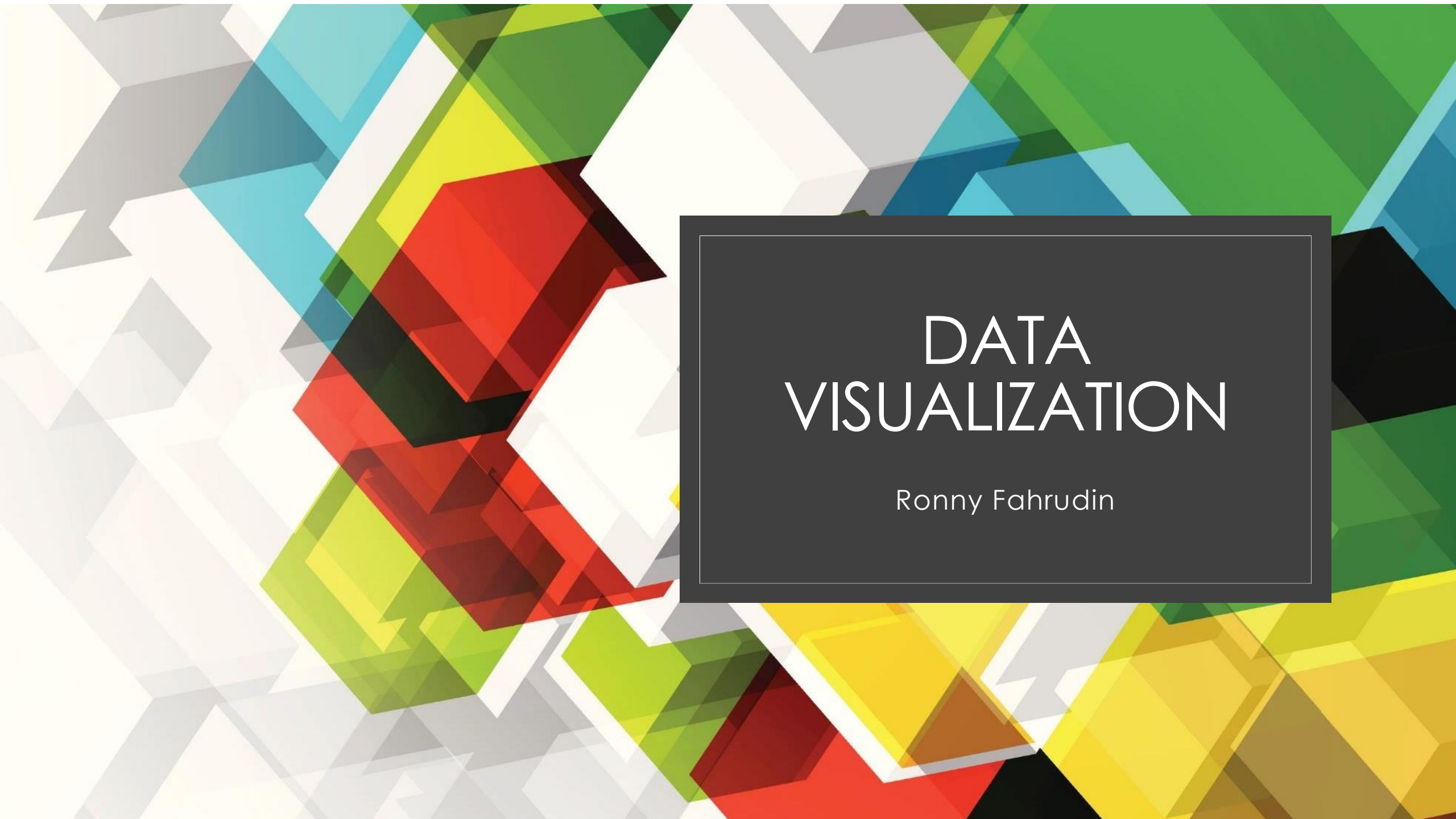

DATA
VISUALIZATION
Ronny Fahrudin

Outline

DATA VISUALIZATION FUNDAMENTALS

VISUAL DESIGN

DELIVERY

EXPLANATORY

VISUALIZATION TOOLS

DATA VISUALIZATION FUNDAMENTALS

What is visualization data?

