

# MS in Business Analytics

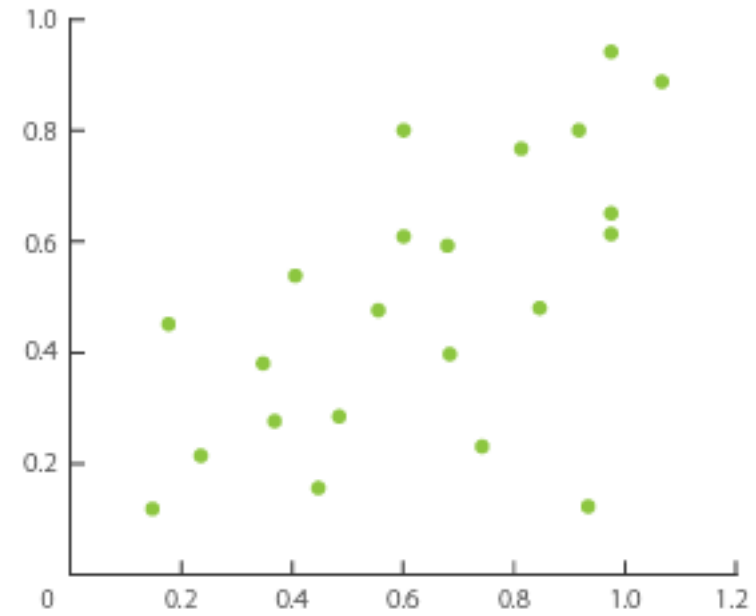
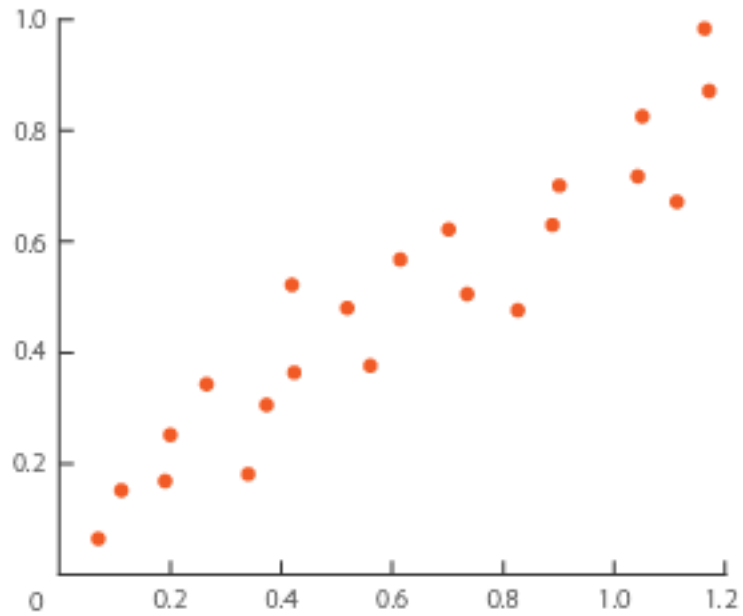


## DV1 Intro to data visualization



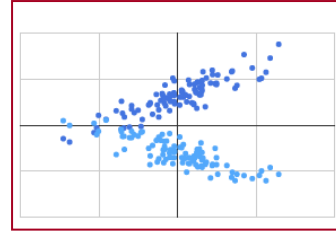
# Scatter plots

# Scatter plot

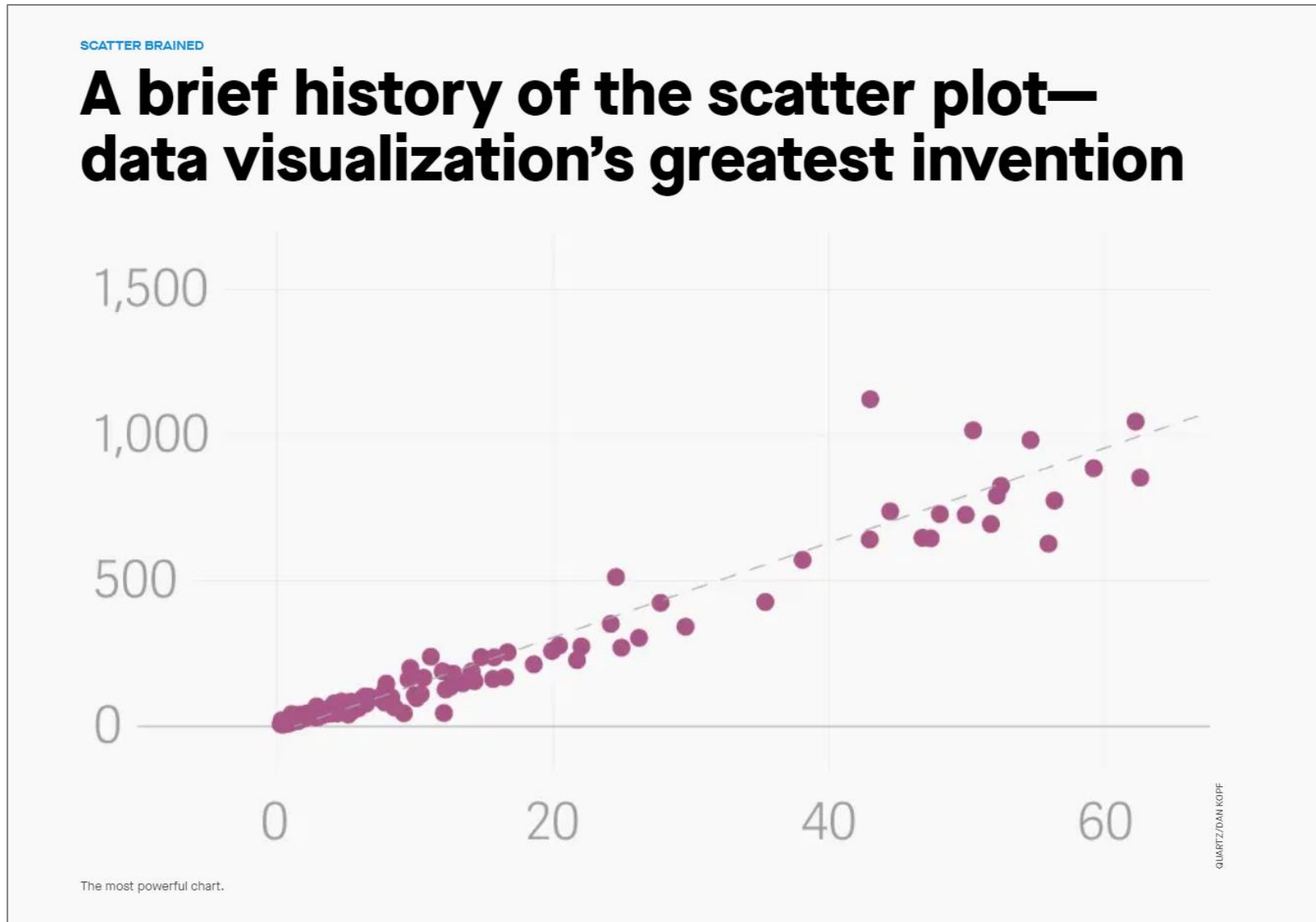


# Scatter plot

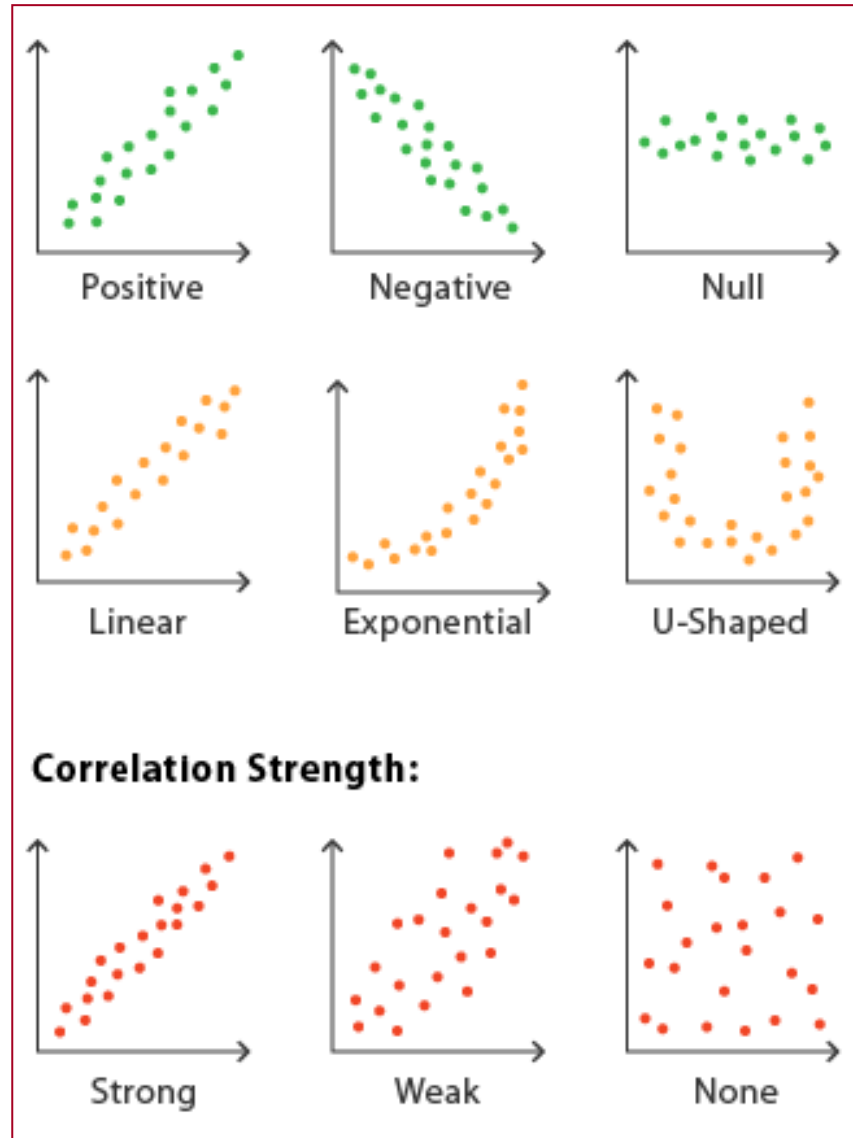
- Scatter plot
  - Correlation between two variables
  - It supports multiple dimensions
  - There are many kinds of relationships
- The benefits of scatter plots
  - Very easy to understand
  - „scatter plot—data visualization’s greatest invention”



