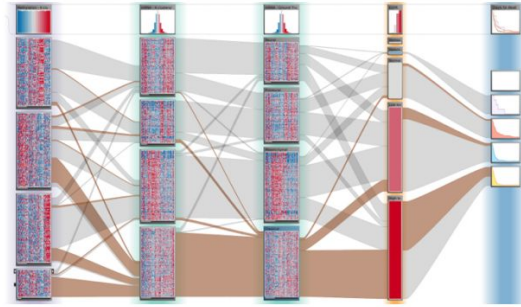


---

# Visualización



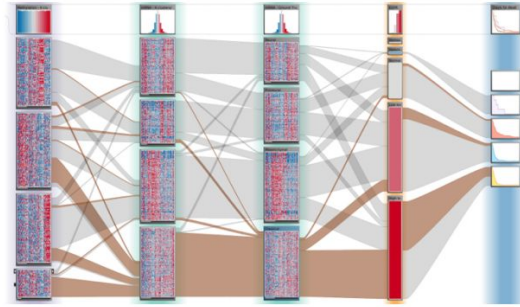
---

75.06 Organización de Datos

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---

# Visu



---

75.06 Organización de Datos

---

## What is data visualisation?



The representation and presentation of data to facilitate understanding



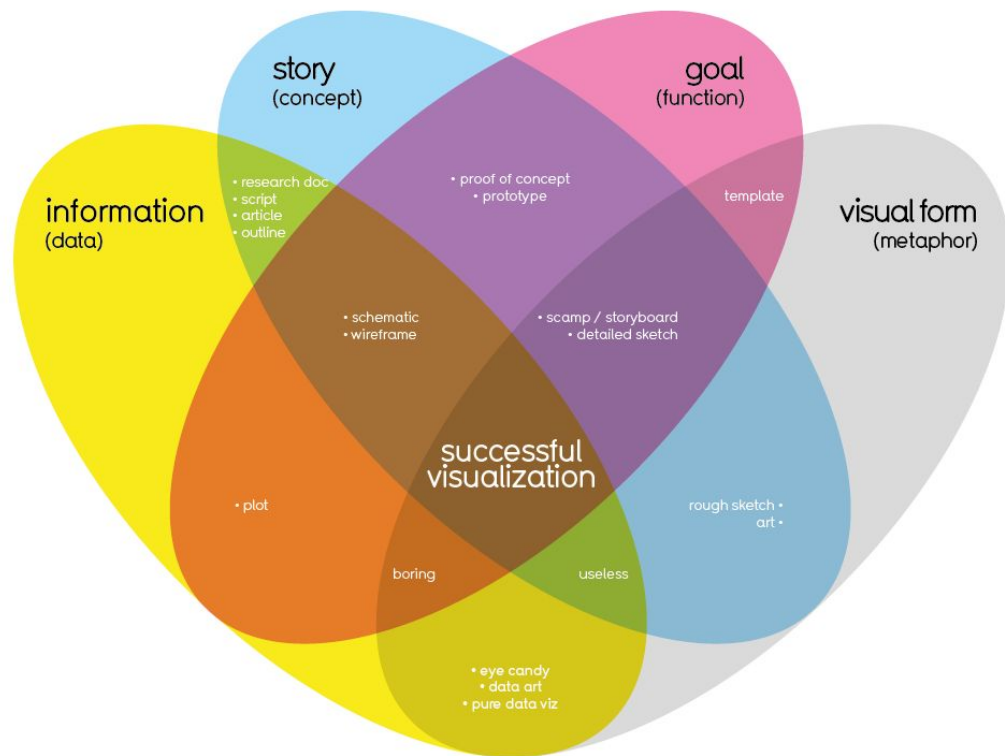
# Visu: 4 Elementos

- Datos
- Objetivo
- Metáfora Visual
- Historia

detail

What Makes a Good Visualization?

exp



# Objetivos

---

- Como parte del proceso de análisis de datos
  - Para comunicar resultados o conclusiones
-

# Visu: Principios Básicos

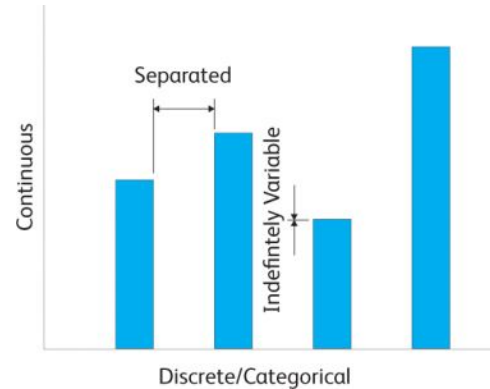
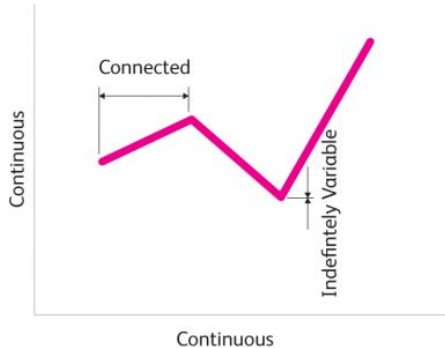
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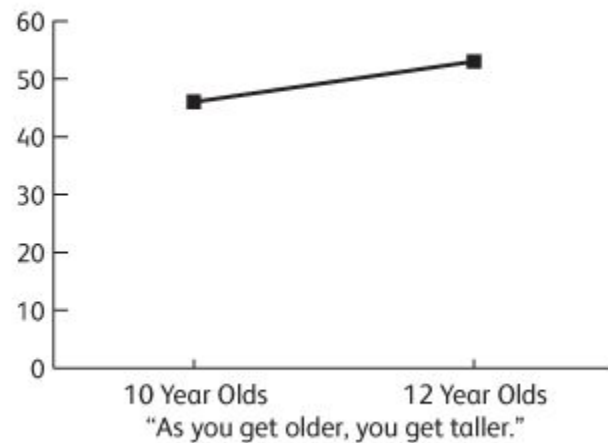
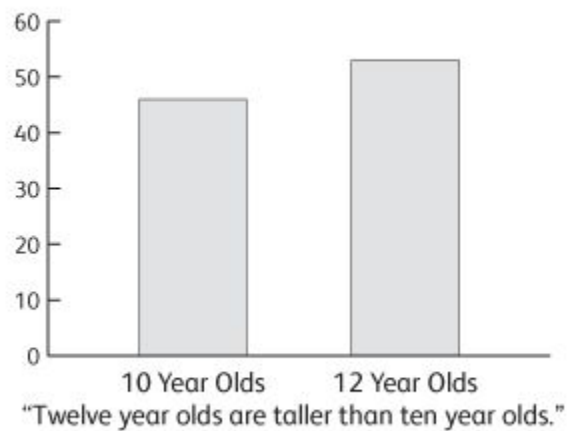
- Simple es mejor que complejo
  - Realizar una buena elección del color
  - Manejo de Planos (Oclusión)
  - Realizar un buen uso del plano
  - 7 +/- 2
  - Ceguera al cambio
  - Foco en la funcionalidad
-

# Visualización Principios Básicos

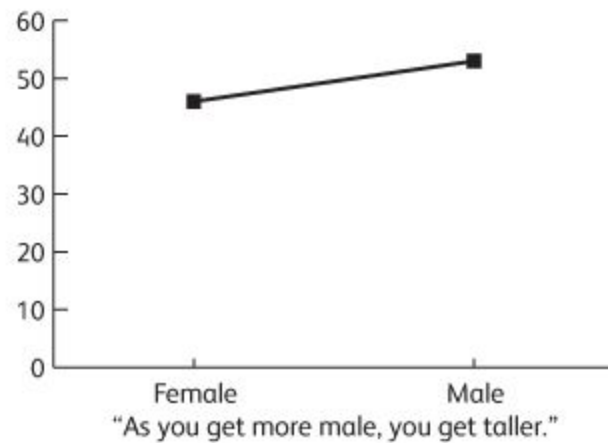
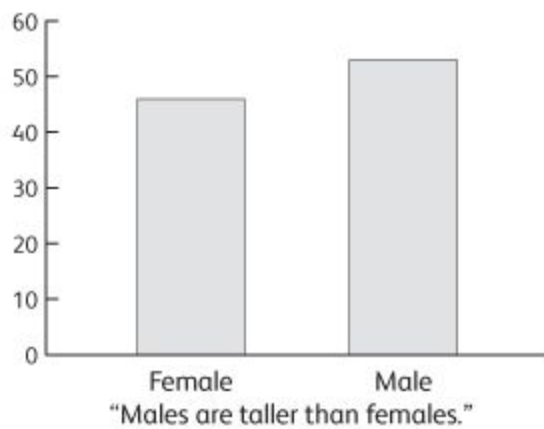
---

- Diferenciar atributos continuos de categóricos
  - Gráficos de líneas vs Gráficos de barras







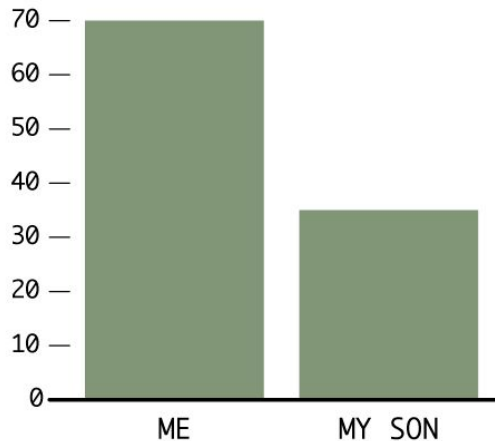


# Los Ejes Deben Comenzar en 0

---

Height

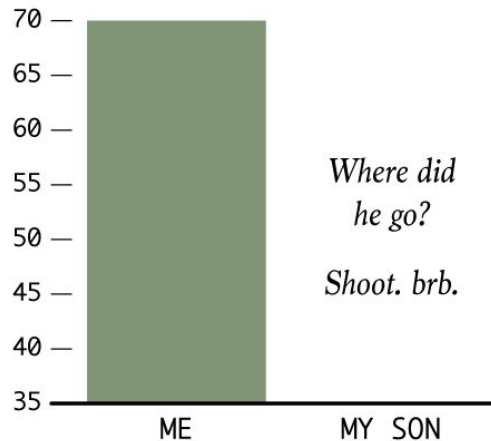
INCHES



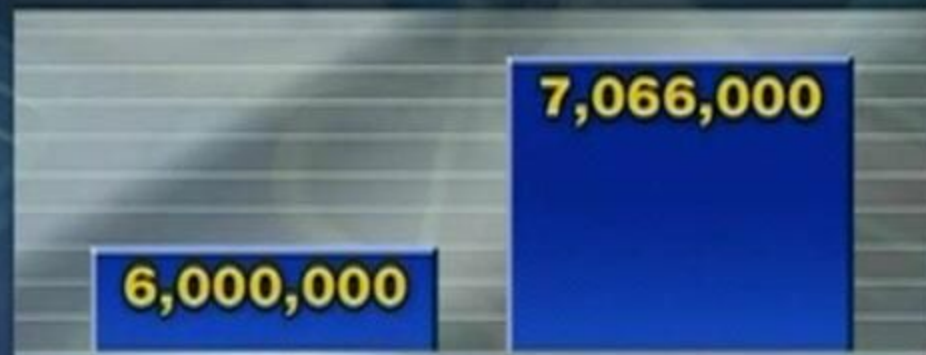
vs.

