1 — Project lifecycle:

Project lifecycle — Hospital Performance Analysis

(Hero Vired Capstone)

Problem definition
We analyzed the performance of 5300+ hospitals to identify high-performing hospitals and the domains (Mortality, Safety, Readmissions) that need improvement. The objective was to build an interactive Power BI solution that enables stakeholders to visualize performance, drill into hospital detail, and simulate improvement scenarios using What-If analysis.

Data collection & cleaning:
Data source: Hospital_General_Information.csv. Steps: handle nulls / "Not Available", standardize column names, convert percentages to numeric fractions, normalize categorical values (State, Hospital type, Ownership).

Modeling:
Created a star-like schema: Hospital_General_Information (hospital attributes) and Perf_Long (unpivoted domain outcomes: Domain, OutcomeLevel, Percentage). Set relationship: Hospital_General_Information[Facility ID] (1) → Perf_Long[Facility ID] (many).

Feature engineering & DAX:
Built core measures: % Better / No Different / Worse (by domain), Avg Rating, % High-Performing , Adjusted % Better measures (incorporating What-If parameters: Rating Threshold, Measure Improvement), and projected high-performing counts.

Visualization & UX:
Eight report pages:

- Overview (KPIs & slicers) (A&B)

- Geographic Analysis (state choropleth + top 10 states) (A&B)

- What IF Analysis.

- Performance Measures (clustered bar + matrix + drill-through)

- Hospital Detail (drill-through hospital profile)

- Scenario Insights (line chart vs improvement, scatter plot, projected KPI)

Scenario analysis & insights:

What-If parameters let stakeholders simulate the impact of moving X% of "Worse" measures to "Better/No Different". Example finding: a 10–20% shift in key domains significantly increases the number of hospitals classified as "High-Performing."

Storytelling & delivery:

Prepared a management-PPT, a requirements-checklist PDF, and all DAX measures and query steps documented for reproducibility.

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2 — Final checklist for evaluation :

Final Capstone Submission Checklist: -

Project data

- Project title: Hospital Performance Insights (Hero Vired)

- Author: Group 2

- Date: [21.09.2025]

Data & cleaning

- Original data file included (Hospital_General_Information.csv)

- Data cleaning steps documented (nulls, NA, type conversion)

- Perf_Long created (unpivoted table) and included/exported

Model & calculations:

- Data model diagram (screenshot of Model view)

- Relationships documented (Facility ID 1 → many)

- DAX measures document included (all measures .txt)
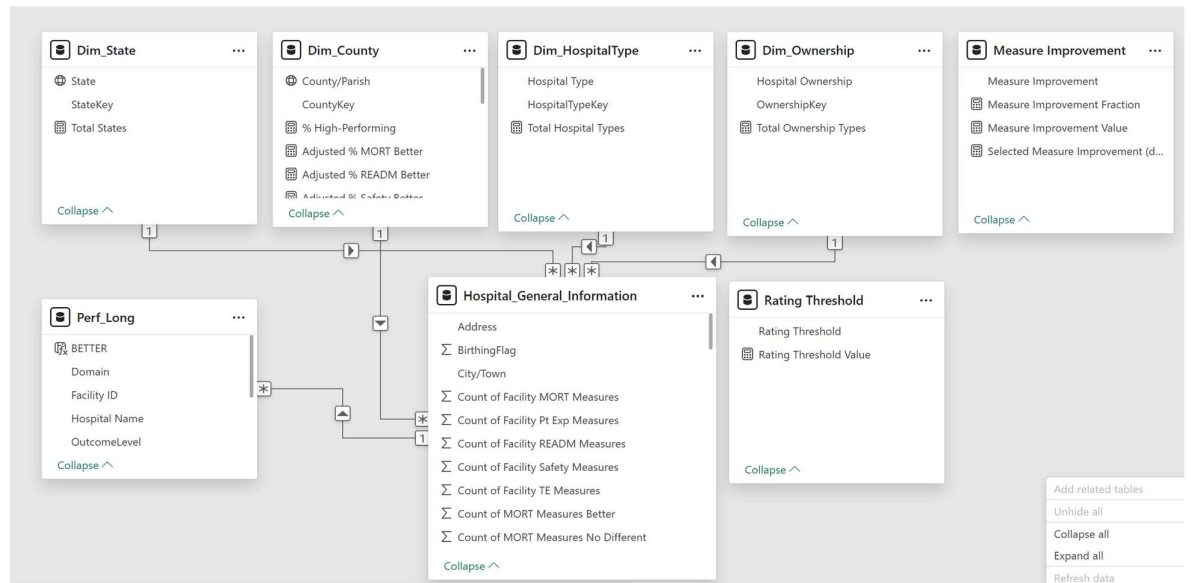
Visuals & UX

- Power BI report (.pbix) with 8 pages:
  - Overview (KPIs + slicers)
  - What IF Analysis
  - Geographic Analysis
  - Performance Measures
  - Hospital Detail (drill-through)
  - Scenario Insights
- Drill-through configured (Hospital Detail)
- Slicers synced (State, Ownership, Hospital Type, Rating Threshold, Measure Improvement)

What-If & scenario testing

- Parameter tables present: Rating Threshold, Measure Improvement,
- Scenario Insights visuals (line + scatter + projected KPI) present

Documentation & reproducibility

- DAX measures file (.txt) with comments
- PPT for management + executive summary slide
- Requirements checklist PDF

Delivery files (packaging)

- HeroVired_Capstone_PBIX.pbix

- Hospital_General_Information.csv

- Sample test cases or validation notes (validated measures)

- DAX_measures.txt

- Presentation.pptx

- Requirements_Checklist.pdf