

zenius



Kampus
Merdeka
INDONESIA JAYA

Visualization in Python I

Day 7

Machine Learning Class

Program Studi Independen Bersertifikat
Zenius Bersama Kampus Merdeka



The more information in a graphic, the better.

A. Benar

B. Salah

The more information in a graphic, the better.

A. Benar

B. Salah

**A graph that is overcrowded may make viewers lose focus on what's important and what is meant to be said.
Sometimes it's a good idea to split a visualization into two.**

1. **Why do we need Visualization?**
2. **Principles of Data Visualization**
3. **Hands-On**
4. **Homework/Assignment Explanation**

Why do we need Visualization?

Visualization

A picture tells a thousand words.

**Most of the time, we cannot
comprehend data if it's served to us
in tabular format. Visualizations take
care of this.**

Visualization

Visualization is a part of Data Storytelling. Just like how we digest stories better if it's made into a movie, we understand the story inside a data better if it's made into visualizations.

Visualization

But, it's not easy to deliver a good story. We need to learn principles of Visualizations so we know how to do it in a good way.

Principles of Data Visualization



Principles of Data Visualization

Credit: Shachee Swadia

A data freelancer who owns the website

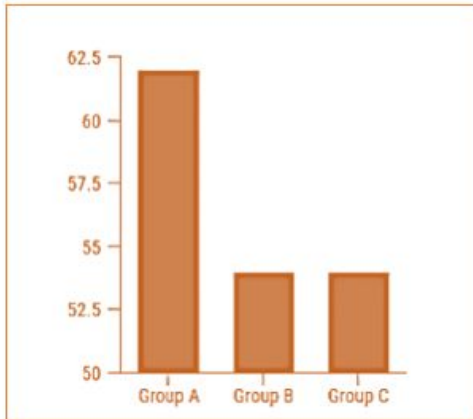
<https://www.visualscribbler.com/>

Experienced in using Visualization to tell stories.

1. Tell the Truth!

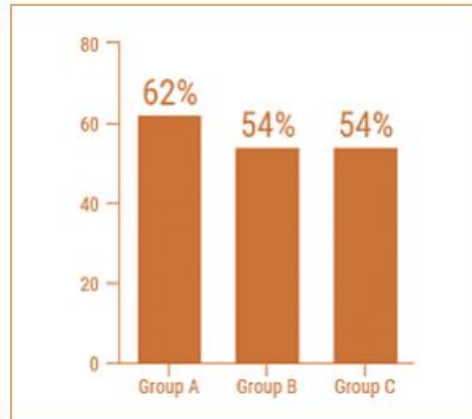
**It is really easy to lie with visualizations.
Take a look at the following example...**

1. Tell the Truth!



Starting the baseline from 50 makes a small difference between the groups seem massive

Group A seems to be much larger than the other two groups



Starting the vertical axis from 0 offers a more accurate depiction of data

The difference between the groups is not as dramatic when visualized truthfully

2. Know Your Audience

As Data Scientist, you will often need to present visualizations to non-data people. You need to know your audience's profile and necessities before designing a good visualization.

2. Know Your Audience

If you're presenting to C-level executives, don't be too technical. Focus on the vision, mission, and the overall 'trend' of the project. Pick only 1-2 metrics.

2. Know Your Audience

If you're presenting to mid level people who are still technical-oriented, you can add more 'detailed' visualizations.

