

Visualization: From Basic Chart to Dashboard

22 May 2024

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The Objectives

1. To learn about data visualization tools
2. Student can choose the right visualization
3. Student can create an interactive dashboard



Overview



Data visualization crafts impactful visuals from raw data, **unlocking insights**.
It bridges complex data and human cognition, adeptly conveying correlations.
In business analytics, it's a **strategic asset**, enabling swift comprehension, anomaly spotting,
and **innovation fostering**.

Data Visualization Tool

Any representative picture

Tools



and many more...

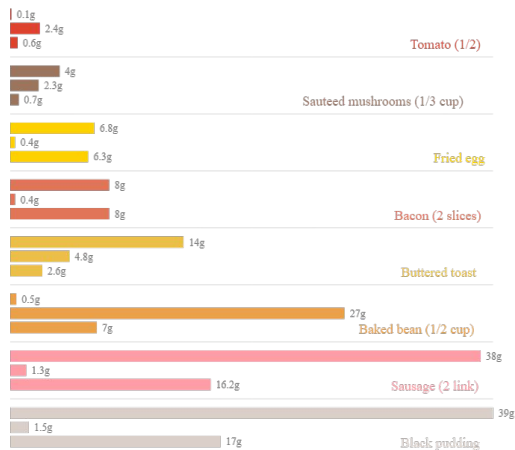
Basic Chart

Any representative picture

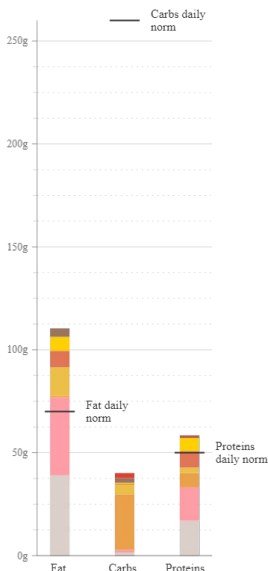
Basic Chart: Bar Chart

English breakfast nutrition facts

How much fat, carbohydrates and proteins are there in every component and how it fits into average daily nutrition norms

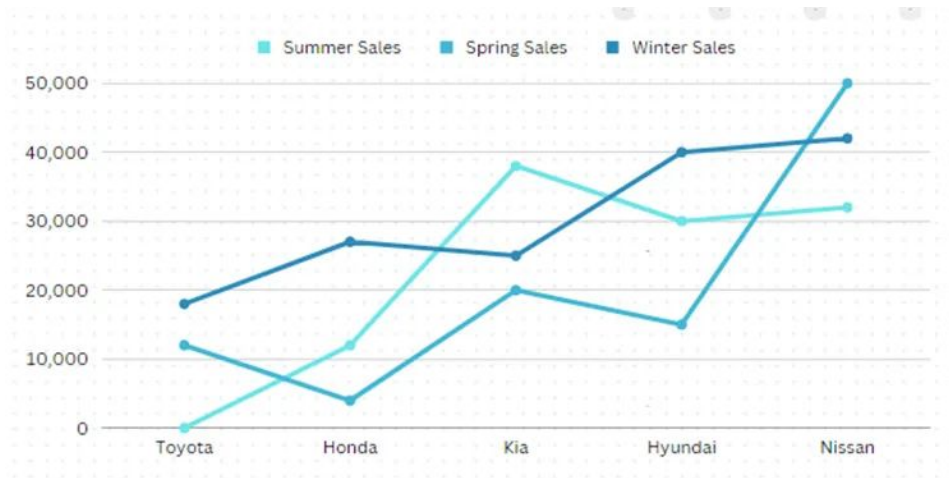


Data source: <https://www.nutritionix.com/food/traditional-english-breakfast>, <https://www.nhs.uk/>



