



Data Visualization

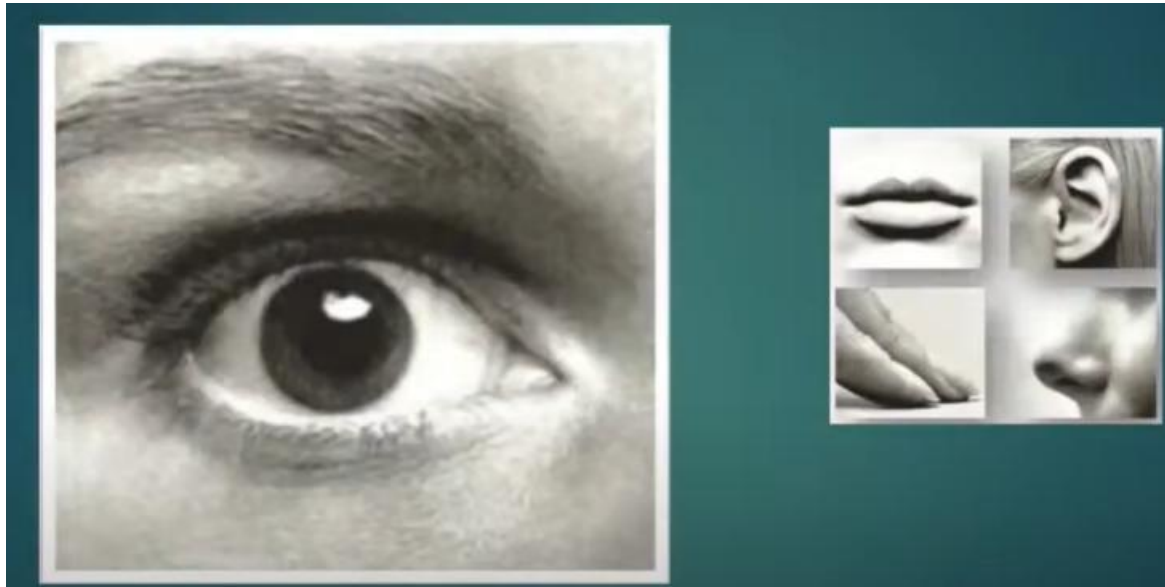
Instructor

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Introduction to Data Visualization

Visualization

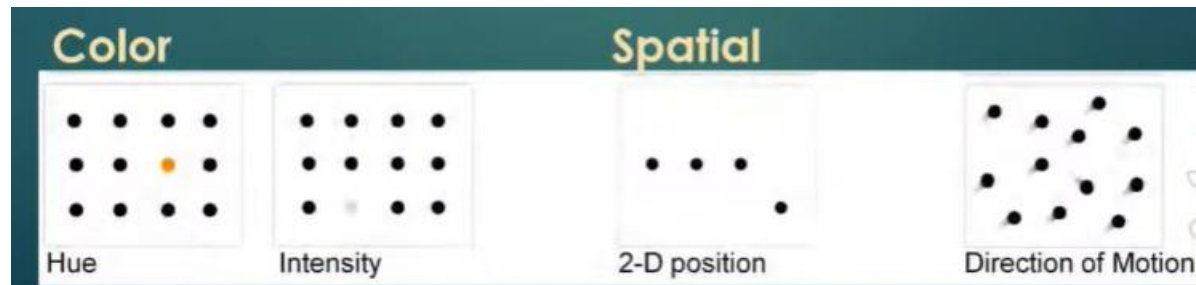
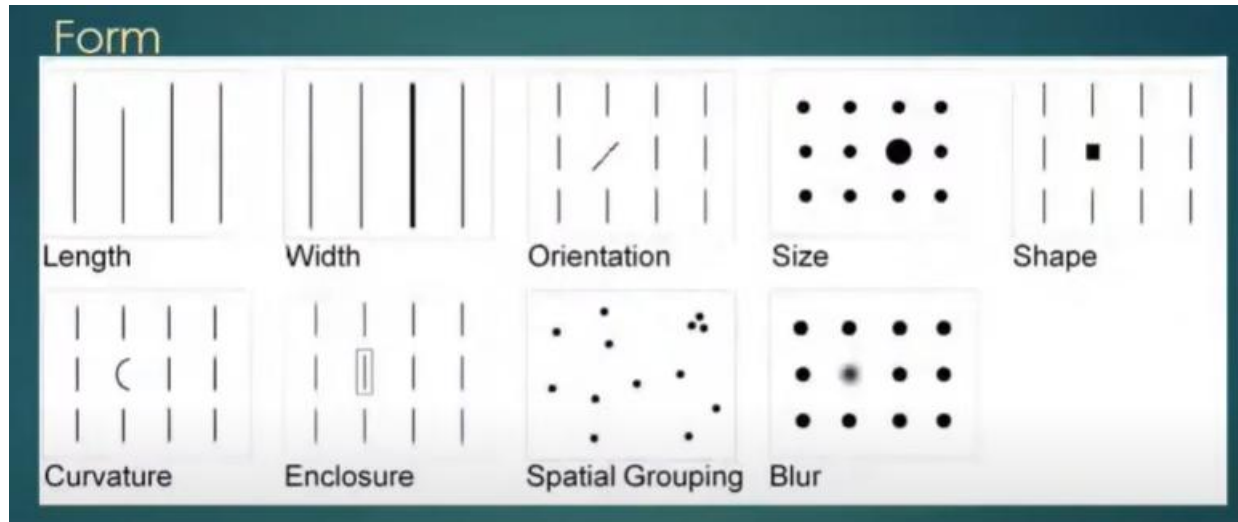
- Vision is the most powerful sense



