

Exercise on Chart Decoding

Learning Goal: Train yourself in *decoding* charts so that you can better understand how virtually every single visualization can be described using the language and rules of *visual encoding* and decomposed into low-level graphical components.

How do you know if you are on the right track? You can describe a chart in terms of its graphical components.

Instructions

For each of the following charts identify:

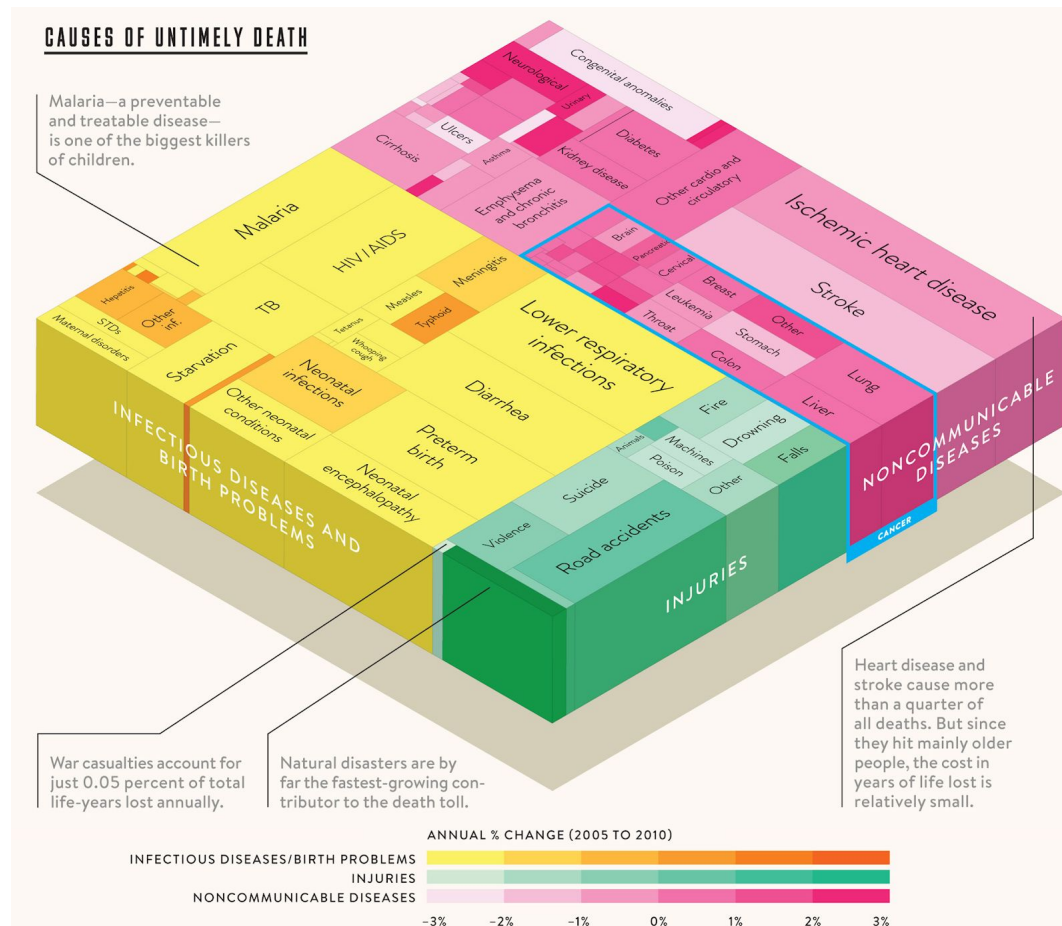
- Data **items** and **marks** used to encode them.
- Data **attributes** and **channels** used to encode them.

Use this template for your answers for each chart:

- Data items represent: ...
- Mark used for data items are: ...
- Data attributes are: ...
- Visual channels are: ...
- For each attribute:
 - Attribute 1 is encoded with ...
 - Attribute 2 is encoded with ...
 - ...
 - Attribute n is encoded with ...

