

Visualization Basics

What is visualization ?

'Visualization is any technique for creating images, diagrams, or animations to communicate a message.'

When does it happen ?

acquire

clean

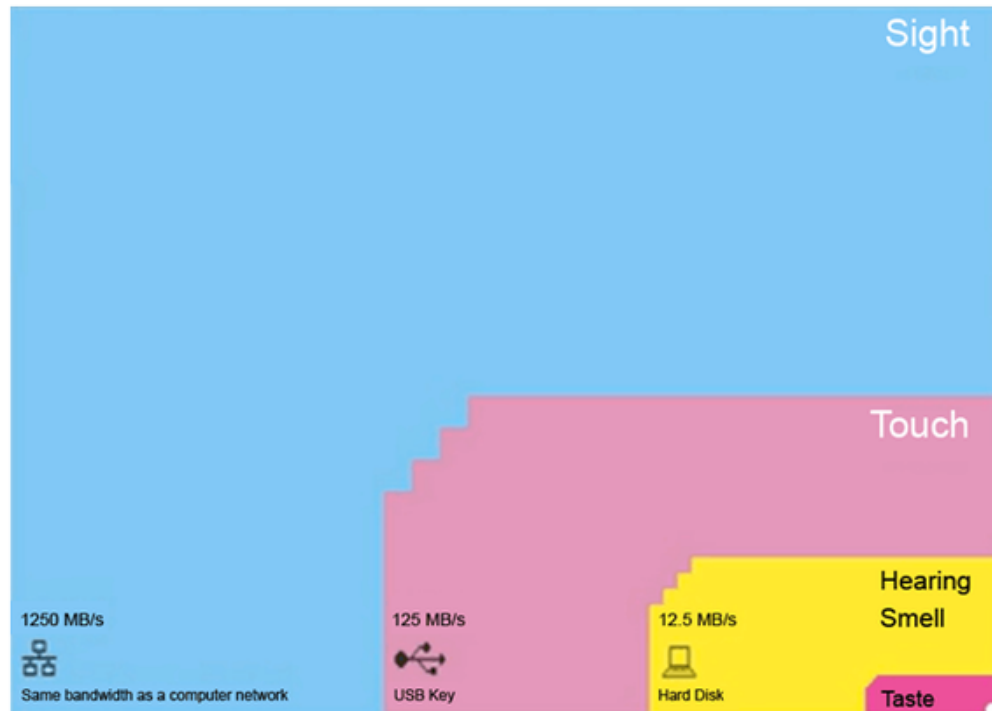
filter

aggregate

visualize

communicate

Why is visualization important ?



Some Fine Examples

- Information is beautiful
- Visualizing data
- Data Journalism:
 - FiftyThirtyEight
 - The Guardian
 - The Washington Post

Initial Data

The data comes as the answer of a question:

- Tabular Form
- Tree Structure

Types of variables

- Quantitative Data - Measure
- Categorical Data - Dimension
 - Nominal
 - Ordered

Visual Encoding

Every variable can be encoded in a visual variable.

