:
	
	`var cli = chart.getChartLayoutInterface();`
	
	Height of the chart area
	
	`cli.getBoundingBox('chartarea').height`
	
	Width of the third bar in the first series of a bar or column cl
	
	`cli.getBoundingBox('bar#0#2').width`
	
	Bounding box of the fifth wedge of a pie chart
	
	`cli.getBoundingBox('slice#4')`
	
	Bounding box of the chart data of a vertical (e.g., column) c
	
	`cli.getBoundingBox('vAxis#0#gridline')`
	
	Bounding box of the chart data of a horizontal (e.g., bar) cha
	
	`cli.getBoundingBox('hAxis#0#gridline')`
	
	Values are relative to the container of the chart. Call this *after* the char
	
	Return Type: object

`getChartAreaBoundingBox()`	Returns an object containing the left, top, width, and height of the char (i.e., excluding labels and legend): `var cli = chart.getChartLayoutInterface();`

	`cli.getChartAreaBoundingBox().left`
	`cli.getChartAreaBoundingBox().top`
	`cli.getChartAreaBoundingBox().height`
	`cli.getChartAreaBoundingBox().width`
	
	Values are relative to the container of the chart. Call this *after* the char
	
	Return Type: object

`getChartLayoutInterface()`	Returns an object containing information about the onscreen placeme chart and its elements. The following methods can be called on the returned object: • `getBoundingBox` • `getChartAreaBoundingBox` • `getHAxisValue` • `getVAxisValue` • `getXLocation` • `getYLocation` Call this *after* the chart is drawn. **Return Type:** object
`getHAxisValue(position, optional_axis_index)`	Returns the logical horizontal value at **`position`**, which is an offset fr container's left edge. Can be negative. Example: `chart.getChartLayoutInterface().getHAxisValue` Call this *after* the chart is drawn. **Return Type:** number
`getImageURI()`	Returns the chart serialized as an image URI. Call this *after* the chart is drawn. See Printing PNG Charts (https://developers.google.com/chart/interactive/docs/printing). **Return Type:** string
`getSelection()`	Returns an array of the selected chart entities. Selectable entities are b entries and categories. For this chart, only one entity can be selected a moment. `Extended description`

	(https://developers.google.com/chart/interactive/docs/reference#vis . **Return Type:** Array of selection elements
`getVAxisValue(position, optional_axis_index)`	Returns the logical vertical value at **`position`**, which is an offset from container's top edge. Can be negative. Example: **`chart.getChartLayoutInterface().getVAxisValue`** Call this *after* the chart is drawn. **Return Type:** number
`getXLocation(position, optional_axis_index)`	Returns the screen x-coordinate of **`position`** relative to the chart's co Example: **`chart.getChartLayoutInterface().getXLocation(`** Call this *after* the chart is drawn. **Return Type:** number
`getYLocation(position, optional_axis_index)`	Returns the screen y-coordinate of **`position`** relative to the chart's co Example: **`chart.getChartLayoutInterface().getYLocation(`** Call this *after* the chart is drawn. **Return Type:** number
`removeAction(actionID)`	Removes the tooltip action with the requested **`actionID`** from the cha **Return Type: none**
`setAction(action)`	Sets a tooltip action to be executed when the user clicks on the action The **`setAction`** method takes an object as its action parameter. This should specify 3 properties: **`id`**— the ID of the action being set, **`text`** – should appear in the tooltip for the action, and **`action`** — the function be run when a user clicks on the action text. Any and all tooltip actions should be set prior to calling the chart's **`dra`** method. Extended description (https://developers.google.com/chart/interactive/docs/reference#vis **Return Type: none**
`setSelection()`	Selects the specified chart entities. Cancels any previous selection. Se entities are bars, legend entries and categories. For this chart, only one be selected at a time. `Extended description` (https://developers.google.com/chart/interactive/docs/reference#vis .

	Return Type: none
`clearChart()`	Clears the chart, and releases all of its allocated resources. **Return Type:** none

Events

For more information on how to use these events, see Basic Interactivity (https://developers.google.com/chart/interactive/docs/basic_interactivity), Handling Events (https://developers.google.com/chart/interactive/docs/events), and Firing Events (https://developers.google.com/chart/interactive/docs/dev/events).

Name	
`animationfinish`	Fired when transition animation is complete. **Properties:** none
`click`	Fired when the user clicks inside the chart. Can be used to identify when the title, data elements, legend entries, axes, gridlines, or labels are clicked. **Properties:** targetID
`error`	Fired when an error occurs when attempting to render the chart. **Properties:** id, message
`onmouseover`	Fired when the user mouses over a visual entity. Passes back the row and column indices of the corresponding data table element. A bar correlates to a cell in the data table, a legend entry to a column (row index is null), and a category to a row (column index is null). **Properties:** row, column
`onmouseout`	Fired when the user mouses away from a visual entity. Passes back the row and column indices of the corresponding data table element. A bar correlates to a cell in the data table, a legend entry to a column (row index is null), and a category to a row (column index is null). **Properties:** row, column
`ready`	The chart is ready for external method calls. If you want to interact with the chart, and call methods after you draw it, you should set up a listener for this event *before* you call the `draw` method, and call them only after the event was fired.

	Properties: none
`select`	Fired when the user clicks a visual entity. To learn what has been selected, call `getSelection()` (#Methods). **Properties:** none

Data policy

All code and data are processed and rendered in the browser. No data is sent to any server.

上次更新日期：二月 23, 2017