Intro to Data Visualization

With Tableau

Let me introduce myself :)

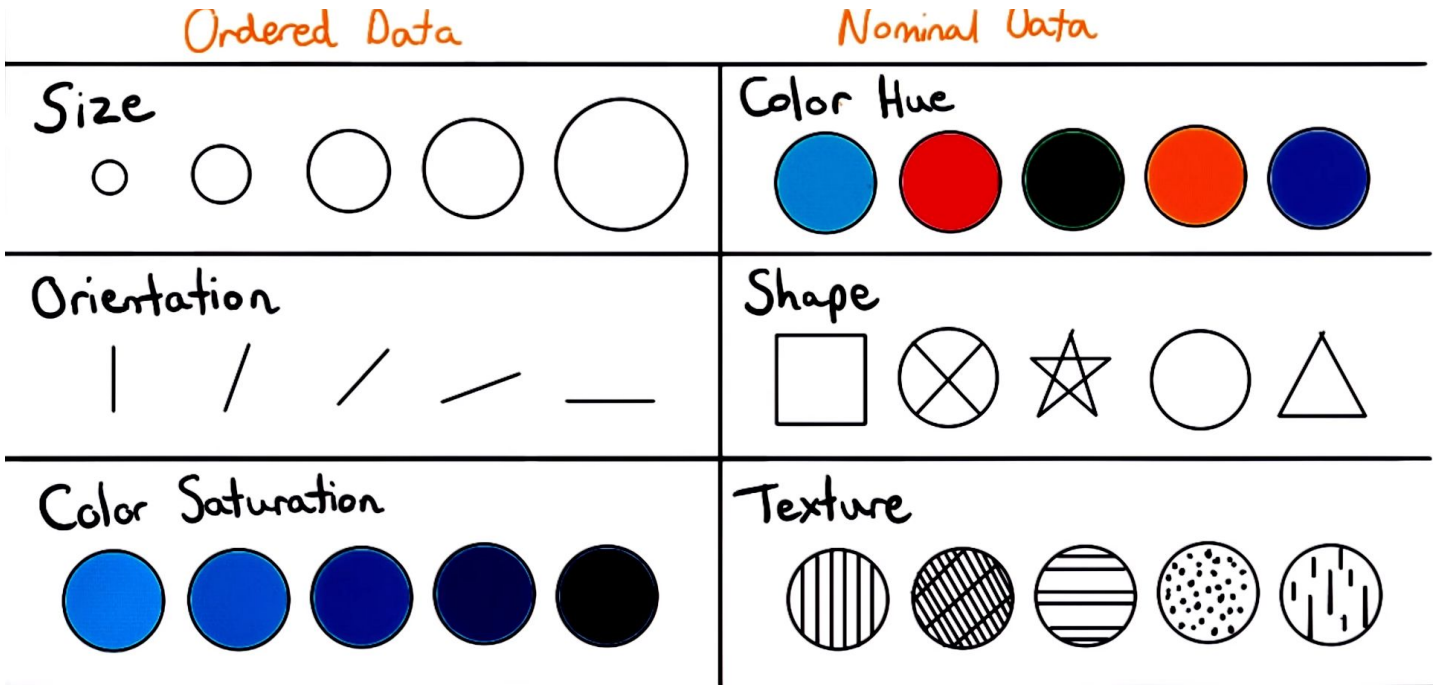
- Born in St. Petersburg, Russia ❄️
- Living in Barcelona, Spain 🏝️
- Manager by education, product and data person by passion
- Working as a product data analyst at an ad tech company, helping mobile apps to acquire new users
- What I care about: environment, education
- What I love to do in my free time: hiking, learning

Data Visualization Fundamentals

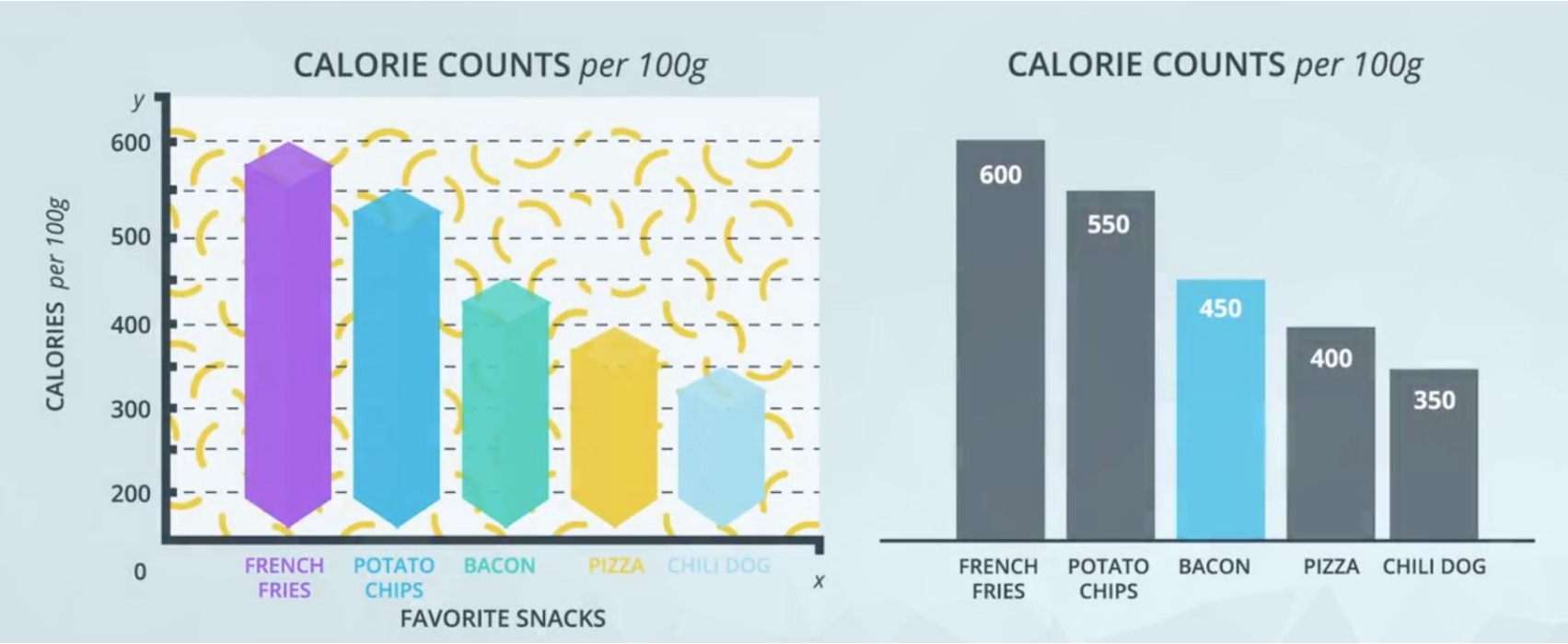
"A picture is worth a thousand words"