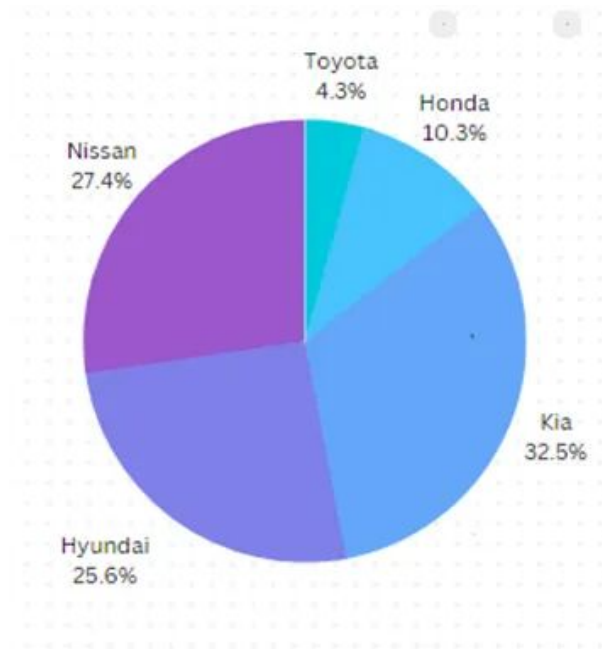
- One of the most common chart types out there
- Commonly used charts due to their simplicity
- Each rectangle – the bar, is a representation of one category
- Bar charts are great for comparison.

Basic Chart: Line Chart



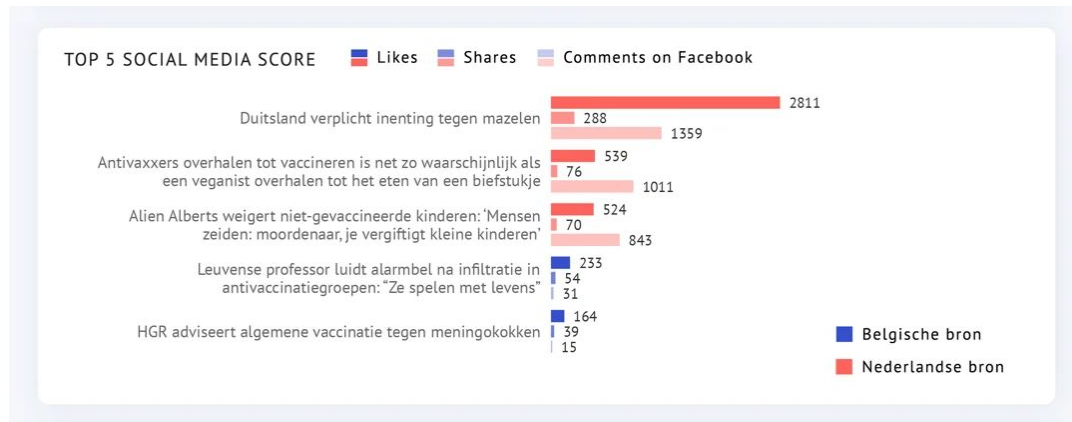
- Displays data points connected by lines.
- Use for tracking trends over time, such as stock prices or temperature fluctuations

Basic Chart: Pie Chart



- Represents parts of a whole.
- Ideal for showing the composition of a budget or market share.

Basic Chart: Grouped Bar/ Column Chart

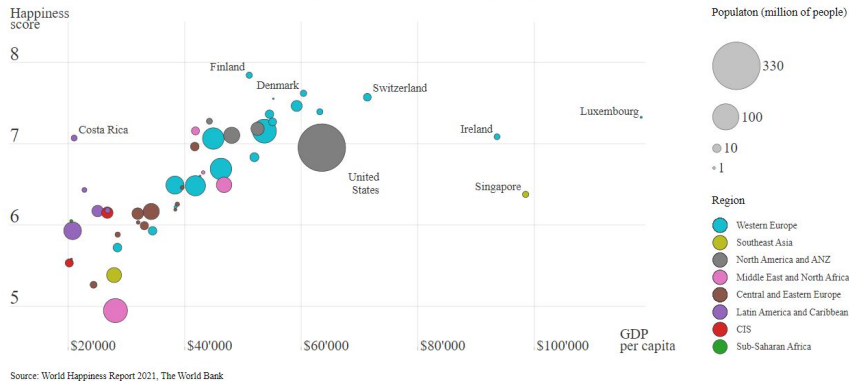


- Multi-series variation of a bar/column chart where every category is represented by several columns communicating different aspects of the main category
- Use this type of chart to compare multiple series

