Intro to Data Visualization

With Tableau

Studied Business Administration

ESADE

2009-2014

Worked as Sales, Account Manager, Product Manager (mainly in ad tech)

2014-2019

Now: Data Analyst at TravelPerk

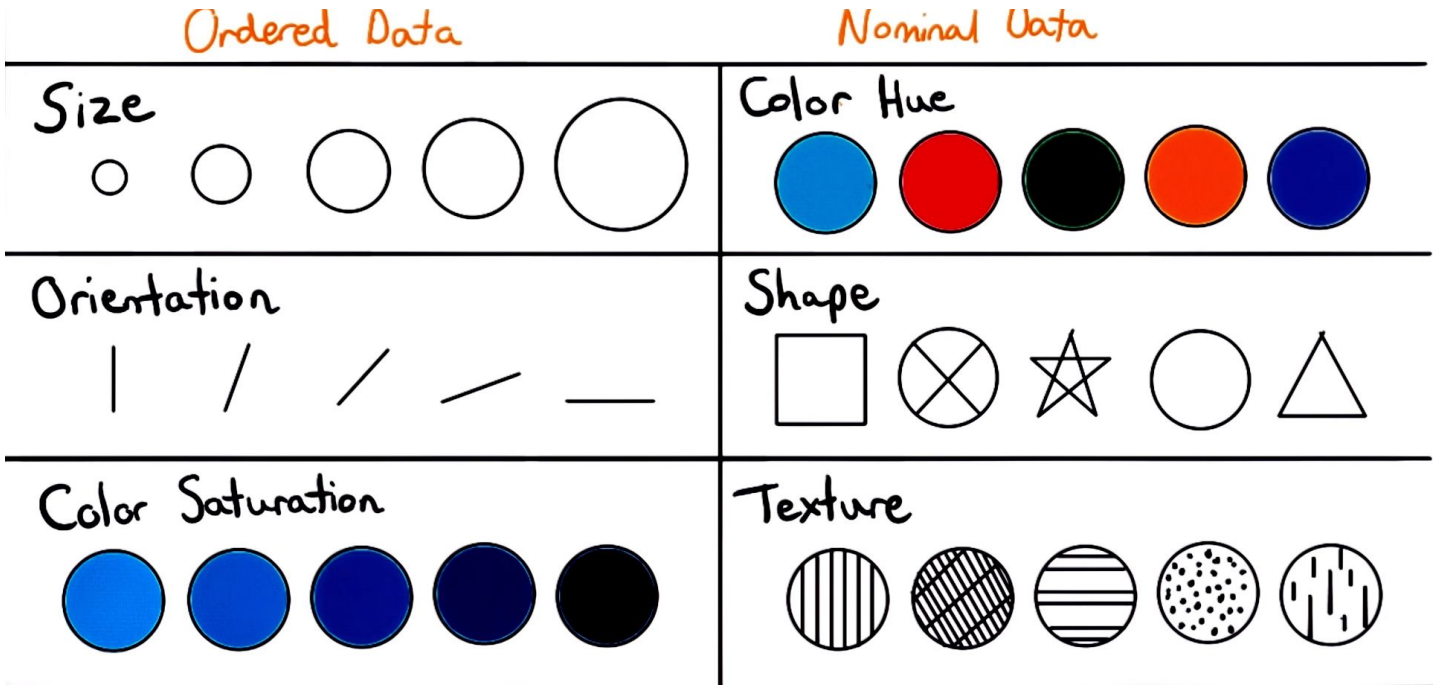
2019

Data Visualization Fundamentals

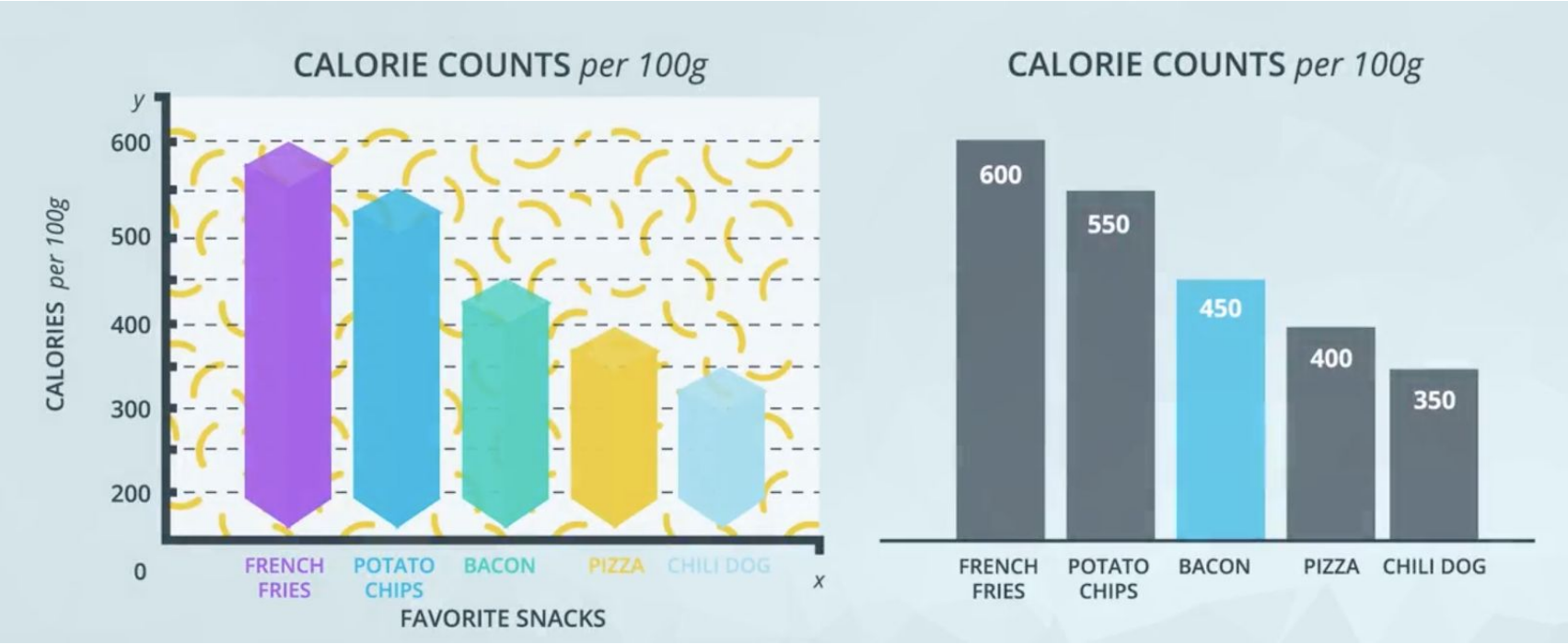
"A picture is worth a thousand words"