NOTE: at the bottom of each chart there is a link to a web page providing details about the project (including information about the data).

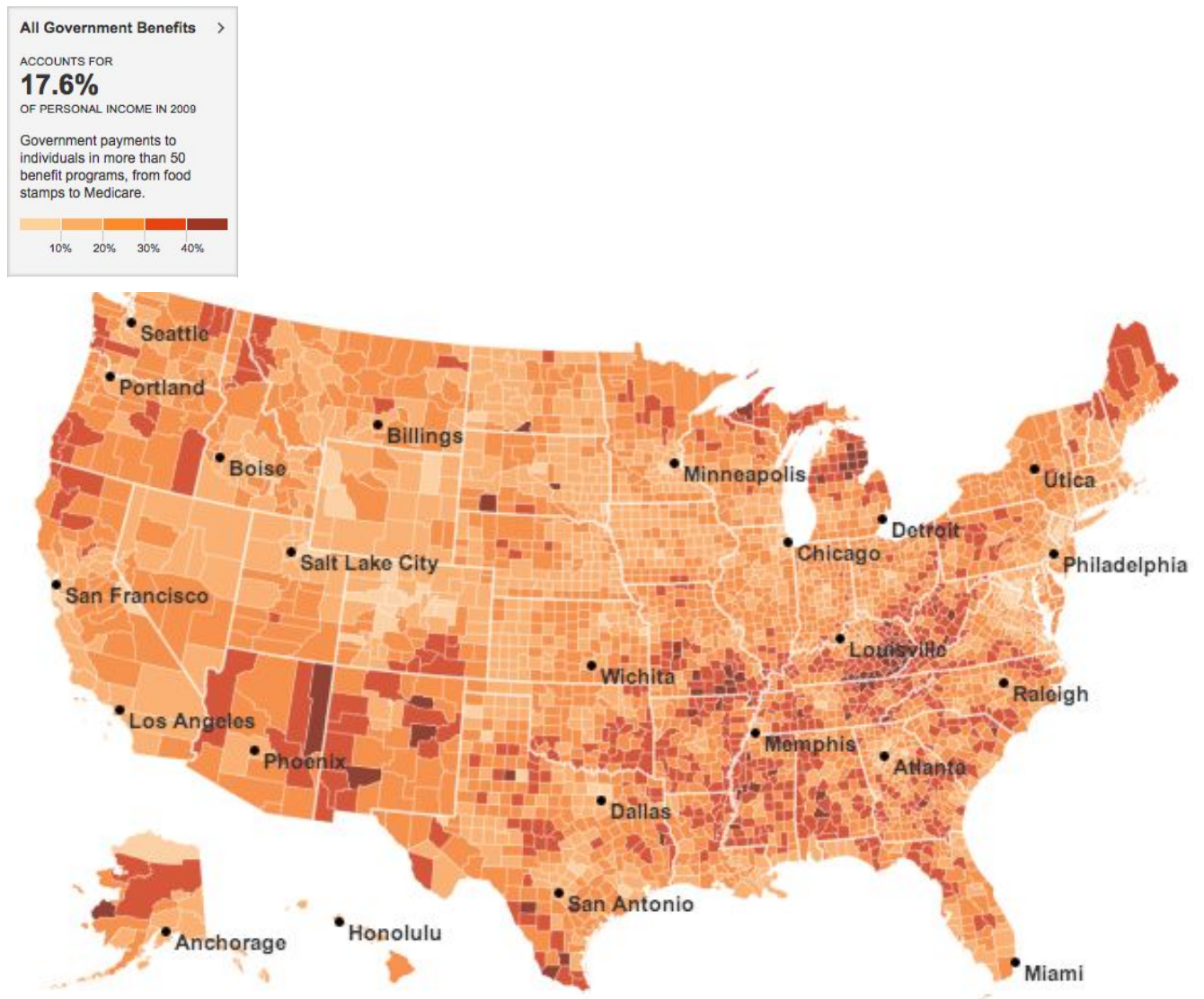
Chart 1



<https://www.wired.com/2013/11/infoporn-causes-of-death/>

- Data items represent : Causes of Death
- Mark used for data items are: Rectangles
- Data attributes are: Types of Causes, Years of Life Cost, death counts
- Visual channels are:
- For each attribute:
 - Types of Causes is encoded with color.