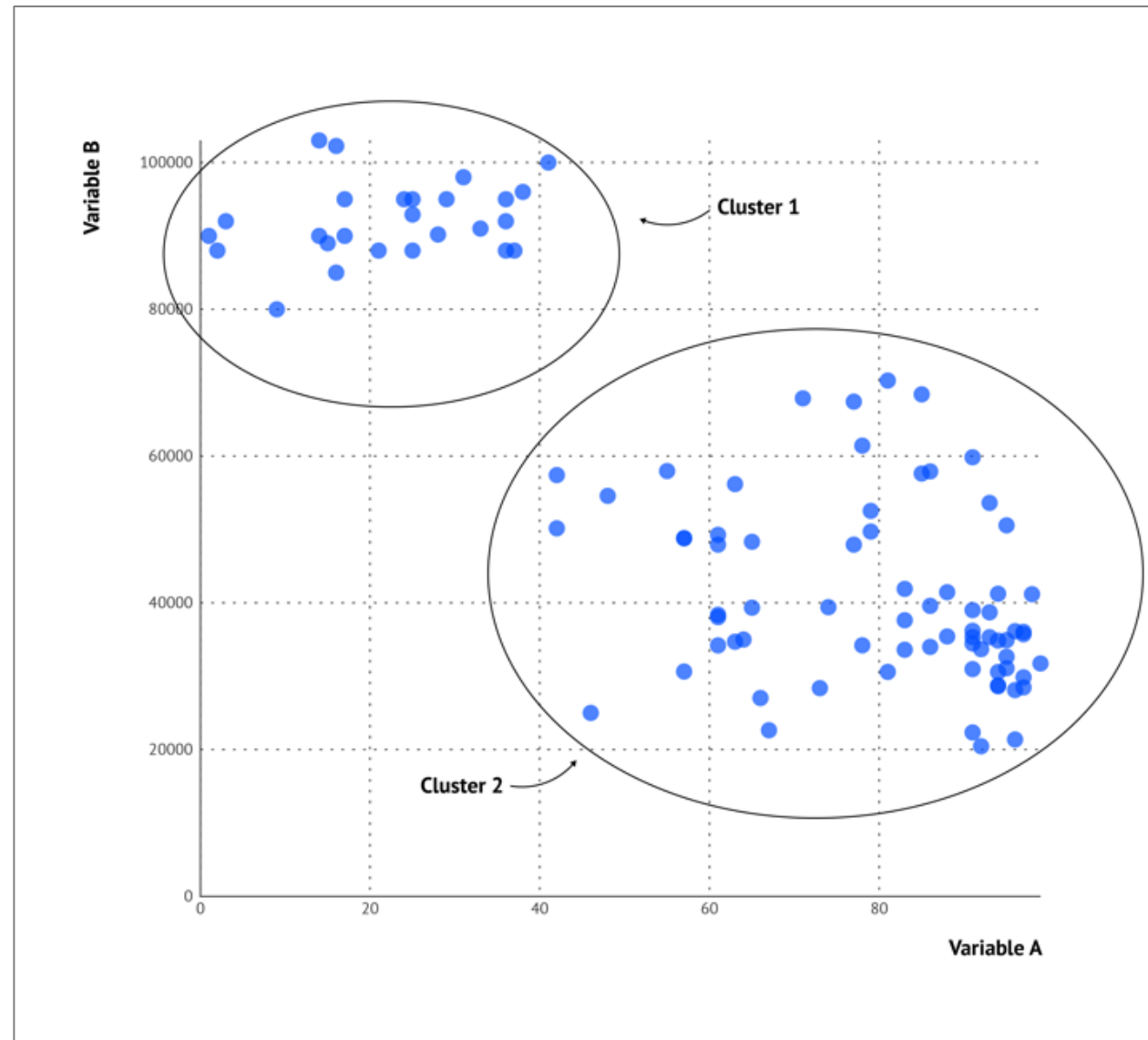
# Scatter plot



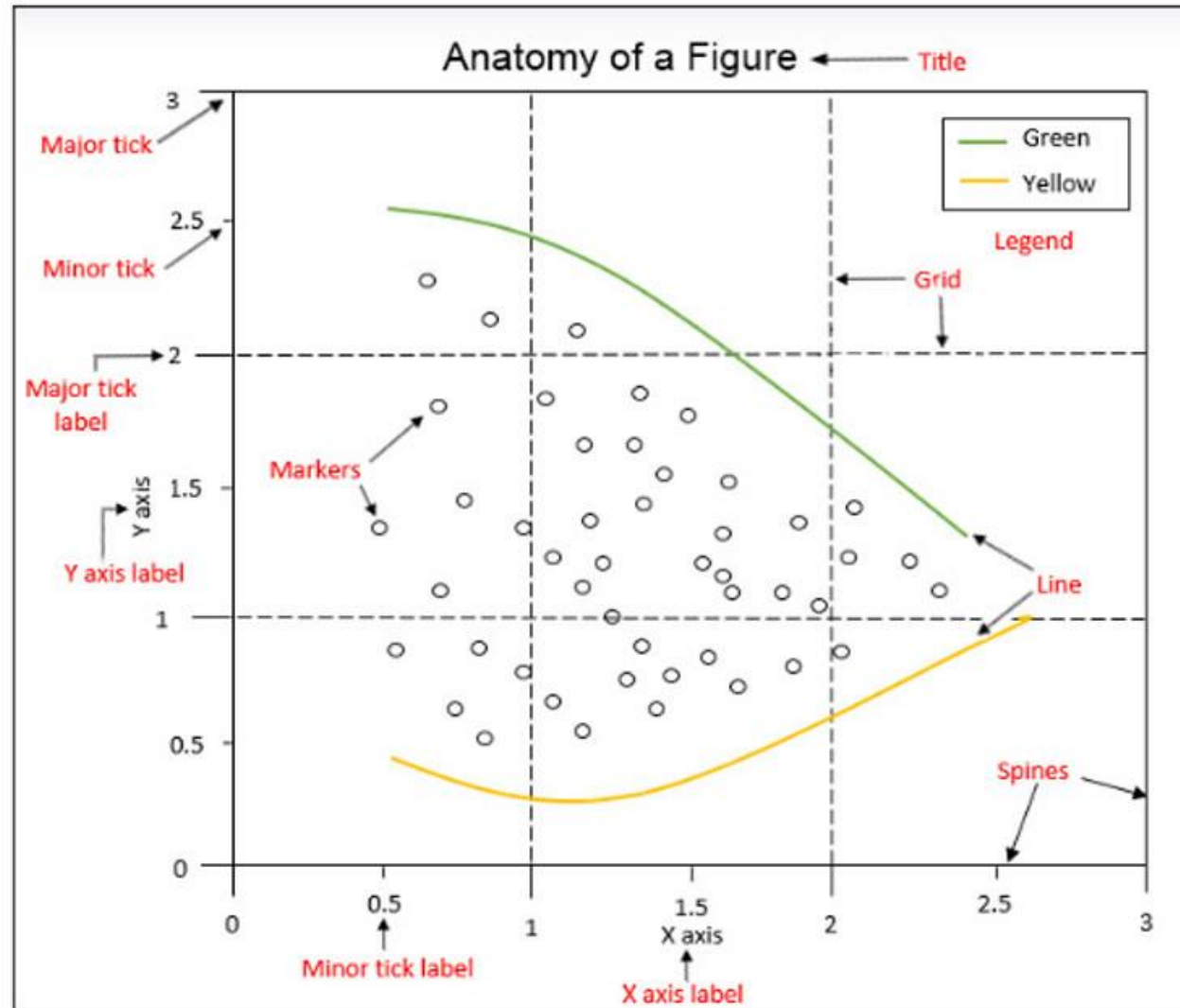
# Scatter plot showing correlation



# Scatter plot showing clustering



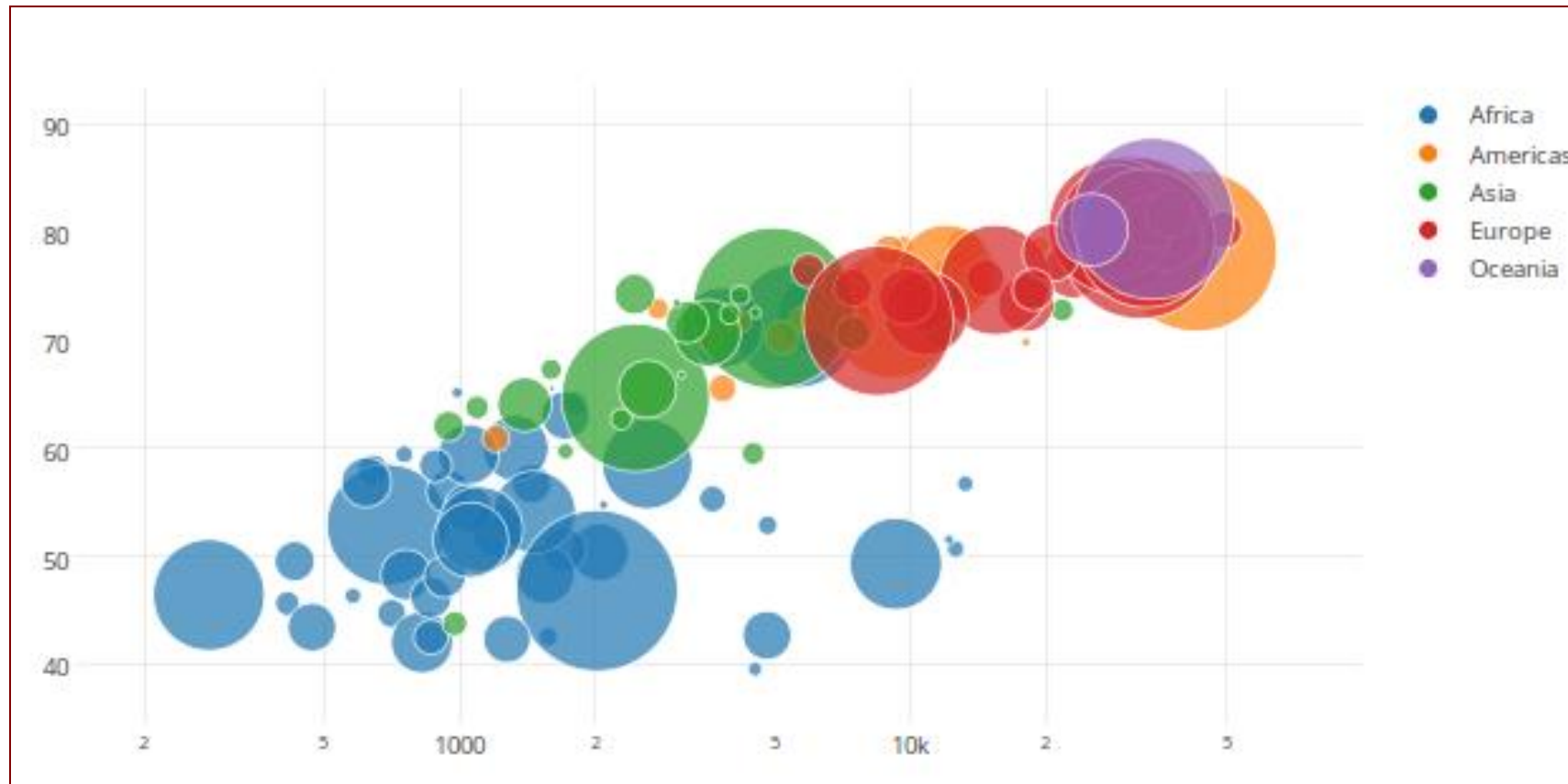
# Scatter plot





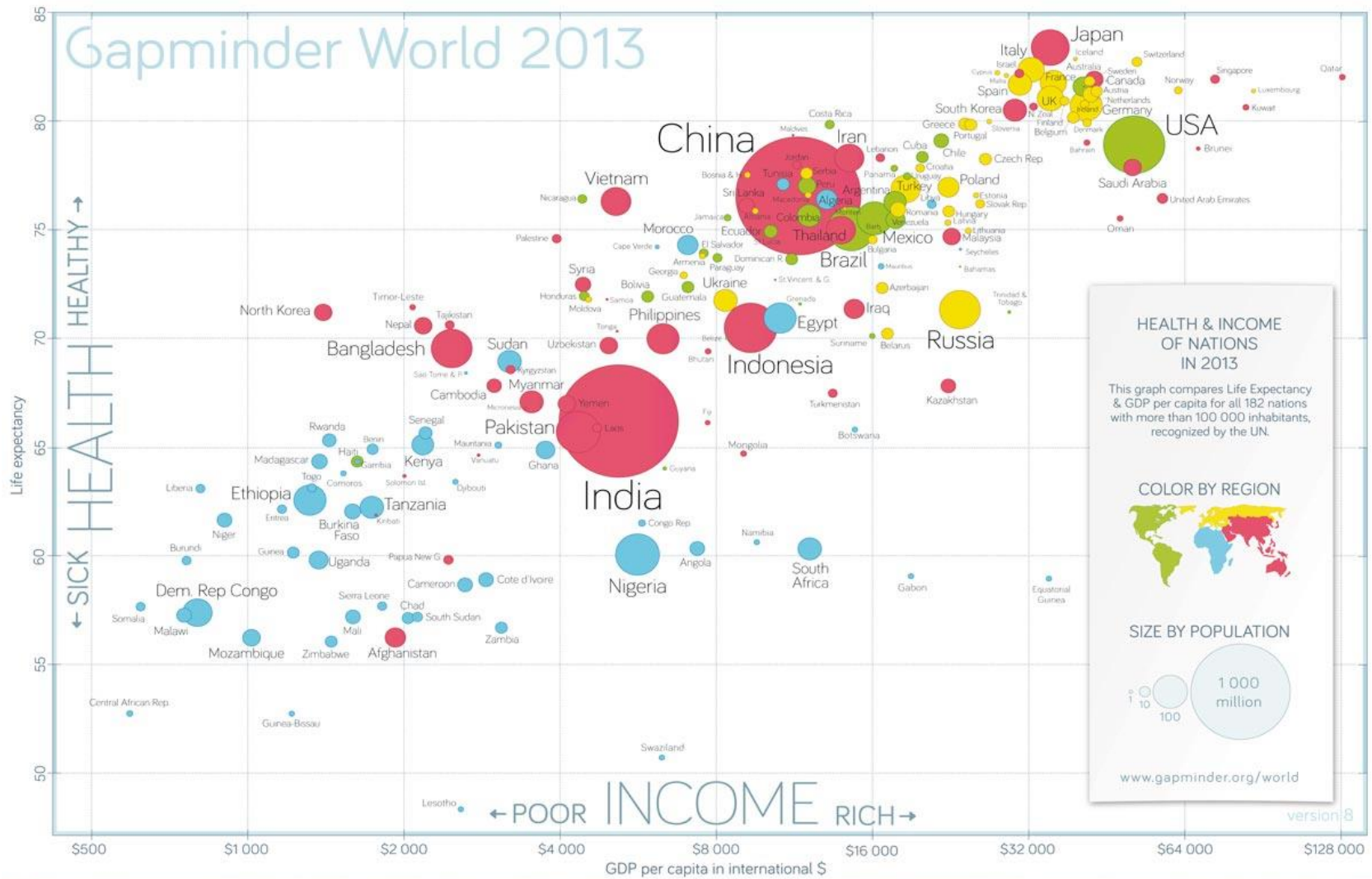
# Scatter plot variations

# Bubble chart



This bubble chart is a 4-dimensional scatter plot. Besides the standard x and y axes, a 3rd variable (population) drives the size of the marks, and a 4th variable (Continent) drives color

# Bubble chart



DATA SOURCES — INCOME: World Bank's GDP per capita, PPP (constant 2011 international \$), as of Jan 14, 2015, with a few additions by Gapminder. Wealth axis uses log-scale to show doubling of incomes as same distance on all levels. — LIFE EXPECTANCY: IHME 2014. Available from <http://vizhub.healthdata.org/le/> (Accessed Jan 14 2015). — POPULATION: UN World Population Prospects: The 2012 Revision. — FREE TEACHING MATERIALS — [www.gapminder.org/world](http://www.gapminder.org/world). LICENSE: Creative Commons Attribution License 3.0, which means please share! \*Based on a free chart from [www.gapminder.org](http://www.gapminder.org).

# Best practices for scatter plots

# Best practices for scatter plots

- The standard guidelines apply
  - Declutter
  - Provide Context
- Pay attention to the aggregation methods
  - Sum vs. Average
- Annotate at least a few data points
  - Make sure the audience understand what's being displayed

# Table visuals

Sample - Totals - September 2012



Branch	Region	Brand	Showroom	Ab.	In	Out	Count	Av. ring	Ring	Av. dur.	Dur.	Av. est.	Est.
Melbourne	East	Gadgets	Sales	923	8173	7236	15409	00:14	1.08:17:36	02:41	28.20:24:04	\$1.45	\$10,479.12
Perth	West	Gizmos	Showroom	659	5302	4613	9915	00:14	21:17:34	02:41	18.11:56:45	\$1.39	\$6,425.26
<b>Total</b>				<b>1582</b>	<b>13475</b>	<b>11849</b>	<b>25324</b>	<b>00:14</b>	<b>2.05:35:10</b>	<b>02:41</b>	<b>47.08:20:49</b>	<b>\$1.43</b>	<b>\$16,904.38</b>
Department	Manager			Ab.	In	Out	Count	Av. ring	Ring	Av. dur.	Dur.	Av. est.	Est.
Administration	Peter			492	4115	3625	7740	00:14	16:24:22	02:40	14.08:38:21	\$1.47	\$5,331.78
Development	Ralph			594	5202	4581	9783	00:14	20:23:37	02:42	18.08:24:11	\$1.40	\$6,407.26
Sales	Cyril			496	4158	3643	7801	00:15	16:47:11	02:42	14.15:18:17	\$1.42	\$5,165.34
