Tableau
Storytelling With Your Data

Visualization Best Practice Exercise.twbx
https://tableau.egnyte.com/dl/THwTzqJz6c

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What is Visual Analytics?

"Visual analytics is the process of analytical **reasoning** facilitated by **interactive visual interfaces**."

James J. Thomas and Kristin A. Cook (2005)
Illuminating the Path: The R&D Agenda for Visual Analytics
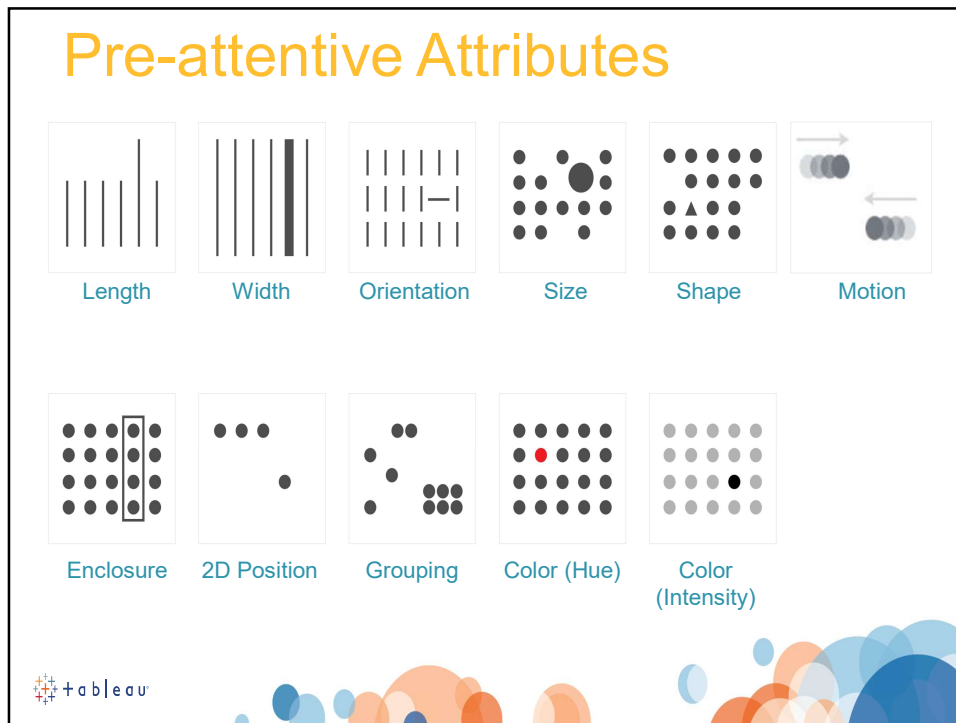
+ableau

How many nines are there?

4	7	7	5	5	2	7	4	7	1
4	9	2	5	7	7	2	6	1	7
1	7	6	9	3	4	7	5	1	2
5	1	6	3	3	8	4	8	6	6
6	5	6	4	9	3	8	9	1	9
3	8	1	5	2	2	3	6	3	9
4	6	4	5	6	3	7	7	9	1
9	1	3	3	6	1	3	3	1	8
8	1	1	8	7	5	8	1	7	4
3	6	9	2	8	9	3	7	5	7
4	4	4	2	8	2	2	9	2	8

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4	7	7	5	5	2	7	4	7	1
4	9	2	5	7	7	2	6	1	7
1	7	6	9	3	4	7	5	1	2
5	1	6	3	3	8	4	8	6	6
6	5	6	4	9	3	8	9	1	9
3	8	1	5	2	2	3	6	3	9
4	6	4	5	6	3	7	7	9	1
9	1	3	3	6	1	3	3	1	8
8	1	1	8	7	5	8	1	7	4
3	6	9	2	8	9	3	7	5	7
4	4	4	2	8	2	2	9	2	8

