



The path to successful visualizations/ dashboards

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Even one data point can provide value as long as it ignites action and the eager to explore insights further.

Petri & Kalle



Data Quality vs Information Quality



Why is information quality important?

Bad information quality, such as poorly designed dashboards, can jeopardize all efforts you have done to ensure high data quality.

And, it can also jeopardize your trustworthiness !!!

Get dressed for success



Your path to success...



01 VALUE

What value is expected to be delivered. What kind of questions does the report need to be able to answer and who is the audience.



02 REPORT

The report needs to serve a clear and defined purpose, have a consistent look and feel, and a structure that supports discovering insights.



03 PAGE

The page needs to stand on it's own, have a visual framework that supports understanding the content, and be visually appealing.



04 CHART

The chart type needs to suit the presentation type (Comparison, Composition, Distribution, Relationship), reflect extent of variables and data points, be free of chart junk, and no high contrast elements.



05 PERFORMANCE

Each system has it's own performance characteristics. By using the strengths and minimizing weak points end users get better user experience.



VALUE

The Hunt for Value

- Who is the audience? That is a good start 😊
- Make sure you understand what value is expected by the audience

No value → Non-successful visualization, dashboard or report

- Often starts with a soft value, i.e. “I want an overview of...”

Soft value, this is often the main purpose of the report

- The soft value is built on multiple hard values, i.e. revenue, sales, costs, ... etc.



VALUE





REPORT

The 1-4-4 rule

This is a good start!

1 Report

4 Pages/sections

4 visualizations per page/section

The number of pages in your report influence your audience's perception of the report before viewing it.

Small \approx quick and easy-to-understand

Large \approx complex report that requires several study sessions

Please Note: **This a guidance**, not a law 😊 Some use-cases will require more than 4 visualizations and/or 4 pages

However, it doesn't hurt to guide the audience to better visualizations.



Keep coloring simple and consistent

Focus first on what you can tone down then what you should brighten up.

