

Charting 1A

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danappleman.com
@danappleman



pluralsight 
hardcore dev and IT training

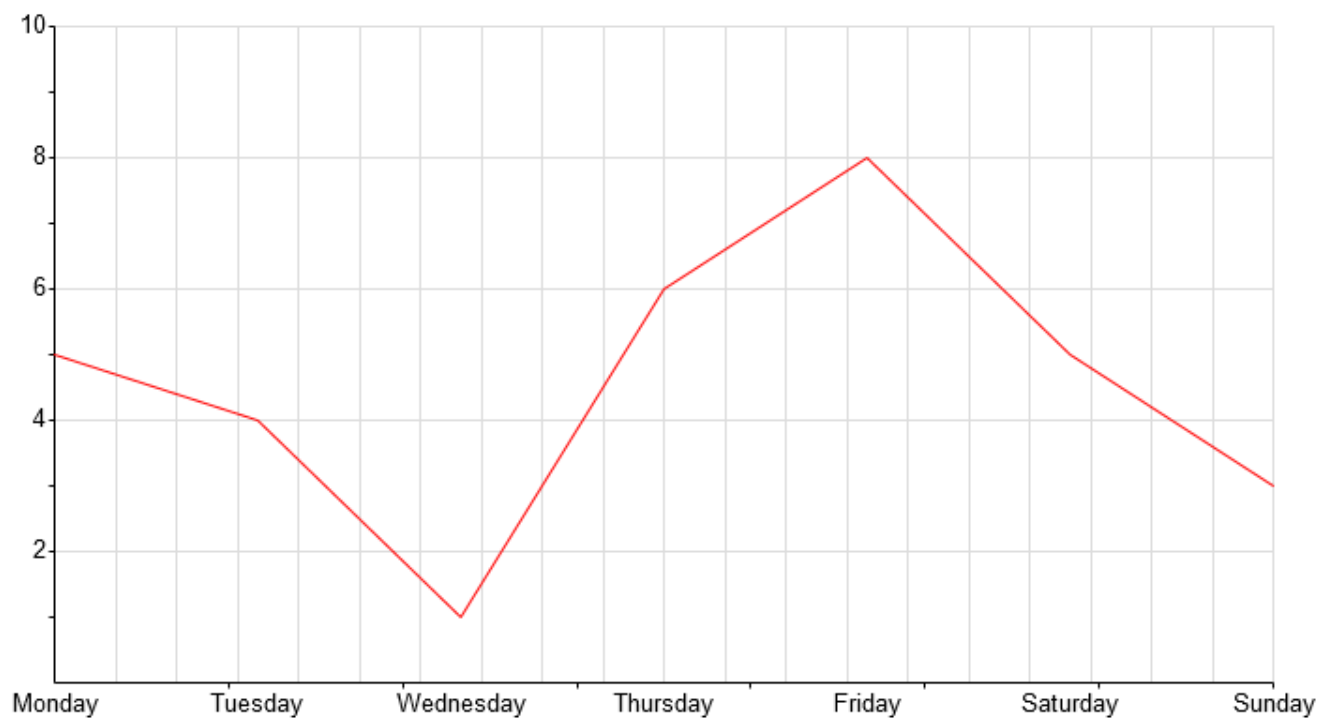


$$(\frac{2}{3}a^2b)(\frac{1}{4}a^3b)$$

$$(-5xy^3)^3$$

$$\sqrt[3]{16x^2}$$

A basic line chart



File Edit Code Navigation View Project Tools Help



Find ...

In current file

Start Page x line-basic.html x

```
1 <!DOCTYPE html >
2 <html>
3 <head>
4     <link rel="stylesheet" href="demos.css" type="text/css" media="screen" />
5
6     <script src="libraries/RGraph.common.core.js" ></script>
7     <script src="libraries/RGraph.line.js" ></script>
8
9     <title>A basic Line chart</title>
10
11     <meta name="description" content="A basic Line chart" />
12     .....
13 </head>
14 <body>
15
16     <h1 style="text-align: center">A basic line chart</h1>
17     <br /><br /><br />
18     <div style="text-align: center">
19     <canvas id="cvs" width="700" height="400">[No canvas support]</canvas>
20     </div>
21
22     <script>
23         window.onload = function ()
24         {
25             var line = new RGraph.Line('cvs', [5,4,1,6,8,5,3])
26                 .Set('labels', ['Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday', 'Saturday', 'Sunday'])
27                 .Draw();
28         }
29     </script>
30
31 </body>
32 </html>
```

Can I do this?



Tired of sitting in an office all day?

Tired of unsympathetic tyrant managers?

Take charge of your own destiny!



**Use your programming skills to take on
consulting projects *from your own home!***

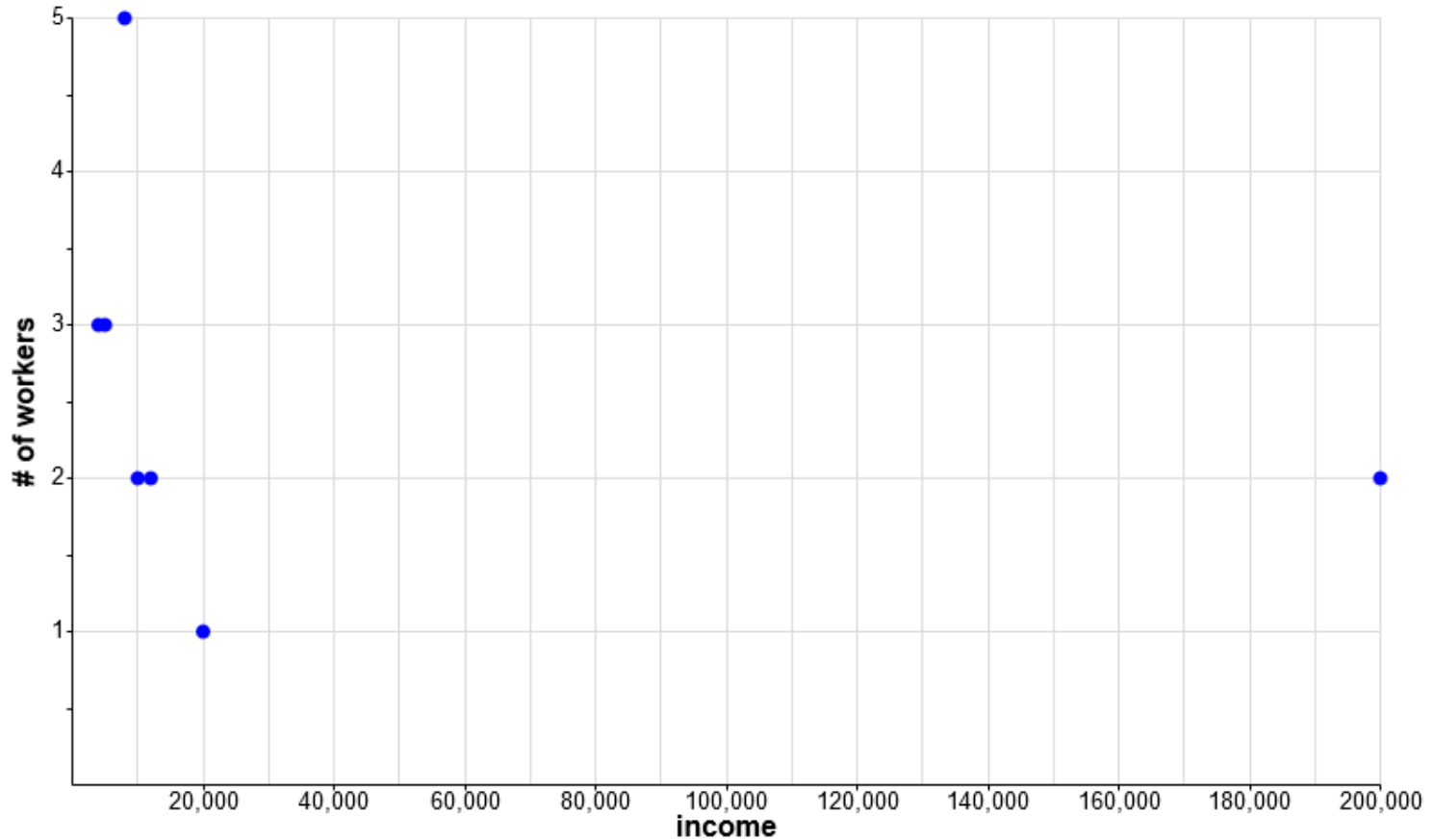
Earn up to \$200,000 per year!

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Work at home!



Maximum value is 200000

Average value is 29500

Median value is 8000

Anything

(Add watermark during editing)

Note: Warning will not appear during Slide Show view.

Simple JavaScript function that calculates the maximum of an array of numbers

```
function getMax(dataset)
{
    var maxValue = Number.NEGATIVE_INFINITY;
    for(i in dataset)
    {
        if (dataset[i] > maxValue) {
            maxValue = dataset[i];
        }
    }
    return maxValue;
}
```

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in This Space**

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editing)

Note: Warning will not appear
during Slide Show view.

Tired of sitting in an office all day?

Tired of unsympathetic tyrant managers?

Take charge of your own destiny!



**Use your programming skills to take on
consulting projects *from your own home!***

Earn up to \$200,000 per year!

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during Slide Show view.

Tired of living paycheck to paycheck?

Looking for a bit of extra cash?

Make money on the side!



**Use your programming skills to take on
consulting projects *from your own home!***

**Our part-time consultants earn
an average of over \$29,000/year!**

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in This Space**

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editing)

Note: Warning will not appear
during Slide Show view.

Simple JavaScript function that calculates the average of an array of numbers

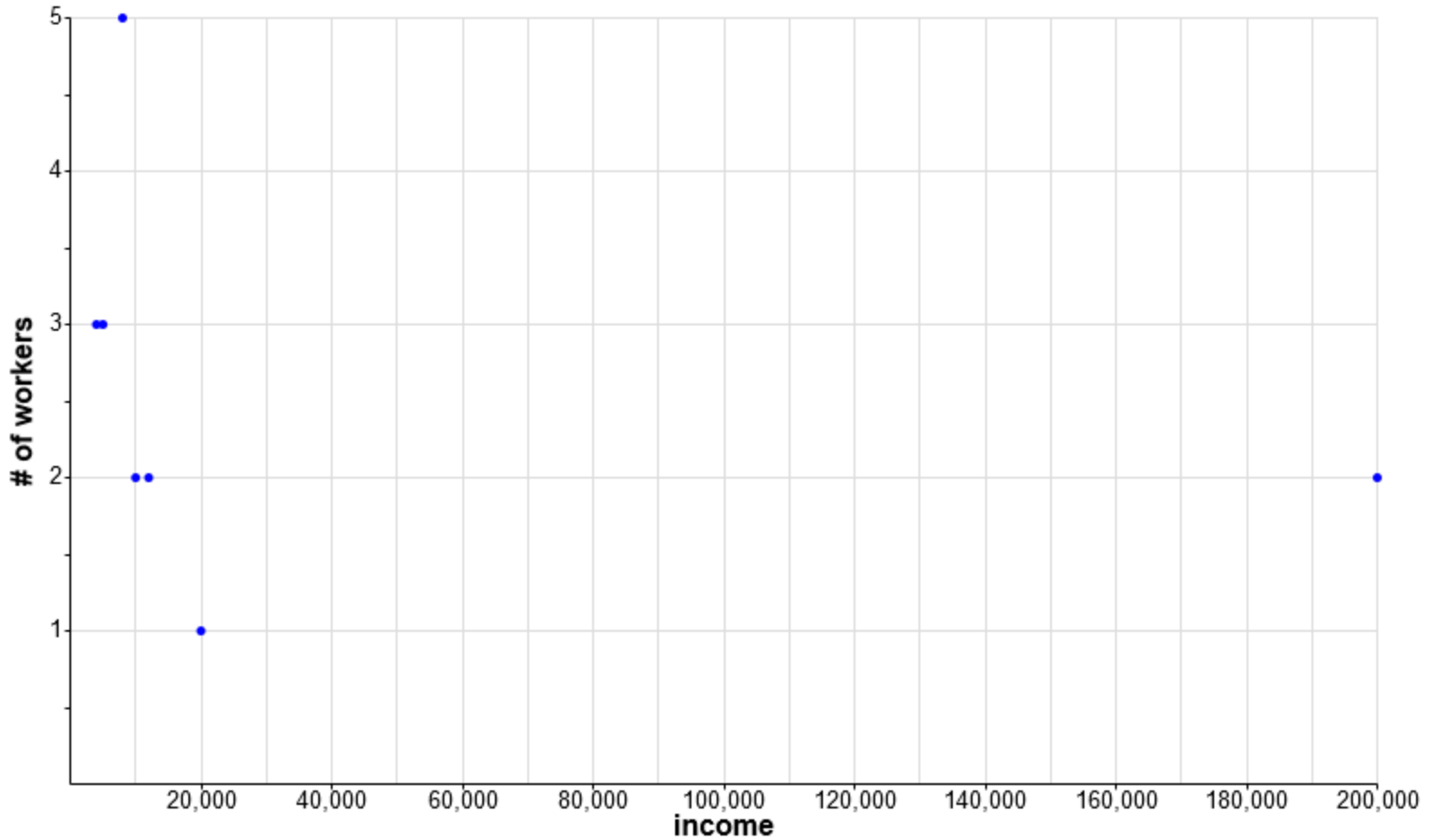
```
function getAverage(dataset)
{
    var totalValue = 0;
    for(i in dataset)
    {
        totalValue += dataset[i];
    }
    return totalValue/ dataset.length;
}
```

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editing)

Note: Warning will not appear
during Slide Show view.

Work at home!



Maximum value is 200000

Average value is 29500

Median value is 8000

JavaScript function that calculates the median value of an array of numbers

```
function getMedian(dataset)
{
    var arrayToSort = dataset.slice(0); // copy the array
    arrayToSort.sort(function(a, b) { return a - b; });

    var half = Math.floor(arrayToSort.length/2); // Find the halfway point

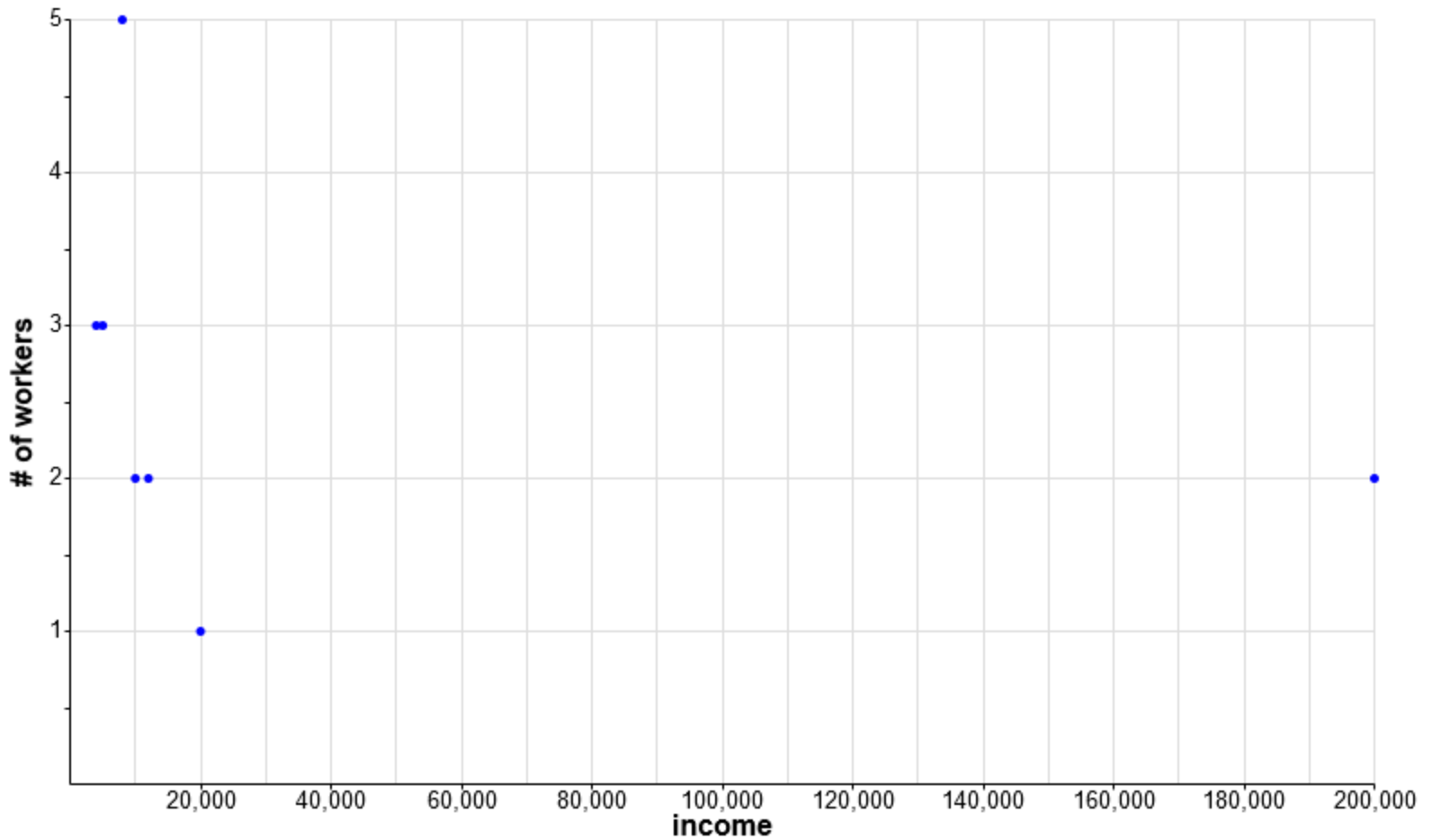
    if(arrayToSort.length % 2 == 1)
    { // Get the center point
        return arrayToSort[half];
    }
    else
    { // Get the mean of the two center entries
        return (arrayToSort[half-1] + arrayToSort[half]) / 2.0;
    }
}
```

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in This Space**

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editing)

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during Slide Show view.

Work at home!



Maximum value is 200000

Average value is 29500

Median value is 8000

How Much Cash Do We Need to Grow?

If we reach 50 consultants our payout to consultants will be...

- $50 \times \$8000 \text{ (median)} = \400K

Or

- $50 \times \$29500 \text{ (average)} = \1.475 Million

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during Slide Show view.

Average = Sum of values / Number of values



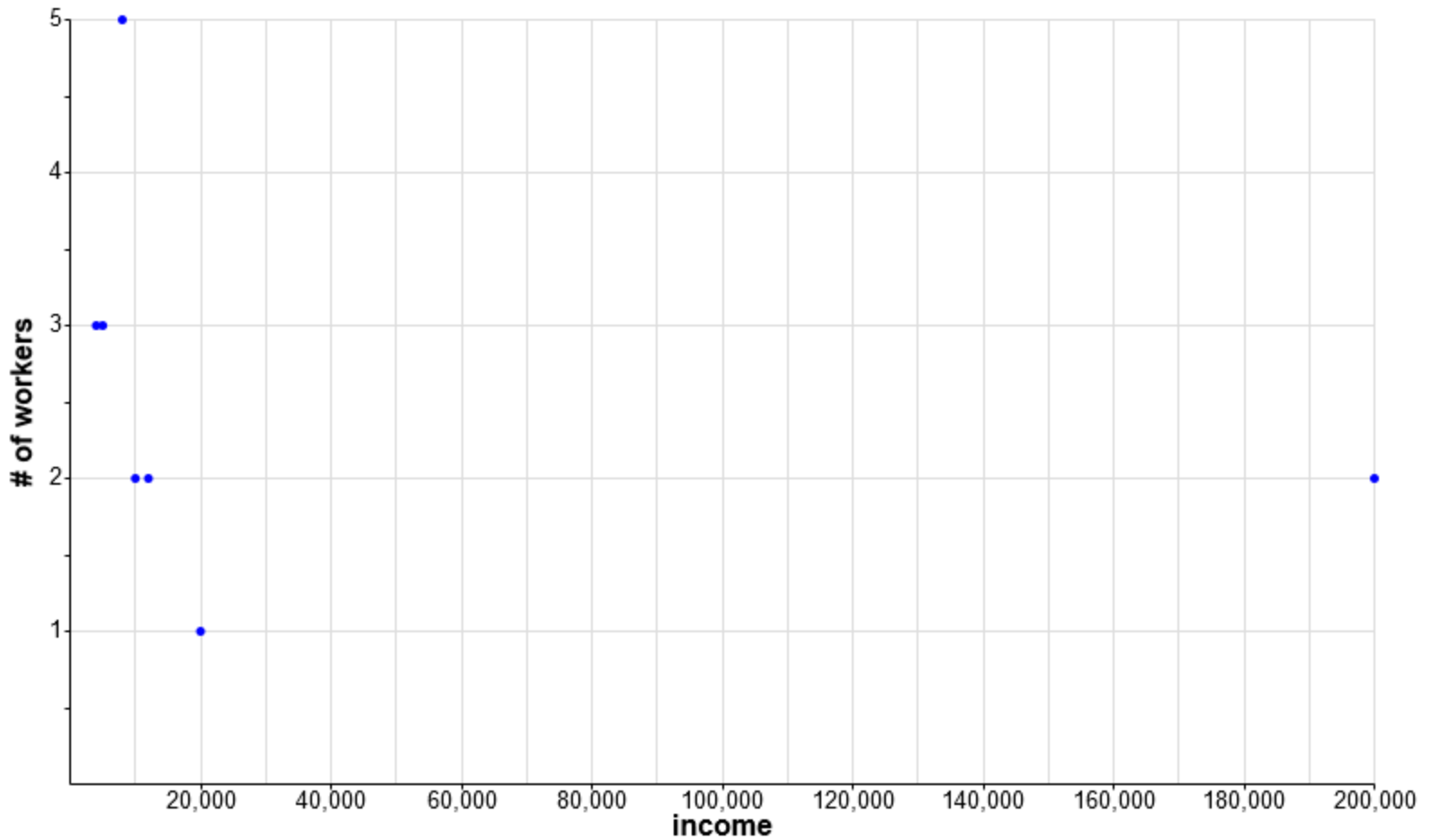
Sum of values = Average X Number of values

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editing)

Note: Warning will not appear
during Slide Show view.

