Progressive Visual Analytics for Incident Management

Progressive Visual Analytics Pipeline (Diagram Explanation)
The system follows a progressive analysis pipeline designed to tightly couple computation and visualization. The workflow begins by reading the incident log incrementally using fixed-size data chunks. For each chunk, the system updates incident-level aggregates by tracking the latest known state and priority of each incident. Interactive filters are then applied at the incident level, ensuring consistent semantics throughout the analysis. After filtering, a cumulative count of unique incidents is updated and immediately reflected in the visualization. This loop repeats until all chunks are processed, enabling analysts to observe early results and refine their focus while computation is still ongoing.

Incident Log (CSV) | v Read Next Data Chunk | v Update Incident-Level Aggregates - Latest State - Latest Priority | v Apply Interactive Filters - Incident State - Priority Threshold | v Progressive Aggregation - Update Unique Incident Count | v Visual Update (Line Chart) | v Next Chunk

Final Conclusion
This project demonstrates how Progressive Visual Analytics can be effectively applied to incident management by combining incremental computation with interactive visualization. By processing the event log in fixed-size chunks and maintaining incident-level aggregates, the system provides early and continuously improving insights without requiring full dataset completion. Analysts can steer the exploration in real time using state and priority filters, with immediate visual feedback reflecting their analytical intent. This progressive, human-in-the-loop approach reduces time-to-insight and closely mirrors real-world incident monitoring scenarios where decisions must often be made before complete information is available.