

I.

Theoretical

Facet Into Multiple Views \prod_{i}

Practical

Exploratory & Explanatory Dashboards

Week 8 Dec 1, 2015



I.

Theoretical

Facet Into Multiple Views II.

Practical

Exploratory & Explanatory Dashboards

Week 8 Dec 1, 2015

Facet

- → Juxtapose and Coordinate Multiple Side-by-Side Views
 - → Share Encoding: Same/Different
 - → Linked Highlighting



→ Share Data: All/Subset/None

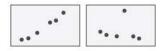


→ Share Navigation



		Data				
		All	Subset	None		
Encoding	Same	Redundant	Overview/ Detail	Small Multiples		
	Different	Multiform	Multiform, Overview/ Detail	No Linkage		

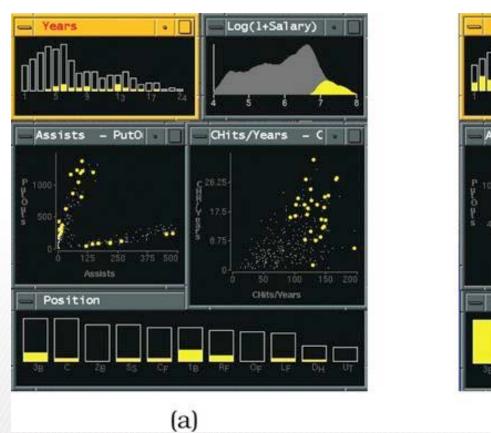
Partition into Side-by-Side Views



Superimpose Layers



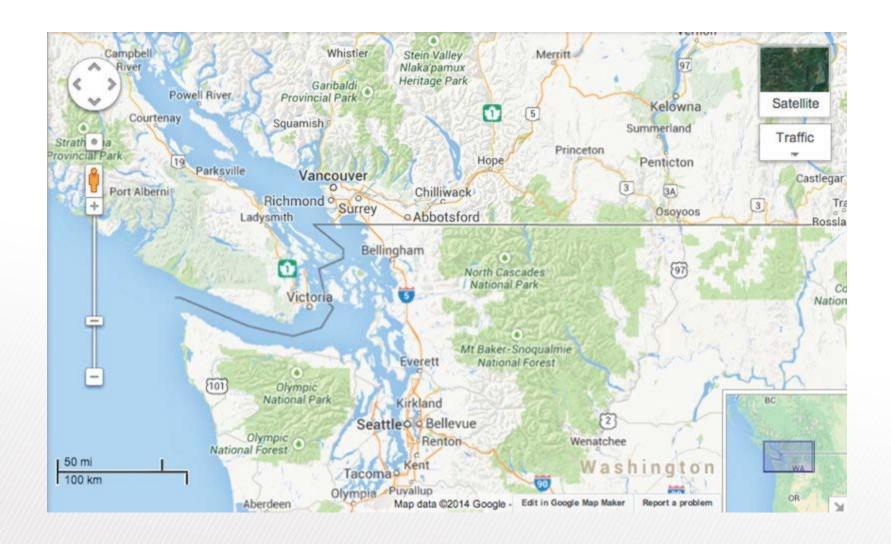
Linked highlighting between views



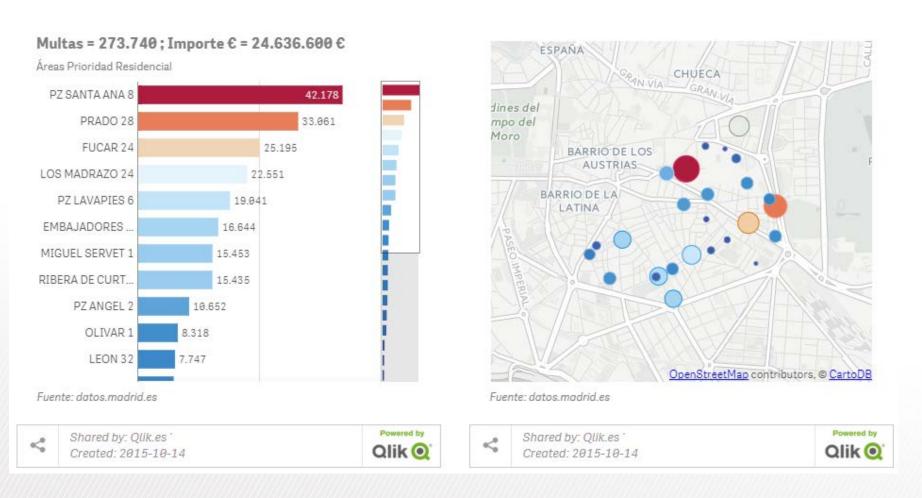


(b)

