

Dashboard Design and Data Visualization Best Practices

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Agenda

- What's my point?, Why does it matter?, How to achieve it
- Bad dashboards and visualizations examples
- 6 dashboard and data visualizations design mistakes to avoid

What, Why, How

What's my point?

- We're in an age where every business event is captured, stored and can be reported on.
- We're in an age of easy to use dashboarding and data visualisation tools where anyone can build and share content
- But not anyone can do this well.....
- You should pay extra attention on how to present and visualise your data to your users to ensure it serves its intended purpose

Why does presenting data intuitively matter?

- The value of the data is severely diminished if presented non-intuitively.
- Confusing presentation may result in users misinterpreting the data and making bad decisions, adversely affecting your business
- Confusing presentation may inhibit adoption of data driven decision making
- Your company will not benefit from the investment made in the tool nor from the value hidden in the data

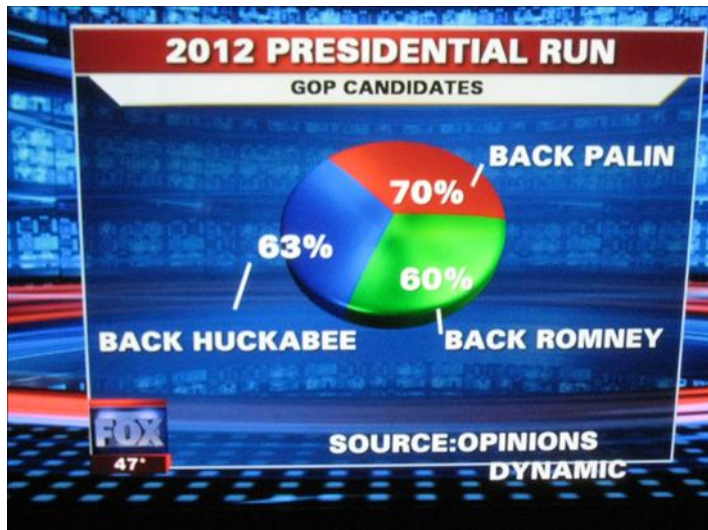
How.....

Why does presenting data intuitively matter?



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Visualization done wrong!