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Pre-attentive Attributes

Length	Width	Orientation	Size	Shape	Motion

Enclosure	2D Position	Grouping	Color (Hue)	Color (Intensity)

tableau

5 Best practices in Visual Analytics

5 Fundamental Steps

1. Start with Questions
2. Choose the Right Chart Type
3. Create Effective Views
4. Design Holistic Dashboards
5. Perfecting Your Work

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5 Fundamental Steps

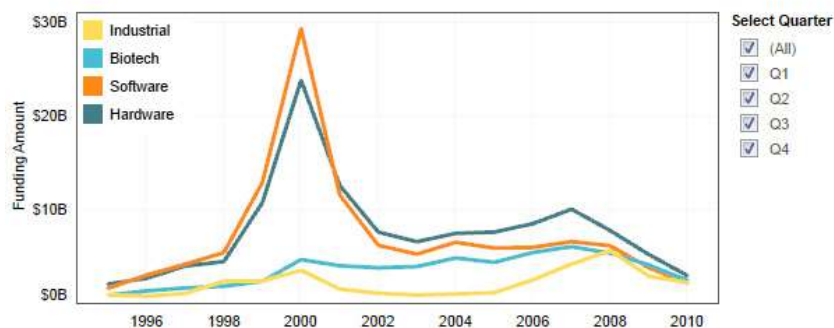1. Start with Questions
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Start with Questions

It is vital that your visualization has a purpose and you are selective about what you include in your visualization to fulfill that purpose.

Does Profitability at IPO Impact Stock Performance?

Start with Questions

It is vital that your visualization has a purpose and you are selective about what you include in your visualization to fulfill that purpose.

Does Profitability at IPO Impact Stock Performance in All Periods?

5 Fundamental Steps

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Choose the Right Chart Type

When did we have the highest funding amount?
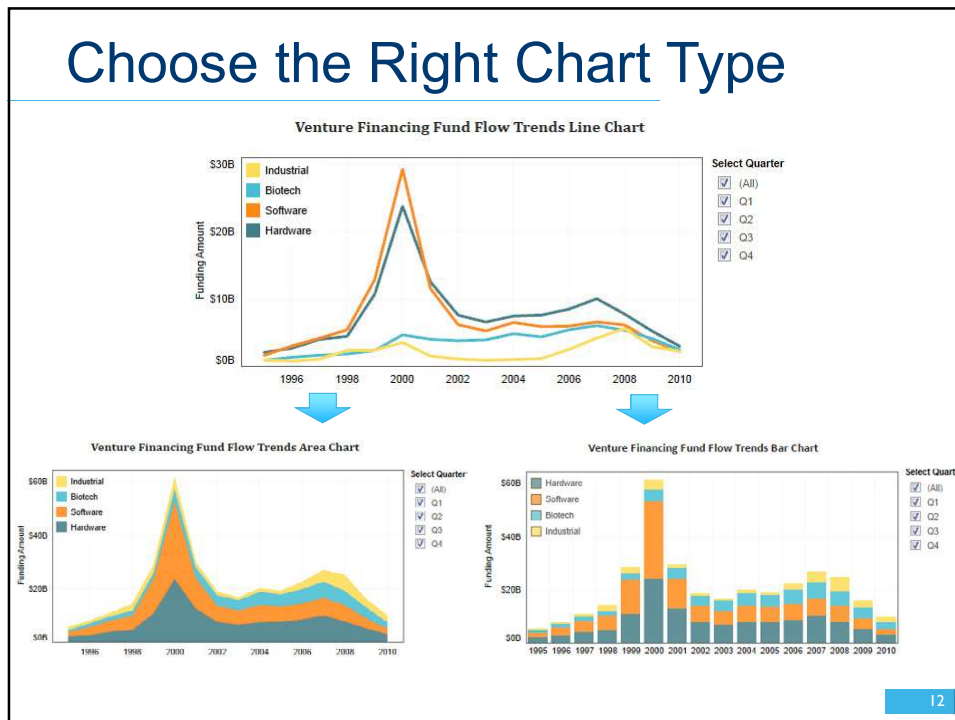Which segment has the most funding?
Is this a good visualization?