Height

INCHES



# OBAMACARE ENROLLMENT



AS OF  
MARCH 27

MARCH 31  
GOAL



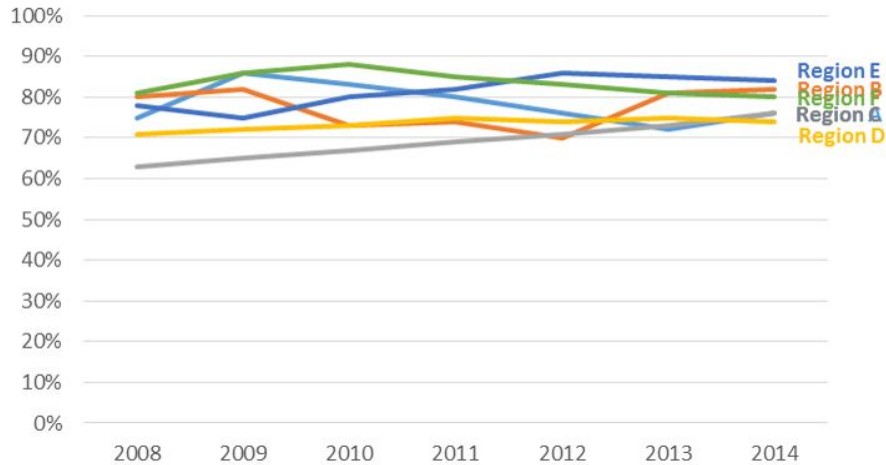
SOURCE: HHS

[mediamatters.org](http://mediamatters.org)

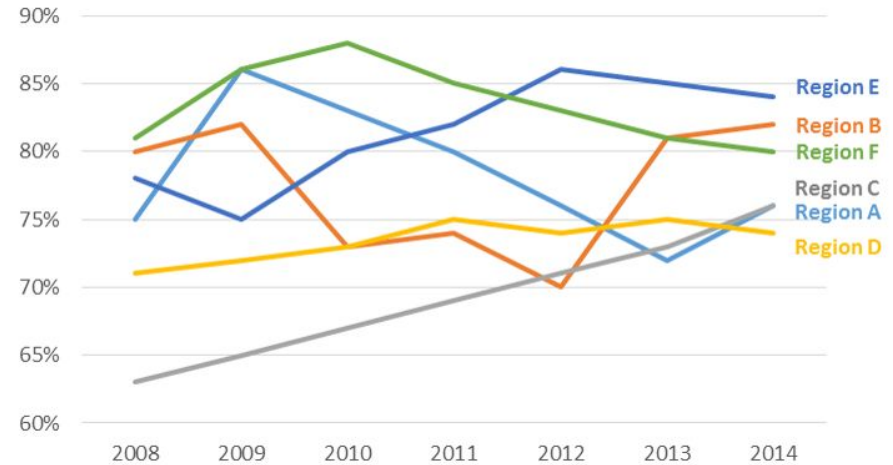
IE IN SECOND PLACE WITH \$26.5 MIL, WHILE "MUPP DOW FUT 16,325.00

# Como en todo, hay excepciones...

Region progress since 2008

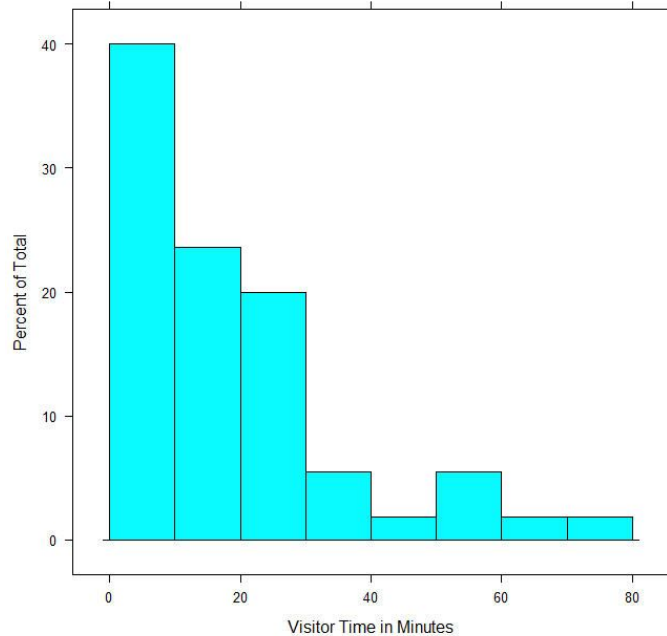


Region progress since 2008

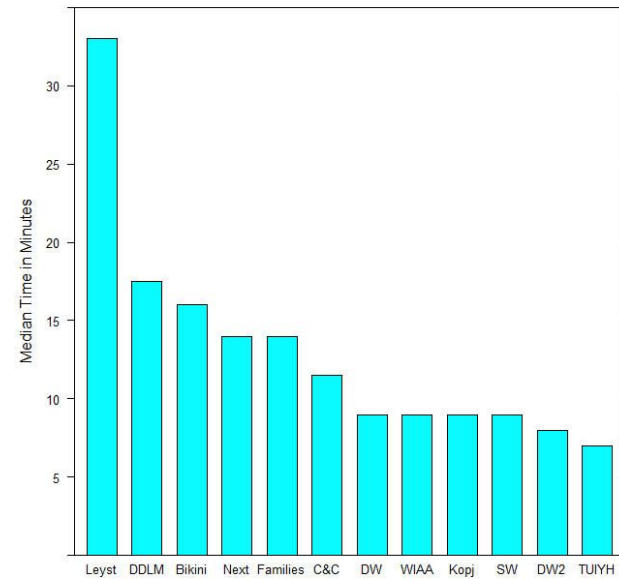


# Histograma vs Bar Chart

Histogram of "Next Stop Westchester"



Bar Chart of Visitor Times in Minutes



# Histograma vs Bar Chart

---

## Histograma

- Muestran la distribución de una variable.
- Eje x: Variable numérica discretizada en buckets (bins)
- Eje y: Cantidad / Porcentaje
- No se puede reordenar el eje X
- No hay espacios entre la barras

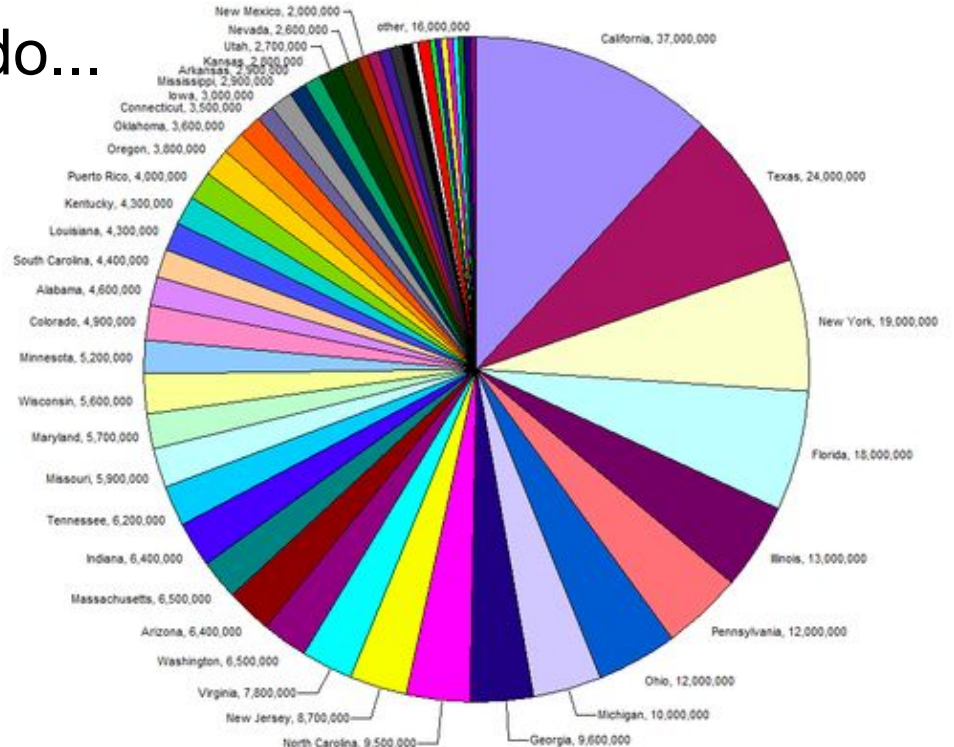
## Bar Chart

- Comparación entre variables
  - Eje x: Variable categórica
  - Eje y: Variable numérica
  - El eje x puede tener cualquier orden
  - Barras espaciadas
-

# Pie charts

Por qué usarlos con cuidado...

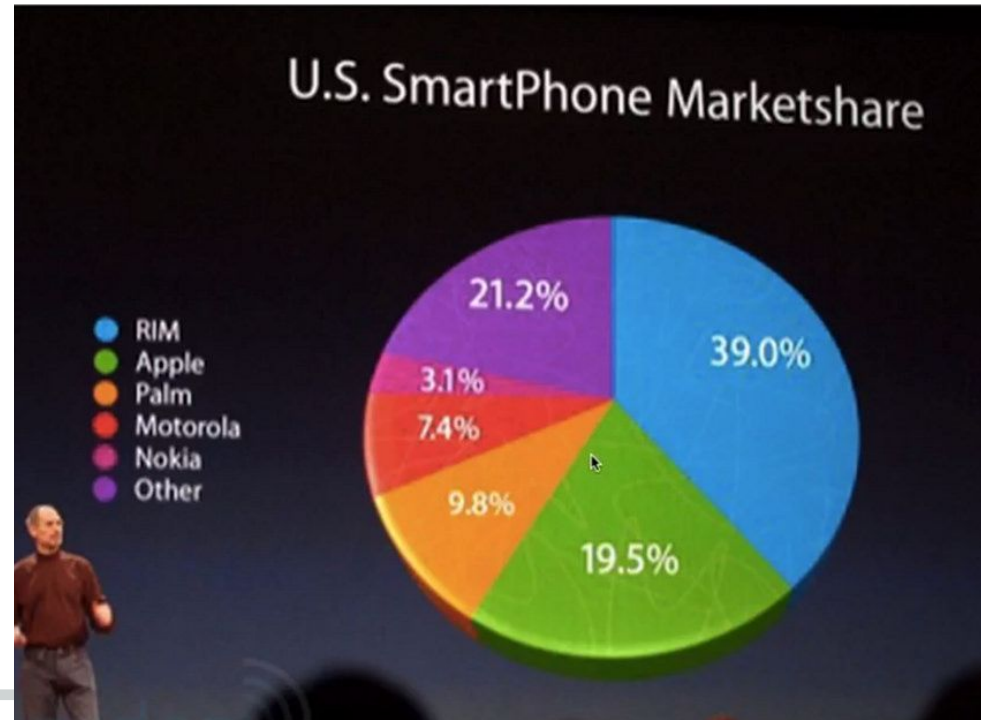
- Con muchos datos se vuelve difícil (o imposible) de interpretar



# Pie charts

Por qué usarlos con cuidado...

