



# THE ACCIDENTAL REPORT DESIGNER

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April 28, 2015

# GETTING STARTED

Slides are on my blog

Questions and comments are welcome throughout the presentation

Who are You?



# WHO AM I?

Business Intelligence Solutions Consultant with BlueGranite from Kansas City, MO

Experience with various industries and business units including healthcare, government, education, marketing, sales, finance, HR

Passionate about data visualization

Significant experience guiding clients through early maturity phases of business intelligence

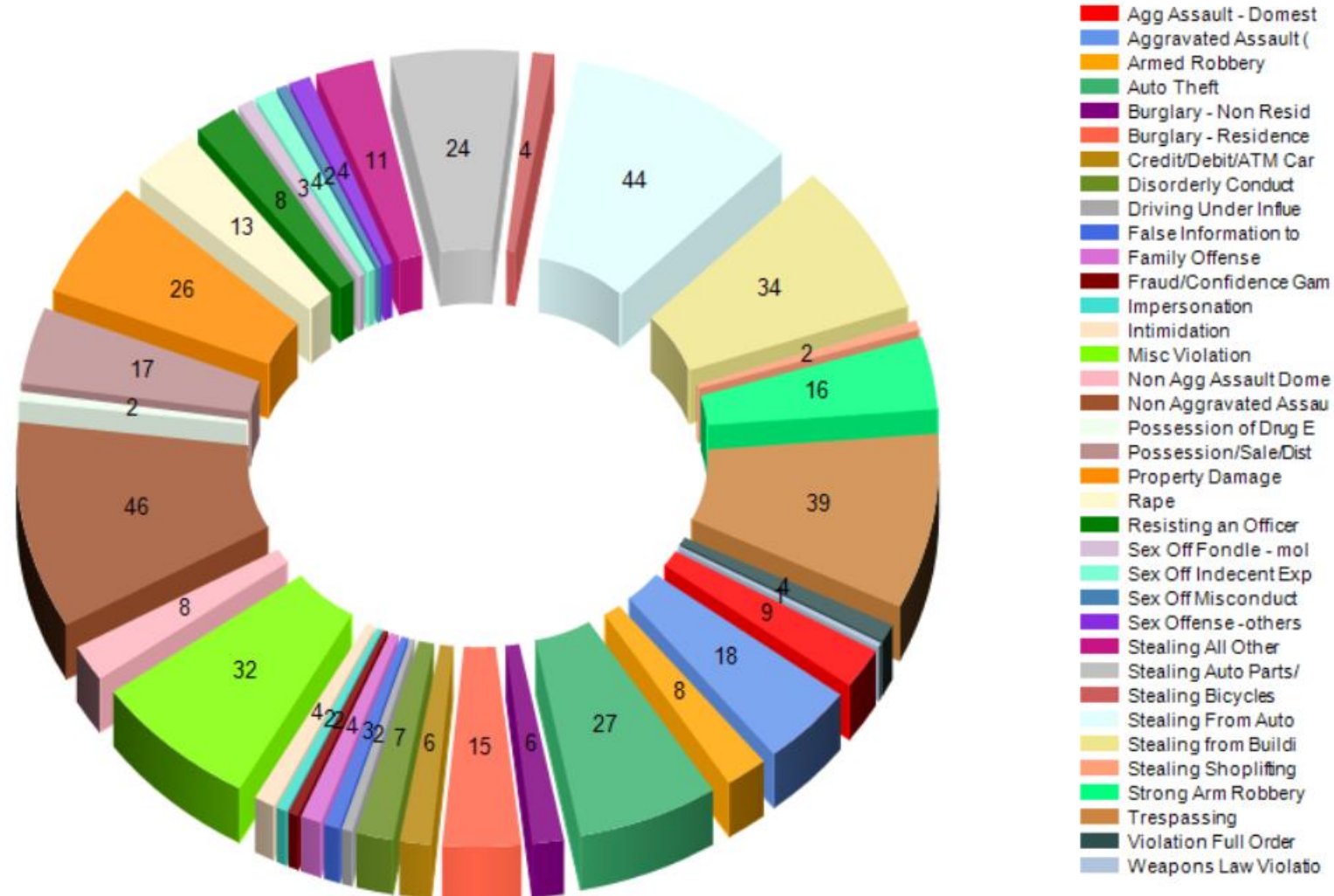
Blog: <http://datasavvy.wordpress.com>

Twitter: [@mmariel](https://twitter.com/mmariel)