English proverb

Visual Encodings



Data-Ink Ratio



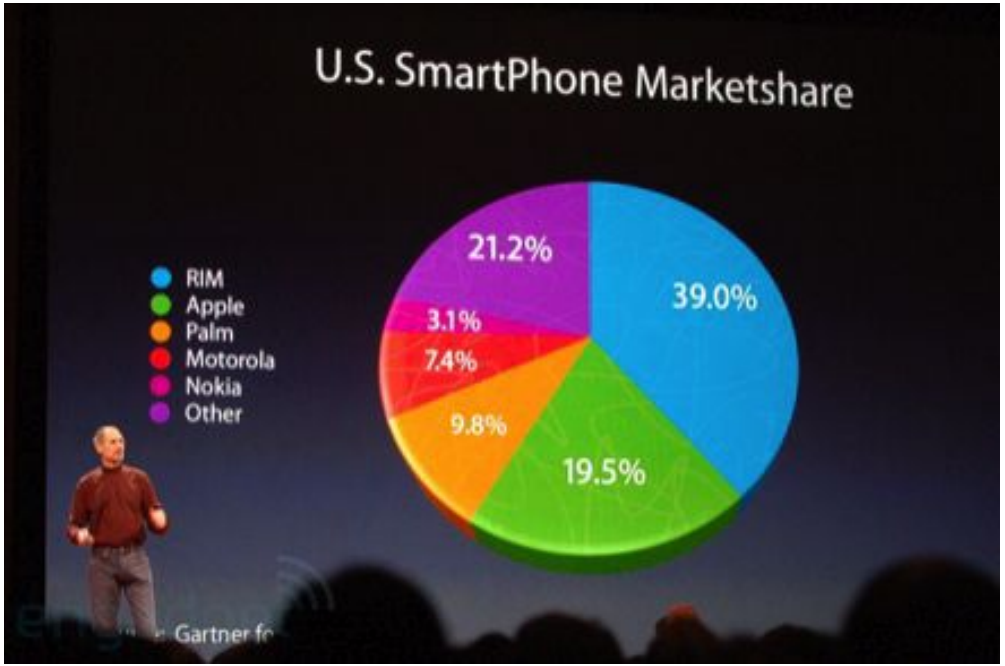
Data-Ink Ratio

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

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

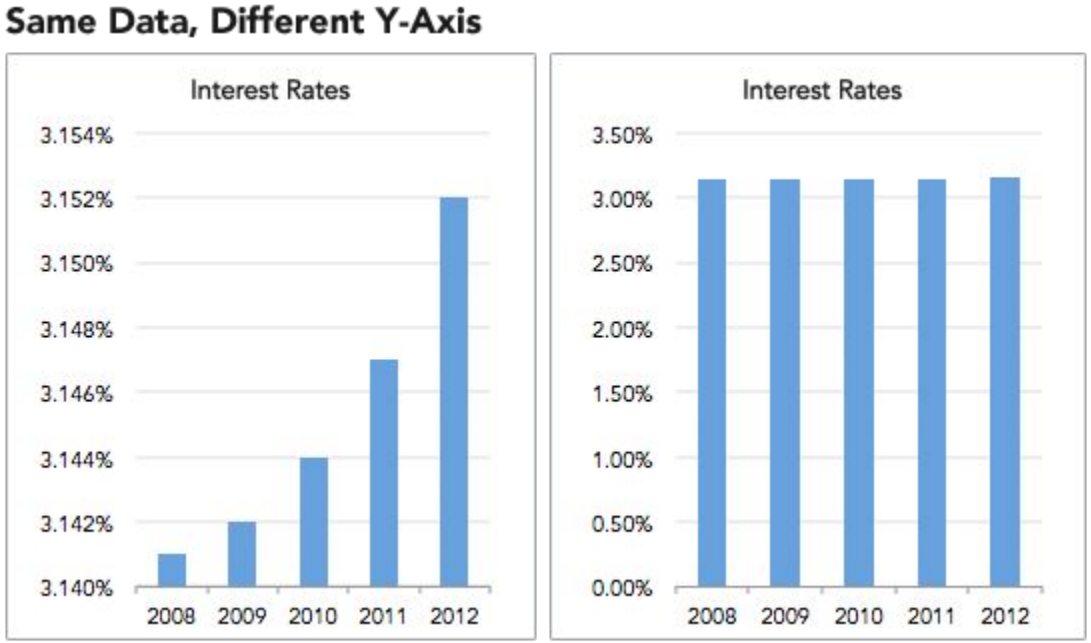
Data visualization bad practices

3D visualizations



Data visualization bad practices