Work at home!

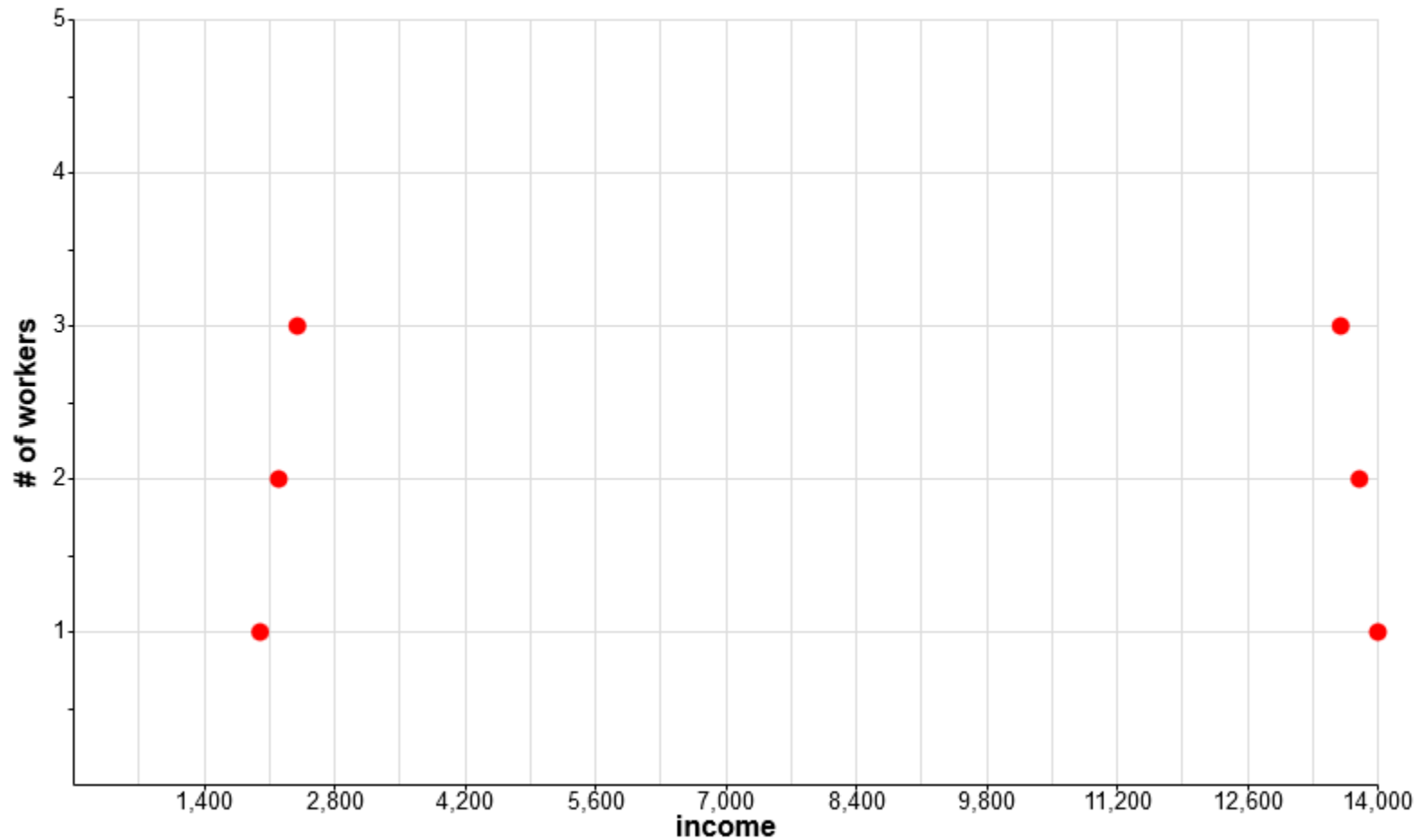


Maximum value is 200000

Average value is 29500

Median value is 8000

Work at home!

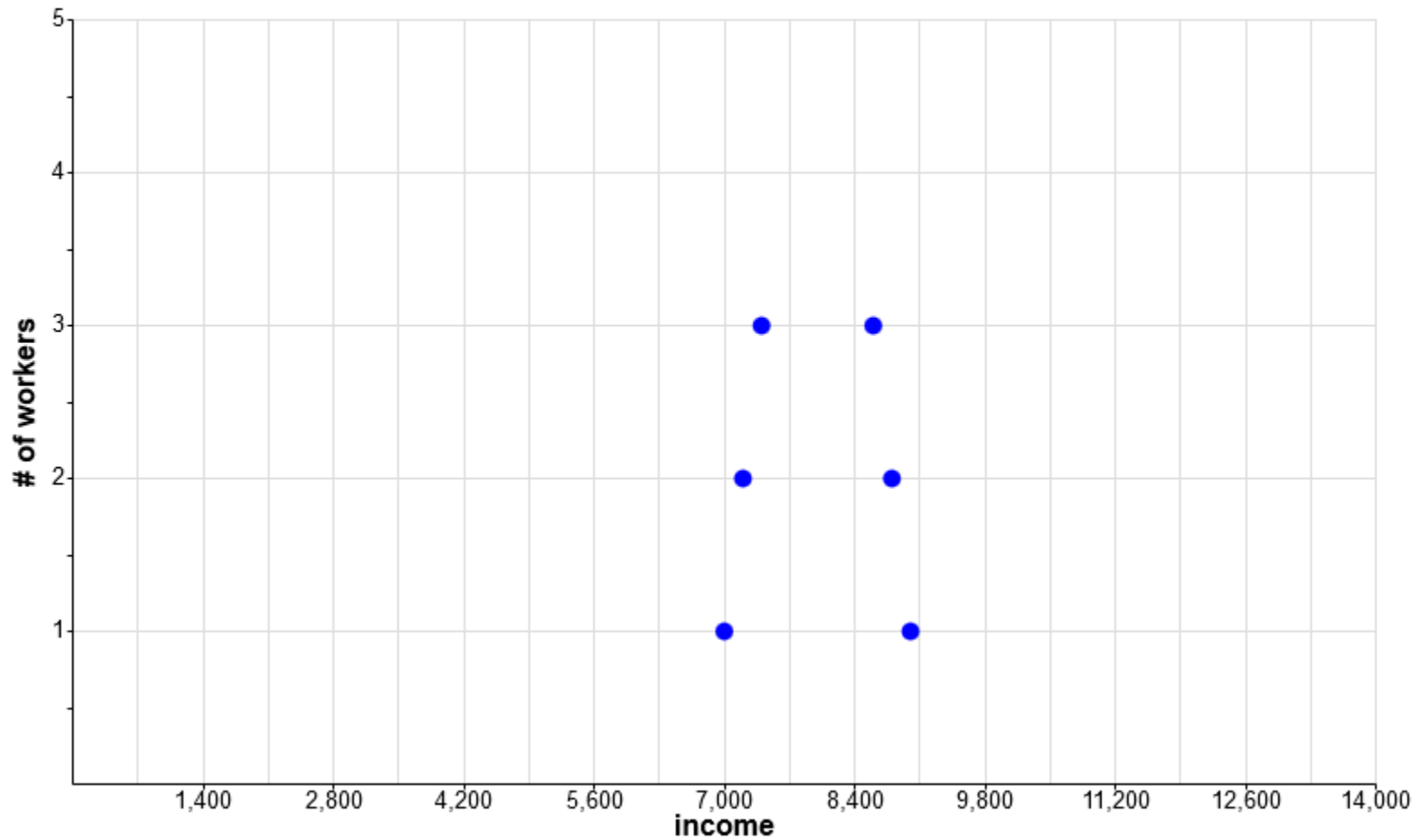


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Note: Warning will not appear
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Work at home!

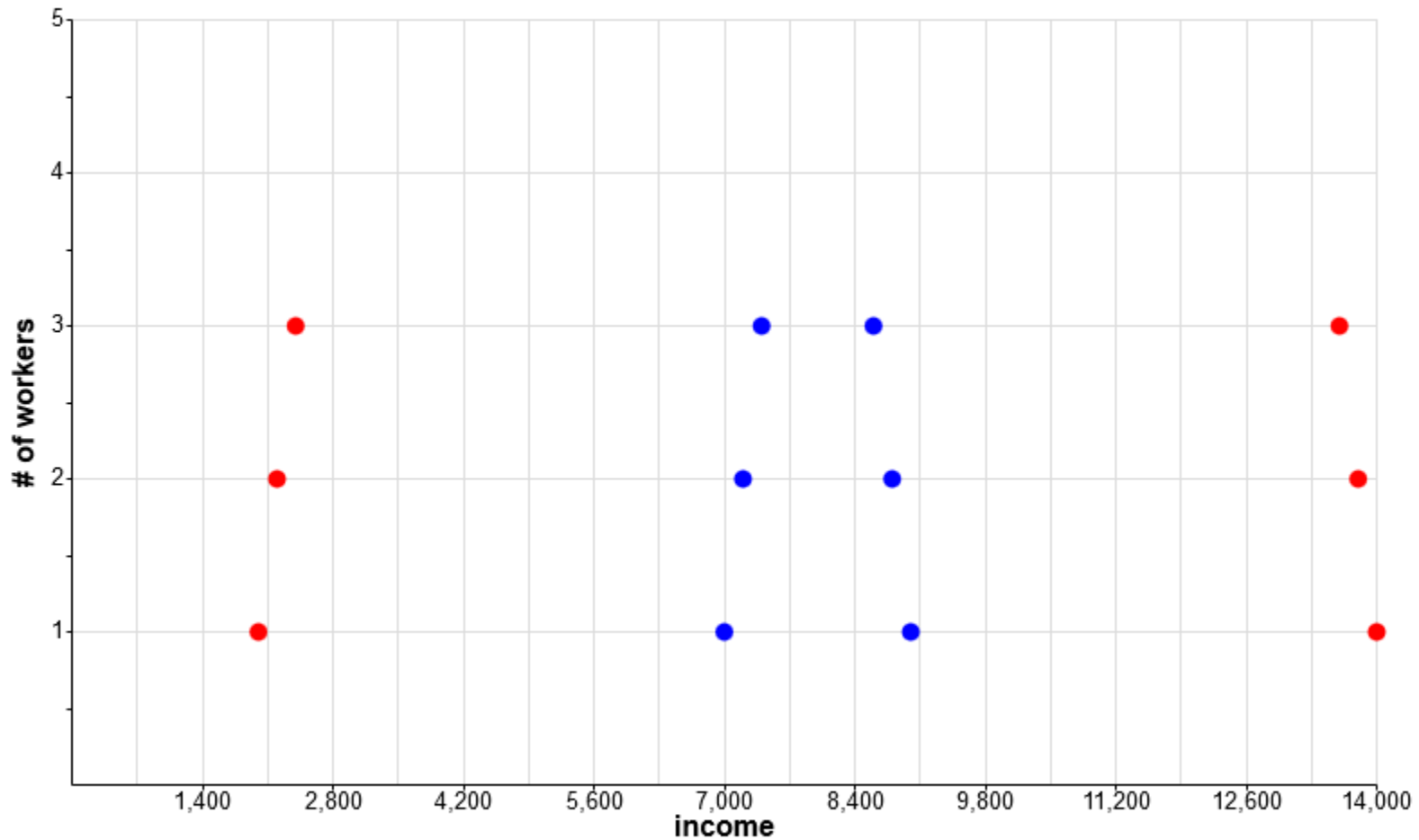


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Note: Warning will not appear
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Work at home!



Average values are 8000 8000

Median values are 8000 8000

Standard deviation values are 5735 748

Anything

during

Note: Warning will not appear during Slide Show view.

JavaScript function that calculates the standard deviation of an array of numbers

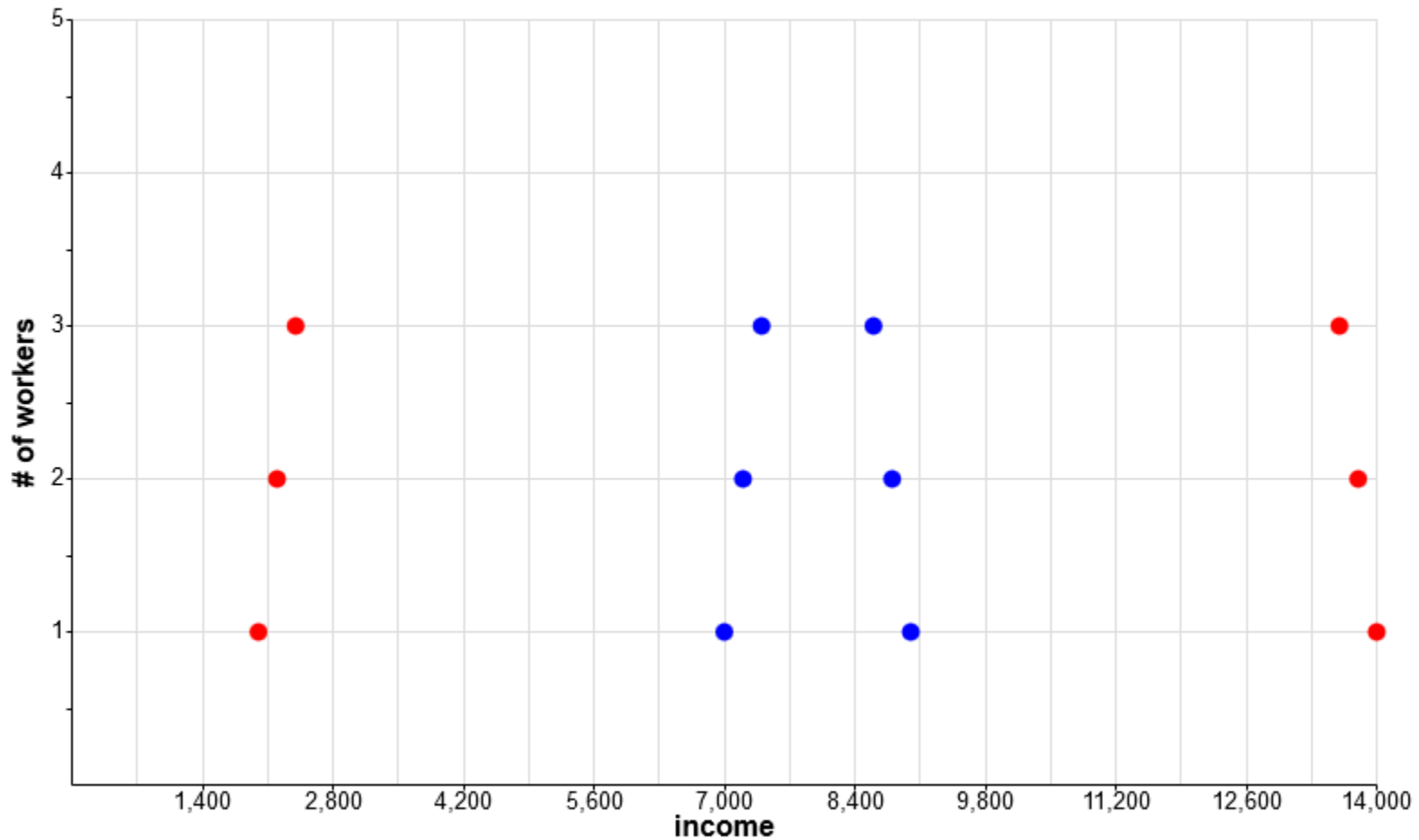
```
function getStandardDeviation(dataset)
{
    var mean = getAverage(dataset);
    var variance = 0;
    for(i in dataset)
    {
        variance += Math.pow(dataset[i] - mean,2); // Square the distance from the mean
    }
    // Divide by # of entries
    variance /= dataset.length;
    // The standard deviation is the square root of the variance
    return Math.sqrt(variance);
}
```

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Work at home!



Average values are 8000 8000

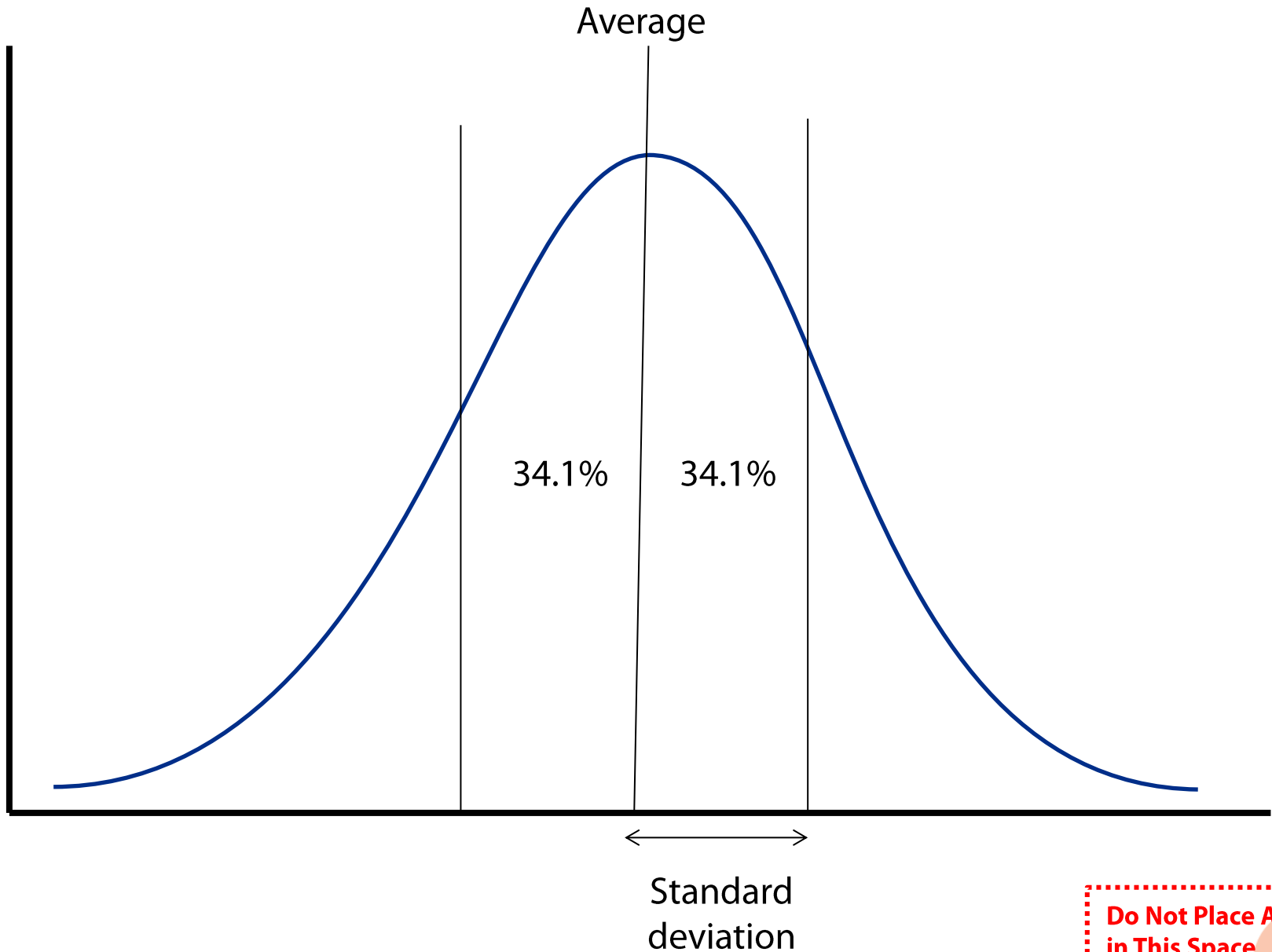
Median values are 8000 8000

Standard deviation values are 5735 748

Anything

during

Note: Warning will not appear during Slide Show view.