# SAY WHAT?

Crimes Committed in My Neighborhood in 2013



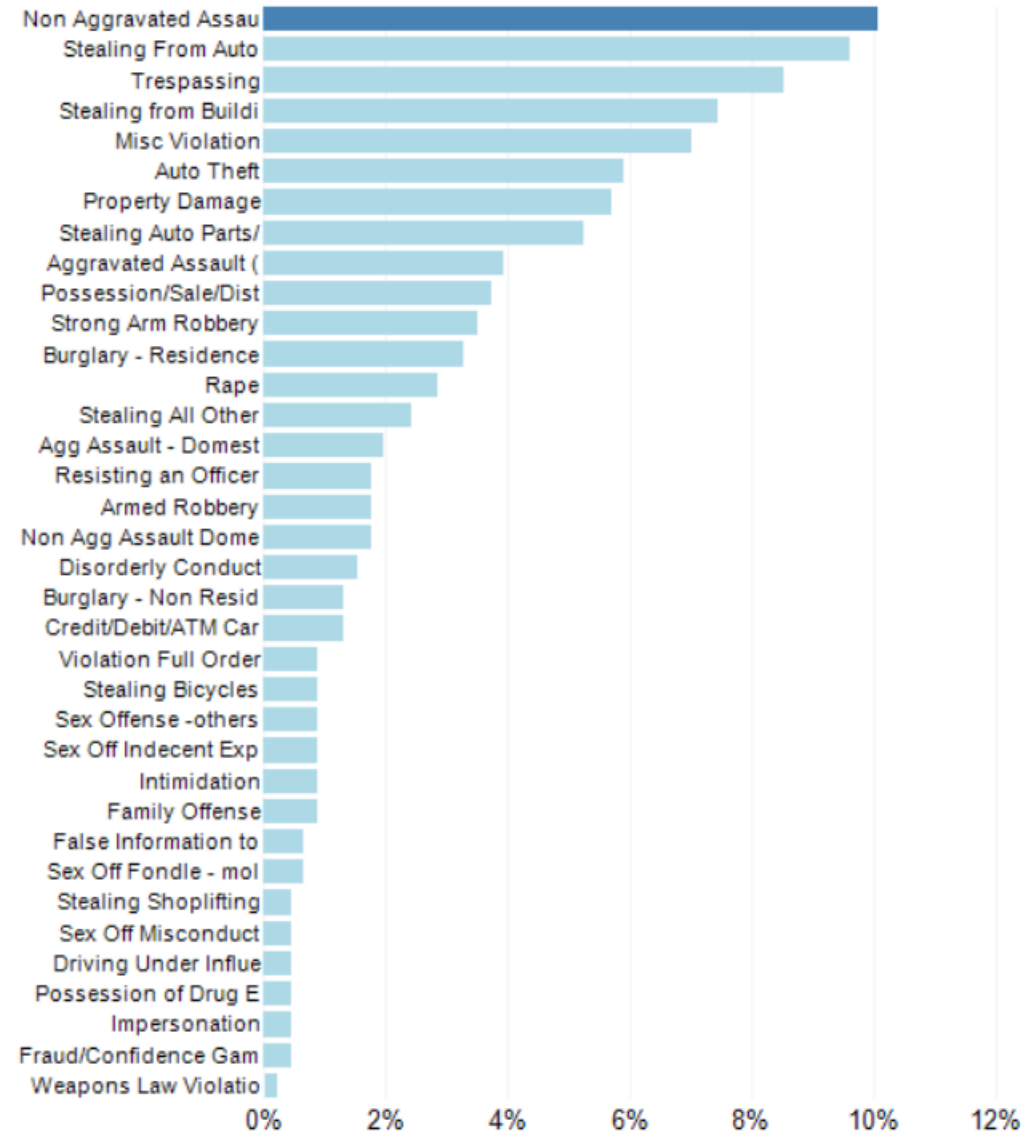
# MY DATA SOURCE

Report_No	Reported_Date	Reported Time	From_Date	From Time	Offense	IBRS	Description	Beat	Address
130093651	12/31/2013	2:11:00 PM	12/31/2013	7:45:00 AM	640	23F	Stealing From Auto	115	KESSLER RD/W PERSHING RD
130093651	12/31/2013	2:11:00 PM	12/31/2013	7:45:00 AM	640	23F	Stealing From Auto	115	KESSLER RD/W PERSHING RD
130093620	12/31/2013	9:48:00 AM	12/31/2013	8:30:00 AM	1849	35A	Possession/Sale/Dist	115	2300 HOLMES ST
130093620	12/31/2013	9:48:00 AM	12/31/2013	8:30:00 AM	1849	35A	Possession/Sale/Dist	115	2300 HOLMES ST
130093433	12/30/2013	3:21:00 PM	12/30/2013	3:21:00 PM	401	13A	Aggravated Assault (	115	1000 E 24 ST
130093433	12/30/2013	3:21:00 PM	12/30/2013	3:21:00 PM	401	13A	Aggravated Assault (	115	1000 E 24 ST
130093502	12/30/2013	9:06:00 PM	12/30/2013	9:06:00 PM	2601	90Z	Misc Violation	115	E 27 ST/CHARLOTTE ST
130093502	12/30/2013	9:06:00 PM	12/30/2013	9:06:00 PM	2601	90Z	Misc Violation	115	E 27 ST/CHARLOTTE ST
130093026	12/28/2013	2:18:00 PM	12/28/2013	2:18:00 PM	2001	13A	Family Offense	115	3400 HARRISON ST
130093026	12/28/2013	2:18:00 PM	12/28/2013	2:18:00 PM	2001	13A	Family Offense	115	3400 HARRISON ST
