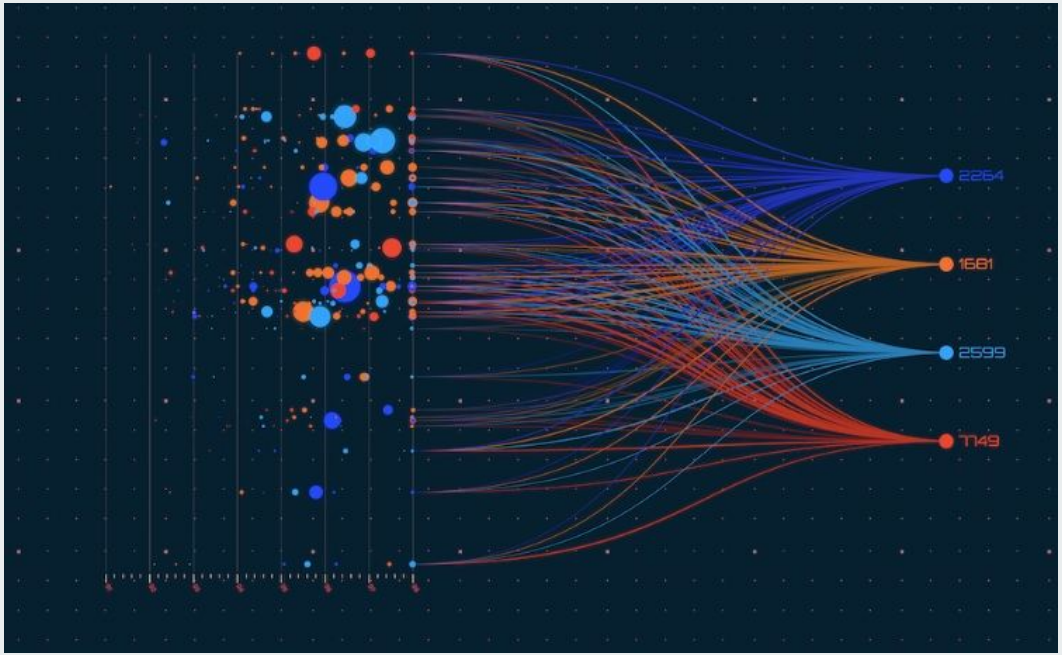
Data Visualization in Ts



Contacts

Jorge Elías García
alu0101472294@ull.edu.es

Juan Aday Siverio González
alu0101472294@ull.edu.es

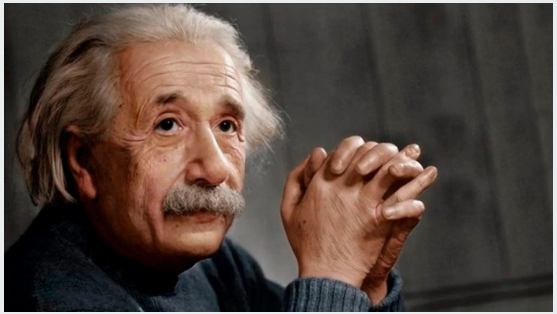
Index

Some important quotes

- "A picture is worth a thousand words”

- “Information is not knowledge.”
  – Albert Einstein

- “Data is becoming the new raw material of business.”
  –Craig Mundie



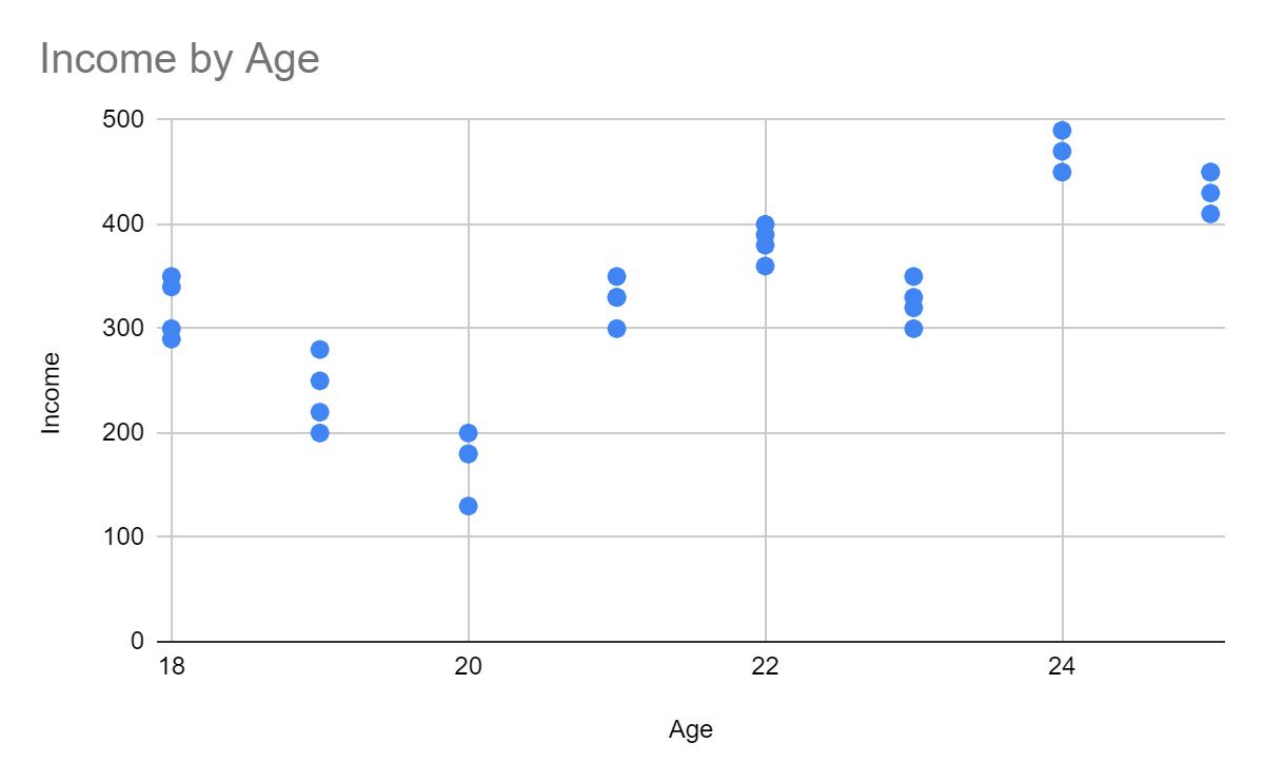
Why Is Data Visualization Important ?