Basic Chart: Bubble Chart

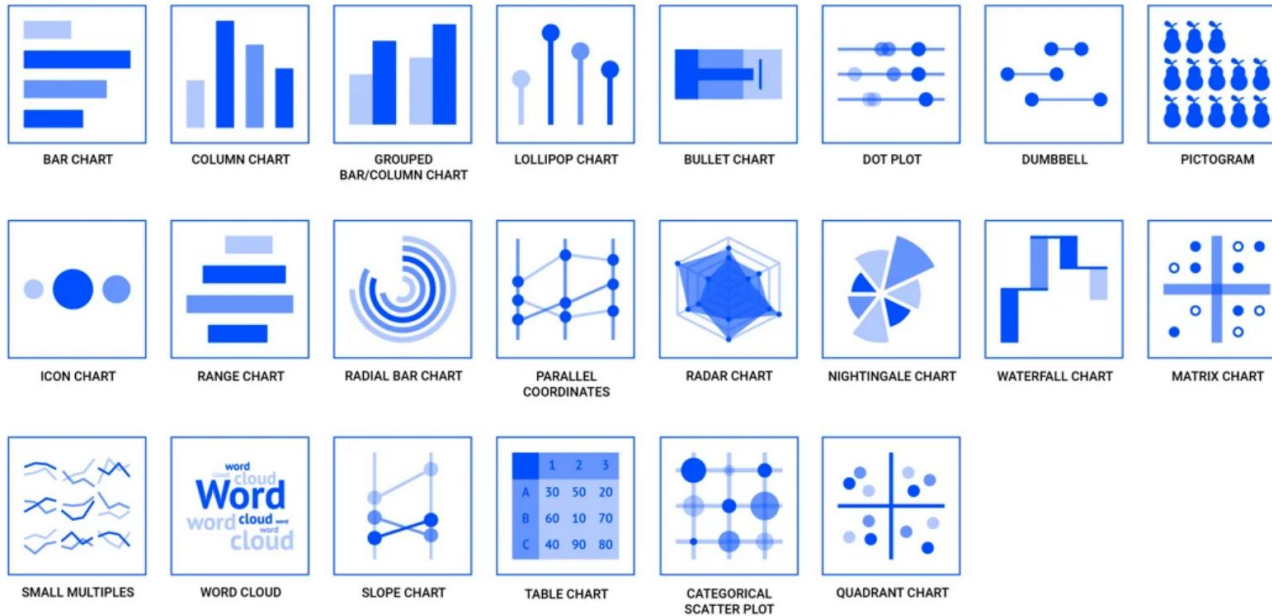
Can you buy happiness for money ?

Exploring a link between countries' happiness score and GDP per capita value.



- Bubble chart is a chart that looks at a relation between three (numeric) variables.
- Two of those variables are represented by dots located between axes. The third value is represented by the size of a bubble.
- One of the most interesting things about bubble charts is that they can be colored in many different ways