 - Years of life cost is encoded with single color divergent map.
 - Death counts is encoded with rectangle size.

Chart 2



<http://www.nytimes.com/interactive/2012/02/12/us/entitlement-map.html>

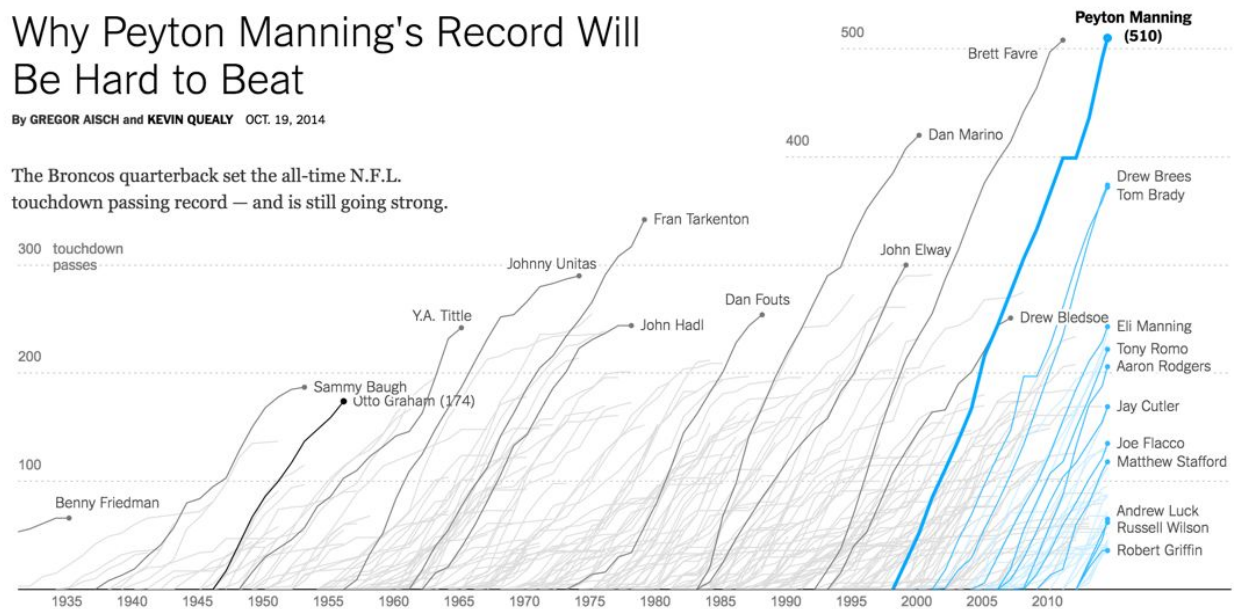
- Data items represent: Counties across US
- Mark used for data items are: Maps
- Data attributes are: percentage of income coming from Government benefits.
- Visual channels are: Divergent color map
- For each attribute:
 - Percentage of income is encoded with color divergent map