English proverb

Visual Encodings



Data-Ink Ratio



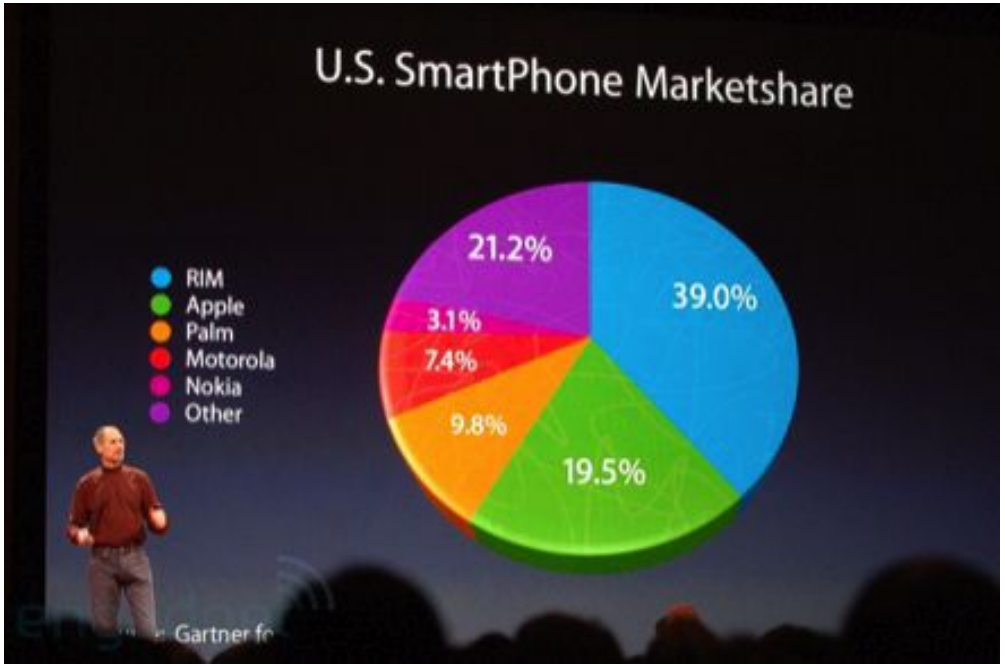
Data-Ink Ratio

$$\text{Data-ink ratio} = \frac{\text{Data-ink}}{\text{Total ink used to print the graphic}}$$

Goal: maximize data-ink ratio and erase as much chart junk as possible.