Comparison



Correlation



HEATMAP



BUBBLE CHART



SCATTER PLOT



CONNECTED
SCATTER PLOT

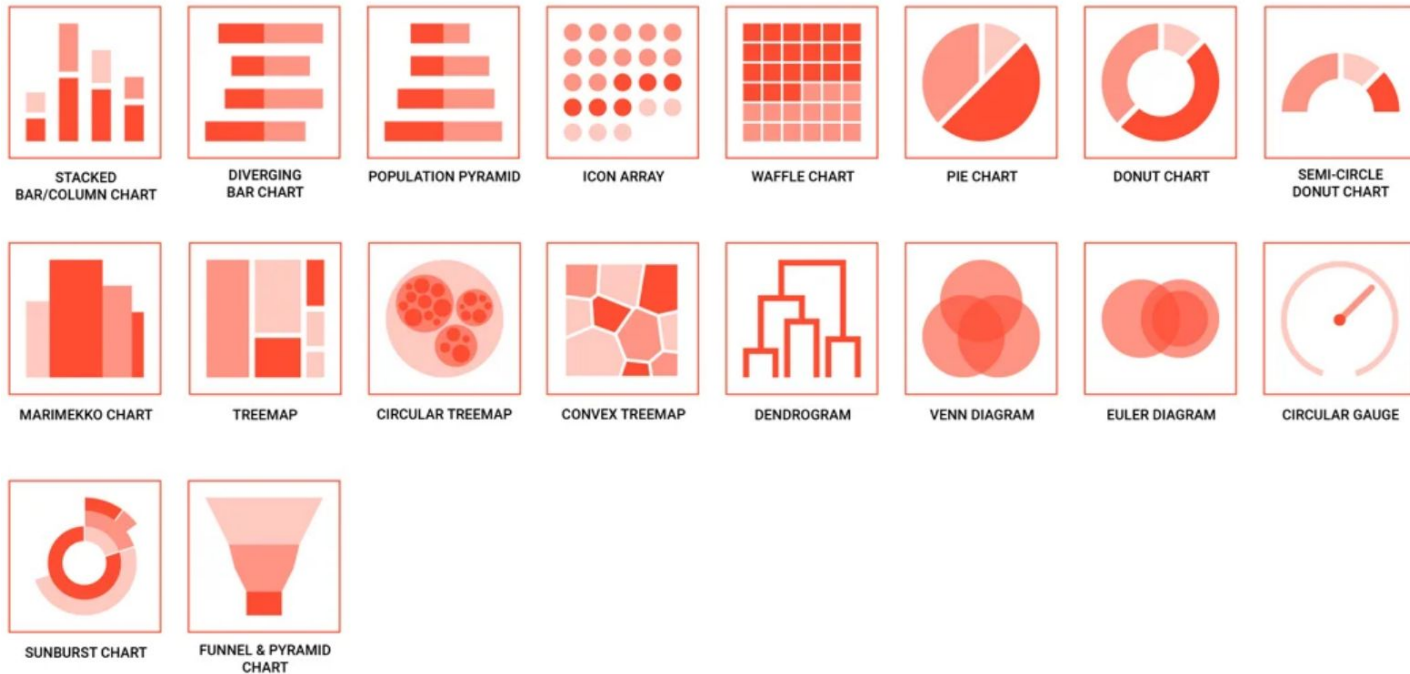


HEXAGONAL BINNING



CONTOUR PLOT

Correlation



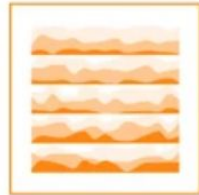
Distribution



DENSITY PLOT



RIDGELINE PLOT



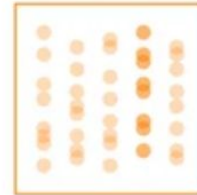
HORIZON CHART



HISTOGRAM



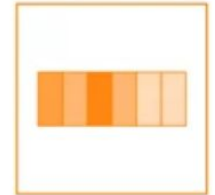
RADIAL HISTOGRAM



STRIP PLOT



JITTER PLOT



ONE-DIMENSIONAL
HEATMAP



BEESWARM CHART