<b>Total</b>				<b>1582</b>	<b>13475</b>	<b>11849</b>	<b>25324</b>	<b>00:14</b>	<b>2.05:35:10</b>	<b>02:41</b>	<b>47.08:20:49</b>	<b>\$1.43</b>	<b>\$16,904.38</b>
Extension		Color	Last call	Ab.	In	Out	Count	Av. ring	Ring	Av. dur.	Dur.	Av. est.	Est.
PABX-MEL - 100 - Reception		Blue	05-Oct-12	91	721	666	1387	00:14	02:51:19	02:40	2.13:41:00	\$1.53	\$1,016.52
PABX-MEL - 101 - Ralph Hosking 2		Red	05-Oct-12	80	704	629	1333	00:15	02:50:22	02:38	2.10:51:41	\$1.48	\$934.04
PABX-MEL - 102 - John Duncan			05-Oct-12	83	761	664	1425	00:14	02:59:14	02:44	2.17:14:50	\$1.52	\$1,008.67
PABX-MEL - 103 - Dougo Demo			05-Oct-12	89	771	705	1476	00:14	03:05:35	02:42	2.18:39:43	\$1.39	\$976.59
PABX-MEL - 104 - Ralph Hosking*			05-Oct-12	90	780	660	1440	00:14	02:59:50	02:40	2.16:20:43	\$1.37	\$902.76
PABX-MEL - 105 - Trevor Samms			05-Oct-12	81	744	649	1393	00:14	02:50:18	02:40	2.14:09:24	\$1.45	\$941.22
PABX-MEL - 106 - Susan Andrews			05-Oct-12	82	747	643	1390	00:15	03:01:22	02:42	2.14:37:27	\$1.45	\$929.58
PABX-MEL - 107 - Sam Salesman			05-Oct-12	94	720	652	1372	00:15	02:56:57	02:37	2.11:58:27	\$1.42	\$927.82
PABX-MEL - 108 - David Hosking			05-Oct-12	63	713	641	1354	00:14	02:43:27	02:44	2.14:00:08	\$1.46	\$935.44
PABX-MEL - 109 - Gillian Trenton			05-Oct-12	83	711	646	1357	00:14	02:45:03	02:42	2.13:22:27	\$1.37	\$886.22
PABX-MEL - 110 - Geoff Oden			05-Oct-12	87	801	681	1482	00:15	03:14:09	02:43	2.19:28:14	\$1.50	\$1,020.28
PABX-PER - 100 - Charlie Demo		Blue	26-Sep-12	63	497	405	902	00:15	02:00:40	02:36	1.15:19:40	\$1.47	\$593.88
PABX-PER - 101 - John Smith		Blue	26-Sep-12	52	450	433	883	00:14	01:46:34	02:38	1.14:50:51	\$1.43	\$619.97
PABX-PER - 102 - Donald Wilson		Red	26-Sep-12	64	486	401	887	00:14	01:56:38	02:40	1.15:31:49	\$1.50	\$603.22
PABX-PER - 103 - Geoff Oden		Red	26-Sep-12	59	496	427	923	00:14	01:59:35	02:40	1.17:08:30	\$1.30	\$555.48
PABX-PER - 104 - Gillian Trenton			26-Sep-12	67	484	430	914	00:15	01:59:42	02:44	1.17:49:23	\$1.45	\$622.82
PABX-PER - 105 - Live Demo			26-Sep-12	57	517	411	928	00:15	02:06:20	02:42	1.17:57:35	\$1.37	\$562.28
PABX-PER - 106 - Sam Salesman			26-Sep-12	57	461	398	859	00:15	01:54:01	02:35	1.13:06:29	\$1.50	\$597.94
PABX-PER - 107 - John Duncan			26-Sep-12	51	464	425	889	00:14	01:50:59	02:48	1.17:35:42	\$1.29	\$548.00

