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Technical Assignment

Senior AI / Fullstack Developer

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FinOps Intelligence Dashboard

Project Objective

Design, develop, and deploy a production-grade FinOps Intelligence Tool. The application must interface with a live Google Cloud BigQuery billing dataset to transform raw cloud spend into actionable business insights using AI.

Technical Requirements

1. Data Integration & FinOps Engine

- Cloud Source: Authenticate and query the provided Google Cloud BigQuery billing export.
- Core Logic: Implementation of multi-dimensional cost aggregation (by Service, Project, SKU, and Time-period).
- AI Integration: Leverage an LLM to generate automated spend summaries, detect anomalies, or provide cost-optimization recommendations based on real-time data.

2. The Dashboard (Functional Deliverable)

A fully functional web interface is required. The dashboard must provide:

- High-level financial overviews (MTD spend, burn rates).
- Granular drill-downs into cost drivers.
- An interactive AI-driven insight panel.

3. Software Development Lifecycle (SDLC) & Environment Strategy

The solution must be architected to support a standard enterprise release cycle. This includes:

- Environment Isolation: Distinct configurations and deployments for Development, Staging, and Production tiers.
- Secrets Management: Secure handling of the provided Service Account and API keys across all environments.
- Promotion Workflow: A documented process for moving code from development to a live production state.
- Production Standards: Implementation of structured logging, error handling, and performance optimization (caching/query efficiency).

Technical Stack

- Frontend: Modern framework (React/Next.js preferred).
- Backend: Node.js, Python (FastAPI/Flask).
- Storage: A database is preferred (PostgreSQL/DuckDB), but a well-structured in-memory or file-based system is acceptable if the design pattern is solid.

- **AI/LLM:** Integration with an LLM provider (e.g., OpenAI, Vertex AI, or Anthropic).

- **Infrastructure:** Containerized environment (Docker) for consistent deployment across environments.

Mandatory Deliverables

1. Source Code: Access to a Git repository.
2. Live Access: A URL to the Production deployment.
3. Technical Brief (README.md):
    - Detailed setup and local execution steps.
    - Architecture & SDLC Overview: A technical explanation of how the application is structured and how the Dev/Staging/Prod lifecycle is managed.
    - AI Disclosure: Documentation of AI tools used for development and their role within the application.
    - Engineering Roadmap: A brief analysis of how this architecture would evolve to handle massive data volumes or stricter compliance requirements.