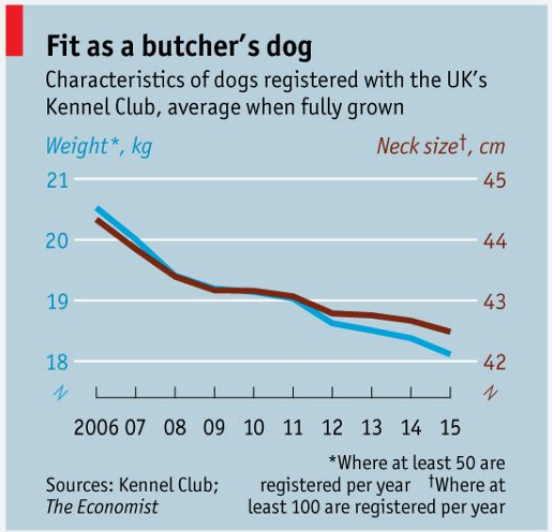
Truncating axes



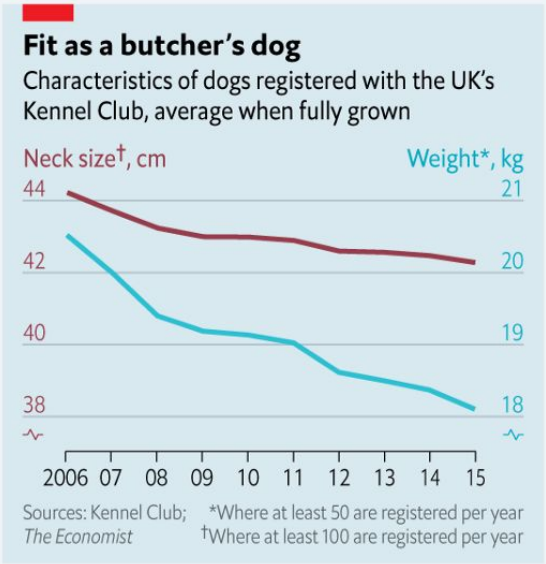
Data visualization bad practices

Dual axes and cherry-picking scales

Original



Better



Data visualization bad practices

Choice of Graph Type

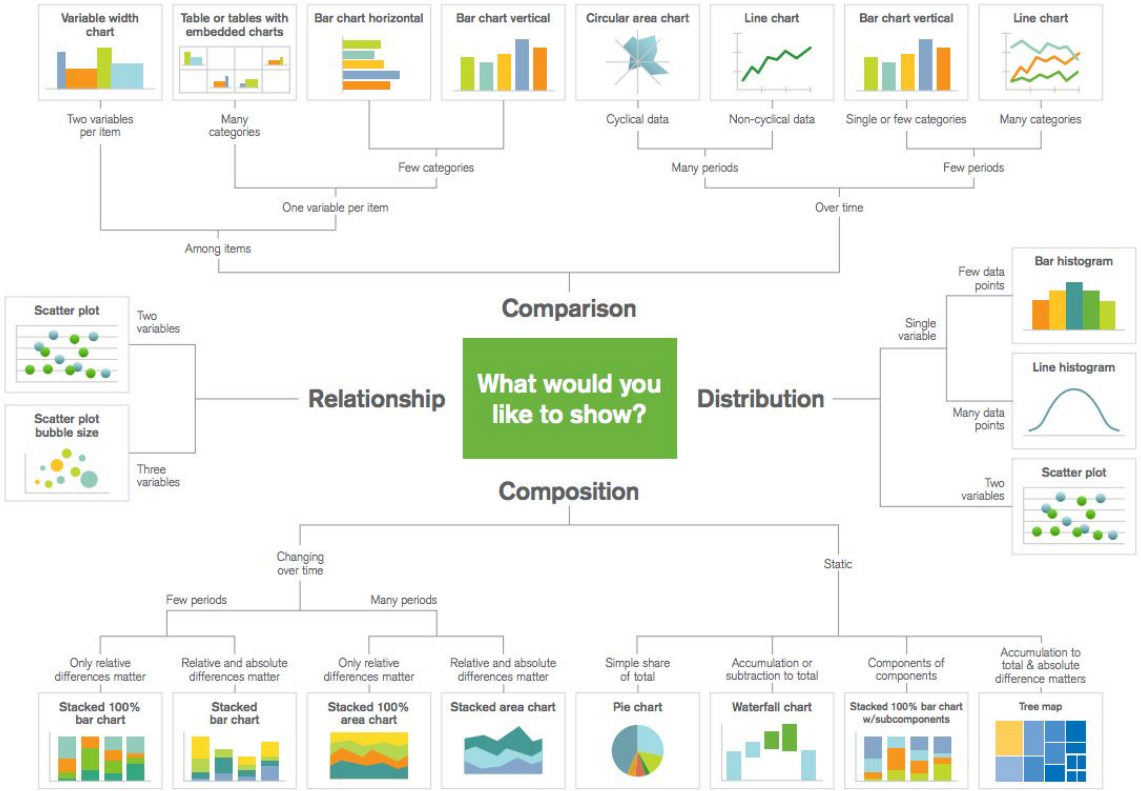
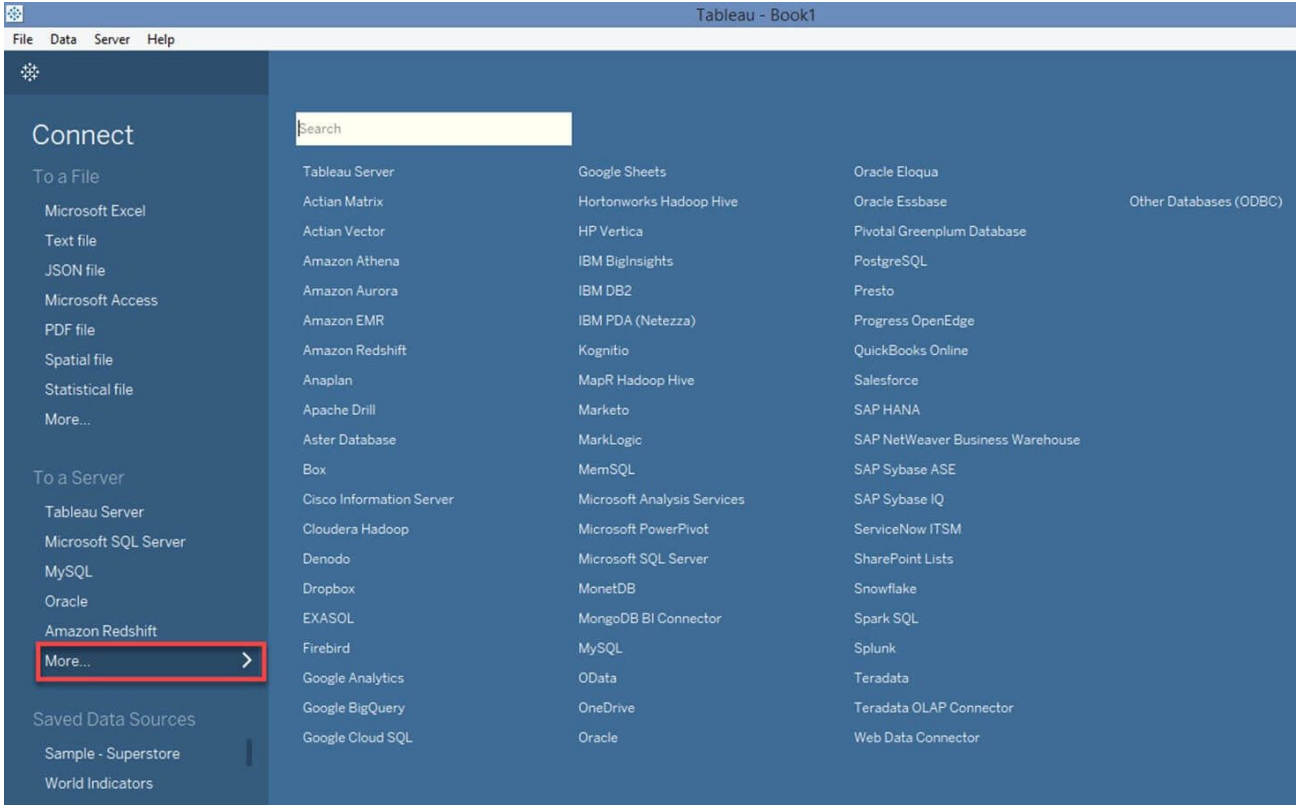