**Table 3. Branch support values**

Branch	Bayesian posterior probability					Maximum likelihood bootstrap					Parsimony bootstrap/decay index				
	nDNA	mtDNA	nDNA	nDNA	nDNA	nDNA	mtDNA	nDNA	nDNA	nDNA	nDNA	mtDNA	nDNA	nDNA	nDNA
	+nDNA	+nDNA	Exon	Intron	Non-coding	+nDNA	+nDNA	Exon	Intron	Non-coding	+nDNA	+nDNA	Exon	Intron	Non-coding
1	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/670	100/773	100/197	100/438	100/466
2	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/356	100/369	100/100	100/242	100/252
3	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/155	100/168	100/45	100/106	100/108
4	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/94	100/94	100/29	100/60	100/65
5	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/88	100/114	100/28	100/50	100/58
6	1.0	1.0	1.0	1.0	1.0	99	90	91	96	97	100/35	94/20	98/15	99/19	99/20
7	1.0	1.0	0.98	1.0	1.0	100	100	100	100	100	100/149	100/149	100/36	100/95	100/100
8	1.0	1.0	1.0	1.0	1.0	100	99	76	90	97	94/10	<50/2	77/3	70/2	75/3
9	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/147	100/189	100/45	100/87	100/99
10	1.0	1.0	0.89	1.0	1.0	100	100	64	97	96	100/22	100/56	73/2	87/6	93/8
11	1.0	1.0	1.0	1.0	1.0	100	100	93	98	100	100/19	94/16	95/7	98/11	98/11
12	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/63	100/74	100/19	100/30	100/31
13	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/73	100/85	100/24	100/64	100/66
14	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/57	100/91	99/10	100/45	100/46
15	1.0	1.0	NR	1.0	1.0	97	60	NR	95	97	99/10	55/1	NR/NR	98/7	98/7
16	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/82	100/86	100/24	100/48	100/52
17	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/153	100/235	100/51	100/100	100/102
18	1.0	1.0	1.0	1.0	1.0	91	100	81	81	90	85/8	96/16	88/4	66/2	74/3
19	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/84	100/100	100/15	100/67	100/69
20	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/86	100/127	100/24	100/58	100/60
21	1.0	1.0	1.0	0.98	1.0	90	60	100	67	68	99/10	70/4	92/4	88/4	90/5
22	1.0	1.0	1.0	1.0	1.0	100	100	91	100	100	100/28	100/35	83/3	100/22	100/23
23	1.0	1.0	NR	1.0	1.0	97	77	77	96	99	93/6	<50/1	NR	95/6	93/5
24	1.0	0.99	0.87	0.99	1.0	76	74	NR	71	82	81/5	<50/3	NR	63/2	83/3
25	1.0	1.0	1.0	NR	NR	89	100	79	NR	NR	89/5	100/5	76/3	NR	53/NR



## Visual noise.

When a column contains only one unique value, the ratio of visual burden to information content is extremely low.

When only few entries are different, they become lost in a sea of identical values.

Table 3. Branch support values

Branch	Bayesian posterior probability					Maximum likelihood bootstrap					Parsimony bootstrap/decay index				
	nDNA	mtDNA	nDNA	nDNA	nDNA	nDNA	mtDNA	nDNA	nDNA	nDNA	nDNA	mtDNA	nDNA	nDNA	nDNA
	+nDNA	Exon	Intron	Non-coding		+nDNA	Exon	Intron	Non-coding		+nDNA	Exon	Intron	Non-coding	
1	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/670	100/773	100/197	100/438	100/466
2	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/356	100/369	100/100	100/242	100/252
3	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/155	100/168	100/45	100/106	100/108
4	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/94	100/94	100/29	100/60	100/65
5	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/88	100/114	100/28	100/50	100/58
6	1.0	1.0	1.0	1.0	1.0	99	90	91	96	97	100/35	94/20	98/15	99/19	99/20
7	1.0	1.0	0.98	1.0	1.0	100	100	100	100	100	100/149	100/149	100/36	100/95	100/100
8	1.0	1.0	1.0	1.0	1.0	100	99	76	90	97	94/10	<50/2	77/3	70/2	75/3
9	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/147	100/189	100/45	100/87	100/99
10	1.0	1.0	0.89	1.0	1.0	100	100	64	97	96	100/22	100/56	73/2	87/6	93/8
11	1.0	1.0	1.0	1.0	1.0	100	100	93	98	100	100/19	94/16	95/7	98/11	98/11
12	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/63	100/74	100/19	100/30	100/31
13	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/73	100/85	100/24	100/64	100/66
14	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/57	100/91	99/10	100/45	100/46
15	1.0	1.0	NR	1.0	1.0	97	60	NR	95	97	99/10	55/1	NR/NR	98/7	98/7
16	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/82	100/86	100/24	100/48	100/52
17	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/153	100/235	100/51	100/100	100/102
18	1.0	1.0	1.0	1.0	1.0	91	100	81	81	90	85/8	96/16	88/4	66/2	74/3
19	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/84	100/100	100/15	100/67	100/69
20	1.0	1.0	1.0	1.0	1.0	100	100	100	100	100	100/86	100/127	100/24	100/58	100/60
21	1.0	1.0	1.0	0.98	1.0	90	60	100	67	68	99/10	70/4	92/4	88/4	90/5
22	1.0	1.0	1.0	1.0	1.0	100	100	91	100	100	100/28	100/35	83/3	100/22	100/23
23	1.0	1.0	NR	1.0	1.0	97	77	77	96	99	93/6	<50/1	NR	95/6	93/5
24	1.0	0.99	0.87	0.99	1.0	76	74	NR	71	82	81/5	<50/3	NR	63/2	83/3
25	1.0	1.0	1.0	NR	NR	89	100	79	NR	NR	89/5	100/9	76/3	NR	53/NR

NR, not resolved; mtDNA, mitochondrial DNA; nDNA, nuclear DNA.

**Table 4.** Bayesian divergence estimates in millions of years

Node	Divergence priors		
	Combined divergence estimates	Human-chimpanzee (5–7 Myr)	Galago-Loris (38–42 Myr)
1	75.04 (66.85–84.41)	70.64 (60.84–81.67)	75.04 (66.86–84.87)
2	39.38 (36.91–41.64)	32.53 (26.08–39.58)	39.43 (37.20–41.84)
3	13.23 (7.81–19.87)	12.21 (7.67–17.22)	13.34 (7.74–19.65)
4	20.93 (13.77–28.25)	18.41 (13.18–24.43)	20.67 (13.84–27.85)
5	6.44 (3.48–10.1)	6.22 (3.58–9.37)	6.45 (3.50–10.0)
6	66.22 (54.91–74.74)	62.69 (52.76–74.36)	66.3 (54.68–77.54)
7	39.33 (33.4–45.84)	39.36 (33.81–45.63)	39.64 (33.58–46.22)
8	35.94 (30.33–42.33)	36.05 (30.54–42.01)	36.15 (29.96–42.56)
9	6.2 (3.78–9.12)	6.26 (3.97–9.04)	6.18 (3.72–9.90)
10	2.74 (1.45–4.27)	2.78 (1.55–4.23)	2.74 (1.39–4.28)
11	31.78 (26.08–37.72)	31.95 (26.62–37.58)	31.85 (26.12–38.21)
12	23.05 (18.61–28.08)	23.29 (18.85–28.26)	23.14 (18.24–28.26)
13	14.11 (10.83–17.94)	14.34 (10.94–18.00)	14.21 (10.78–17.93)
14	6.96 (4.83–9.17)	7.08 (5.00–9.29)	7 (4.74–9.24)
15	5.35 (3.48–7.32)	5.49 (3.59–7.54)	5.39 (3.53–7.52)
16	23.42 (18.62–29.05)	24.04 (19.10–29.64)	23.92 (18.69–29.83)
17	0.97 (0.42–1.66)	0.98 (0.42–1.64)	0.97 (0.40–1.66)
18	19.73 (15.43–24.53)	20.46 (15.71–25.62)	20.27 (15.43–25.51)
19	7.78 (4.55–11.78)	8.5 (4.66–12.09)	7.96 (4.36–12.46)
20	9.16 (6.95–11.54)	9.33 (7.11–11.74)	9.28 (6.94–11.83)
21	6.77 (5.21–8.51)	6.92 (5.33–8.61)	6.84 (5.14–8.66)
22	1.65 (0.75–2.73)	1.68 (0.80–2.73)	1.68 (0.74–2.76)
23	5.44 (4.17–6.84)	5.6 (4.32–7.04)	5.52 (4.13–7.04)
24	4.29 (3.21–5.44)	4.4 (3.31–5.56)	4.33 (3.18–5.58)
25	3.1 (2.27–4.04)	3.16 (2.33–4.10)	3.13 (2.26–4.09)

Unparsable.

*To the eye there is no content here. This is pure noise. Notice the authors use a ratio, NR (either by itself or in the denominator) as well as < as an annotation.*

Obscured statistics.