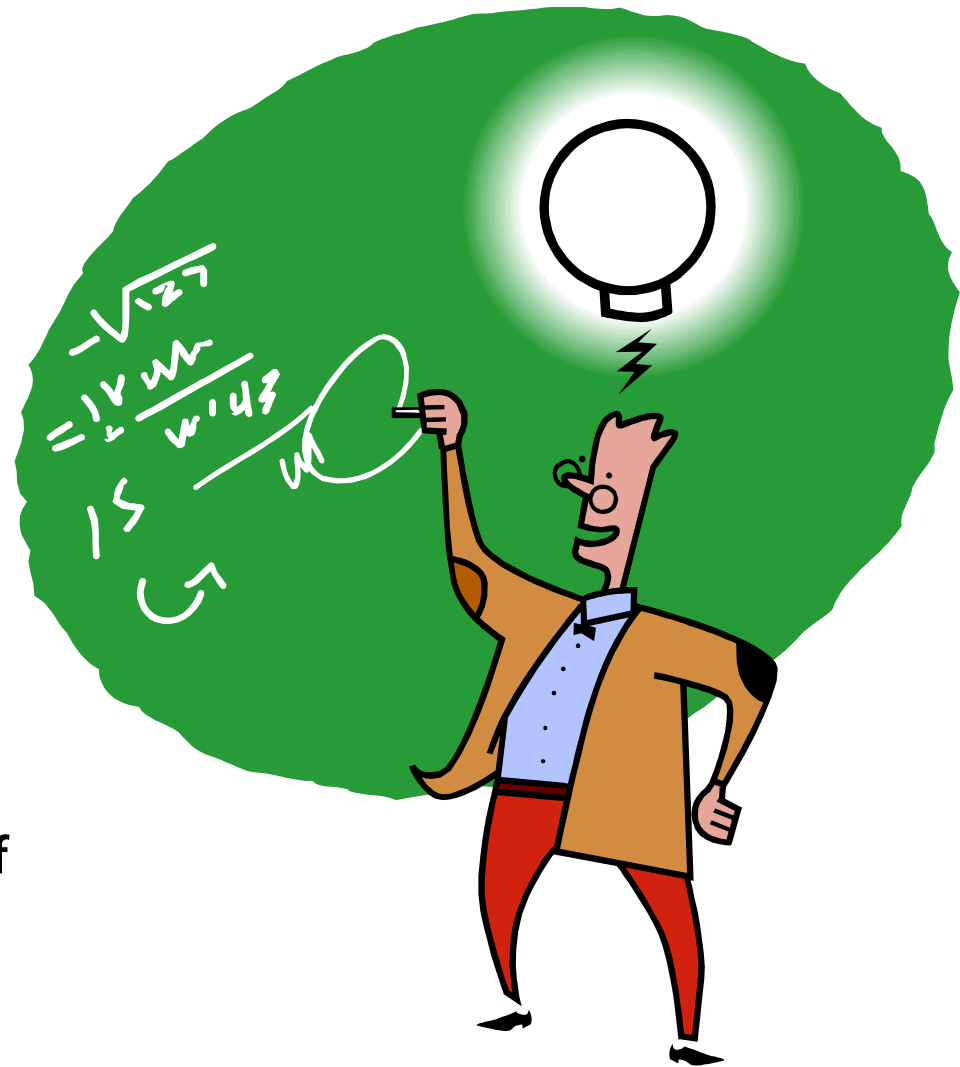


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Note: Warning will not appear
during Slide Show view.

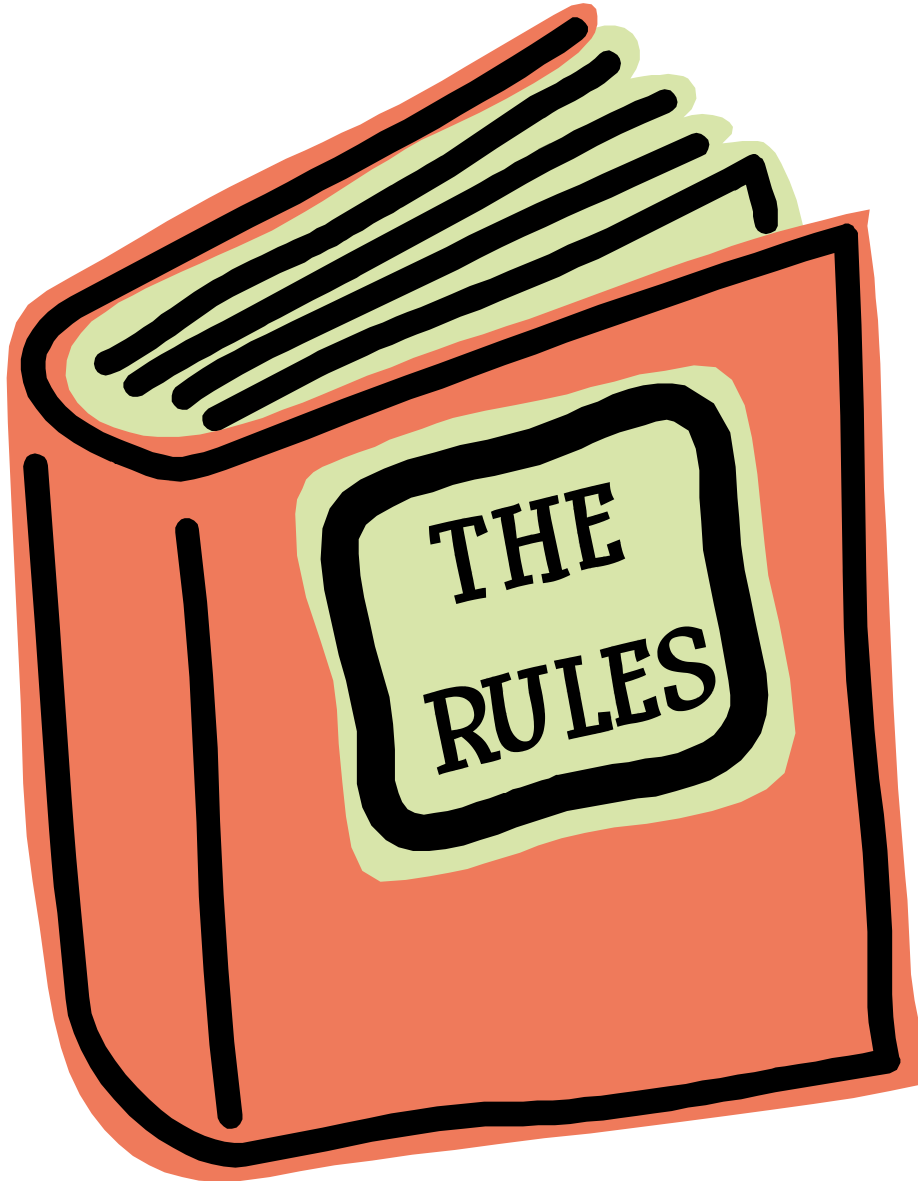
- Minimum and Maximum – the lowest and highest values in a dataset
- Average = Mean = Sum of values divided by the number of values
- Median = Half of the values are lower, and half higher, than this value
- Standard Deviation = A measure of how close values are to the average



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You have to know the rules, so that you know when you're breaking them...

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Four Simple Rules of Visualization

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Note: Warning will not appear
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Rule #1

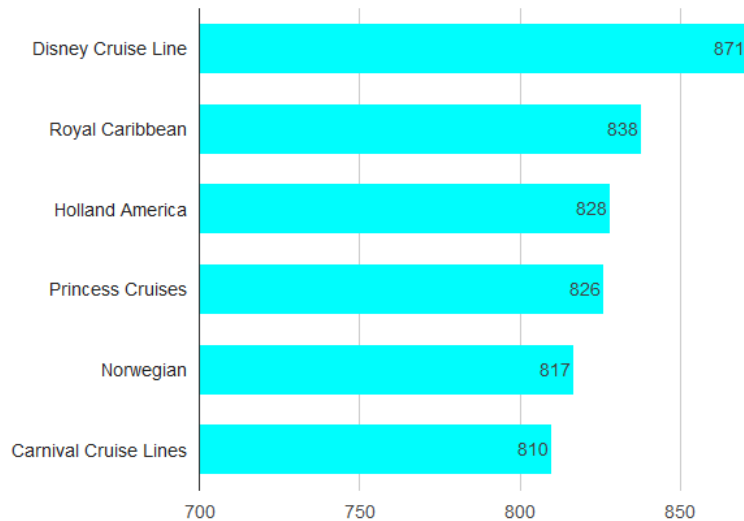
**Always start with the story you want to tell
or
The question you want to ask**

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in This Space**

(Add watermark during
editing)

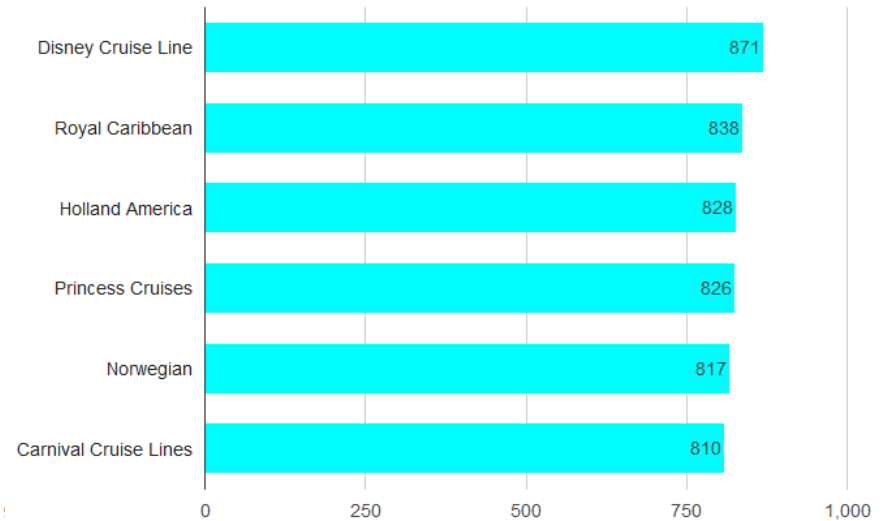
Note: Warning will not appear
during Slide Show view.

Customer Satisfaction Index Ranking



Story: Disney Cruise Line Has the highest customer satisfaction

Customer Satisfaction Index Ranking



Story: Most passengers are very satisfied with their cruise, regardless of cruise line

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Note: Warning will not appear during Slide Show view.

Rule #2

Have the contrast address the story or question

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editing)

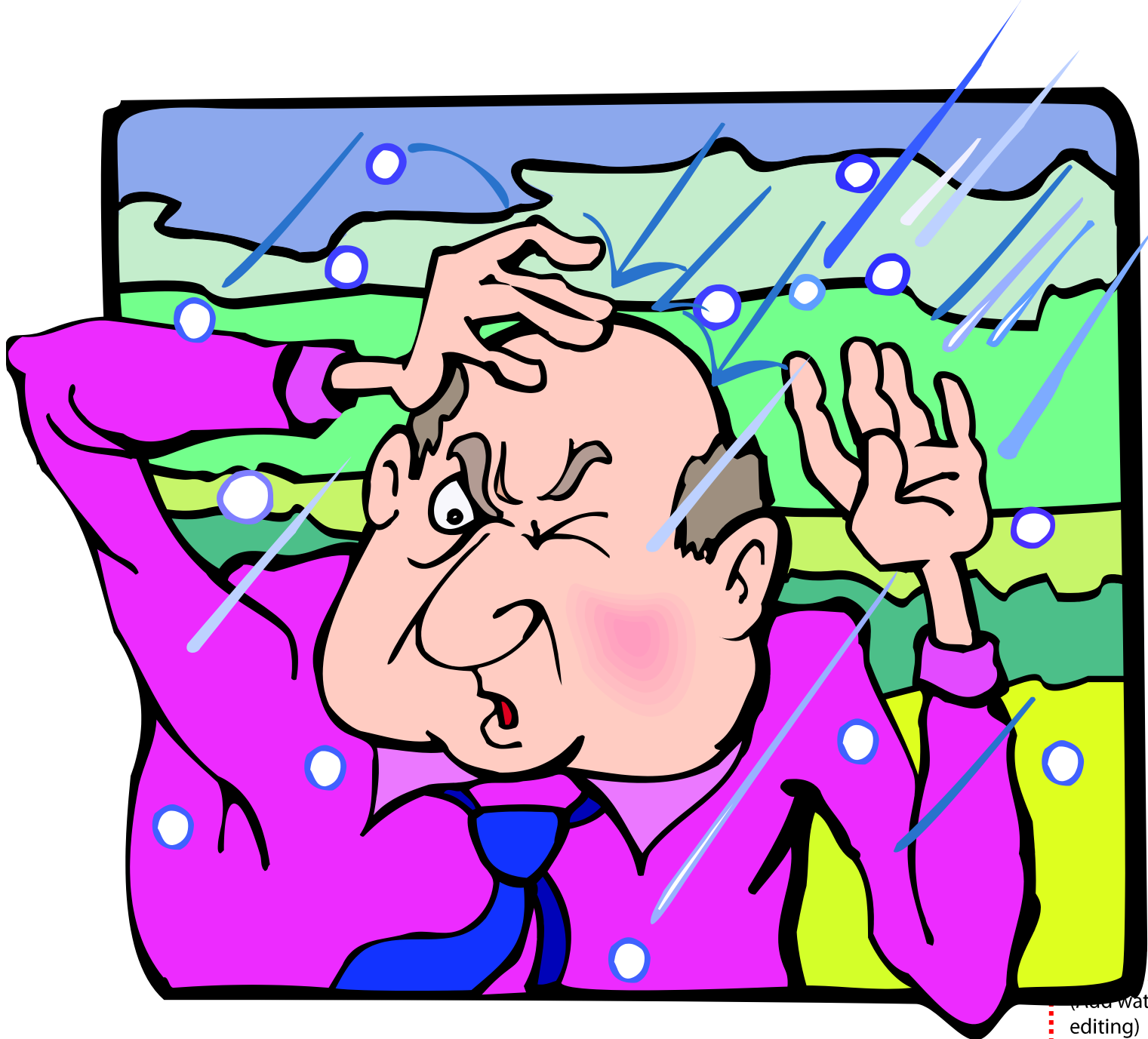
Note: Warning will not appear
during Slide Show view.

Winter in Silicon Valley



Winter almost everywhere else





**Place Anything
Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

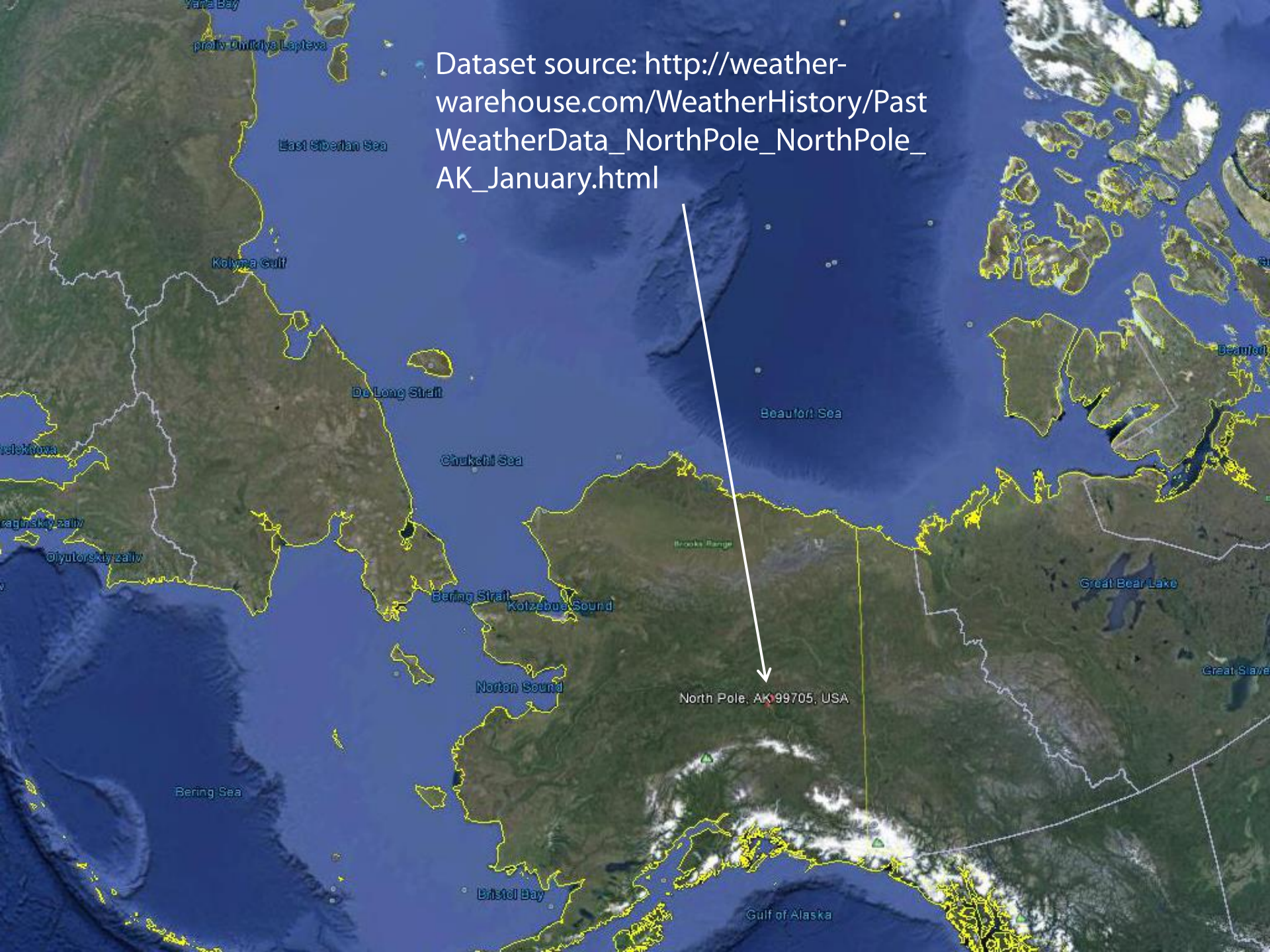
Is Global Warming Real?