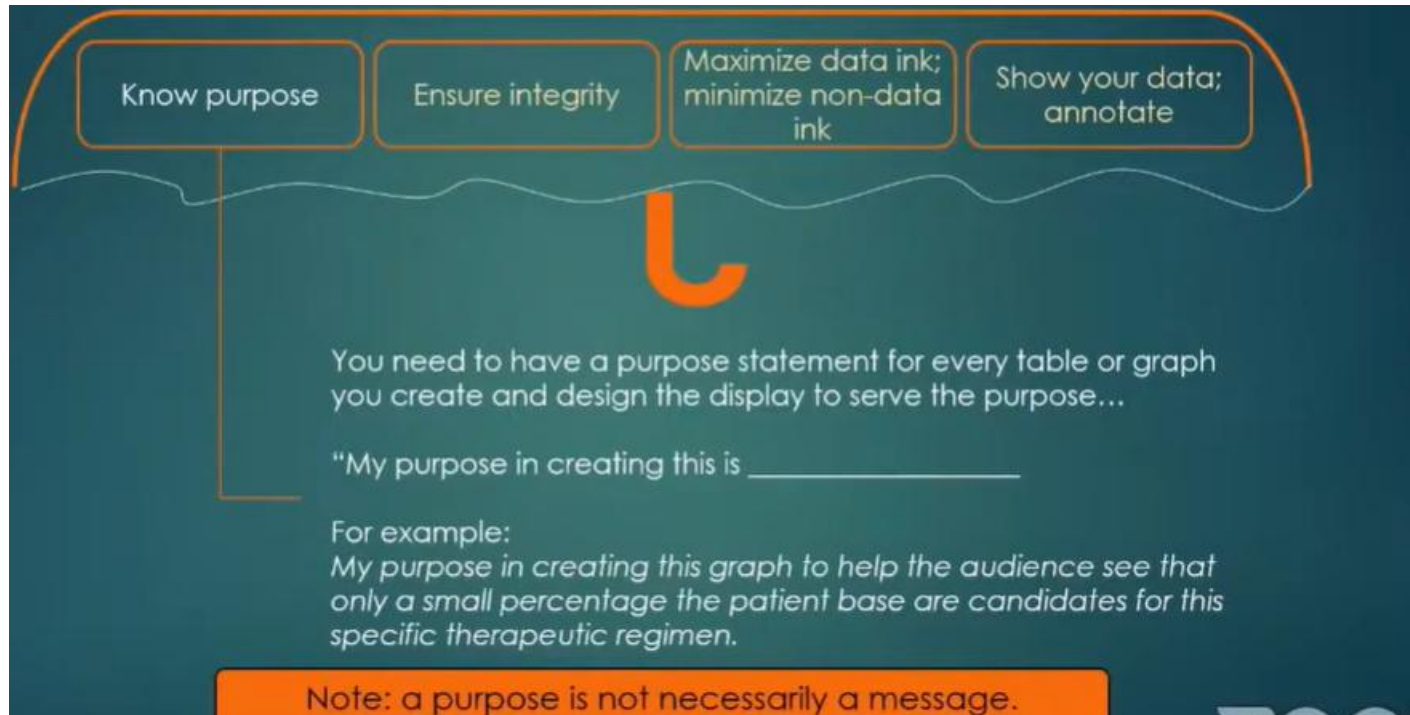
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30%