Tableau Fundamentals

Connecting to Data Source



Data Types

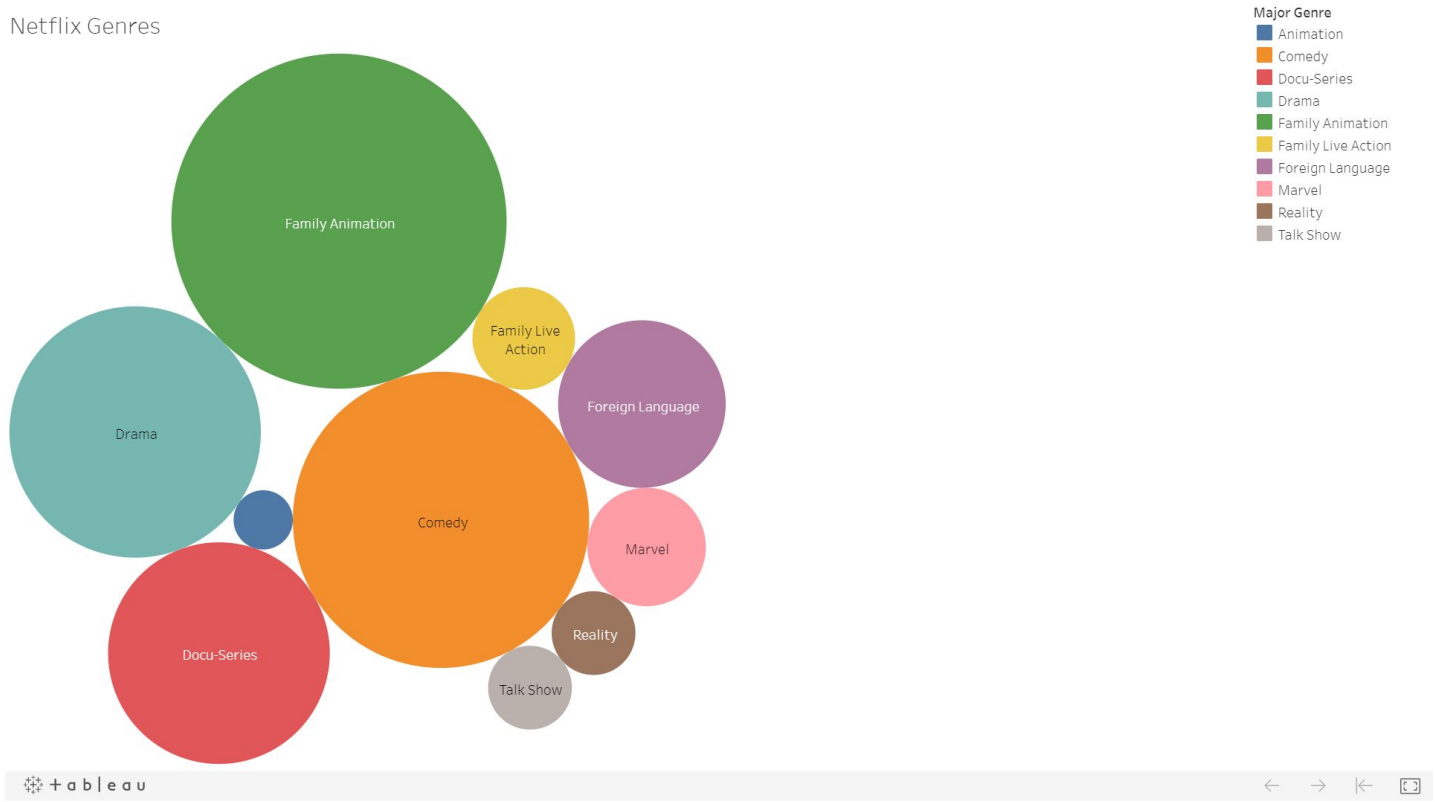
Data type icone in Tableau

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)*