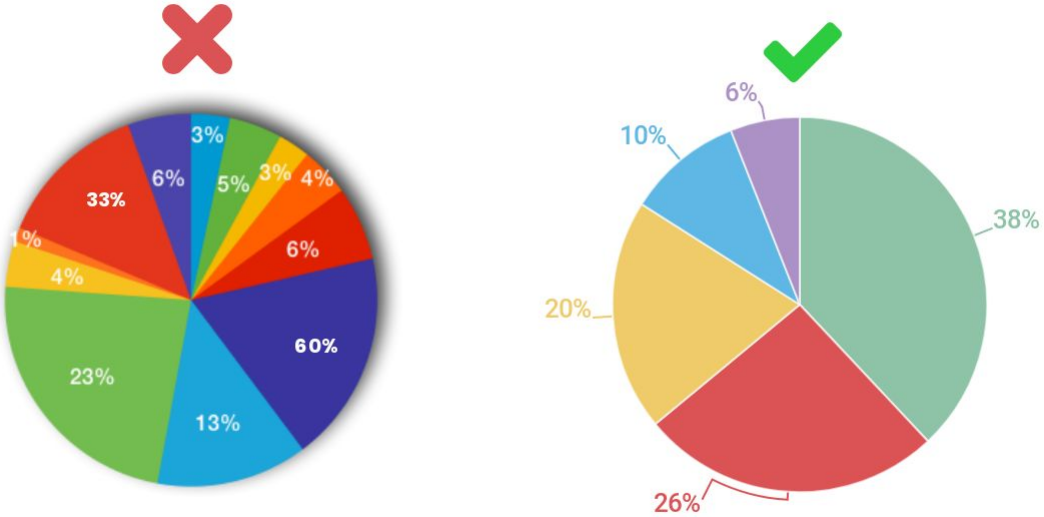
Data visualization bad practices

3D visualizations



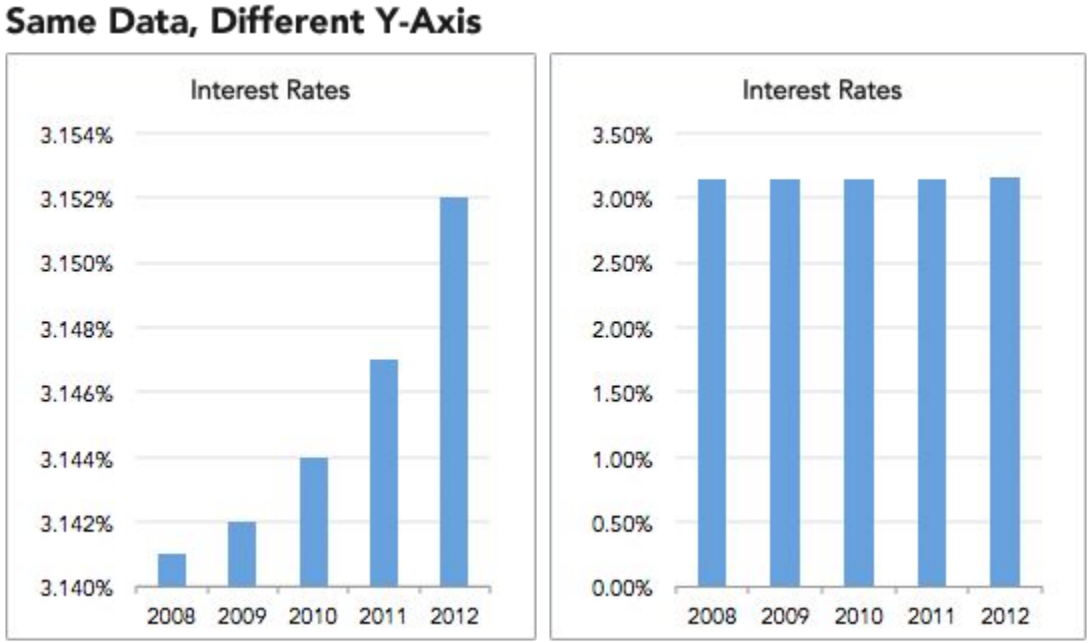
Data visualization bad practices

Too many categories



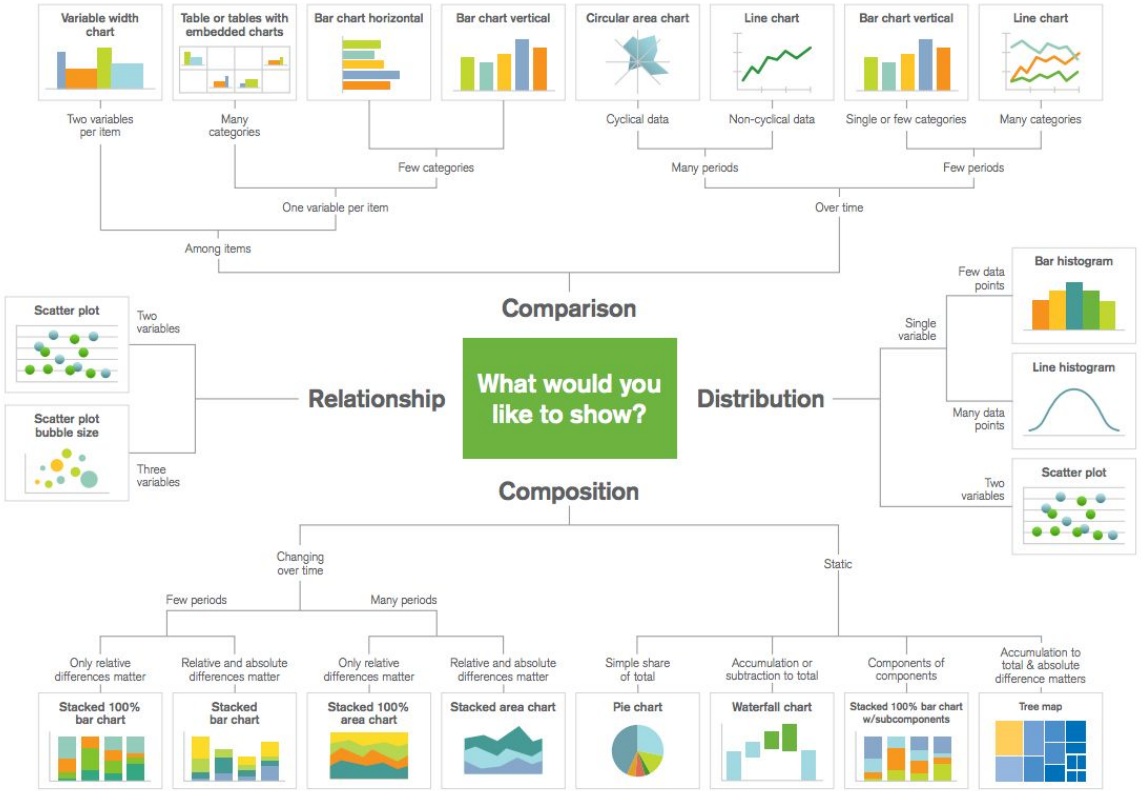
Data visualization bad practices

Truncating axes



Data visualization bad practices

Choice of Graph Type



Business Intelligence Tools

Most used BI tools

Google Data Studio

Tableau Public vs Tableau Desktop

Public

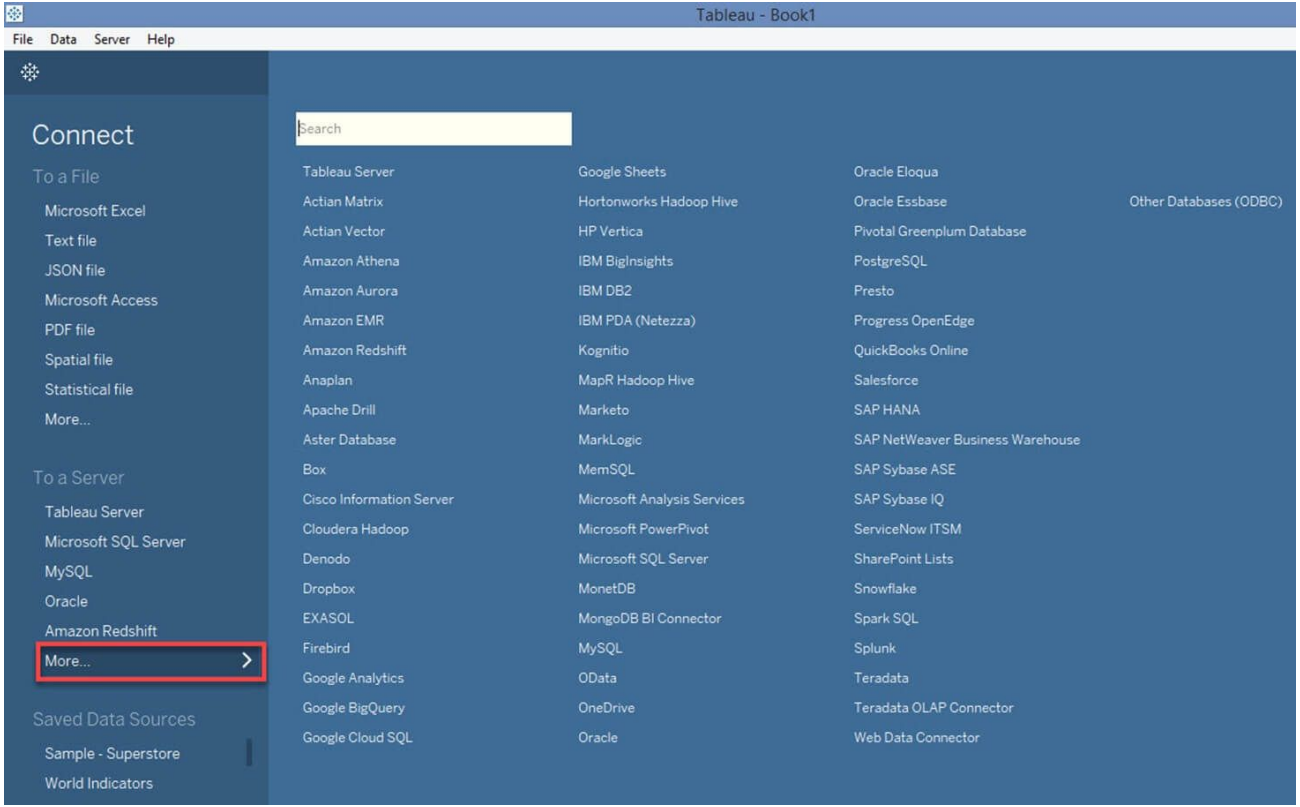
- You can only store your work online
- Can be connected with a limited number of data sources
- Used mostly for education
- Free

Desktop

- You can store your work locally (on your computer)
- Can connect to more data sources
- Used mostly for work
- Paid