130092849	12/27/2013	5:15:00 PM	12/27/2013	7:45:00 AM	1401	290	Property Damage	115	GRAND AV/E PERSHING RD
130092849	12/27/2013	5:15:00 PM	12/27/2013	7:45:00 AM	1401	290	Property Damage	115	GRAND AV/E PERSHING RD
130092674	12/27/2013	12:11:00 AM	12/27/2013	12:11:00 AM	801	13B	Non Aggravated Assau	115	1000 E 24 ST
130092672	12/27/2013	12:09:00 AM	12/27/2013	12:01:00 AM	2655	90J	Trespassing	115	0 E PERSHING RD

[https://data.kcmo.org/Crime/KCPD-Crime-Data-2013/5f-iqbp?category=Crime&view\\_name=KCPD-Crime-Data-2013](https://data.kcmo.org/Crime/KCPD-Crime-Data-2013/5f-iqbp?category=Crime&view_name=KCPD-Crime-Data-2013)

# LET'S TRY THIS AGAIN

2013 Crimes in My Neighborhood as Percent of Total



# WHY DOES THIS MATTER?

At some point in your career, you will probably have to create a report.

The way you display information to the end user can enhance or render useless any great data model/ETL you have created.

Just like the rest of your job, report design requires certain skills and understanding to do it well. Report/data visualization design should be treated like any other UI design, with conscious decisions made to direct users and effectively communicate important information.

# WHAT'S THE PROBLEM?

Most people don't have this knowledge of how to present data.