Venture Financing Fund Flow Trends Line Chart

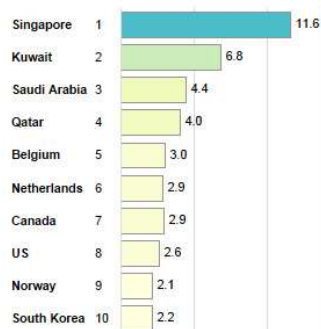Does this visualization tell us about total funding amount?

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Choose the Right Chart Type

Choose the Right Chart Type

Bar Chart
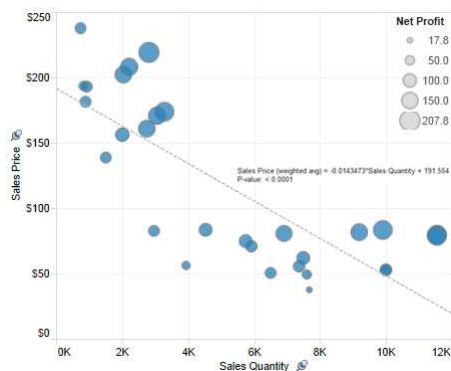
Top 10 Oil Consuming Countries
Tons per capita

Country	Rank	Value
Singapore	1	11.6
Kuwait	2	6.8
Saudi Arabia	3	4.4
Qatar	4	4.0
Belgium	5	3.0
Netherlands	6	2.9
Canada	7	2.9
US	8	2.6
Norway	9	2.1
South Korea	10	2.2

What is this chart good for?

Comparison and Ranking

Compare and rank countries, regions, business segments, salesmen and sports players based on one or a set of criteria. In many cases, this shows us where we are and how we are doing.

A bar chart is great for comparison and ranking because it encodes quantitative values as length on the same baseline, making it extremely easy to compare values.

Choose the Right Chart Type

Does smoking cause cancer? Does the price of a product impact the amount that gets sold? Does government stimulus create more jobs?

What is this chart good for?

Running a scatter plot correlation analysis is a great place to start in identifying relationships between measures.
We put sales price on the Y-axis, sales quantity on the X-axis, and include monthly sales numbers on details.
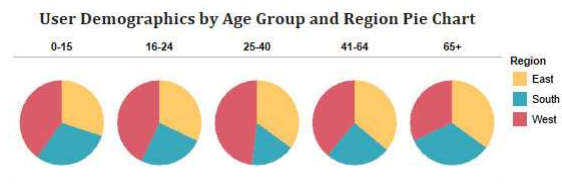
Add a trend line to identify correlation between sales price and quantity.
Does this mean that the company should lower prices to boost sales?

Net Profit is high on both ends

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Choose the Right Chart Type

Can you tell which slice is the largest or how the Western region differs across age groups?

Is this a good visualization?

It can be difficult to make these comparisons with pie charts.

1) The human visual system is not very good at estimating area
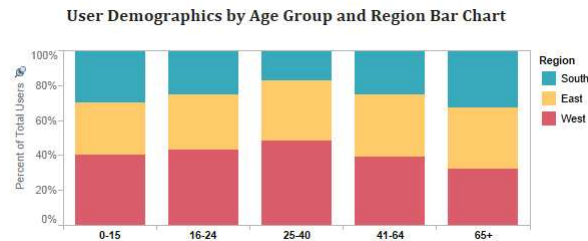2) You can only compare slices that are right next to each other

But what about other chart type?

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Choose the Right Chart Type

Which region has the biggest population in the 25-40 age group?