*This should not be a table. It is impossible to draw any conclusions here, even though some ranges may be extreme outliers. How about a whisker plot as a sparkline?*

# Working with tables



- Typical use cases
  - Using Detail tables for discovery and/or validation of high-level data presented in charts
  - Use crosstabs (a.k.a. Pivot or matrix tables) to show exact numbers if needed
  - Visually enrich tables with proper formatting and embedded visual items
- Ways to enrich tables
  - Adding more data, for example summaries or percentages
  - Using conditional formatting to highlight good/bad values, outliers or trends
- Embedding visual elements
  - Bar charts add emphasis to a metric
  - Sparklines can show trendlines

# Detail tables

ID	State	Subcategory	Category	Name	Sum of Backers	Sum of Goal	Sum of Pledged
1002629894	Live	Illustration	Art	Art Calendar 2018	0	52	0
1014982951	Live	Illustration	Art	Freedom Through Art   Drawings That Inspire	4	300	65
1025450545	Live	Performance Art	Art	Mazie Meadows Morning Show Podcast, Season 2	1	500	500
1041281036	Live	Art	Art	Happiness with colors	0	3000	0
1045597033	Live	Performance Art	Art	The Mona Lisa Project	5	10279	75
104865359	Live	Art	Art	Fantasy Guyisland	0	25000	0
1051434275	Live	Art	Art	John Avon's Unstable!	1 835	13640	113482
1052186553	Live	Art	Art	Ice Cream Clouds Enamel Pins - Make ice cream dreams reality	6	250	157
1077206743	Live	Mixed Media	Art	Make 100 Abstract CitraSolv Creations for Healing.	1	3500	50
1077399482	Live	Digital Art	Art	Charivari	0	40000	0
1087556685	Live	Art	Art	Please help me start my martial arts school.	3	50000	250
1097091400	Live	Art	Art	Juneteenth Reading Conference	1	6000	5
1128104074	Live	Mixed Media	Art	Blackwork Portraiture	19	399	1034
1133428390	Live	Art	Art	BiCamp UK 2018	15	678	785
1164987667	Live	Mixed Media	Art	Kawaii Chubby chub Totoro Pin	16	500	778
1169916148	Live	Painting	Art	my first ever art exhibition	0	7994	0
1222163022	Live	Art	Art	Studio 25: Creative Co-working	5	6600	340
1224935546	Live	Art	Art	Scenes of Springfield Simpsons pin badges	19	610	375
1230207771	Live	Illustration	Art	Art of sakimichan Vol1	1 048	25561	146649
1251249596	Live	Illustration	Art	Inktober Inspired Enamel Pins	2	600	20
1258236499	Live	Art	Art	Ethnicitees, LLC "Cultural Wearables" Brand	1	1200	20
126034566	Live	Conceptual Art	Art	World War Occult - An Artbook	62	500	2010
1270889479	Live	Art	Art	Funding the best book of my life	1	13640	14
1276561136	Live	Conceptual Art	Art	Fantazia - the coffee table book with decoupages	5	13035	464
1283910395	Live	Art	Art	Vathek: Sensorial experience	0	1831	0
1293620457	Live	Painting	Art	Painting the Jazz Greats-Duke Ellington	5	10000	186
1300225692	Live	Mixed Media	Art	Hamilton Inspired Pony Enamel Pin	11	150	180
1304150055	Live	Art	Art	I will draw you, normal edit or grime edit	2	50	4
1306322	Live	Public Art	Art	Don't Get Recycled	3	500	50
<b>Total</b>					<b>190 611</b>	<b>175011262</b>	<b>16427784</b>

Detail (drilldown) table in Power BI

# Matrix (Pivot) tables

Category	Canceled	Failed	Successful	Total
 <b>Dance</b>	<b>976</b>	<b>11 816</b>	<b>148 220</b>	<b>161 012</b>
Dance	597	7 940	97 639	<b>106 176</b>
Performances	226	2 252	37 804	<b>40 282</b>
Residencies	3	131	2 617	<b>2 751</b>
Spaces	127	861	7 425	<b>8 413</b>
Workshops	23	632	2 735	<b>3 390</b>
 <b>Design</b>	<b>177 546</b>	<b>467 361</b>	<b>6 485 969</b>	<b>7 130 876</b>
Architecture	740	5 689	32 502	<b>38 931</b>
Civic Design	436	4 178	30 352	<b>34 966</b>
Design	19 543	56 324	673 393	<b>749 260</b>
Graphic Design	4 068	17 314	176 153	<b>197 535</b>
Interactive Design	509	3 656	14 351	<b>18 516</b>
Product Design	152 174	379 720	5 529 023	<b>6 060 917</b>
Typography	76	480	30 195	<b>30 751</b>
<b>Total</b>	<b>178 522</b>	<b>479 177</b>	<b>6 634 189</b>	<b>7 291 888</b>

Matrix table with hierarchy subtotals in Power BI

# Matrix (Pivot) tables







Category	Canceled	Failed	Successful	Total
Art	2%	4%	3%	3%
Comics	2%	3%	4%	4%
Crafts	1%	1%	1%	1%
Dance	0%	0%	0%	0%
Design	18%	14%	18%	18%
Fashion	3%	4%	3%	4%
Film & Video	9%	15%	10%	11%
Food	2%	6%	3%	3%
Games	40%	22%	29%	29%
Journalism	0%	1%	0%	0%
Music	3%	6%	7%	7%
Photography	1%	2%	1%	1%
Publishing	3%	7%	6%	6%
Technology	16%	13%	13%	13%
Theater	1%	1%	1%	1%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Matrix table with percentages totals in Power BI

# Sparklines

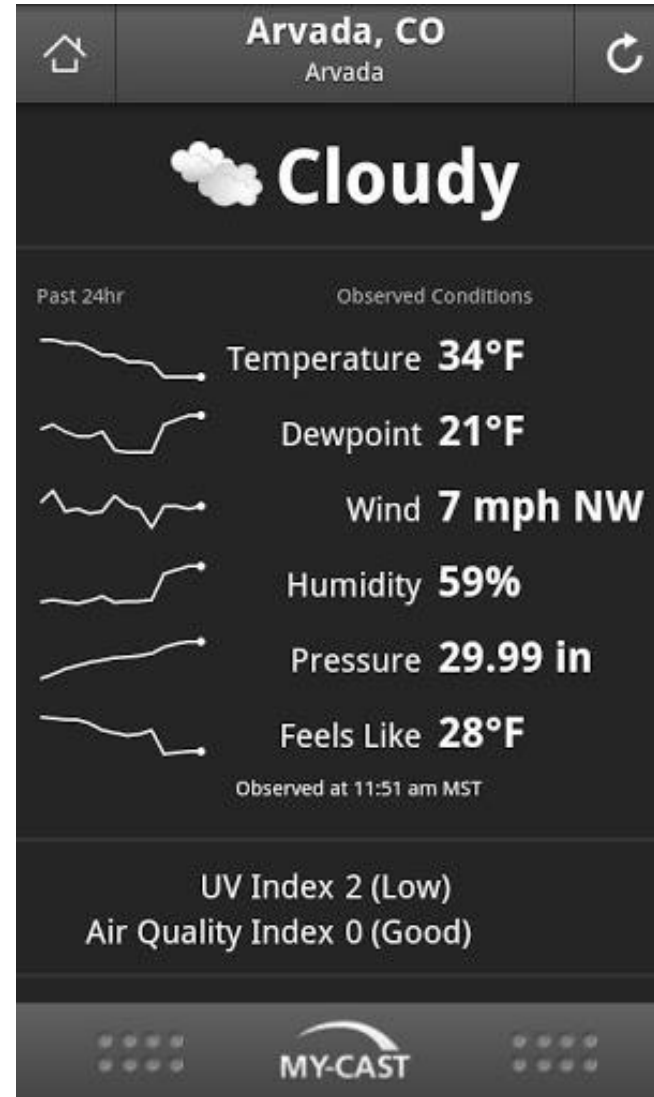
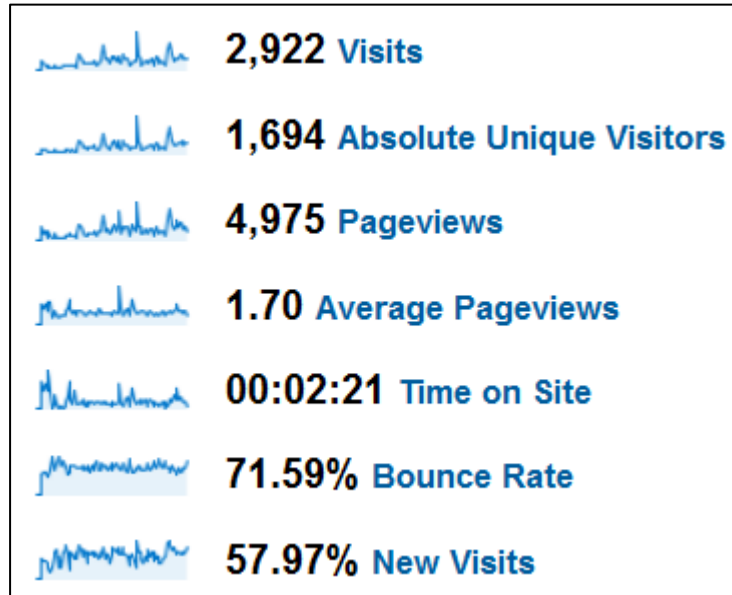
# Sparklines

- Sparklines are mini-charts, typically used for showing time series
- It fits in a small space, compact, intense
- Often used as embeddings in data tables

Student Name	Assignment Scores	Avg Score
Frederick Chandler		65%
Roshawn Dawson		72%
James Martin		74%
Jaime Goss		84%
James Snow		94%
Holly Norton		98%



# Sparklines



# Sparktweets



Last 12  
months of the U.S. unemployment rate,  
which rose to 9% in April. More data:  
<http://on.wsj.com/jkZPs9>


@indians record 2011 to date:



'11 US Budget [■=\$20B]: MassTransit \_\_  
Airports \_\_ Highways \_\_ | Defense



— | #sparktweet #gov20 #opengov

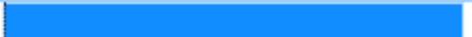

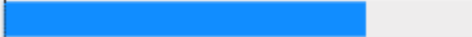
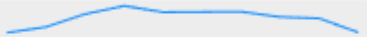


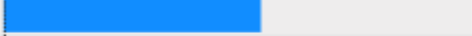



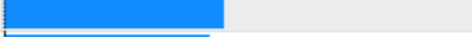



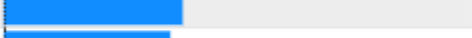



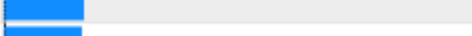
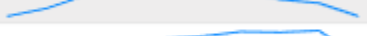
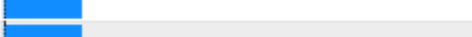

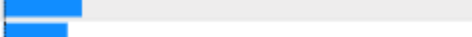
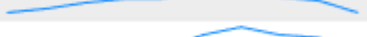
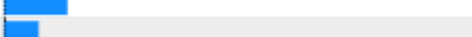