Your audience is missing the point if you aren't providing useful information in a consumable format.

Not only can bad report design be ineffective, it can mislead users.





# GRAPH DESIGN IQ TEST

**Graph Design I.Q. Test**

Question 1: Which graph makes it easier to determine whether Mid-Cap U.S. Stock or Small-Cap U.S. Stock has the greater share? (Click one of the two buttons below the graphs.)

**Investment Portfolio Breakdown**

Pie Chart

**Investment Portfolio Breakdown**

Category	Percentage
International Stock	18%
Large-Cap U.S. Stock	17%
Bonds	15%
Real Estate	14%
Mid-Cap U.S. Stock	12%
Small-Cap U.S. Stock	12%
Commodities	8%

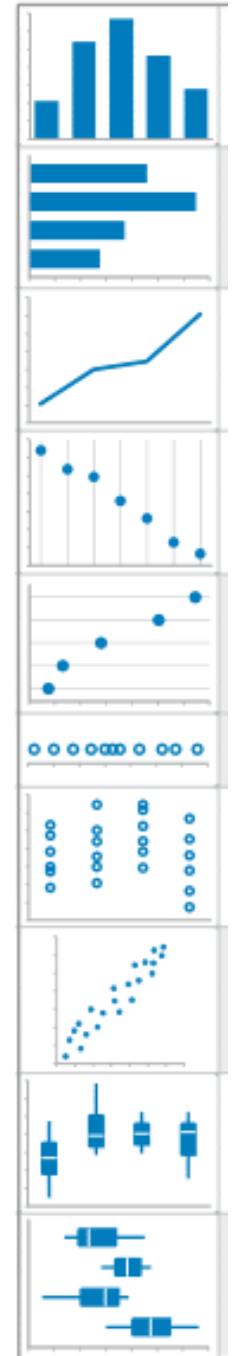
Bar Graph

# GRAPH SELECTION

Use the Graph selection matrix to help you decide.

Just because a graph exists doesn't mean you need to use it.

- In most cases, say no to pie charts.
- Consider a bullet chart instead of a gauge.



# NEWER GRAPH TYPES

## Bullet Chart – Few

- Small footprint
- Linear
- [Bullet graph design specs](#) available online

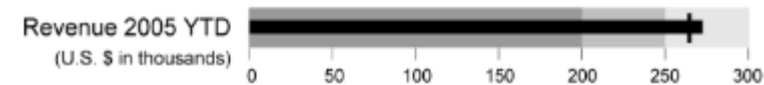


Image from

[http://www.perceptualedge.com/articles/misc/Bullet\\_Graph\\_Design\\_Spec.pdf](http://www.perceptualedge.com/articles/misc/Bullet_Graph_Design_Spec.pdf)

## Sparklines – Tufte

- Provide context by showing a trend
- “Word-sized”, clear and compact
- Example on [Google Finance](#)



Image from <https://www.google.com/finance>

# DATA-INK RATIO

## Definitions:

- data-ink/total ink used in graphic
- proportion of a graphic's ink devoted to the non-redundant display of data-information
- 1.0 - proportion of a graphic that can be erased without loss of data information

Erase non-data-ink and redundant data-ink, within reason

Example

# CHART JUNK

Keep gridlines light and remove them where necessary.

Avoid 3-D presentation of 2-D data.

Remove unnecessary legends when information is redundant with the chart title.

“We-Used-A-Computer-To-Build-A-Duck Syndrome”: Just because it’s new/possible/shiny doesn’t mean you should use it.



# SUFFICIENT CONTEXT

Graphics must not quote data out of context.

Questions for context:

- How good/bad is it?
- Is it historically good/bad?
- How much precision makes sense?