BOX CHART

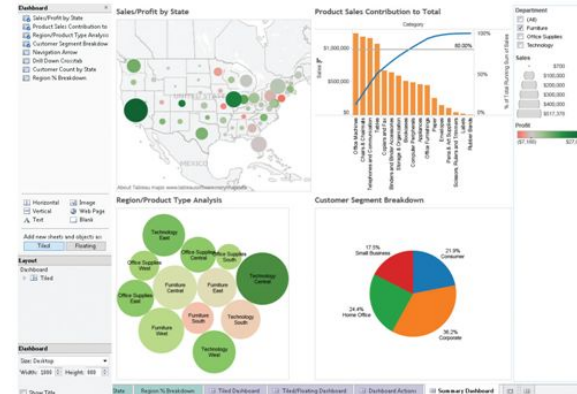
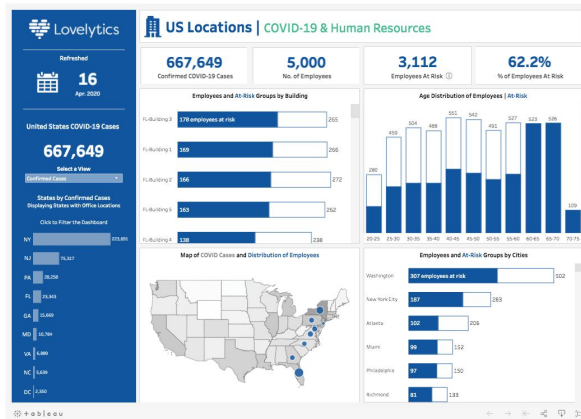


VIOLIN PLOT

Dashboard: Design Principles

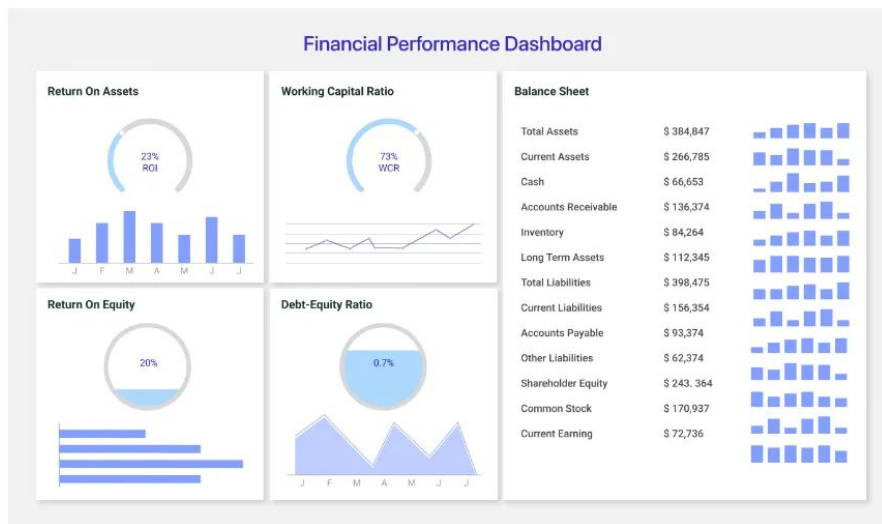
Any representative picture

What is Dashboard?



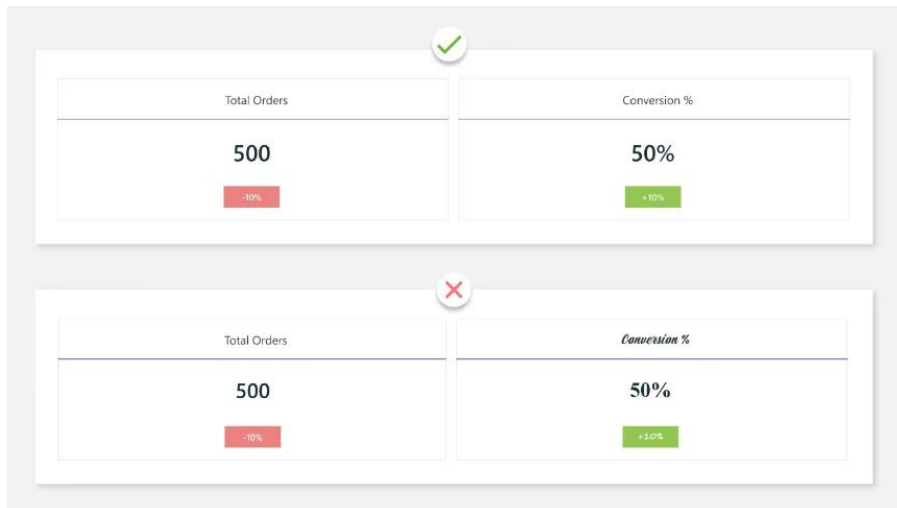
- It's a dynamic window into an organization's data landscape, packaging key metrics, trends, and KPIs for quick insights
- Dashboards empower swift, informed decisions, converting raw data into actionable insights