Black + Grey + Blue



Do not distract your audience

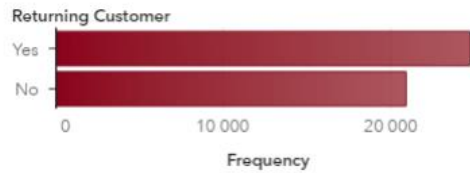
Customer Satisfaction

51 %

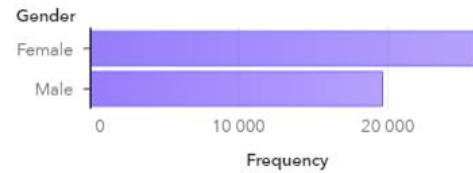
First Order Amount

9,1 mn

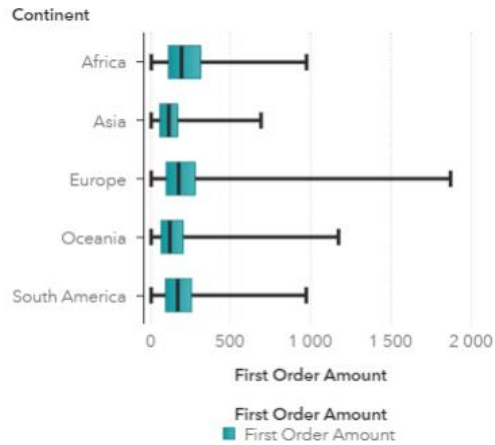
Frequency of Returning Customer



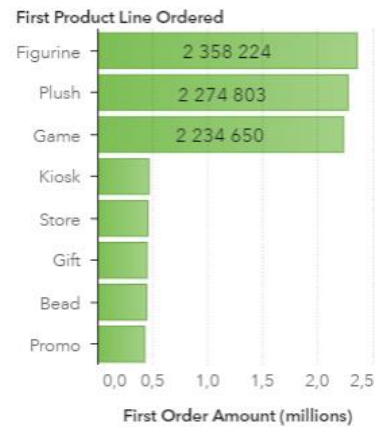
Frequency of Gender



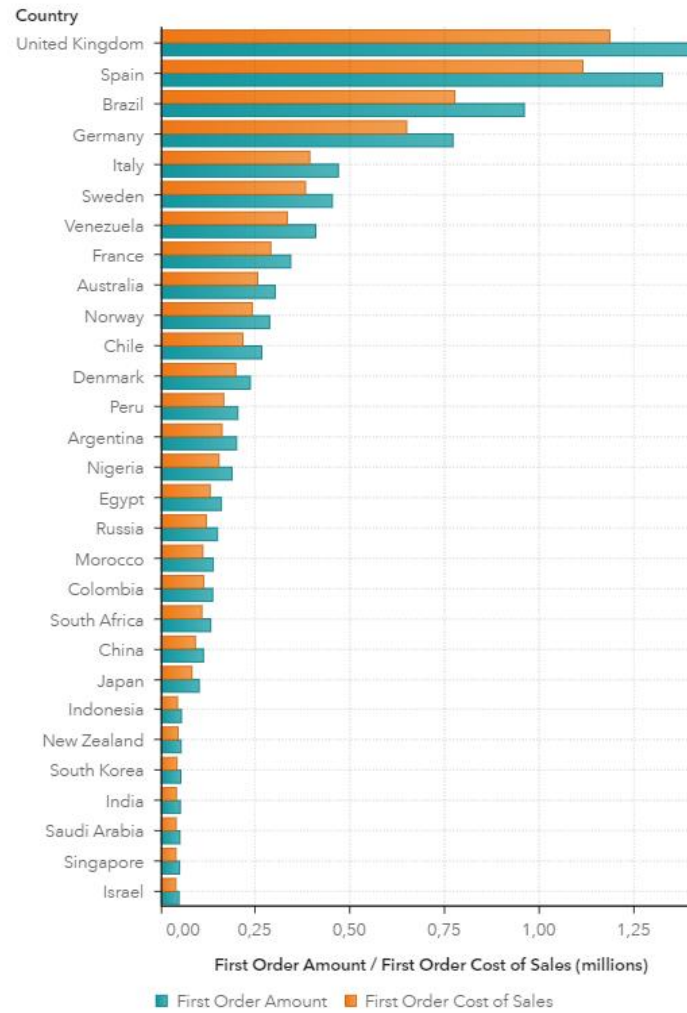
First Order Amount by Continent



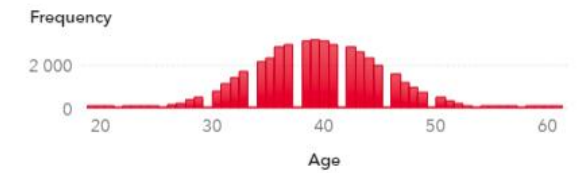
First Order Amount by First Product Line Ordered