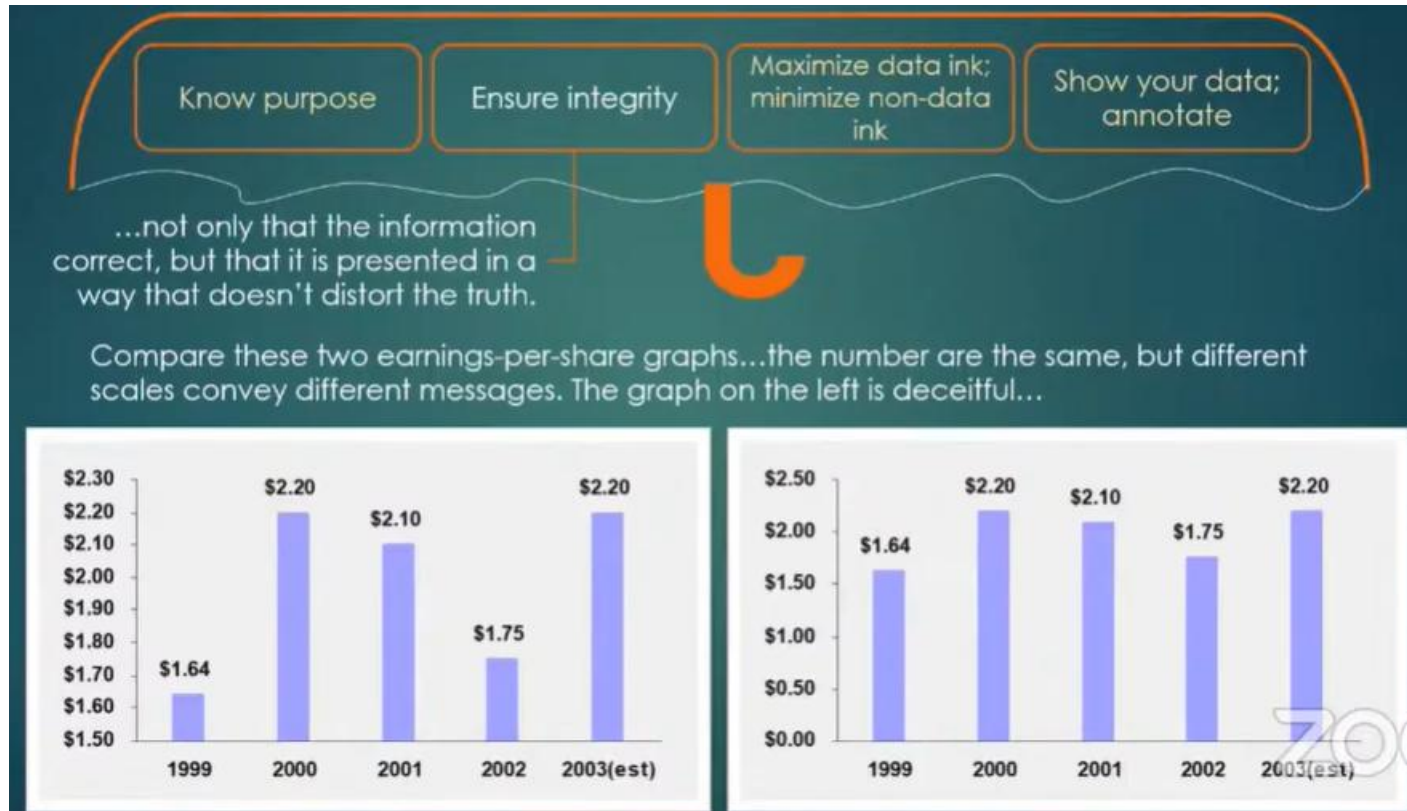
Attributes of Visual Perception



Four “Umbrella” Principles for Effective Visualization



Four “Umbrella” Principles for Effective Visualization



Four “Umbrella” Principles for Effective Visualization

Know purpose

Ensure integrity

Maximize data ink;
minimize non-data
ink

Show your data;
annotate

	CALLS/DAY	DAYS/YEAR	CALLS/YEAR
PCP	8	200	1,600
NEUROLOGY	5	200	1,000
CV	5.5	200	1,100
ONCOLOGY	5	200	1,000
VIROLOGY	5	200	1,000
TRANPLANT	5	200	1,000
P/T DERM	8	200	1,600