**Do Not Place Anything
in This Space**

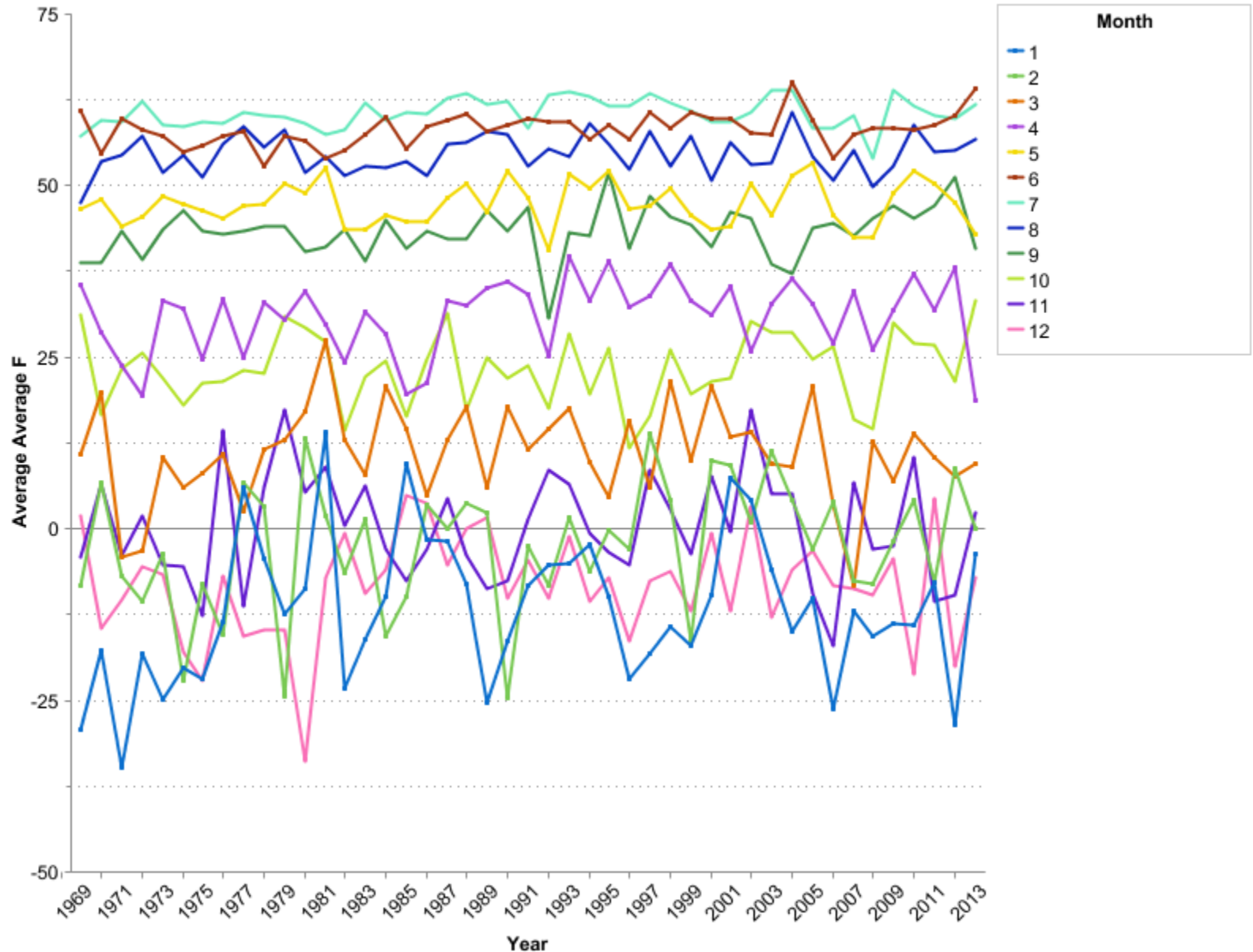
(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Dataset source: http://weather-warehouse.com/WeatherHistory/PastWeatherData_NorthPole_NorthPole_AK_January.html



Average Monthly Temperature by Year

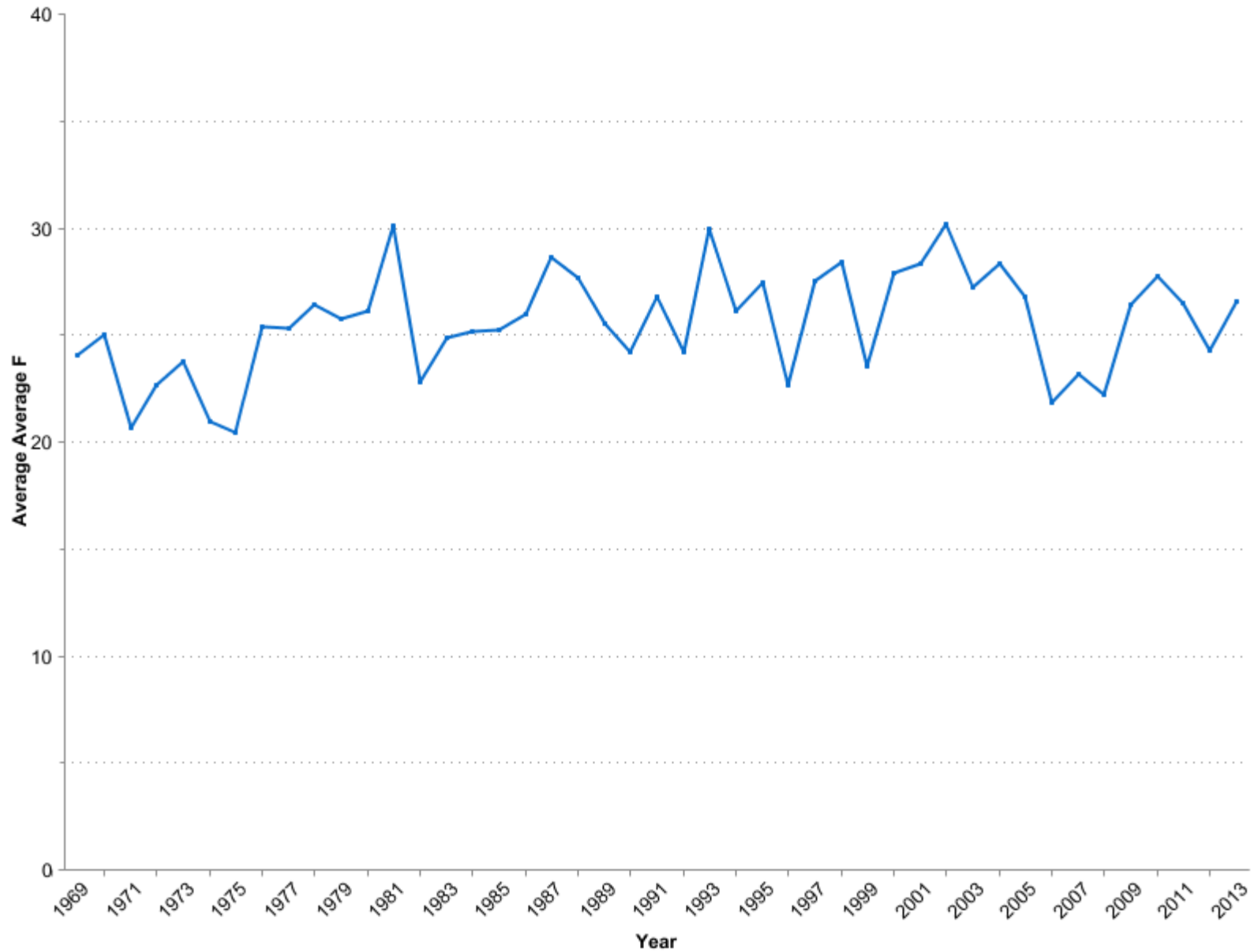


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Warning:
Note: Warning will not appear during Slide Show view.

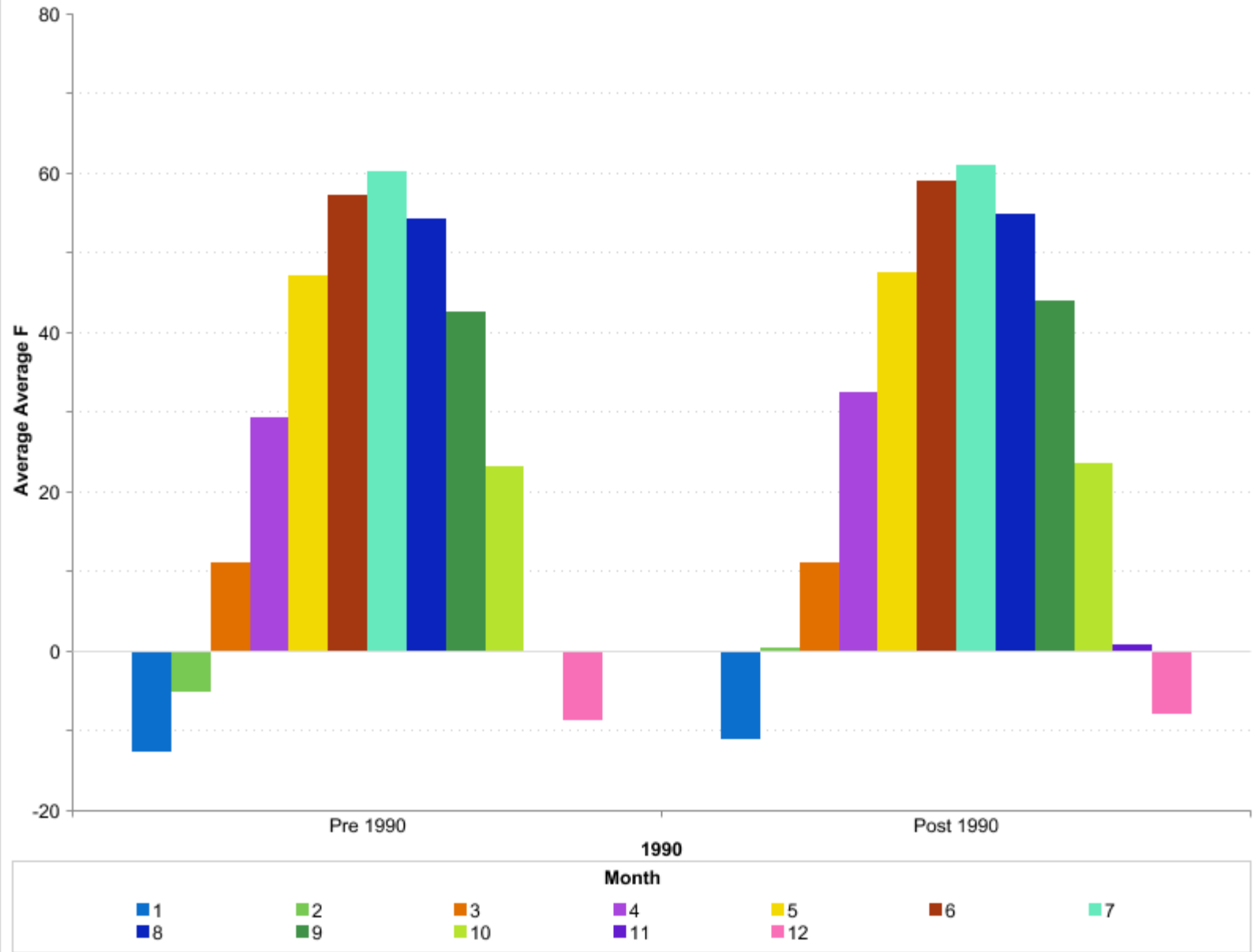
Average Annual Temperature by Year



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Note: Warning will not appear
during Slide Show view.

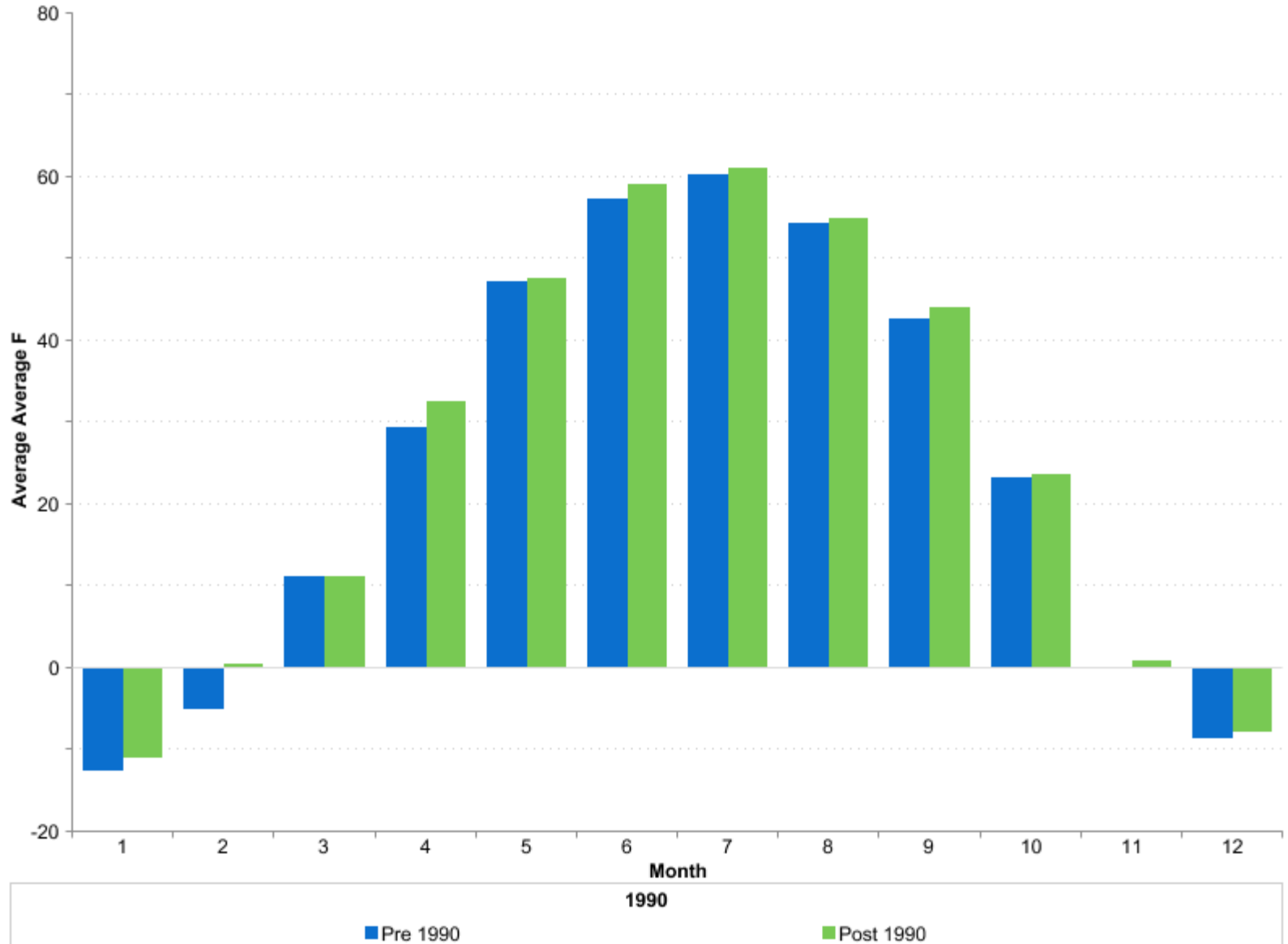
Average Monthly Temp Pre/Post 1990



Nothing
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k during

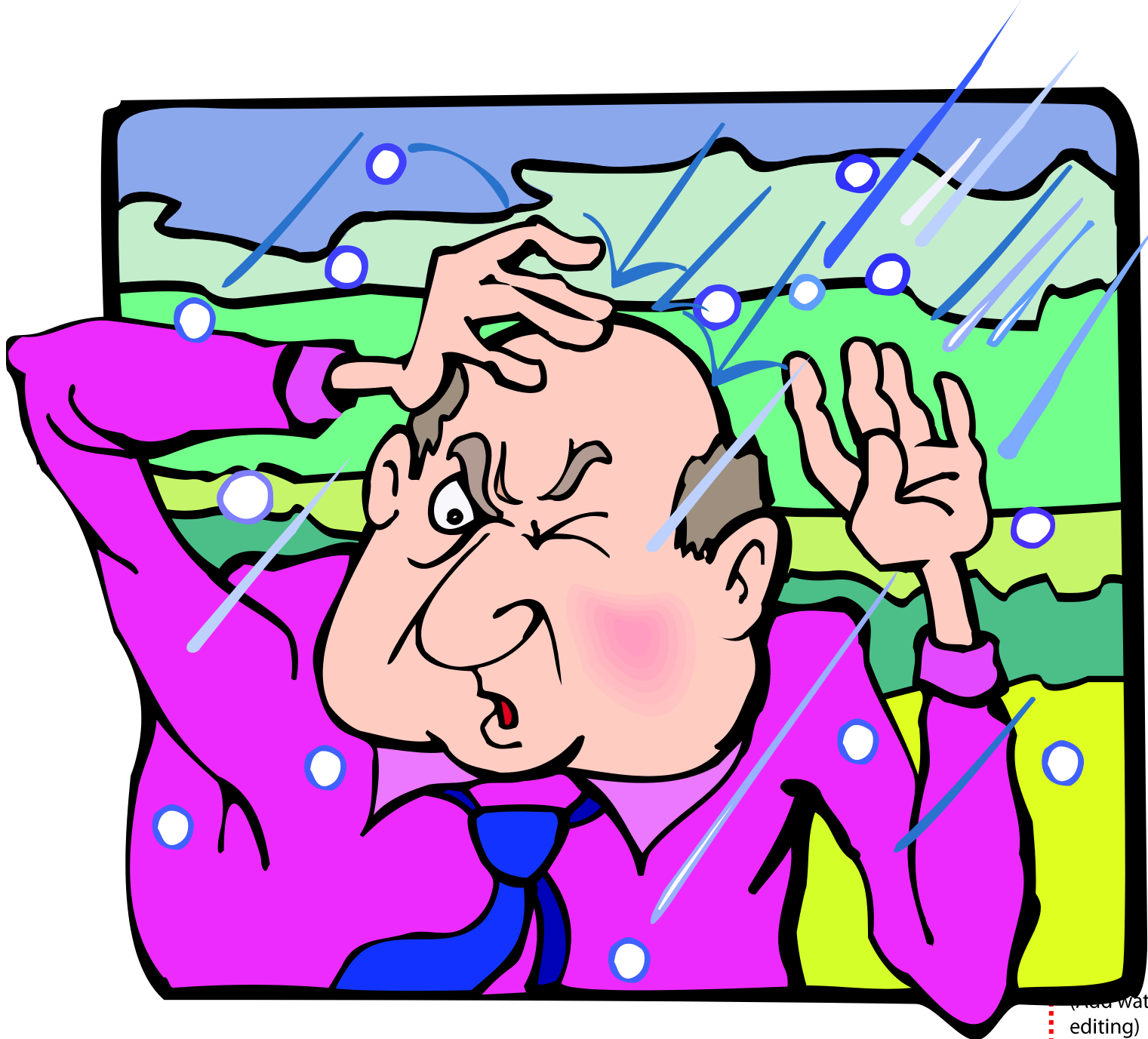
Warning,
Note: Warning will not appear
during Slide Show view.

Average Monthly Temp Pre/Post 1990



.....
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k during

Warning,
Note: Warning will not appear
during Slide Show view.