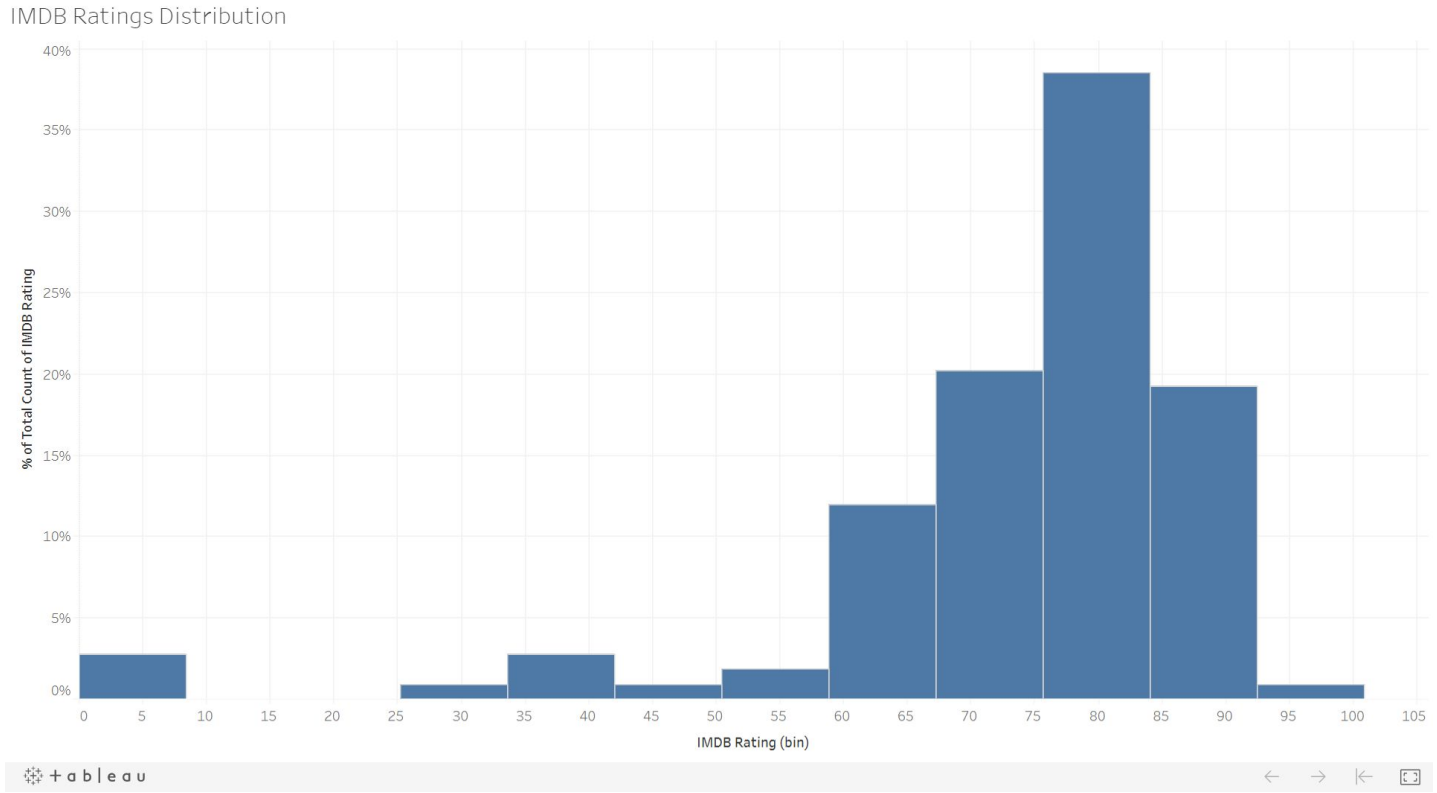
Tableau Workspace

Building Charts in Tableau

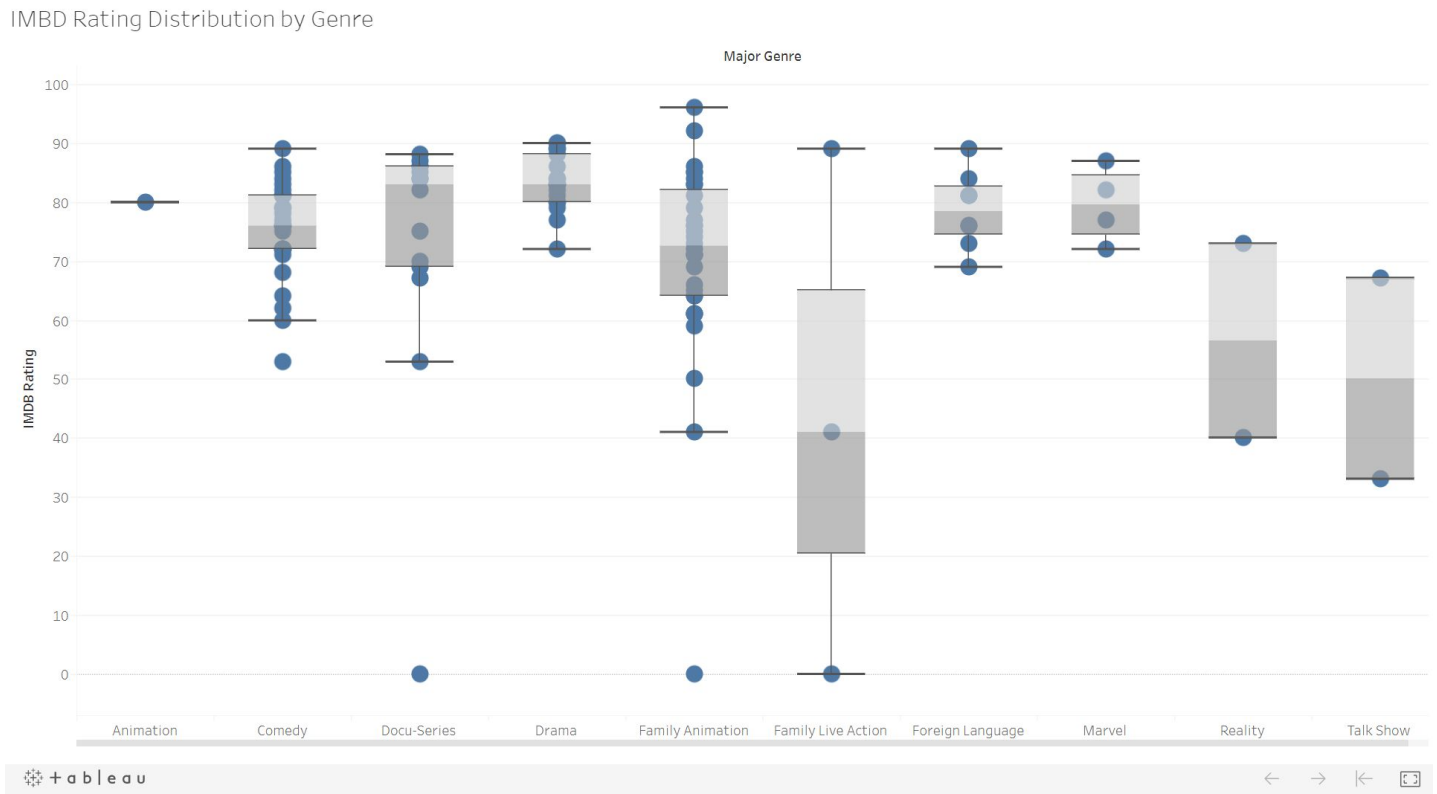
Bubble Charts



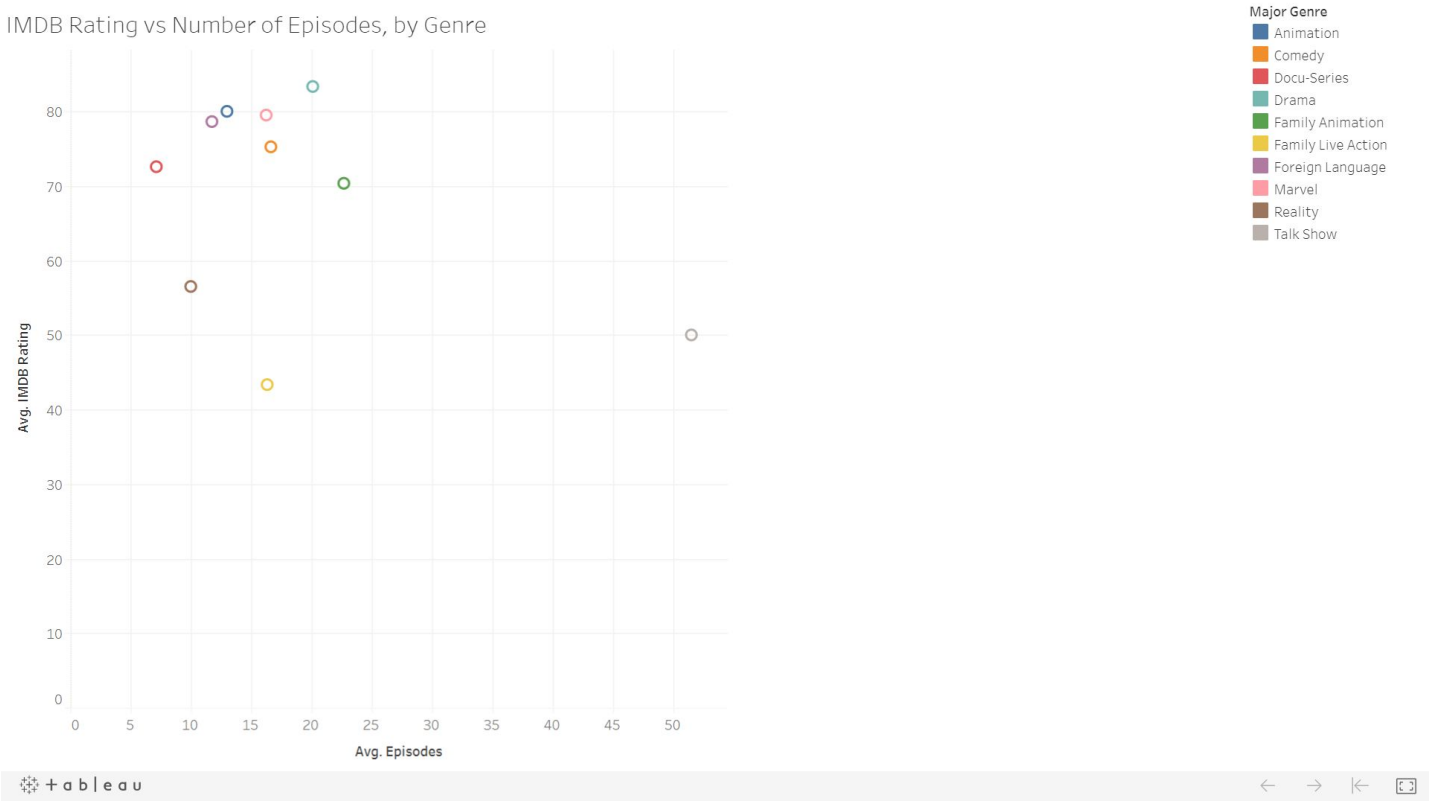
Histograms