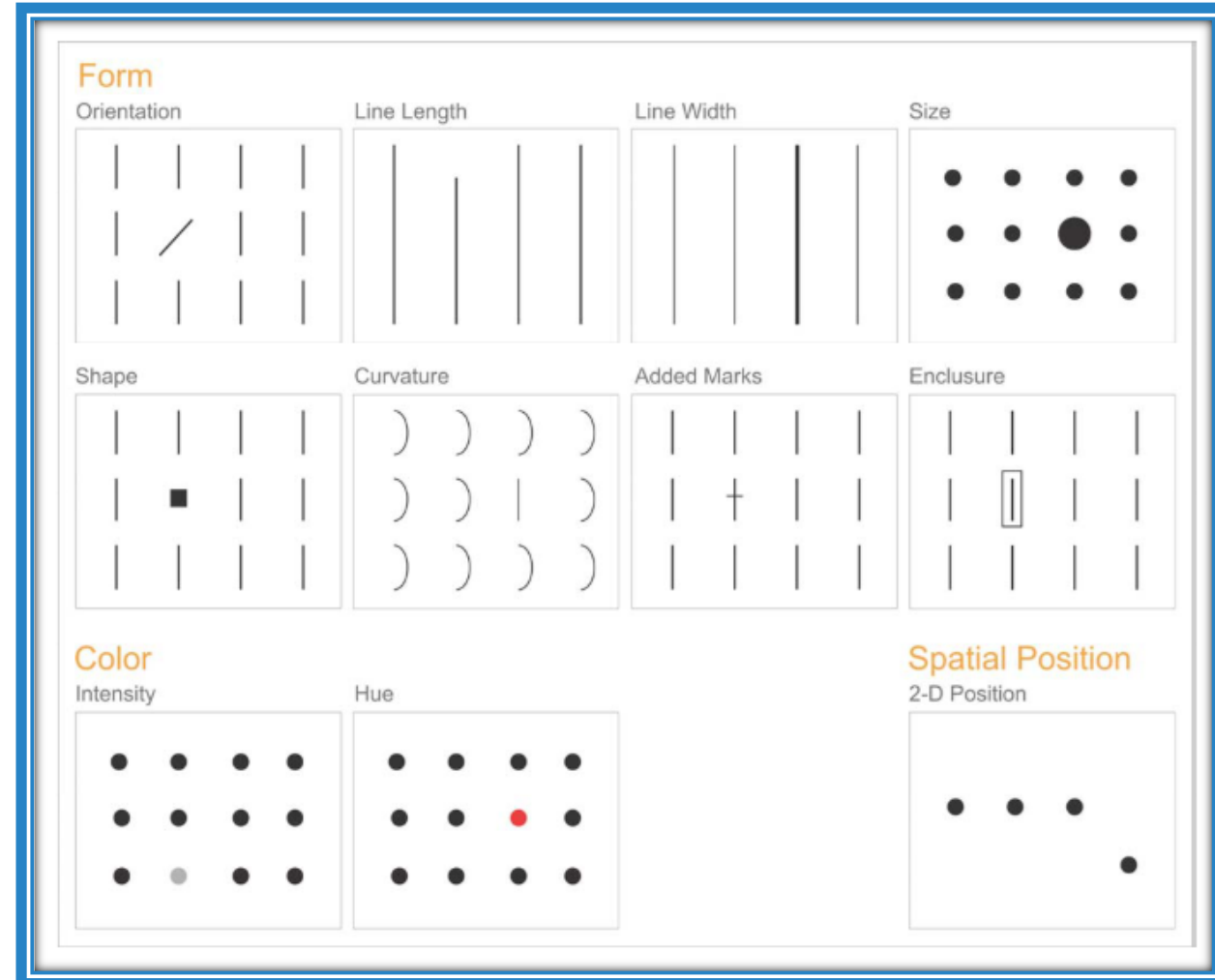
Demo: Repeat column headers on each page