First Order Amount, First Order Cost of Sales by Country



Frequency of Age



Frequency of Customer Satisfaction



Frequency of First Order Delivery Time

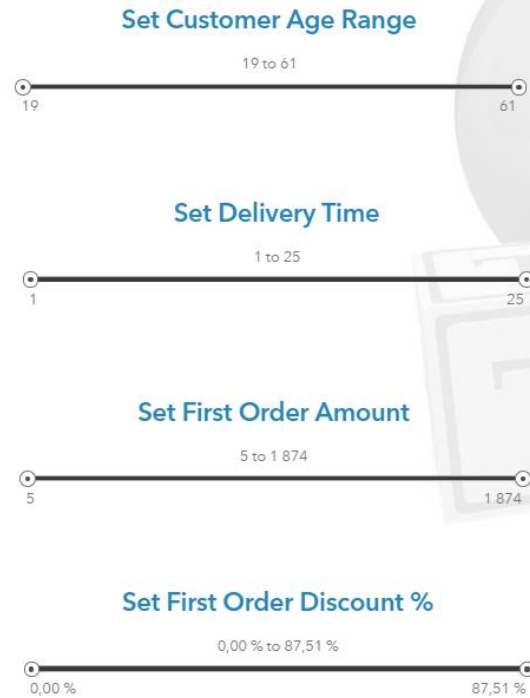


Frequency of First Order Product Quality

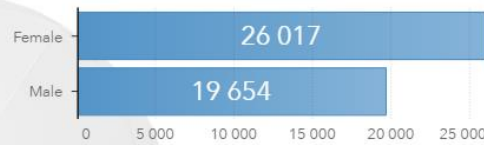


This is much better 😊

Loyal Customer Profiling



Number of Customer per Gender



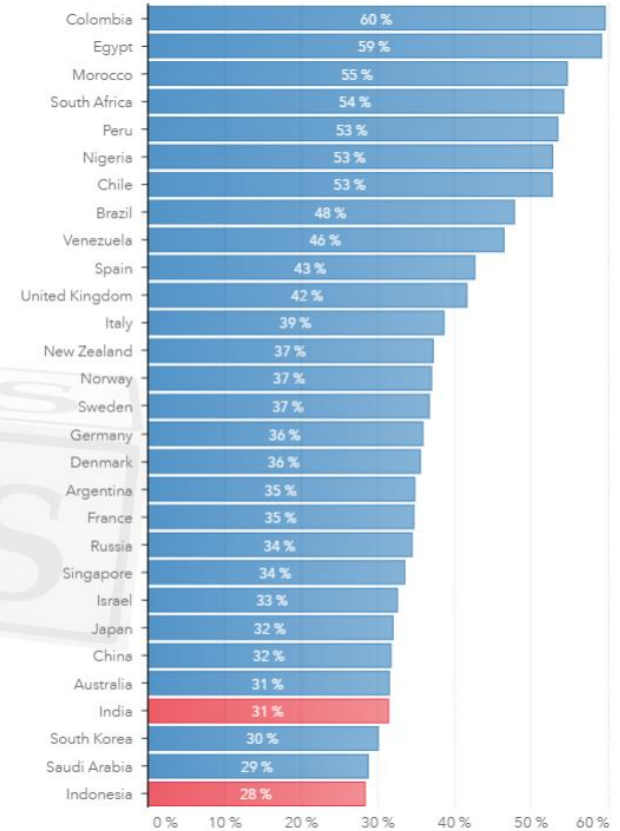
Loyal Customer Probability

54 %

First Order Amount per Product Line



First Order Customer Experience by Country





PAGE

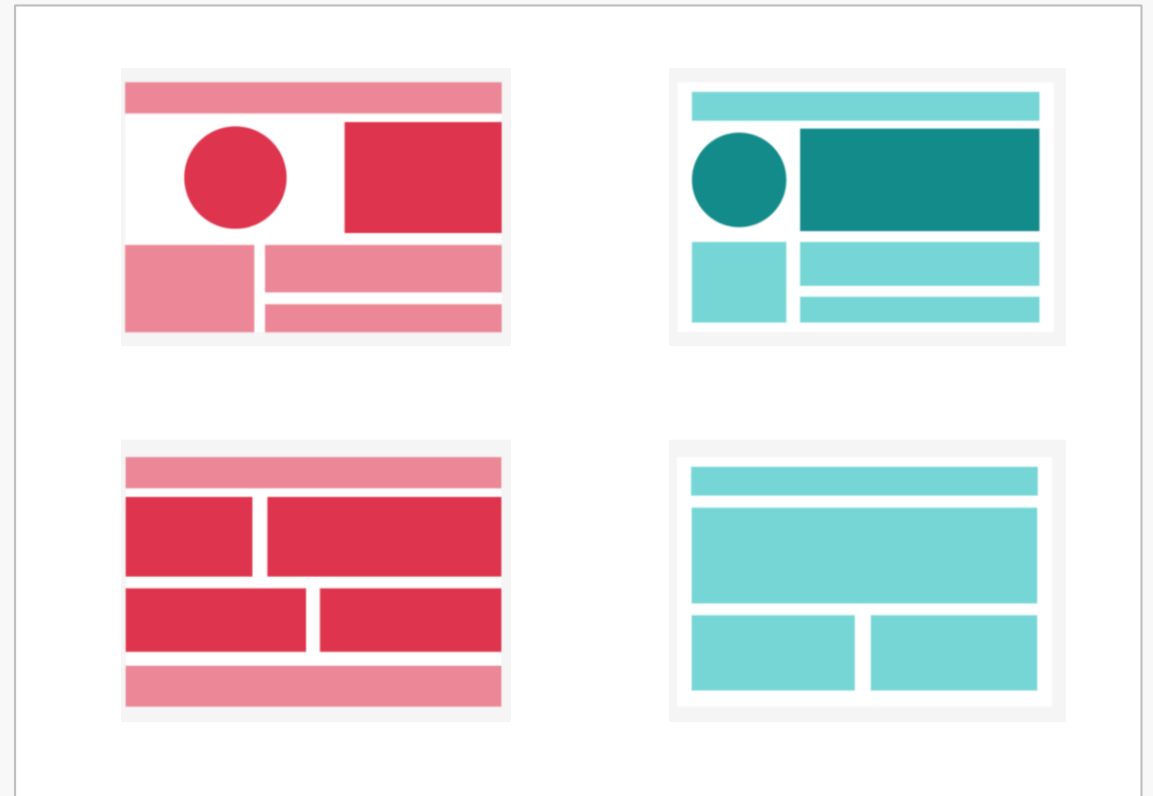
Align to Grid

Keep all the report objects well arranged.

By aligning the elements of your contents, your report page will look organized and attractive.

Alignment creates a sharper design, making report objects visually connected.

And it makes the page easier on the eye.



Create a Focal Point

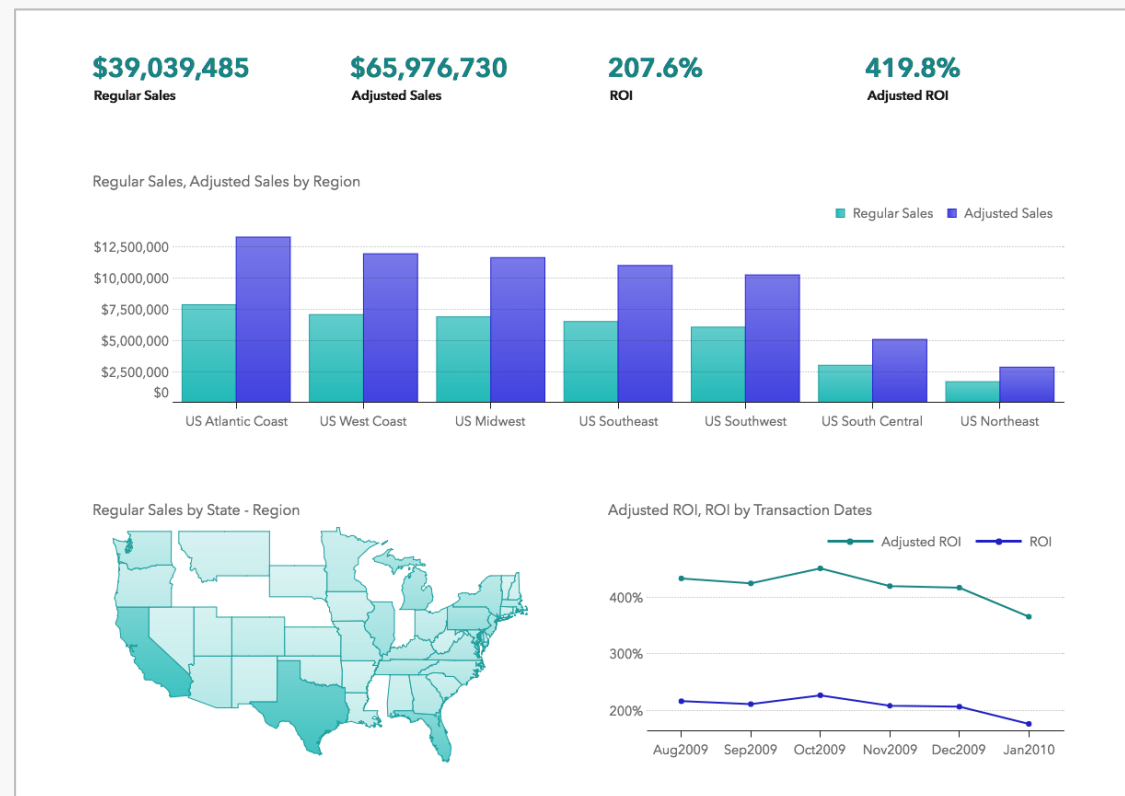
The focal point is the object that grabs the viewers' attention.

