Homework Sheet — Stage 12

Assignment Overview

In this homework, you will produce a **stakeholder-ready deliverable** based on a self-contained dataset.
You will finalize visualizations, document assumptions, and communicate decisions.

Goal: Transform technical results into a polished deliverable that clearly communicates insights, assumptions, risks, and sensitivity to stakeholders.

Chain from Lecture → Homework

In class, we practiced:

- Finalizing charts and narratives for stakeholder audiences
- Annotating assumptions
- Including sensitivity analysis

Now: Adapt these skills to produce a final stakeholder-facing deliverable in the format most appropriate for your audience.

Task / Requirements

Choose one format:

1. **Slide deck** (PowerPoint or Google Slides)
2. **Written report** (Markdown/PDF/Word)
3. **Interactive dashboard** (optional advanced: Streamlit or Dash)

Required Content:

- **Executive Summary**: 1–3 decision-oriented bullets
- **Visualizations**: 2–3 polished charts (bar, line, scatter) with concise interpretation
- **Assumptions & Risks**: Plain-language explanation of key assumptions and risks
- **Sensitivity Analysis Summary**: At least one alternate scenario showing how outcomes change if assumptions change
- **Decision Implications**: "What this means for you" section

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Step-by-Step Instructions

1. Open your `final_reporting_template.ipynb` or a new notebook.
2. Load the provided dataset or generate a synthetic fallback dataset.
3. Create at least 3 key plots (bar, line, scatter) using matplotlib or seaborn.
4. Write Markdown explanations for each plot, including:
    - What the plot shows
    - Key insight for stakeholders

    - Assumptions or limitations
5. Clean final charts: titles, labels, legends, consistent color scheme, and brief annotations.
6. Create a **sensitivity table** and optional tornado chart or small multiples to show alternate scenarios.
7. Export figures to `/deliverables/images/` with clear, descriptive filenames (e.g., `risk_return.png`, `tornado_assumptions.png`).
8. Assemble your deliverable (deck/report/dashboard) including:
    - Executive summary / headline takeaways
    - Charts with interpretation
    - Assumptions & Risks
    - Sensitivity summary (Δ from baseline + interpretation)
    - Decision implications section
9. Save the final artifact in `/deliverables/` and push to GitHub.
10. Add a short `README.md` in `/deliverables/` explaining:
    - Chosen audience and rationale
    - Why this format fits their needs

Submission

- Upload `/deliverables/final_report.*` (or `final_deck.*`, or dashboard URL + repo) to LMS.
- Include `/deliverables/README.md`.
- Due: Next class session start.

Grading Rubric (100 pts)

Criterion	Description	Points
Executive Summary	Clear, decision-oriented headlines	20
Visuals & Interpretation	2–3 charts, cleanly formatted, with concise interpretations	20
Assumptions & Risks	Transparent, plain-language articulation	20
Sensitivity of Assumptions	Alternate scenario(s) + quantified impact (table/figure)	20
Professionalism & Reproducibility	File organization, naming, export quality, audience fit	20

Stretch Credit (+5): Provide two formats (e.g., deck for executives + notebook for peers) with tailored depth.

Example Submission

Slide Deck (5 slides)

1. Title + Executive Summary
2. Key Chart 1 (Risk–Return) + 1–2 sentence takeaway
3. Key Chart 2 (Scenario Impact) + takeaway
4. Assumptions & Risks (bulleted, plain language)
5. Sensitivity Summary + Alternate Scenario + “What this means for you”

Report / Markdown Example

- 3 self-contained plots with captions
- Narrative explanations under each plot
- Assumptions clearly labeled
- At least one alternate scenario showing effect on outcomes

Notes:

- Keep all visuals and tables self-contained.
- Include interpretations and decision-oriented insights.
- Ensure all exported files are in `/deliverables/images/` and clearly named.