# COMPONENT DESIGN: PREATTENTIVE PROCESSING

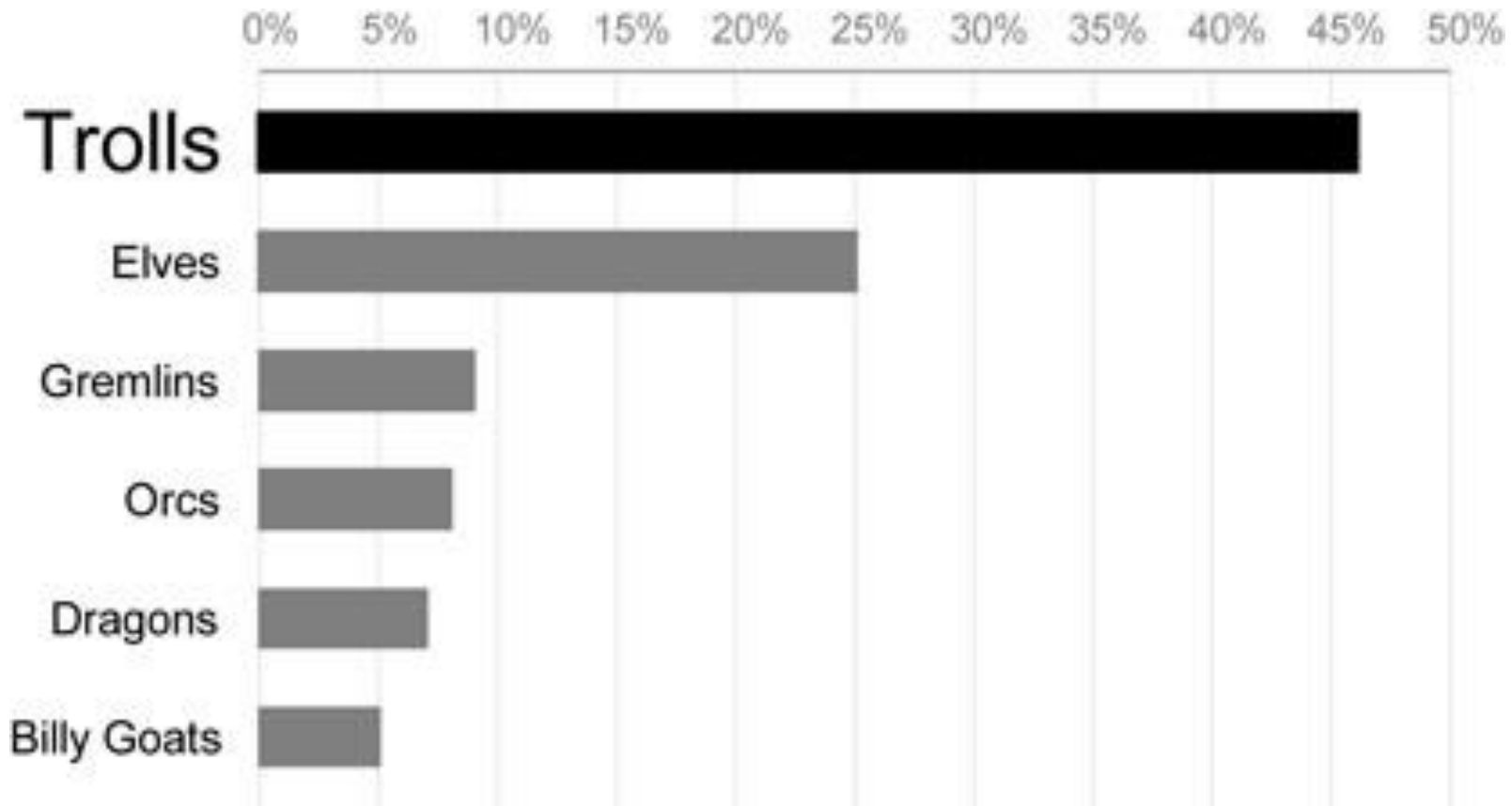
Perception of basic visual attributes without conscious effort

Application to bar charts:

- Start numerical scales at 0
- Order bar charts by value
- Use a single color in bars of bar charts unless there is a good reason
- Don't rotate labels



# GOOD EXAMPLE BAR CHART



Demo: Build a bar chart



# FONTS

Legibility and consistency are the goals of font choice for data visualizations.

