Introduction to Data Visualization: Theory and practice using R

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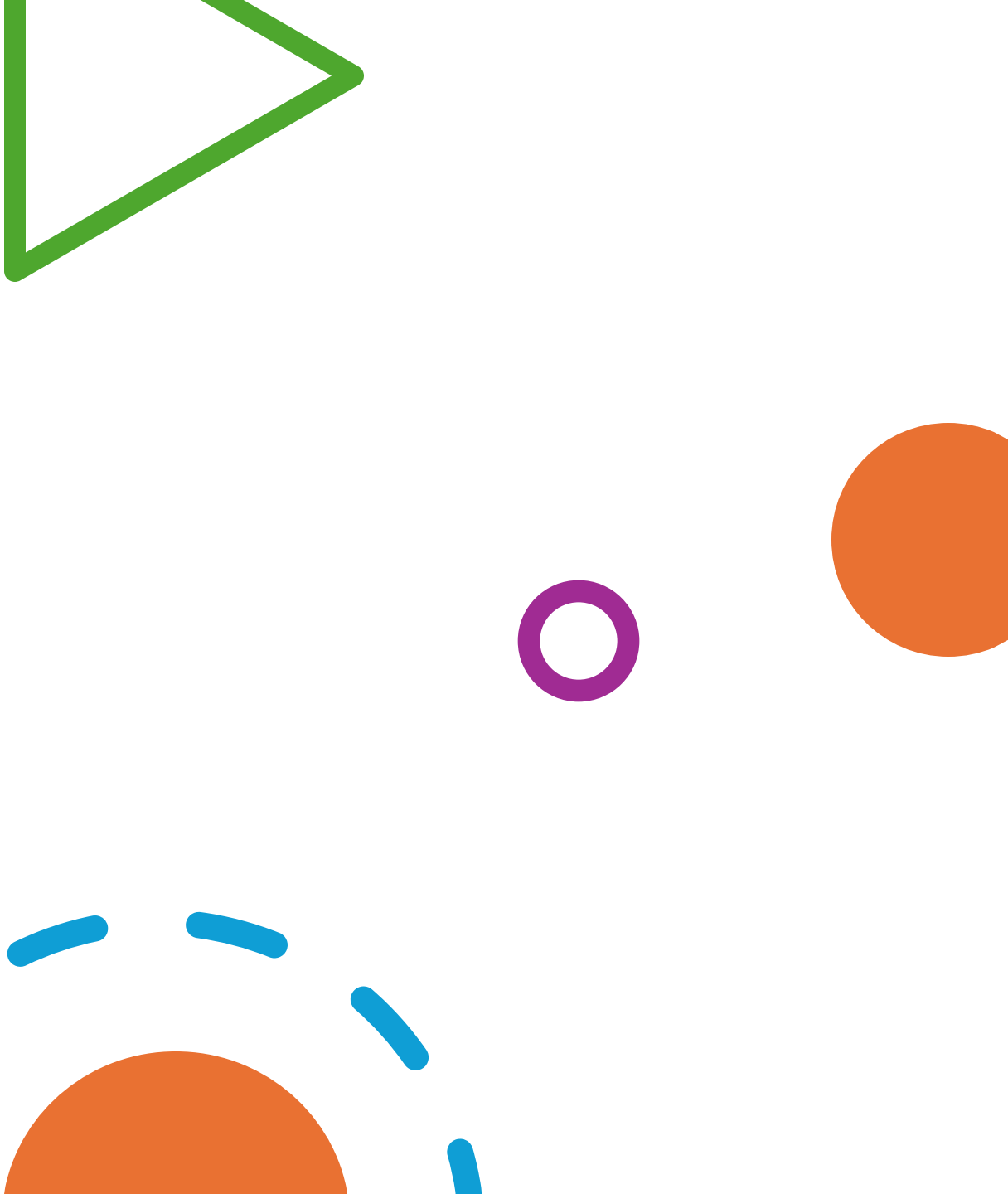

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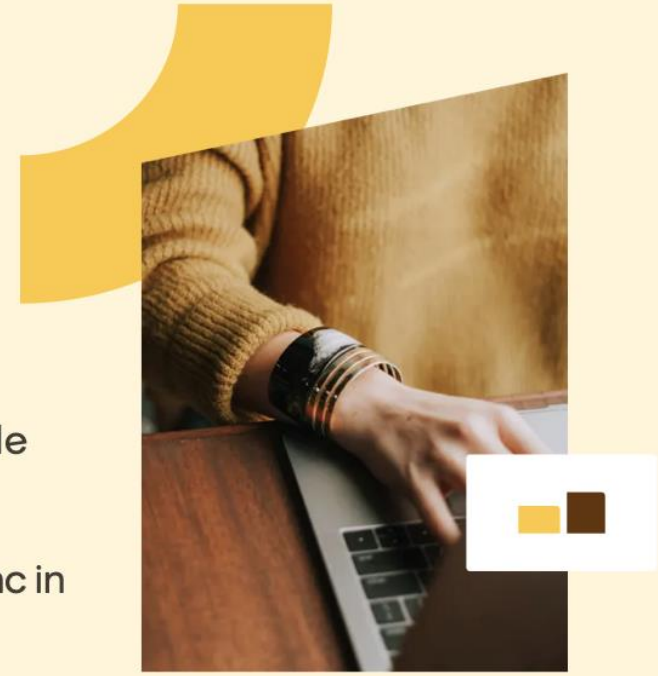