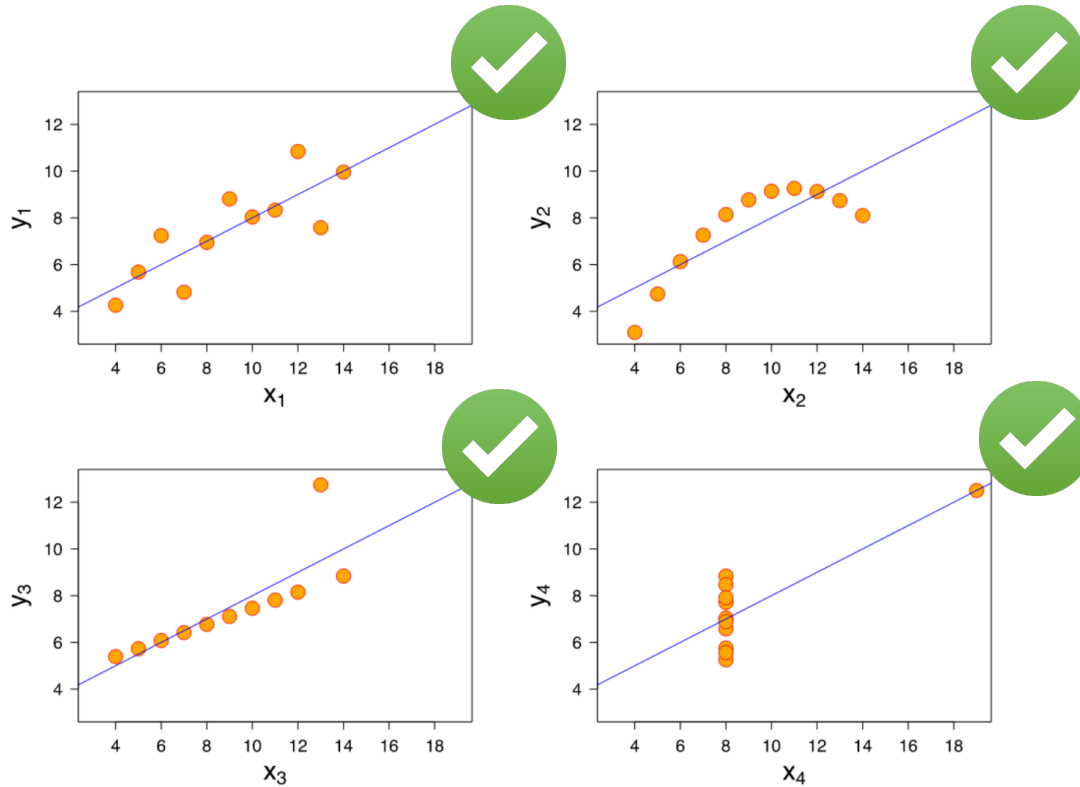


Anscombe's Quartet

I		II		III		IV	
x	y	x	y	x	y	x	y
10.0	8.04	10.0	9.14	10.0	7.46	8.0	6.58
8.0	6.95	8.0	8.14	8.0	6.77	8.0	5.76
13.0	7.58	13.0	8.74	13.0	12.74	8.0	7.71
9.0	8.81	9.0	8.77	9.0	7.11	8.0	8.84
11.0	8.33	11.0	9.26	11.0	7.81	8.0	8.47
14.0	9.96	14.0	8.10	14.0	8.84	8.0	7.04
6.0	7.24	6.0	6.13	6.0	6.08	8.0	5.25
4.0	4.26	4.0	3.10	4.0	5.39	19.0	12.50
12.0	10.84	12.0	9.13	12.0	8.15	8.0	5.56
7.0	4.82	7.0	7.26	7.0	6.42	8.0	7.91
5.0	5.68	5.0	4.74	5.0	5.73	8.0	6.89

- 4 sets of X & Y pairs
- Each set of X & Y columns have the same:
 - Count
 - Sum
 - Mean
 - Variance

Anscombe's Quartet



How?

6 Common Dashboarding and Visualization Mistakes to Avoid

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“Simplicity is the ultimate sophistication”

- Leonardo da Vinci

Mistake #1 – Avoid Not Using Comparisons

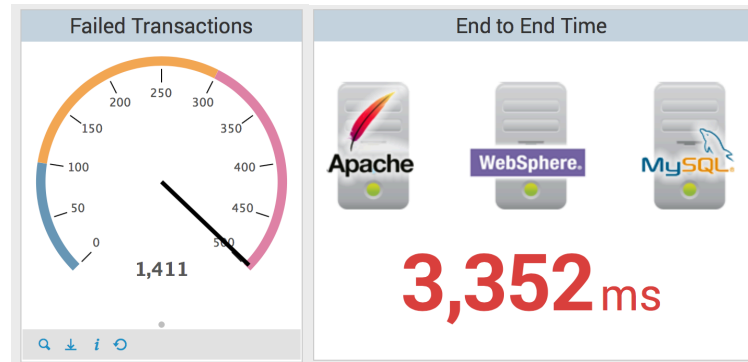
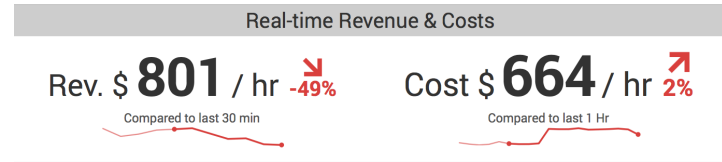
Comparison Values and Spark Lines Give Context and Meaning

Use:

- Rates
- Averages
- Percentages
- Ratios

and comparison values:

- Actual This Week vs. Actual Last Week
- Actual vs Budget
- Actual vs Forecast
- Actual vs Predicted
- Avg. vs Avg. of the past 30 days
- % Margin