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)
tableau

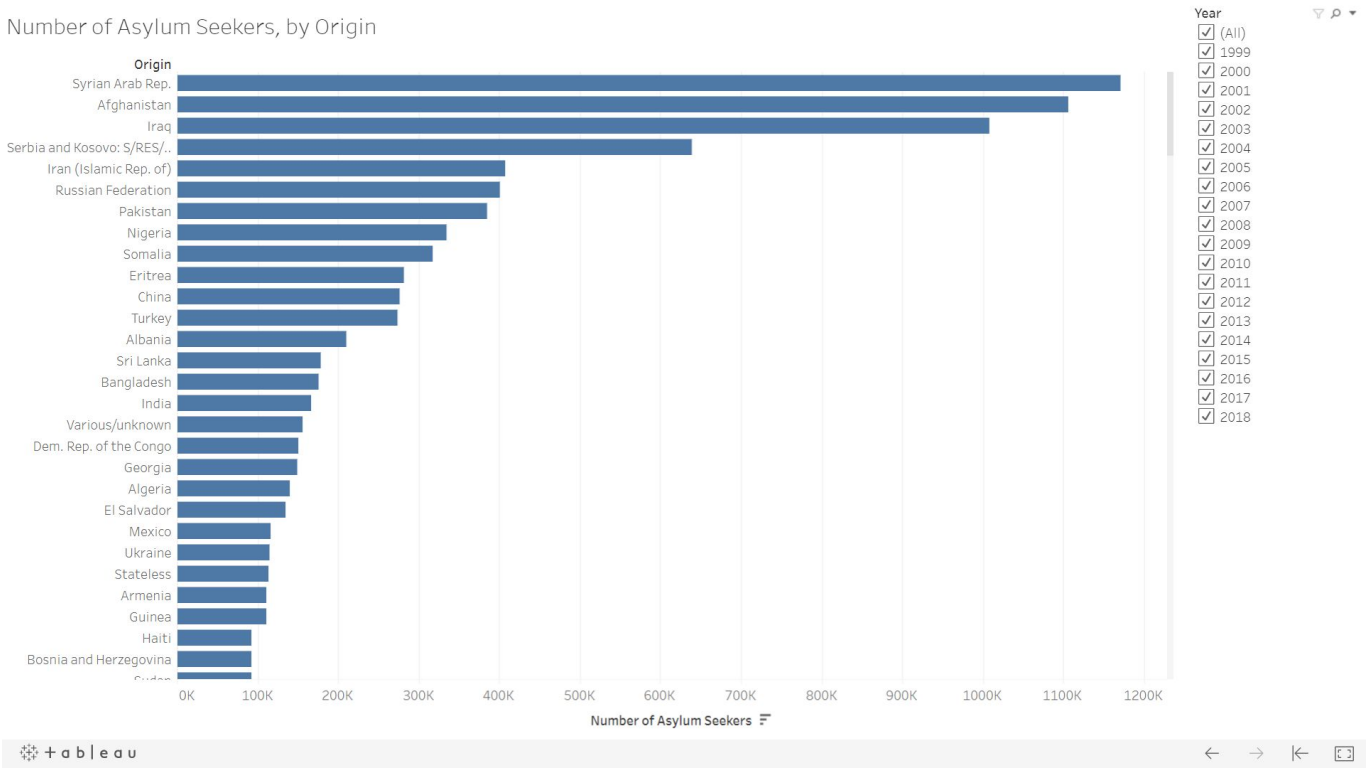
Boxplots


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

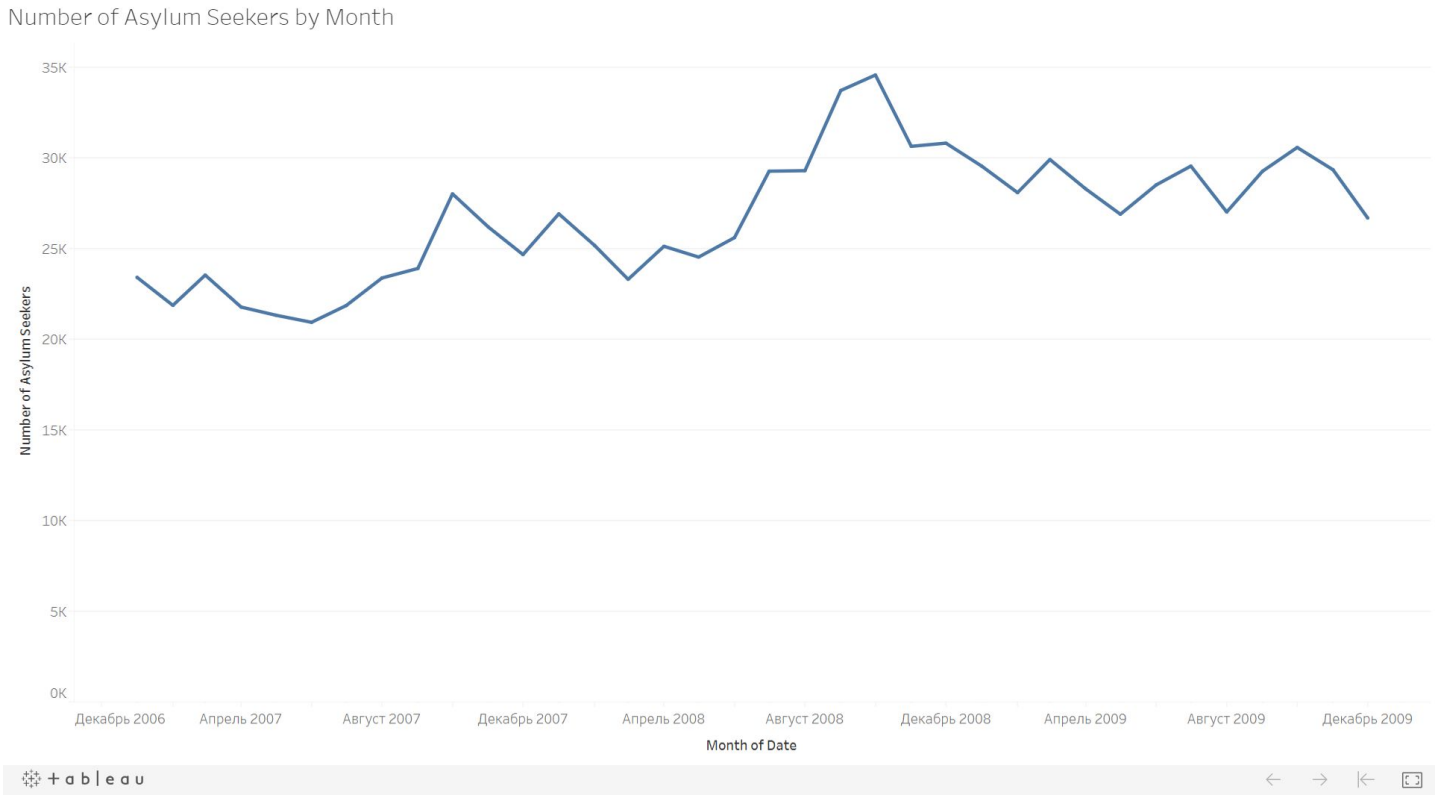