Data Visualization is presenting raw data through graphical representations to explore the data and uncover deep insights.

Benefit of Visualization Data

- Better Analysis
- Quick action
- Identifying patterns
- Finding errors
- Understanding the story
- Exploring business insights
- Grasping the latest trends

Principles of Data Visualization

- **Clarify : set a clear objective that people care about**
- **Simplify: present only the visualization style that is most appropriate for the type of data being analyzed.**
- **Compare : display side-by-side comparisons for easy absorption**
- **Attend: draw the viewers attention to the important/relevant data**
- **Explore: create visuals that leads the viewer to discover new things, not simply answer a specific question.**
- **View Data Diversely: enable multiple views of the same data to discover various insights**
- **Ask Why: question why something is happening, don't simply note that it is happening**
- **Be Skeptical: encourage more question-asking vs. accepting the simple answer provided by the initial query.**
- **Respond: share the data you uncover to gain alternate perspectives and build collaboration.**
- **Detail: make large data sets coherent and reveal data at several levels of detail**
- **Validate: data visualization graphs should speak for themselves but also provide access to backup information and raw data as proof points.**

Visualization Thinking

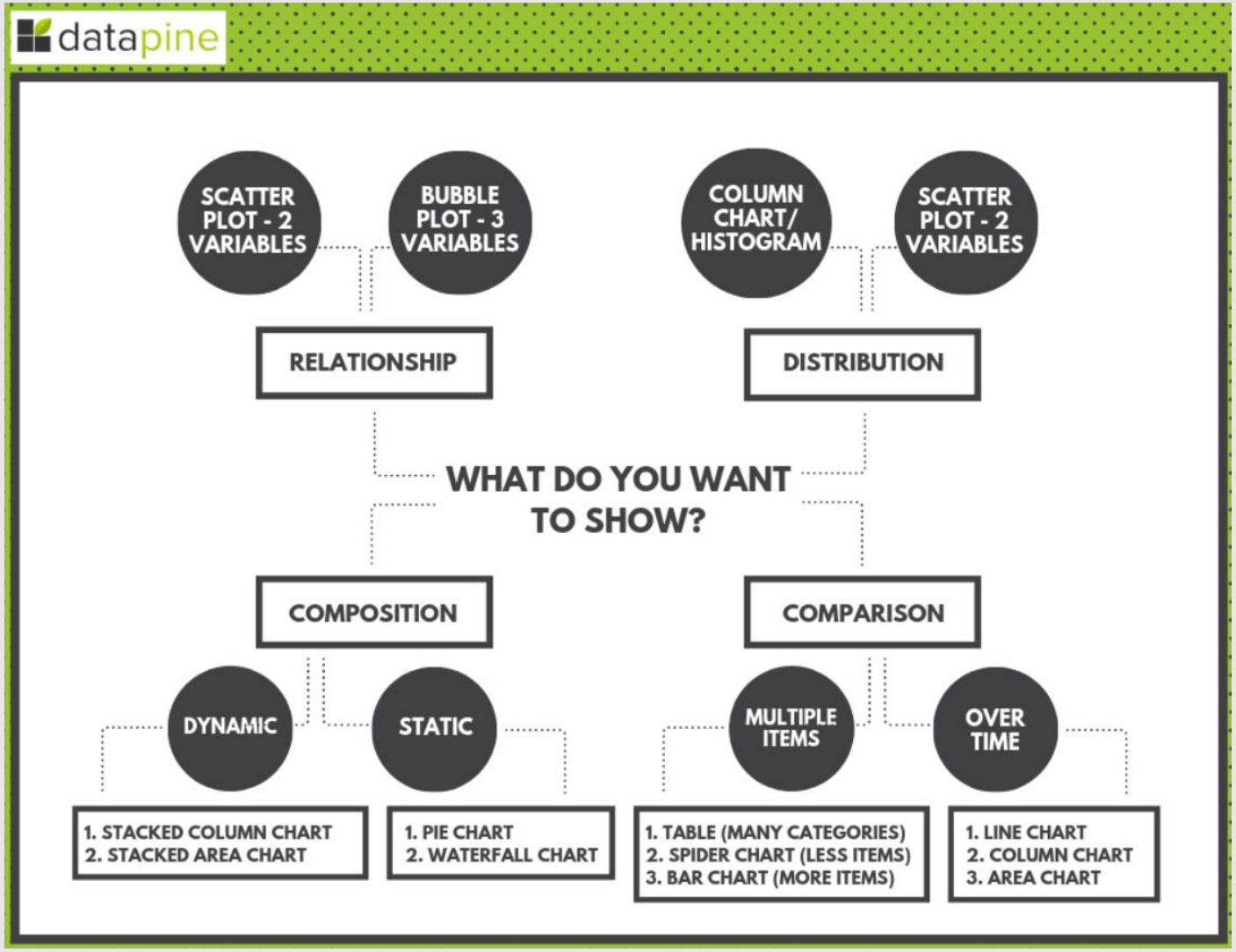
DATA VISUALIZATION FUNDAMENTALS

- CONTEXTUAL (Framing out Thinking)
  - Understand the larger social & physical context where it is intended to function.
- ORGANISED
  - Manage the sequence of processes,
  - Question to answer
    - Sketch it

- IMAGINATIVE
  - Harnessing instinct,
  - Human instinct offers unique perspective
- JOURNALISTIC
  - Harnessing curiosity,
  - What to expose?
- CRITICAL
  - There lot of visualization types
  - What is the best Way?

How to choose the Right Charts?