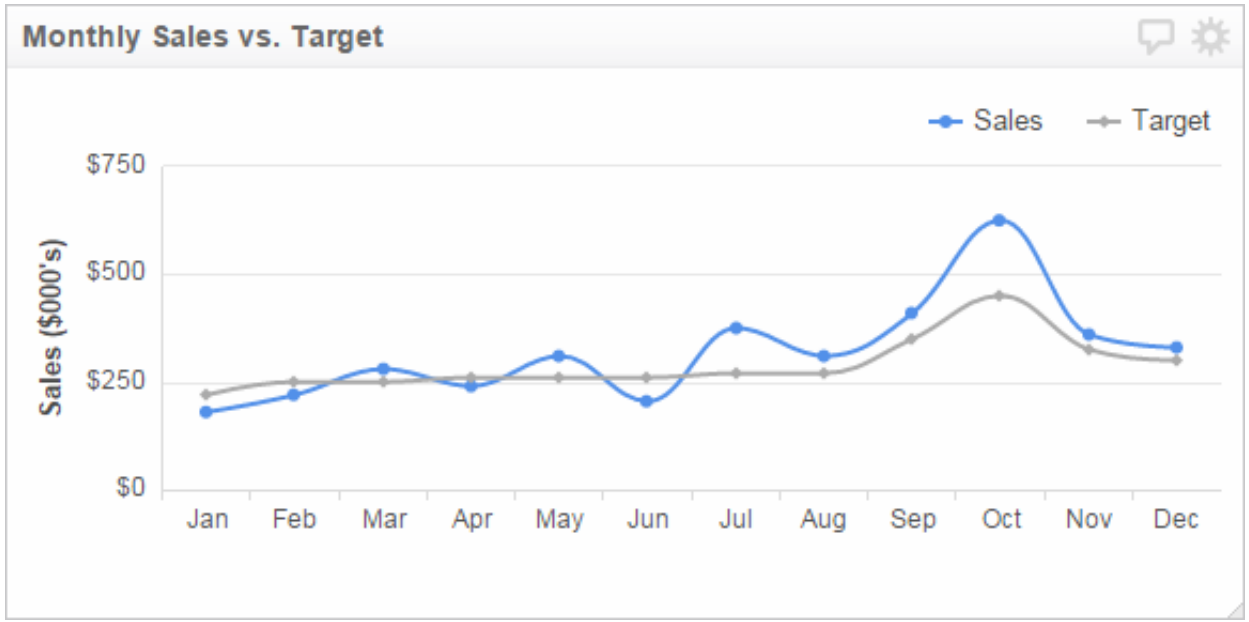


Mistake #2 – Avoid Making Users do the Math

Looks typical right?



- Which months were below target?
- Which months were above target?
- And by how much?

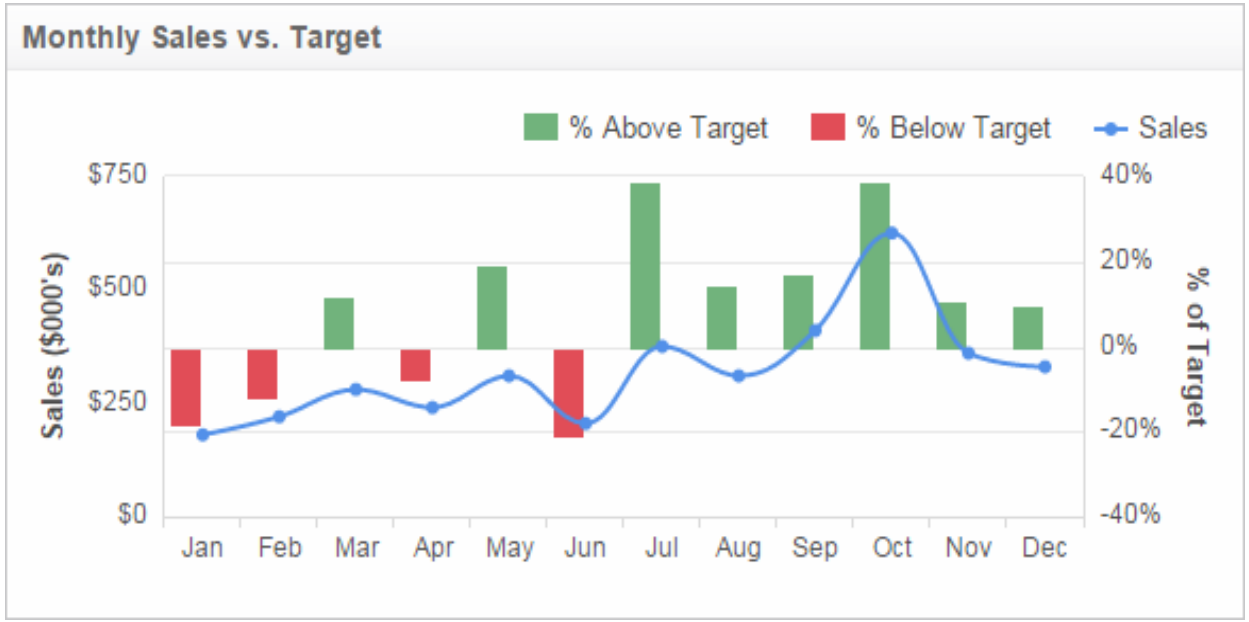


Mistake #2 – Avoid Making Users do the Math

Go the extra mile to make it great



- Shows Actuals
- Shows Good and Bad months
- Quantifies good and bad
- Uses and Overlay and dual Y Axis.