Keep it Simple & Intuitive



- Easy to understand and use, even for people who need to be tech-savvy
- Avoid adding too much information or too many features that can overwhelm users
- Maintain clear navigation and a user-friendly interface

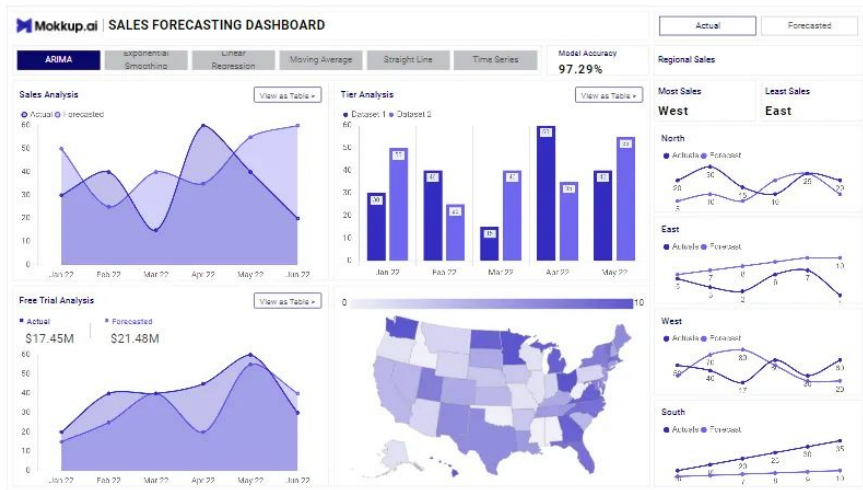
Use Consistent Design Elements



- Consistency is key to creating a visually appealing dashboard
- Use the same elements of design, such as fonts, colors, and icons, throughout the dashboard
- Use colors and fonts consistent with your brand identity, and choose icons that are easy to recognize and understand

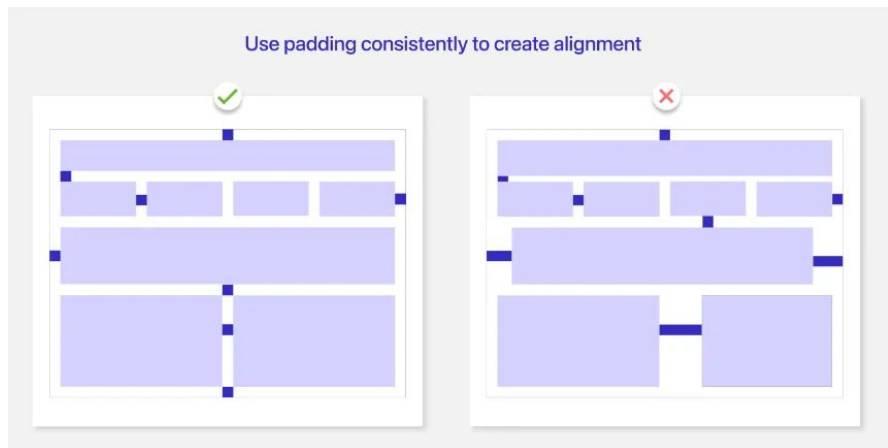
Prioritize Information

Sales forecasting report



- A good dashboard design should prioritize information based on its **importance**.
- This means **placing the most critical data** at the top of the dashboard or in a prominent location.
- Use visual cues like colors and icons to draw attention to the most important information.

