Gokaraju Rangaraju Institute of Engineering and Technology

(Autonomous)

Department of Computer Science and Engineering
GR22A3089 Mini Project with Seminar
B.Tech., III Year -II Semester
Academic Year 2025-2026

Batch no.	F7		
Domain	Artificial Intelligence and Machine Learning		
RTRP Title	AI-Based Cloud Operations Monitoring System		
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ABSTRACT

Modern cloud systems generate large volumes of operational data such as CPU usage, memory consumption, response time, and error logs. Traditional monitoring approaches rely on fixed thresholds and manual analysis, which often detect failures only after they affect system performance. This leads to increased downtime and delayed incident response.

This project proposes a **Cloud-Based Intelligent Incident Prediction and Automated Resolution System** inspired by AIOps solutions used by companies like **IBM**. The system uses Artificial Intelligence and Machine Learning techniques to detect anomalies, predict potential incidents, and identify probable root causes before failures occur. Synthetic cloud metrics are generated to simulate real environments, and ML models analyze system behavior to produce intelligent alerts. A dashboard provides real-time visualization of system health and incident status. The proposed approach demonstrates how AI-driven AIOps can improve cloud reliability and proactive system management.

Technologies:
- **Programming Language**: Python– Core language for data generation, machine learning, and system logic
- **Cloud & Deployment**   : IBM Cloud
- **Compute Service**   : IBM Cloud Code Engine
- **Storage**   : IBM Cloud Object Storage
- **Monitoring & Logging**   : IBM Cloud Monitoring, IBM Log Analysis
- **Data Processing**:   : Pandas, NumPy
- **Visualization**   : Streamlit, Matplotlib
- **Development Tools**   : VS Code, Jupyter Notebook, GitHub

Signature of the Guide

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