Tableau Fundamentals

Connecting to Data Source



Data Types

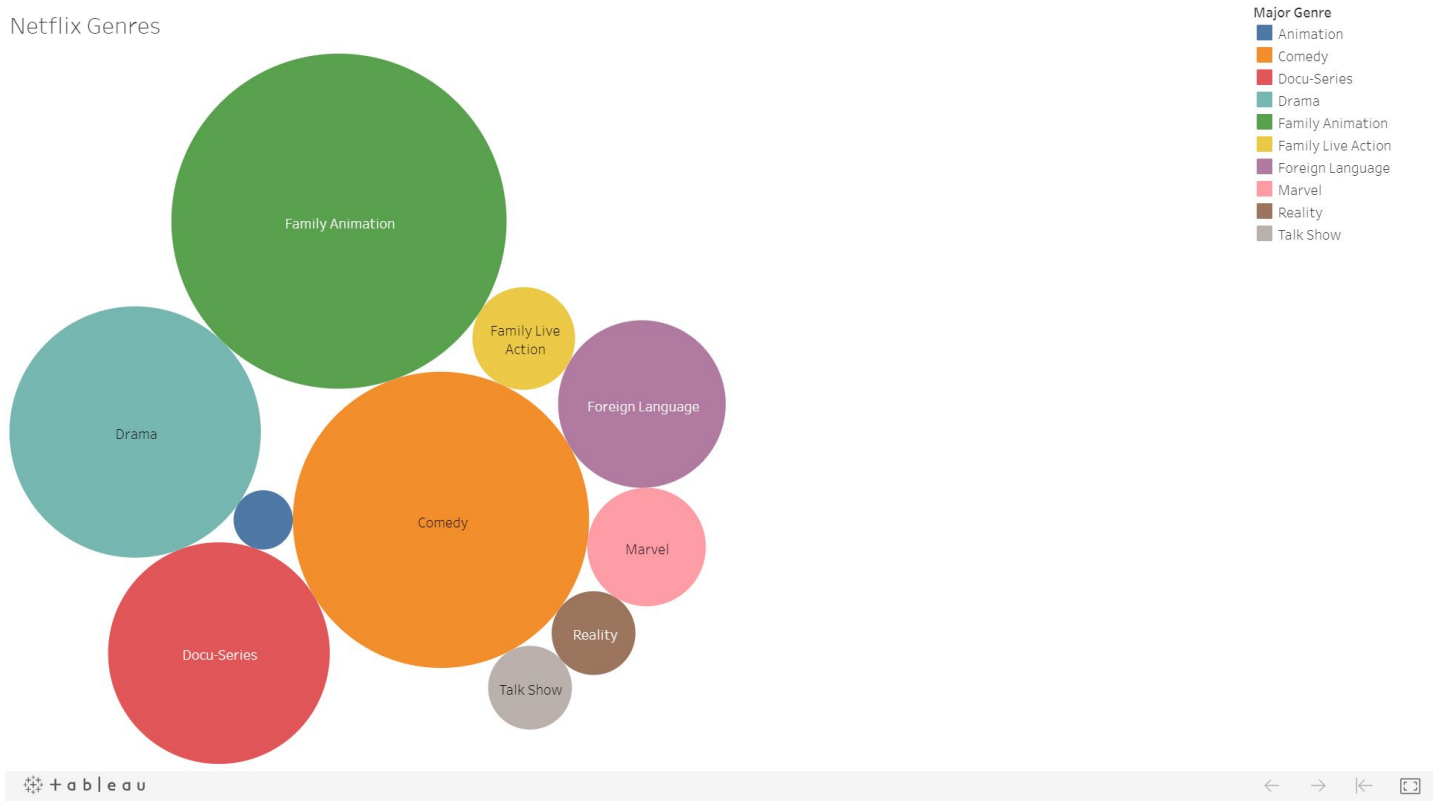
Data type icone in Tableau

Icon	Data type
Abc	*Text (string) values*
	Date values
	Date & Time values
	Numerical values
T | F	*Boolean values (relational only)*
	Geographic values (used with maps)

