Visualization analysis - Practice 6

25 November 2020

Objectives

1. Identify visualization problems
2. Apply graphical integrity principles

Tool

- Microsoft Excel

Visualization analysis

- **Q**uestion: the visualization should answer to a clearly defined question.

- **D**ata: data available should be valid and relevant for the question.

Graphical integrity principles

- **P**roportionality: physical quantities should be proportional to the represented numbers.

- **U**tility: graphical elements should convey useful information.

- **C**larity: labeling should counter graphical distortion and ambiguity.

Exercise 1

Data is available in the file *Lab6.xlsx*.

Visualization 1

Dataset

Invesco Global Targeted Returns Fund Class E.

Portfolio composition	Quota
CASH - EU PRINCIPAL	15.00%
CONTRA FUTURE FUTURE DEC 18 15	13.60%
EUROS RECEIV. 16OCT15 DEU	17.80%
POUND STERLING PAYABLE 16OCT15 DEU	16.70%
US DOLLARS PAYABLE 08OCT15 DEU	20.40%

Task

1. Is data available sufficient for understanding the fund composition?

2. Is this visualization appropriate for discovering if *POUND STERLING* has the largest share?

3. What are the limitations of this visualization?

4. How could it be re-drawn?

Visualization 2

Dataset

Car matriculation per brand on the Italian market.

From: http://www.carsitaly.net/fiat-car-sales_italy.htm

Year	FIAT	WV	Ford
2015	329177	119003	109250
2014	281699	110227	91541
2013	279401	105322	87417
2012	294875	113514	98997
2011	363274	138770	146764
2010	450793	136392	182331

Year	FIAT	WV	Ford
2009	549310	125887	210705
2008	542408	137453	169800
2007	603485	152262	199505

Task

1. Is data available sufficient for understanding car matriculation on the Italian market?

2. Is this visualization appropriate for showing the sales trend of these three brands?

3. What are the limitations of this visualization?

4. How could it be re-drawn?

Visualization 3

Dataset

Popularity of programming languages: Javascript, Python, CSS.

From: https://trends.google.com/trends/explore?date=all&q=Javascript,python,CSS

Language	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
CSS	87.26667	86.22581	85.60000	83.80645	81.29032	83.03333	85.12903	83.66667	77.70968	81.41935	85.82143	90.79310
Javascript	79.40000	76.06452	76.66667	75.54839	74.96774	83.30000	88.03226	86.83333	78.77419	84.96774	91.00000	90.34483
Python	89.13333	86.74194	84.20000	81.58065	80.09677	82.33333	84.90323	82.60000	74.45161	80.29032	86.03571	90.82759

Task

1. Is data available sufficient for understanding the popularity of programming languages?

2. Is this visualization appropriate for analyzing the evolution of popularity over time, rather than single values?

3. What are the limitations of this visualization?

4. How could it be re-drawn?

Visualization 4

Dataset

Expenses per category in different departments.

Category	Research	Sales	Management	Accounting
Salary	68	62	54	24
Facility	26	25	8	6
Travel	7	50	19	4
Consumable	32	54	8	3
Software	35	8	15	7
Other	29	31	28	8

Tasks

1. What is the unit measure of the available data?

2. Is this visualization appropriate for understanding what are the travel expenses in the research department?

3. What are the limitations of this visualization?

4. How could it be re-drawn?

Visualization 5

Dataset

Area	North	Center	South
Management	90	82	84
Accounting	64	62	60
Human Resources	60	60	62
Sales	70	68	65
Production	40	37	35

Tasks

1. To what question is this visualization trying to answer?

2. How much is it easy to watch it in detail and for a long time?

3. What are the limitations of this visualization?

4. How could it be re-drawn to support a prolonged vision?