- Cuando incluimos 3D modificamos las áreas, cambiando las proporciones



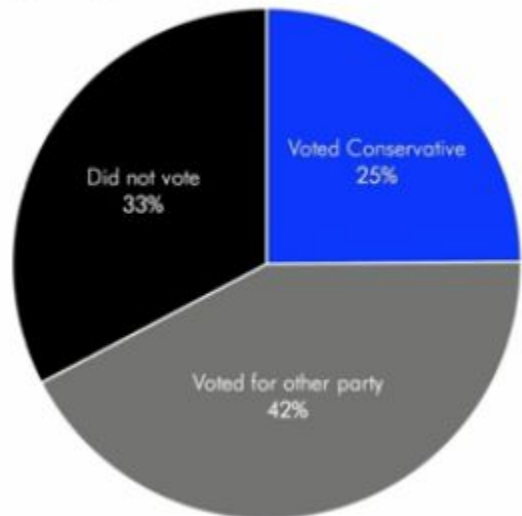


# Pero como todo, tienen una función

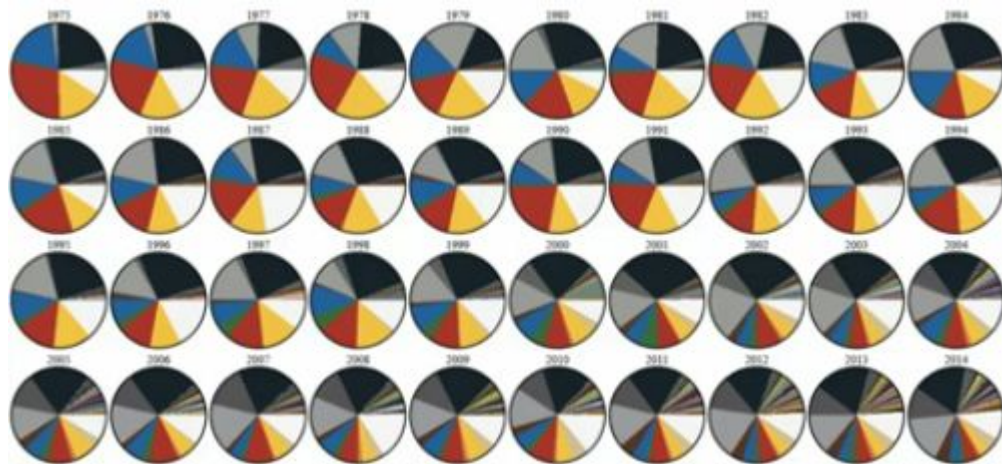
---

Para mostrar una distribución  
entre 2 o 3 valores

Summary of eligible voters in the UK General Election 2015



Para mostrar la evolución de un  
set de valores

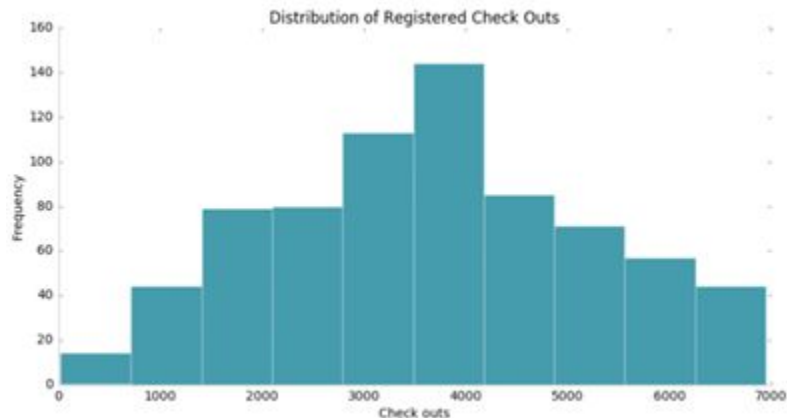


# Algunas visualizaciones comunes

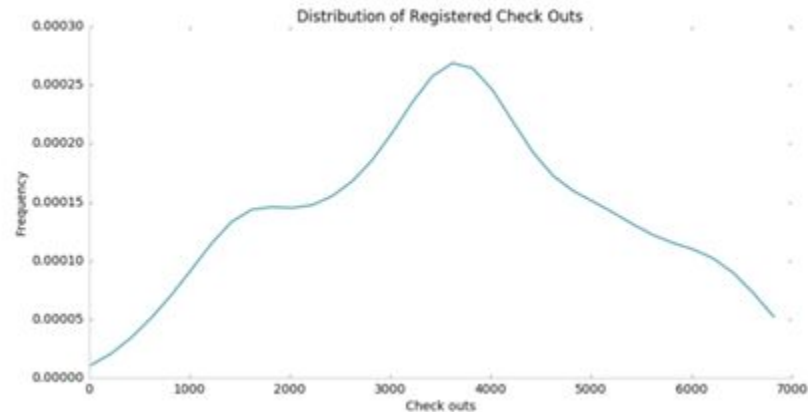
---

Para analizar la distribución de una variable:

Histograma



Density Plot

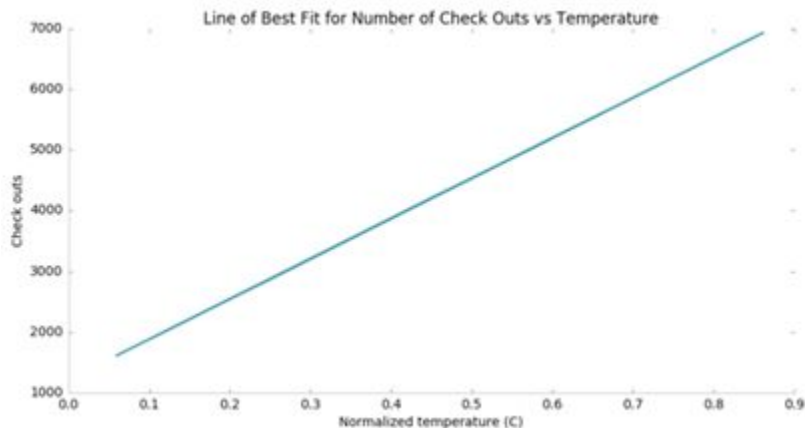


# Algunas visualizaciones comunes

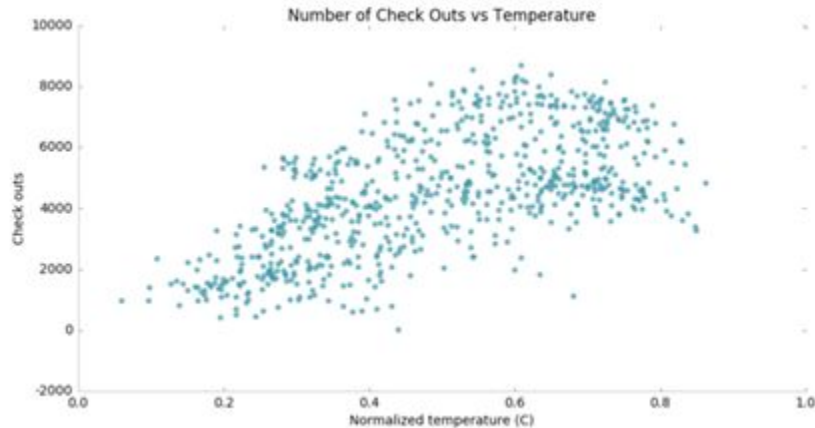
---

Para explorar la relación entre distintas variables:

Line Plot



Scatter Plot



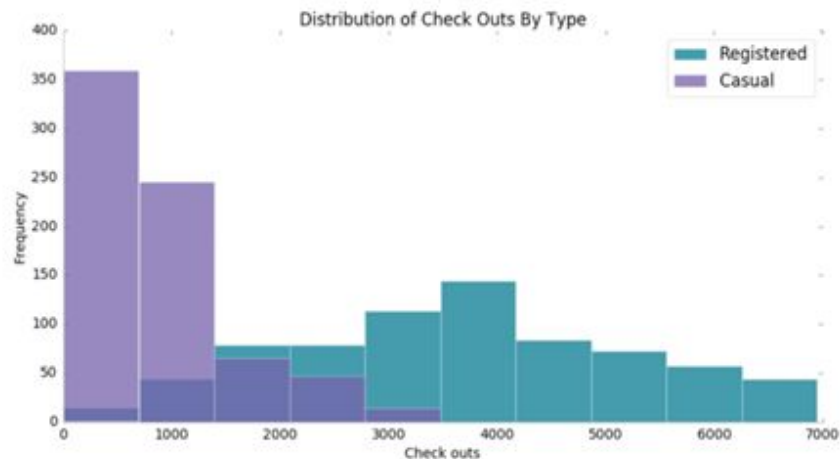
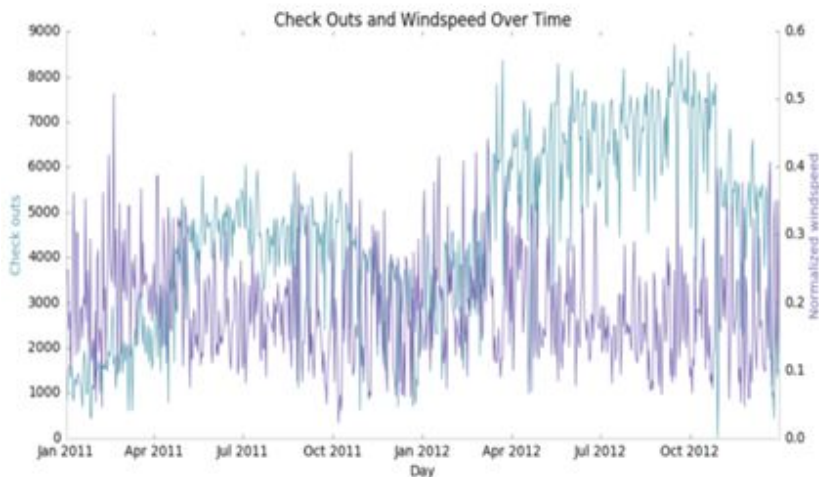
# Algunas visualizaciones comunes

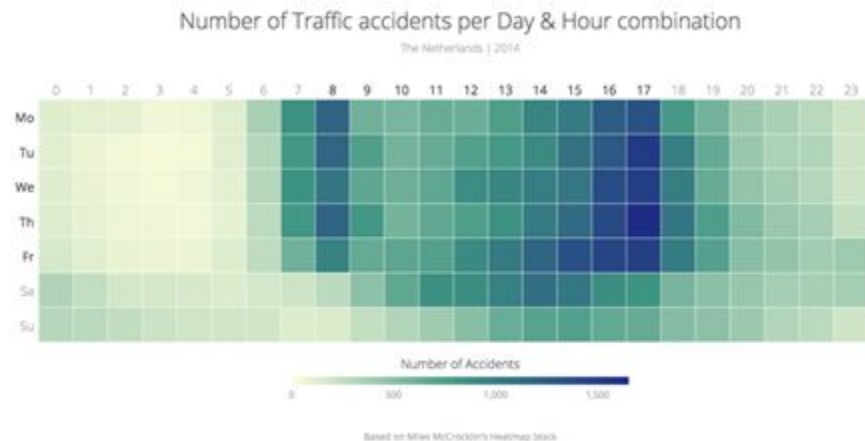
---

Para explorar la relación entre distintas variables:

Line Plot con dos ejes y

Histogramas superpuestos





# Algunas visualizaciones comunes

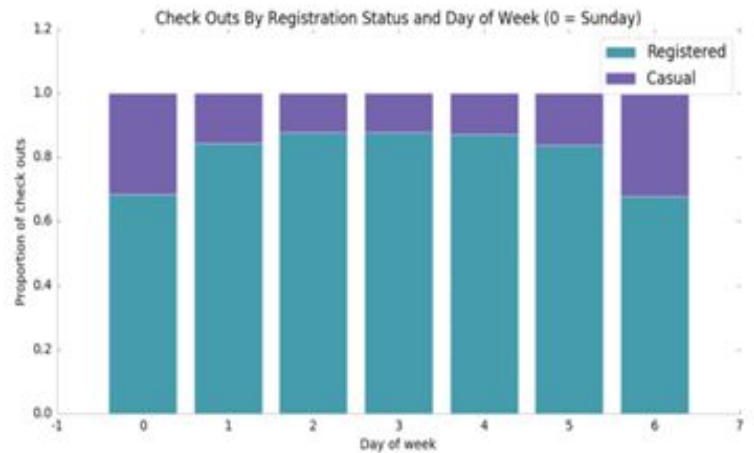
---

Comparando grupos o categorías:

Bar Plot



Stacked Bar Plot

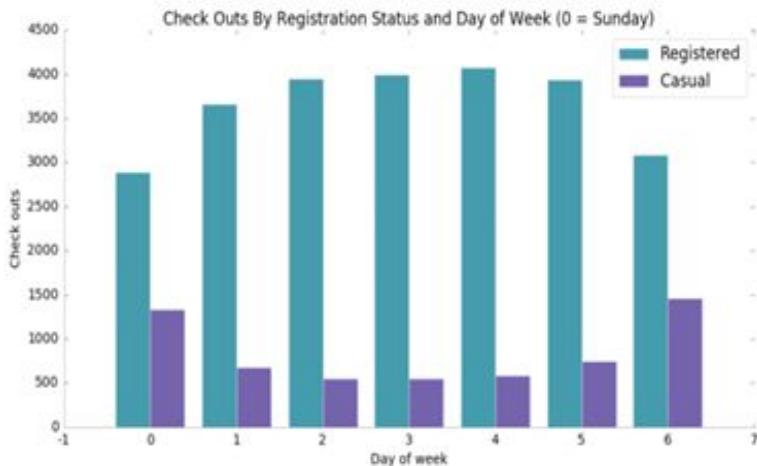


# Algunas visualizaciones comunes

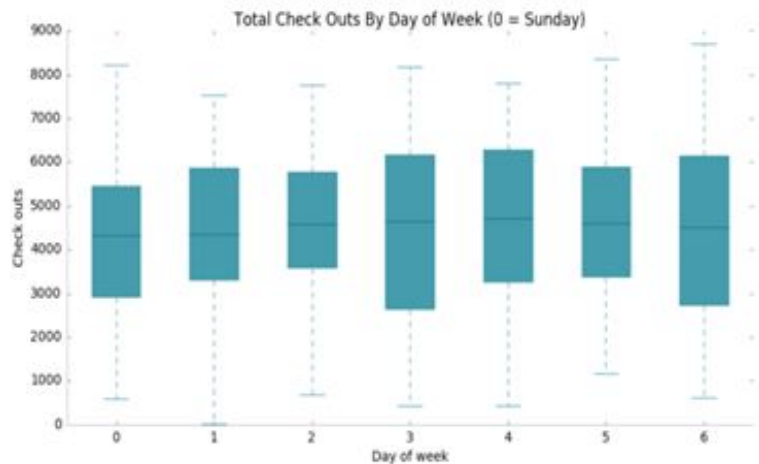
---

Comparando grupos o categorías:

Grouped Bar Plot

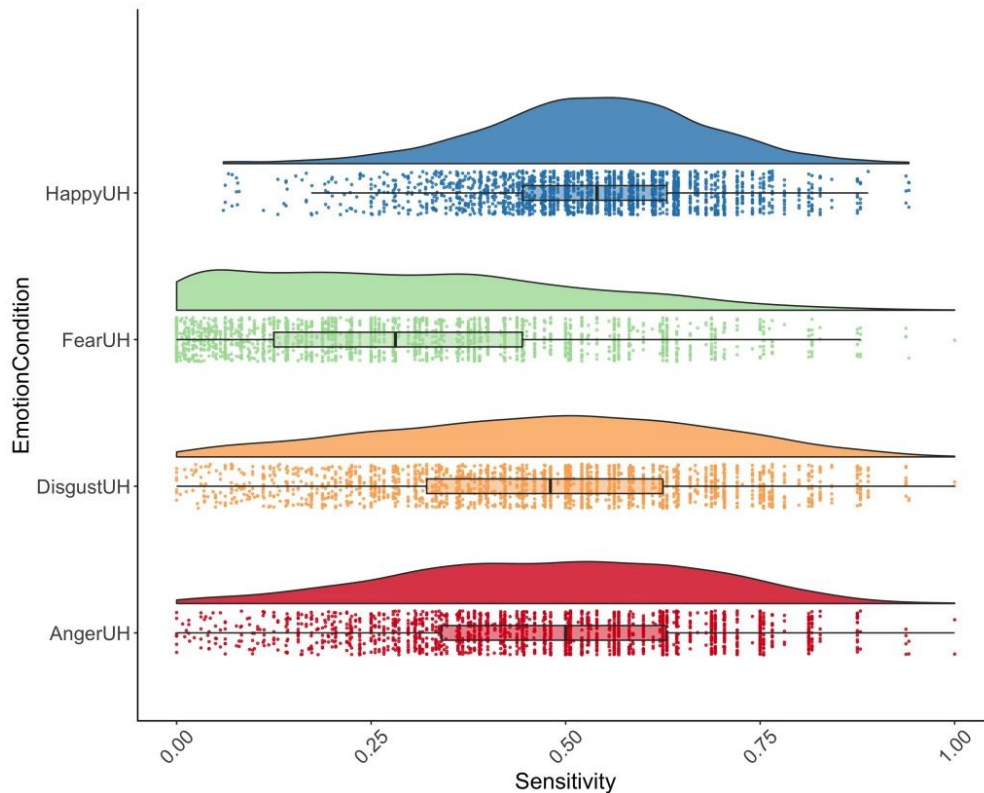


Box Plot



# Explorando otras opciones

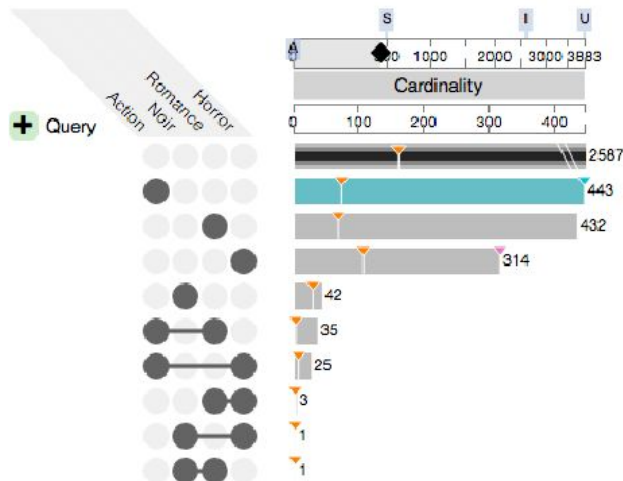
## Raincloud Plot



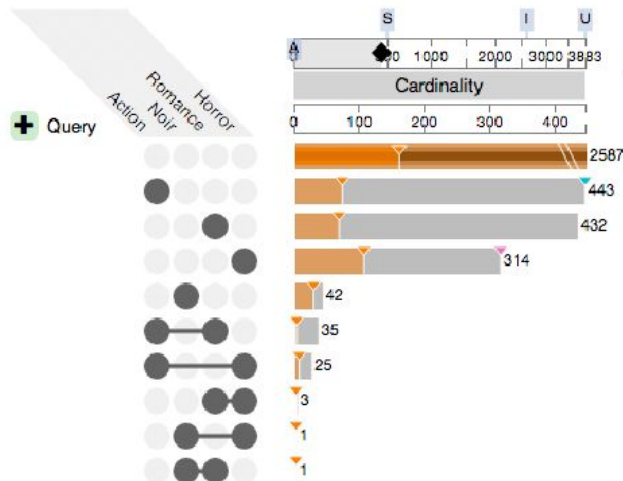


# Explorando otras opciones

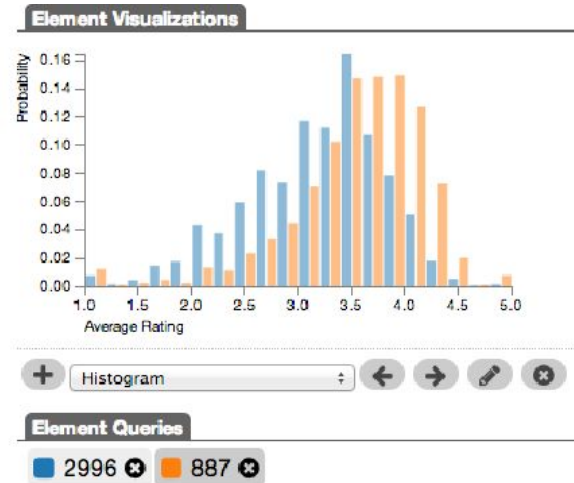
## UpSet



(a) Element query in set space



(b) Element query in element space

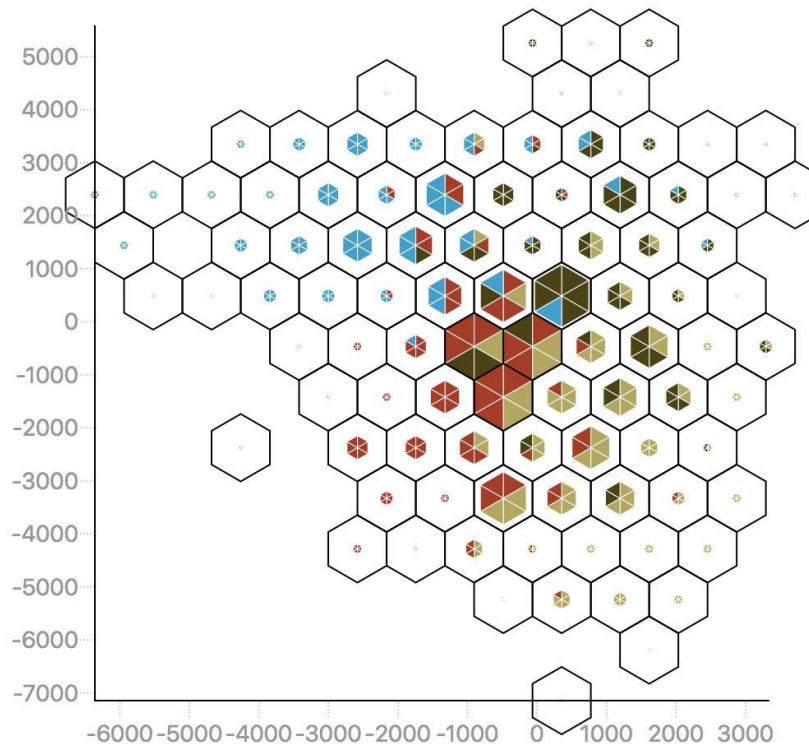


(c) Element visualization

# Explorando otras opciones

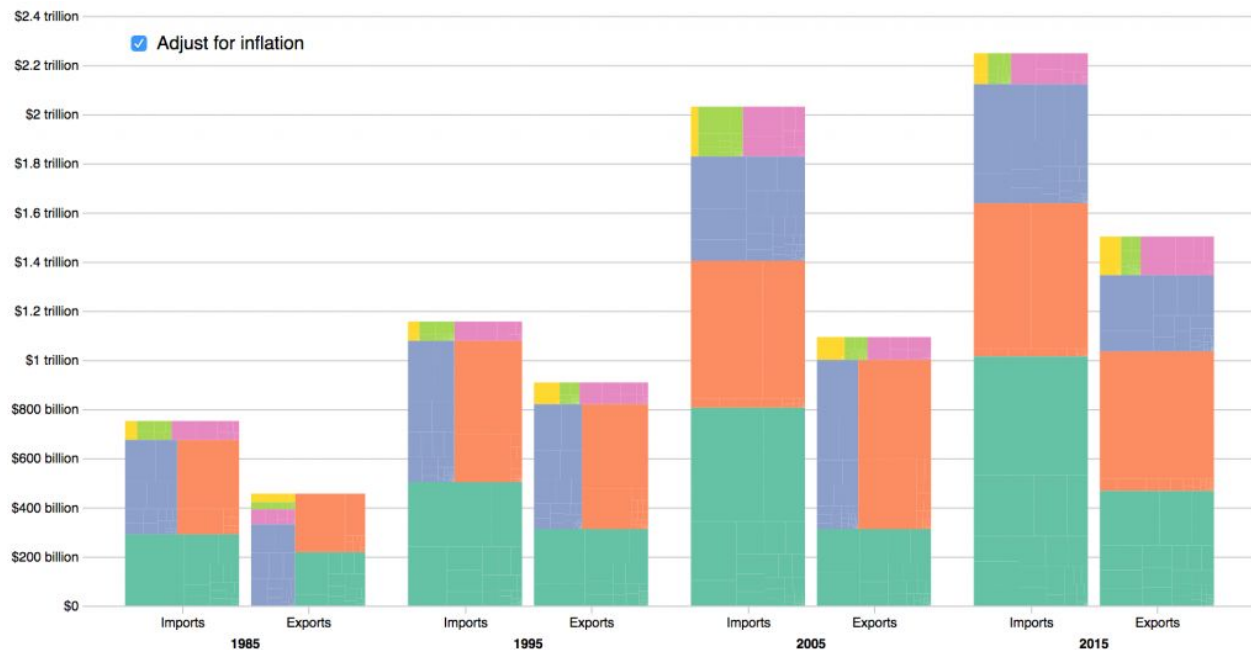
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## Multi-Class Hexbin

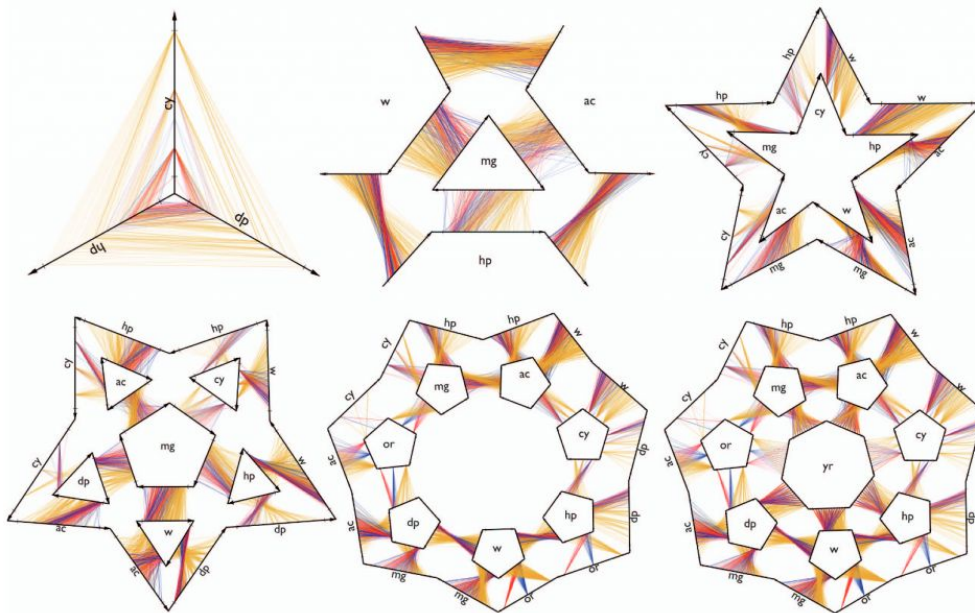


# Explorando otras opciones

## Tree map bar chart



## Many-to-many relational parallel coordinate plot



# Best in Show

The ultimate data-dog

INTELLIGENCE SIZE TYPE

dumb clever sml med lrg Herding Hound Non-sporting Sporting Terrier Toy Working

public popularity

Inexplicably overrated



Hot dog!