Serif or Sans-Serif is acceptable: Arial, Verdana, Tahoma, Times New Roman, Palatino

**Emphasis** and **color** can be used for grouping text.

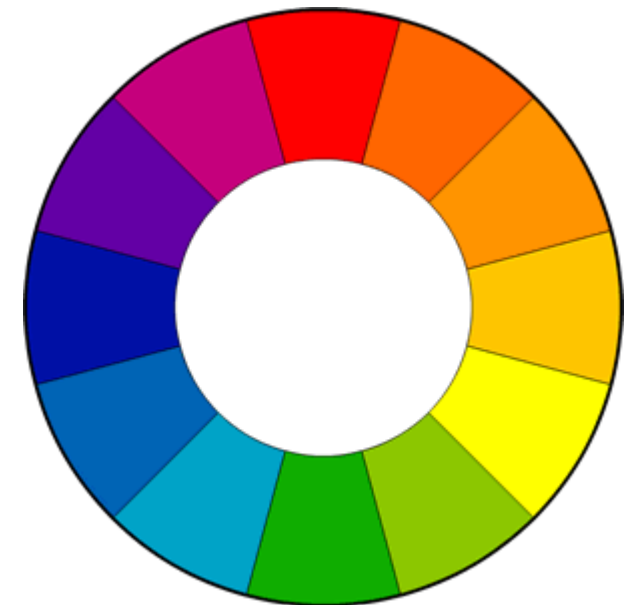
# COLORS

We can distinguish preattentively between no more than about 8 different hues.

Fully saturated, bright versions of primary hues tend to demand attention and should be used to highlight information.

My favorite tools:

- [Instant Eyedropper](#)
- [Color Combos](#)