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Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Rule #3

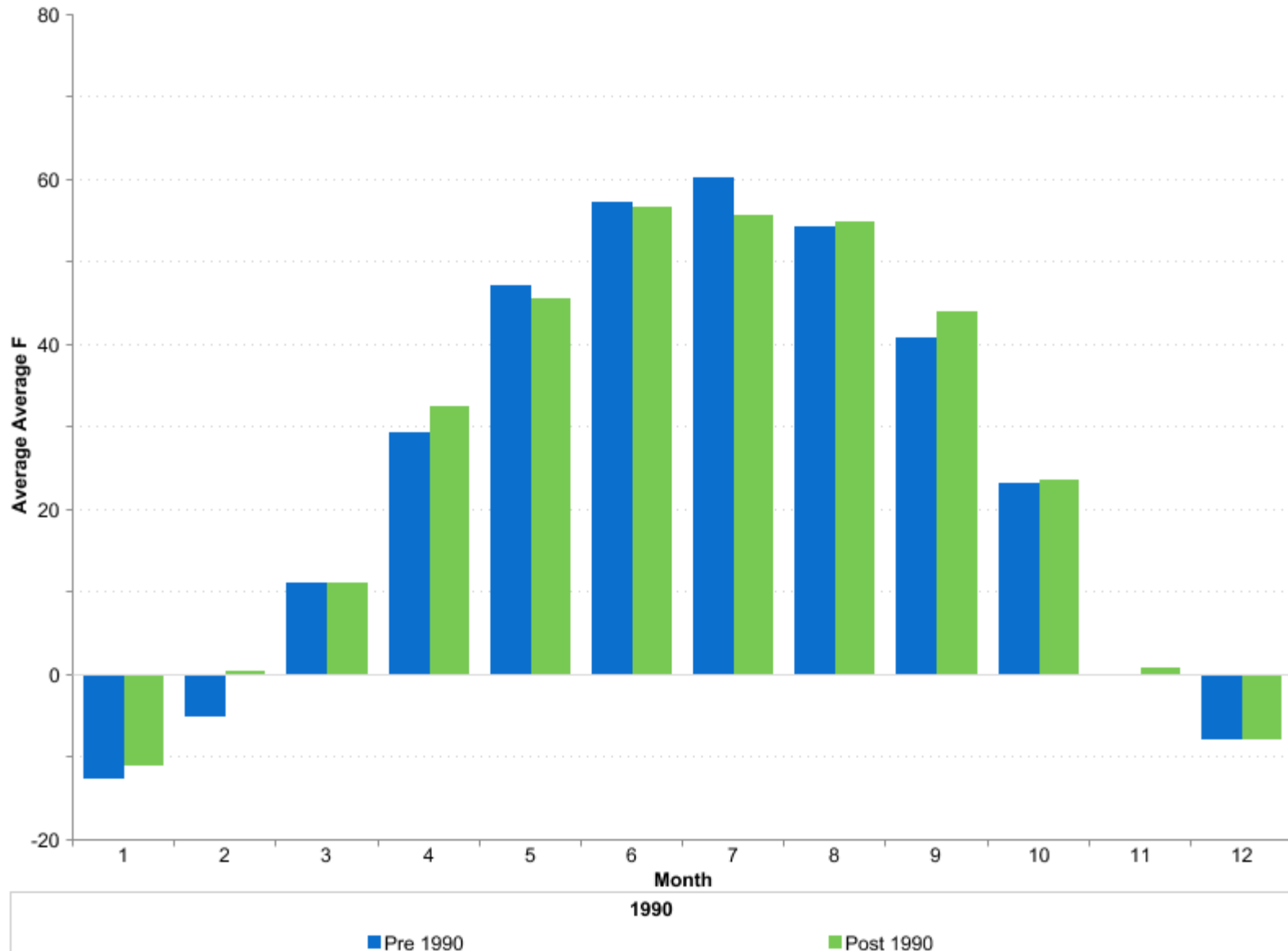
Don't forget the data

**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Average Monthly Temp Pre/Post 1990

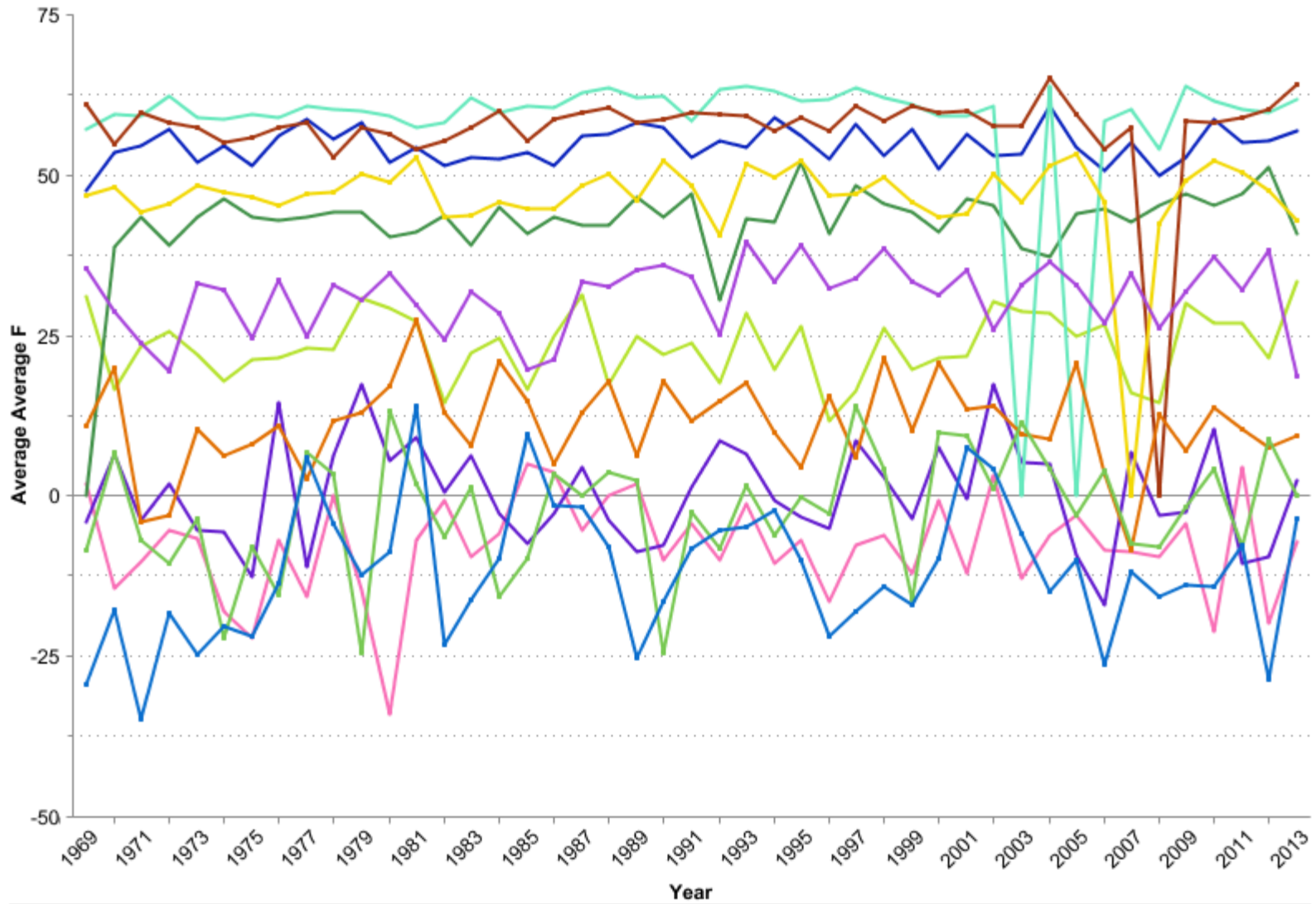


Anything

during

Note: Warning will not appear during Slide Show view.

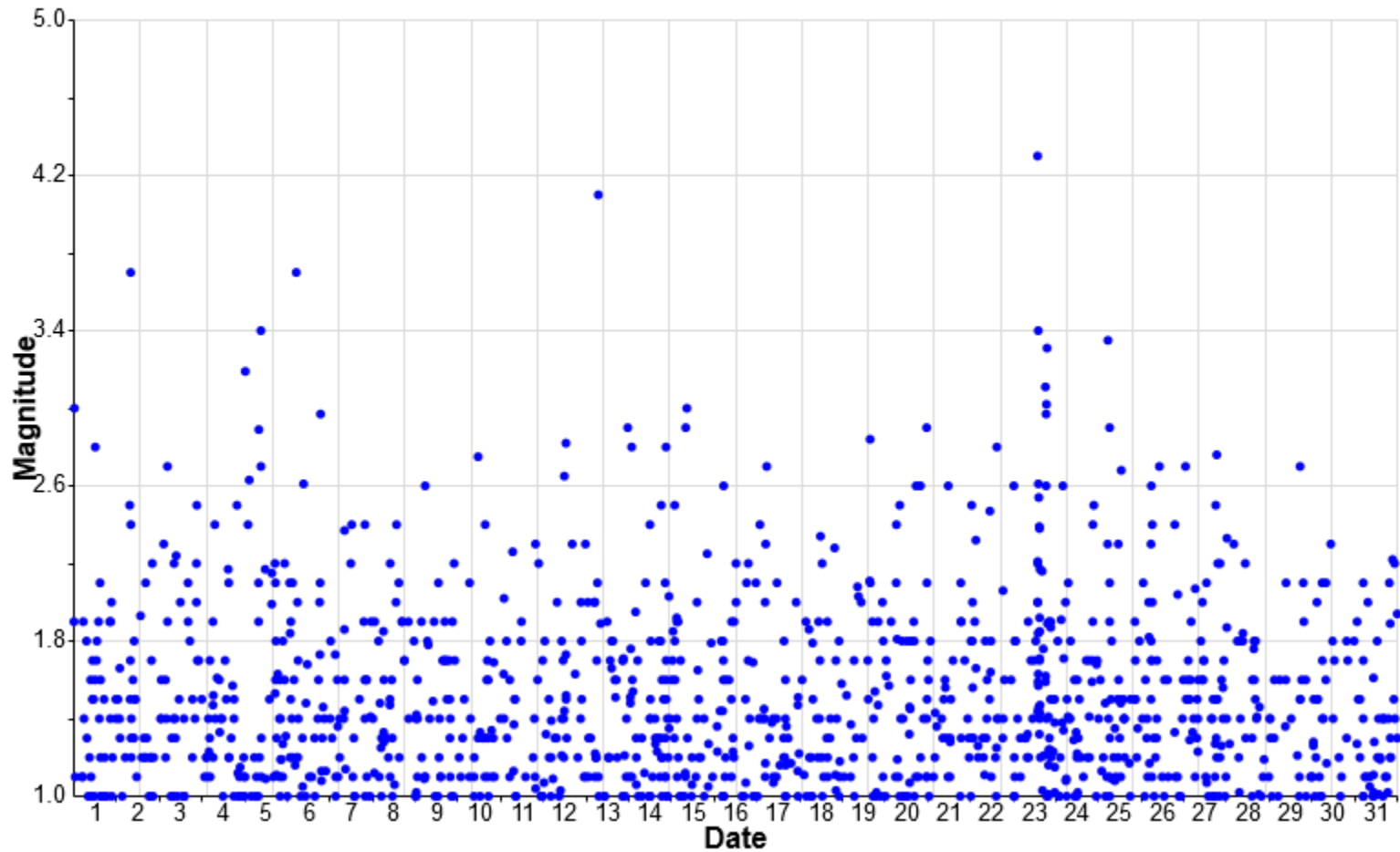
Average Monthly Temperature by Year



ce Anything
ce
ark during

Warning,
Note: Warning will not appear
during Slide Show view.

	Minimum F Average F		38.20 51.40		
	Maximum F Minimum F Average F		55.60 32.30 44.00		<u>20015</u>
	Maximum F Minimum F Average F		64.00 36.50 50.20		<u>20025</u>
	Maximum F Minimum F Average F		59.80 31.40 45.60		<u>20035</u>
	Maximum F Minimum F Average F		68.10 38.30 53.20		<u>20055</u>
	Maximum F Minimum F Average F		56.90 27.80 42.40		<u>20085</u>
	Maximum F Minimum F Average F		0.00 0.00 0.00		<u>20075</u>
	Maximum F Minimum F Average F		62.10 35.90 49.00		<u>20095</u>
	Maximum F Minimum F Average F		55.70 31.40 43.50		<u>20005</u>
	Maximum F Minimum F Average F		63.00 36.30 49.70		<u>19985</u>
	Maximum F Minimum F Average F		61.30 32.20 46.70		<u>19965</u>

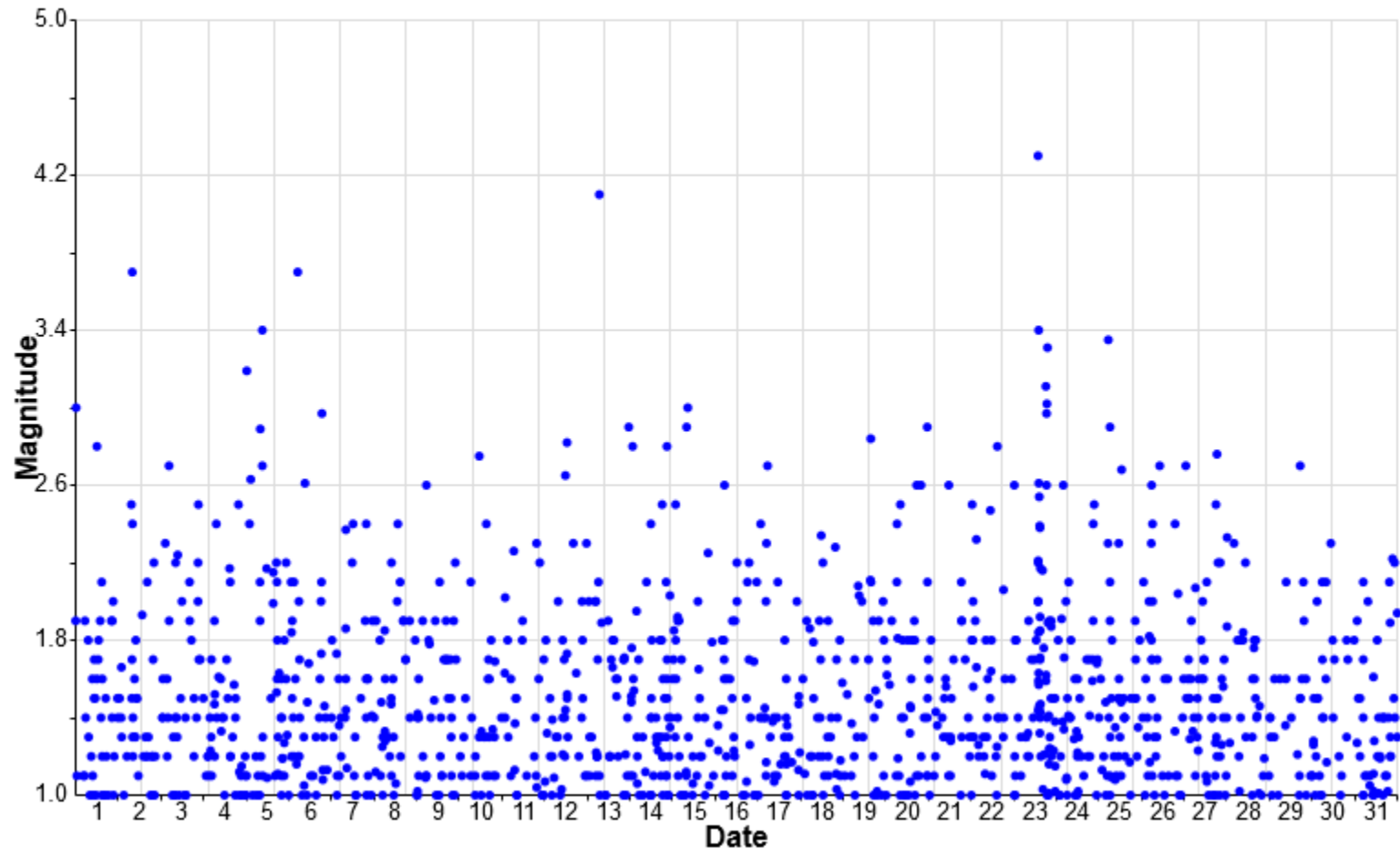


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Note: Warning will not appear
during Slide Show view.