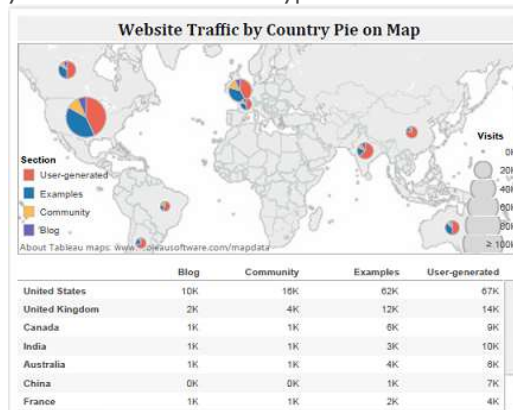**User Demographics by Age Group and Region Bar Chart**

Is this a good visualization?

Now we can see that the 25-40 age group in the Western region is the largest slice. In addition, we can now see the regional differences across all age groups much more easily.

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Choose the Right Chart Type

Which Country has the most visit? What type of web content is visited the most?

Website Traffic by Country Pie on Map

	Blog	Community	Examples	User-generated
United States	10K	16K	62K	67K
United Kingdom	2K	4K	12K	14K
Canada	1K	1K	6K	9K
India	1K	1K	3K	10K
Australia	1K	1K	4K	6K
China	0K	0K	1K	7K
France	1K	1K	2K	4K

What is this chart good for?

Maps are often best when paired with another chart that details what the map displays.

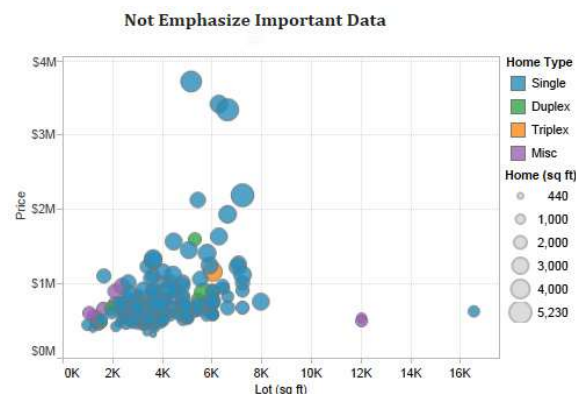17

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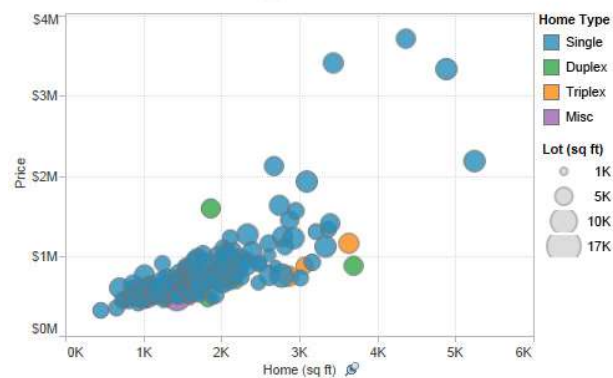18

Create Effective Views

Choosing where to put each measure depends on what kind of analysis you are doing and what you are trying to emphasize. However, a rule of thumb is to put the **most important data on the X- or Y- axis** and **less important data on color**, size, or shape.

Is there a relationship between home size and home price?
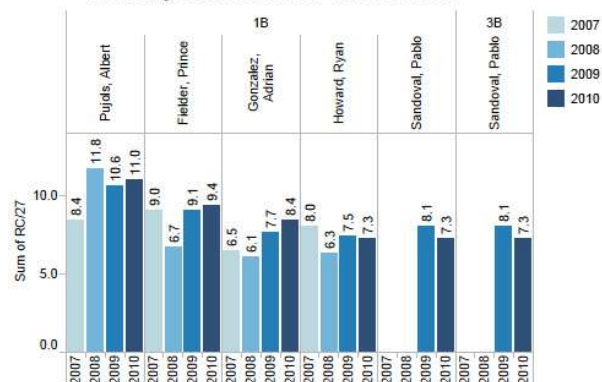
Not Emphasize Important Data