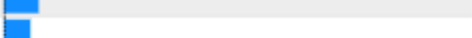



Fresh data on world primary energy use by %: Oil 34.77, Coal 29.36, NG 23.76 Nuke 5.47, Hydro 6.63 | spark: 

@pkedrosky @alexkerin

@timhaines \_ how hard I was laughing  
before and after reading that tweet  
#SparkTweet

My enthusiasm for @PJHarveyUK 's new album:  #sparktweet
















# Rich tables

Kickstarter projects by Category					
Category	Project count	Project count	Total Goal amount	Total Pledged amount	Trend by year
Film & Video		62694	5 249 833 380	389 856 311	
Music		49529	788 563 151	193 739 169	
Publishing		39378	986 674 696	133 520 181	
Games		35225	1 582 558 541	741 272 909	
Technology		32562	3 327 913 941	686 093 471	
Design		30065	1 258 991 551	734 206 652	
Art		28151	1 103 507 555	90 680 287	
Food		24599	1 206 404 509	125 806 330	
Fashion		22812	511 242 125	130 321 926	
Theater		10911	295 585 878	43 714 025	
Comics		10819	211 743 326	71 518 460	
Photography		10778	132 223 584	38 501 455	
Crafts		8809	91 917 241	14 384 311	
Journalism		4754	408 929 028	12 435 478	
Dance		3767	36 088 816	13 010 507	
<b>Total</b>		<b>374853</b>	<b>374853</b>	<b>17 192 177 322</b>	<b>3 419 061 472</b>

# R Studio Table contest

## 2019 NFL Team Rating & Stats

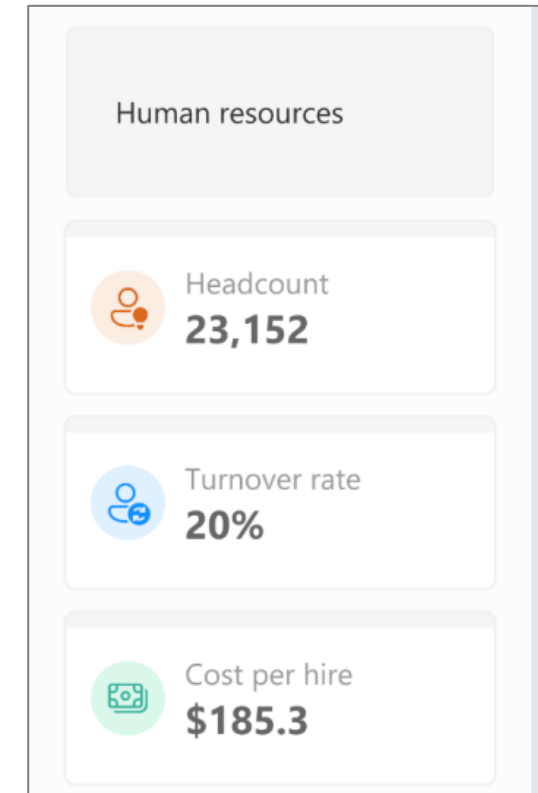
Ratings and results from every NFL team from the 2019 season

Division	Team	Playoffs	SoS	Team Scoring & Margin of Victory			Team Rating (SRS)		
				Points Scored	Points Against	MoV	Off.	Def.	Total
NFC West	 <b>Seahawks</b> (11-5-0)	✓	◆◆	405 	398 	+0.4	2.9	-0.2	2.7
NFC West	 <b>49ers</b> (13-3-0)	✓	◆	479 	310 	+10.6	6.7	4.3	11.0
NFC South	 <b>Saints</b> (13-3-0)	✓	◆	458 	341 	+7.3	5.0	2.3	7.4
NFC North	 <b>Vikings</b> (10-6-0)	✓	●	407 	303 	+6.5	2.5	2.9	5.4
NFC North	 <b>Packers</b> (13-3-0)	✓	■	376 	313 	+3.9	0.6	2.6	3.2

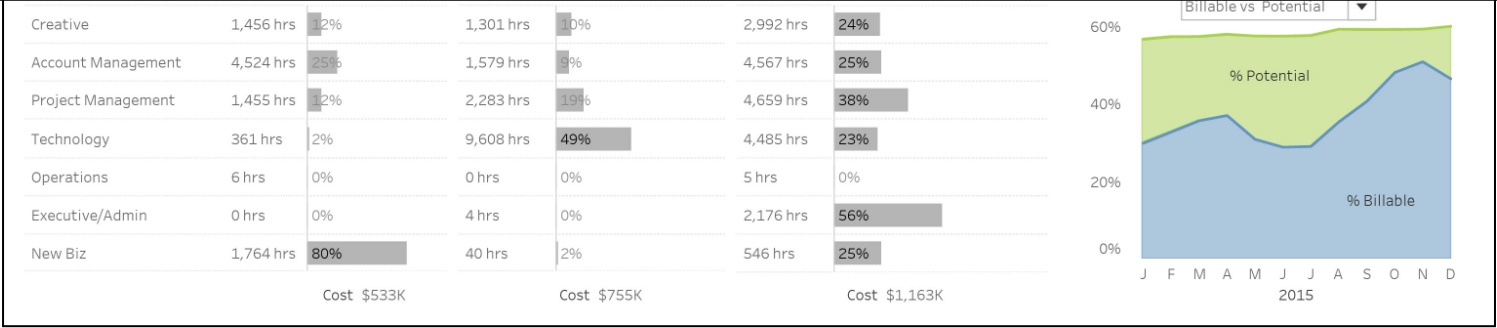
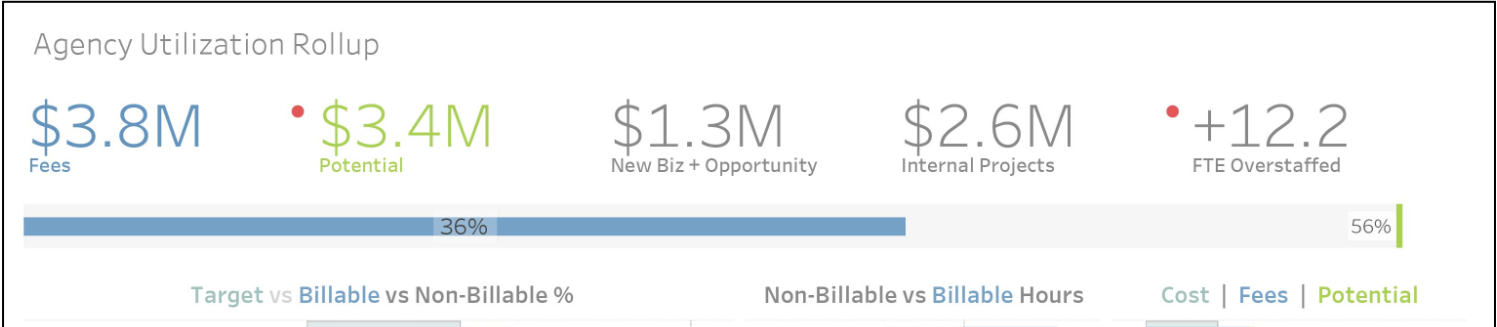
# KPI visuals

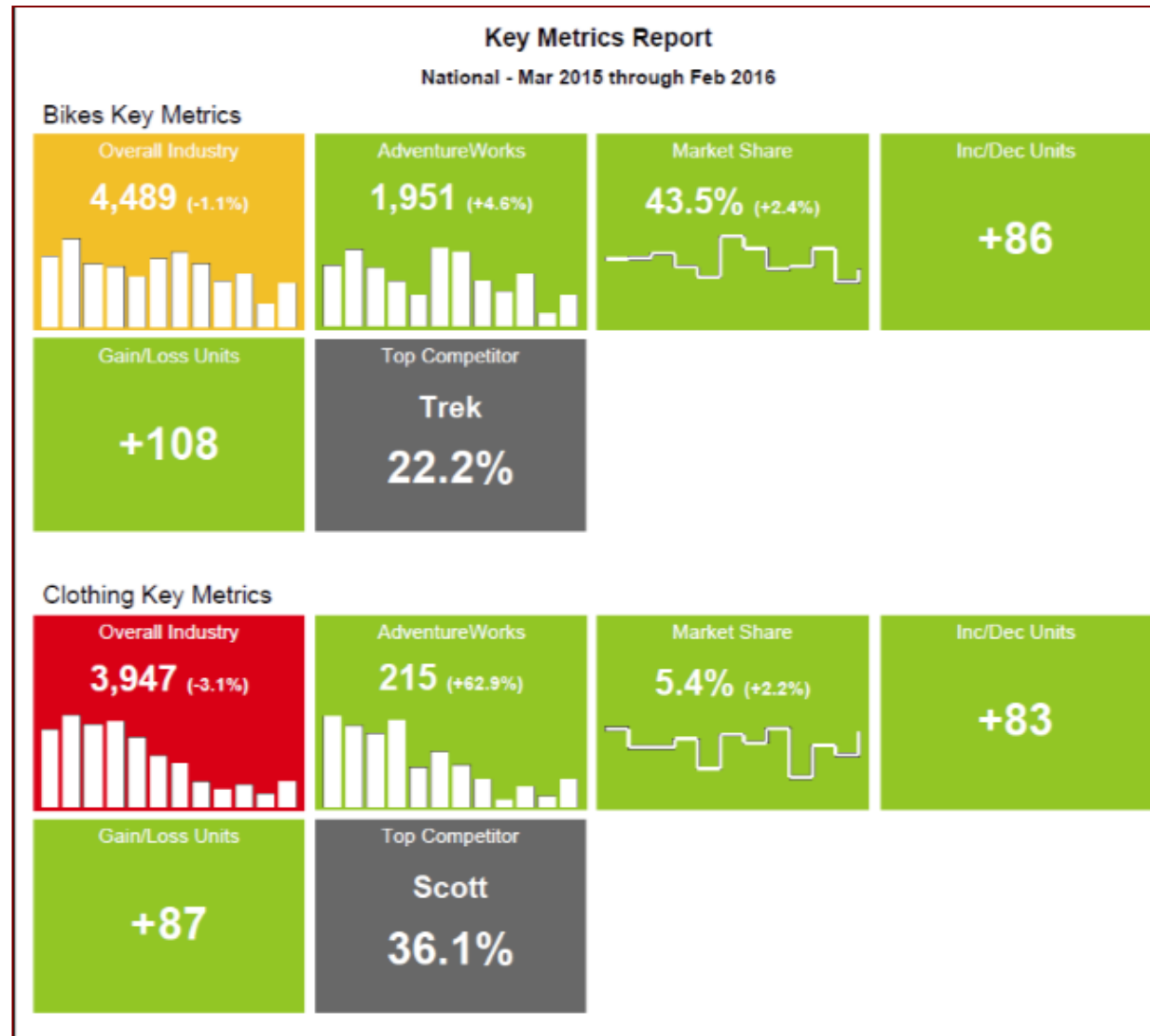
# KPI Visuals

- KPI visuals show **Key Performance Indicators**
  - Typically displayed as a visual “card”
  - Sometimes also called BAN
- Several versions exists
  - The simplest format only contains a number and a label
  - Additional details are often added to provide more context
- Almost always used as part of a dashboard