- Big Amount of Data
- Identify patterns and relationships among the data
- Many areas of knowledge

Fast Comprehension

Age	Income
23	350
18	300
20	180
19	220
25	450
22	400
21	350
18	350
19	280
24	490
21	300
22	390
23	320
25	430
20	130
18	340
21	330
19	200
25	410
23	300
22	360
24	470
20	180
18	290
25	450
19	250
22	380
21	330
24	450
23	330
20	200

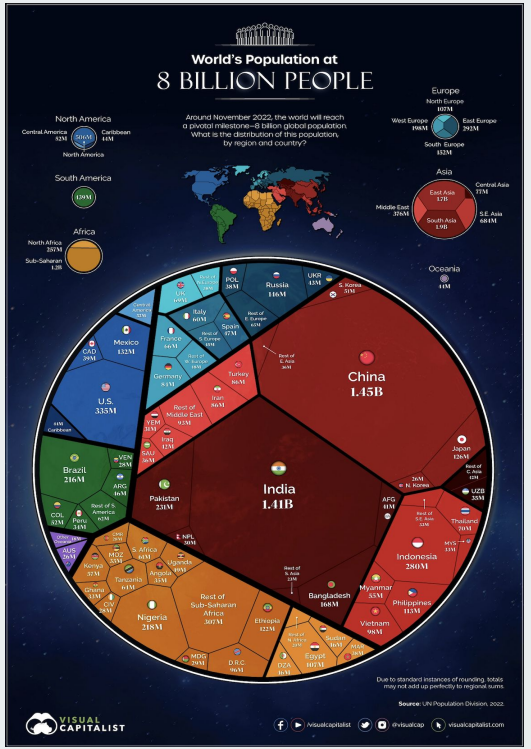
Fast Comprehension



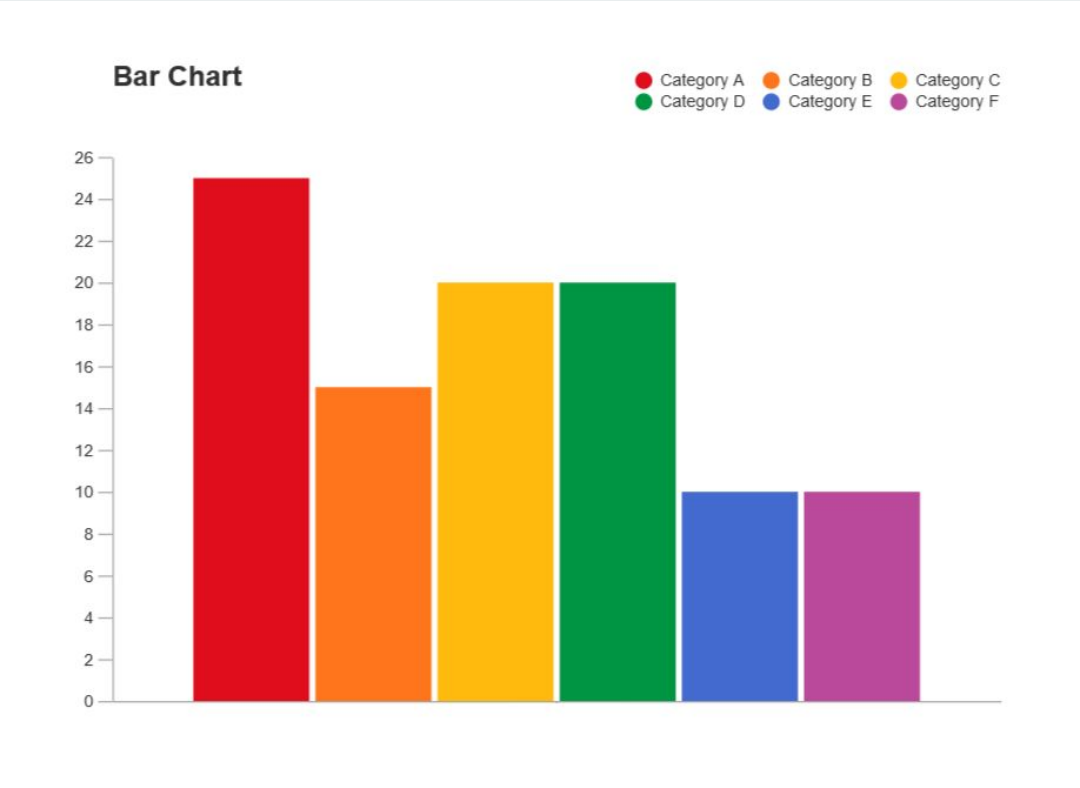
“Information is not knowledge”

