

Creating Visualization and Dashboard

23 May 2024

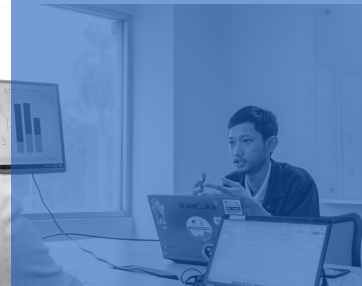
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The Objectives

1. To learn data preparation for visualization
2. To explore creating custom visualizations using programming language
3. To create custom dashboard



Data Preparation for Visualization

Any representative picture

Step 1: Remove duplicate or irrelevant observations



When you combine data sets from multiple places, scrape data, or receive data from clients or multiple departments, there are opportunities to create duplicate data.



Irrelevant observations are when you notice observations that do not fit into the specific problem you are trying to analyze.

Step 2: Fix structural errors

Category

N/A

N/A

Not Applicable

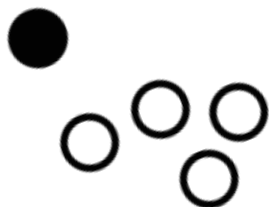
Not Applicable

Not Applicable

N/A

- When you measure or transfer data and notice strange naming conventions, typos, or incorrect capitalization
- These inconsistencies can cause mislabeled categories or classes

Step 3: Filter unwanted outliers



Plant Height

30.2 cm

28.6 cm

22.1 cm

175 cm

15.7 cm

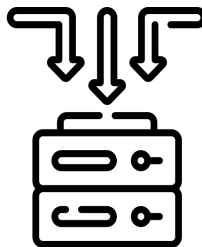
19.8 cm

- If you have a legitimate reason to remove an outlier, like **improper data-entry**, doing so will help the performance of the data you are working with
- **Just because an outlier exists, doesn't mean it is incorrect**

Step 4: Handle missing data



drop observations
that have missing
values



input missing values
based on other
observations



alter the way the data is
used to effectively navigate
null values

Step 5: Validate and QA

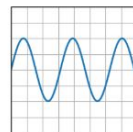
At the end of the data cleaning process, **you should be able to answer** these questions as a part of basic validation:

- Does the data make sense?
- Does the data follow the appropriate rules for its field?
- Does it prove or disprove your working theory, or bring any insight to light?
- Can you find trends in the data to help you form your next theory?
- If not, is that because of a data quality issue?

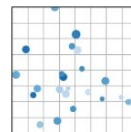
Custom Visualization with Programming

Any representative picture

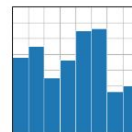
Matplotlib



`plot(x, y)`



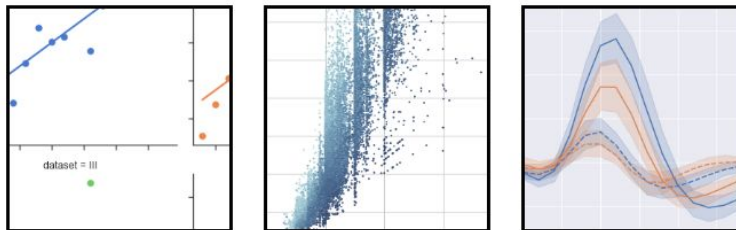
`scatter(x, y)`



`bar(x, height)`

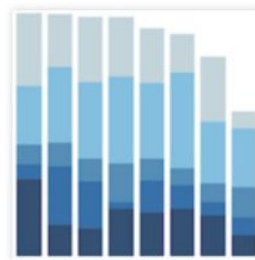
- Matplotlib is currently the most frequently used data visualization library
- Creating static, interactive and animated visualizations.

Seaborn

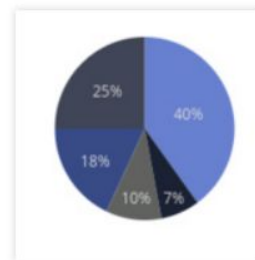


- Many developers love using this library, as it offers a lot of templates and ready-made themes that can be used for design
- In fact, it is based on Matplotlib, but has more specific possibilities.

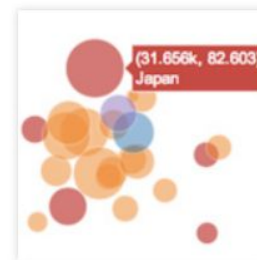
Plotly



Bar Charts



Pie Charts



Bubble Charts

- Create animated interactive graphics of various types (line, bar, pie, 3D and so on)
- During work, it is worth considering that despite the open source, some features may require a paid license

Dashboard Development

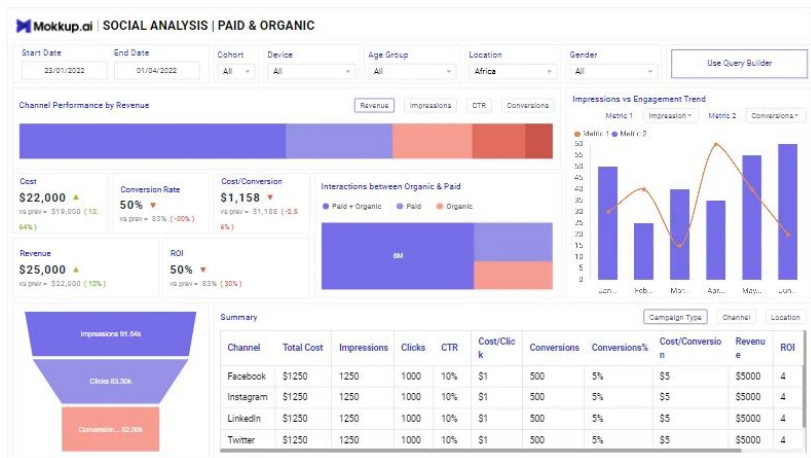
Any representative picture

Make it Responsive



- A responsive dashboard becomes a key dashboard design because the layout and content of the dashboard adjust automatically to fit different screen sizes and devices
- Responsive design ensures that your dashboard is accessible to users on all devices.

Design for Speed



- Users expect websites and applications to load quickly, with almost 80% of them leaving a website if it doesn't load within 3 seconds.
- Consider using animation and visual effects sparingly and lightweight animations that load quickly
- Other factors: server response time and network latency

Keep The Dashboard Updated



- Crucial to **ensuring** that users have access to **the most current information**.
- This means updating the dashboard regularly, whether daily, weekly, or monthly, **depending on the frequency of the data being tracked**.



Hands On: Custom Dashboard Development

Any representative picture

Session Summary

“A dashboard is a visual display of **the most important information** needed to achieve one or more objectives; consolidated and arranged on a single screen so the information can be monitored at a glance.”



References

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



Thank you!

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