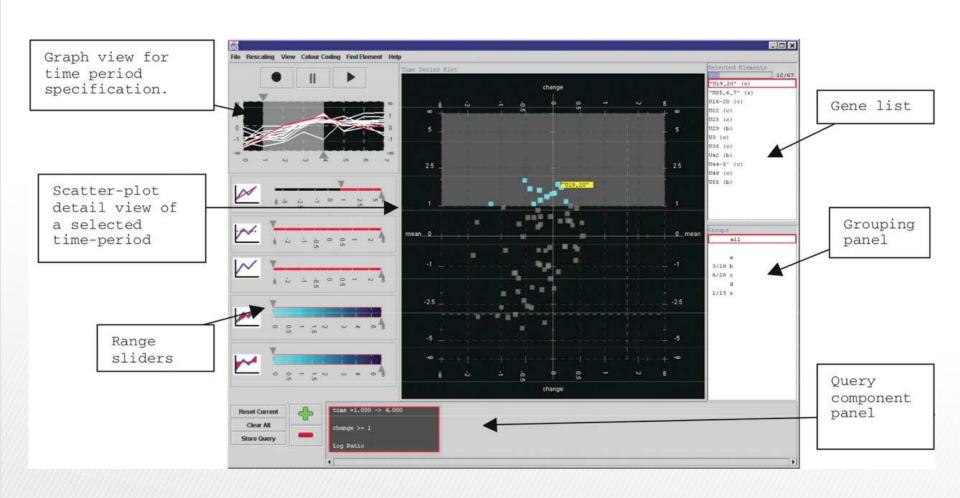
Overview-Detail



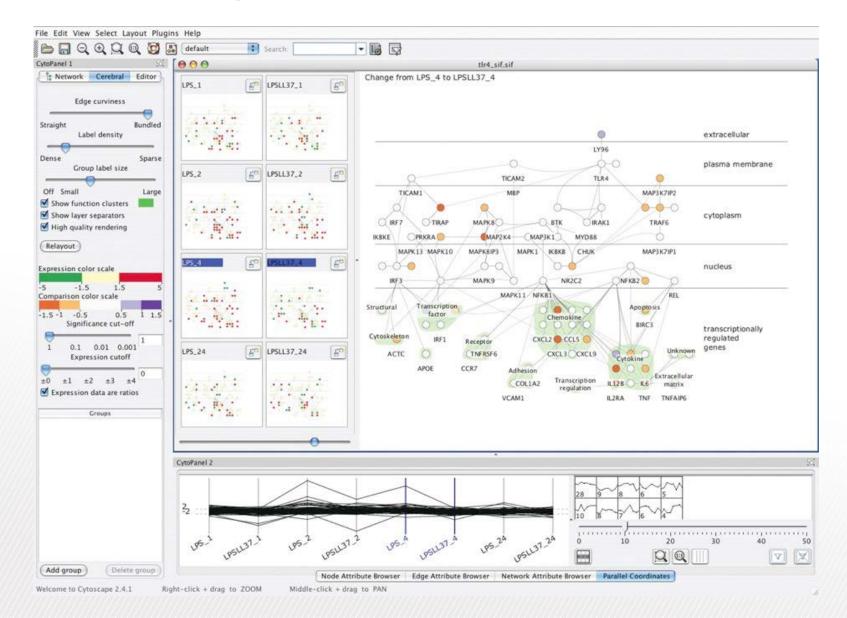
Overview-Detail, Juxtaposed Views, But W/O Linked Highlighting



Multiform overview-detail



Small Multiples





I.

Theoretical

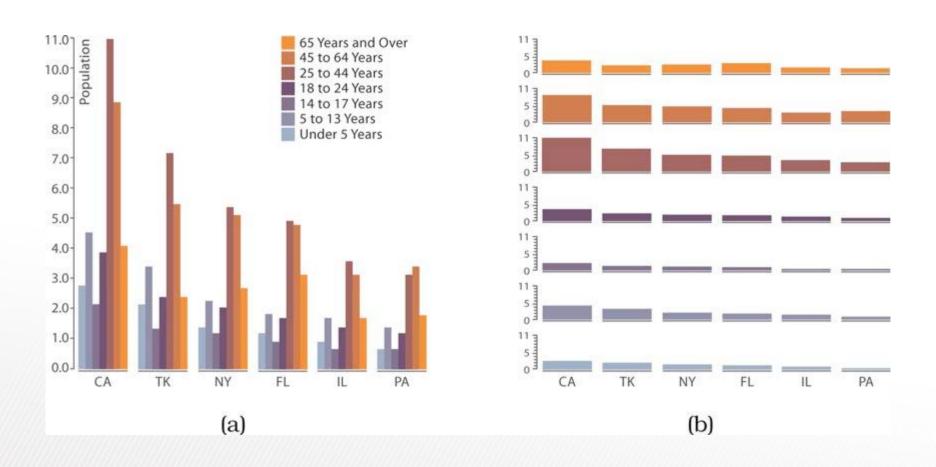
Facet Into Multiple Views II.