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Create Effective Views

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Create Effective Views

Which year does Albert Pujds has the highest RC/27?
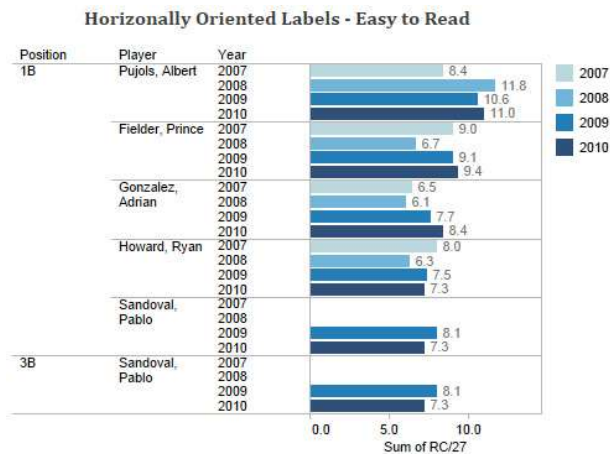Did we select a good chart type?
Is this easy to read?

Create Effective Views

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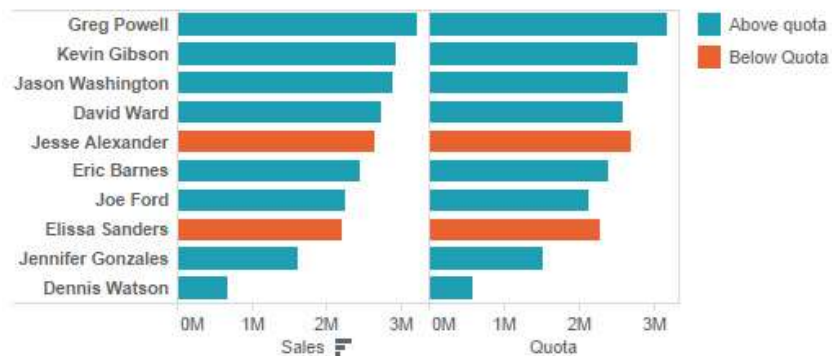Did we select a good chart type?
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Create Effective Views

How is each sales person doing compare to their quota?
Did we select a good chart type?
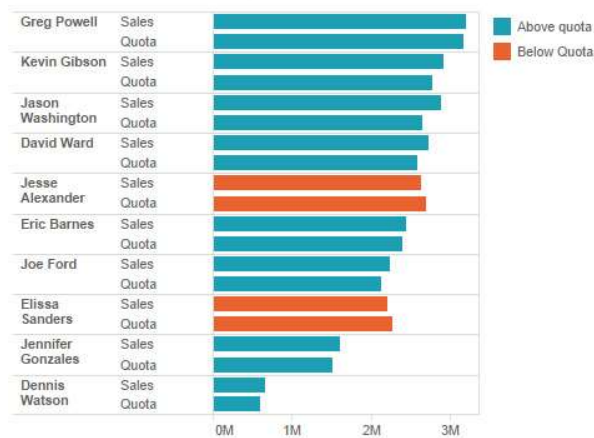Who is below their quota? By how much?

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Create Effective Views

How is each sales person doing compare to their quota?
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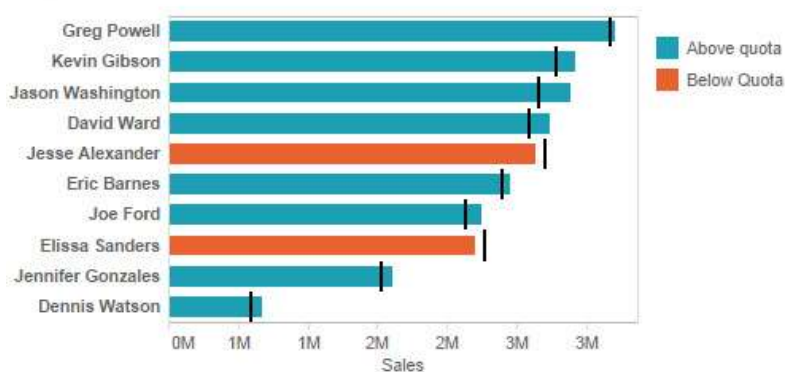
Good for Sales and Quota Comparison