It provides a starting point for viewers as they take in the content of the page.

Position it at either the top of the page or the left side.

Should be the largest object on the page

If there is an object that drives interactions, then that object should be the focal point.



Create a Focal Point

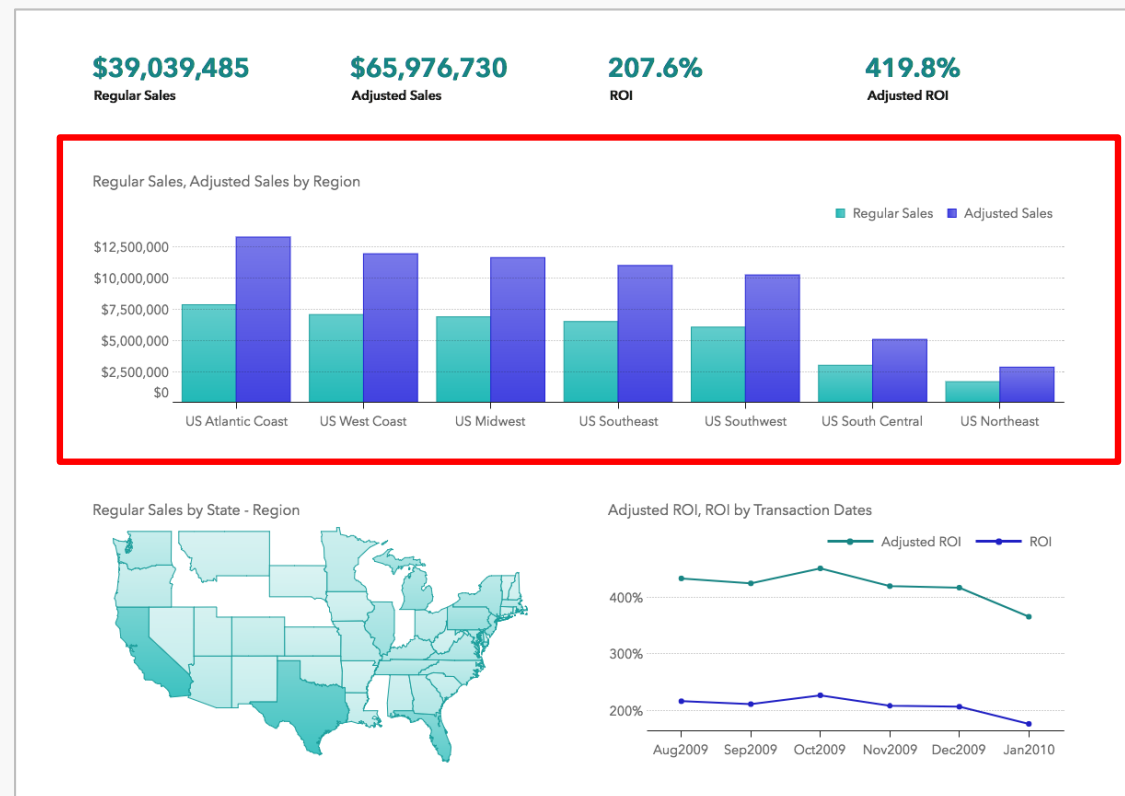
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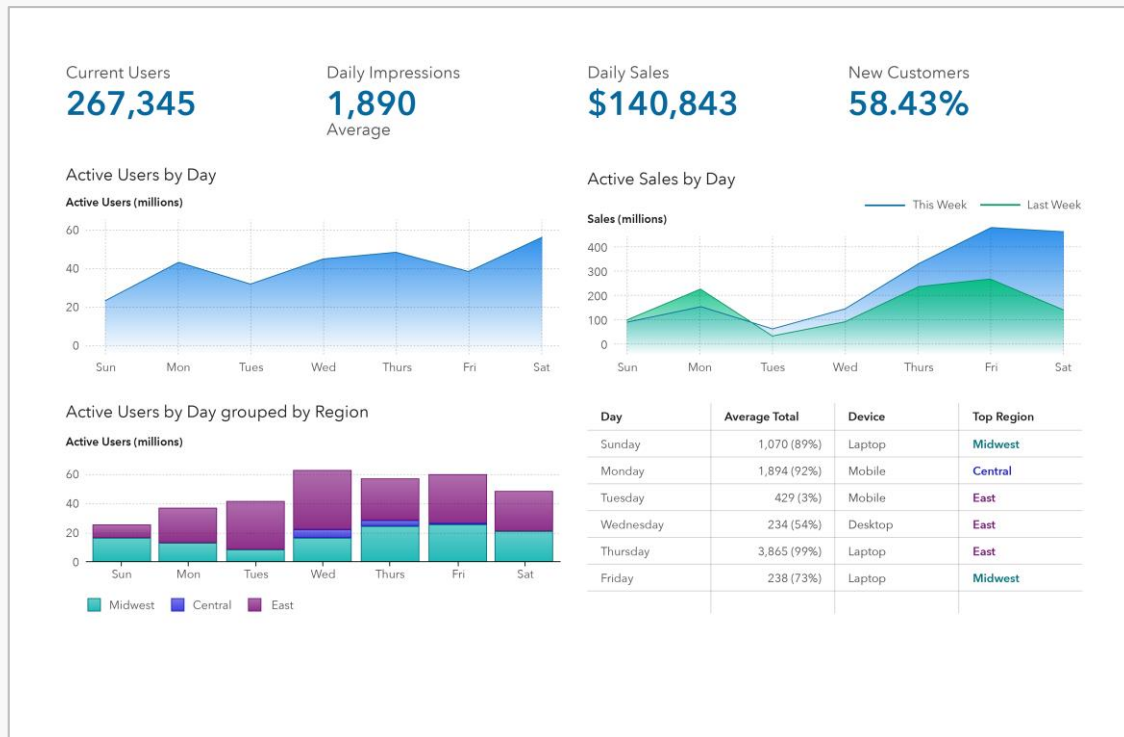
Use White Space