Practical

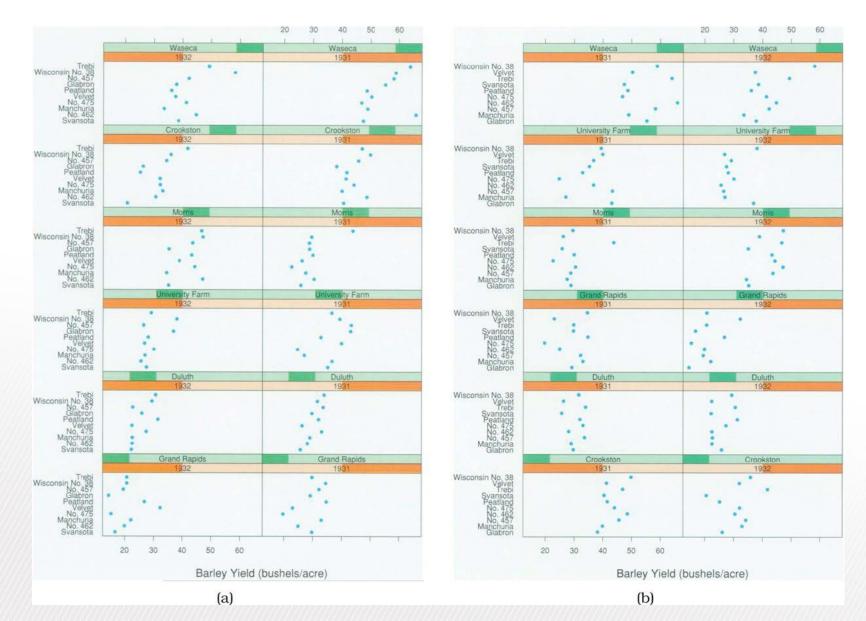
Exploratory & Explanatory Dashboards

Week 8 Dec 1, 2015

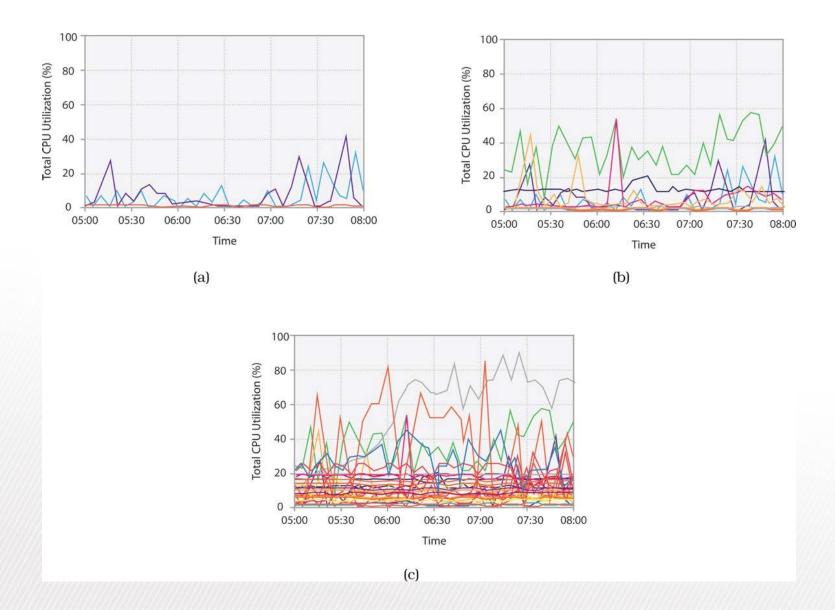
Different ways to Partition & Group



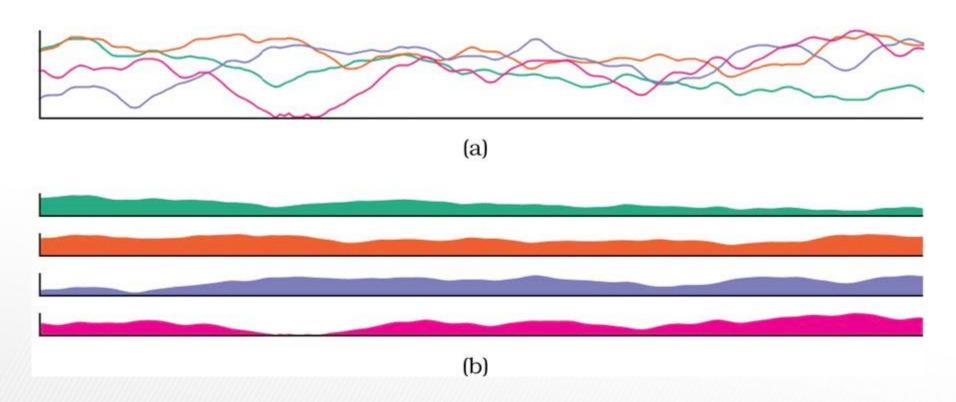
Trellis (Matrix) Views



Superimposing is hard to scale



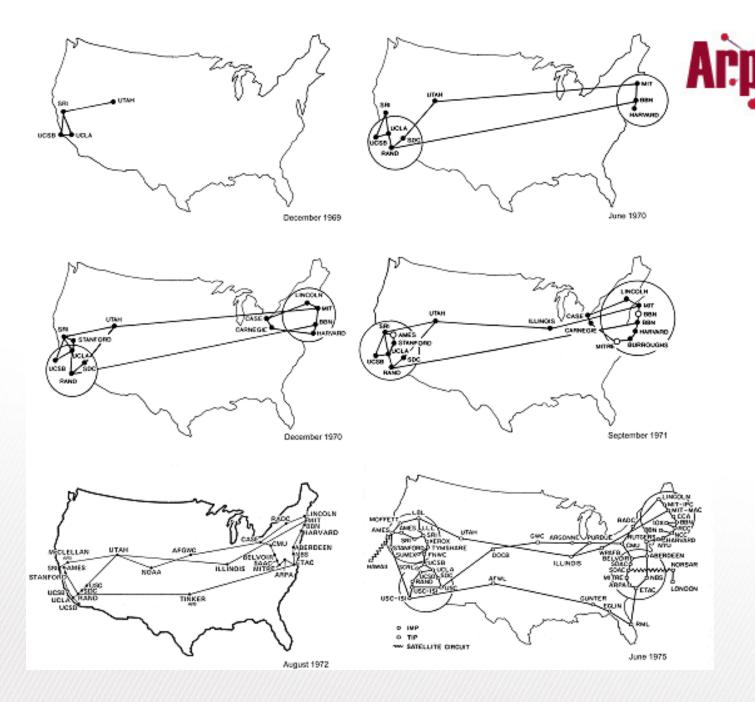
Superimposing vs. Juxtaposing



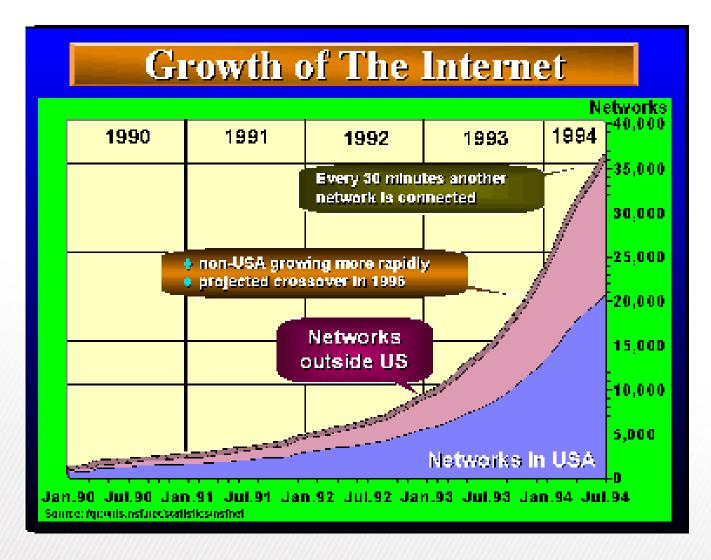
- (a) Better for local tasks (What time series has the highest value at a specific point in time?)
- (b) Better for global tasks (What time series has the highest increase over the entire time period?)

What's a "Data Dashboard"?

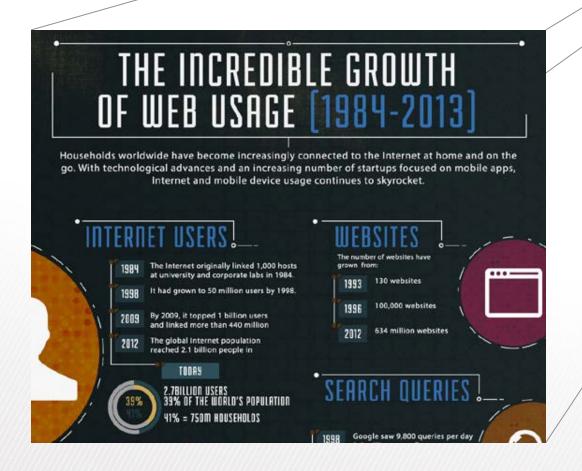


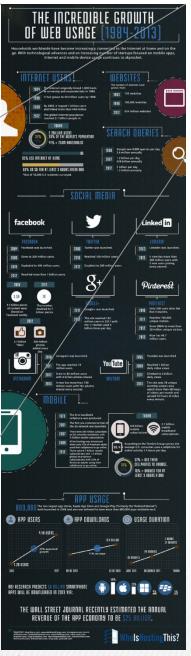


The 1990s version...