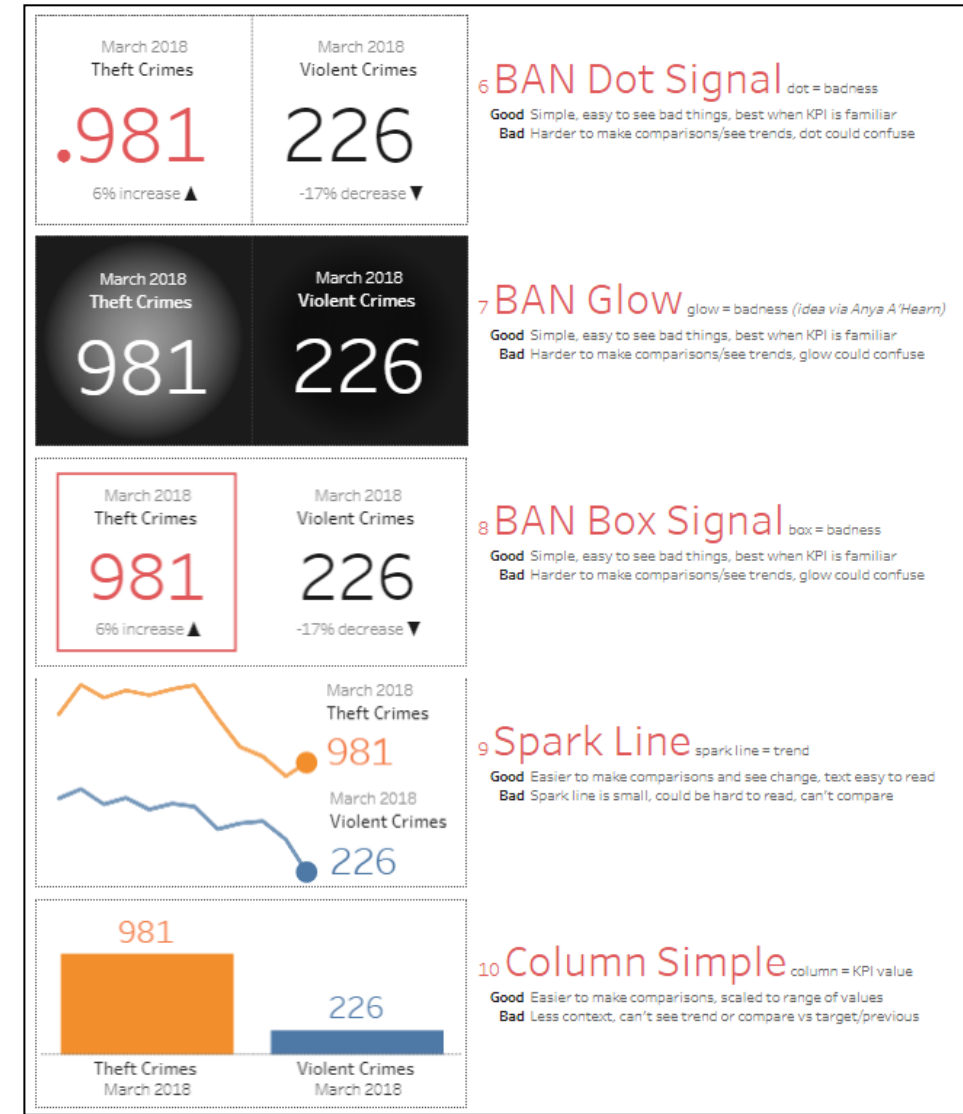
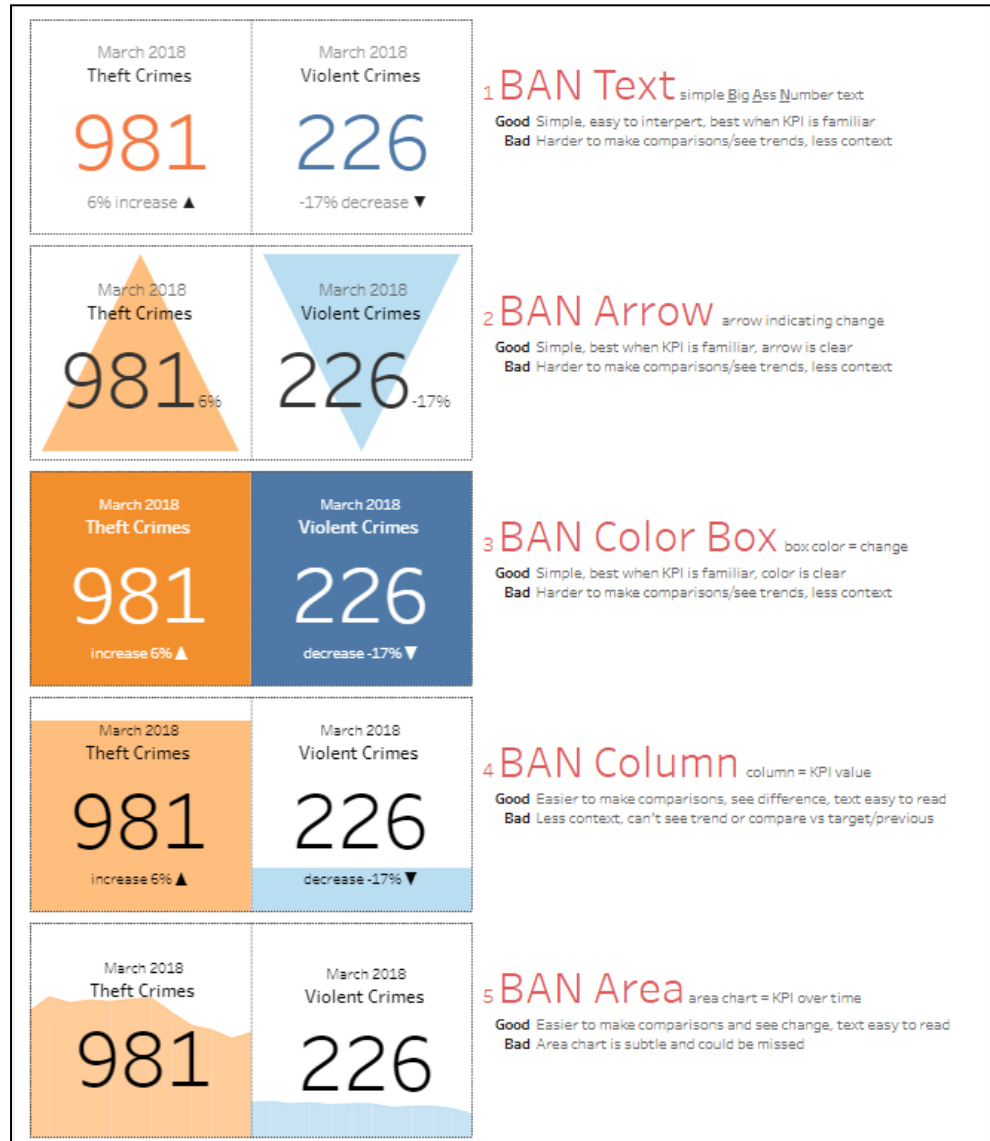


# KPI Visuals









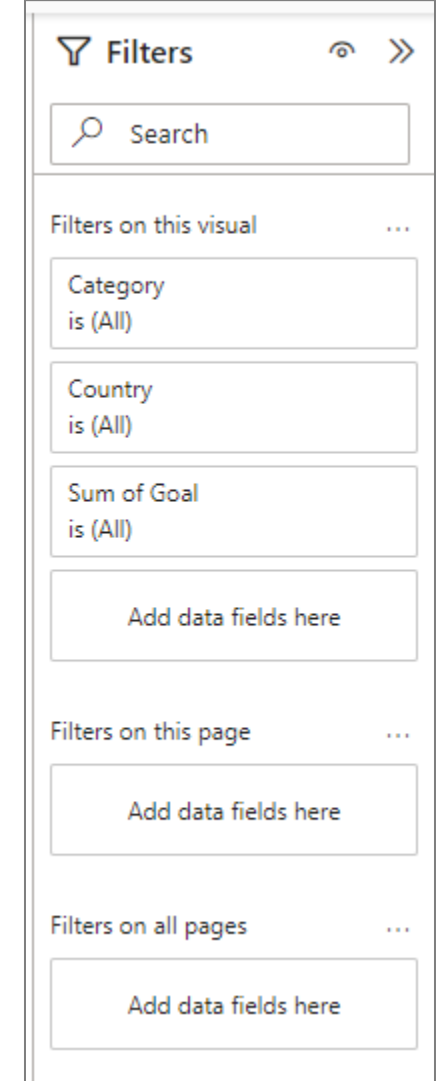
# KPI Framework

BizOps KPI Framework			
☰ Business Objective	☰ Type	Aa Key Performance Indicator	☰ Tags
Increase Sales	Primary KPI	Revenue to Target	Sales KPI
Increase Sales	Secondary Measure	Weighted Opportunity Pipeline	Sales Marketing Partners
Increase Sales	Secondary Measure	Deal Win Rate %	Sales Delivery
Increase Profitability	Primary KPI	Net Margin % to Target	Delivery Operations KPI
Increase Profitability	Secondary Measure	Effective Daily Billing Rate	Delivery Sales
Increase Profitability	Secondary Measure	Invoices Paid On-Time %	Admin & Finance Delivery
Increase Profitability	Secondary Measure	Gross Margin %	Sales Delivery
Increase Efficiency	Primary KPI	Utilisation % to Target	Delivery Recruitment KPI
Increase Efficiency	Secondary Measure	Unbillable Days % of Total Client Days	Delivery
Increase Efficiency	Secondary Measure	Forecast Billing Next Month	Sales Delivery Customer Success
Increase Client Retention	Primary KPI	Monthly Client Retention % to Target	Delivery Sales KPI
Increase Client Retention	Secondary Measure	Number of Active Clients	Customer Success Delivery Sales