Examples - Angle

Value to encode

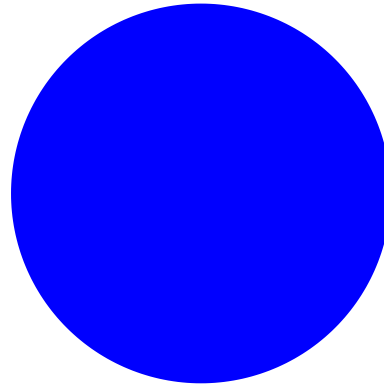
0



Examples - Area

Value to encode

90



Examples - Color

Value to encode

90



Examples - Length

Value to encode

75



Examples - Position

Values to encode

90



90

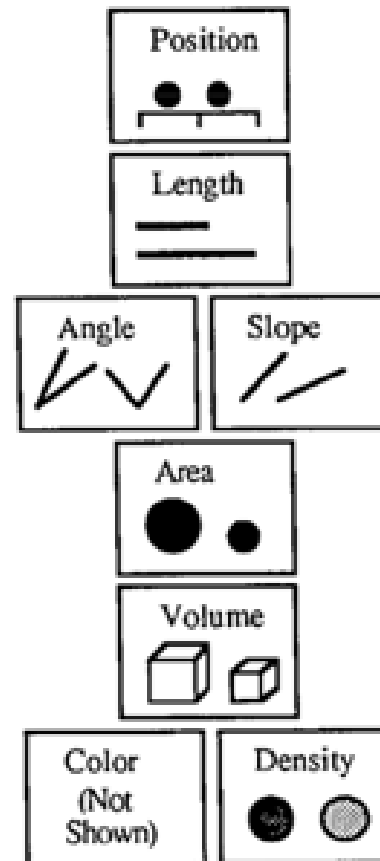


Visual Encoding Ranking

More accurate



Less accurate



Preattentive Processing

9	4	10	7	3	4	5	1	1	7
6	5	2	5	3	3	3	7	1	7
10	8	9	9	5	1	1	4	4	1
2	8	2	7	2	2	6	3	8	9
6	8	7	9	7	0	5	6	1	3
6	0	4	0	10	5	1	5	6	5
2	1	1	5	3	6	9	3	0	6
2	4	3	4	3	8	8	5	1	4
1	2	2	9	2	3	4	4	9	10
8	9	2	0	4	4	5	6	6	7