White space, or negative space, is the area in your report that doesn't contain content.

It establishes a visual framework that enables the viewer to easily understand the content and organization of the report.

Closely-spaced content requires additional time and effort from the viewer to understand.

A report that is free of clutter and has ample white space is more visually appealing and elegant.



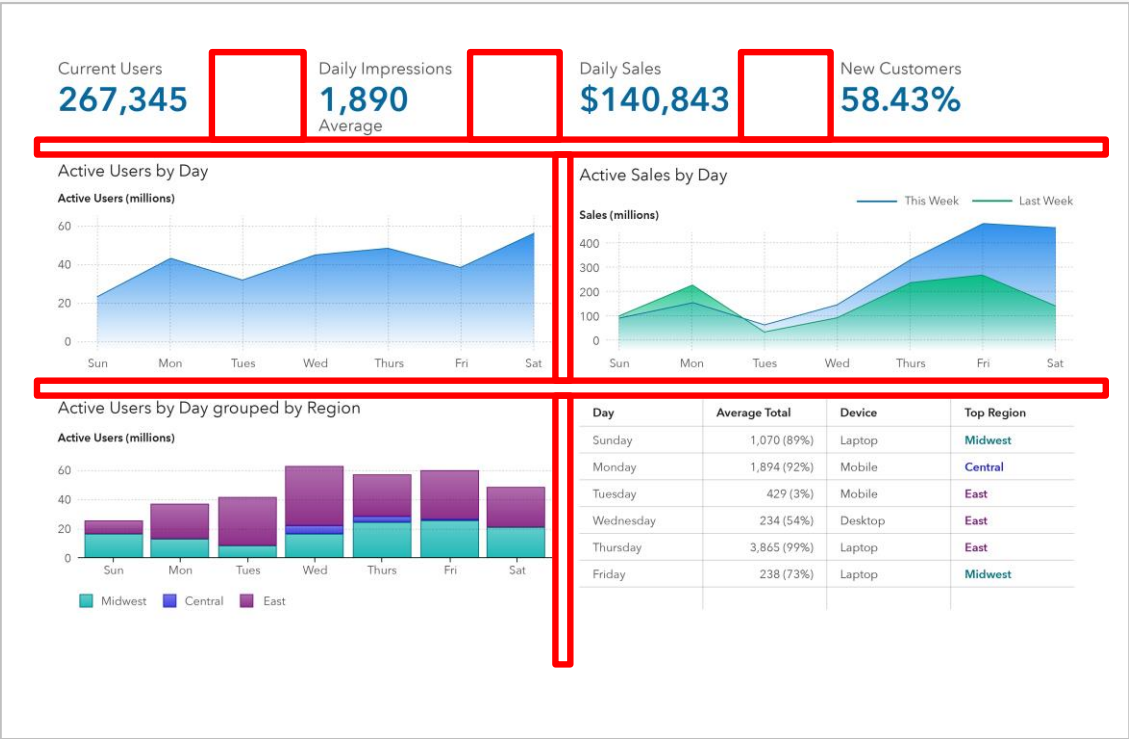
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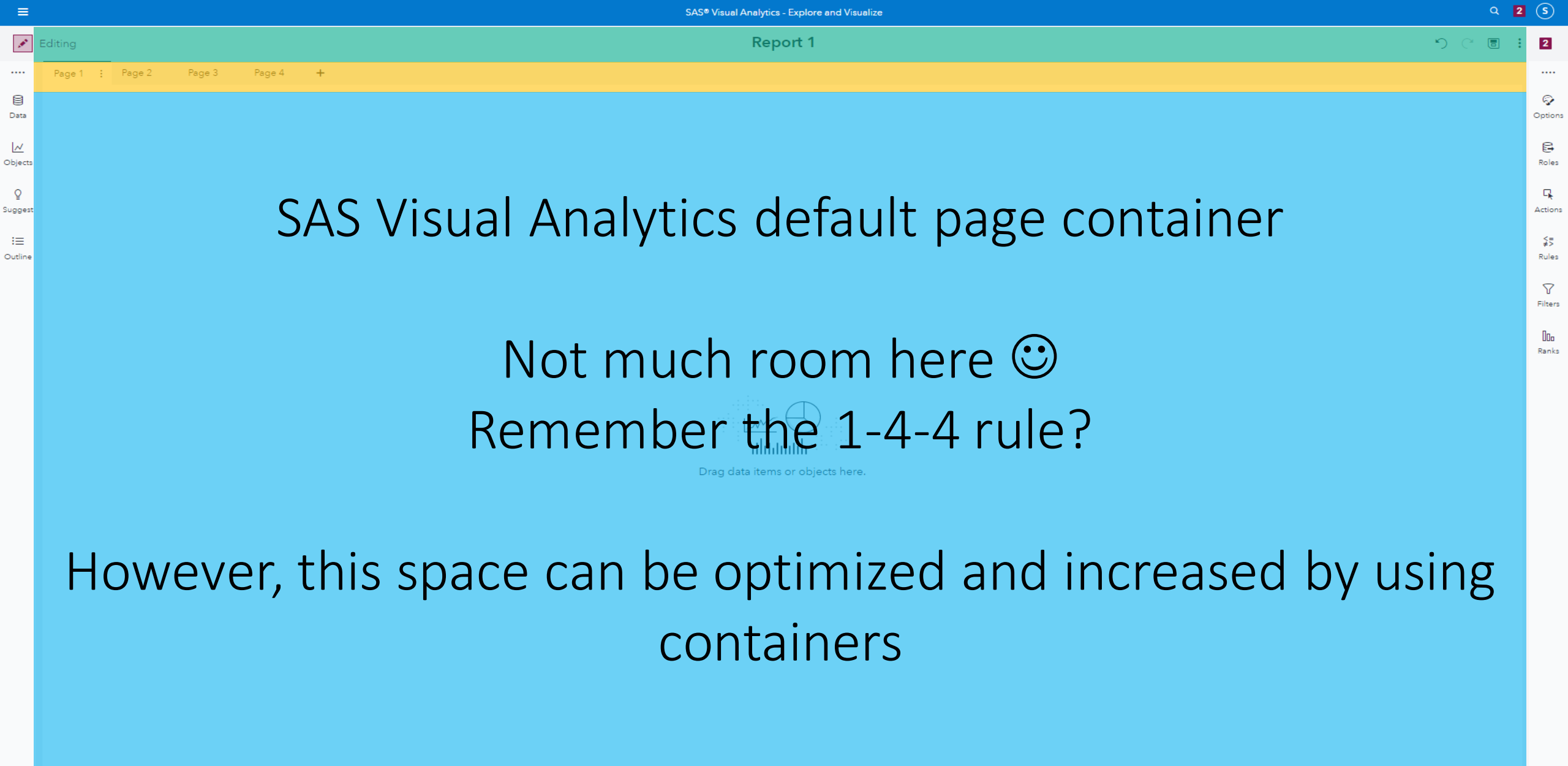
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Note: In SAS VA white space is called "padding" (available in the right option menu)