Mistake #3 Avoid Color Controversy

Why should we both change from our home kits?

Home Jerseys

Wales



Portugal



Mistake #3 Avoid Color Controversy

1 in 12 Males and 1 in 200 Females are Red Green Colour Blind

Croatia vs Portugal

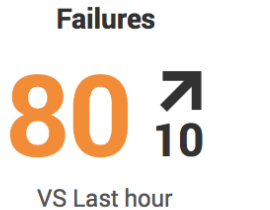
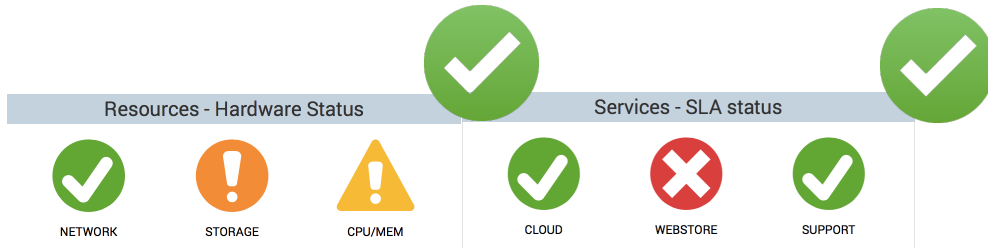


Wales vs Portugal

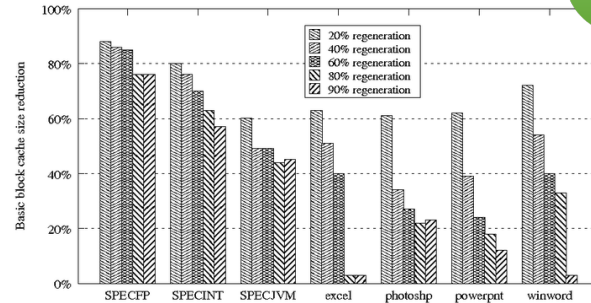


Mistake #3 Avoid Color Controversy

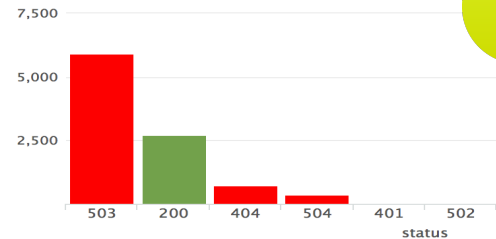
Use colours AND symbols to deal with colour blindness



Enhancement Request?



HTTP Status Count



Mistake #3 Avoid Color Controversy

Define your palette and override the defaults

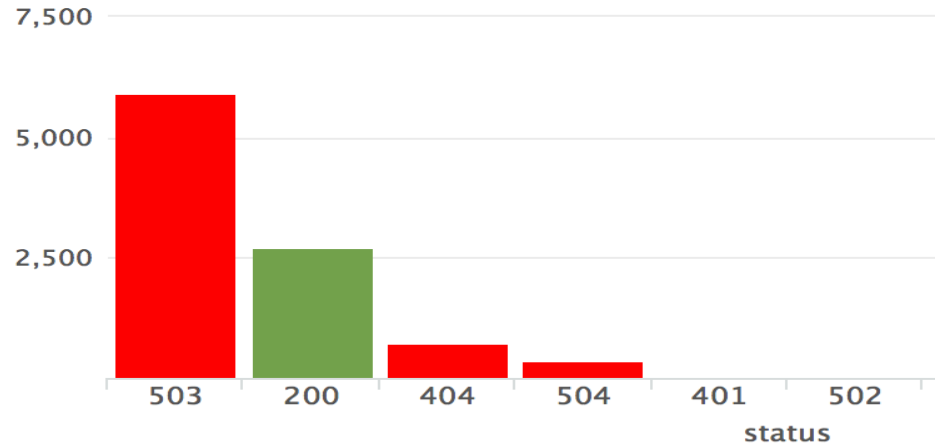
ReportName: MySearch

```
sourcetype=access_combined
| eval redCount=if(status>400 AND status<600,count,0)
| eval greenCount=if(status<400 OR status>=600,count,0)
| sort count desc
| fields - count
```

Simple XML

```
<chart>
  <searchName>MySearch</searchName>
  <title>HTTP Status Count</title>
  <option name="charting.chart.stackMode">stacked</option>
  <option name="charting.fieldColors">{"redCount":0xFF0000,"greenCount":0x73A550}</option>
</chart>
```

HTTP Status Count



Mistake #4 Avoid Sloppy Labelling

Make it idiot proof, I mean “self explanatory”!