West Coast U.S. Earthquakes Dec 2013



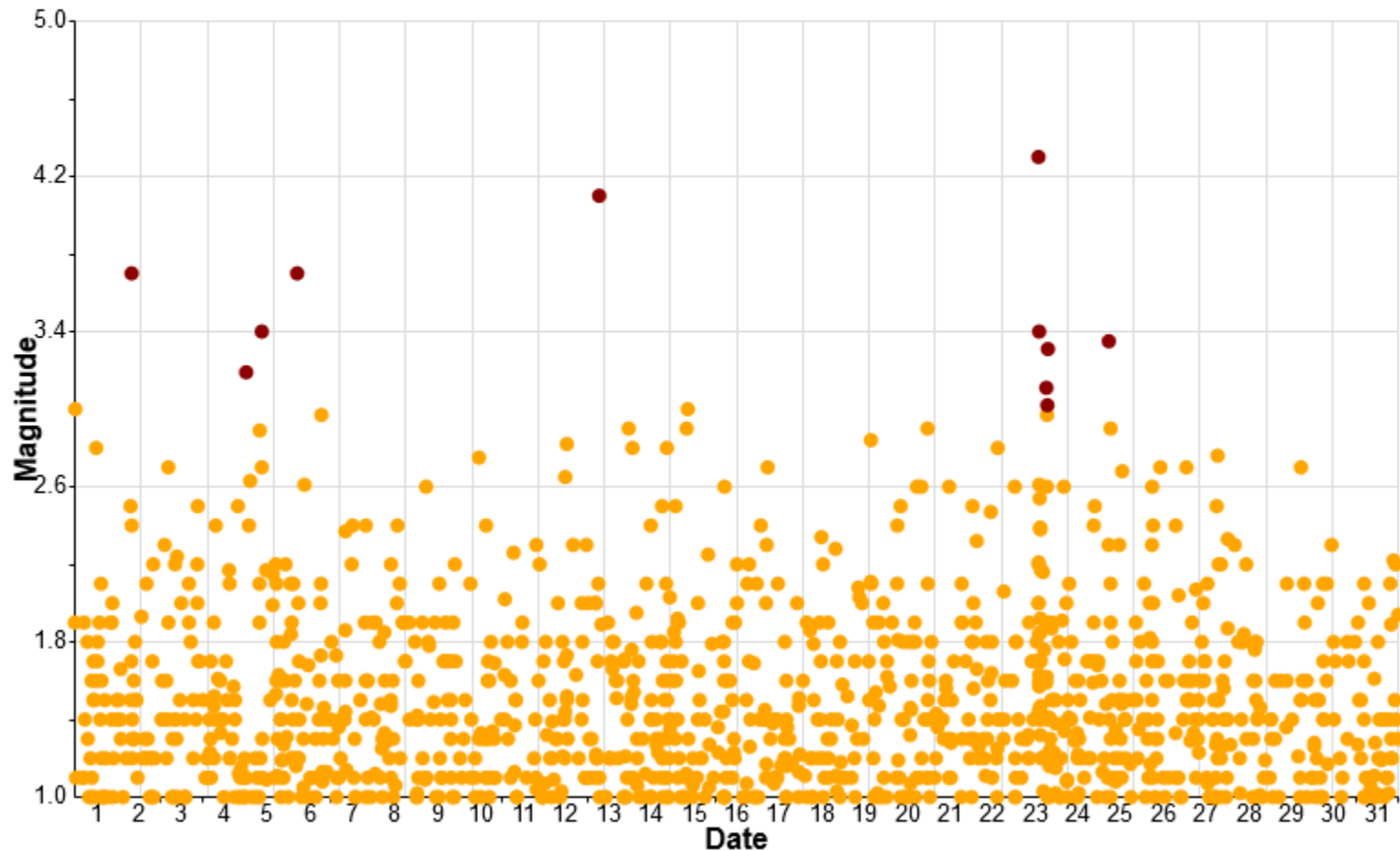
**Do Not Place Anything
in This Space**

(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

West Coast U.S. Earthquakes Dec 2013

Earthquakes > 3.0 magnitude in dark red



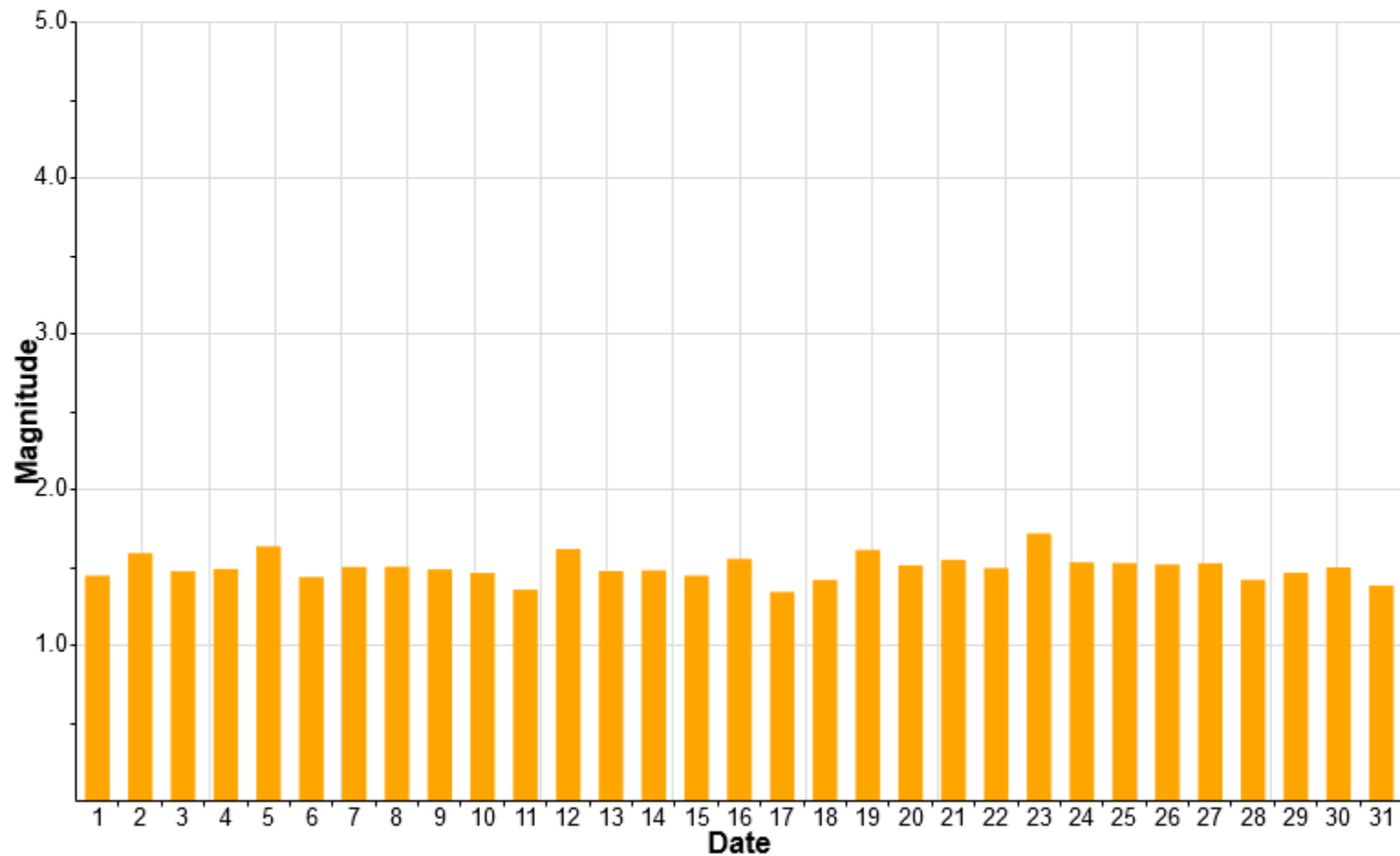
Anything

in this space
(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

West Coast U.S. Earthquakes Dec 2013

Average magnitude of earthquakes for each day



Rule #4

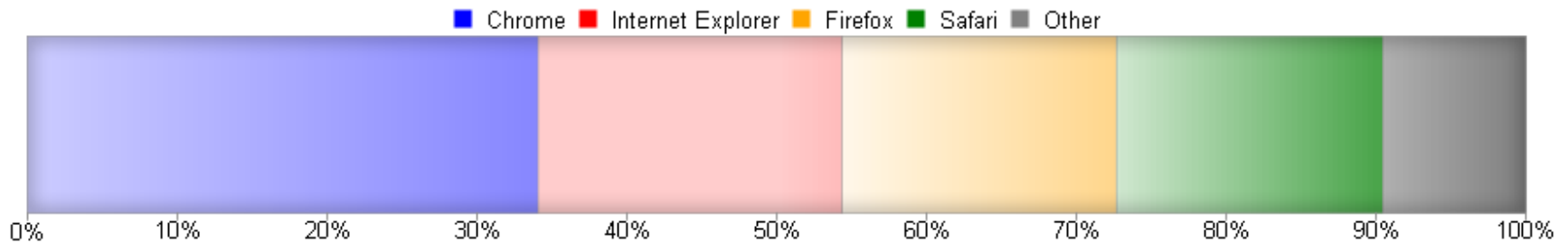
Don't make people think

**Do Not Place Anything
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(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

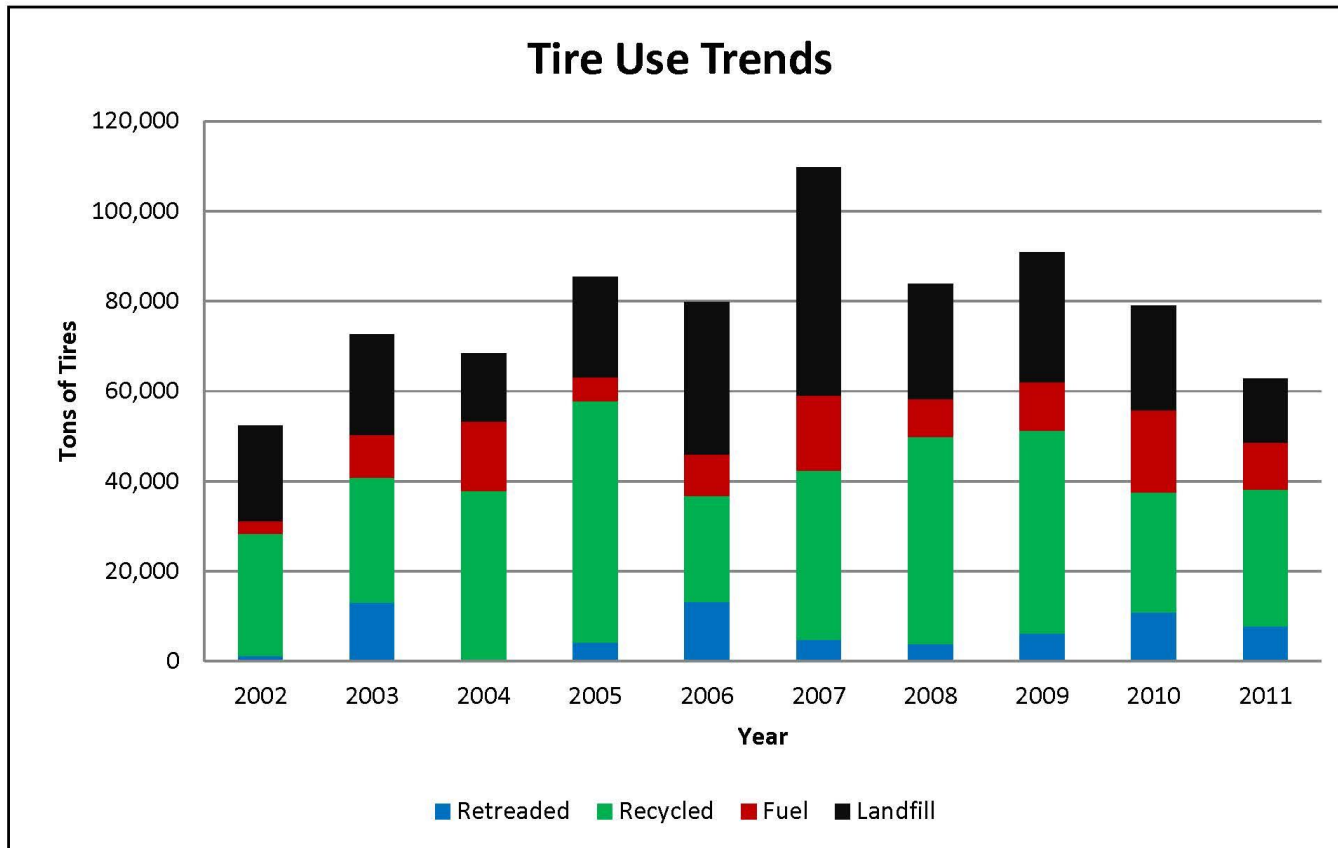
Comparing web browsers



**Do Not Place Anything
in This Space**

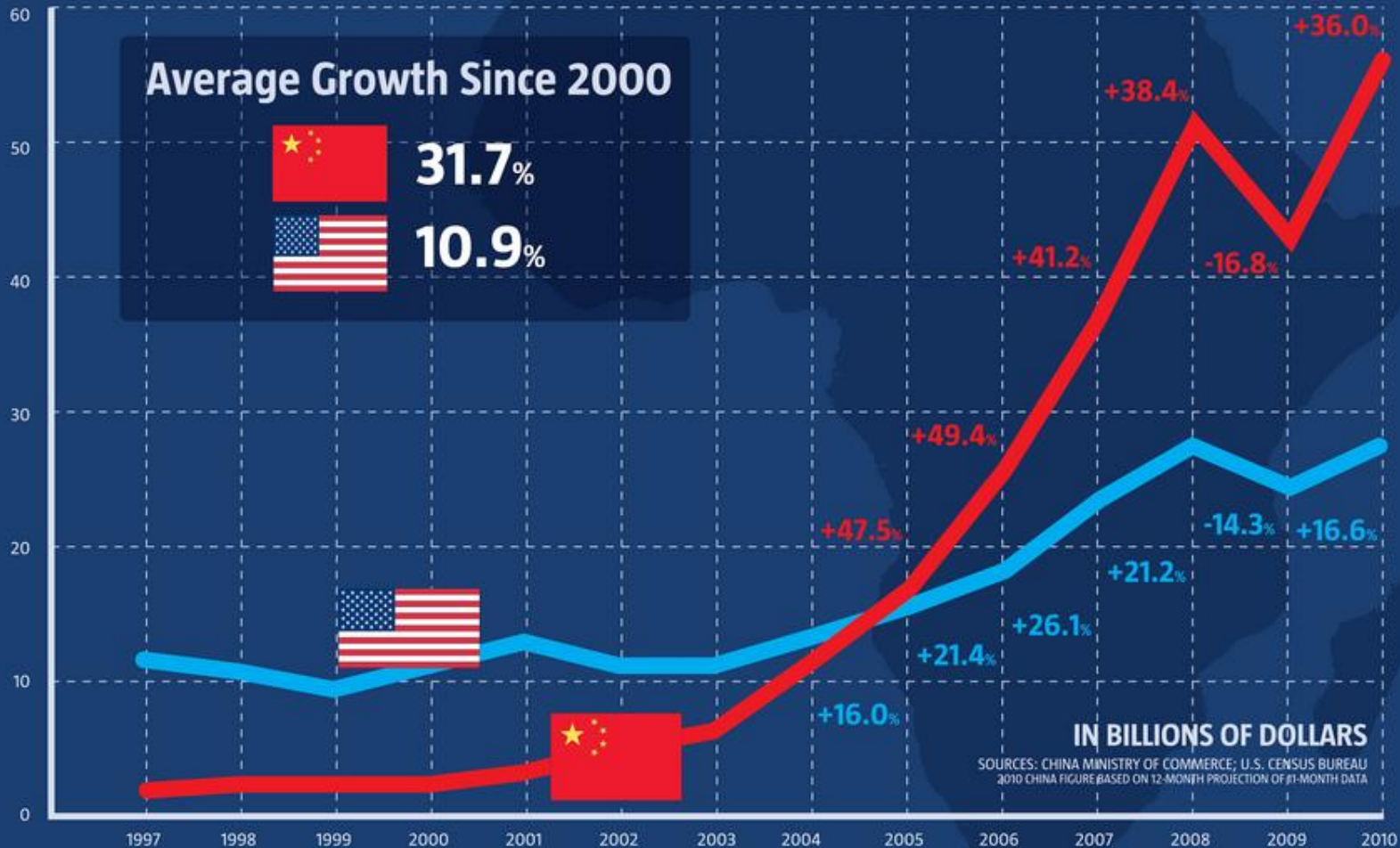
(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.



EXPORTS TO AFRICA

By nearly three to one, China is outpacing the U.S. in sending more goods to Africa



U.S. SENATOR
CHRIS COONS
of DELAWARE

WWW.COONS.SENATE.GOV

in This Space

(Add watermark during editing)

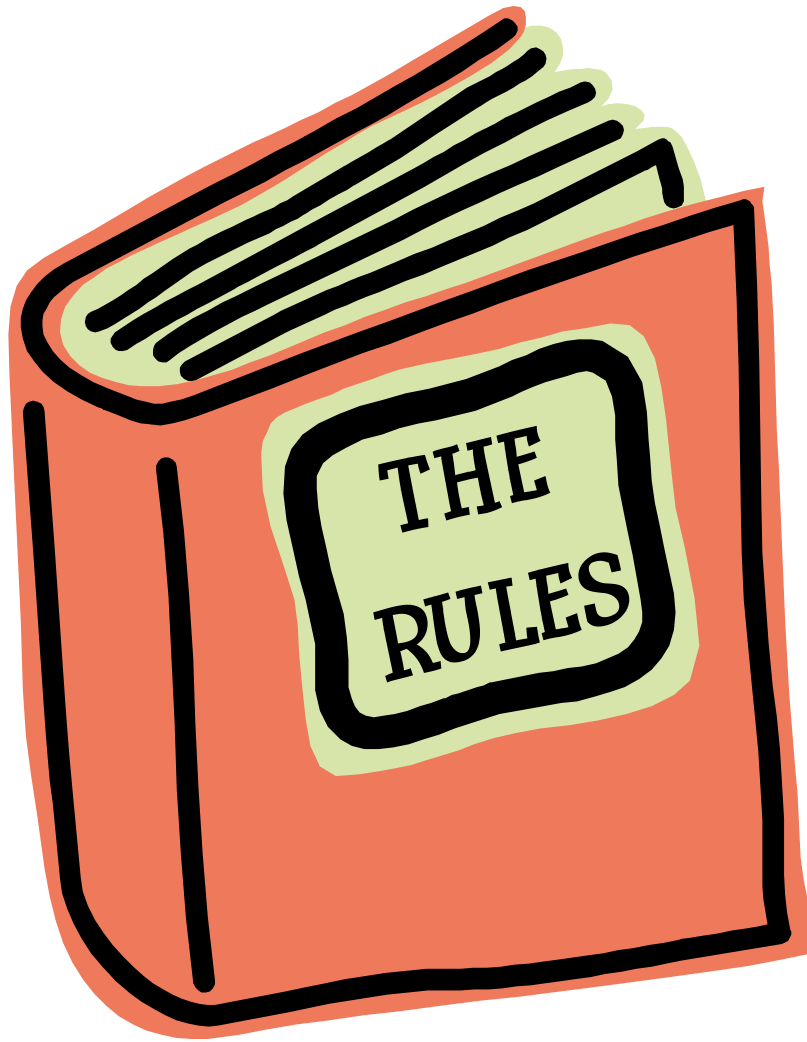
Note: Warning will not appear during Slide Show view.

Choosing a Chart Type

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editing)

Note: Warning will not appear
during Slide Show view.



1. Always start with the story you want to tell or the question you want to ask
2. Have the contrast address the story or question
3. Don't forget the data
4. Don't make people think

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Note: Warning will not appear
during Slide Show view.

X

**Do Not Place Anything
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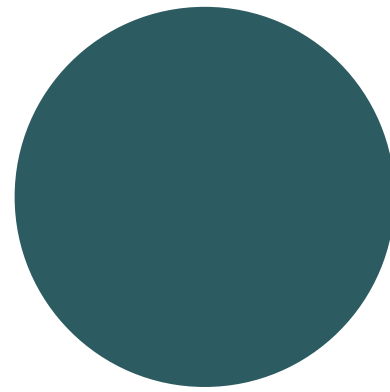
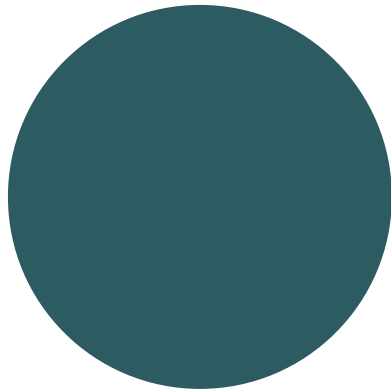
(Add watermark during
editing)

Note: Warning will not appear
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**Do Not Place Anything
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Note: Warning will not appear
during Slide Show view.



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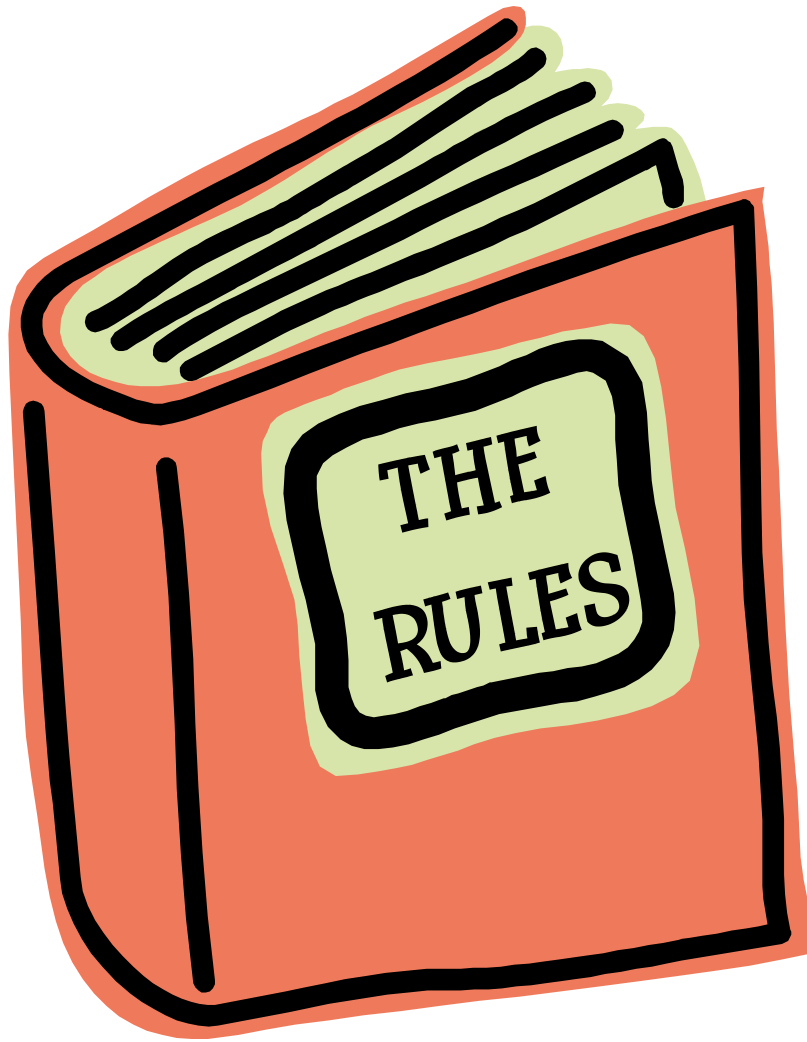
Note: Warning will not appear
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editing)

Note: Warning will not appear
during Slide Show view.



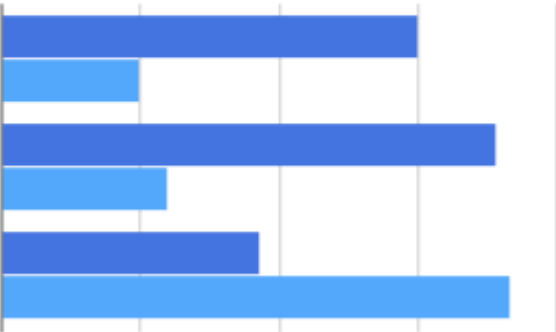
Except for special circumstances,
you should choose from among only
four types of charts

**Do Not Place Anything
in This Space**

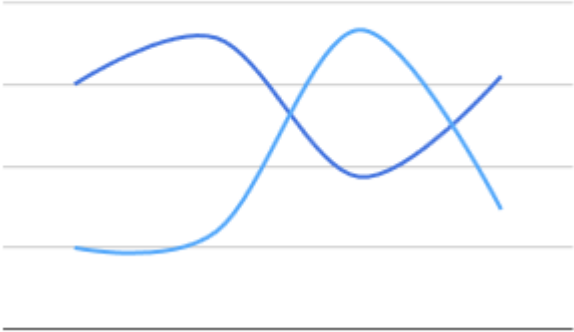
(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

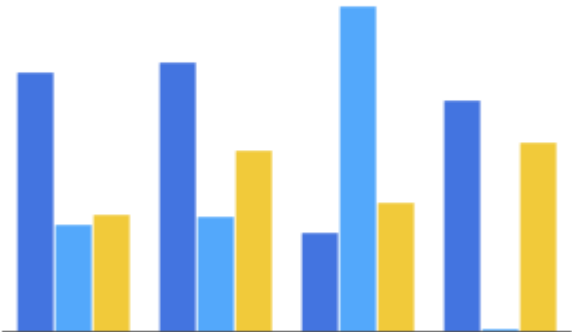
Bar Chart



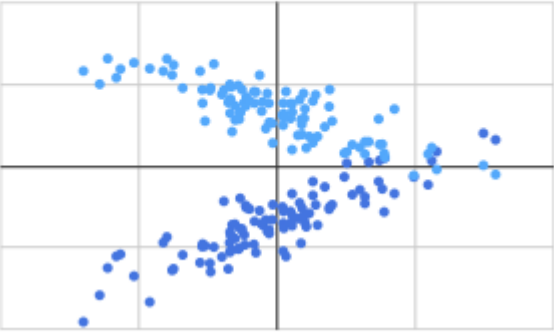
Line Chart



Column Chart



Scatter Chart



Table

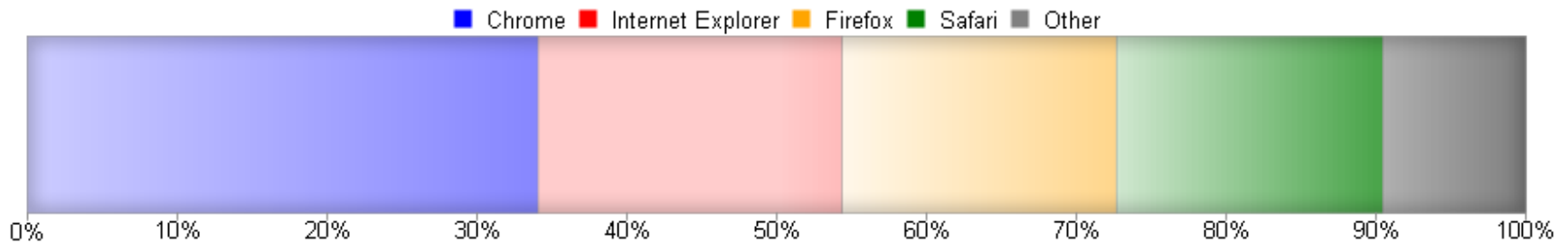
	Name	Salary	Full Time
1	Marie	\$24,700	✓
2	Albert	\$25,200	x
3	Enrico	\$25,700	✓
4	Lise	\$26,600	✓

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Note: Warning will not appear during Slide Show view.