Population people

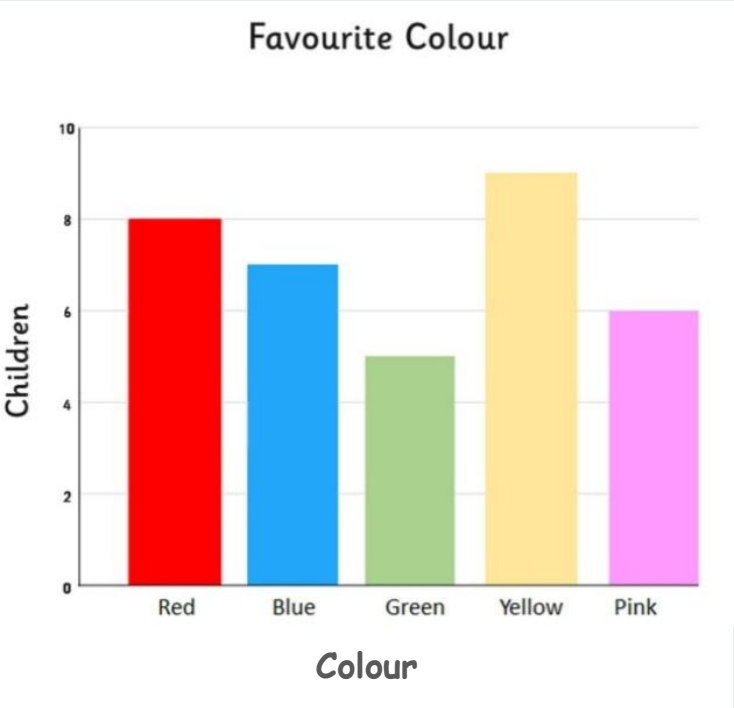
Country/area	↑ 1950	2021	Absolute Change	Relative Change
China	543,979,200	1,425,893,500	+881,914,300	+162%
India	357,021,120	1,407,563,900	+1,050,542,780	+294%
United States	148,281,550	336,997,630	+188,716,080	+127%
Russia	102,580,110	145,102,750	+42,522,640	+41%
Japan	84,353,060	124,612,530	+40,259,470	+48%
Germany	70,964,104	83,408,560	+12,444,456	+18%
Indonesia	69,567,624	273,753,180	+204,185,556	+294%
Brazil	53,955,360	214,326,220	+160,370,860	+297%



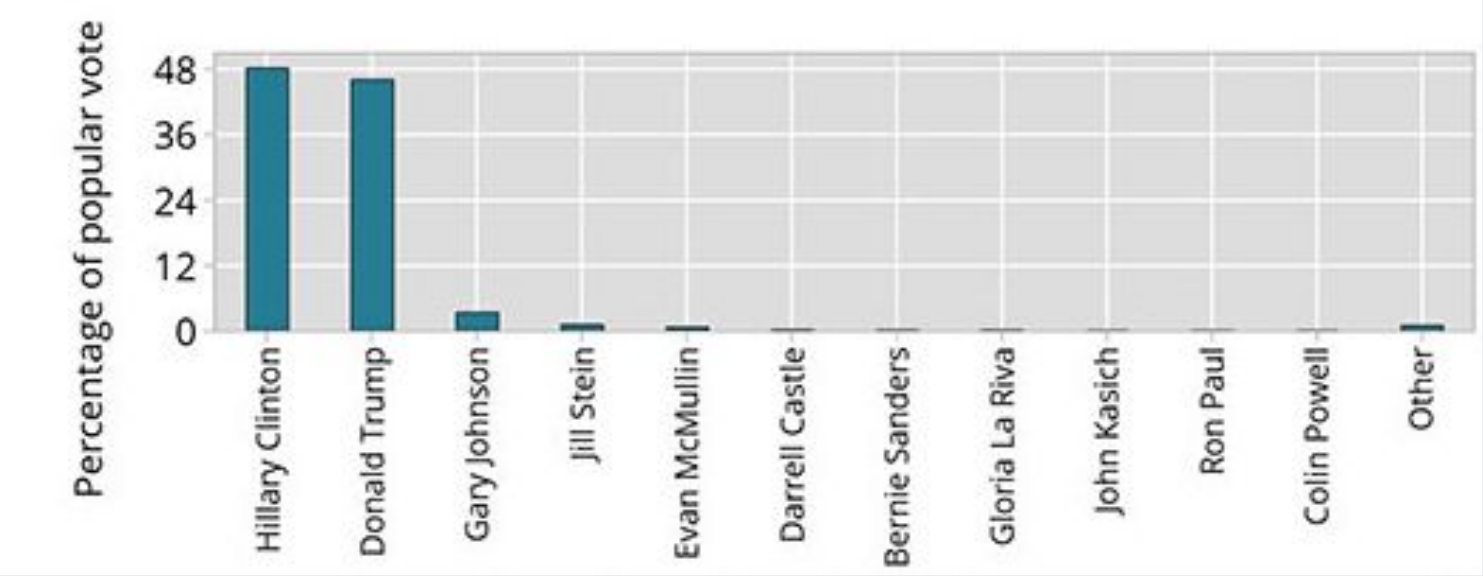
How to make a good graph?