...and the 2013 version





Exploratory Vs. Explanatory



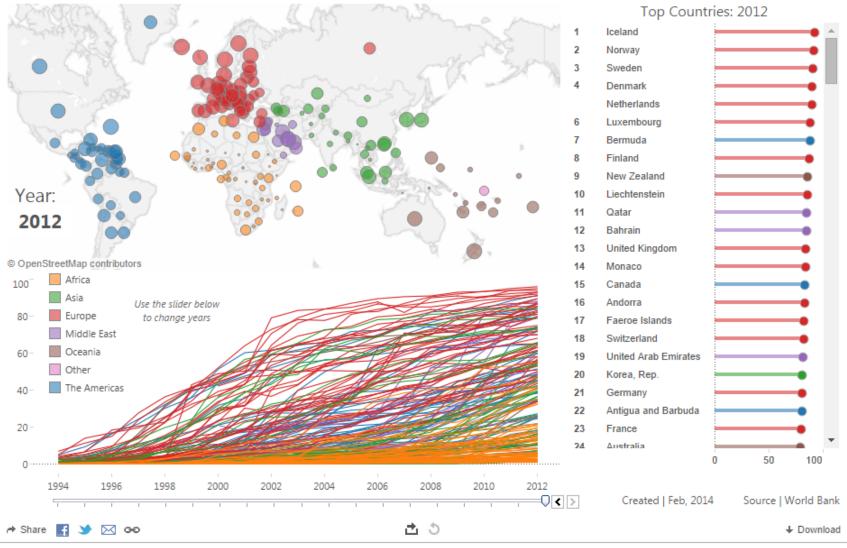
Exploring the Growth of the Internet



Region: (All) ▼ users per 100 ▼



See how the population of the world has adopted the internet in it's first two decades. View usage rates or total number of users, and hover over a mark to highlight each country in the other charts. Use the slider at the bottom to focus on specific years and view by region.

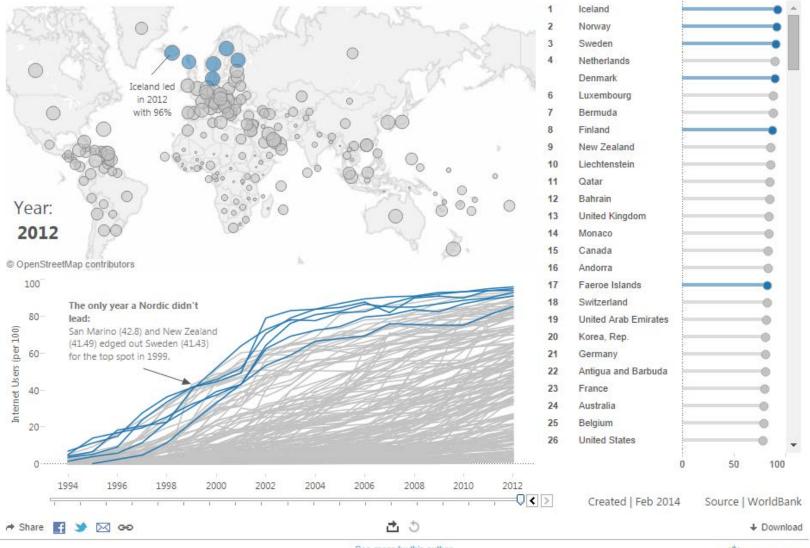


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Internet Usage Rates: EU Nordic Countries Lead the Way

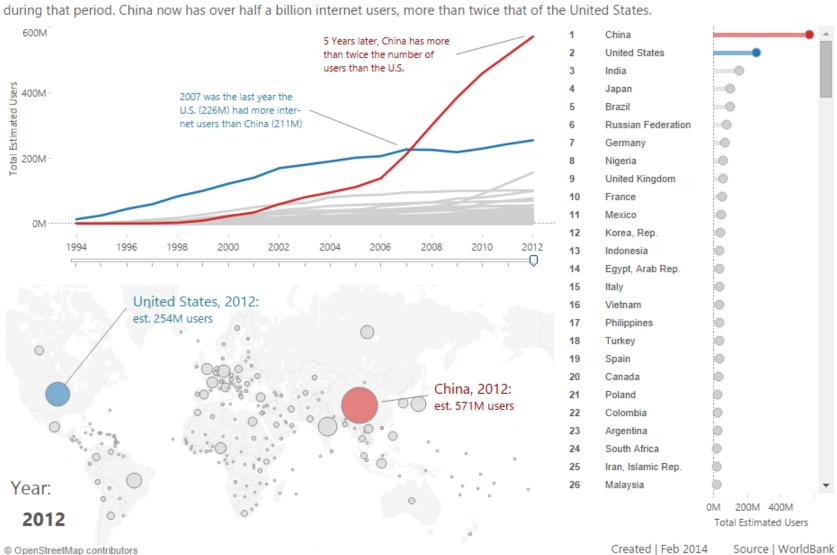
EU Nordics Other

Since the earliest days of the internet, European Nordic countries (Iceland, Norway, Finland, Sweden, Denmark and the Faeroe Islands) have led the way in internet usage rates (per 100 people). Use the slider at the bottom to see map and rankings for each year from 1994 to 2012.



Total Internet Users: China surges past the United States

The total number of internet users in China dramatically increased from 2002 to 2012, surpassing the United States during that period. China now has over half a billion internet users, more than twice that of the United States.



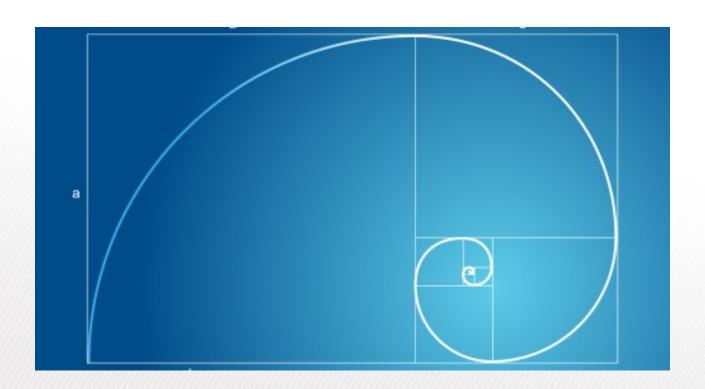
China United States

Other Countries

On Dashboard Layout

From Kelly Martin

"While grid or columnar presentations are most logical and easy to balance, freeform dashboards can be much better for storytelling. The golden ratio is most helpful in achieving balance on this kind of dashboard. Use it as a general guide. You don't need to rigidly calculate the size of each view or place them exactly according the dimensions of the golden ratio."