# COLOR PALETTES

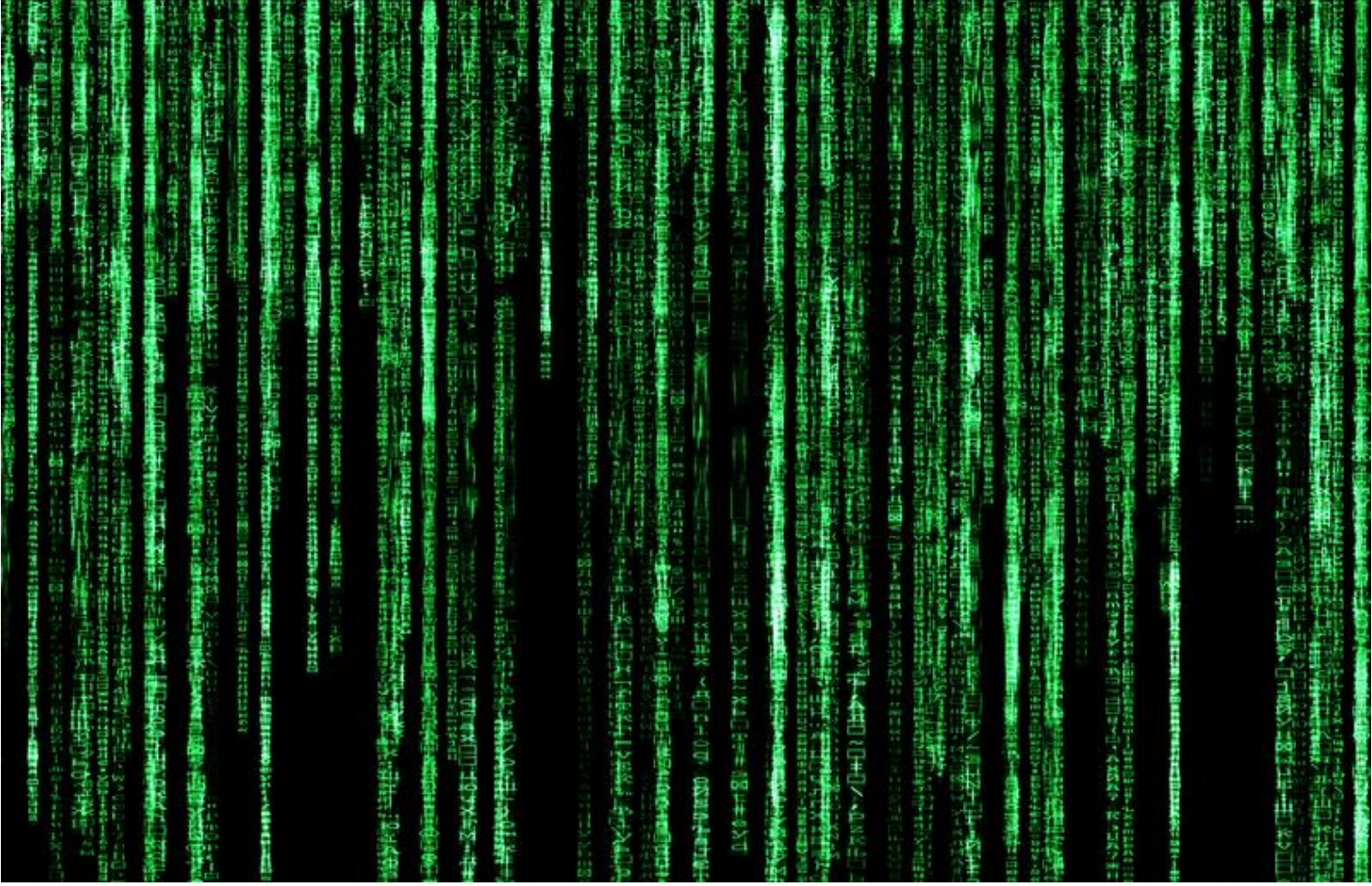
Ways to indicate your color palette in SSRS:

- Using a fill color on each series
- Built-in color palette
- Custom color palette
- Expressions
- VB Code

[Melissa Coates article on MSBICentral.com](#)

Demo

# END RESULT



# WEB RESOURCES

Stephen Few's blog: <http://www.perceptualedge.com/blog/>

Jason Thomas' blog: <http://www.sqljason.com>

Jen Stirrup's blog: <http://www.jenstirrup.com/>

Forums post: <http://social.msdn.microsoft.com/Forums/sqlserver/en-US/ee29da49-5c8c-47f3-a905-c730dcbe9780/tablix-headers-not-repeating-in-ssrs-2008>

Chart anatomy video: [http://www.youtube.com/watch?v=VgaPGaO\\_8sc](http://www.youtube.com/watch?v=VgaPGaO_8sc)

Blog post: <http://bifuture.blogspot.com/2011/08/ssassrs-building-dashboard.html>

Blog post: <http://www.solidq.com/sqj/Pages/2011-July-Issue/Lets-Get-Visual-The-Art-of-Report-Design.aspx>

Blog post: <http://darkhorseanalytics.com/blog/data-looks-better-naked/>

# RECOMMENDED BOOKS

## Data Visualization:

- [Information Dashboard Design](#) by Stephen Few
- [Show Me the Numbers](#) by Stephen Few
- [The Visual Display of Quantitative Information](#) by Edward Tufte

## Reporting Services:

[Microsoft SQL Server 2012 Reporting Services](#) by Stacia Misner

[Visual Intelligence: Microsoft Tools and Techniques for Visualizing Data](#) by Mark Stacey, Joe Salvatore, Adam Jorgensen

# QUESTIONS AND FINAL COMMENTS



Please feel free to contact me with questions or feedback

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