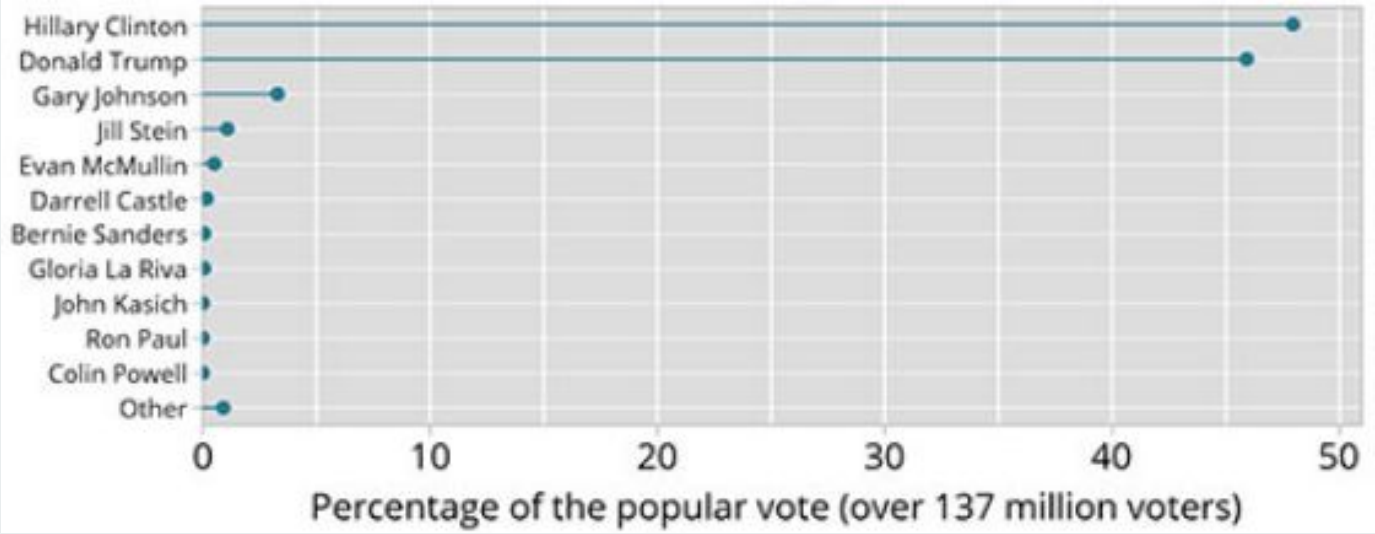
How to make a good graph?



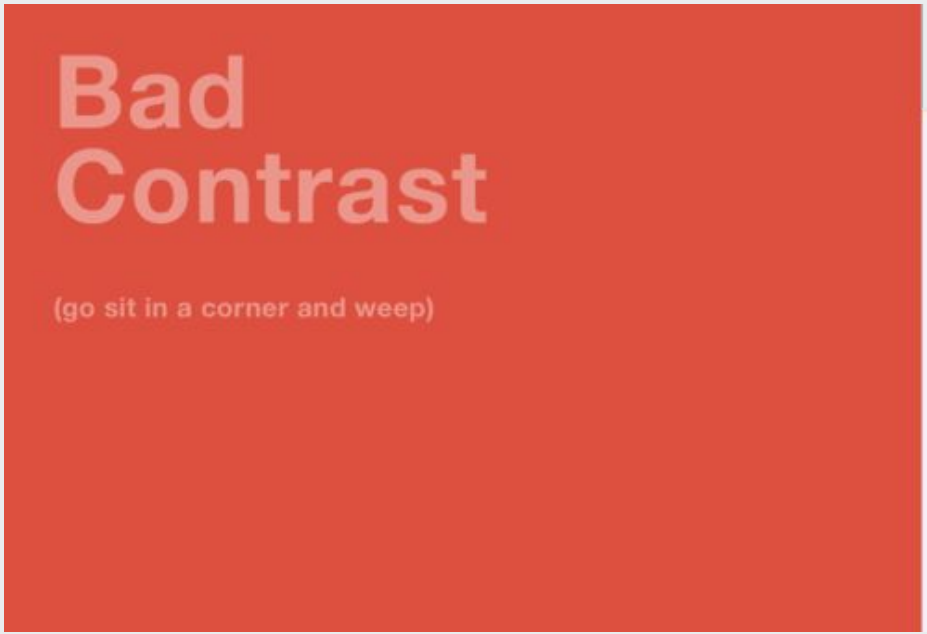
How to make a good graph?



How to make a good graph?



How to make a good graph?



Data psychology

- Multidisciplinary field Data Analysis-Psychology

- Objectives:
  - Identify patterns in human behavior.
  - Predict and explain future behavior.
  - Inform strategies to improve results in different areas

Gestalt psychology

- Perception study
  - Context as a whole
- Visual perception (Highlighted)
- Personal perceptions of the world
- Objective: to understand how the human mind responds to its perception

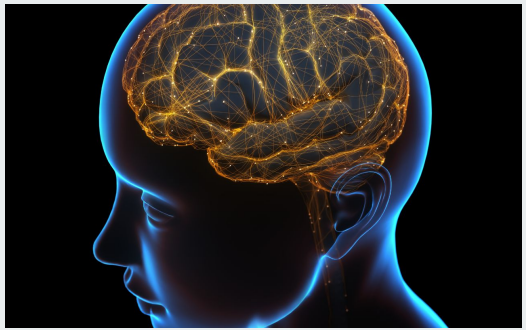
Gestalt psychology

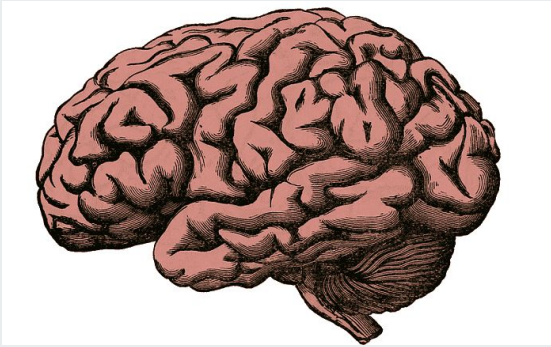
Gestalt psychology

Cerebral Process

- Utilization of speed and efficiency in visual perception:
  - Discussion on how visualizations leverage the brain's ability to process visual information rapidly

- Pre-attentive processing for rapid understanding:
  - Explanation of how the brain processes visual information even before we are consciously aware of it