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Create Effective Views

Which year does Albert Pujds has the highest RC/27?
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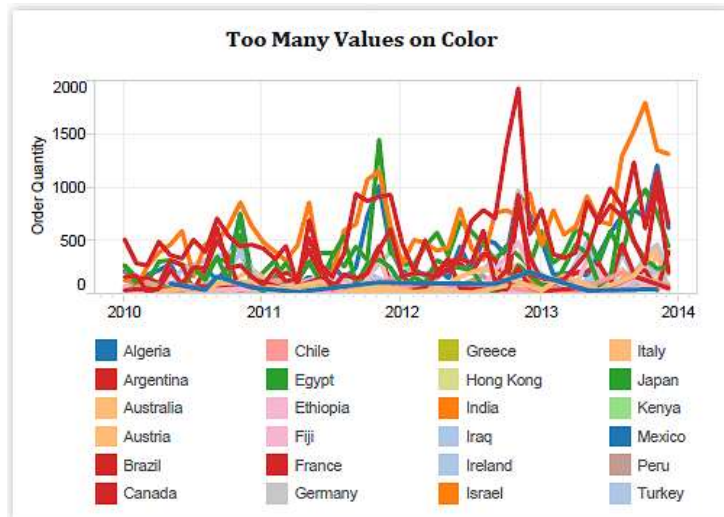Is this easy to read?

Great for Sales and Quota Comparison

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Create Effective Views

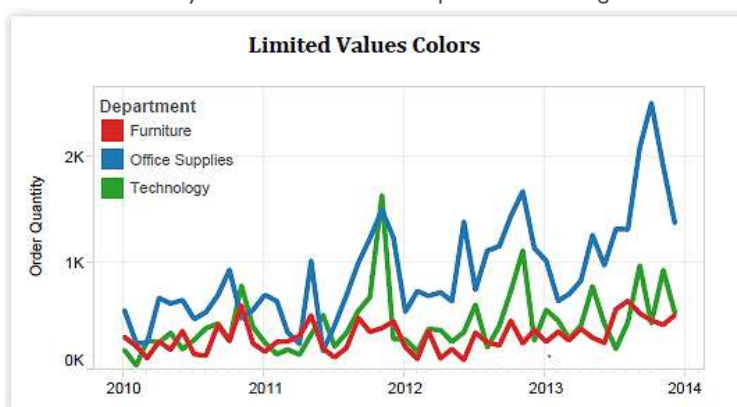Can you tell how Brazil and Canada is doing in the Order Quantity?

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Create Effective Views

Can you tell how Furniture department is doing?

Limit the number of colors and shapes in one view to **7-10** so that you can distinguish them and see important patterns.

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Are we telling a story that people want to listen to?

1. The clogging of data is slowing down the end users' ability to understand the dashboard. Delete useless charts.

2. The deficient (useless) measures and ineffective slices of the data are not adding anything to the analysis. Fix the measures on the scatter plot, add a quick filter to the Map.

