

CostMantra: An AI-Driven FinOps Dashboard for Predicting and Optimizing Cloud Costs

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Abstract: Cloud computing offers scalable and on-demand infrastructure, but its associated costs often remain unpredictable until billing time. The CostMantra system aims to address this challenge by introducing an intelligent FinOps (Financial Operations) dashboard that tracks historical and real-time cloud expenditure, predicts future costs using machine-learning models, and recommends cost-saving actions. The platform integrates APIs from leading cloud providers such as AWS and GCP to collect billing data, process it through a Spring Boot-based backend, and display visual insights via a modern React-based interface. Alerts and optimization suggestions are generated automatically using pattern recognition and budget thresholds. By combining DevOps automation, AI-based forecasting, and business analytics, CostMantra provides organizations with data-driven visibility and control over their cloud spending.

Keywords: FinOps, Cloud Cost Optimization, Machine Learning, AWS Cost Explorer, GCP Billing API, Spring Boot, Forecasting Dashboard