Chart 3

Why Peyton Manning's Record Will Be Hard to Beat

By GREGOR AISCH and KEVIN QUEALY OCT. 19, 2014

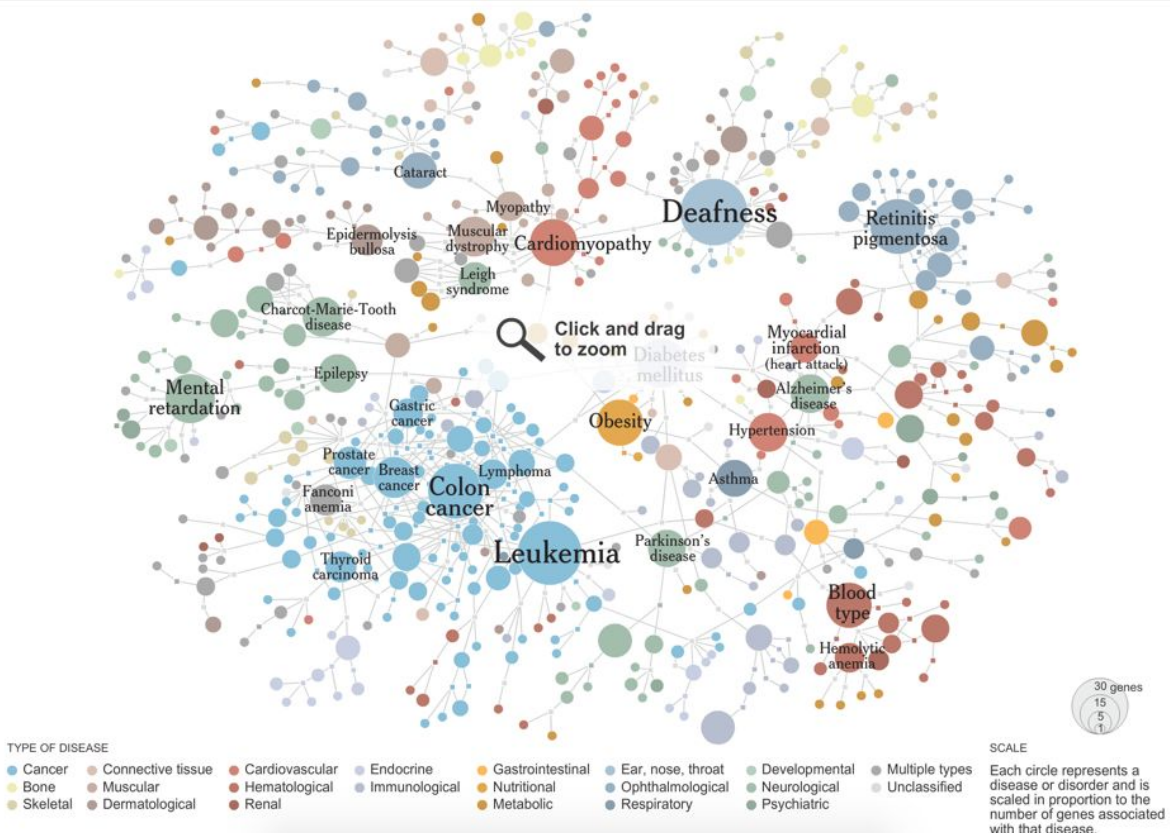
The Broncos quarterback set the all-time N.F.L. touchdown passing record — and is still going strong.



<http://www.nytimes.com/interactive/2014/10/19/upshot/peyton-manning-breaks-touchdown-passing-record.html>

- Data items represent: Players
- Mark used for data items are: point, line
- Data attributes are: Number of touchdown passes
- Visual channels are: slope, length, color
- For each attribute:
 - Number of touchdown passes is encoded with line with point at the end.
 - Currently playing players are encoded with blue color line.