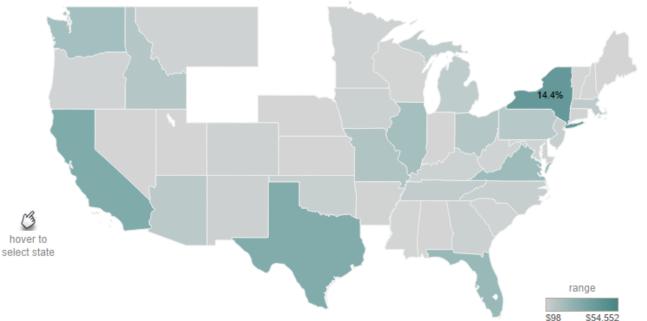
US MONTHLY SALES











Filter Region

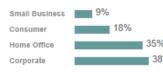
(AII)	~

October-2013

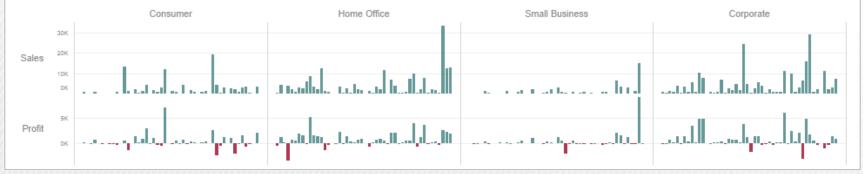
Texas

Sales	\$37,165
Profit	\$2,188
Order Quantity	369
Discount	5.3%
Product Base Margin	49.8%
Shipping Cost	\$204
Unit Price	\$186

Segment % Sales



Texas Segment Trend

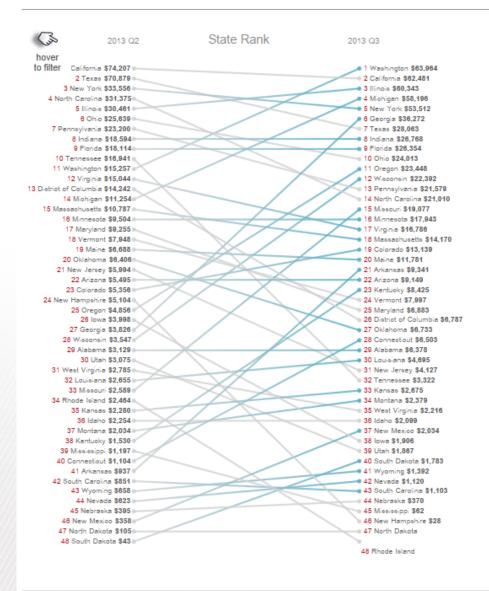


US SALES 2013 Q3



% Cha

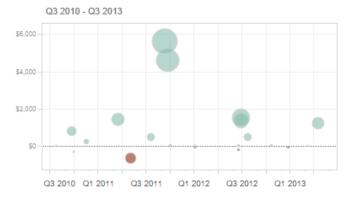
5.6%



South Dakota sales increased \$1,740 (4015.1%).

Profit increased \$1,200, representing a change of 4015.1%.

South Dakota Profit & Order Qty



South Dakota

Unit Price

Product Base Margin

soum Dakoia	70 Ong		
	Q2	Q3	Q3
Sales	\$43	\$1,783	4015.1%
Order Quantity	9	8	-11.1%
Profit	\$30	\$1,230	4015.1%
Shipping Cost	\$1	\$15	1776.3%
Discount	4.0%	7.0%	75.0%
Unit Price	\$5	\$224	4397.6%

\$5

36.0%

\$224

38.0%

Making it Personal



Chad Skelton

Data Journalist, Vancouver Sun

Winner, GEN 2014 Data Journalism Award for individual portfolio

Presenter, 2015 Tapestry Conference

How much money do people just like you make?

\$49,351

was the median income for all Canadians in 2010. Select your personal characteristics below to see how the median income figure changes

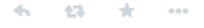
Your Gender	Your Age		
All	▼ All	▼	
Your Education	Your Ethnicity	Your Ethnicity	
All	▼ All	▼	

tinyurl.com/tapestryincome





If you doubt that gender pay gap exists, just play with this Stats Can calculator to see ow.ly/xoVYH #CDNwomen







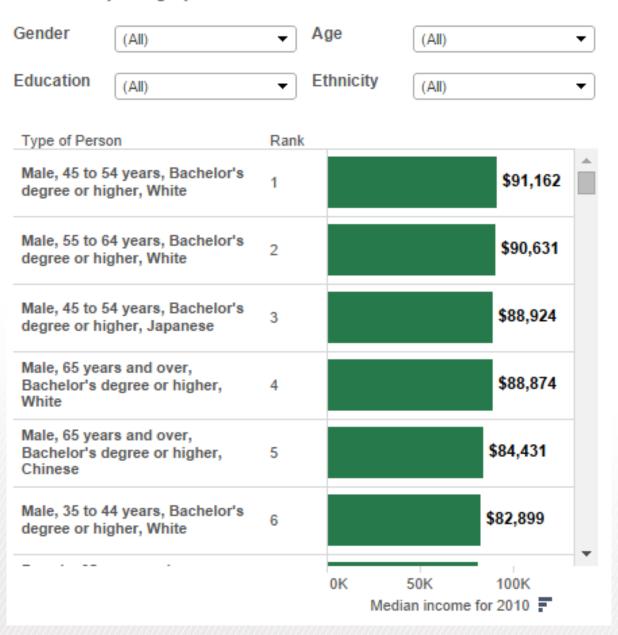
I hadn't seen this before, v.interesting (depressing if you are not an educated white male):Canada Income Calculator blogs.vancouversun.com/2013/09/12/how...



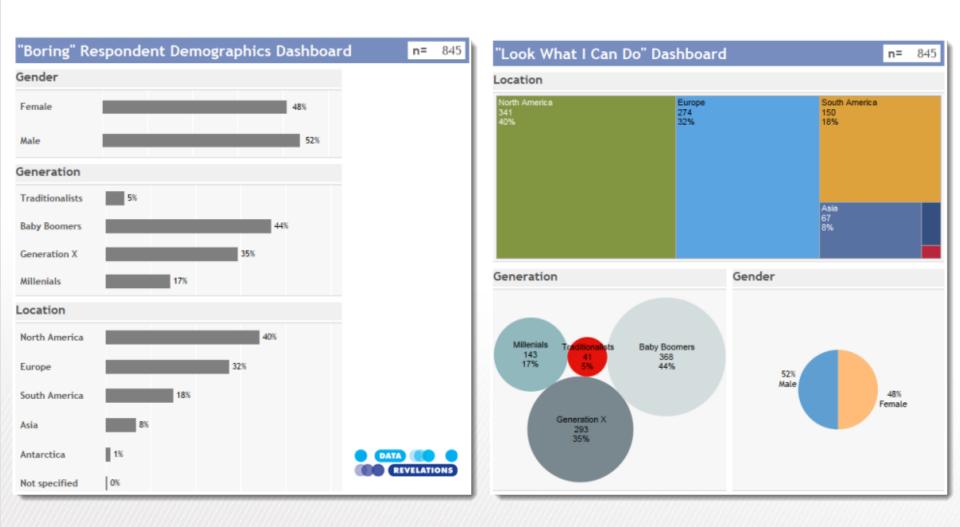


Calculate income inequality in Canada. Men > Women. Whites > Visible minorities ow.ly/tZulB #discrimination