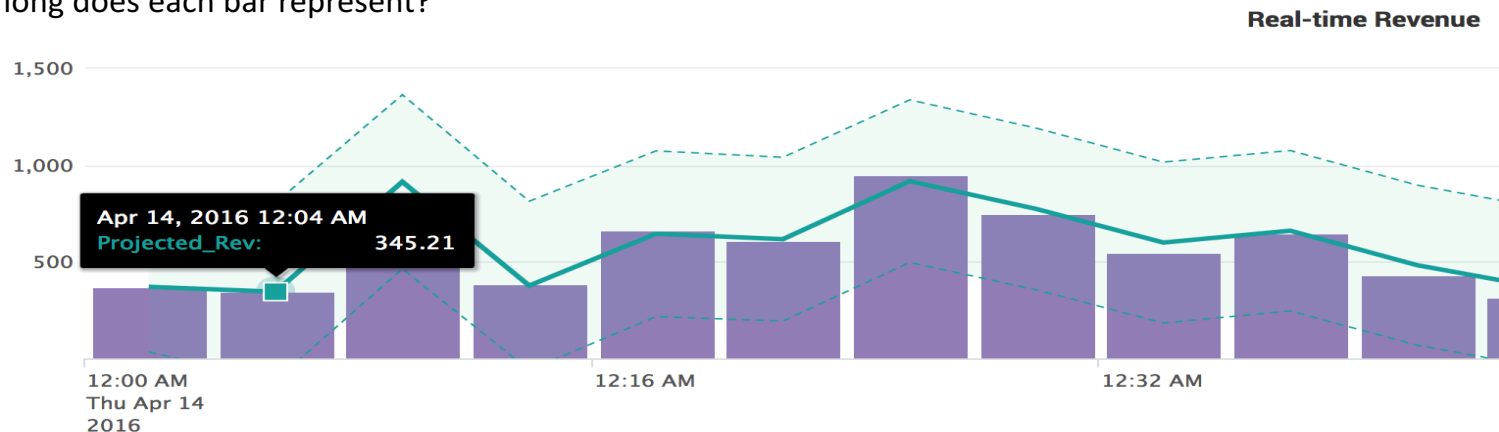
- What is the unit of measure on the Y axis?
- Are you using a log scale? (If so, mention it)
- Are the numbers shown in K's, M's or B's?
- If Currency, which currency?
- Net Revenue or Gross Revenue?
- How long is the rolling window being shown?
- How long does each bar represent?



Real Time Revenue



Real Time Gross Revenue (\$) last 1 hour in 4 minute buckets



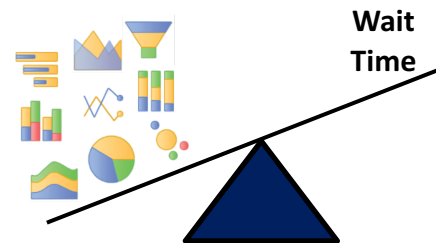
Mistake #5 Avoid Bad Performance

Too Many Objects Can Cause Performance Issues

Consider the following to boost reduce load times:

- Limit the number of objects on a single screen
- Limit real-time searches
- Limit the time window for searches
- Specify filters to reduce the data
- Look for long-running searches and schedule them
- Look for searches eligible for report acceleration
- Use summary indexes to reduce the search load of the dashboard
- Look for commonality between searches. When found, combine several searches into one and **use post-processing** to drive several panels off one search.