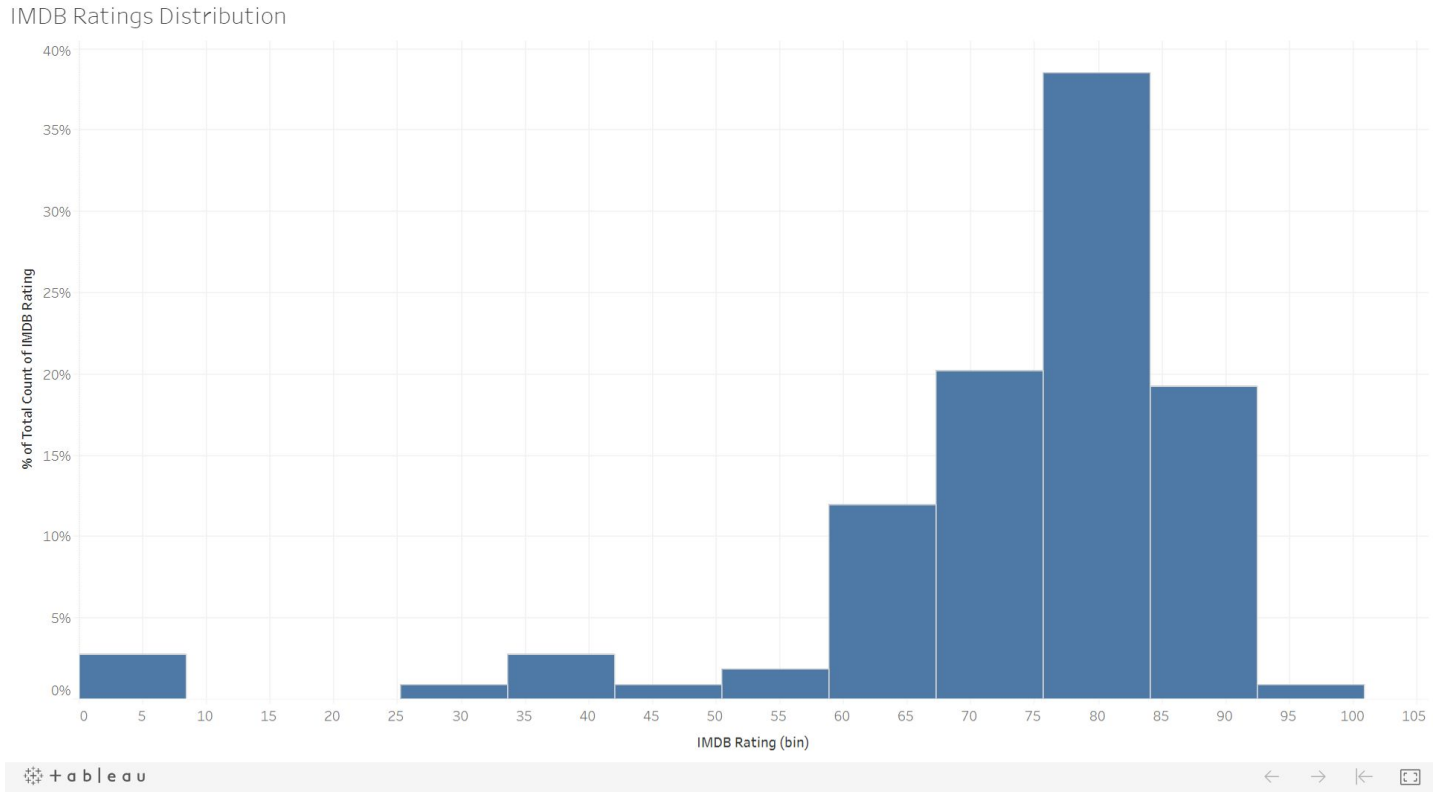
Tableau Workspace

Building Charts in Tableau

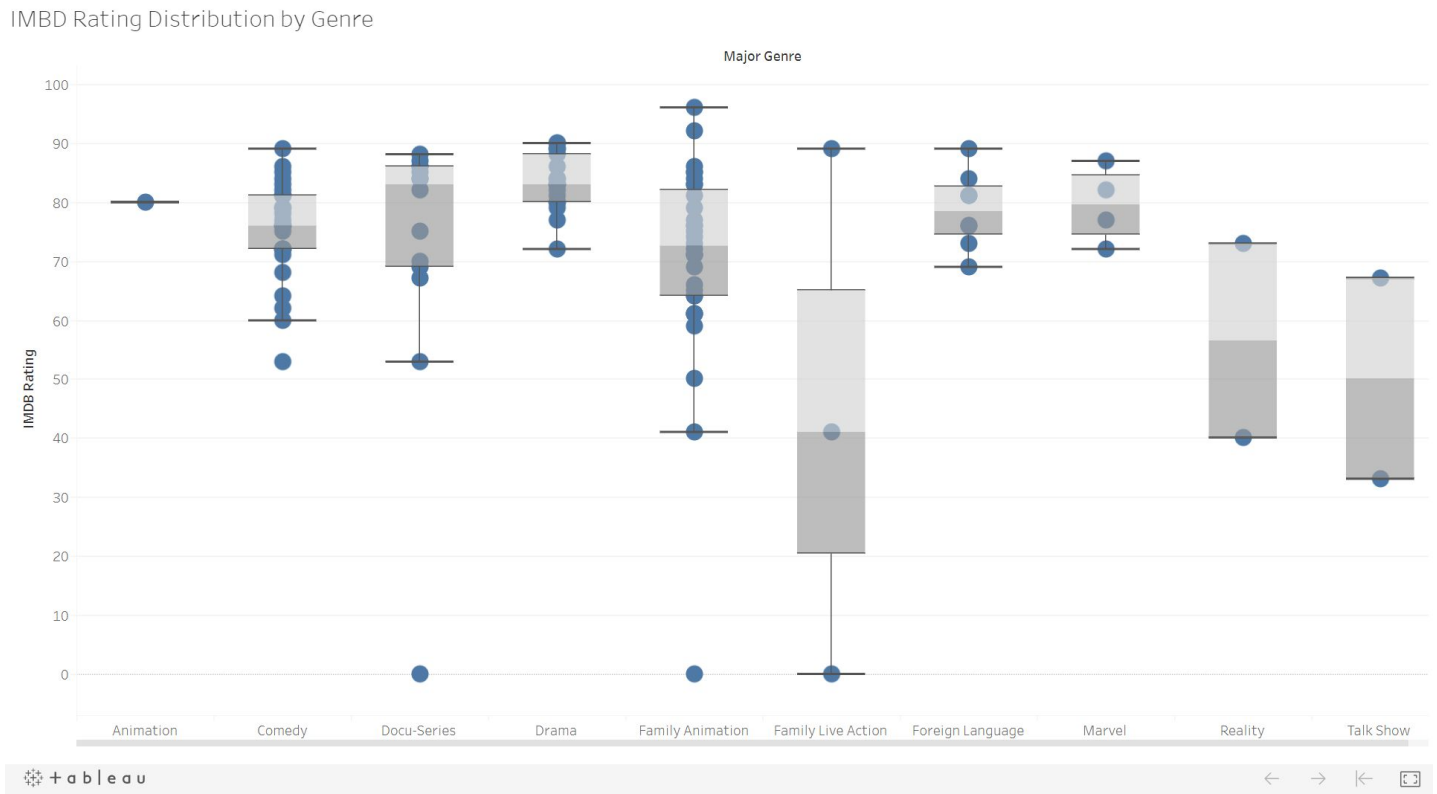
Bubble Charts



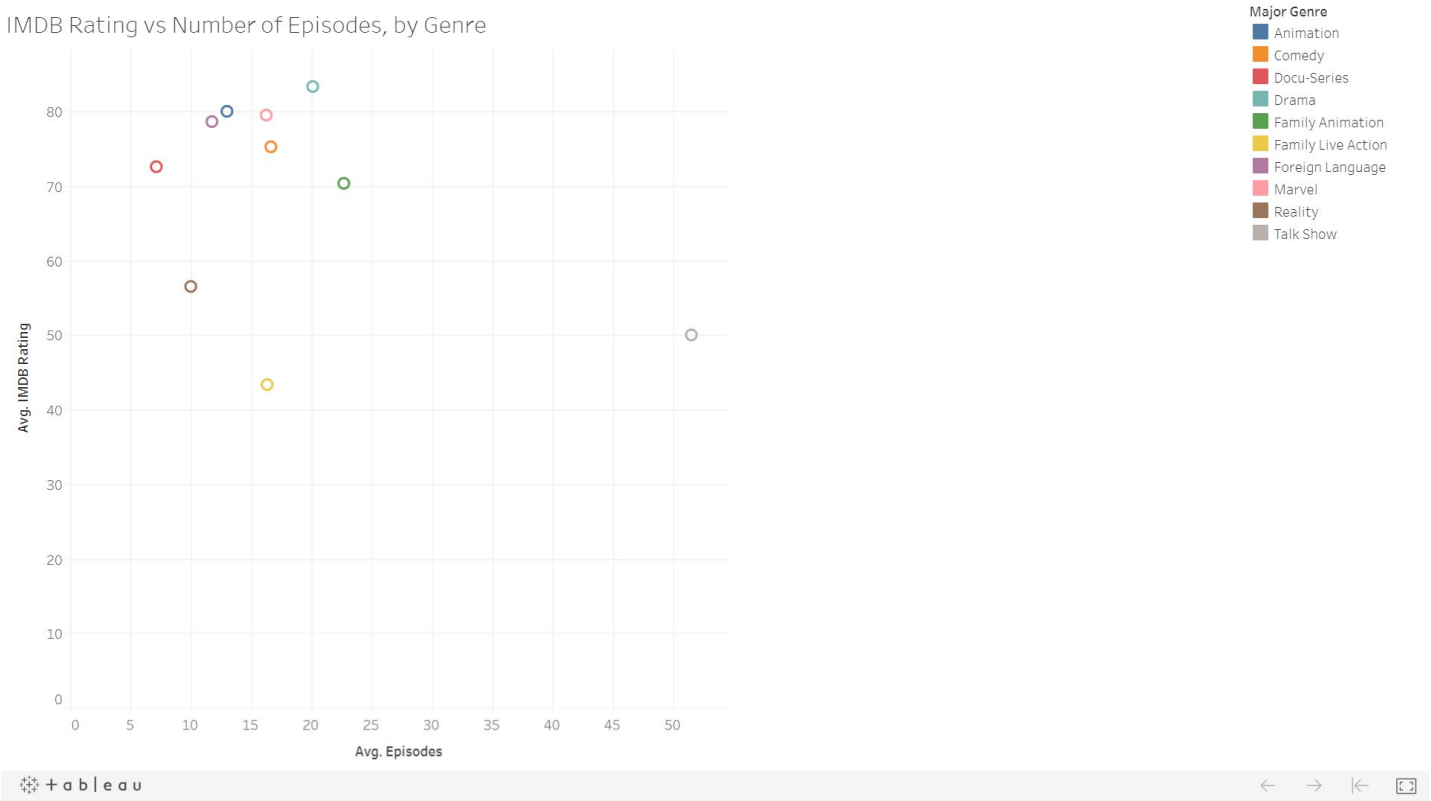
Histograms


IMDB Ratings Distribution
% of Total Count of IMDB Rating
40%
35%
30%
25%
20%
15%
10%
5%
0%