What types of Canadians make the most money? Filter list by category. Canadian median income is \$49,351



Steve Wexler: Visualizing US Census Data...



http://www.datarevelations.com/its-your-data-not-the-viz-thats-boring.html

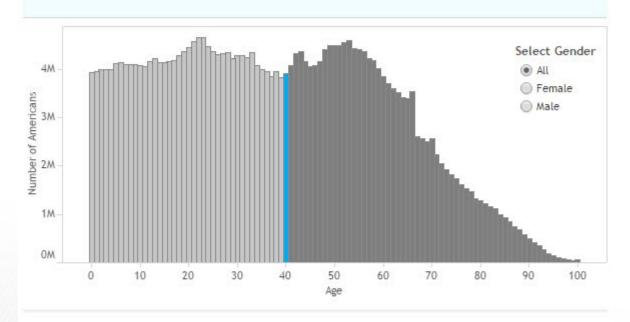
Are you over the hill?

See how many Americans are older and younger than you

Move slider to select your age

40

You are older than 53.0% of All Americans



Americans younger than you

167,491,882

Americans the same age as you

3,904,767

Americans older than you

144,732,190

DATA (CONTRACTOR)

Population estimates as of 2013. Source: United States Census Bureau https://www.census.gov/popest/data/. Special thanks to Chad Skelton at https://blogs.vancouversun.com/author/chadskeltonvansun/.

Data Dashboards in Tableau

Items to cover...

- 1. Layout & Sizing
- 2. Floating vs. Tiled
- 3. Quick Filters
- 4. Actions
 - 1. Highlight
 - 2. Filter
 - 3. URL
- 5. Labels and Annotations
- 6. Adding Media





🚟 🔡 🗖 🔍 Find in this Dataset









City of Seattle Metrics Developers Data Policy Help Sign Up Sign in to data.seattle.gov

Building Permits : Current

Building Permits issued in the past five years or currently in progress

									A Manage	OO More Views	Filter Visualize	Export Disc	cuss () Embed	About
Туре	Value ⊕ ∷≡	Applicant Name	Application Date	Issue Date	Final Date	Expiration Date	Status ⊕ ⊞	Contractor	Permit and Compla	Master Use Permit	Latitude ⊕ ∷≡	Longitude	Location	
1 ≔ Review	\$1,100,000.00	COLBY, AMY	03/10/2015				Application Accepte		http://web1.seattle.g		47.61891226	-122.35959162	(47.61891226°, -12	
2 ≣ lan review	\$0.00	BAILLARGEON, DA	03/10/2015				Reviews Complete	DAVID BAILLARGE	http://web1.seattle.		47.66955167	-122.26930303	(47.66955167°, -12	4
3 ⊞ Review	\$556,914.00	BAILLARGEON, DA	03/10/2015				Application Accepte	DAVID BAILLARGE	http://web1.seattle.g		47.66955167	-122.26930303	(47.66955167°, -12	ė.
4 i≡ lan review	\$0.00	RUDD, MARC AND	03/10/2015				AP Closed		http://web1.seattle.g		47.64222617	-122.28305713	(47.64222617°, -12	4
5 ≣ lan review	\$37,500.00	PHILLIPS, ANDRE	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.56074581	-122.3951825	(47.56074581°, -12	4
6 ≔ lan review	\$25,000.00	SCOFIELD, ALEX	03/10/2015	03/10/2015		09/10/2016	Permit Issued	YEN DESIGN INC	http://web1.seattle.g		47.66214511	-122.28794144	(47.66214511°, -12	ł.
7 ≔ Review	\$250,000.00	BUSBEE, MONTY	03/10/2015				Application Accepte	IO ENVRNMNTL/IN	http://web1.seattle.g		47.59314944	-122.31007016	(47.59314944°, -12	4
8 ≣ lan review	\$5,000.00	JENKINS, BARBAR	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.71383993	-122.36252318	(47.71383993°, -12	4
9 ≣ lan review	\$1.00	LECHNER, DAVID	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.67253713	-122.38453986	(47.67253713°, -12	ė.
10 ≔ Review	\$73,215.00	WILSON, JEFFRY	03/10/2015				Application Accepte		http://web1.seattle.g		47.58185263	-122.30980183	(47.58185263°, -12	4
11 ≔ an review	\$25,000.00	GREER, CHRIS L 8	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.71860167	-122.35058762	(47.71860167°, -12	4
12 ≔ Review	\$902,000.00	JENSEN, KURT	03/10/2015				Application Accepte		http://web1.seattle.g	3013982	47.62103801	-122.33682407	(47.62103801°, -12	4
13 ≔ an review	\$10,000.00	BAGEANT, PATRIC	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.67938591	-122.35785473	(47.67938591°, -12	ė.
14 ≔ lan review	\$75,000.00	LORENTZ, DANIEL	03/10/2015	03/10/2015		09/10/2016	Permit Issued		http://web1.seattle.g		47.69435443	-122.35374129	(47.69435443°, -12	ž.
15 ≣ lan review	\$20,000.00	GASPARS CONST	03/10/2015	03/10/2015		09/10/2016	Permit Issued	GASPARS CONST	http://web1.seattle.g		47.60449295	-122.33804582	(47.60449295°, -12	4
16 ≔ Review	\$300,000.00	SHREINER, BRITT	03/10/2015				Application Accepte	STARBUCKS COF	http://web1.seattle.g		47.56083821	-122.38647605	(47.56083821°, -12	ė.
17 ≔ Review	\$2,988,123.00	PANG, SUKYEE	03/10/2015				Application Accepte	RAFN COMPANY	http://web1.seattle.g		47.60731663	-122.31343145	(47.60731663°, -12	4
18 ≣ Review	\$40,000.00	CHANG, CHAOHU	03/10/2015				Application Accepte		http://web1.seattle.g		47.66321856	-122.31267151	(47.66321856°, -12	4
19 ≔ Review	\$15,000.00	MILLHOLLIN, WILL	03/10/2015				Application Accepte		http://web1.seattle.g		47.63549843	-122.341047	(47.63549843°, -12	4
20 ≔ Review	\$9,450.00	MARTINEZ, CHAR	03/10/2015				Application Accepte		http://web1.seattle.g		47.63967521	-122.39061763	(47.63967521°, -12	4
21 ≔ Review	\$134,659.00	VRALSTED, ROBE	03/10/2015				Application Accepte		http://web1.seattle.g		47.66929337	-122.41366806	(47.66929337°, -12	4
22 ≔ Review	\$125,000.00	SMITH, KEITH	03/10/2015				Application Accepte		http://web1.seattle.g		47.62406618	-122.33620465	(47.62406618°, -12	4
23 ≔ Review	\$42,500.00	QI, QI	03/10/2015				Application Accepte		http://web1.seattle.g		47.66702099	-122.36647232	(47.66702099°, -12	4
24 ≔ an review	\$0.00	POLLARD, MICHA	03/09/2015				AP Closed		http://web1.seattle.g		47.63847192	-122.36995433	(47.63847192°, -12	4
25 ≣ an review	\$150,000.00	PELLETIER, JEFF	03/09/2015	03/09/2015		09/09/2016	Permit Issued		http://web1.seattle.g		47.64122371	-122.32104337	(47.64122371°, -12	4
26 ≔ an review	\$5,000.00	DEVITO, ERICA	03/09/2015	03/09/2015		09/09/2016	Permit Issued		http://web1.seattle.g		47.52880837	-122.35937157	(47.52880837°, -12	4
27 ≔ an review	\$100,000.00	STILLWELL, CRAIG	03/09/2015	03/09/2015		09/09/2016	Permit Issued		http://web1.seattle.g		47.6295295	-122.28462144	(47.6295295°, -122	
28 ≔ Review	\$46,492.00	NEWMAN, KIT	03/09/2015				Application Accepte		http://web1.seattle.g		47.51406991	-122.25557562	(47.51406991°, -12	4
29 ≔ Review	\$9,071.00	HALE, SETH	03/09/2015				Application Accepte		http://web1.seattle.g		47.66072231	-122.35808711	(47.66072231°, -12	4
30 ⊞ Review	\$150,000.00	MELLON, CHARLE	03/09/2015				Application Accepte		http://web1.seattle.g		47.6934386	-122.38196796	(47.6934386°, -122	4
31 ≣ Review	\$383,205.00	BELCHER, CRAIG	03/09/2015				Application Accepte		http://web1.seattle.g		47.5369066	-122.38723512	(47.5369066°, -122	1
32 ≣ Review	\$262,054.00	PHILLIPS, JOHN	03/09/2015				Application Accepte		http://web1.seattle.g		47.5718909	-122.38981552	(47.5718909°, -122	-