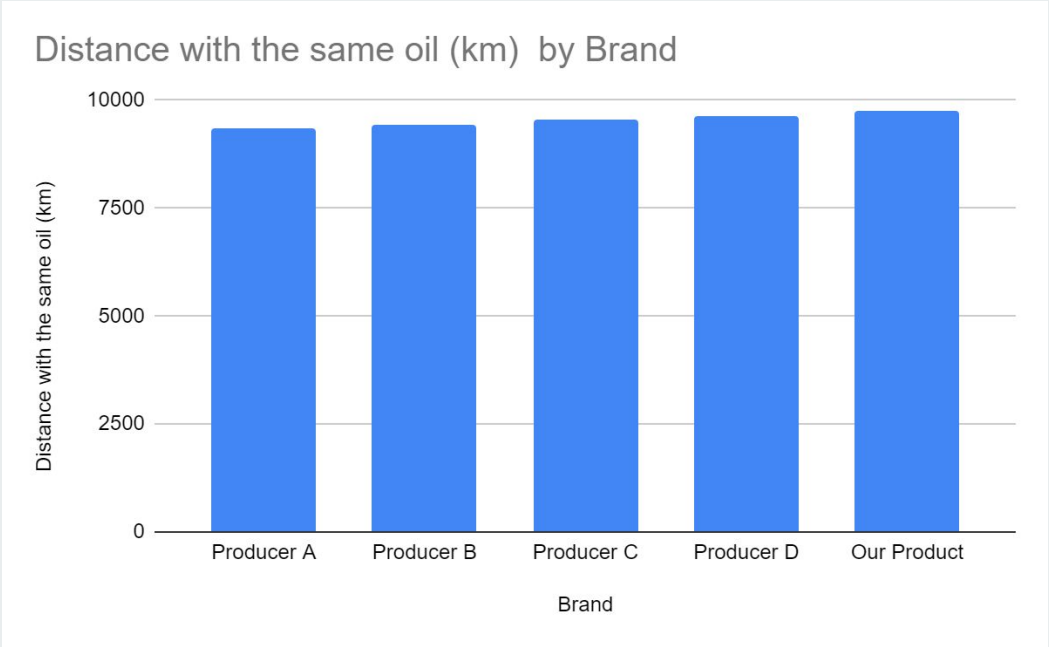




Malicious use of data representation

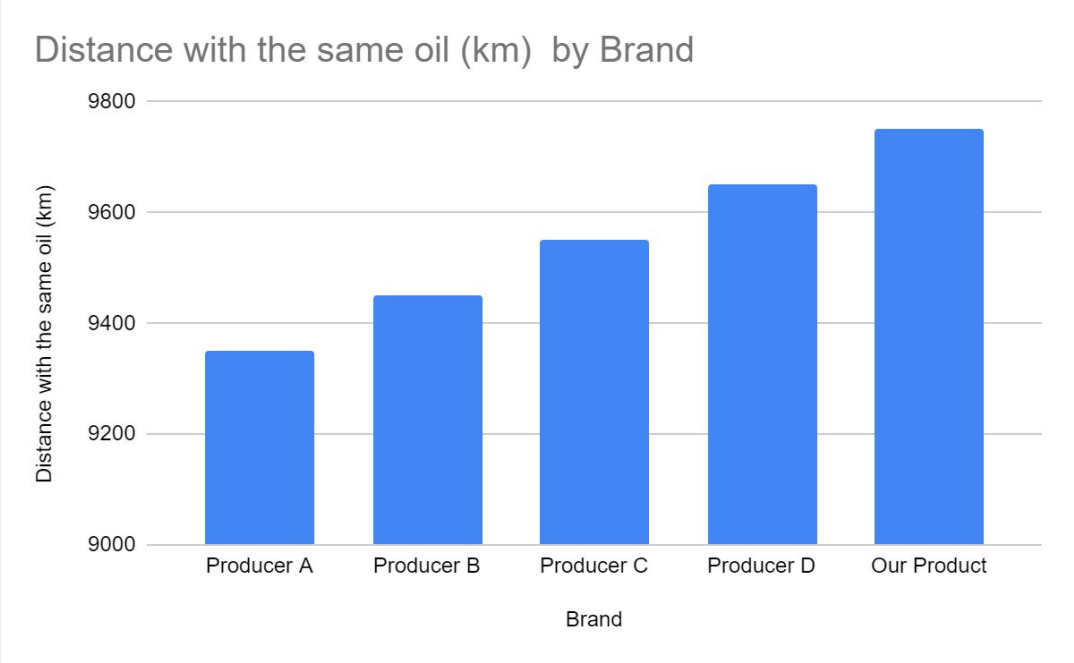
Malicious use of data representation

1. **Truncated y-axis**



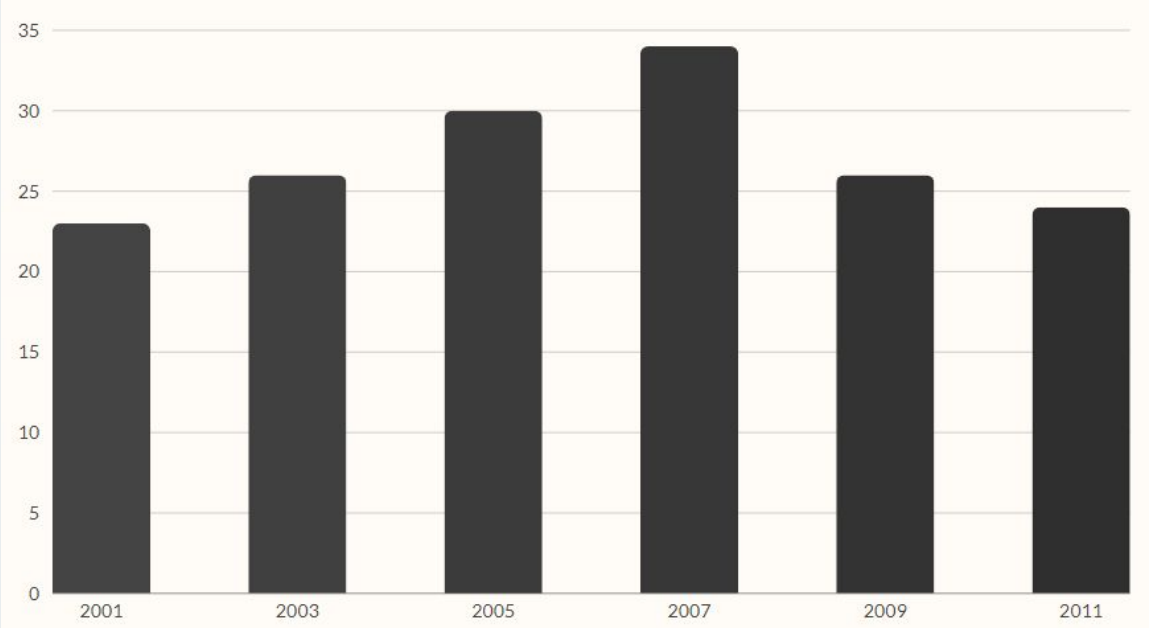
Malicious use of data representation

1. **Truncated y-axis**



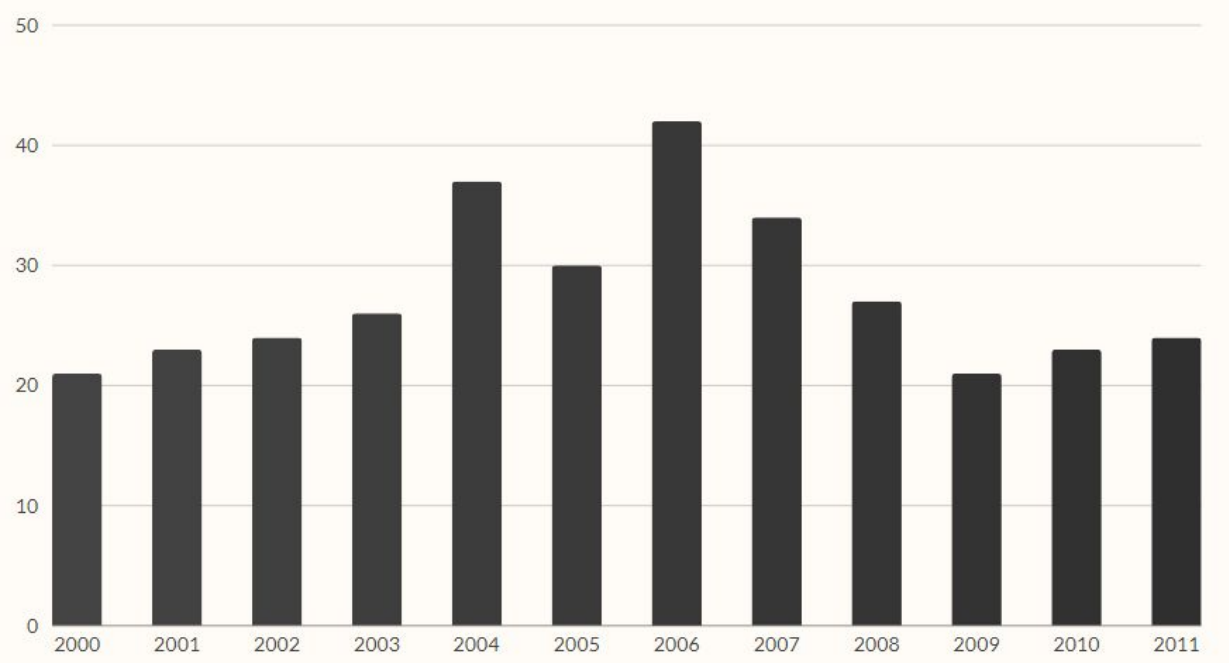
Malicious use of data representation

2. Data omission