Default report structure in SAS Visual Analytics



The screenshot shows the SAS Visual Analytics interface. At the top, there is a blue header with the text "SAS® Visual Analytics - Explore and Visualize". Below the header is a green bar with "Editing" on the left and "Report 1" in the center. A yellow bar below that shows "Page 1", "Page 2", "Page 3", and "Page 4" with a plus sign. The main area is a large blue rectangle with the text "SAS Visual Analytics default page container". Below this text is a smaller blue rectangle with the text "Not much room here 😊" and "Remember the 1-4-4 rule?". At the bottom of this rectangle is a small icon of a bar chart and the text "Drag data items or objects here.". The interface also has a left sidebar with icons for "Data", "Objects", "Suggest", and "Outline", and a right sidebar with icons for "Options", "Roles", "Actions", "Rules", "Filters", and "Ranks".

SAS Visual Analytics default page container

Not much room here 😊

Remember the 1-4-4 rule?

Drag data items or objects here.

However, this space can be optimized and increased by using containers

White Space and how to get more space in VA

DEMO





CHART

Chart Selection

Use common chart objects that everyone understands: single value KPIs, bar and line charts.

Many chart selection guides available online.

Chart design

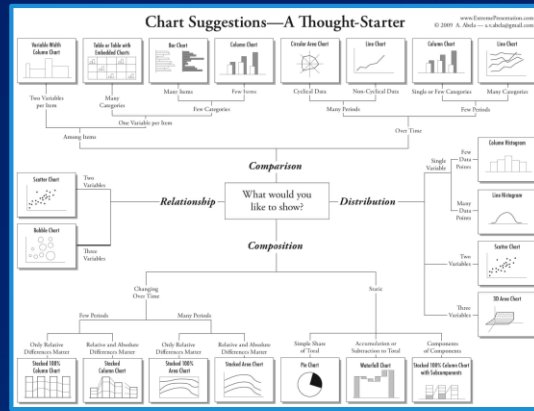
Remove all the chart clutter to reduce “visual noise”.

Use consistent design approach.