Comparing web browsers

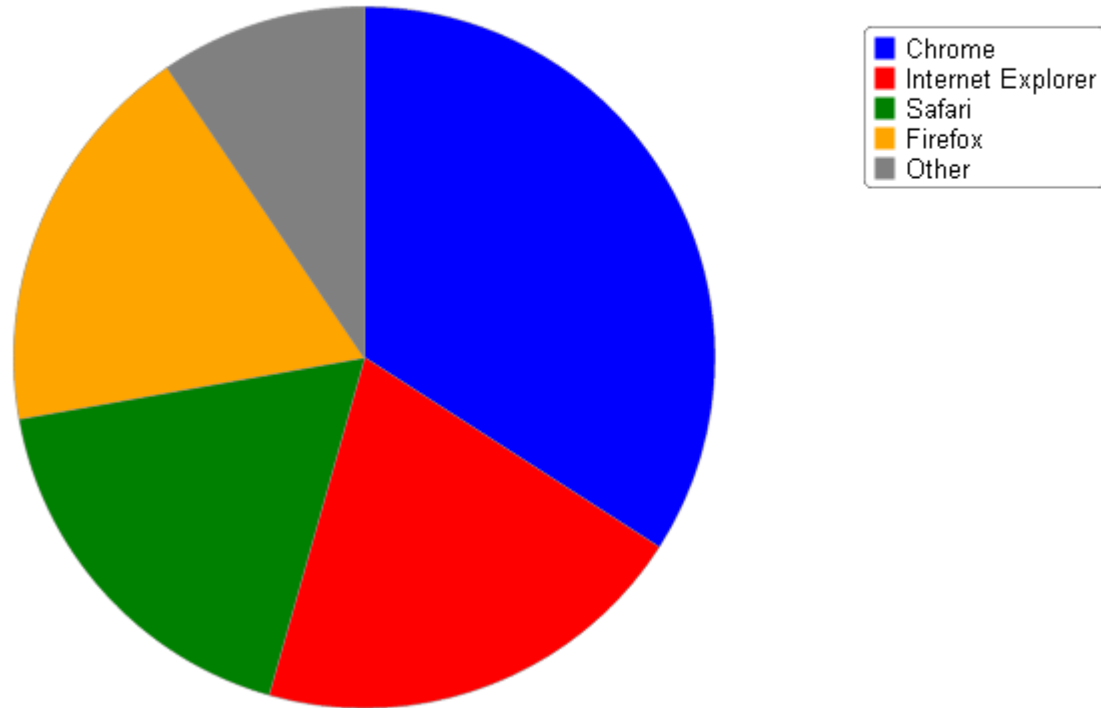


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Comparing web browsers

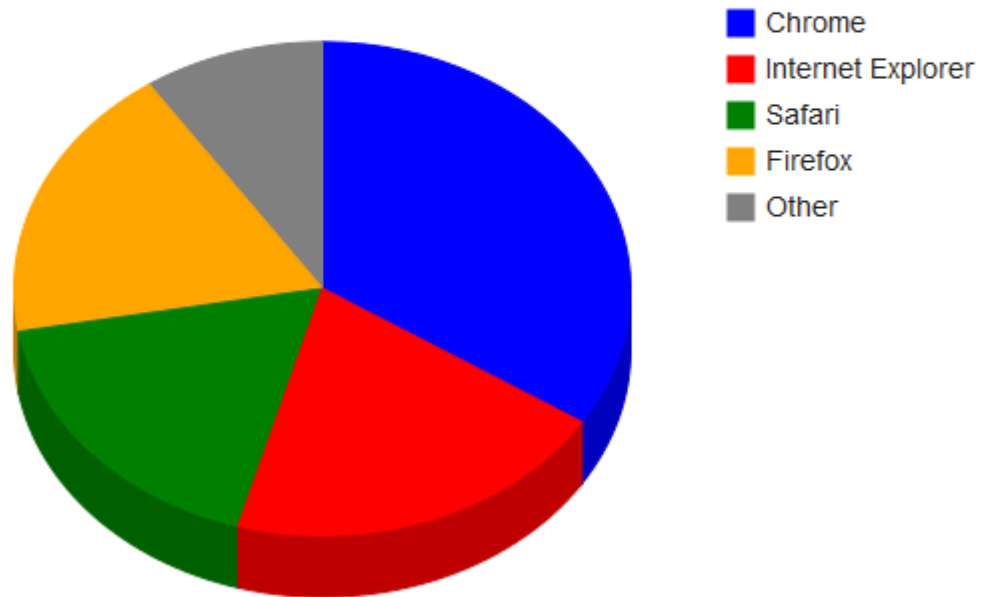


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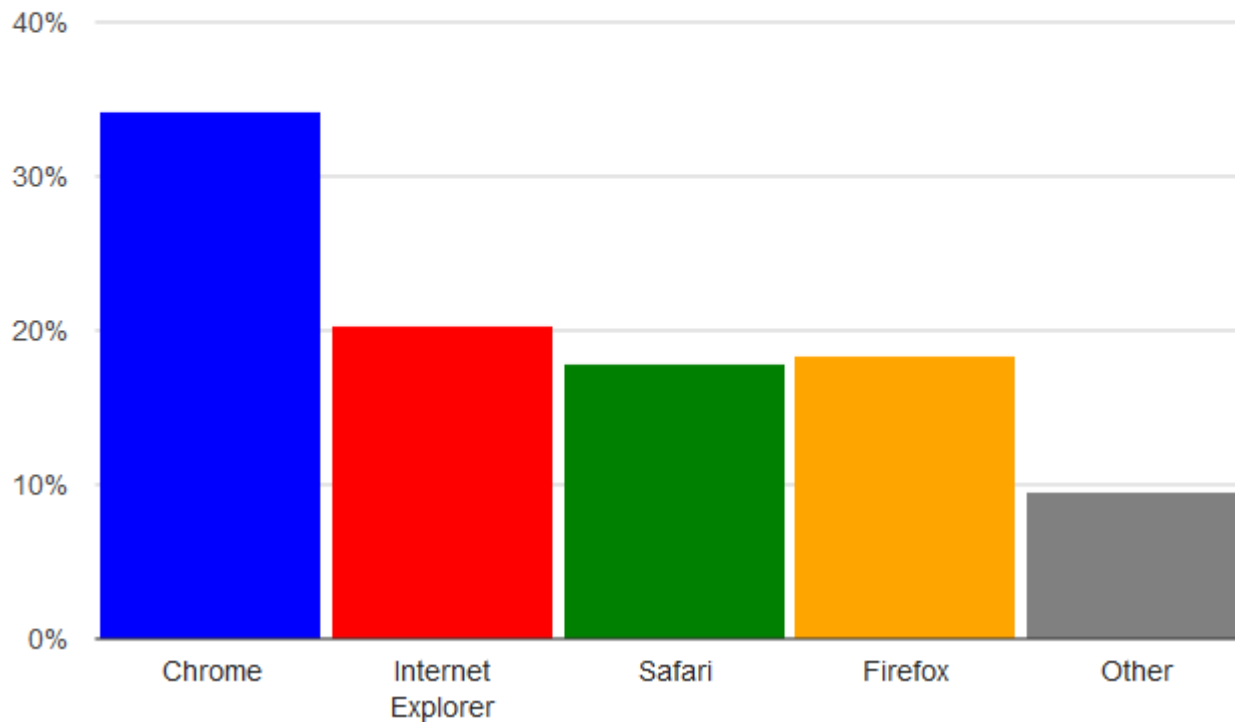


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Comparing web browsers

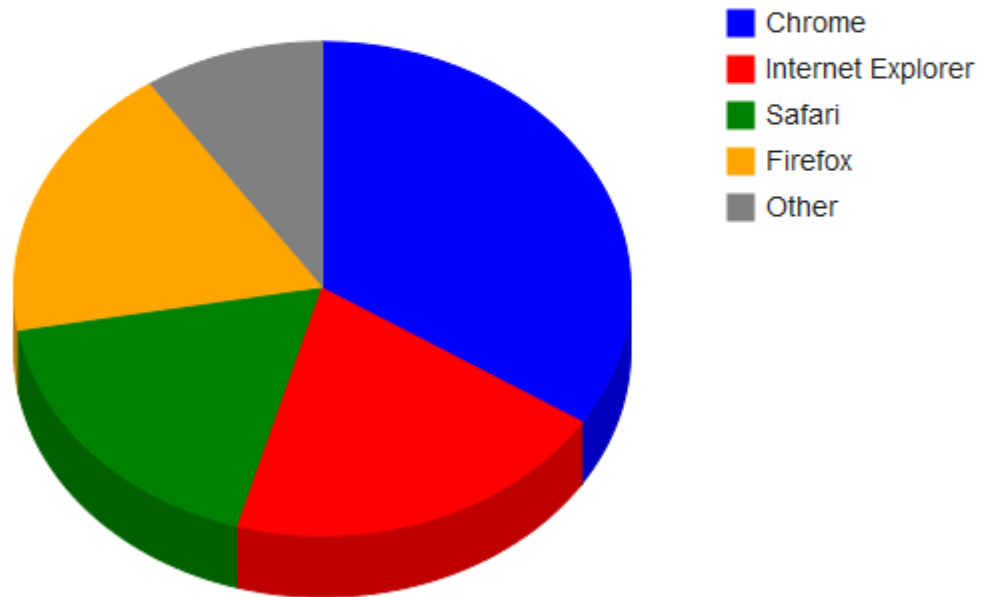


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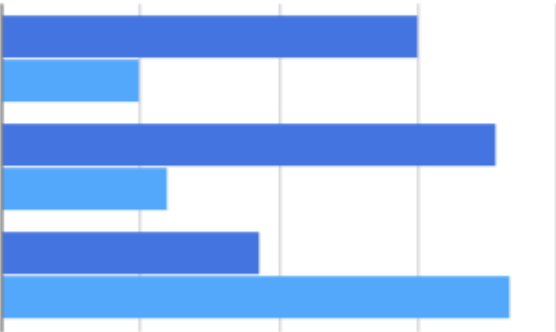


**Do Not Place Anything
in This Space**

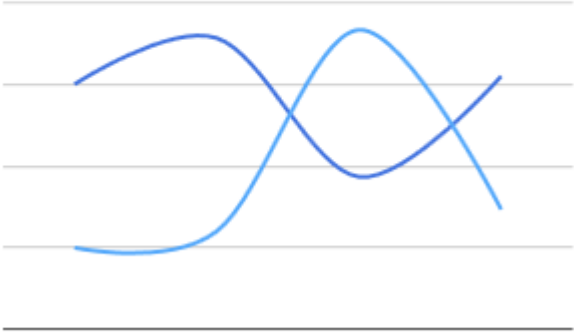
(Add watermark during
editing)

Note: Warning will not appear
during Slide Show view.

Bar Chart



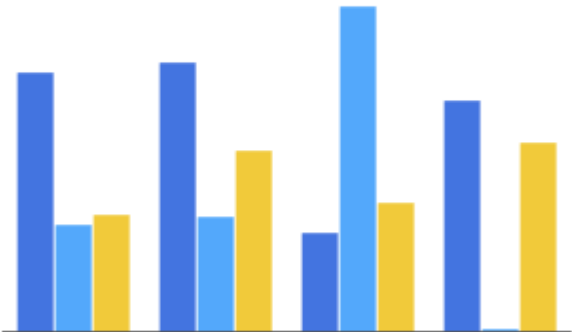
Line Chart



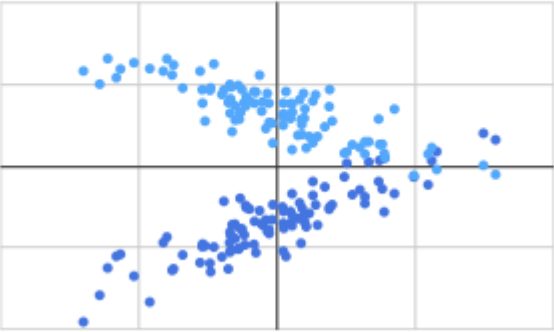
Table

	Name	Salary	Full Time
1	Marie	\$24,700	✓
2	Albert	\$25,200	x
3	Enrico	\$25,700	✓
4	Lise	\$26,600	✓

Column Chart



Scatter Chart



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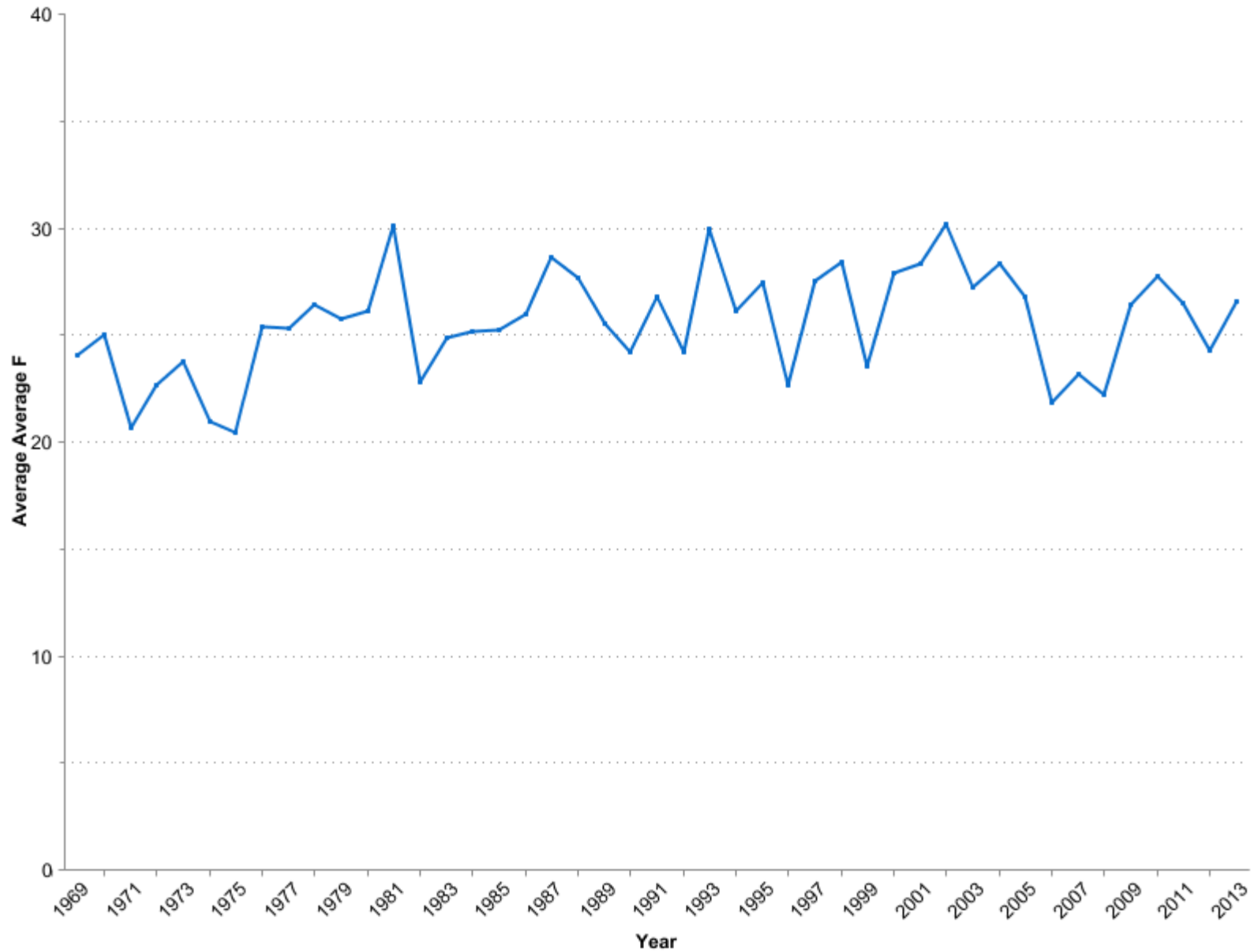
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Month Starting ↑	Minimum F	Maximum F	Average F
1/1/1969	-37.80	-23.40	-29.40
2/1/1969	-22.40	5.60	-8.40
3/1/1969	-4.50	26.20	10.80
4/1/1969	22.20	48.80	35.50
5/1/1969	32.70	60.60	46.70
6/1/1969	43.40	78.50	61.00
7/1/1969	46.00	68.30	57.20
8/1/1969	34.50	60.20	47.40
9/1/1969	30.60	46.90	38.80
10/1/1969	18.40	43.80	31.10
11/1/1969	-14.70	6.80	-4.20
12/1/1969	-9.80	13.50	1.90
1/1/1970	-28.10	-7.50	-17.80
2/1/1970	-5.80	19.10	6.70
3/1/1970	6.00	33.80	19.90
4/1/1970	16.20	41.20	28.70
5/1/1970	33.20	62.70	48.00
6/1/1970	41.80	67.50	54.70
7/1/1970	46.50	72.30	59.40
8/1/1970	42.00	64.70	53.40
9/1/1970	30.60	46.90	38.80
10/1/1970	8.70	24.60	16.60
11/1/1970	-4.20	16.90	6.40
12/1/1970	-24.90	-4.10	-14.50
1/1/1971	-45.30	-24.30	-34.80
2/1/1971	-19.20	5.40	-6.90
3/1/1971	-17.80	9.50	-4.20
4/1/1971	10.70	37.10	23.80
5/1/1971	31.10	57.10	44.10
6/1/1971	43.70	75.40	59.70
7/1/1971	45.40	72.50	59.20
8/1/1971	42.90	65.40	54.40
9/1/1971	33.40	52.90	43.30

What was the
average daily low
temperature in
North Pole, Alaska
for October, 1970?