# Filtering in Power BI

# Filtering data

- The first way to filter data is the filter pane
- Filter levels
  - On this visual
  - On this page
  - On all page
- Filter types
  - Basic – manually select values from a list
  - Advanced – using logical conditions
  - TopN



# Filtering data

- Slicers are *visual filters* displayed on the canvas
- Slicer styles
  - Vertical list
  - Dropdown
  - Tile
  - Between, greater than, less than (numeric and date fields only)
- Slicer options
  - Single or multiselect enabled
  - Show All values enabled
- Slicer search box
  - Can be found in the three-dot menu of the slicer visual
- Slicers can have their own filters in the filter pane
- Slicers can filter other slicers
  - Continent -> Country filtering
  - Can be setup through Format – Edit interactions

Category

☐

 Art

☐

 Comics

☐

 Crafts

☐

 Dance

☐

 Design

☐

 Fashion

☐

 Film & Video

☐

 Food

☐

 Games

☐

 Journalism

☐

 Music

☐

 Photography

☐

 Publishing

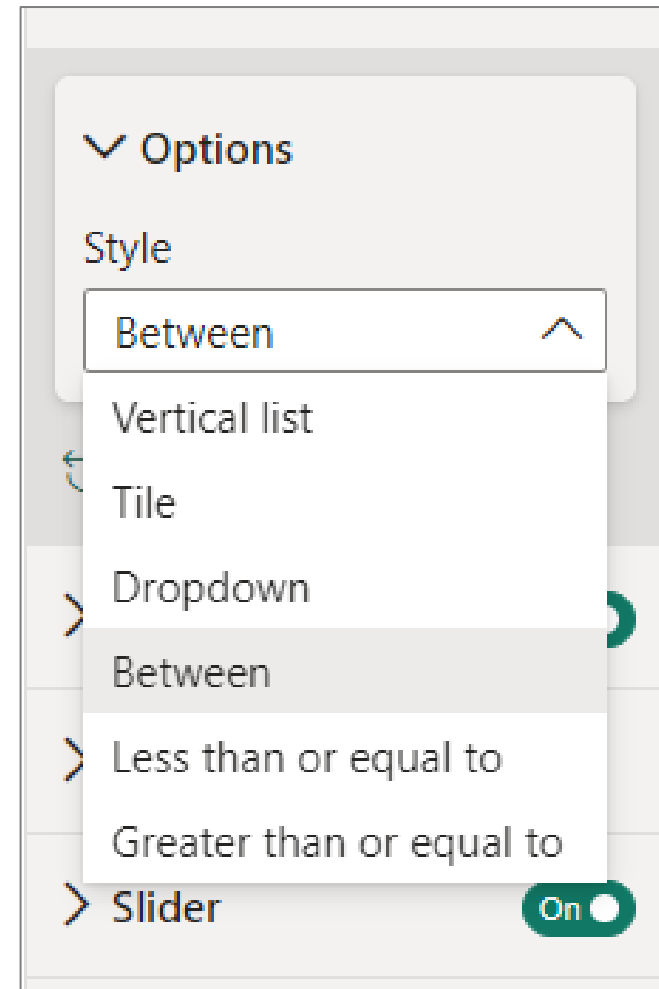
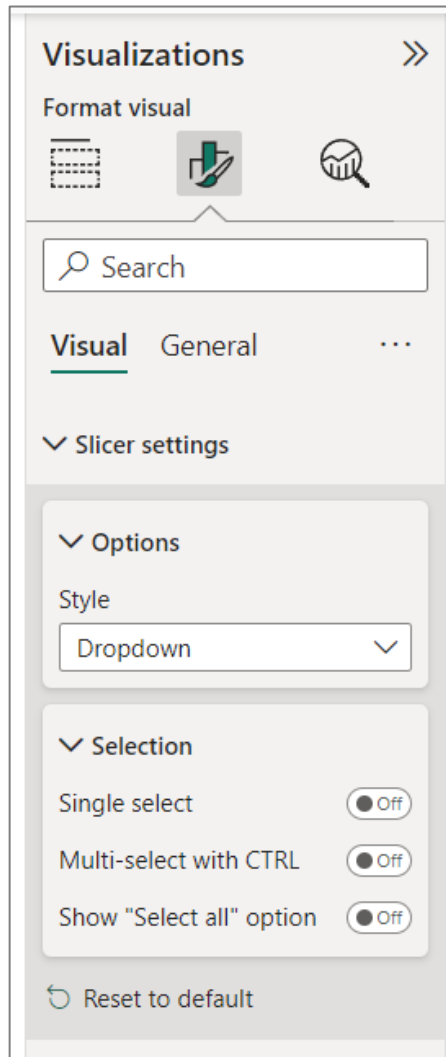
☐

 Technology

☐

 Theater

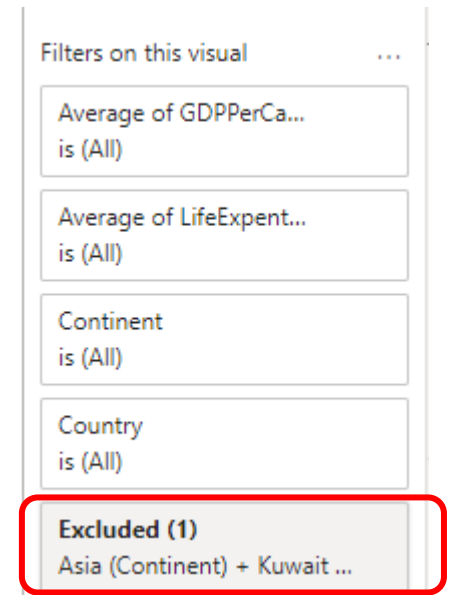
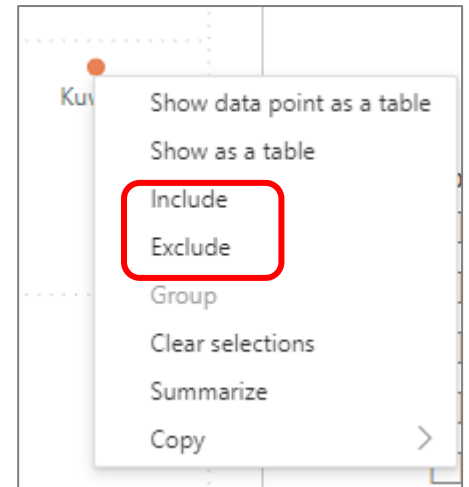
# Filtering data



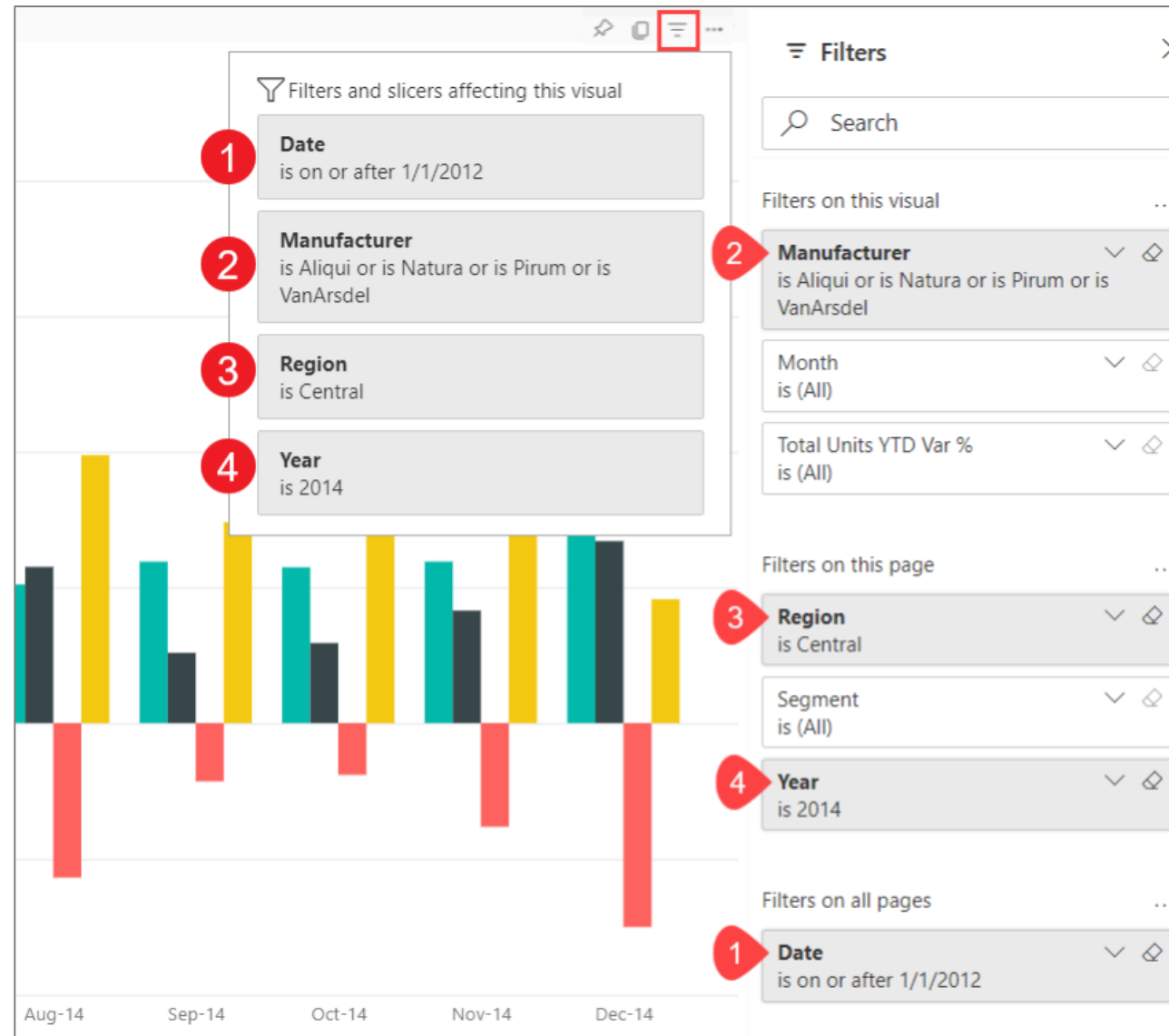
Slicer settings in Pwer BI

# Filtering data

- Include and exclude filters
  - Directly filtering out data points from a visual
  - Available from the right click menu from the data point
  - Adds an extra filter in the Filter pane



# Filters affecting a visual





# Thank You