2. Know Your Audience

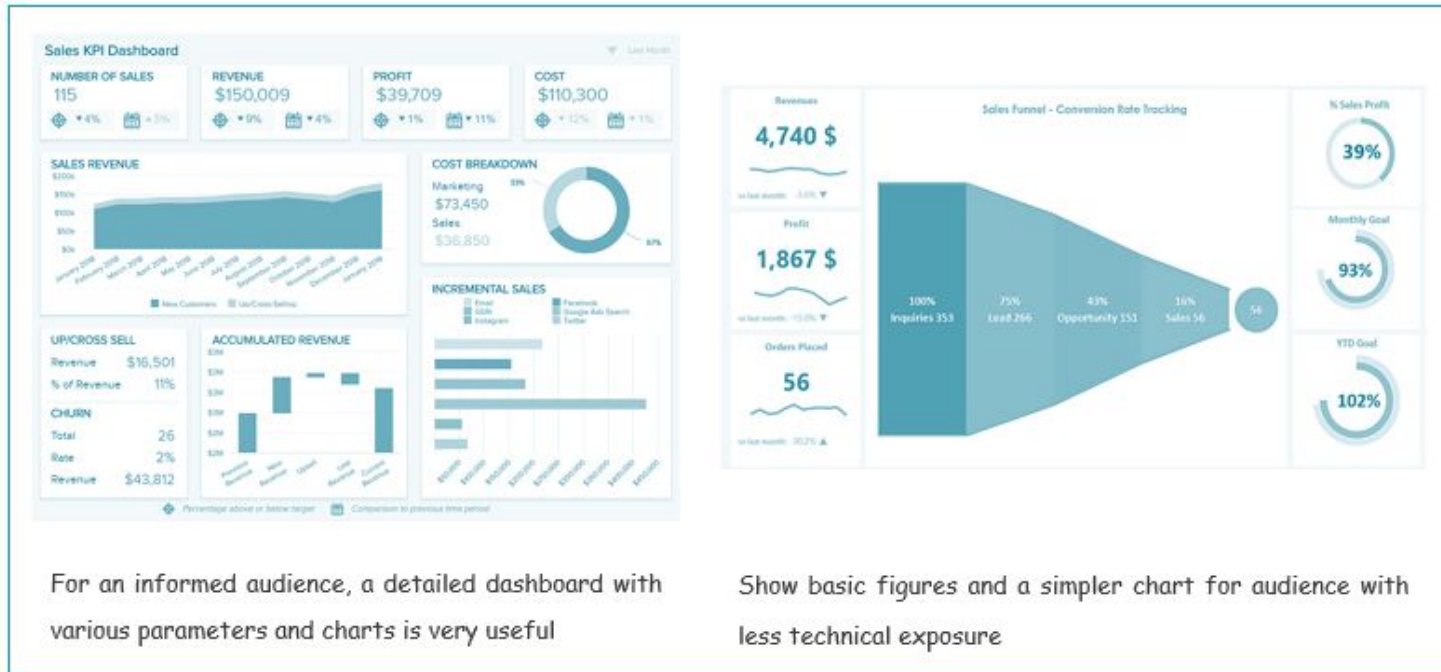


The chart for top management can be as represented showing the profits of the company over time



A dashboard with parameters like cost breakup, profits of various segments, employee performance, comparison of different products etc.

2. Know Your Audience



For an informed audience, a detailed dashboard with various parameters and charts is very useful

Show basic figures and a simpler chart for audience with less technical exposure

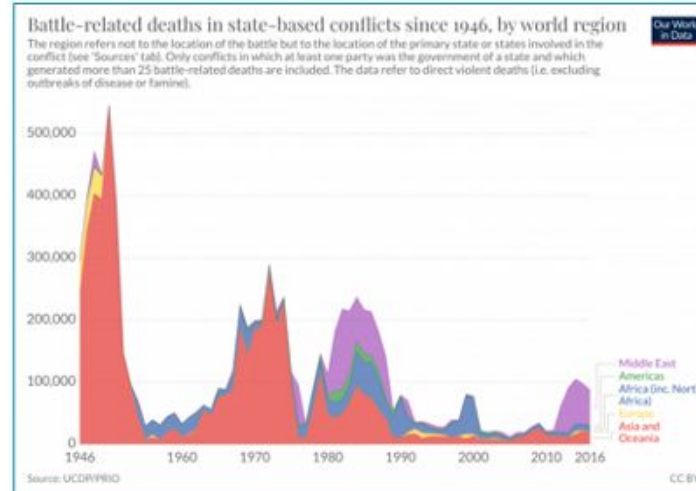
3. Use Colors to Convey Emotion

There's a reason stock/crypto trading apps use Green for Profit/Growth and Red for Loss.

3. Use Colors to Convey Emotion



Size of flower indicates the casualties in the war and the reddish colors symbolize the bloodshed.



A more practical representation of deaths in war and distinct colors to show the different regions of world.

4. Use Consistent Color Palette

Having a well-planned color palette helps in making a coherent and cohesive visualization. In Indonesian language, *‘warnanya jangan nabrak.’*

4. Use Consistent Color Palette

Planning Color Schemes:

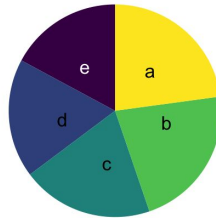
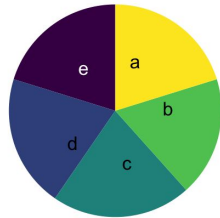
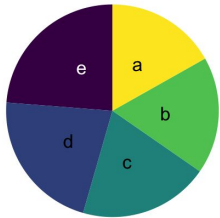
<https://learnui.design/tools/data-color-picker.html>

5. Choose the Right Graph

We will talk more about this in the hands-on. But first, let us discuss about Pie Chart.

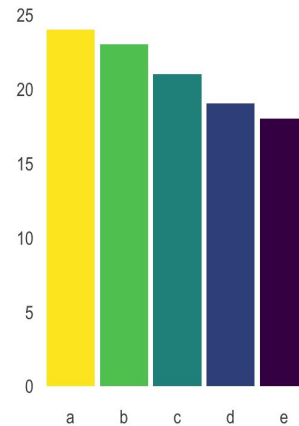
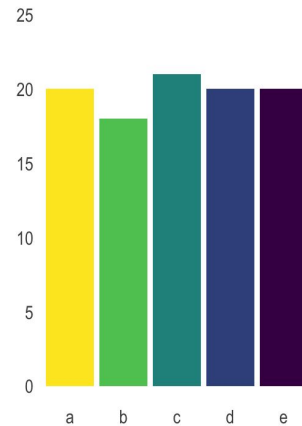
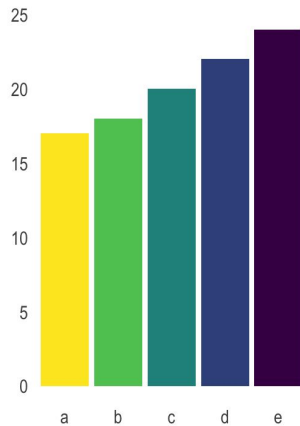
5. Choose the Right Graph

Question: Which has the most area in the Left, Center, and Right Graph?