OUR DATA SCORE

intelligence + longevity + ailments + costs - grooming - appetite = data score

Rightly ignored

Overlooked treasures

our data score

# What is the world's biggest cash crop?

## MOST PLANTED

Area Harvested (million km<sup>2</sup>)

## MOST FECUND

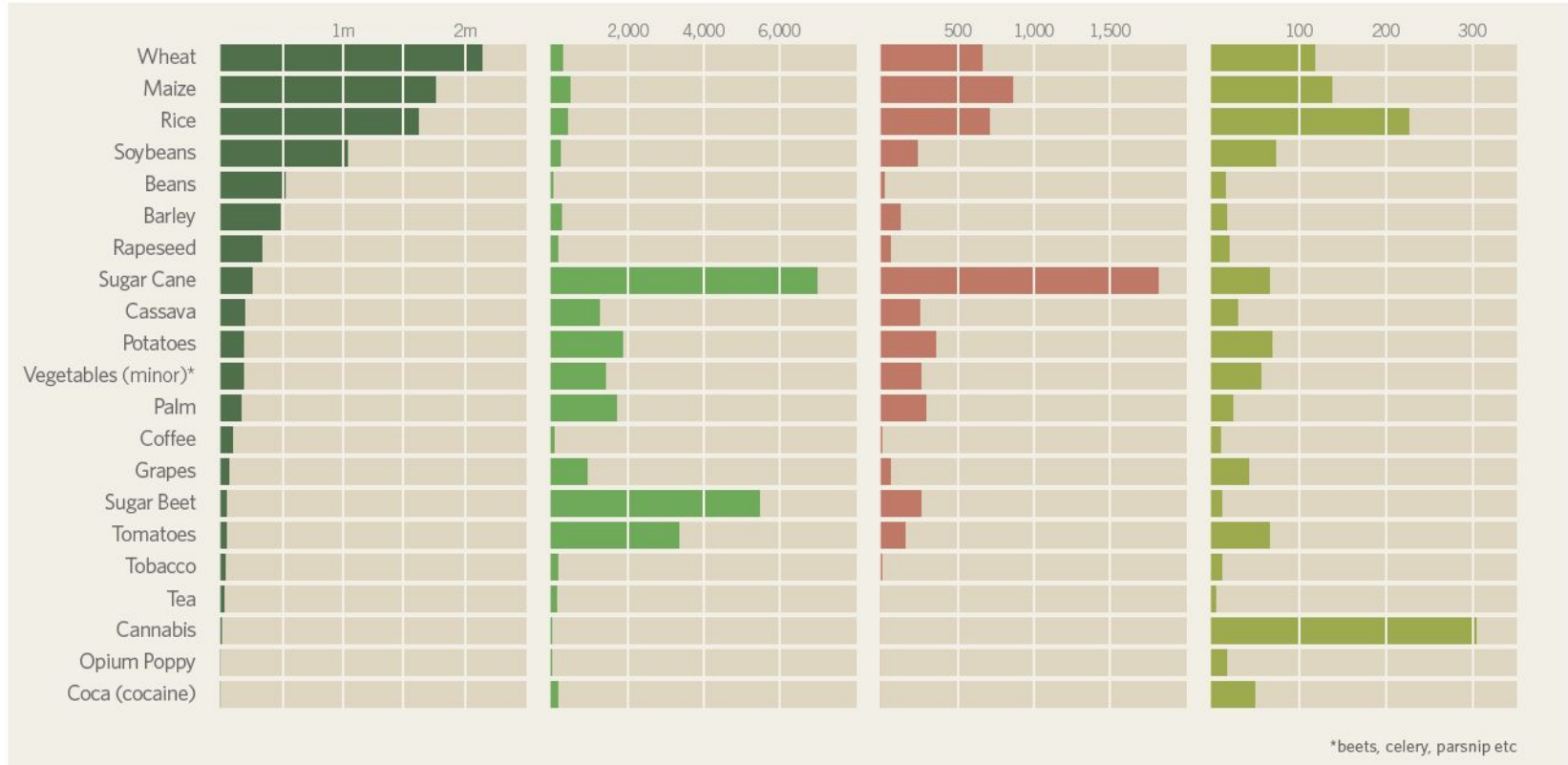
Yield per km<sup>2</sup> (tonnes)

## MOST POPULAR

Gross yearly production (mtonnes)

## MOST REVENUE

Gross production value (\$bn)

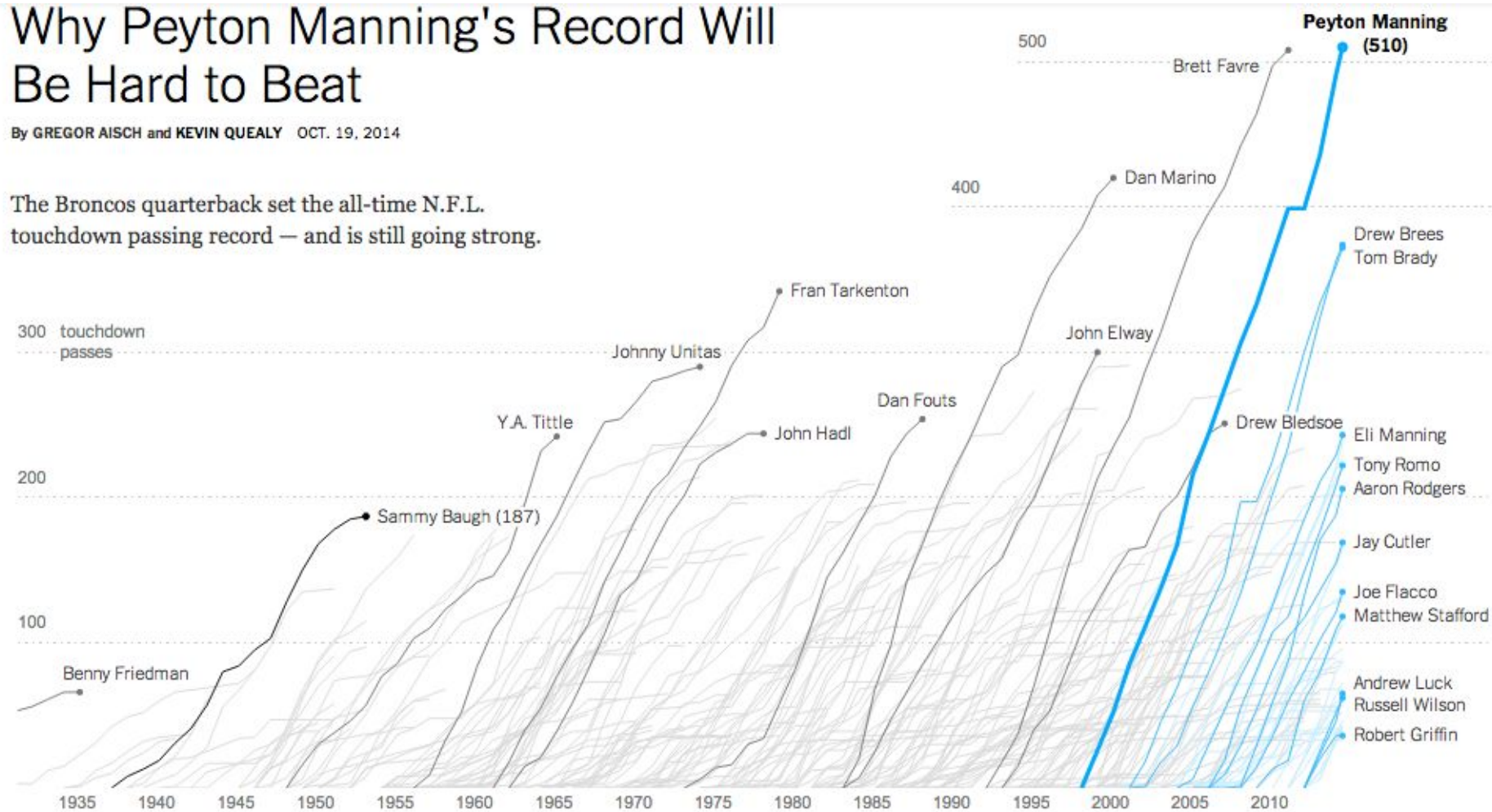




# Why Peyton Manning's Record Will Be Hard to Beat

By GREGOR AISCH and KEVIN QUEALY OCT. 19, 2014

The Broncos quarterback set the all-time N.F.L. touchdown passing record — and is still going strong.

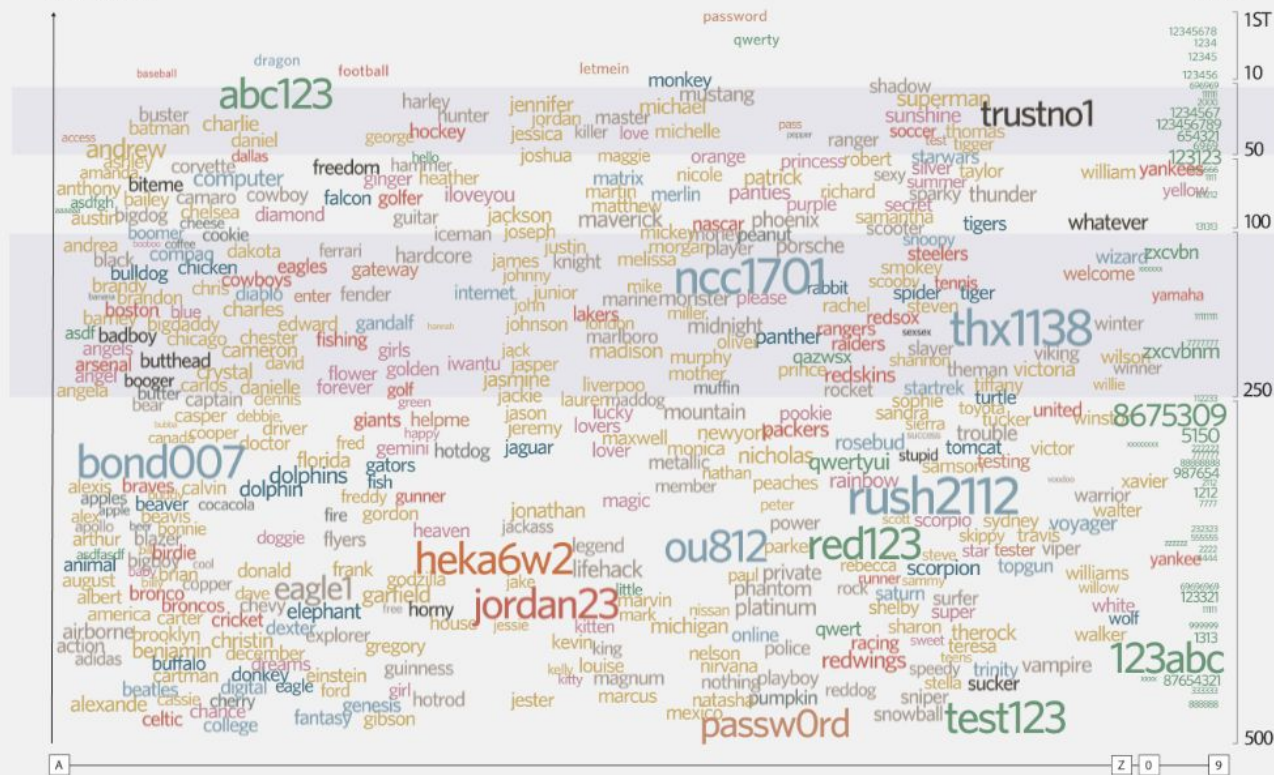


Is yours here?