Scatterplots



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

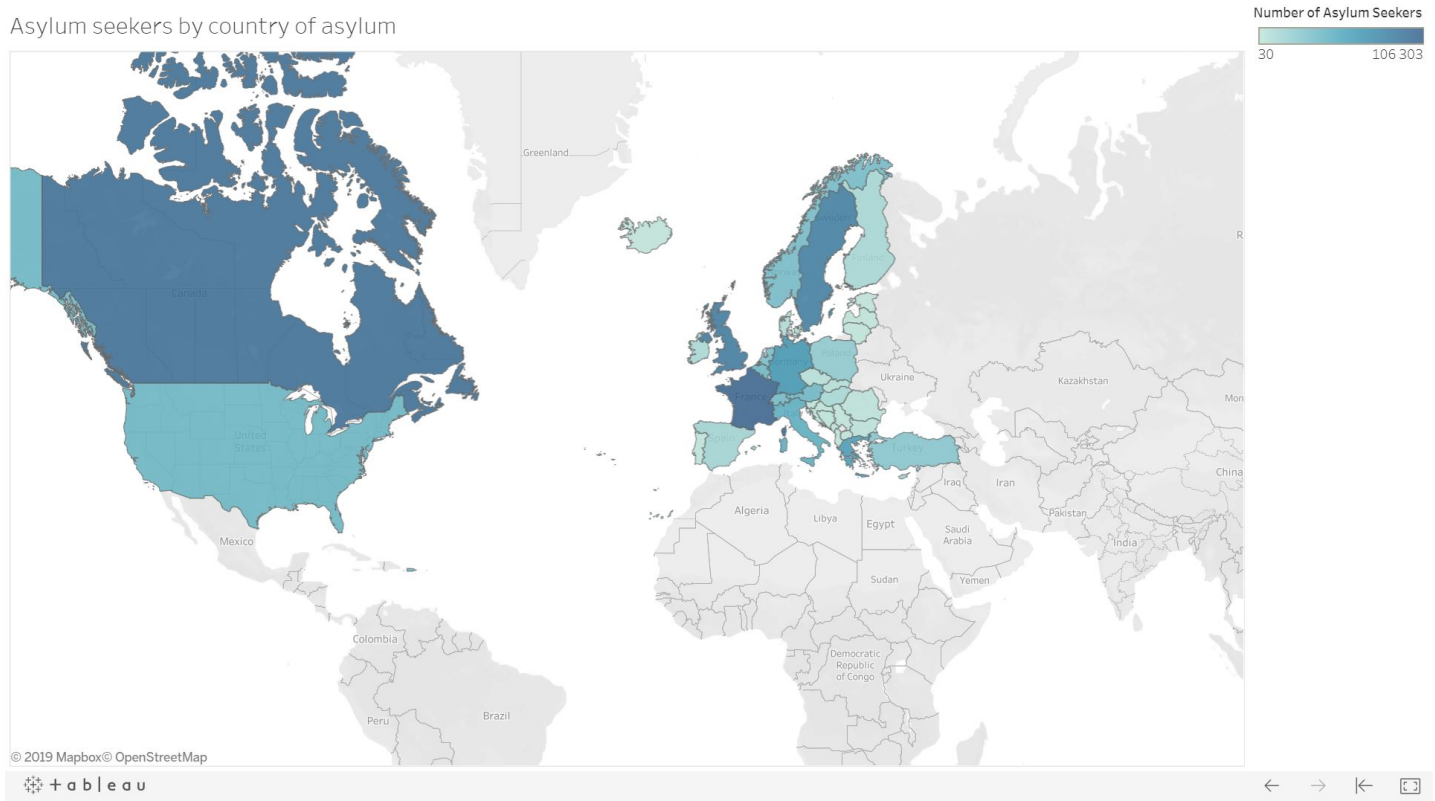
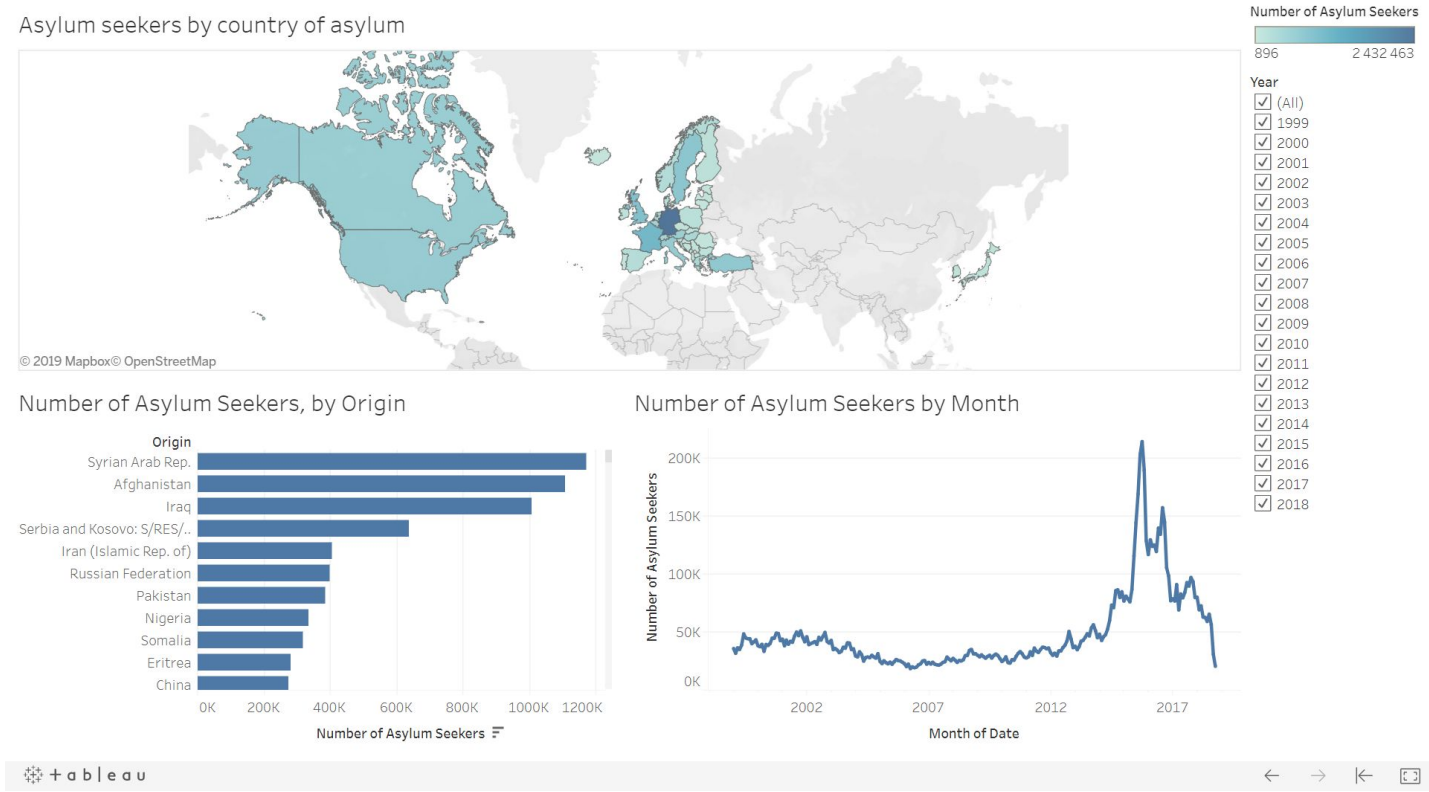
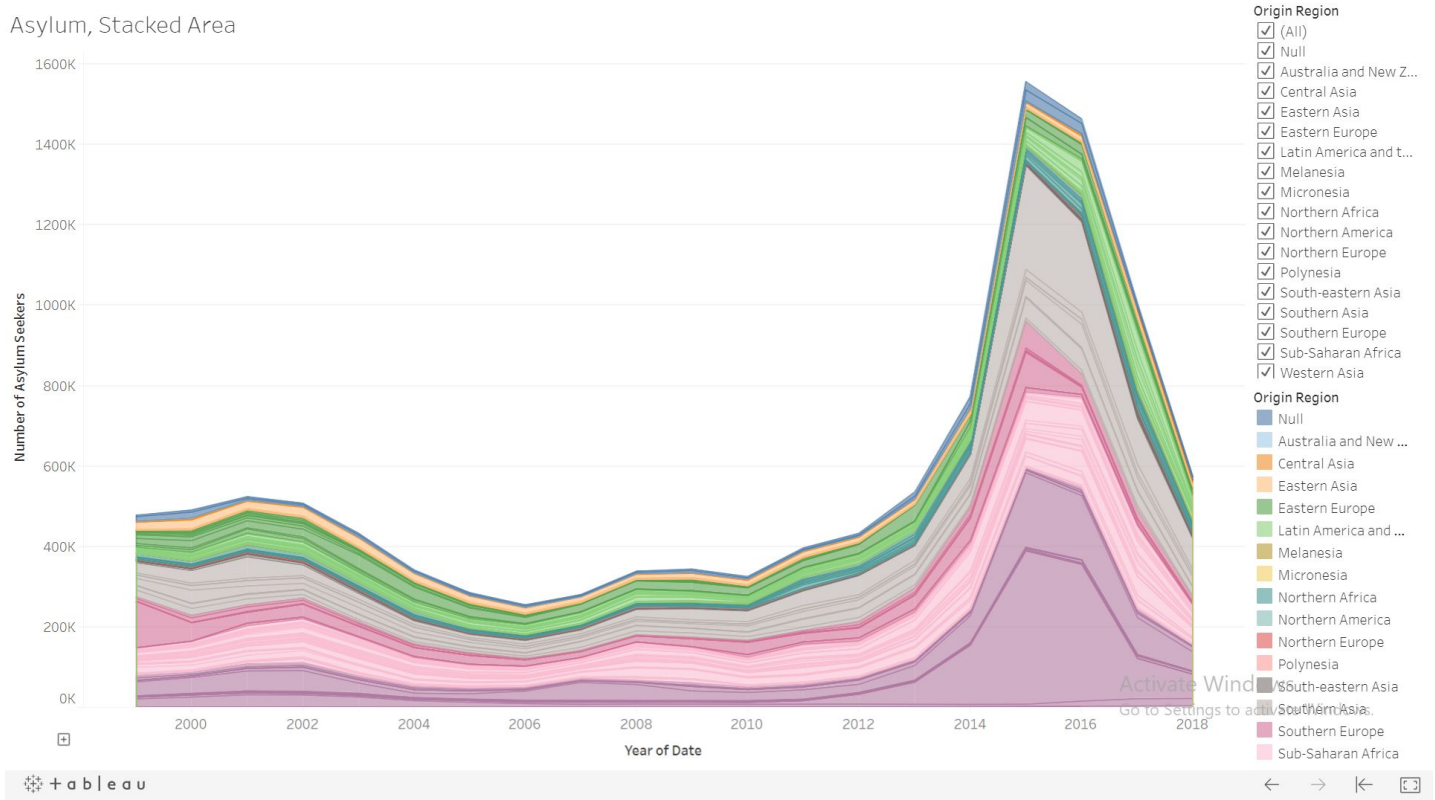