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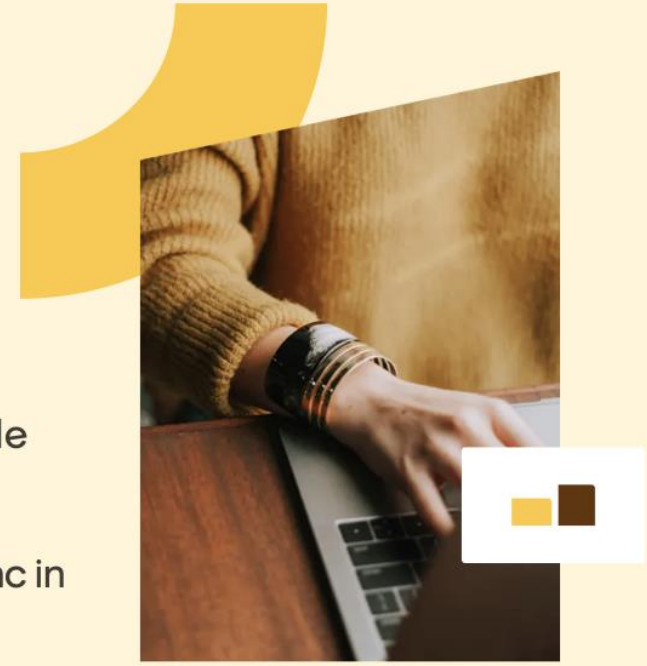

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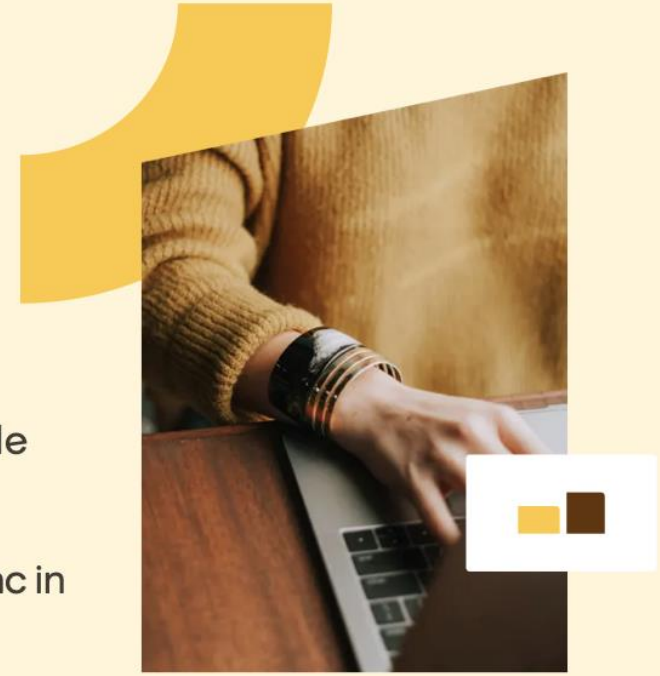

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What is Data Visualization?

- It is the graphical representation of data or information

https://r-graph-gallery.com

Principles of Good Visualization

Principles of Good Visualization

- What can you say about the first plot?
- How about the second one?
- What would you make different?

Principle	Description
Show the Data	Clearly present the data without unnecessary elements that distract from understanding.
Avoid Distorting Data	Represent data accurately; avoid misleading scales or transformations.
Enable Comparisons	Make it easy to compare data points, trends, or categories visually.
Show Variability	Highlight uncertainties or variations, such as with error bars or confidence intervals.
Integrate Evidence	Combine text, numbers, and graphics to strengthen the narrative and insights.
Use Visual Hierarchy	Organize elements so the most important information stands out clearly.
Consider the Audience	Tailor visuals to the audience's level of expertise and interests.
Aesthetic Integrity	Ensure the visualization is attractive but does not compromise accuracy or clarity.
Direct Attention	Use cues like color, labels, or annotations to focus the viewer on key aspects of the visualization.
Keep it Simple	Remove unnecessary elements and focus on the essential aspects of the data.

My real life in DataViz

Communicate

Grammar of Graphics

Layers

- **Data**: The foundation of your plot.
- **Aesthetics**: Mapping data to visual properties like color, shape, or size.
- **Geometries**: The visual marks (points, lines, bars) used to display data.
- **Scales**: Translating data to visual dimensions.
- **Facets**: Dividing data into subplots for clarity.

Visualizations serve two purposes

- **Exploration:** To discover trends and outliers during data analysis.
- **Communication:** To present findings in a compelling way.

Hadley Wickham

Making Coding Easier

A good Plot, you cannot do, without first a bad Plot, doing.

"Content inspired by responses from ChatGPT, OpenAI's conversational AI model (accessed November 2024)."

Links for study

- R graph Gallery: https://r-graph-gallery.com
- Hadley Wickham: https://www.youtube.com/watch?v=9YTNYT1maa4
  - Books: https://r4ds.hadley.nz/data-visualize