8.7 F (-12.9 C)

Average Annual Temperature by Year

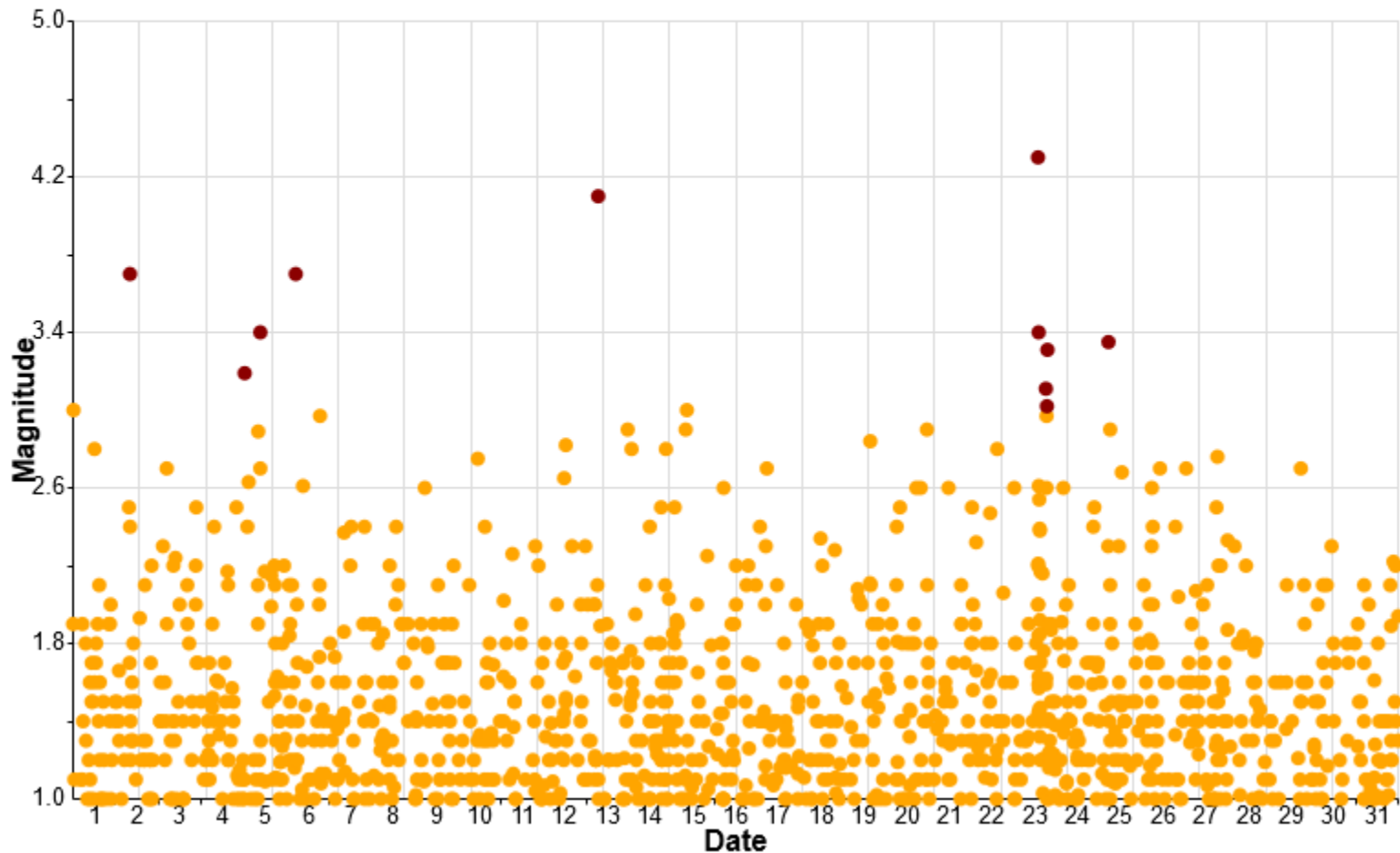


**Place Anything
Space**
remark during

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West Coast U.S. Earthquakes Dec 2013

Earthquakes > 3.0 magnitude in dark red

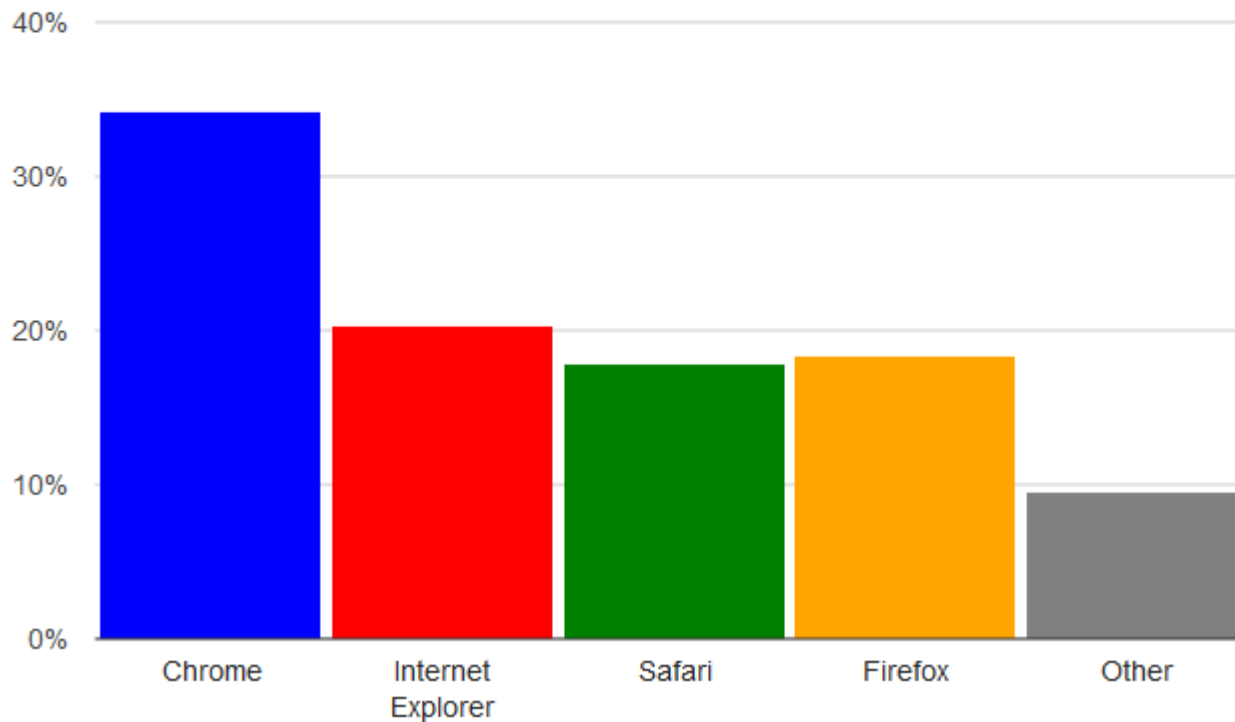


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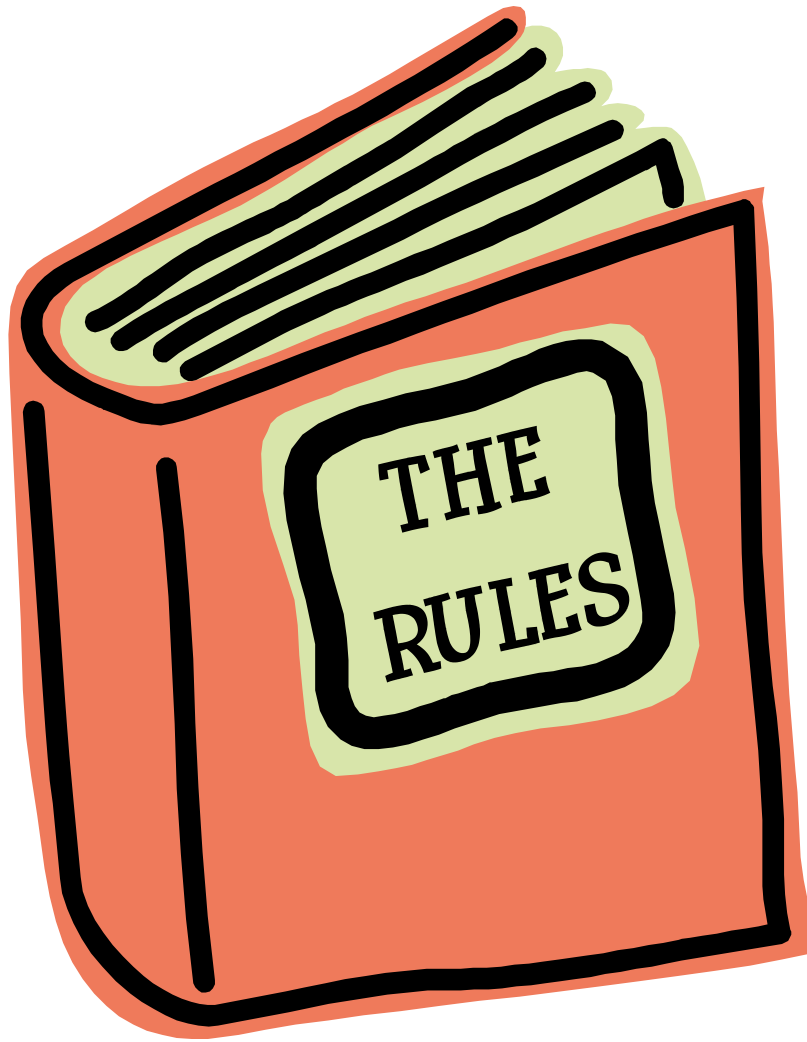
Comparing web browsers



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1. Always start with the story you want to tell or the question you want to ask
2. Have the contrast address the story or question
3. Don't forget the data
4. Don't make people think

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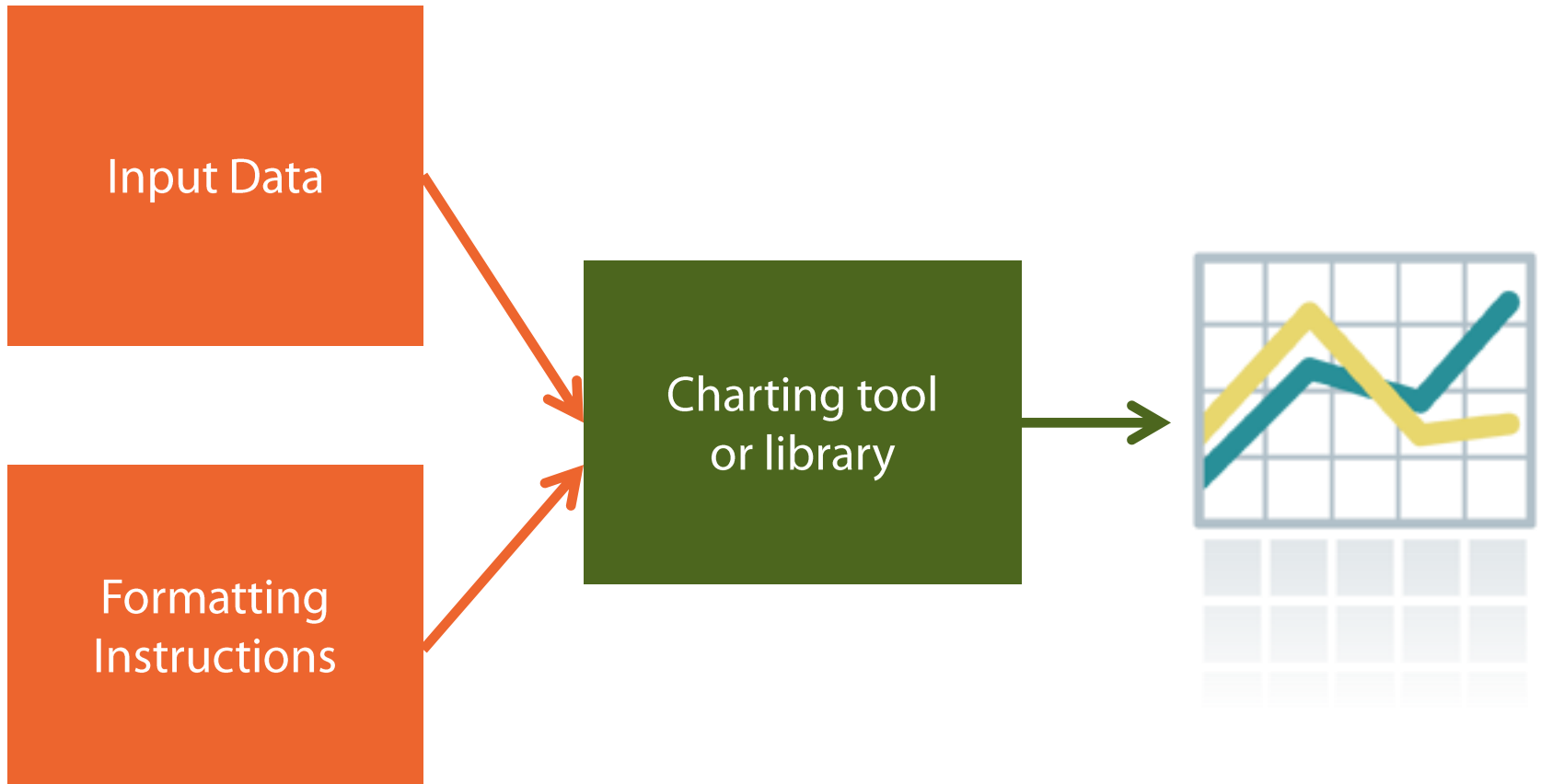
Chart.js	amCharts	canvasexpress
GraphUp	CanvasJS	YUI Charts
jQuery Visualize	rickshaw	Fellowrock
Highcharts	nvd3	ShieldUI
Flot	dc	d3.js
jqPlot	xcharts	dygraphs
RGraph	gRaphael	peity
FusionCharts	Protovis	BonsaiJS
Google Charts	Flotr2	TufteGraph
Sencha ExtJS	Dojo Charting	ArborJS

... and many more – and that's just JavaScript!!!

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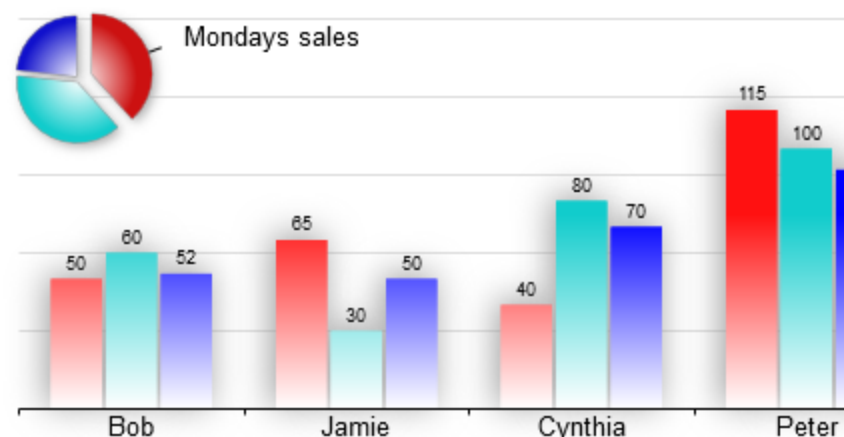
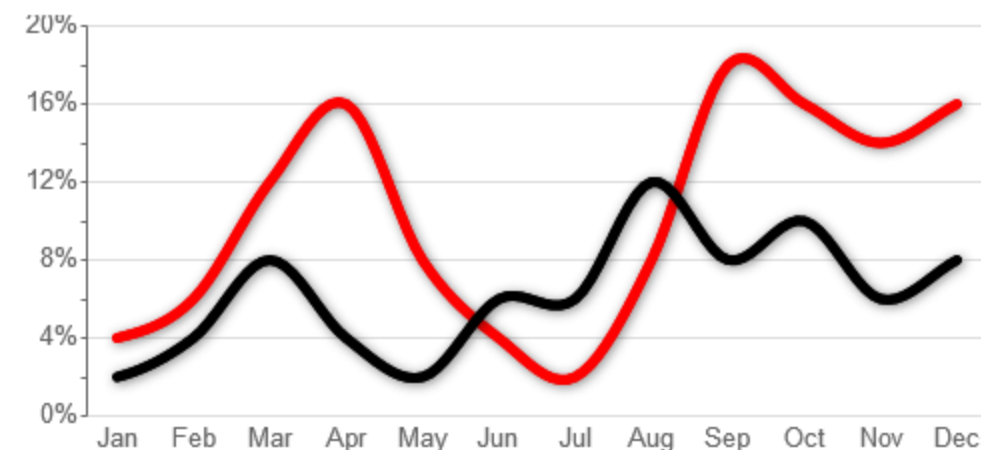


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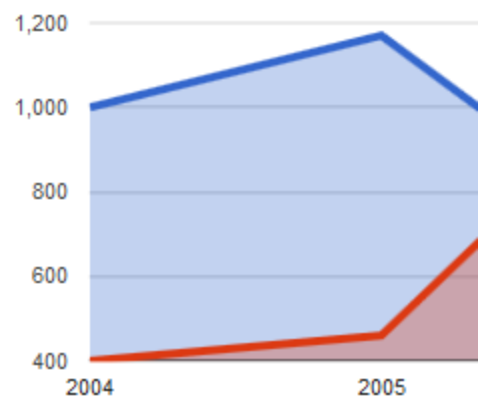
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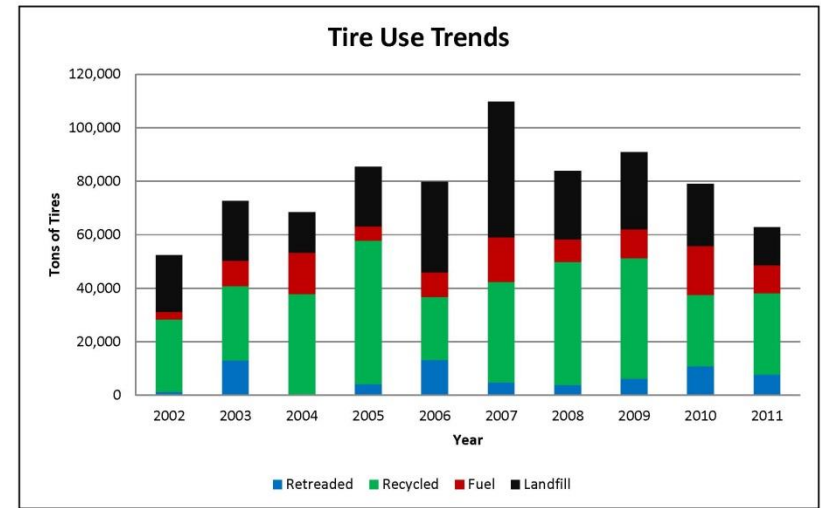
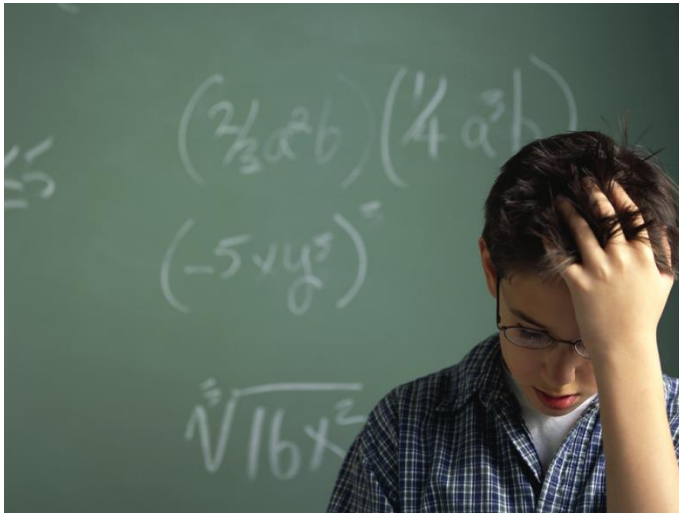
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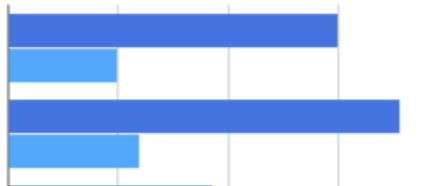


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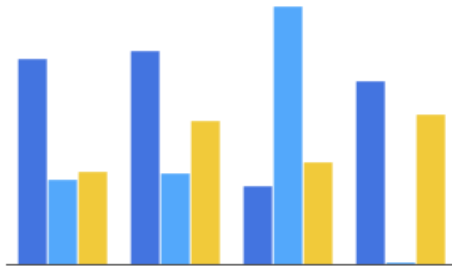
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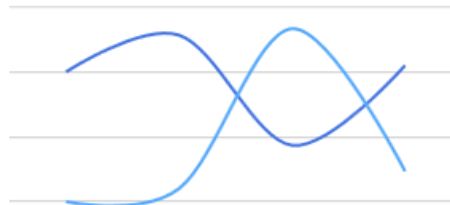
Bar Chart



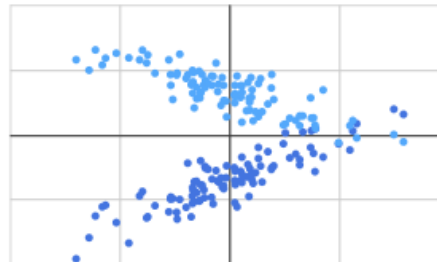
Column Chart



Line Chart



Scatter Chart



Table

	Name	Salary	Full Time
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3	Enrico	\$25,700	✓
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