3. Bad chart selections are not showing the data appropriately. Change the cross tab to a line chart.

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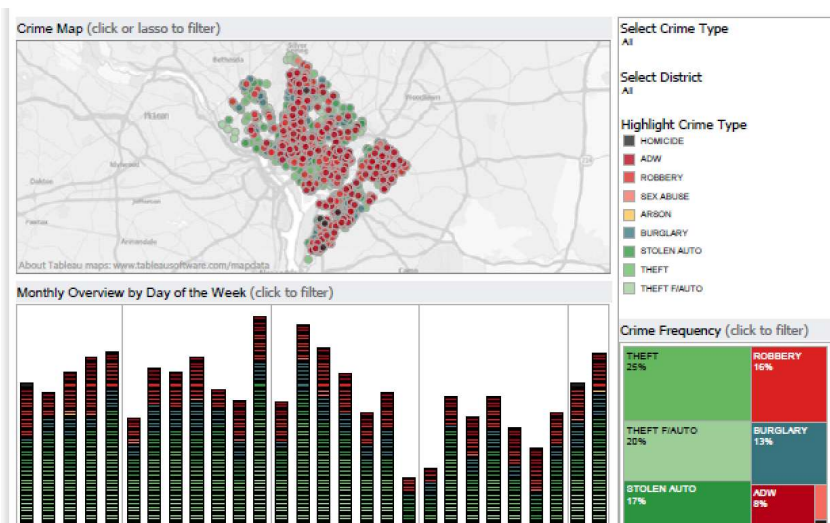5. Perfecting Your Work

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Design Holistic Dashboards

The following guidelines will help you design great dashboards:

• Place the most important view in the **upper left corner**.

• If your visualization has chained interactivity, structure them from **top to bottom** and **left to right**.

• Unless there is an absolute need to add more, limit the number of views in your dashboard to **three or four**.   Multiple dashboards to tell one story is allowed!

• Avoid using **multiple color schemes** in a dashboard

• If you have multiple filters, try to **group filter together** with a layout container. The **right, top, and left sides** of the dashboard are all great places to put your filters.

• If a legend applies to all of your views, place **legend together** with all of your filters. If a legend applies to one or a few more views, place it as close to those views as possible.

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Design Holistic Dashboards

Does this Dashboard follow the guideline?

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Design Holistic Dashboards

Highlights let you quickly show relationships between values in a specific area or category—even across multiple views.

District of Columbia Crimespotting
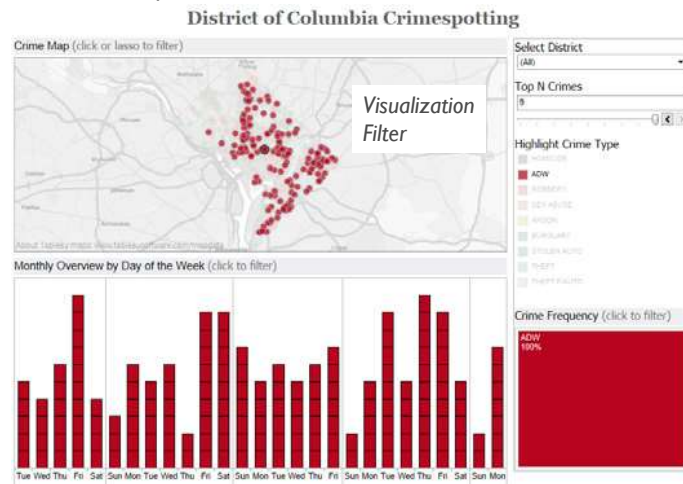
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Design Holistic Dashboards

Filters are great ways to enable multi-level data exploration and user driven data analysis.

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Design Holistic Dashboards

Filters are great ways to enable multi-level data exploration and user driven data analysis.

District of Columbia Crimespotting

Visualization Filter

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Is your dashboard highlighting the correct/important story?

1. The colors are distracting from the story. Choose a standard color palette.

2. Make sure you are highlighting the actionable insight. Change the Map to a chart type which highlights Profit insight.

3. Choose your colors wisely,. Apply the palette to all the charts while making sure the color doesn't distract from the story.

4. Re-Evaluate your story..

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Perfecting Your Work

Color can make the difference between a boring visualization and an inspiring one.

Tips:

- Try to use no more than two color palettes. Make sure to use non-overlapping scales like the ones shown below.

Average percent uninsured
5%   27%

Percent of delegation voting for bill
0%   100%

- Use the Tableau color sets as they have been carefully selected to match and not clash.