DATA VISUALIZATION FUNDAMENTALS

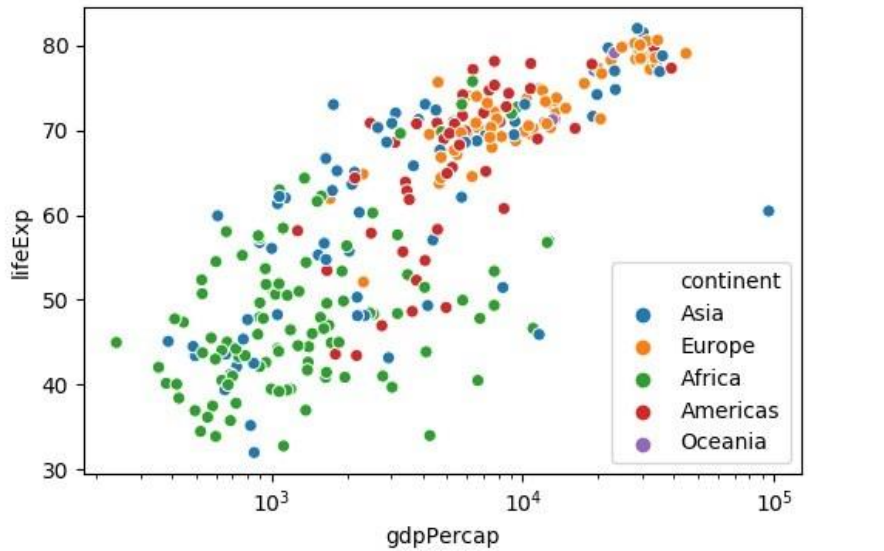


When we want make Relationship

DATA VISUALIZATION FUNDAMENTALS

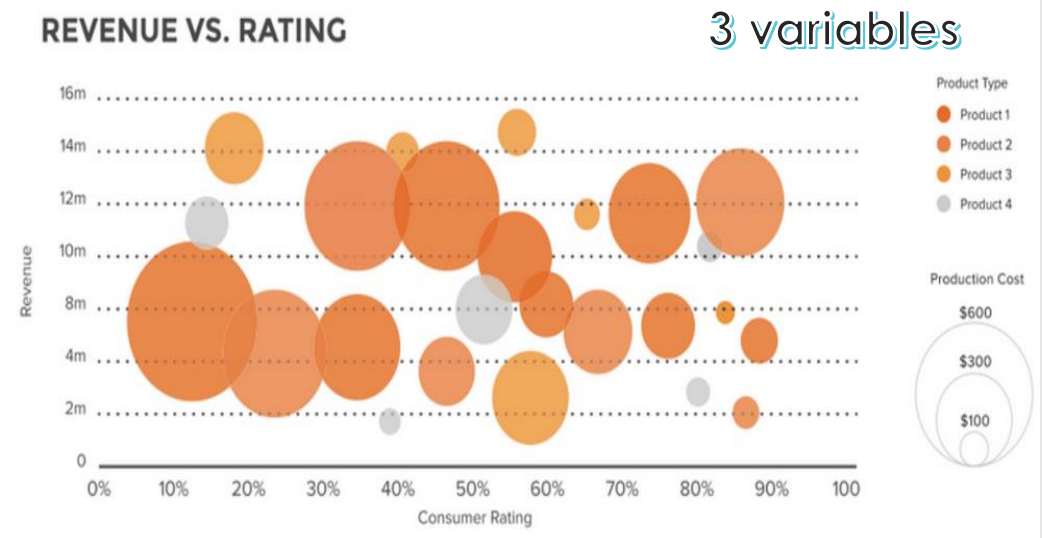
- Relationship charts are used to show a connection or correlation between two or more variables.

2 variables



Scatter plot

3 variables



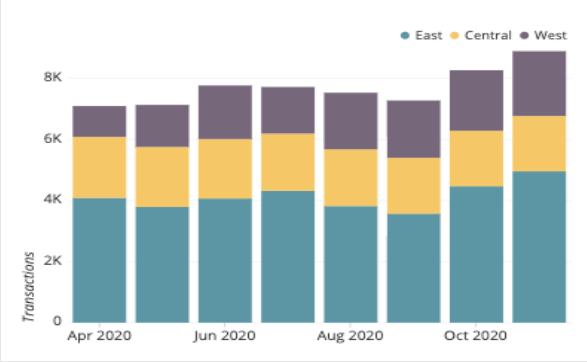
Bubble Plot

When we make Composition

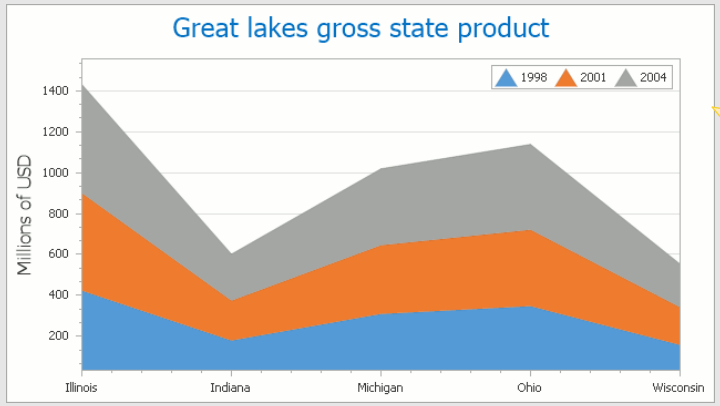