Table 1 -- Call Totals by Specialty

	Calls/Day	Days/Year	Calls/Year
<i>PCP</i>	8.0	200	1,600
<i>Neurology</i>	5.0	200	1,000
<i>CV</i>	5.5	200	1,100
<i>Oncology</i>	5.0	200	1,000
<i>Virology</i>	5.0	200	1,000
<i>Transplant</i>	5.0	200	1,000
<i>P/T Derm</i>	8.0	200	1,600

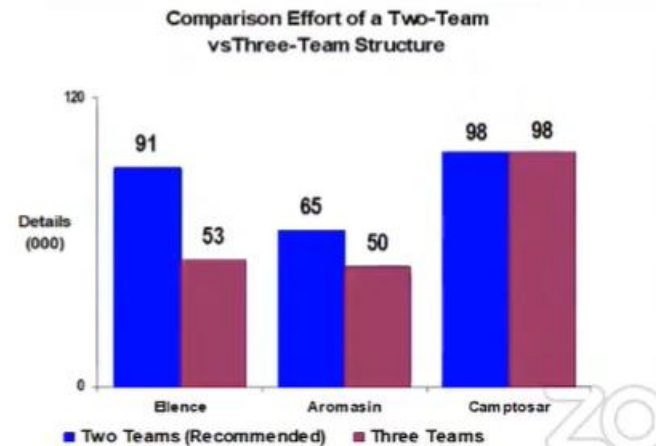
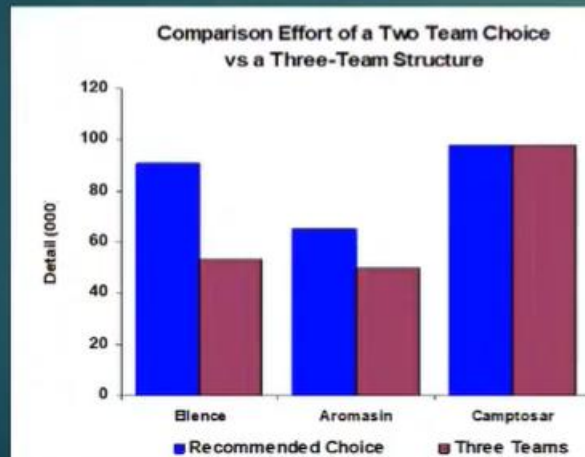
Four “Umbrella” Principles for Effective Visualization

