

Module 10: Capstone

Data Engineering Capstone Project & Corporate Showcase

Transforming Unstructured Datasets into Enterprise Dashboards



Part 1: The Independent Challenge

Leaving the sandboxes behind to tackle completely raw, public data payloads.

| Confronting Raw Data Chaos

The Missing Rules Sandbox

Unlike previous guided tracks, your final project begins with an uncurated, dirty public dataset. No pre-written formulas, no structural hints, and zero schema guides are provided.

Defining the Target State

Students must analyze raw column distributions, identify corrupt timestamps, catch structural format duplicates, and formulate a step-by-step cleaning strategy entirely from scratch.

Part 2: Executing via Prompts

Using purely natural language to direct automated cleaning and visual exploration.

The Prompts to Dashboard Pipeline



1. Scrub & Standardize

Generate highly-robust cleaning loops in Python. Strip corrupted symbols, impute dynamic fields, and standardize irregular data.



2. Feature Miner

Direct the AI to synthesize custom metrics, map relational data ranges, and extract temporal categories automatically.



3. Interactive Visuals

Build dynamic zooming scatter plots, local area trends, and choropleth maps inside an executable standalone dashboard.

| Interactive Showcase

The Ultimate Output

Your capstone concludes by exporting self-contained interactive dashboards. These HTML packages render fluidly in any browser with zero local dependencies or servers needed. Stakeholders can hover, pan, and dynamically filter variables locally.





Part 3: Showcasing & Review

Flipping the code inside corporate roles and presenting real-world capabilities.

The Corporate Workflow Pivot

Classroom Milestone	Real-World Corporate Task	Strategic Business Value
Uncleaned Capstone Dataset	Inconsistent legacy customer CRM exports	Zero-loss CRM migrations and pipeline health
AI Feature Engineering Prompt	Multi-market currency and temporal normalizations	Unified regional reporting inside hours, not weeks
Self-Contained HTML Export	Stakeholder email updates without databases	Mass-scale insight distribution with zero IT friction

Course Learning Progress

M8: Plotly Interaction

Building rich geospatial and
dynamic zoom charting
environments.

M10: Capstone Exit

Deploying end-to-end data
workflows to corporate operations.

M6-7: Clean & Probe

Scrubbing missing structures and
discovering statistical stories.

M9: Pipeline Loops

Automating dozens of high-res
image exports and written
narratives.

Dashboard Showcases

Congratulations on completing the AI-Assisted Data Analytics Track!

Ready to deploy these custom prompts across your corporate workspace?



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| Image Sources



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