DATA VISUALIZATION FUNDAMENTALS

- Composition charts are used to display parts of a whole and change over time.

Dinamic



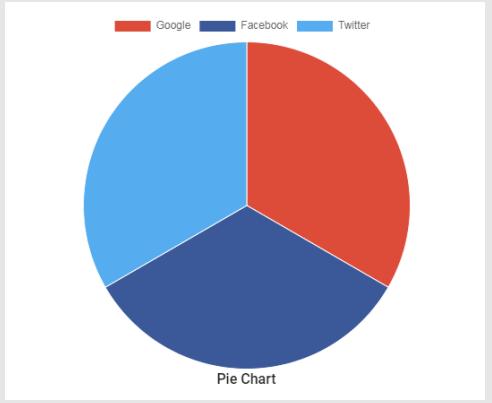
Stacked Column chart



Stacked Area chart

Static

Pie chart



Waterfall chart

When we make Comparison

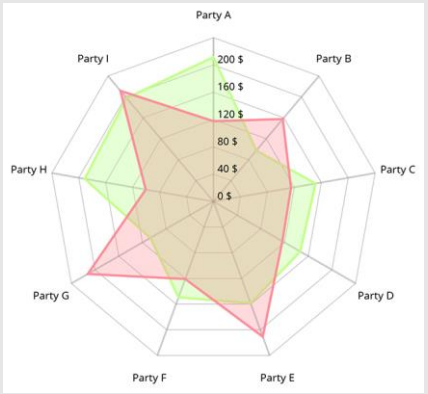
- Comparison charts are used to compare one or more datasets. They can compare items or show differences over time.