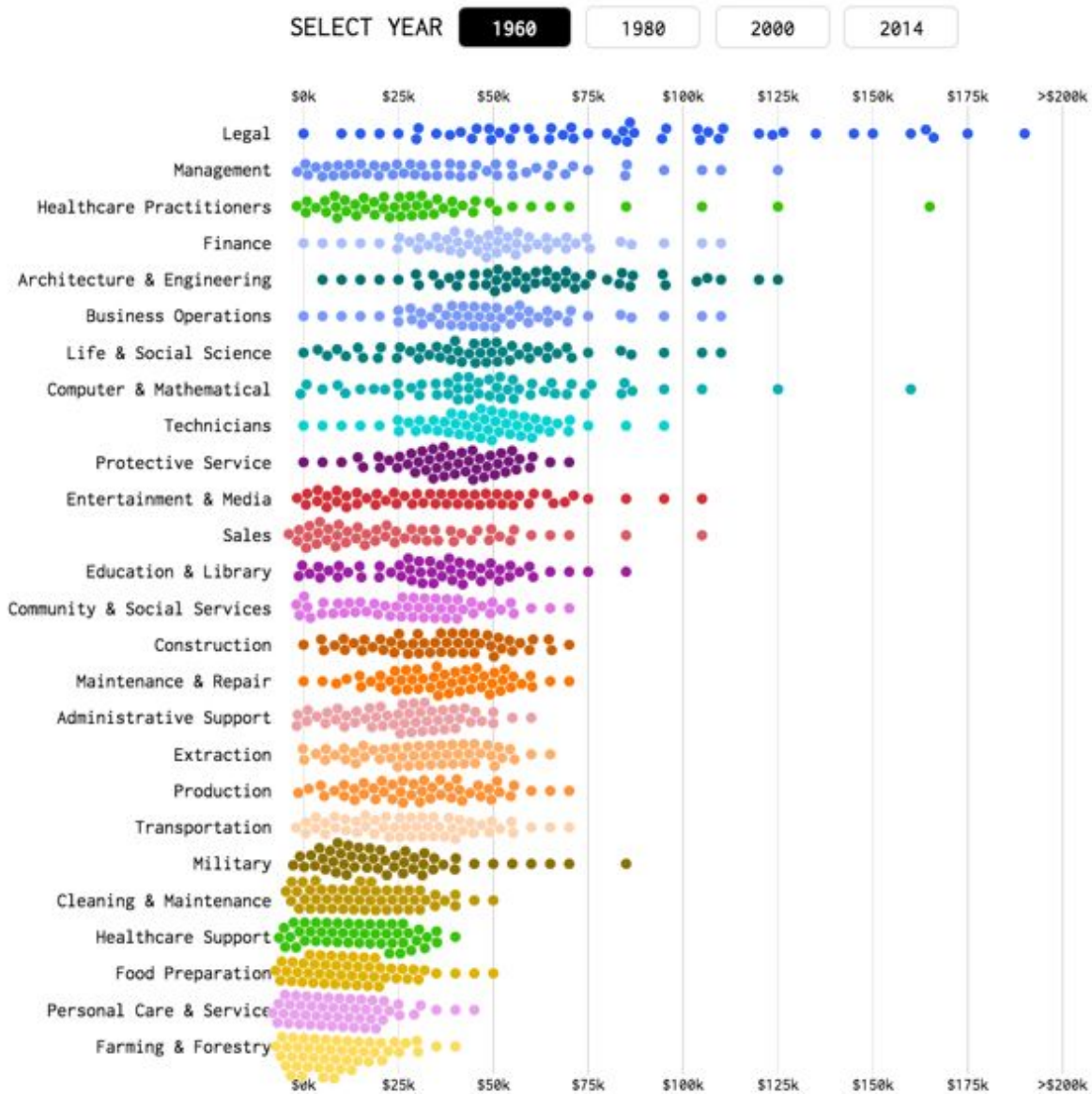
Chart 4



http://www.nytimes.com/interactive/2008/05/05/science/20080506_DISEASE.html

- Data items represent: Diseases, Genes
- Mark used for data items are: Diseases are represented by circles, Genes are represented by squares.
- Data attributes are: Disease Type, Link between Gene and Disease
- Visual channels are: Size, Position and Color
- For each attribute:
 - Color is used to represent type of disease.
 - Circle radii (size) depends on gene number connected to it.
 - Link between disease and gene is represented with edge between disease and gene