Know purpose

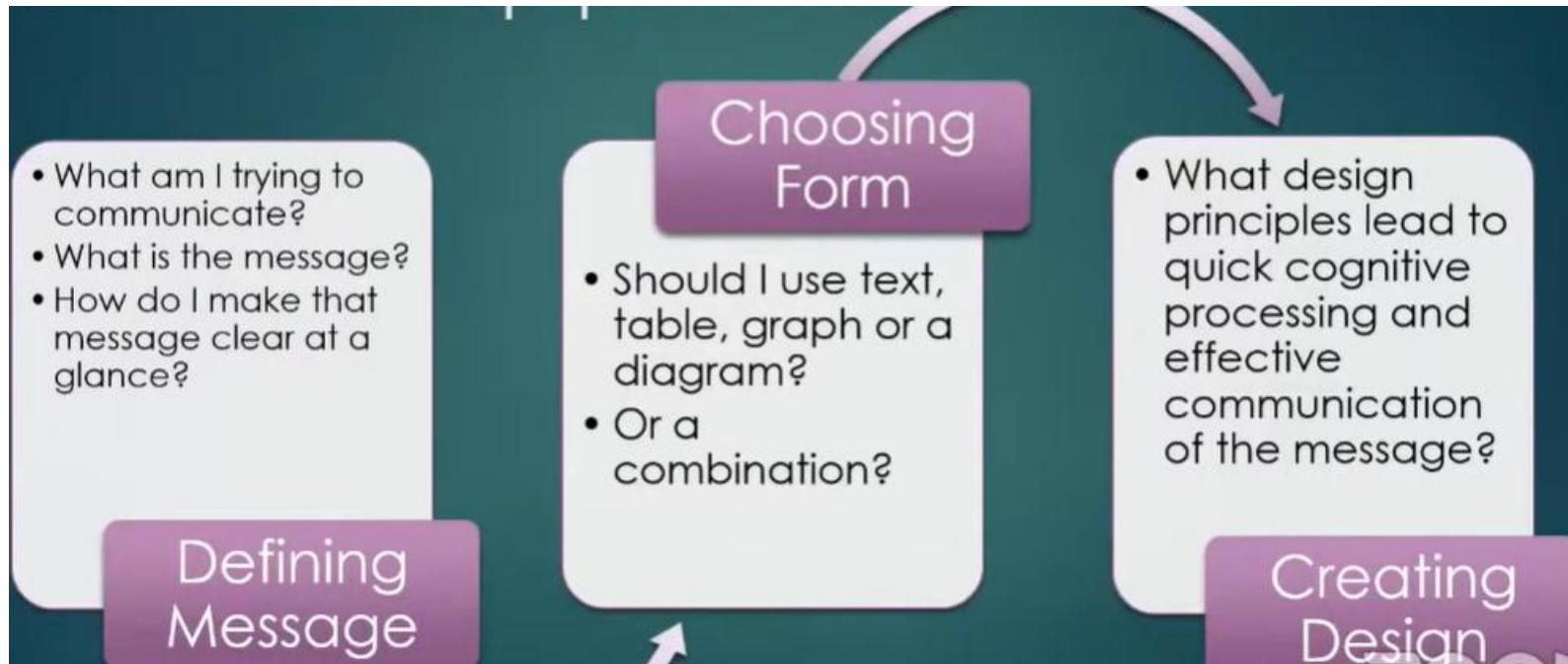
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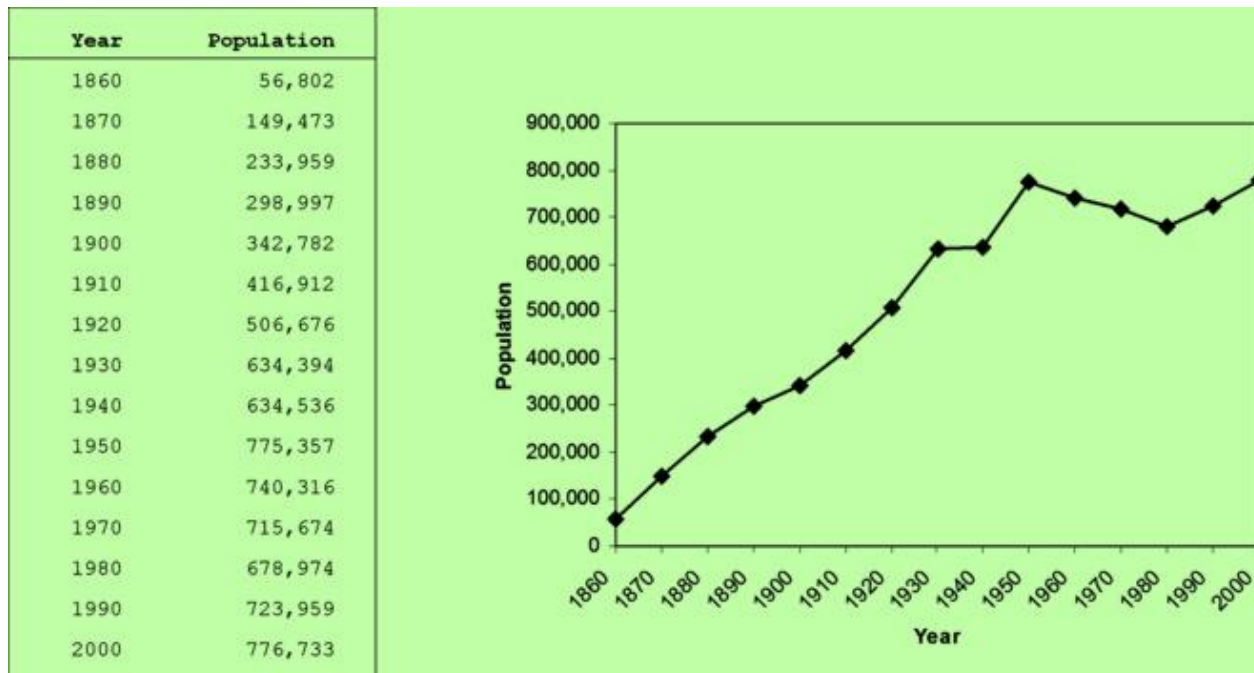


Display is a Three-Step Process



What is Data Visualization?

- **Data visualization** is a graphical representation of quantitative information and data using visual elements like graphs, charts, and maps.
- Data visualization converts large and small data sets into visual which is easy to understand and process for humans.
- Data visualization tools provide accessible ways to understand outliers, patterns, and trends in the data.