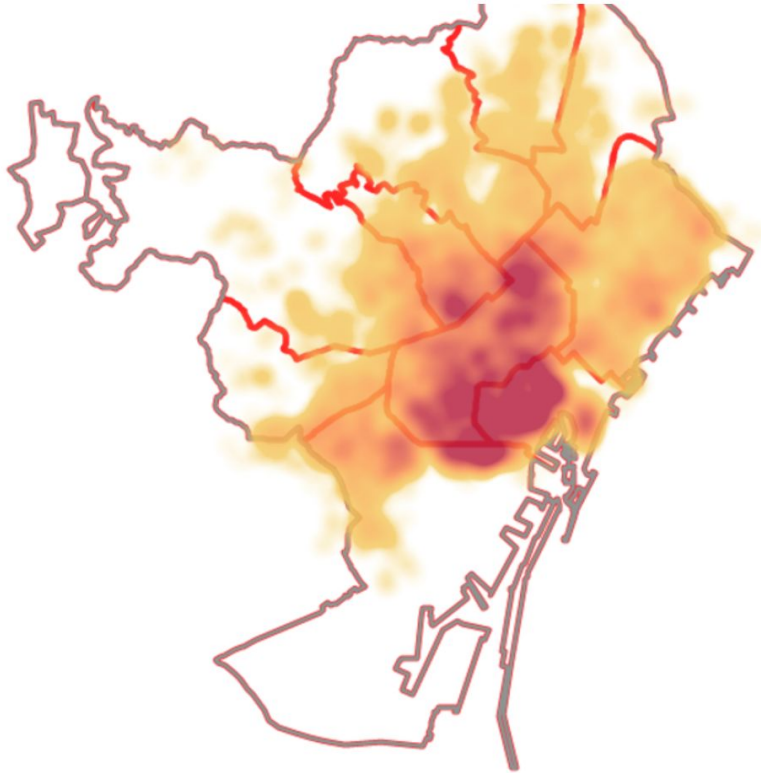
Tableau Dashboards & Stories



Stacked Area Chart



Local Maps & Density Maps



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

Tableau Practice

Tableau Practice

Dataset: Mental Health in Tech Survey

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

Q1: How does mental health condition interfere with work?

Q2: What are the differences in workplace practices and attitudes towards mental health issues within different countries / US states?

Q3: Explore any other 2-3 variables from the dataset and build a graph showing a relationship among them

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