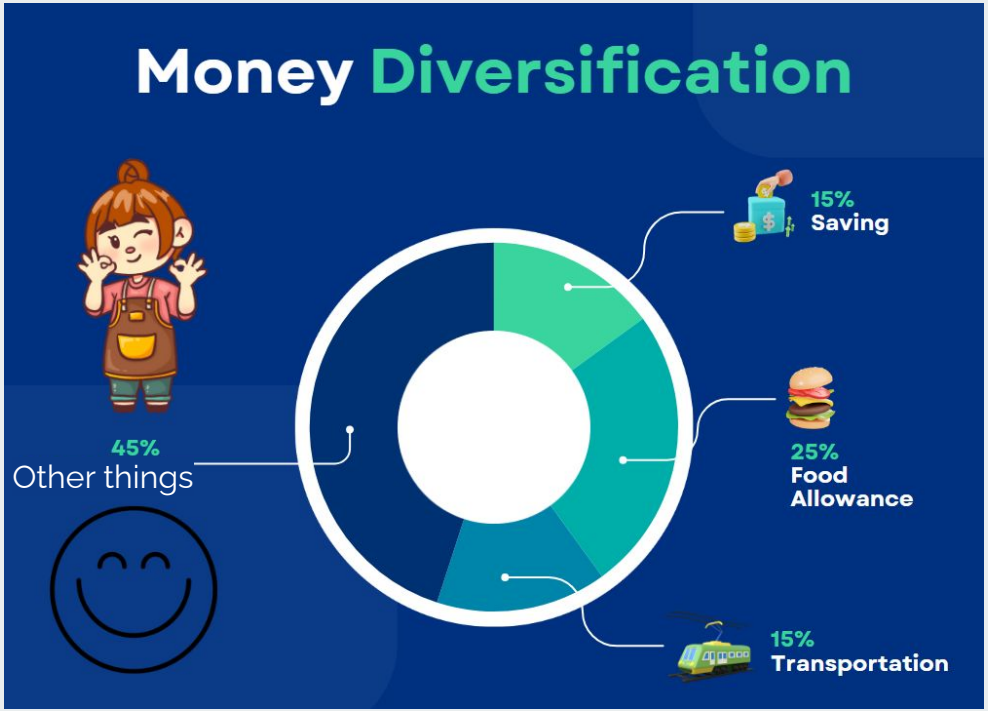
Malicious use of data representation

2. Data omission



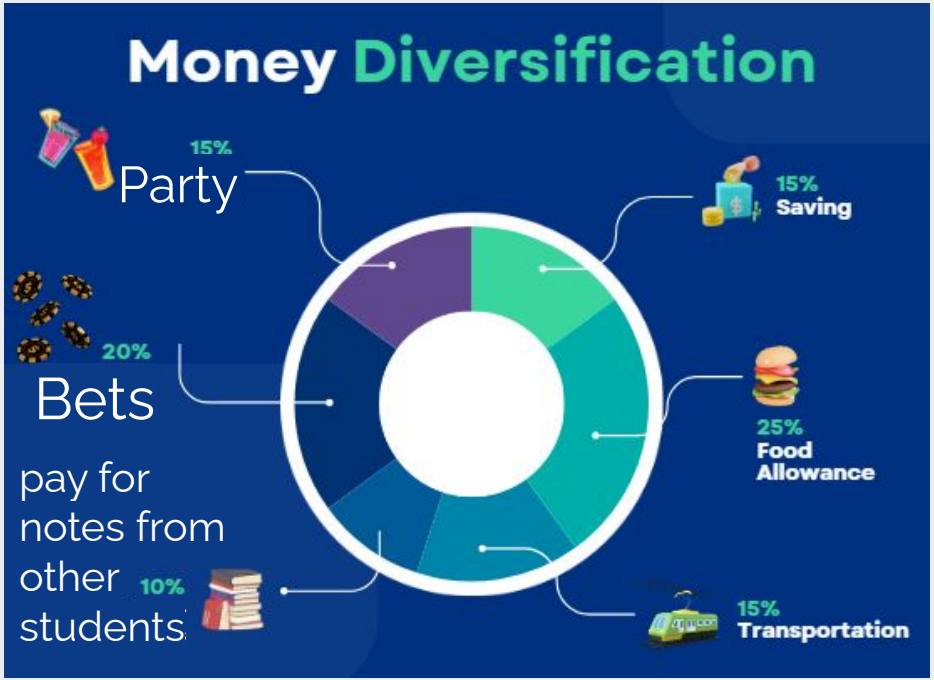
Malicious use of data representation

3. **Selective Selection**



Malicious use of data representation

3. **Selective Selection**

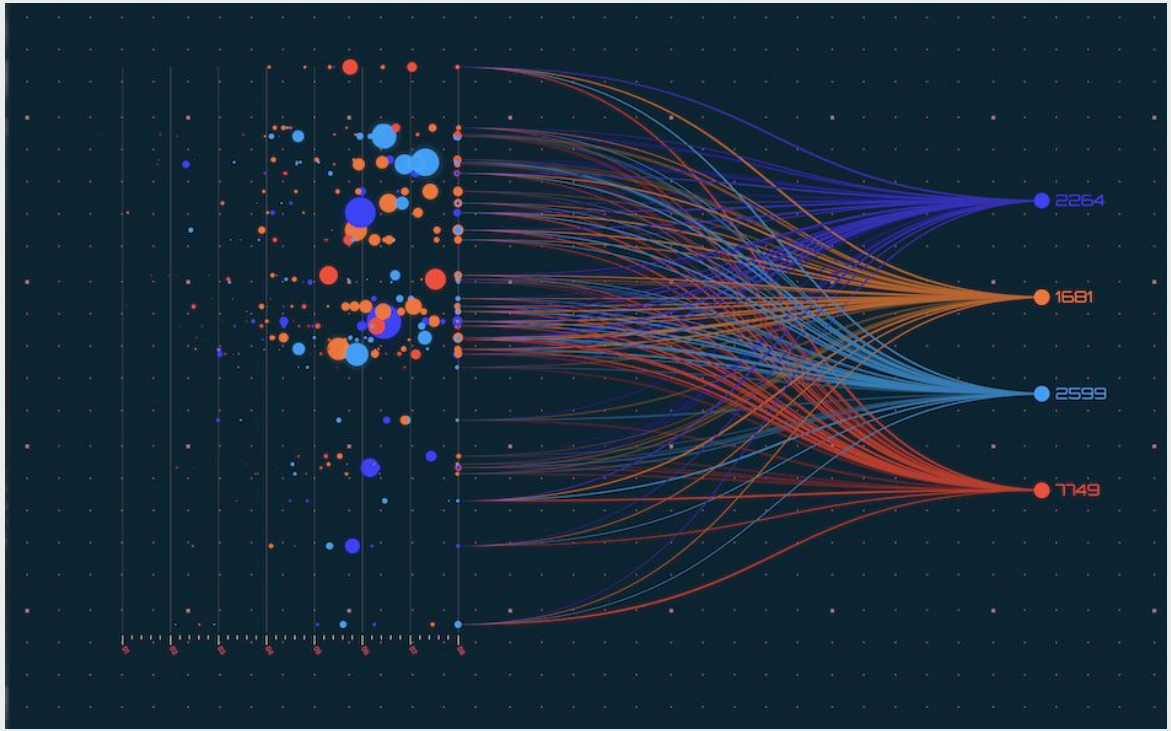


Malicious use of data representation

How to avoid it ?

- Be critical
- Find information on our own
- Review the information slowly

Graphs in TS



Graph in TS

FusionCharts

- JavaScript library
- Simple Syntax
- Personalization
- As powerful as d3.js, plotly.js...

FusionCharts

Code Division

More sophisticated examples

La Liga Standings

- https://github.com/JorgeEliasGarcia/pai_presentation/tr /master/la-liga
- 3D, bar3D, line...?

More graphs?

Choose yourself!

