What is data analysis?

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What Is Data Analysis?

- Data analysis is the process of inspecting, cleaning, transforming, and modeling data.
- It helps discover valuable information, make informed decisions, and solve problems.
- It represents another method of processing information.
- Data Analysis, Data Science, Data Engineering, Big Data – what's the difference?

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Why Data Analysis?

It Is Useful For:

- Data-driven decision-making
- Gaining insights and identifying patterns
- Problem-solving
- Predictive modeling

Our Focus Will Be On:

- Techniques for presenting data

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Data Visualization

- Data visualization is a critical component of data analysis.
- It entails creating graphical representations of data to gain a better understanding of patterns and trends.
- Common visualization tools include:
  - Business intelligence tools (BI): Tableau, Power BI
  - ggplot2, Plotly (R)
  - Matplotlib, Seaborn (Python)

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Steps of Data Analysis

- Data Collection
- Data Cleaning
- Exploratory Data Analysis (EDA)
- Data Transformation
- Statistical Modeling
- Interpretation and Visualization

Our Focus Will Be On:

- EDA
- Data Transformation (data wrangling)
- **Interpretation and Visualization**

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What Will We Learn?

- Loading and preparing datasets
- Data wrangling: creating new columns, joining data, performing simple calculations
- Data visualization:
  - Proper visualization techniques
  - Theoretical foundations
  - Creating various types of visualizations such as point plots, barplots, histograms, etc.
  - Generating map visualizations
  - Crafting reports in Rmarkdown
  - Creating basic animations with gganimate
  - Building interactive dashboards

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Additional materials

- Worth watching video about the art of data visualization:
  - the video link

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