Milestone 4 — Implement the Design

Goal

Turn your Milestone 3 prototype into a **working, interactive visualization**. This build should faithfully encode your **data abstraction** and support your **set of tasks** (from earlier milestones). You will **demo the prototype**, collect quick feedback, and fold what you learn into your **final report**.

> **Grading note:** Your **final report** synthesizes all milestones and counts for **50% of the overall project grade**. The implemented prototype (and your demo/feedback from it) **directly informs that report.** Treat this demo as the final rehearsal that feeds half your grade.

What to implement

- **Views & encodings:** Implement the views you committed to (e.g., ranked list + map; small multiples; timeline + scatter). Keep **marks & channels** consistent with your design (position/length for precise comparisons; hue for categories; lightness for ordered magnitude).

- **Interactions that matter:** Implement the interactions that **enable your four tasks** (e.g., filter, sort, brush, highlight, details-on-demand, search, facet). Avoid ornamental interactions.

- **State & coordination:** If you have multiple views, **link them** (brushing & linking, shared color/axes, filter sync). Make the active state visible (selected cohort, current filters, sort order).

- **Uncertainty & edge cases:** If uncertainty exists (forecasts, missing), **encode it** (bands, intervals, badges). Show how the system behaves with many categories, long labels, or outliers.

- **Performance:** Aim for **instant feedback** for common interactions (<200 ms). If needed, add binning/aggregation, sampling, or debounce on filters.

- **Accessibility & clarity:** Legible labels, adequate contrast, descriptive titles, ARIA roles on interactive controls if possible. Greyscale pass first; add color second.

Quality bar (self-check)

- Can a first-time user complete each task in ≤**3 deliberate actions**?

- Are the most important comparisons on **position/length**?

- Is state obvious (what's filtered/selected/sorted)?

- Does the design **scale** (many categories, long labels, outliers)?

- Does interaction feel **responsive**? If not, what aggregation/sampling helps?

Helpful tips

- **Lock scales** where stability aids comparison; avoid re-scaling axes on every filter unless you need local detail.

- **Name the states** (e.g., "Top-N by ROI") right in the UI.

- **Instrument quickly:** Log basic counts (e.g., filtered items) to confirm the interface matches expectations.