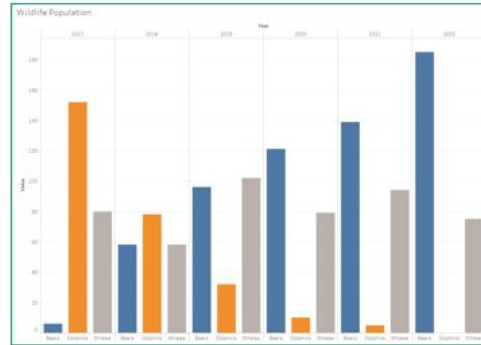
5. Choose the Right Graph

Let's see the data in Bar Plot

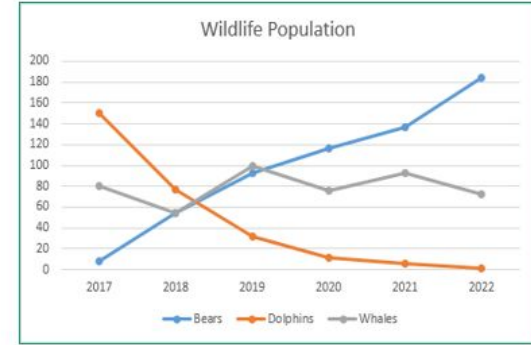


5. Choose the Right Graph

To show progress over time, use Line instead of Bar

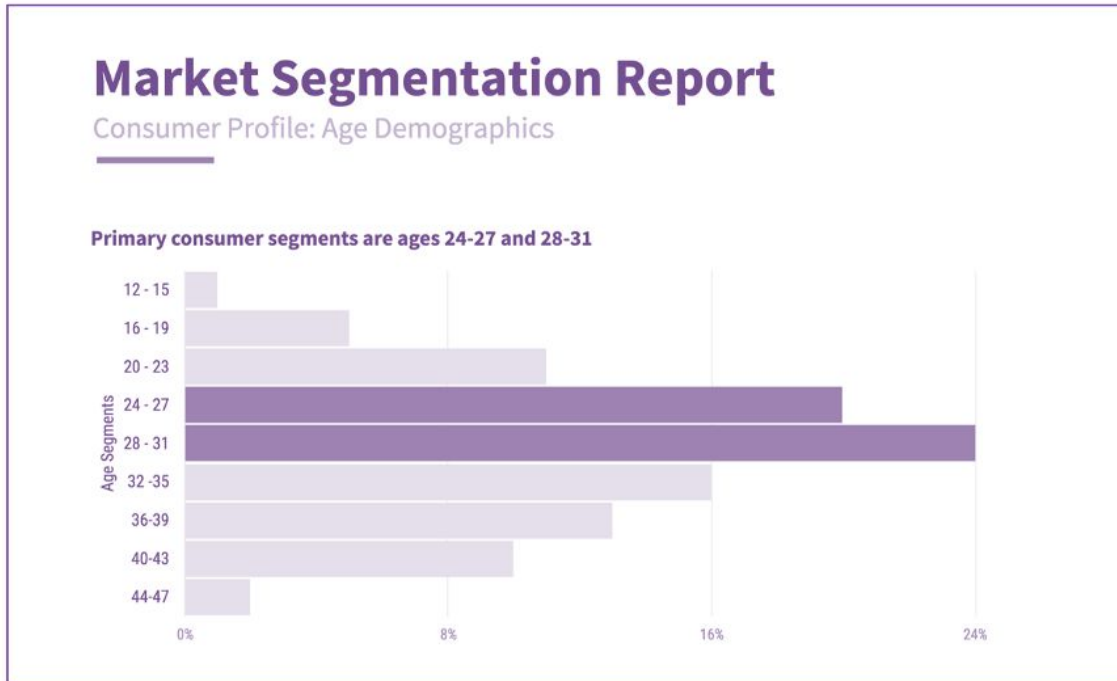


It is difficult to compare the various data points over time by briefly looking at the bar graph



It can be easily observed that there is an upward trend in population of bears while dolphins are becoming endangered

6. Remove Distractions and Give Highlights



Story Telling

Last but not least, it takes practice to hone your storytelling and visualization skills.

Keep on practicing, and before submitting any visualization results, take a glance and pretend you're the audience - will you be able to understand it correctly?

Hands-On Session

Hands-On

Subject Matter Expert will share the screen of a hands-on exercise.

Participants/pupils are expected to follow in their local machine.

Assignment

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Assignment

Subject Matter Expert will show the assignment jupyter notebook. For number one, the picture on the following slide is the expected outcome:

Assignment

