FinOps Dashboard for Cloud Cost Visibility (Free Tier Usage Tracker)

Introduction
The FinOps Dashboard project focuses on monitoring AWS cloud resource usage in real time to prevent free-tier limit breaches. By tracking daily usage of AWS services, the dashboard helps users avoid unexpected billing while optimizing resource utilization.

Abstract
This project implements a lightweight FinOps solution using AWS Cost Explorer API. Daily usage data is collected, stored, and visualized to provide insights into service consumption. The dashboard flags services approaching free-tier limits and generates actionable information for cost management, enabling proactive decisions and better financial control over cloud resources.

Tools Used

- **AWS Cost Explorer API:** Fetch daily resource usage and estimated costs
- **Python:** Automate API data retrieval, processing, and alert logic
- **SQLite:** Store historical usage and cost data locally
- **Grafana:** Visualize trends, highlight at-risk services, and present interactive dashboards

Steps Involved in Building the Project

1. **API Integration:** Connect Python scripts to AWS Cost Explorer API to retrieve daily usage metrics.
2. **Data Storage:** Insert fetched data into SQLite database for historical tracking and analysis.
3. **Dashboard Creation:** Configure Grafana dashboards to display service-wise usage trends and highlight resources nearing free-tier limits.
4. **Alert Logic Implementation:** Develop Python-based rules to flag AWS services that are at risk of exceeding free-tier thresholds.
5. **Automation:** Schedule daily Python script runs to update the SQLite database and ensure the dashboard remains current.
6. **Visualization & Reporting:** Use Grafana for trend visualization and generate weekly usage reports to summarize consumption and flagged services.

Conclusion
The AWS FinOps Dashboard provides a practical, automated solution to manage free-tier cloud usage effectively. By combining API-driven data collection, local storage, and intuitive visualization, users can proactively monitor service consumption, prevent unexpected charges, and optimize cloud resource management.