DATA VISUALIZATION FUNDAMENTALS

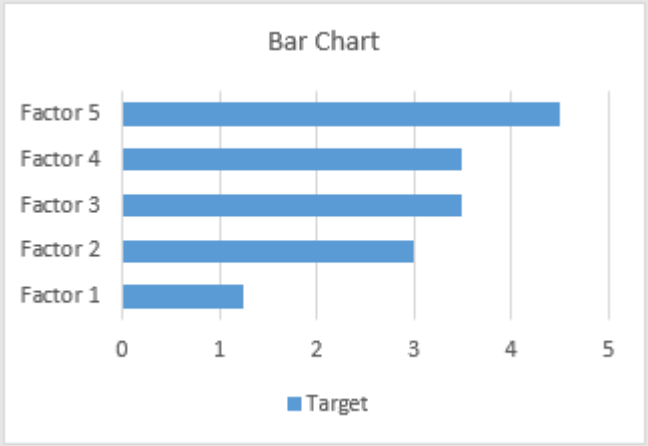
Multiple Item

	Id	ParenId	Name	Description	Orderno	Status
▶	10	0	Man	this is for Male	8	Active
	14	0	Women	this is for women	1	Active
	16	0	Electronics	this electronic c...	1	Active
	17	10	Shirt	this is shirts	1	False
	18	16	Television	this is for Electr...	1	Active
	19	16	Laptop	this is for Electr...	1	Active
	20	10	Jeans	this is for men	1	InActive
	21	10	Watches	men watches	1	Active
	23	14	Kurties-Pajama	this is kurties	3	Active
*	NULL	NULL	NULL	NULL	NULL	NULL