Clear All

Rebellious/Rude Simple Alphanumeric Sport Truly Random

RANK



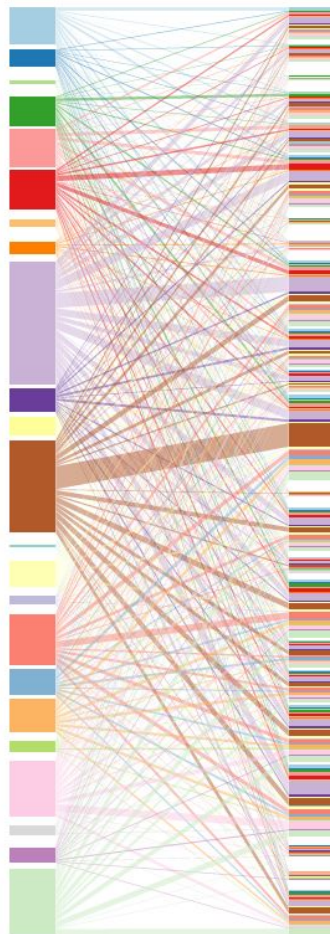


## Father-son occupation pairs

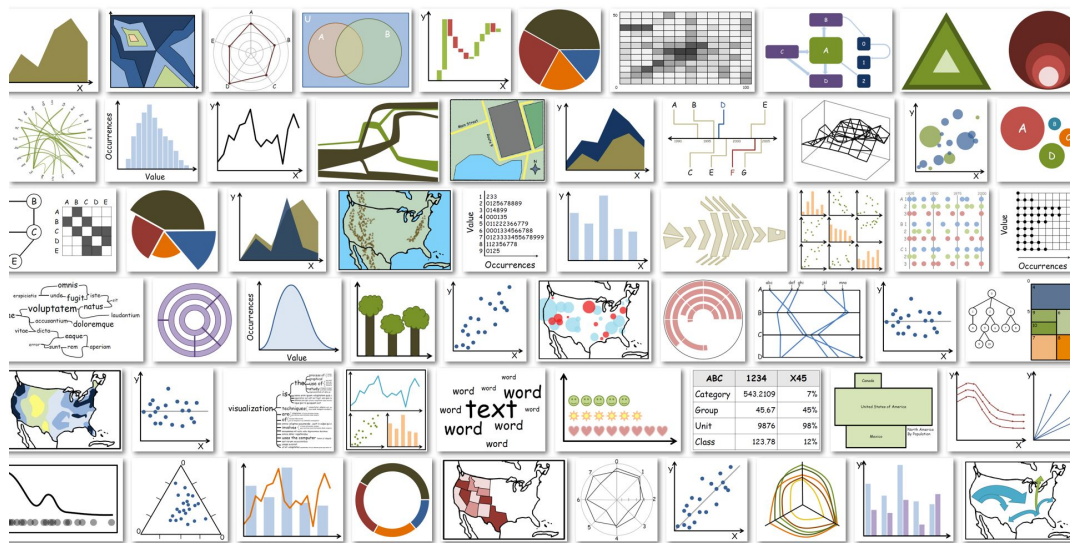
Father

Son

architecture\_engineering  
business\_finance  
cleaning\_maintenance  
construction  
education  
entertainment  
farming  
legal  
  
management  
  
math\_CS  
medicine  
  
military  
  
nursing  
office  
personal\_care  
production  
protective\_service  
repair  
restaurant  
sales  
science  
social\_service  
transportation

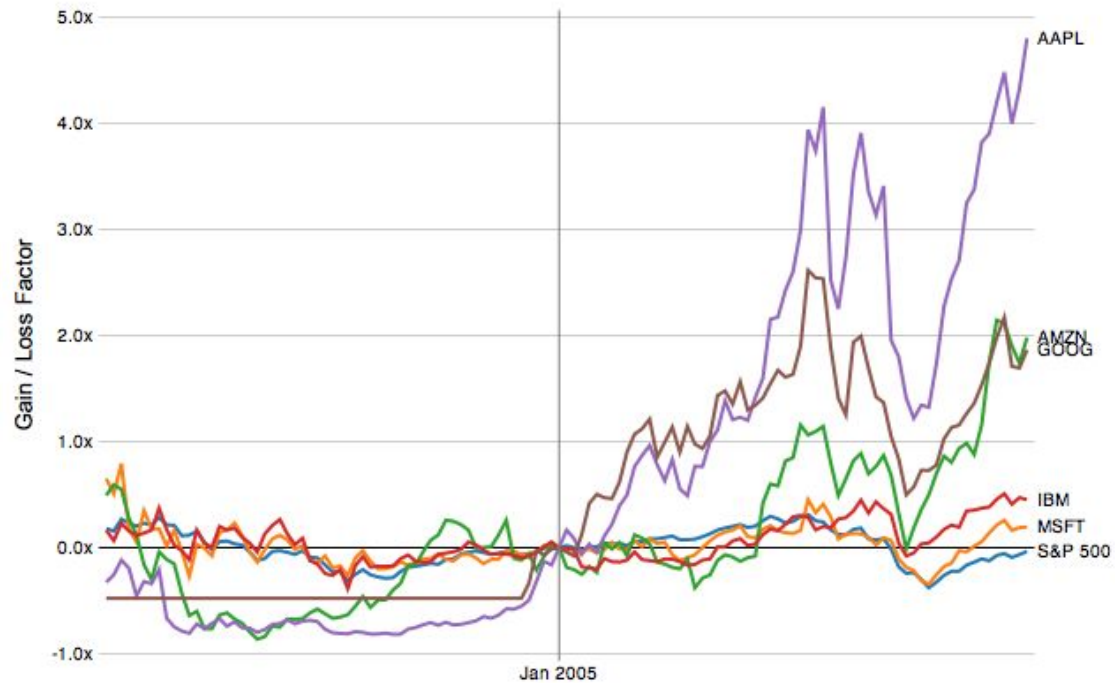


architecture\_engineering  
business\_finance  
cleaning\_maintenance  
construction  
education  
entertainment  
farming  
legal  
  
management  
  
math\_CS  
medicine  
  
military  
  
nursing  
office  
personal\_care  
production  
protective\_service  
repair  
restaurant  
sales  
science  
social\_service  
transportation