<http://docs.splunk.com/Documentation/Splunk/6.0.2/AdvancedDev/PostProcess>

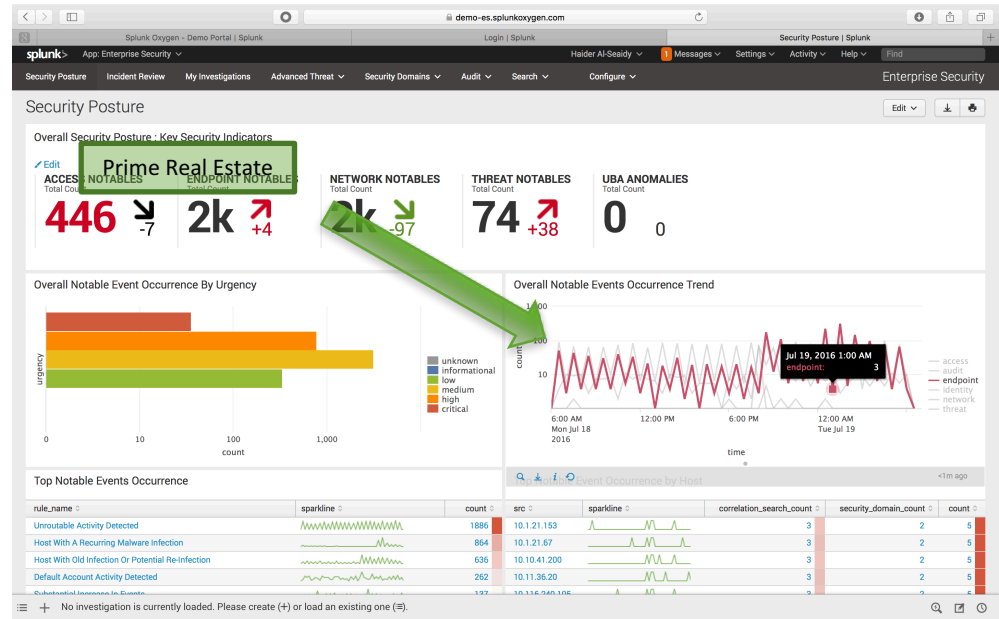


Mistake #6 Avoid Bad Layout

Dashboard Flow



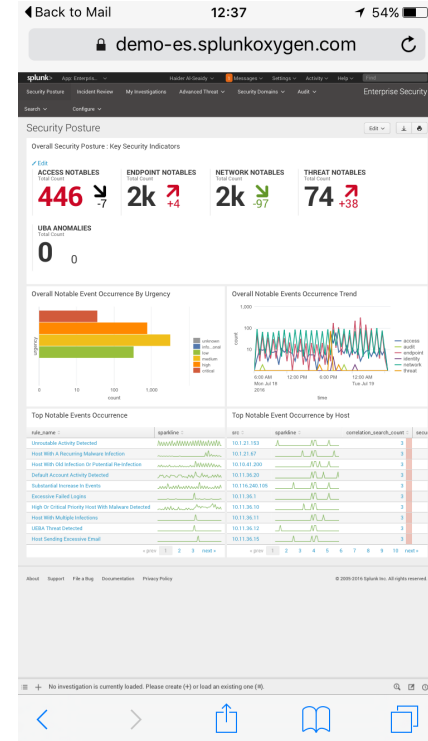
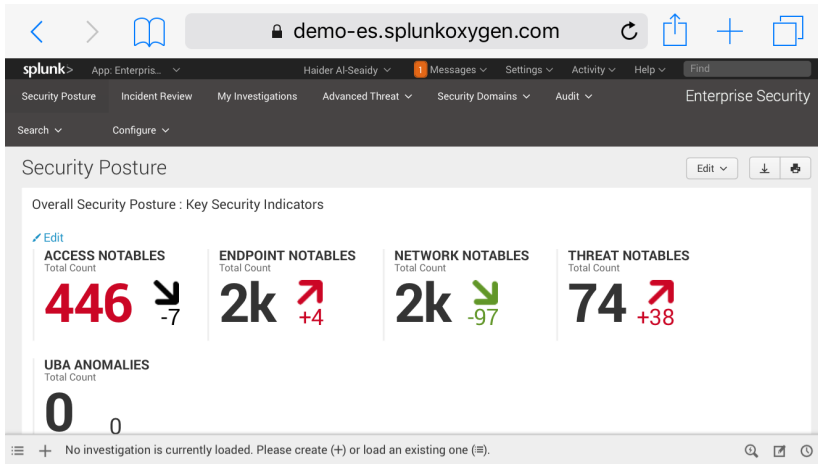
- Research shows that people read dashboards like a book - top left to bottom right.
- Key metrics should be at the top left



Mistake #6 Avoid Bad Layout

Orientation

- Landscape mode on a mobile will require scrolling to see content
- Are your key metrics at the top?
- Sizes to the width of the app



And Finally

“You cannot say anything about how dashboards ought to be designed without first specifying the purpose of the display”

- Stephen Few

THANK YOU

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