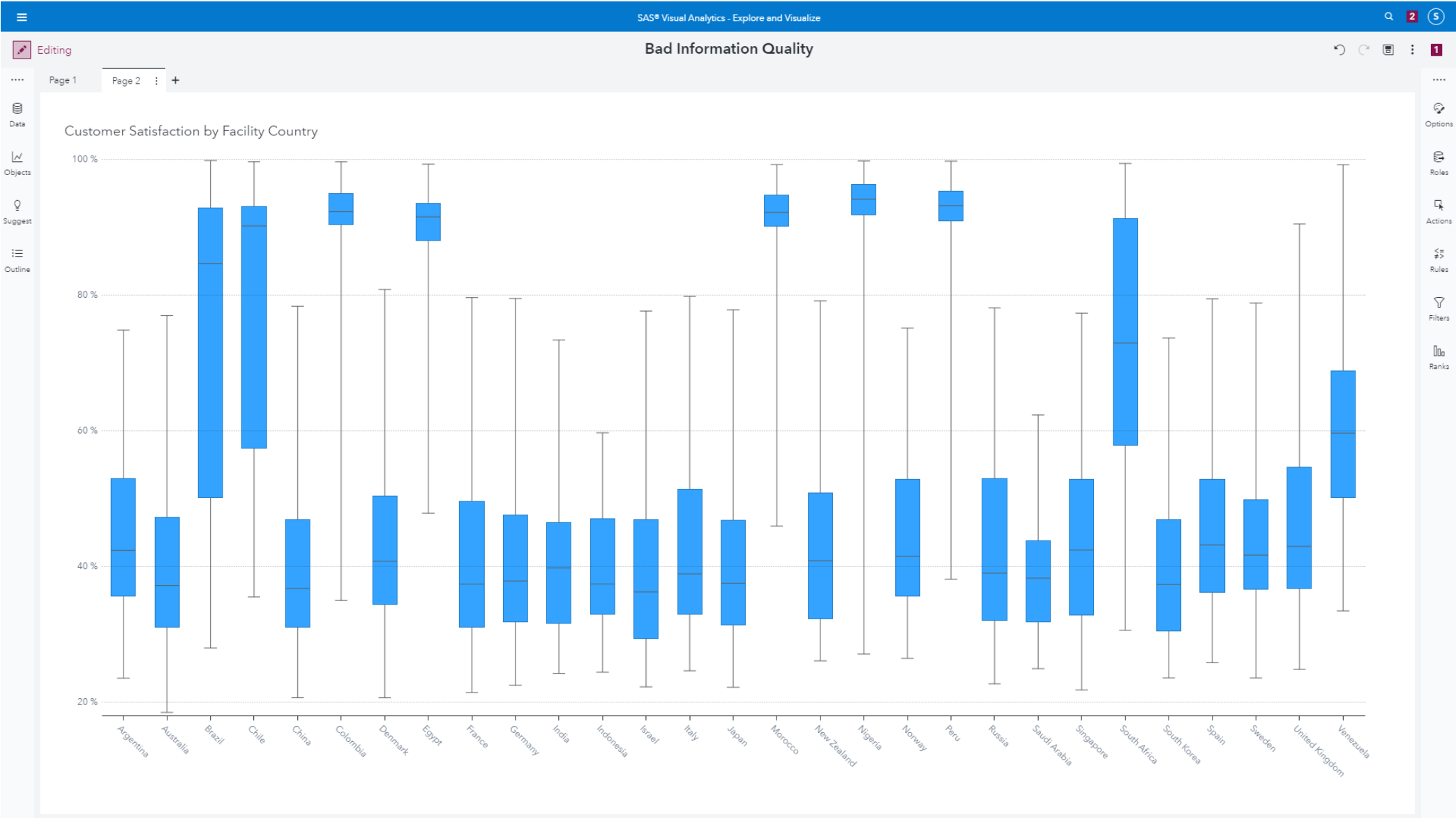
Bar chart: Consider horizontal layout if text categories.

Line chart: Don't plot more than four lines.

Pie chart: Don't use for comparison. If more than two categories then consider stacked bar chart.



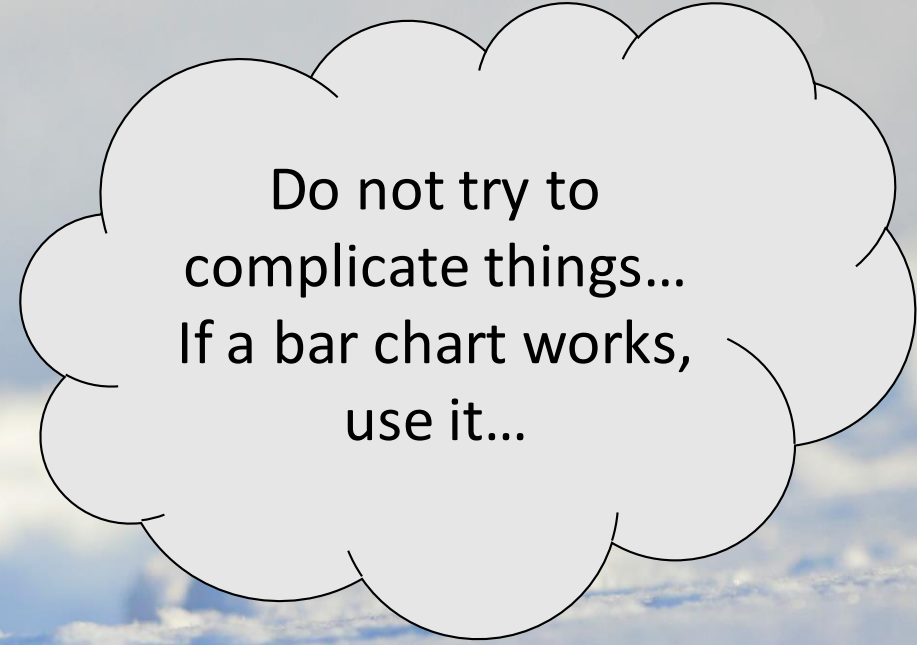
THE BOX PLOT, PROBABLY THE BEST VISUALIZATION IN THE WORLD



SOME ARE SO COOL...