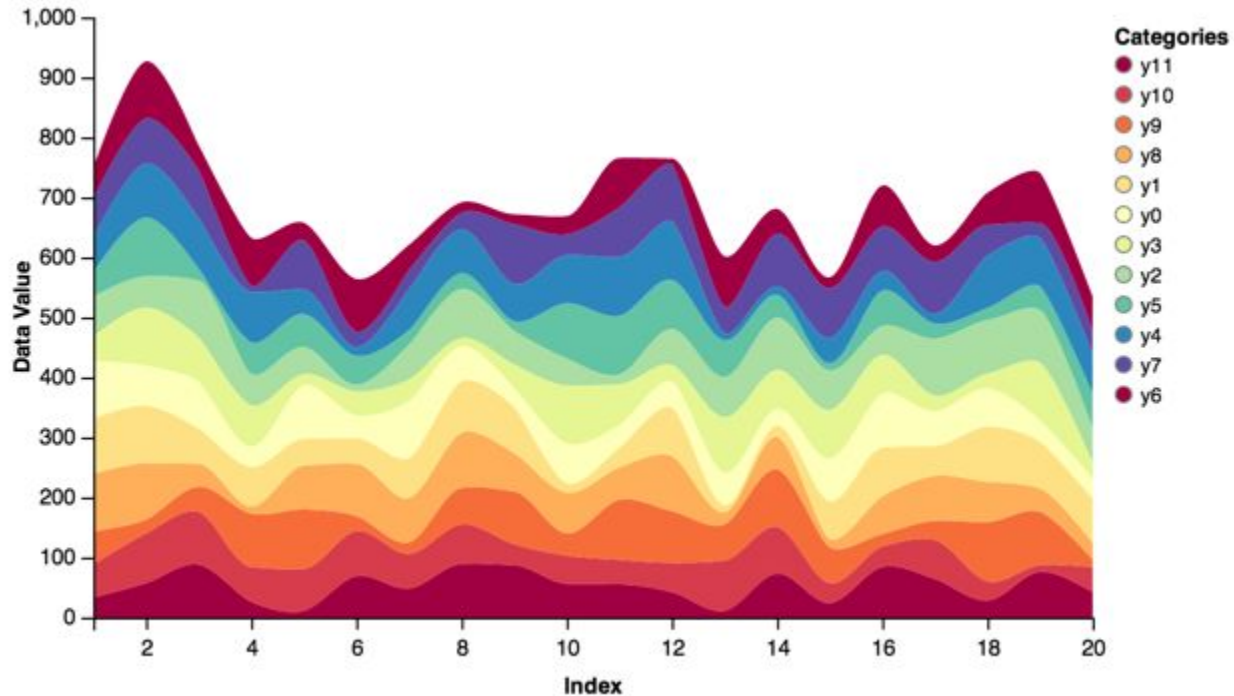
# Line Chart

---



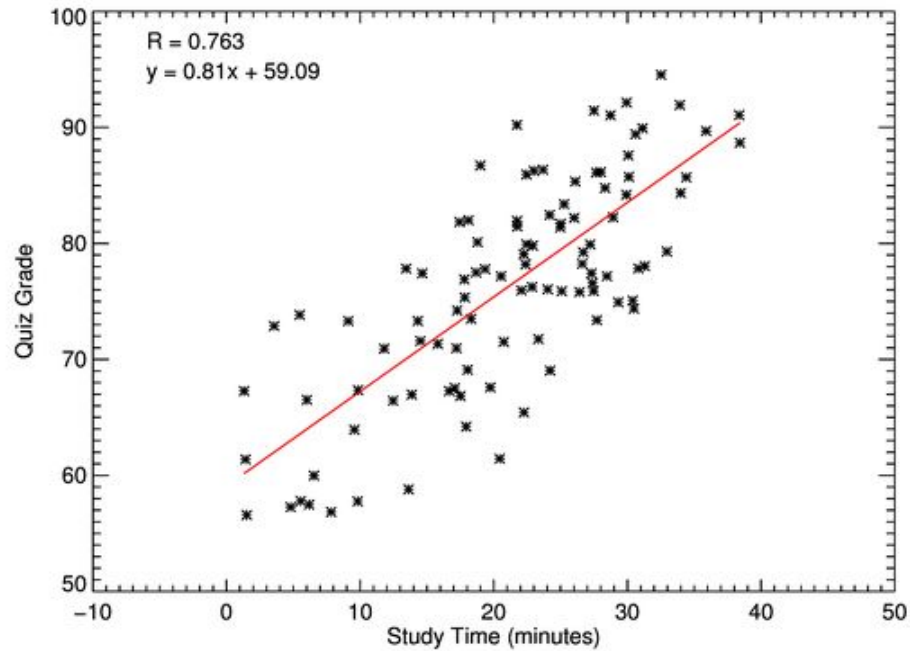
# Stacked Area

---



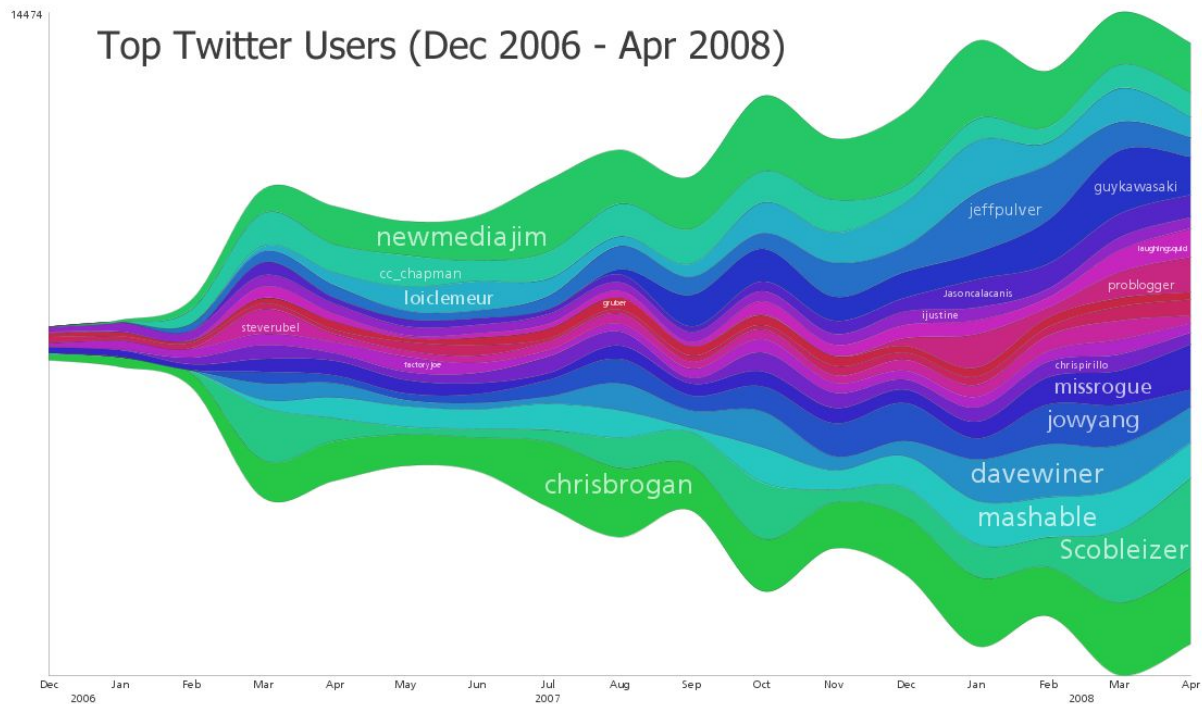
# Scatter Plot

---



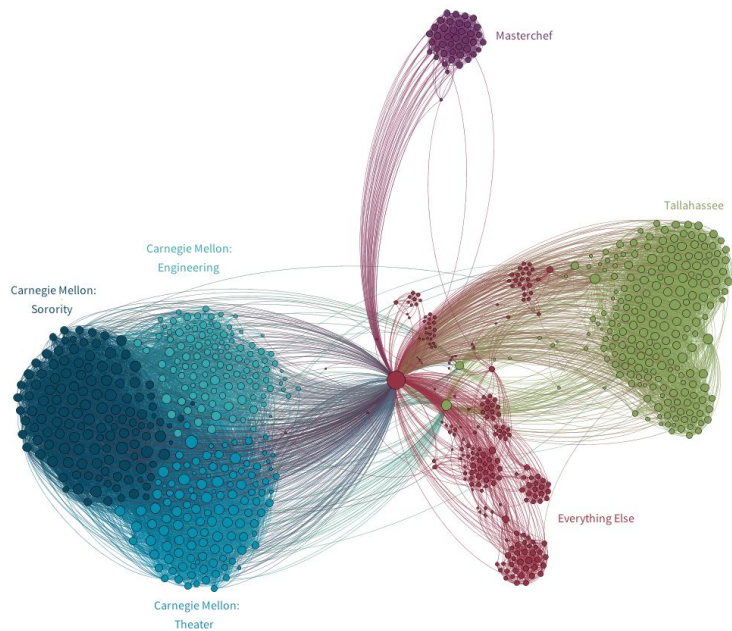
# Streamgraph

---



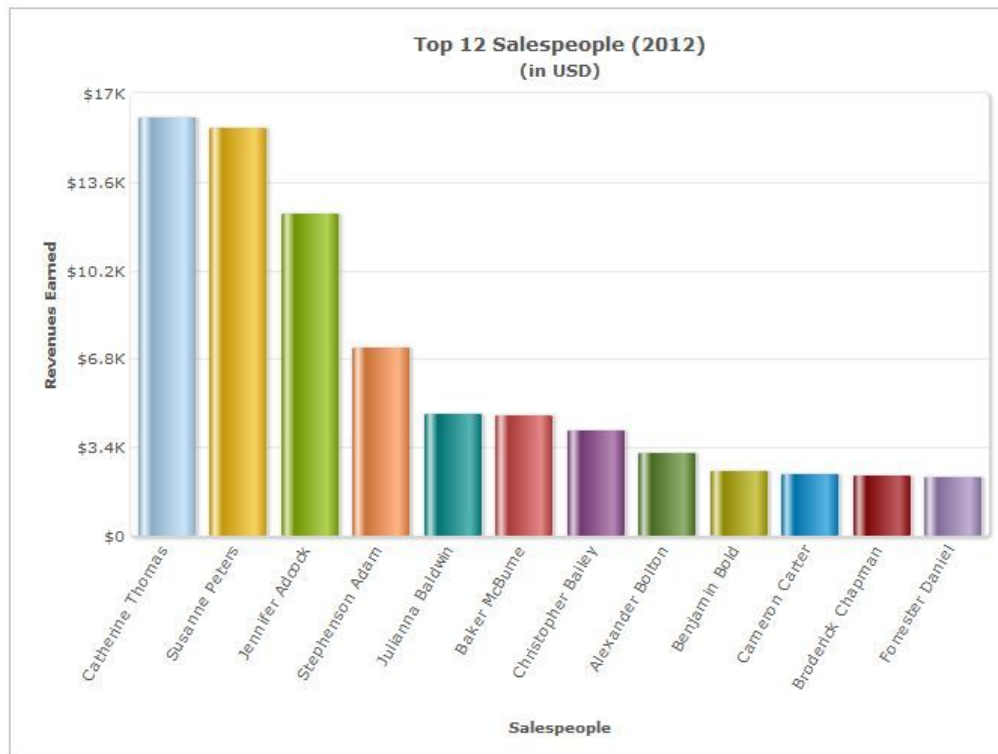
# Network Graph

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# Bar Chart

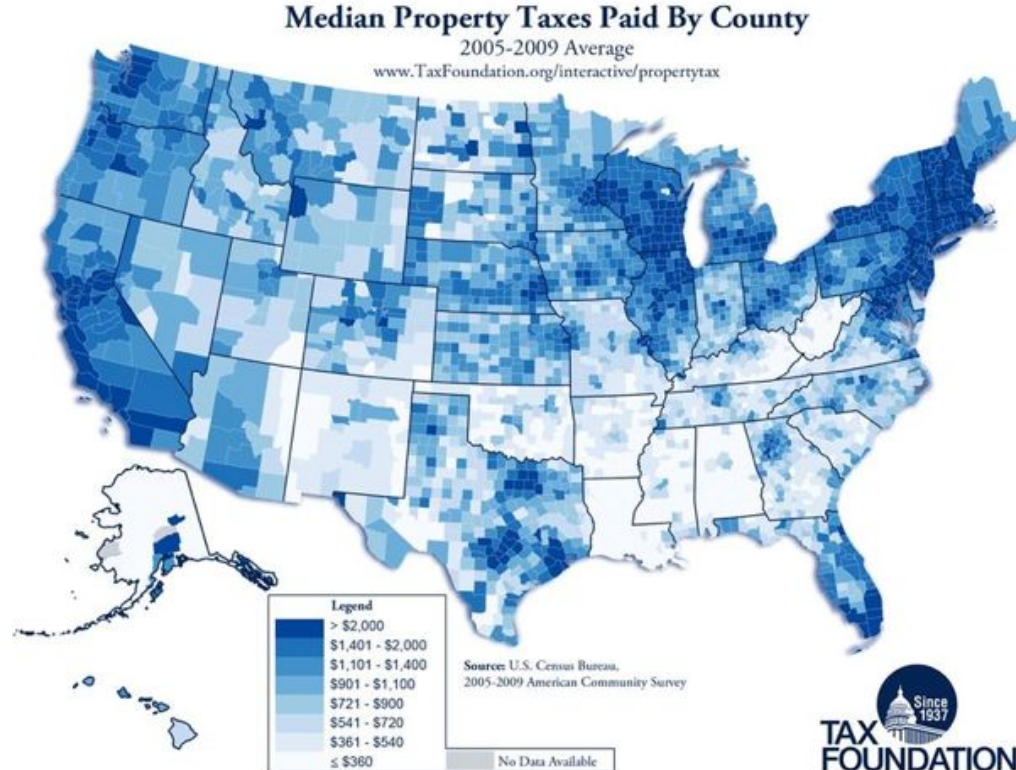
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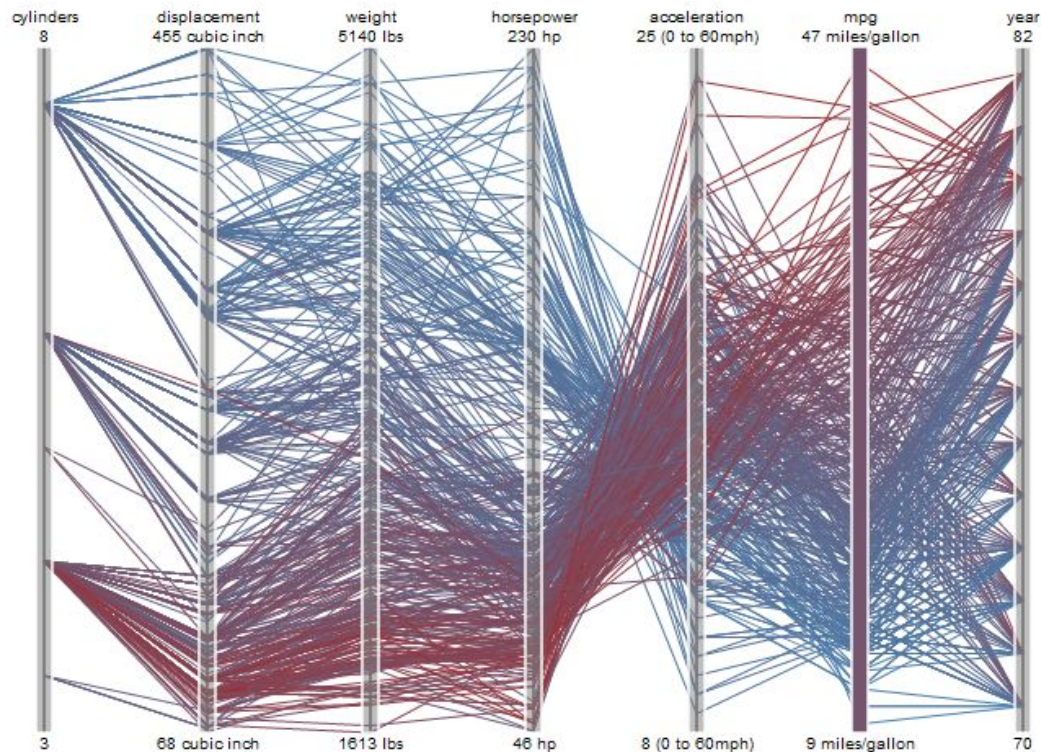
# Choropleth