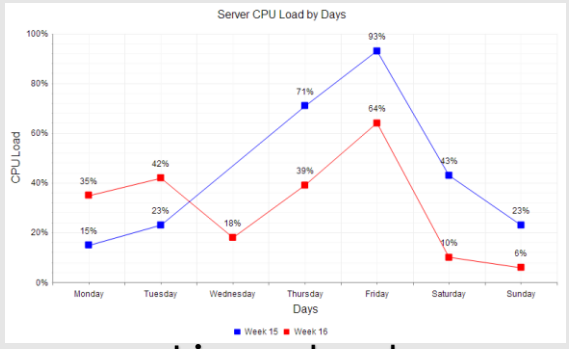
Table



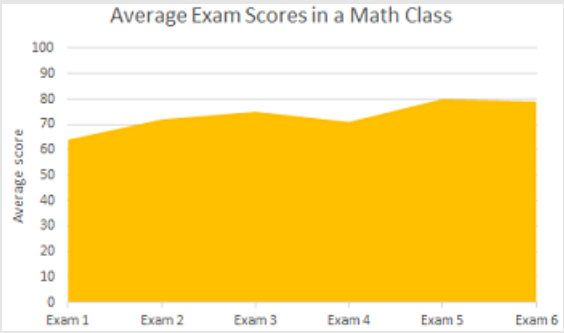
Spider chart



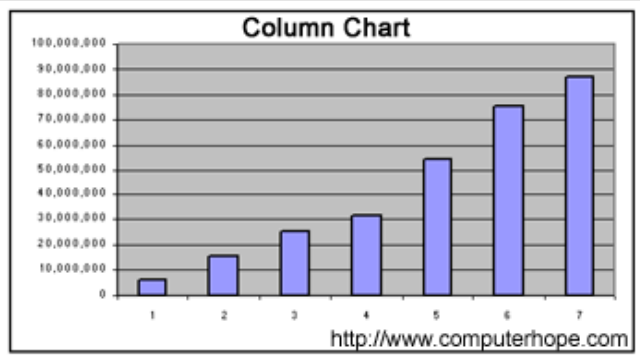
Over Item



Line chart



Area Chart

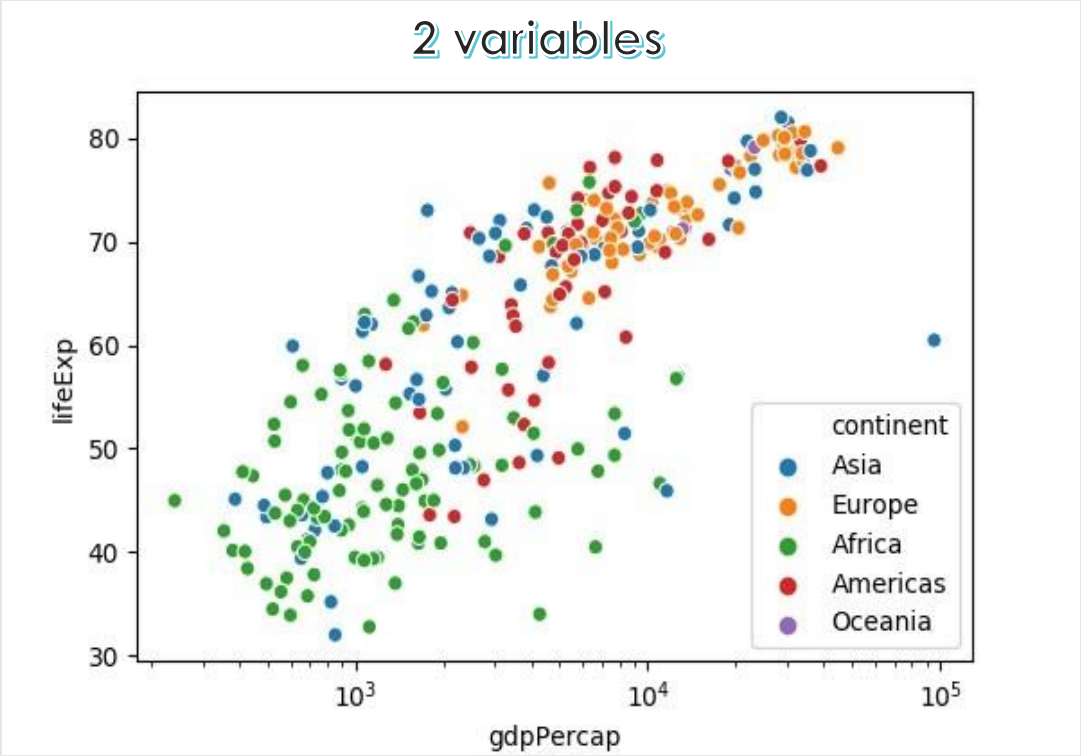


Column Chart

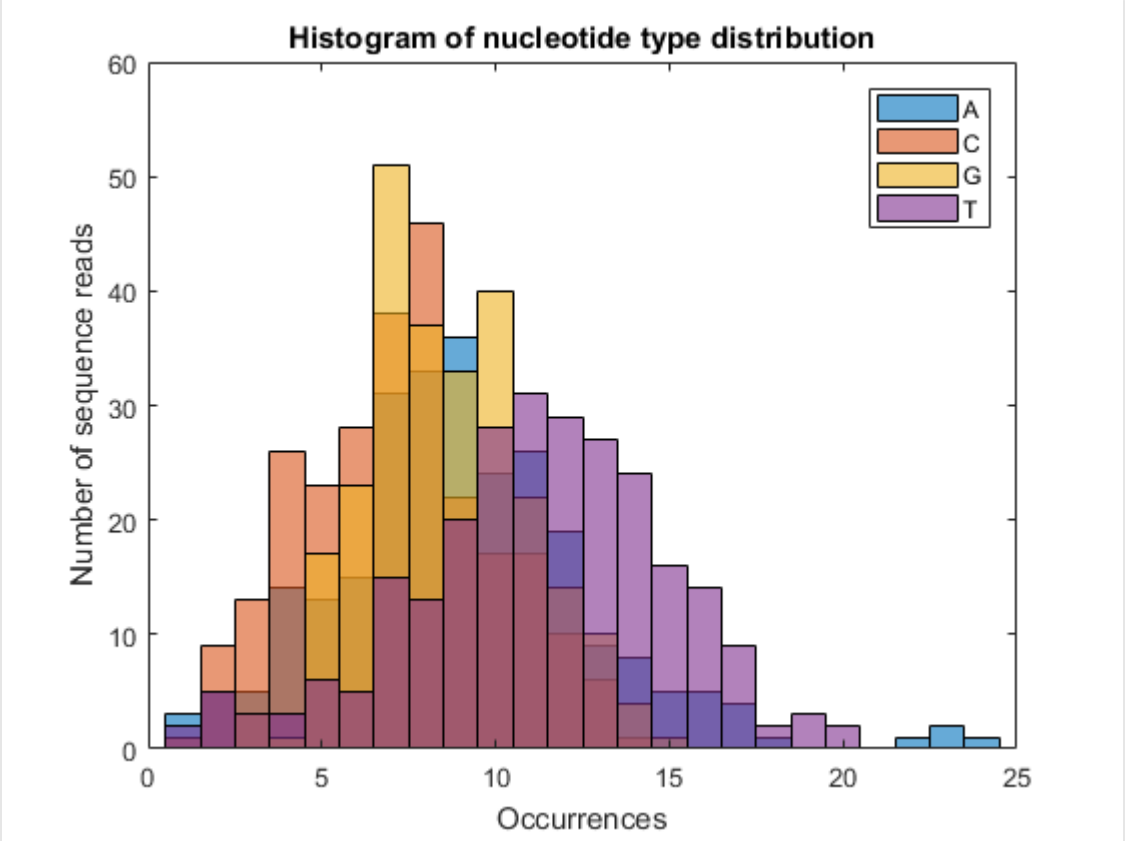
When we make Distribution

DATA VISUALIZATION FUNDAMENTALS

- Distribution charts are used to show how variables are distributed over time, helping identify outliers and trends.



Scatter Plot



Histogram

How to design Any Chart

- **Be Honest**
  - Data accuracy and integrity come first.
  - Don't distort or confuse the information for embellishment or partiality
  - Emphasize clarity and transparency
- **Lend a helping hand**
  - Provide context and help users navigate the data.
  - Build affordances that prioritize data exploration and comparison
- **Delight users**
  - Always exceed expectations.
  - Consider performance, polish, surprise, and innovation.
  - Embrace dynamic, fast, and clever experiences
- **Give clarity of focus**
  - Reduce cognitive load and focus on what matters.
  - Every action, color, and visual element should support data insights and understanding.
- **Embrace scale**