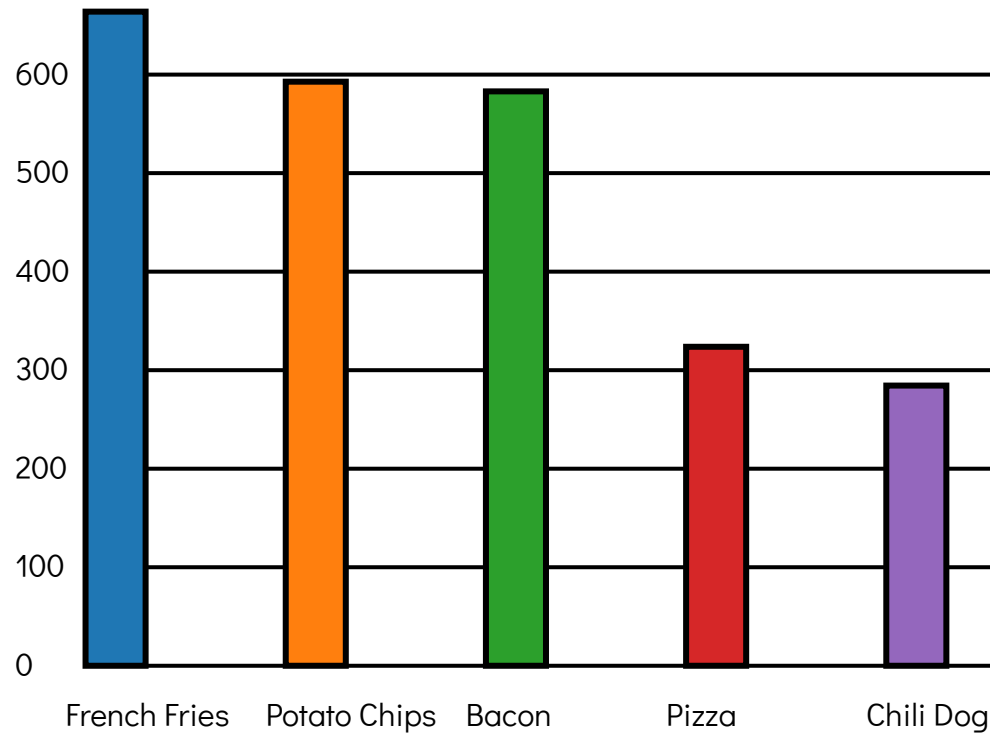
Colour

Area

Shape

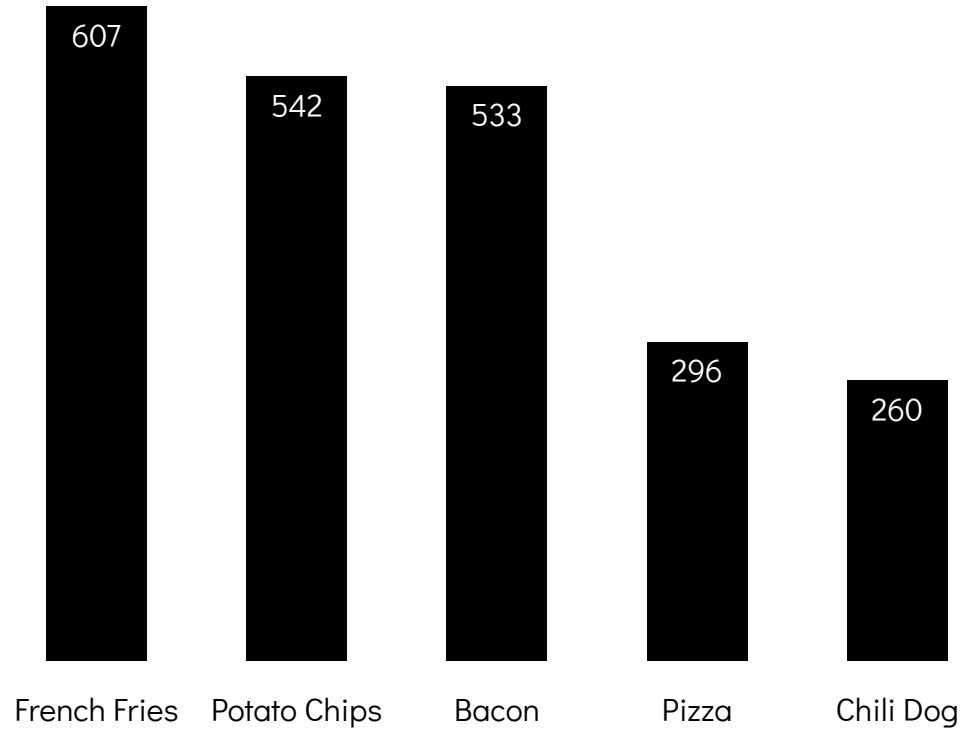
Data-Ink Ratio - Bad Example

Calories per 100g for different foods



Make it right in B&W

Calories per 100g for different foods

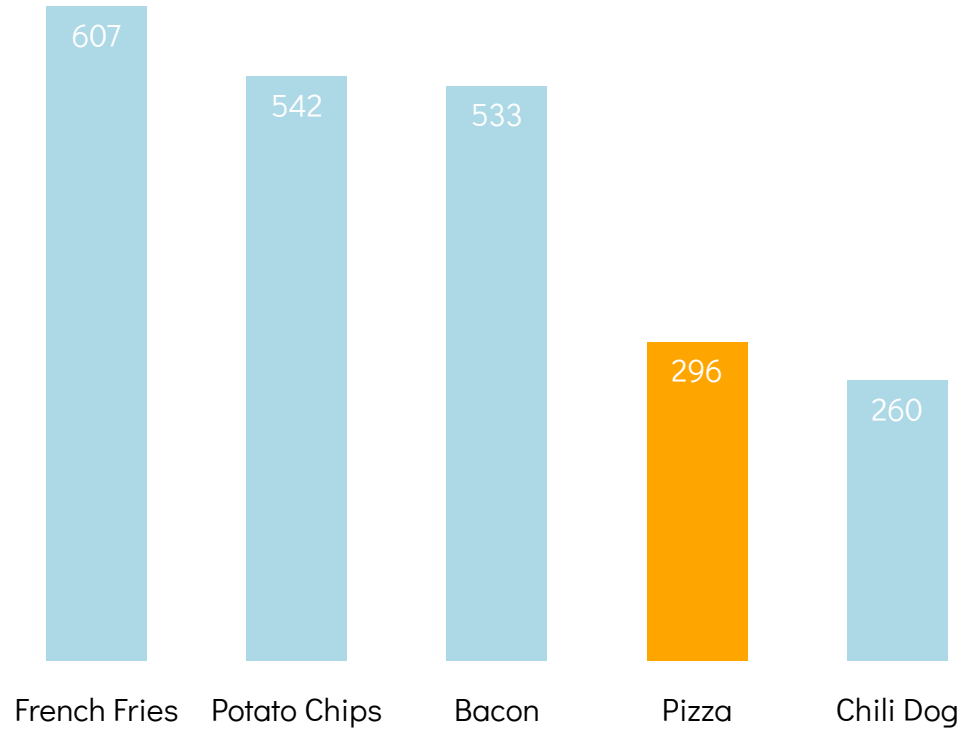


Use Hue Color

TURQUOISE	EMERALD	PETER RIVER	AMETHYST	WET ASPHALT
GREEN SEA	NEPHRITIS	BELIZE HOLE	WISTERIA	MIDNIGHT BLUE
SUN FLOWER	CARROT	ALIZARIN	CLOUDS	CONCRETE
ORANGE	PUMPKIN	POMEGRANATE	SILVER	ASBESTOS

Final Good Example

Calories per 100g for different foods



Examples of encoding

http://www.beatbots.com/board_mod/Attachments/38329918.jpg

http://i2.wp.com/statsbomb.com/wp-content/uploads/2014/01/Ronaldo_1213_NPG.jpg

http://robslink.com/SAS/democd54/nba_shot_analysis.htm

http://robslink.com/SAS/democd32/soccer_england.htm

Basic Charts

- Table/Heatmap
- Bar Chart / Histogram: Comparison
- Line Chart: Evolution
- Scatter Plot: Relationship
- Map: Location
- Stacked Charts: Composition