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
IMDB Rating (bin)
+ableau

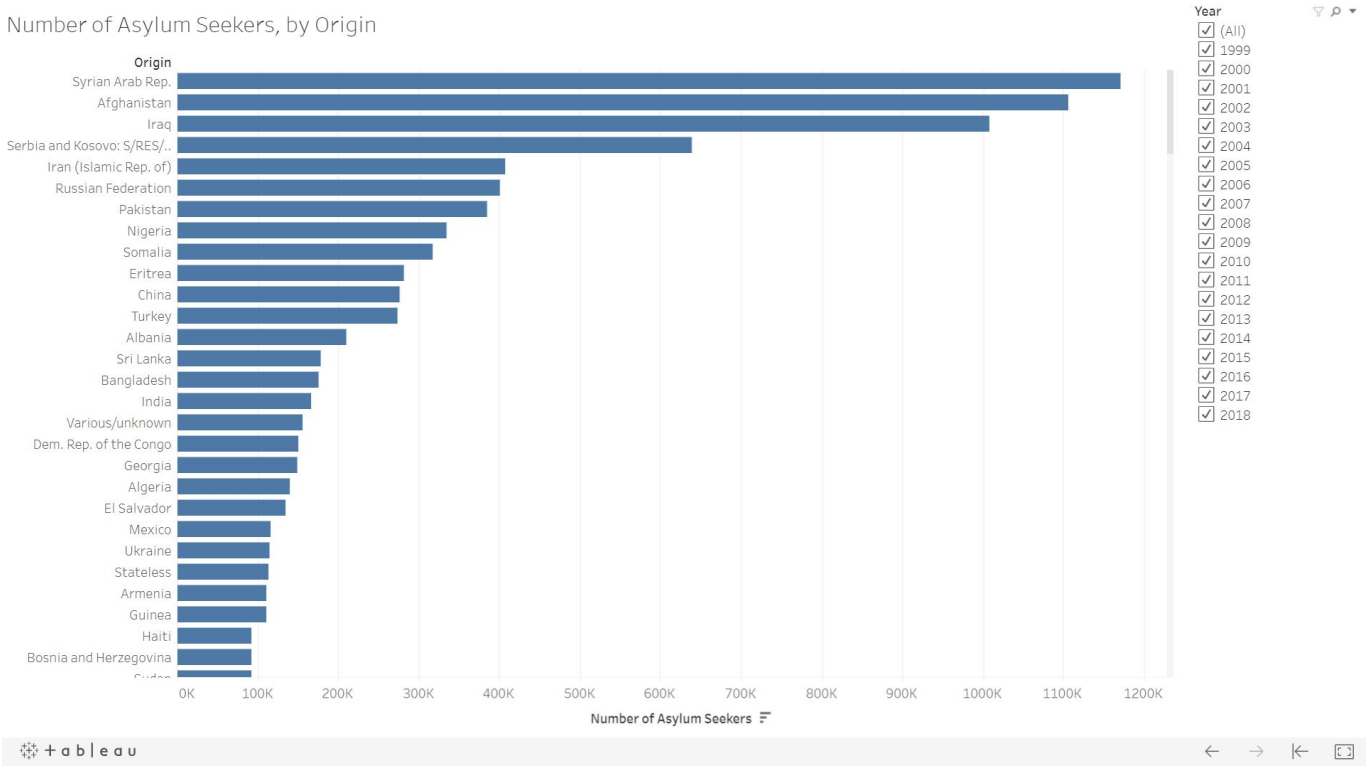
Boxplots


IMBD Rating Distribution by Genre
Major Genre
IMDB Rating
100
90
80
70
60
50
40
30
20
10
0
Animation
Comedy
Docu-Series
Drama
Family Animation
Family Live Action
Foreign Language
Marvel
Reality
Talk Show
tableau