Chart 5



<https://flowingdata.com/2016/06/28/distributions-of-annual-income/>

- Data items represent: People
- Mark used for data items are: Points
- Data attributes are: Income (in \$) , Type of occupation
- Visual channels are: Color, Position
- For each attribute:
 - Color is used for encoding Type of Occupation
 - Income is encoded with position

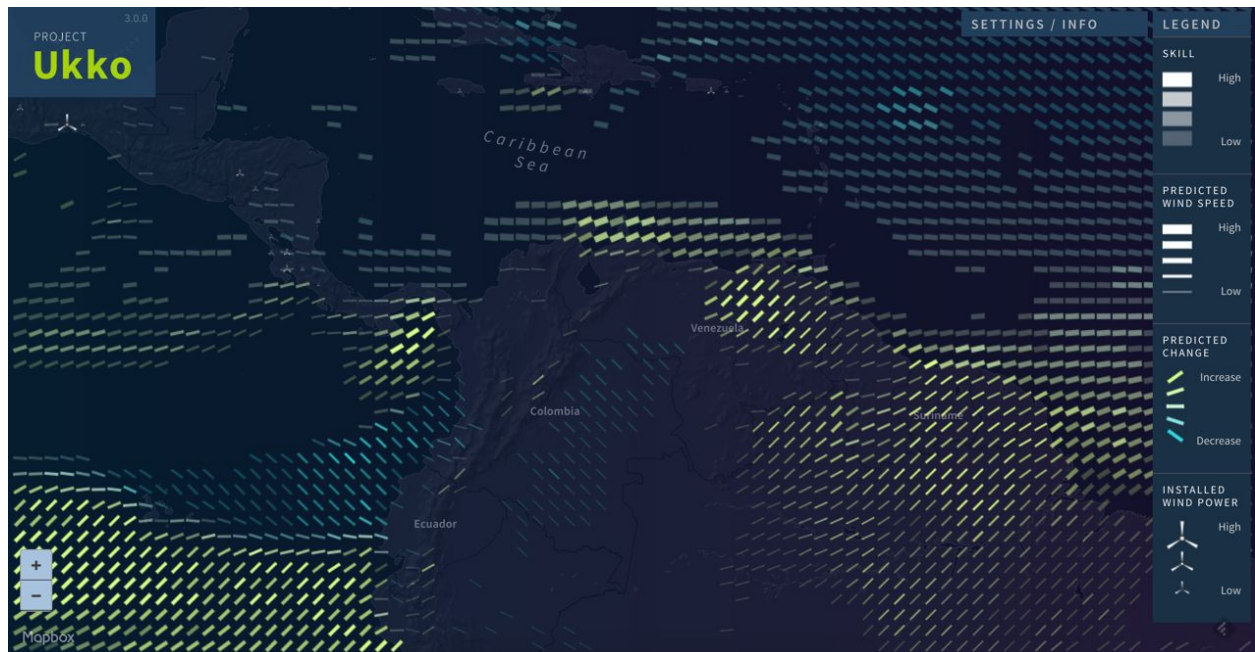
Chart 6



<http://polygraph.cool/redraft/>

- Data items represent: Players
- Mark used for data items are: Rectangles
- Data attributes are: VORP score, Year and spots
- Visual channels are: color and position
- For each attribute:
 - Spot is encoded with position in graph.
 - Year is encoded with position in graph.
 - VORP score is encoded with divergent color map

Chart 7



<http://project-ukko.net/>

- Data items represent: Wind Energy prediction
- Mark used for data items are: Rectangle
- Data attributes are: Wind speed, predicted change and skill
- Visual channels are: texture, slope
- For each attribute:
 - Wind speed is encoded with thickness of bar. High speed is represented by very thick bar.
 - Skill is represented with texture of rectangle.
 - Predicted change is encoded with slope/angle.