Building Seattle

Permits issued in the past five years

Data: https://data.seattle.gov/Permitting/Building-Permits-Current/mags-97de



30,901 permits issued

\$13,164M proposed value

Permits Issued

Null

\$281M ^ SOM

\$14M

SOM

S4M

\$14M

\$19M

SOM SOM

\$248M

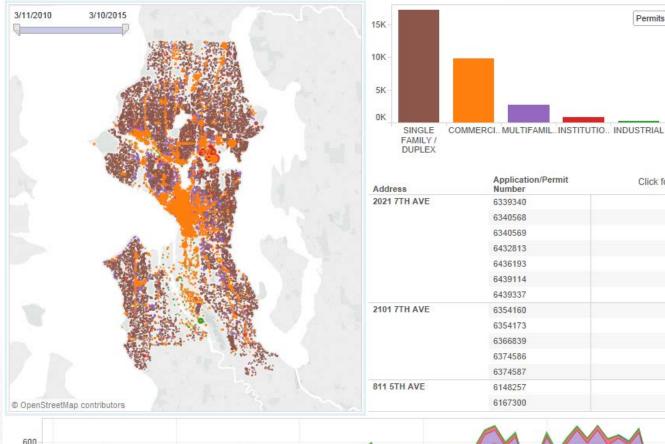
\$13M

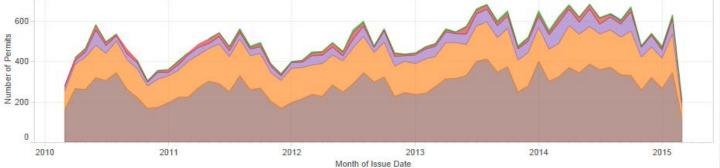
\$12M

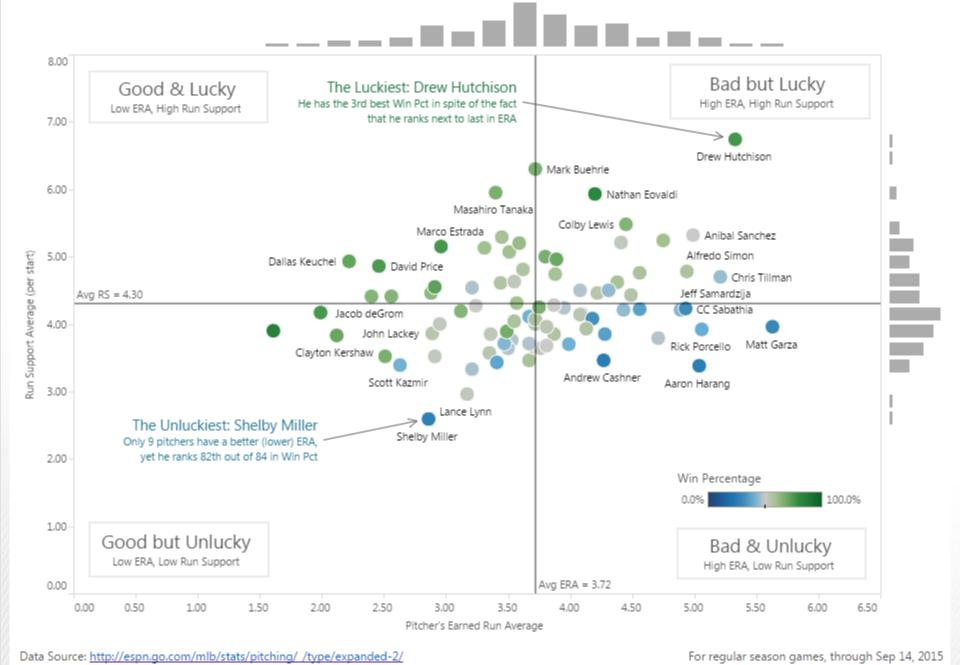
\$147M

\$61M +

Click for details







More Examples



NBA Fantasy Dashboard



Filter by Position:





Filter by Date: 10/29/2013 3/22/2014

Updated Feb 28, 2014

Filter by Team:







































