

PROJECT: DATA-DRIVEN STORYTELLING WITH INTERACTIVE DASHBOARDS VIA TABLEAU

Objective: The goal of this project is to answer a compelling research question using data. Each team will find a unique story within the provided dataset, visualize it effectively using Tableau, and present their findings in an interactive dashboard and a short presentation. The key is to connect data analysis with clear, impactful storytelling.

Project Phases

This project is divided into four main phases

Phase 1_Exploration: Form teams, explore the dataset, and define a unique and specific research question (RQ).

Phase 2_Analysis & Viz: Conduct Exploratory Data Analysis (EDA), each student creates exactly 2 distinct visualizations to answer the RQ. So, there will 6 or 8 visualizations to describe your story.

Phase 3_Dashboard: Design and build an interactive Tableau dashboard that tells a cohesive story with your visualizations. You don't have to use all visualizations. Choose the most effective ones.

Phase 4_Presentation: Prepare a 4-5 slide presentation and practice your 5-minute project.

Detailed Instructions

Phase 1: Define Your Research Question (RQ)

- Create groups of 3-4 students. Give a name of your team and decide on the team leader.
- Familiarize yourselves with the dataset. Understand the variables, their types, and the potential relationships between them.
- As a team, brainstorm several potential questions you could answer with the data.
- Choose two unique research question. It must be specific, measurable, and answerable with the given data.
- No two team members can have the same RQ.

Good RQ Example: "Which product sub-category generated the most profit in the European market between 2020 and 2023, and how did its sales trend differ from the least profitable sub-category?"

Bad RQ Example: "What are the sales?" (Too vague).

Phase 2: Create Your Visualizations

- Exploratory Data Analysis (EDA): Use tables, heatmaps, and basic charts in Tableau to explore your data in relation to your RQ. This is your chance to find the story.
- Create multiple chart types for the same piece of analysis (e.g., a bar chart, a line chart, and a treemap).
- Choose the single most effective visualization for each part of your story. Don't use different charts to show the same thing.
- Your final dashboard should include a variety of chart types (e.g., maps, bar charts, line charts, scatter plots).

Design Principles:

- Clarity: Is the chart easy to understand in under 10 seconds?
- Color: Use color intentionally to highlight key findings. Consider your team's color palette.
- Labeling: Ensure axes, titles, and tooltips are clear and concise.

Phase 3: Build Your Interactive Dashboard

- Tell a Story: Your dashboard should guide the user through your analysis logically. The flow should be intuitive, starting with a broad overview and moving to more specific insights that directly answer your RQ.
- Interactivity: The dashboard must be interactive. Use filters, highlighters, or tooltips that allow the user to explore the data themselves. For example, a user could click on a country on a map to filter all other charts to show data for only that country.
- Layout & Design: Arrange your visualizations in a clean, organized layout. Use text annotations to explain key findings and guide the user's attention.

4. Final Presentation

Your presentation should provide a concise summary of your project. It should be a **maximum of 10 slides and 10 minutes in length**. Ideally, the presentation should be delivered by the team members responsible for the visualizations. The **group leader** may present the overall dashboard design and integration.

Content:

Slide 1: Title Slide: Project title, team members' names.

Slide 2-9: The Research Questions: Give the visualizations for RQs clearly. Explain why it's an interesting or important question to ask of this dataset. Explain the plots

Slide 10: The Dashboard (Live Demo): Spend most of your time here. Present your interactive dashboard. Walk the audience through your story and demonstrate the interactivity. Summarize the answer to your RQ. What is the single most important finding from your analysis?

5. Grading Rubric (Sample)

| Category | Criteria | Points |
|-------------------|--|---------------|
| Research Question | The question is clear, unique, and effectively answered by the analysis. | 20 |
| Visualizations | Charts are appropriate, effective, well-designed, and clearly labelled. Good variety of visuals used. | 30 |
| Dashboard | The dashboard tells a clear story, is well-organized, and features meaningful interactivity. | 30 |
| Presentation | The presentation is clear, concise, stays within the time limit, and the team effectively answers questions. | 20 |

AI Usage:

Students may use AI tools (e.g., ChatGPT, Copilot, Gemini, Claude, etc.) to support their project. However, AI should be used as a collaborator, not as a substitute for understanding or creativity.

Requirements:

- Include a short section titled “AI Usage Report” in your submission.
- This section should include:
 - The exact prompts or questions you gave to the AI.
 - The AI responses or summaries (brief — not entire transcripts).
 - A short reflection (3–5 sentences) on:
 - How you used AI (e.g., idea generation, improving visuals, coding help, critique, etc.)
 - What parts were your own decisions vs. AI suggestions.

Grading Criteria:

| Level | Description |
|--------------------|--|
| Excellent (90-100) | Thoughtful and responsible AI use. Student critically evaluated AI suggestions and integrated them to improve the project (e.g., refining visualization choices, enhancing aesthetics, debugging code). Prompts are specific and purposeful. |
| Good (70-80) | AI used appropriately for guidance or refinement (e.g., improving captions, colors, layout). Student shows understanding of what AI contributed. |
| Fair (50-60) | AI used but without clear reflection or understanding. Prompts are generic or the AI did most of the conceptual work. |
| Poor (0-40) | Over-reliance on AI to define the research question, perform all analyses, or generate all visuals without student insight. Missing or incomplete AI usage report. |

Your final grade will be the weighted average of the above section and AI usage.

*** You'll need to **open a GitHub page to upload all project files**, and then ensure the final AI report uploaded to ODTUClass contains the links to both your GitHub project and your Tableau dashboard.