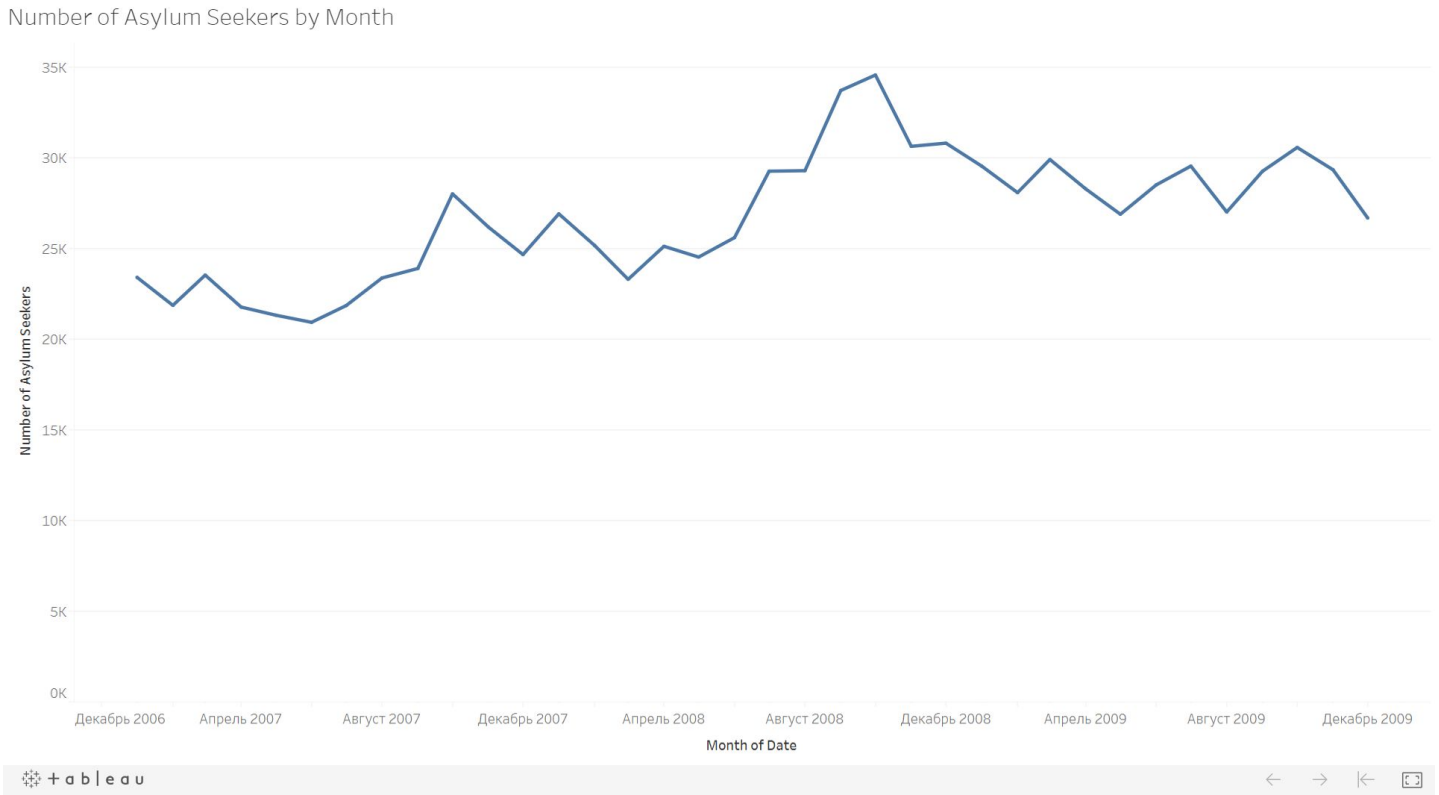
Scatterplots



Bar Plots


Number of Asylum Seekers, by Origin
Origin
Syrian Arab Rep.
Afghanistan
Iraq
Serbia and Kosovo: S/RES/..
Iran (Islamic Rep. of)
Russian Federation
Pakistan
Nigeria
Somalia
Eritrea
China
Turkey
Albania
Sri Lanka
Bangladesh
India
Various/unknown
Dem. Rep. of the Congo
Georgia
Algeria
El Salvador
Mexico
Ukraine
Stateless
Armenia
Guinea
Haiti
Bosnia and Herzegovina
0K
100K
200K
300K
400K
500K
600K
700K
800K
900K
1000K
1100K
1200K
Number of Asylum Seekers
Year
(All)
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
+ableau

Line Charts


Number of Asylum Seekers by Month
35K
30K
25K
20K
15K
10K
5K
0K
Number of Asylum Seekers
Декабрь 2006
Апрель 2007
Август 2007
Декабрь 2007
Апрель 2008
Август 2008
Декабрь 2008
Апрель 2009
Август 2009
Декабрь 2009
Month of Date
+ableau