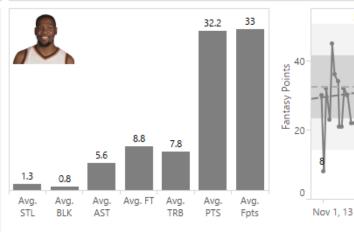


Mar 1, 14

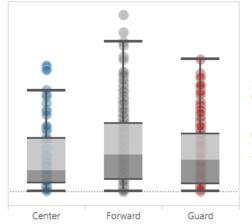


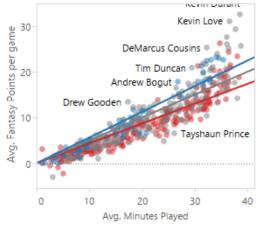






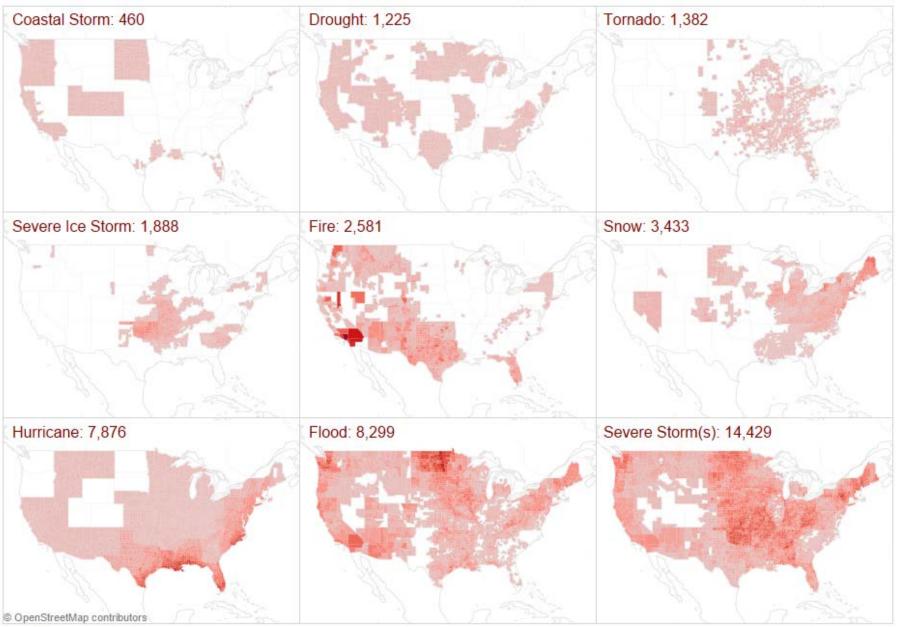
Players: Fantasy Points





Jan 1, 14

Number of Disasters May 02, 1953 July 09, 2014 Continental US FEMA disasters since 1953



Nuclear Energy The least worst option? 26,765 World energy consumption has almost doubled in the past two decades. While there has been some slowing of growth since the economic downturn in 2008, the demand in developing nations is growing at a considerable page.

http://vizcandy.blogspot.c a/2015/01/the-nuclearenergy-option.html





The History of the Football League

by Chris Love (@chrisluv) The Information Lab

World War I

Football League

Suspended





Football League

Football Alliance First-Division

Second Division

Click the text on a story on timeline above, or select a team below to see its path through the league:

Aberdare Athletic Accrington Stanley AFC Wimbledon Aldershot Aldershot Town Arsenal Ashington Aston Villa

Aston Villa Barnet Barnsley

Barrow Birmingham City Birmingham St George Blackbourn Rovers Blackbourn Rovers

Bolton Wanderers Boatle Boston United Brentford
Brighton and Hove Alt
Bristol City
Birstol Rovers
Burnley
Burlon Albion
Burlon Swifts
Burton United
Burlon Wanderers
Burly
Cambridge United
Cardiff City
Carlisle United
Chartlon Athletic
Chetlesa

Chesterfield
Colchester Un
Coventry City
Di. Crawley Town
Crewe Alexand
Crystal Palace
Dagenham & F

Dagenham & Redi Datington Danven Derby County Doncaster Rovers Durham City Everton Everton City

Exeler City Fleetwood Town Fufham Gainsborough Trin Gateshead Ginsaby Town
Hailfax Town
Hailfax Town
Hailfax Town
Hailfapool United
Hereford United
Huddersfield
Hull City
Ipawich Town
Kidderminster Harrier
Leeds City
Leeds United
Leicesfer City

Kiddeminster Ham Leeds City Leeds United Leicester City Leyton Orient Lincoln City Liverpool Long Eafon Ranger Loughborough Maidstone Utd
Manchester City
Manchester United
Manshalf Jown
Manshalf Jown
Merthyr Town
Middlesbrough
Middlesbrough
Middlesbrough Ironopo.
Millwalf
Millon Keynes Dons
Morecamhe
Neison
New Brighton
New Brighton
New Brighton Tower
Newcastle United
Newport County
Northampton Town
Northwich Victoria
Norwich City

Notts County
Oldham Athletic
Oxford United
Pyrmouth Argyle
Port Vale
Port Vale
Port Sale
Portsmouth
Preston North End
Queens Park Rangers
Reading
Rochdale
Rotherham County
Rotherham Town
Rollmerham United
Rushden & Diamonds
Scarborough
Scurthorpe United
Sheffield United
Sheffield Wednesday

Shrewsbury Town South Shields Southampton Southend United Southport Stalybridge Cellic Stevenage Stockport County Stoke City Sunderland Albion Swansea City Swindon Town Thames Torquay United Totlerham Hotspur Tranmere Rovers Walstall

Watford
West Bromwich Albion
West Ham United
Wigan Athelic.
Wigan Borough
Workerhampton Wand.
Workington
Wrexham
Mycomibe Wanderers
Yeswill Town

First Divis

Second Div

Third Divisio

Third Divisio

Show League Labels

← Undo

Dade

Rese

https://public.tableausoftware.com/views/TheHistoryoftheFootballLeague/HistoryoftheFootballLeague?: embed=y&:showTabs=y&:display_count=yes&:showVizHome=no

Final Project

Final Project

Create a richly interactive Data Dashboard:

- BYOD Bring Your Own Data!
- At least 3 Sheets
 - Must use at least 2 different chart types
 - Must include at least 1 spatial chart type (e.g. a map)
- At least 2 Quick Filters
- Include at least one multimedia element (image, video, hyperlink)
- Exploratory OR Explanatory
- Bonus Points for use of Story Points
- Include data source and description of methods

Week 8 Homework

Start work on your Final Project

Suggestion:

- Find your data set
- Begin data discovery to find your story!