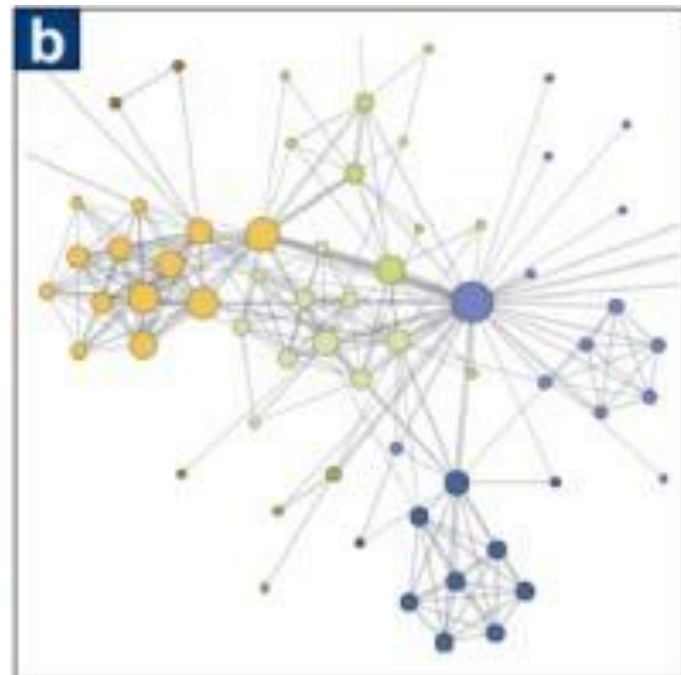
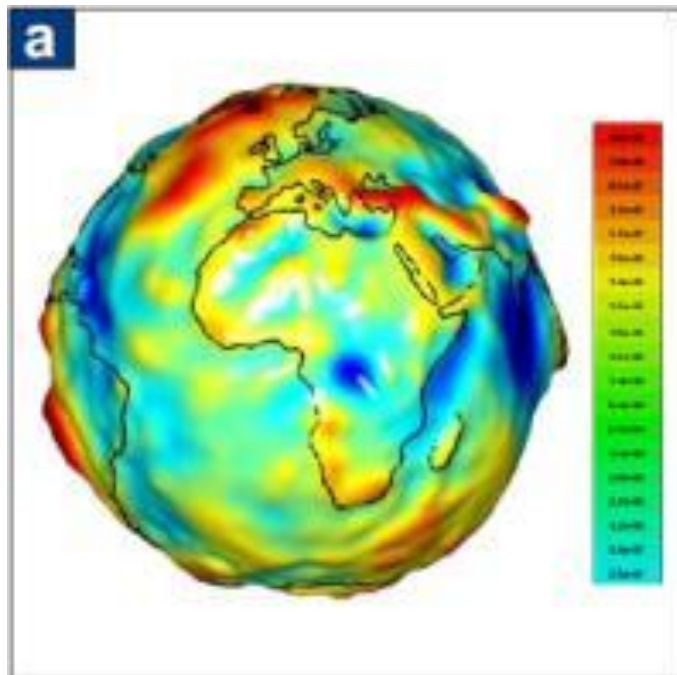


Importance of Data Visualization

- Data visualization is important because of the processing of information in human brains.
- Data visualization can identify areas that need improvement or modification.
- Data visualization can clarify which factors influence customer behavior.
- Data visualization helps in product placement.
- Data visualization can predict sales volumes.

Data Visualization

- **a) Scientific Visualization:** specifically concerned with the data that has well-defined representation in 2D or 3D space.
- **b) Information Visualization:** converting raw data to a form that is viewable and understandable to humans.



Why Use Data Visualization?

- To make it easier to understand and remember.
- To discover unknown facts, outliers and trends.
- To visualize relationships and pattern quickly.
- To ask a better question and make better decision.
- To competitive analysis
- To improve insights.

What Makes Data Visualization Effective?

- **Clarity:** Data should be visualized in a way that everyone can understand.
- **Problem Domain:** When presenting data, the visualization should be related to the business problem.
- **Interactivity:** interactive plots are useful to compare and highlight certain things within the plot.
- **Comparability:** we can compare things easily.
- **Aesthetics:** Quality plots are visually aesthetic.
- **Informative:** A good plot summarizes all relevant information.

Applications of Data Visualization?

- In the world of Big Data, data visualization tools and technologies are required to analyze the vast amount of information.
- The combination of multiple visualizations and bits of information are still referred to as infographics.
- Data visualizations are used to discover unknown facts and trends