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TECH FOR JOBS

Support Session 1

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Agenda

- Data Literacy
- Intro to Excel
- Quantifying a Business Problem - Trade-Off Analysis
- Interpreting Tables and Charts

About me

- Assistant professor in PAAET
- AI Engineer in PhazeRo
- Current consultant to TechGrowth
- Board Gamer (a collection of 300+ games!)

Data Literacy

What is Data Literacy

READING DATA

Ability to understand charts, tables, and statistical figures, and how they form a coherent narrative.

TRANSLATING DATA

Communicating data analyses and insights to non-technical audiences.

WRITING DATA

Ability to produce data visualizations, such as charts, tables, and dashboards, for others to understand.

THINKING ABOUT DATA

Understanding how data analyses relate to the business questions that matter to stakeholders.

Data Professions

- **DATA ANALYST**

  Responsible for collecting, analyzing, and interpreting data to inform business decisions.

- **DATA SCIENTIST**

  Applies advanced statistical and machine learning techniques to extract insights from complex data.

Data Professions

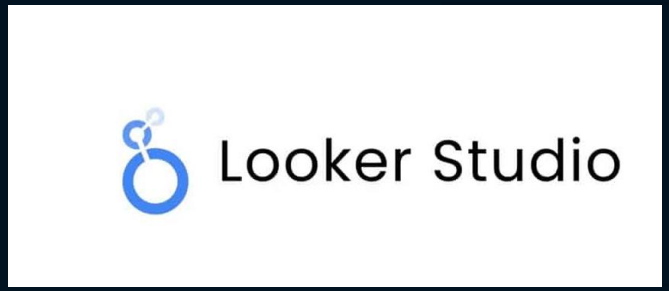
- **DATA ENGINEER**

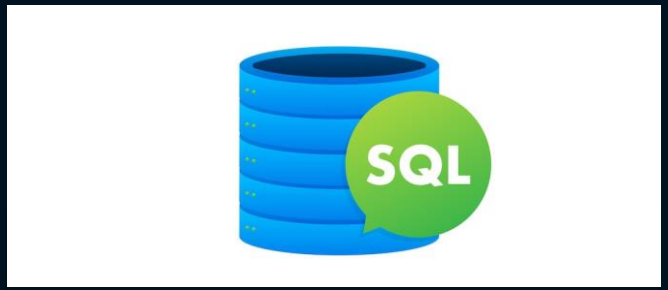
  Designs and develops the infrastructure and systems to ingest, store, and process large datasets.

- **BUSINESS INTELLIGENCE SPECIALIST**

  Leverages data and analytics to help organizations make more informed, data-driven decisions.

Tools of the Trade





Intro to Excel

History of Excel

1985

Excel was first released as a spreadsheet software for the Macintosh computer.

1987

Excel was ported to the Windows operating system, expanding its reach.

1993

Excel 5.0 was released, introducing new features like Visual Basic for Applications (VBA).

2007

Excel 2007 was released with a revised ribbon interface, making it more user-friendly.

2010

Excel 2010 introduced new data analysis tools, such as Sparklines and Slicer.

2016

Excel 2016 added support for real-time collaboration, allowing multiple users to edit the same workbook simultaneously.

Excel Alternatives

- Google Sheets

- LibreOffice Calc

Quantifying a Business Problem Trade-Off Analysis

Introduction to Data Analytics in Business

- Purpose of Data Analytics: Transform raw data into insights for decision-making.
- General Steps:
  1. Define the Problem
  2. Collect and Organize Data
  3. Analyze Data and Calculate Metrics
  4. Draw Insights and Make Decisions
  5. Communicate Findings

Step 1: Define the Problem

- **Objective: Clearly identify what needs to be solved.**

- **In the Waste Reduction Example:**
  - Problem Statement: The company generates excess waste from packaging materials, particularly cardboard and plastic bubble wrap.
  - Goal: Reduce waste without incurring additional costs.
  - Question: Can we convert discarded cardboard into a viable packaging material to eliminate bubble wrap?

Step 2: Collect and Organize Data

- **Objective:** Gather relevant data to understand the current process.

- **In the Waste Reduction Example:**
  - Collected data on current packaging materials, labor, disposal costs, and machinery options.
  - Organized data into categories (e.g., material costs, labor, fixed vs. variable costs).

Step 3: Analyze Data and Calculate Metrics

- **Objective: Quantify costs, savings, and trade-offs.**

- **In the Waste Reduction Example:**
  - Calculated costs for both the current and proposed processes.
  - Conducted trade-off analysis to compare costs of bubble wrap vs. cardboard perforation machine.

Step 4: Draw Insights and Make Decisions

- **Objective: Interpret data to inform decision-making.**

- **In the Waste Reduction Example:**
  - Identified that the cardboard perforator would lead to weekly savings of **$164.63**.
  - Calculated break-even point to determine how quickly the machine would pay for itself.

Step 5: Communicate Findings

- **Objective: Present the analysis in a clear and actionable way.**

- **In the Waste Reduction Example:**
  - Summarized insights in a report highlighting cost savings and environmental benefits.
  - Presented break-even analysis to show how quickly the investment would pay off.

Key Takeaways and Best Practices

- **Define Your Goals Clearly: Start with a well-defined problem.**
- **Collect Data Systematically: Gather data that is relevant and organized.**
- **Use Quantitative Metrics: Calculate costs, benefits, and trade-offs.**
- **Think Long-Term: Consider both immediate and future impacts (e.g., break-even points).**
- **Communicate Effectively: Use key performance indicators to tell a clear story.**

Applying the Process to Other Problems

- **Framework Adaptability: This data analytics approach can apply to a variety of business challenges.**
- **Example Scenarios:**
  - **Analyzing costs and benefits of new equipment.**
  - **Evaluating the ROI of marketing campaigns.**
  - **Assessing operational efficiencies.**