---



# Paralell Coordinates

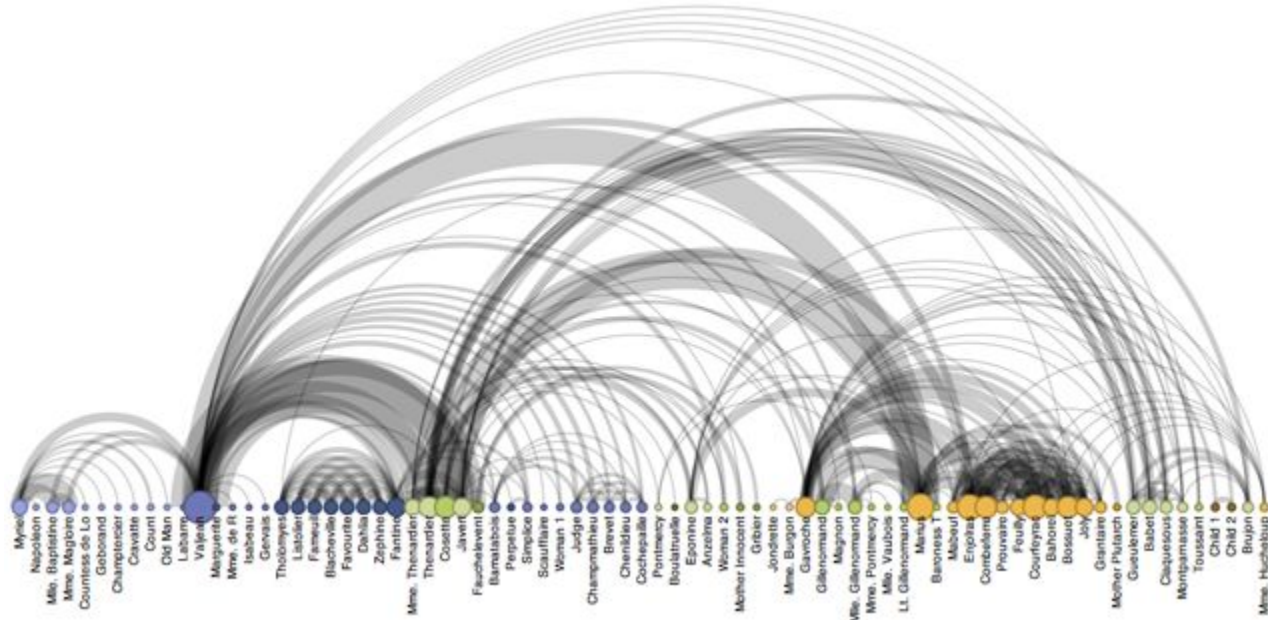
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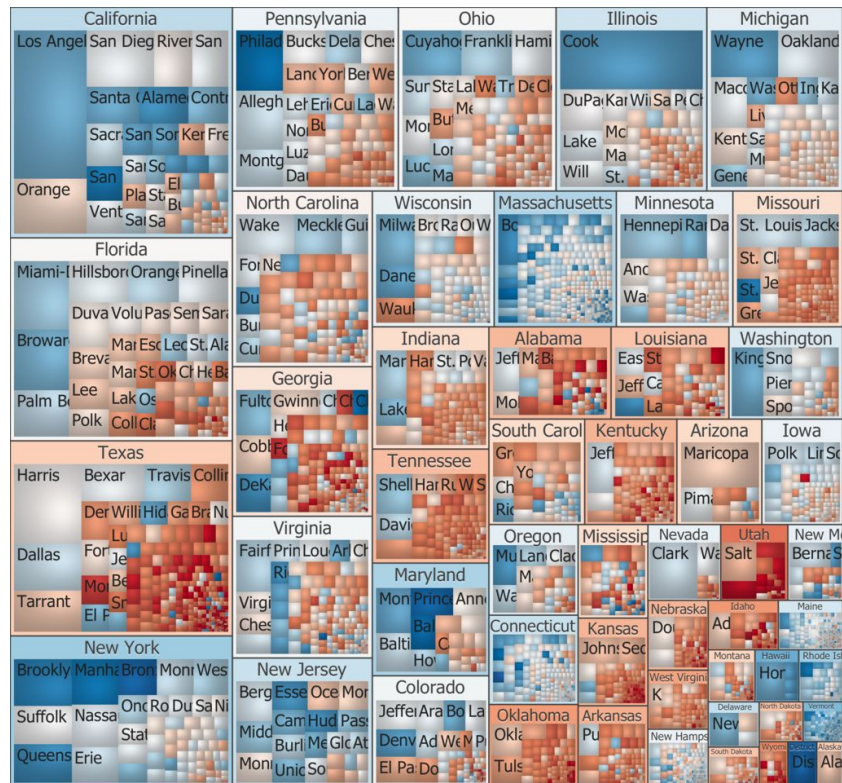
# Arc Diagram

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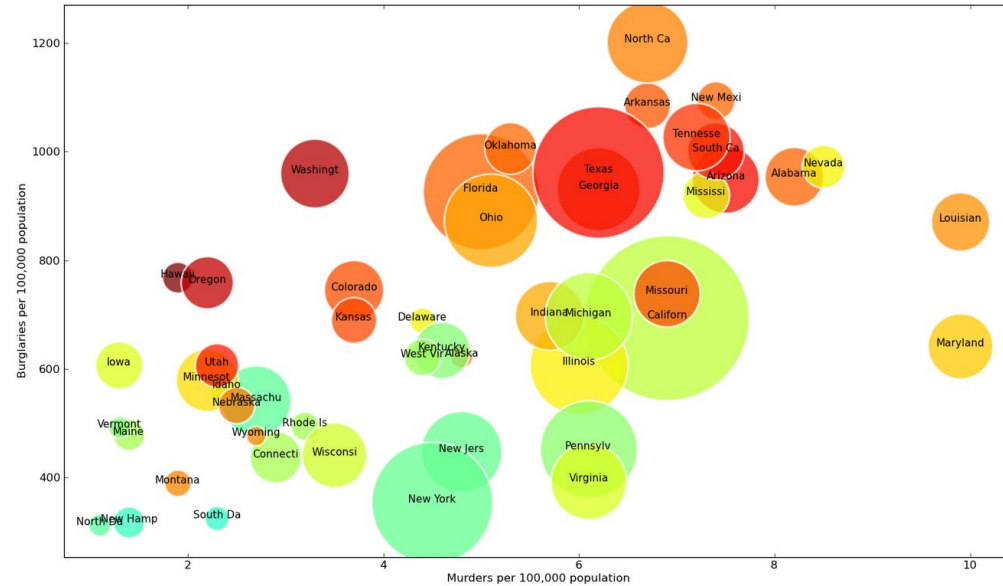


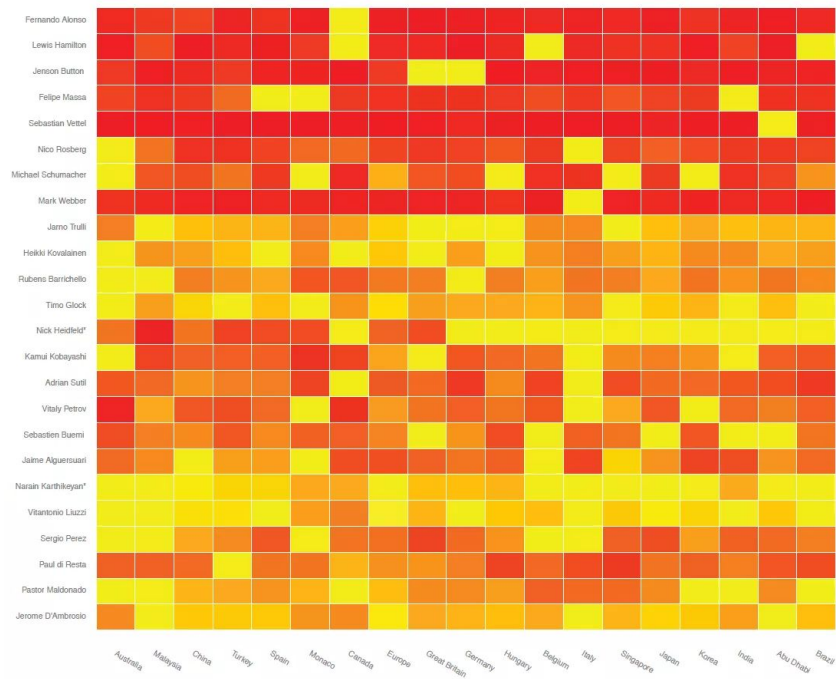




# Bubble Charts

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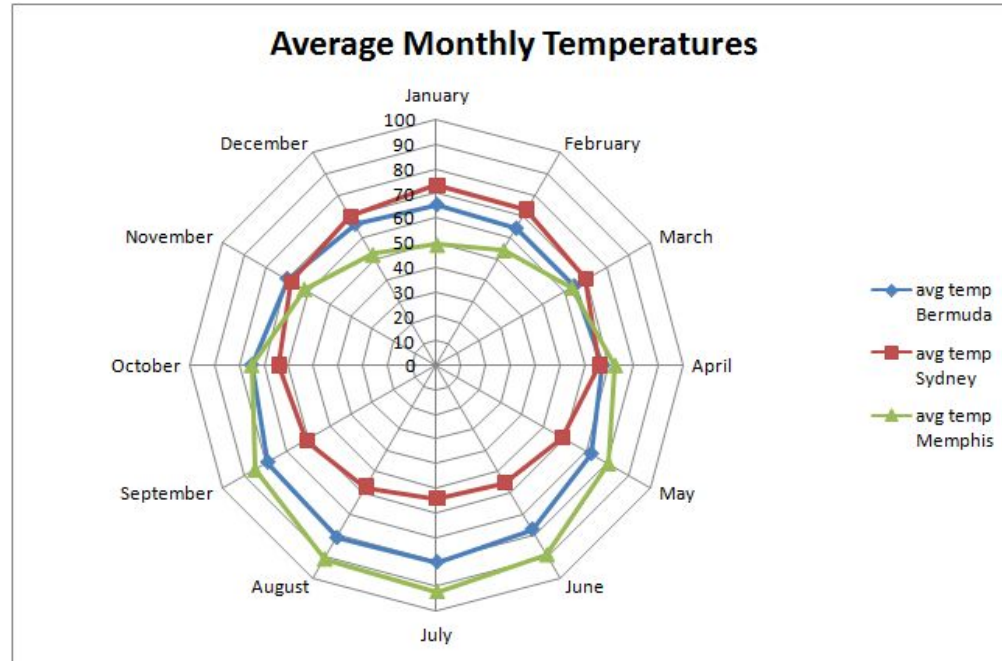






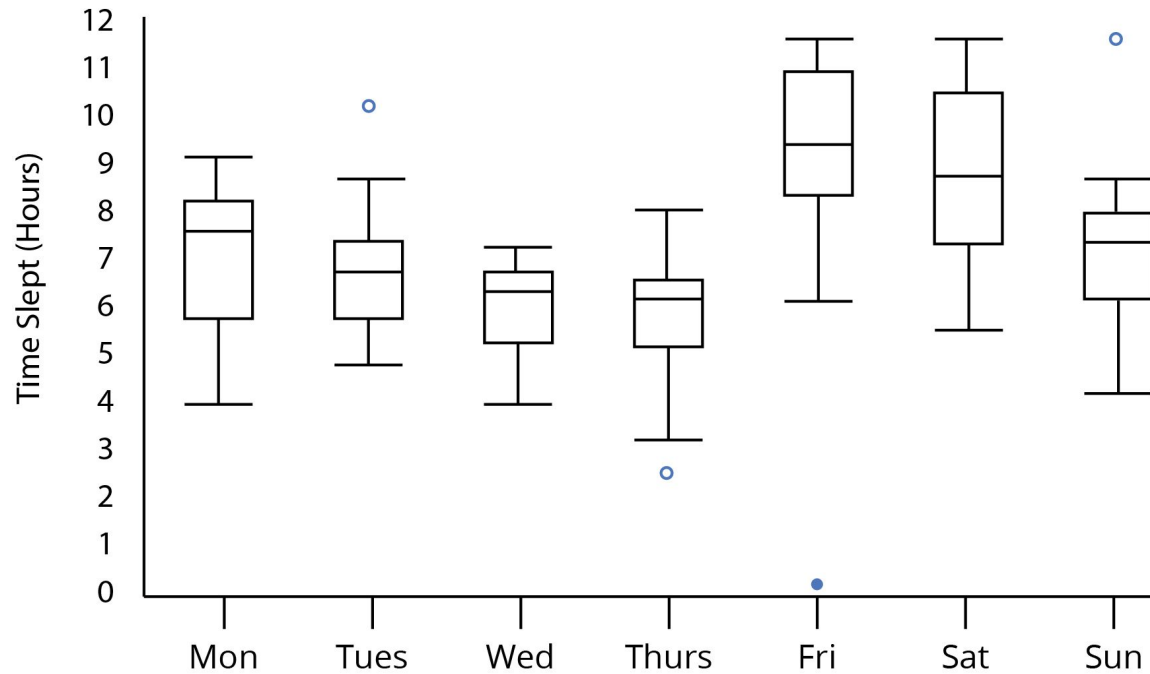
# Radar Chart

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# Box Plot

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# Violin Plot

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