- When using colors that have an inherent meaning, make sure you've assigned them. For example, in many cultures green is associated with positivity while red has a negative connotation.

- Avoid adding color encoding to more than 12 distinct values.

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Perfecting Your Work

Fonts: *Can you read this?* (**Can you read this?**)

The following have been selected by our resident "visualization wizards" for their readability and visual appeal:

• Trebuchet MS or Verdana (especially for tables and numbers)
• Arial
• Georgia
• Tahoma
• Times New Roman
• Lucida sans

In addition, **Calibri** and **Cambria** are suitable for tooltips, but are not recommended for use in any other part of a visualization.

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Perfecting Your Work

Tooltips—the text boxes that pop up when you hover over an object—can make the difference between a user loving your visualization and not understanding it.

Country: United States
Number of Records: 1365
Value: 365

United States
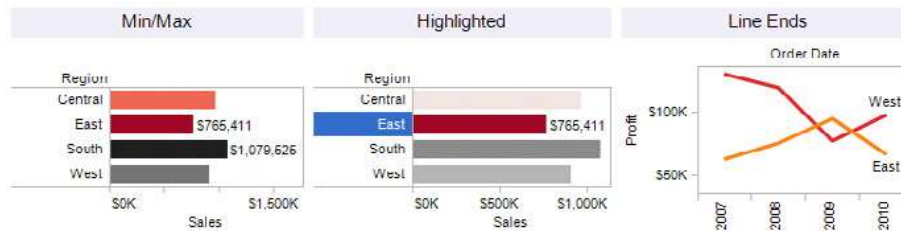Number of Records: 1365
Value: 365

United States
Planes: **1365**
Average Price: **$365M**

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Perfecting Your Work

Labeling your visualization in all the right places
Mark labels (the labels on your data points) can help you tell your story quickly and succinctly. It is often much easier to read a mark label than to mouse over a data point for its tooltip.

You can select from the following mark label options:
- Labels on selection
- Labels on min/max
- Labels on highlight
- Labels on line ends

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Is This a Story You're Proud to Tell?

1. Is your story easy to follow along?
   - Create effective titles so your everyone can follow along

2. Are you making a good representation for your company?
   - Proper use of logos. Add a logo
   - Adding information into the tooltip. Add details to the tooltip

3. Is your story in the right order?
   - Have you thought about the organization of your charts
   - Is the most valuable real estate being used effectively
   Change the Bar Chart

4. Re-Evaluate your story..
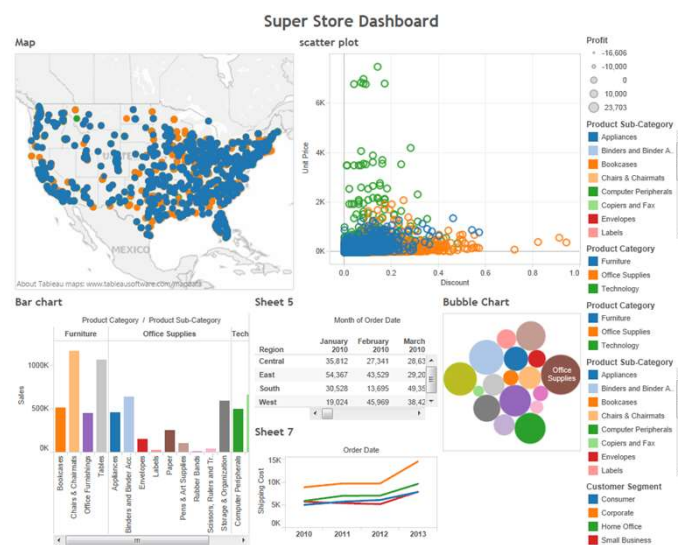   Is there a chart you can delete?

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Time to do some work:

Your task is providing analytics about the Sales and Profit of your company by Region. We also want to know which Product Categories and Sub Categories are doing best in these regions.

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The Starting Point

Super Store Dashboard

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