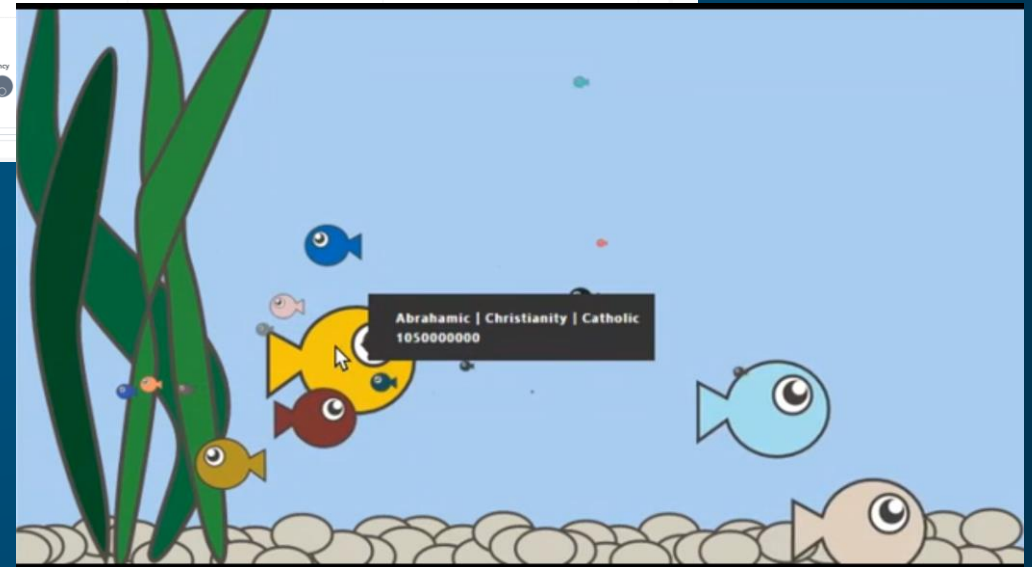
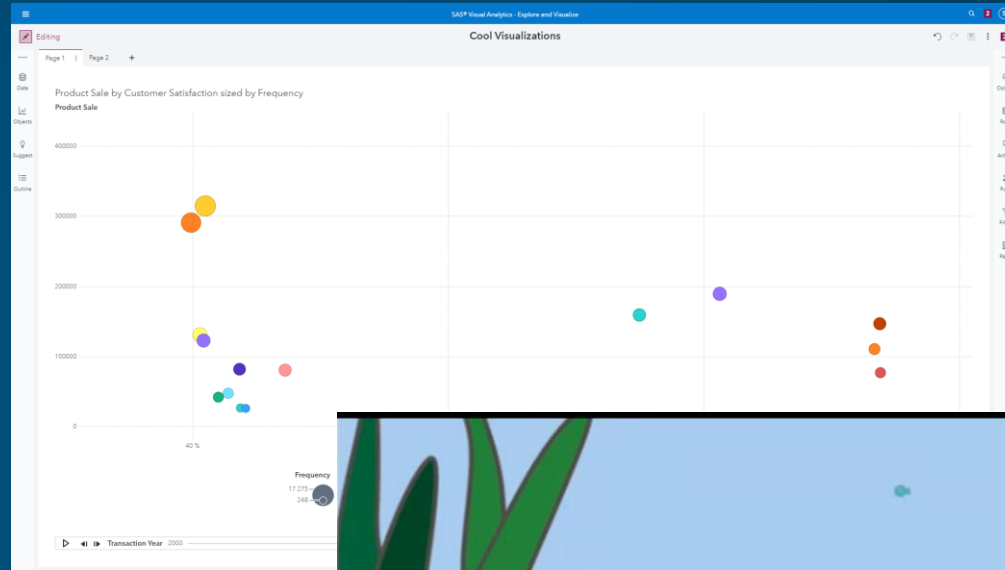
SOME ARE SO COOL...



Do not try to
complicate things...
If a bar chart works,
use it...

Cool Visualizations

DEMO



Do not try to fool your audience

Bad visualization discipline can lead to...

- Misleading information
- Bad or poor interpretation
- Reduced trustworthiness





PERFORMANCE



Remember: Everything you do will impact performance.

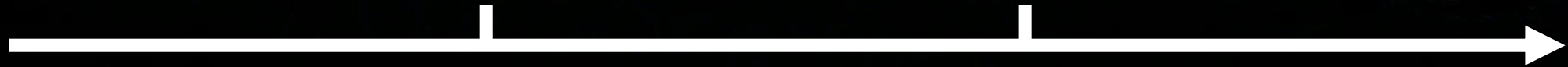


Three phases

Application start and
loading of report
features

Opening the report

Loading report data





Three phases

Application start and
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This is what we can impact to improve or maintain performance



Three phases

Application start and
loading of report
features

Opening the report

Loading report data

- Number of objects
- Number of pages
- Custom calculations

- Data volumes
- Number of data sources



Three phases

Application start and
loading of report
features

Opening the report

Loading report data

- Delete unused objects
- Don't just add pages...
- Reduce Custom categories

- Aggregate data if you can
- Do not try to fix data quality issues
- Use Viya data optimization methods



Do not...

- ... fix data quality issues in your report
- ... fix data structure issues in your report
- ... use detailed data if you do not need it
- ... ignore report performance impact

Q & A