  - Allow the system to extend and adapt to any context.
  - Respect different user needs on data depth, complexity, and modality.
- **Provide structure**
  - Use visual attributes to convey hierarchy, provide structure, and improve consistency.
  - Experiences should be intuitive and easy to use.

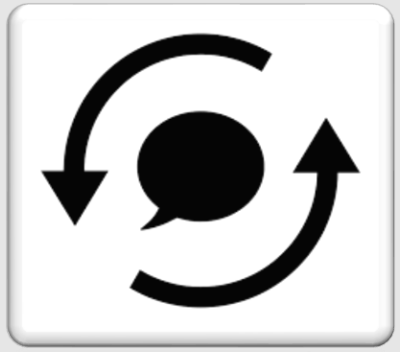
What is Explanatory Data?

DELIVERY

EXPLANATORY

How to Storytelling with Data?

DELIVERY
EXPLANATORY



Understanding data contexts

Knowing your Audience

Think as a designer

Choosing right Visualizations Graph

Present story naratively

What's visualization tools?

Sources

- https://www.datapine.com/blog/how-to-choose-the-right-data-visualization-types/
- https://medium.com/google-design/redefining-data-visualization-at-google-9bdcf2e447c6
- https://www.gcppodcast.com/post/episode-199-cloud-data-visualization-with-manuel-lima/
- Book of "*Story Telling with Data*" by Cole Nussbaumer Knaflic
- https://infogram.com/page/choose-the-right-chart-data-visualization
- https://material.io/design/communication/data-visualization.html#principles
- https://www.boldbi.com/blog/data-visualization-importance-and-benefits
- https://www.tableau.com/learn/training/