Geospatial data in Tableau

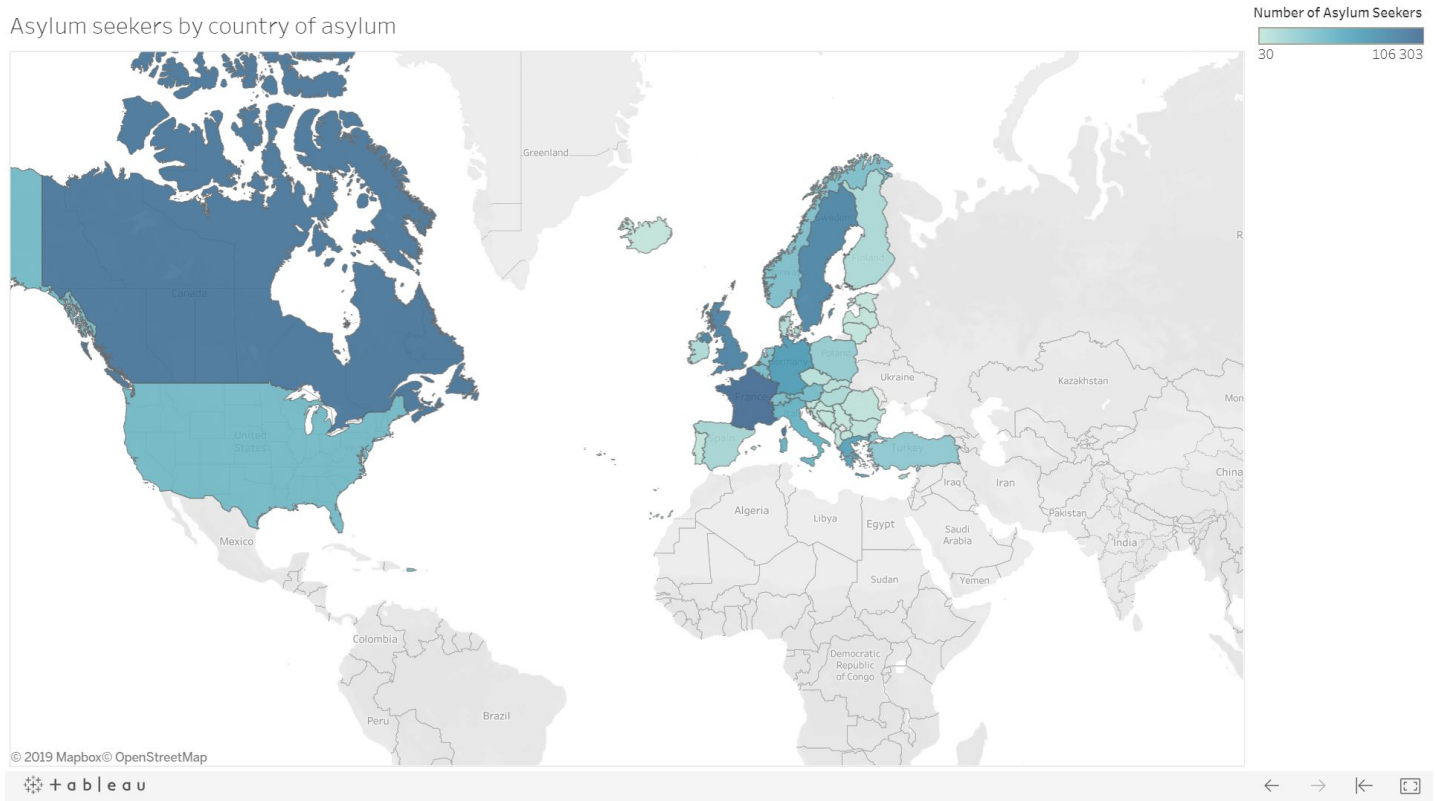
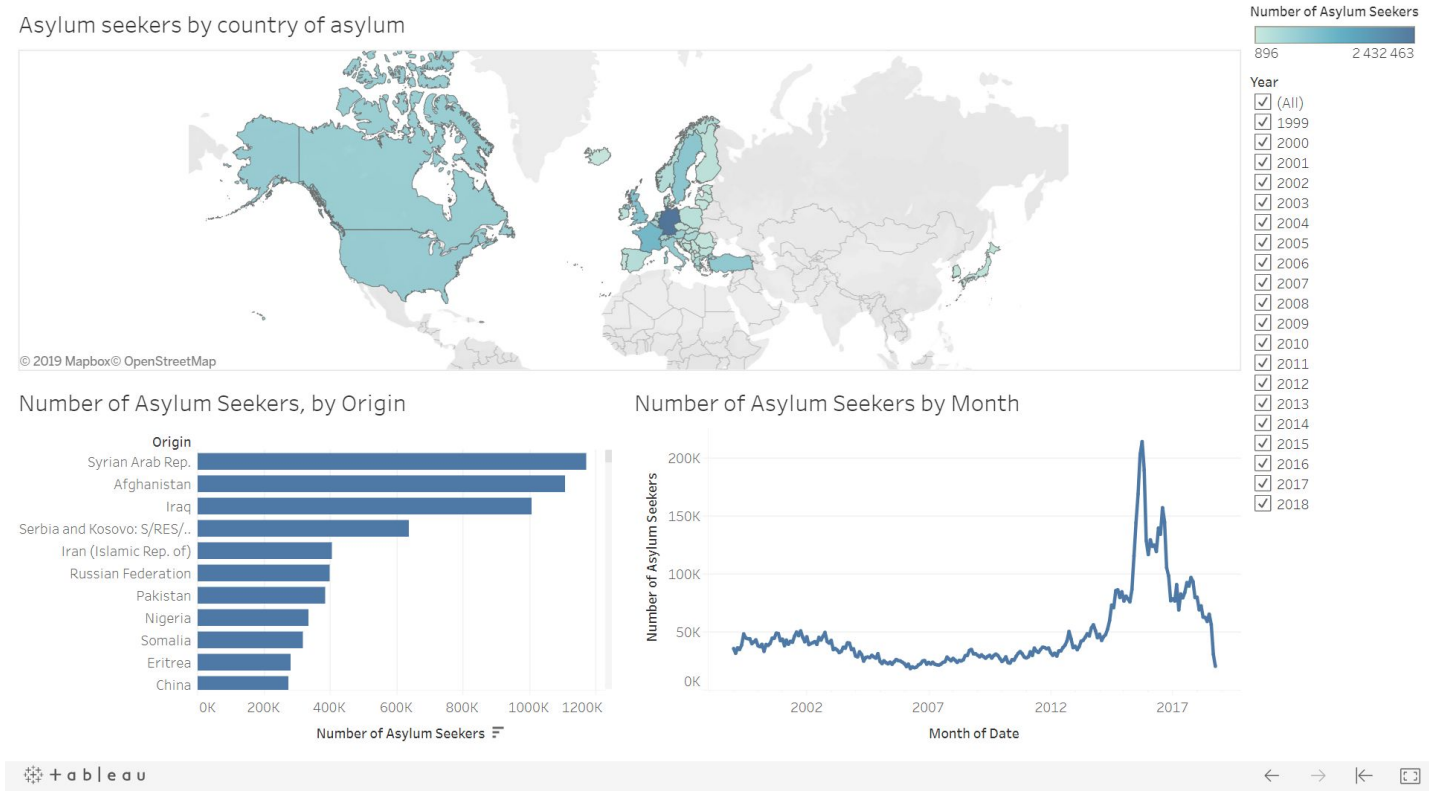
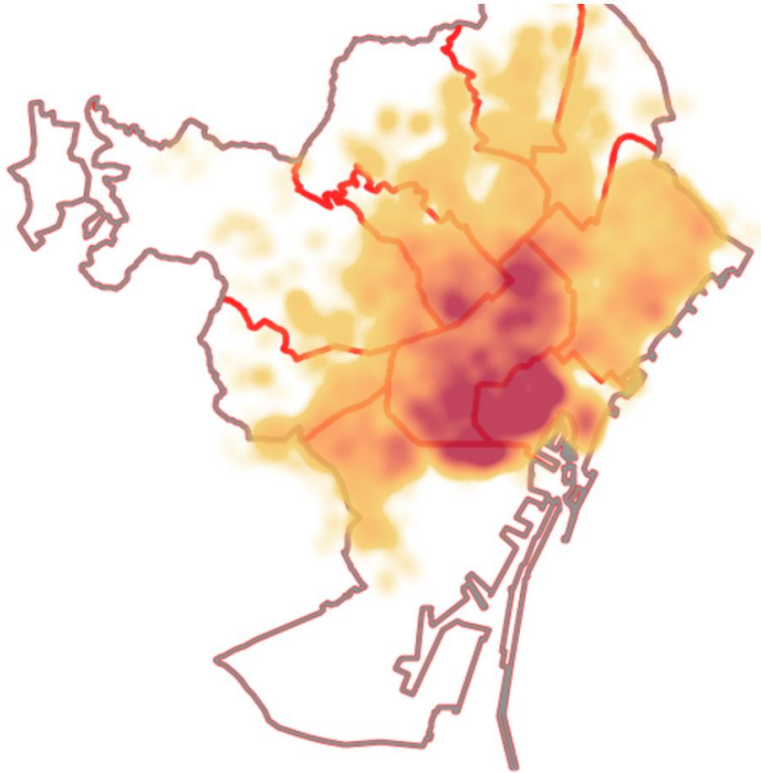


Tableau Dashboards & Stories



Local Maps & Density Maps



- What geographical location does this map correspond to?
- What do you think this graph represents?

Tableau Practice

Tableau Practice

Dataset: OECD Meat Consumption combined with GDP per country

Task: Build an interactive dashboard that answers the following questions:

Q1: What is the trend of consumption of each type of meat per capita over years for each country? (use meat_per_cap file)

Q2: Which countries consume the most and the least amount of meat per capita, given a specific year (and meat type)? (use meat_per_cap file)

Q3: Is there any relationship between meat consumption per capita and GDP per capita? (use meat_gdp file)

Additional Resources

- Video Visualization of Countries Wealth vs Life Expectancy
- https://datavizcatalogue.com
- Gapminder
- Best Data Visualization Projects of 2018
- Learning from errors in data our visualizations by The Economist
- Choosing graph type mindmap
- The Pudding - Data Journalism