Use White Space Effectively



- Effective use of white space can help make your dashboard design look clean, organized, and easy to read.
- It also helps draw attention to important information.
- Consider the spacing between different design elements, such as charts and graphs, and the overall balance of the dashboard design.



Leveraging Data Visualization

Any representative picture

Step #1



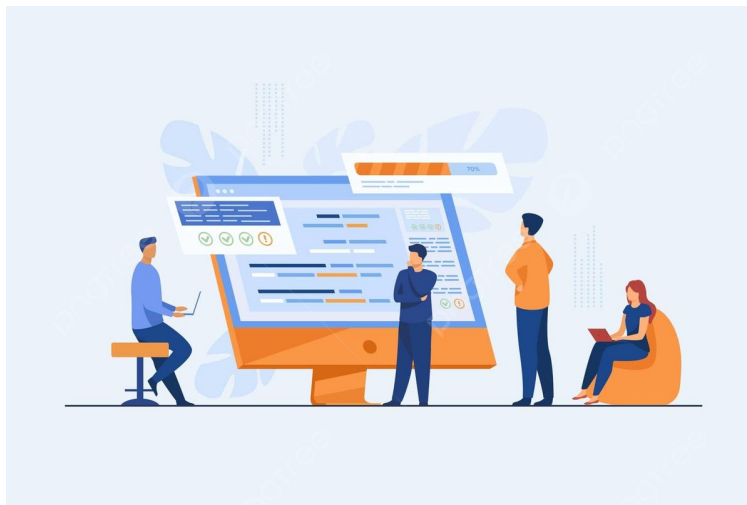
- Decide what you want to see.
- Don't collect or analyze data sets without knowing what to look for.
- Discuss the options and priorities with your team first.

Step #2



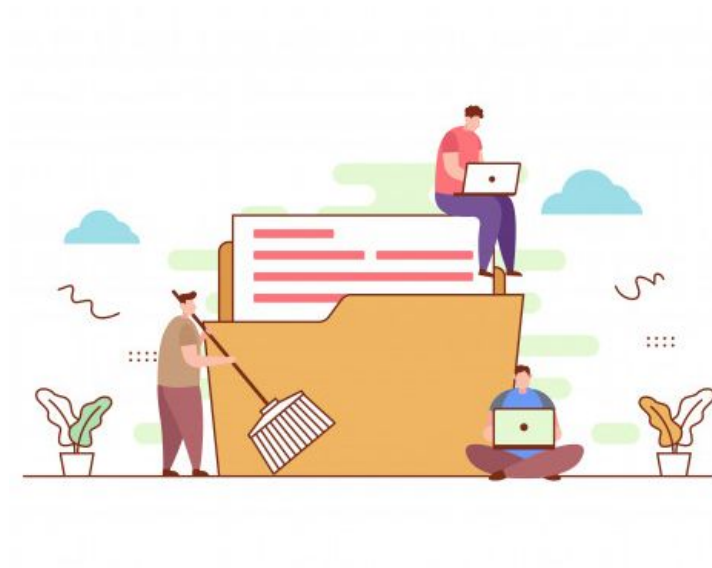
- Determine a suitable audience.
- Create visual content based on **what your users want or need**.
- This will help ensure your data goes to good use.

Step #3



- Gather data from multiple sources.
- Avoid restricting your research with too-tight metrics and unrealistic expectations.
- Double-check sources, and use plenty of them.

Step #4



Collect, clean, and collate your data before developing visual aid.

Step #5



Ask for feedback



Hands On: Create Interactive Dashboard

Any representative picture

Session Summary

- The importance of data visualization is simple: it helps people see, interact with, and better understand data.
- Whether simple or complex, the right visualization can **bring everyone on the same page**, regardless of their level of expertise.



References

IF ANY
Font Helvetica or Lato
The font size can be adjusted



Thank you!

When we stop learning, we stop growing [#neverstoplearning](#)