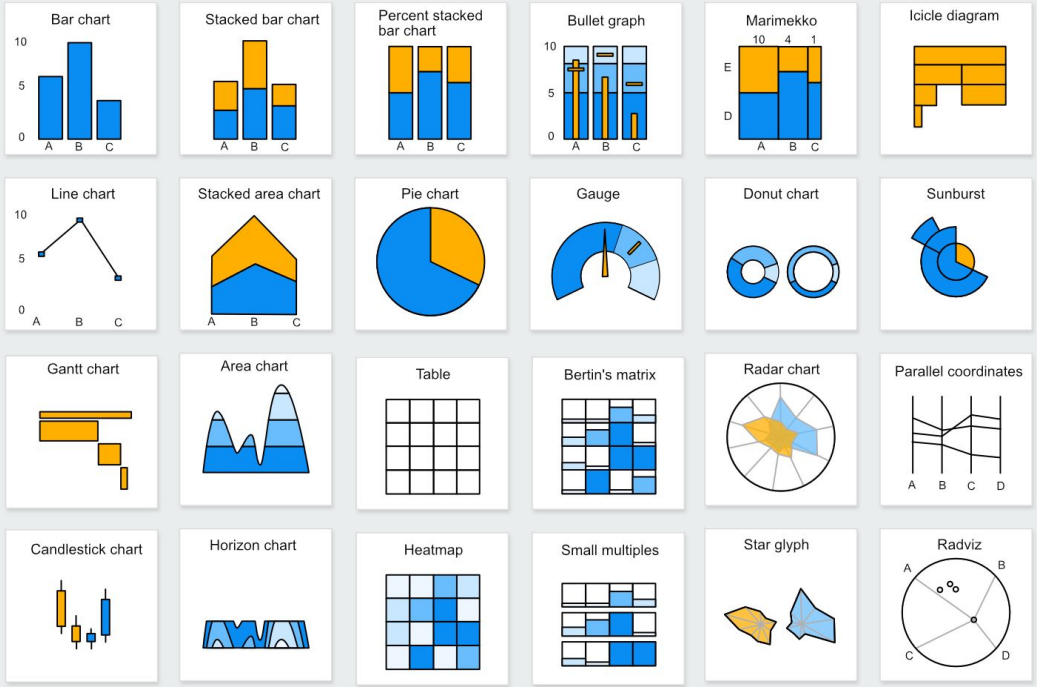
- https://www.fusioncharts.com/dev/chart-attributes

Recommendations

Importance

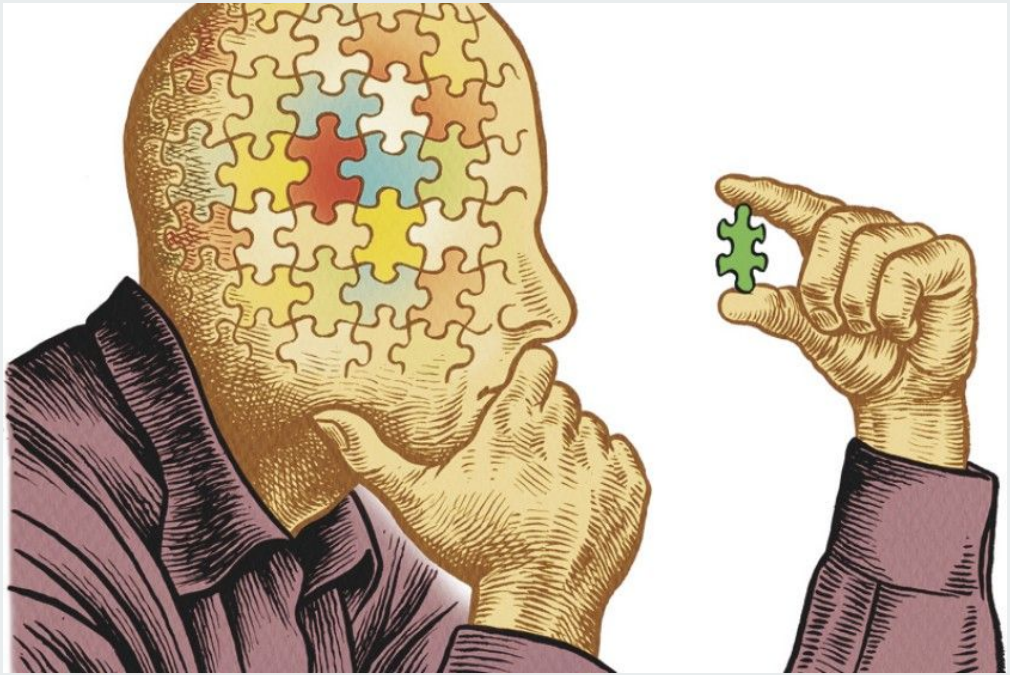
Recommendations against Data Analysis

Moderately know the types of graphics



Recommendations for Data Analysis

Be critical



Recommendations against Data Analysis

Use it responsibly

Bibliography

- Top Javascript Libraries
  https://www.softwaretestinghelp.com/best-javascript-visualization-libraries/

- Data application tools for application developers
  https://awesome.cube.dev/

- Psychology behind data visualization
  https://treehousetechgroup.com/the-psychology-behind-data-visualization/

- Malicious use of data visualization
  https://www.datapine.com/blog/misleading-data-visualization-examples/

- FusionChart
  https://www.fusioncharts.com/dev/chart-attributes/

Bibliography

- Important quotes
  https://thedataliteracyproject.org/20-best-data-visualization-quotes/

- How to choose the right chart
  https://infogram.com/blog/choose-the-right-chart/

- Propper Colors
  https://www.atlassian.com/data/charts/how-to-choose-colors-data-visualization

- Best Practices for Designing Charts
  https://app.uxcel.com/courses/ui-components-best-practices/charts-best-practices-201

Any Questions?


THANK YOU
FOR WATCHING!