GOKARAJU RANGARAJU INSTITUTE OF ENGINEERING AND TECHNOLOGY
Department of Computer Science and Engineering

Mini Project Review-1

AI-Based Cloud Operations Monitoring System

Under the esteemed guidance of

J. Lakshmi Prasanna

Assistant Professor

Yada Amruth Chandra - **23241A053E**

Batch No: F-7

Maringanti Rohan Ram - **23241A051C**

Katukuri Praneeth Reddy - **23241A054B**

Rahul Padala - **23241A055C**

CONTENTS

PROBLEM STATEMENT

- Cloud systems generate a large amount of monitoring data
- Manual monitoring is time-consuming and inefficient
- Problems are detected only after failures occur
- Multiple alerts create confusion and delay response
- Slow issue resolution increases system downtime
- There is a need for early problem detection

Therefore, some automated solutions are needed to reduce the human intervention .

ABSTRACT

- Continuously collects and monitors cloud system data
- Automatically analyzes data instead of manual checking
- Identifies unusual behavior early
- Predicts possible failures before they occur
- Reduces unnecessary alerts
- Automatically fixes common problems
- Helps reduce downtime and human effort

INTRODUCTION

- Cloud computing is widely used to host applications and services
- Cloud systems generate data like CPU usage, memory usage, and logs
- Monitoring large cloud systems manually is difficult
- Traditional monitoring detects problems only after failure
- This leads to downtime and slow recovery
- This project focuses on predicting problems early
- It also performs basic automatic fixes to reduce downtime

OBJECTIVES

- To design a system that tracks the health of cloud resources.
- To develop a mechanism for identifying warning signs of failures.
- To implement basic automatic actions to improve system availability.

MOTIVATION

- Increasing cloud system failures highlight the need for better monitoring
- Manual handling of cloud issues is slow and inefficient
- Early detection and automation can greatly reduce downtime and effort

LITERATURE SURVEY

S.No.	Title of The Paper & Year	Authors	Methodology & Metrics	Datasets Used	Observed Shortcomings/ Gaps in The Paper
1.	**AIOps: Real-Time Analytics for Cloud Operations (2018)**	Shubhangi Vashistha, Ravi Kumar	• Analyzed cloud monitoring data • Used anomaly detection techniques • Metrics: CPU usage, memory usage, response time	• Cloud system monitoring data • Logs collected from cloud servers	• Focuses mainly on detection, not prediction • No automatic incident resolution • Limited discussion on reducing alert noise

LITERATURE SURVEY

S.No.	Title of The Paper & Year	Authors	Methodology & Metrics	Datasets Used	Observed Shortcomings/ Gaps in The Paper
2	**Predictive Analytics for Incident Management in Cloud Systems (2020)**	A. Sharma, P. Gupta	• Machine learning models for incident prediction • Historical incident analysis • Metrics: accuracy, prediction rate, downtime	• Historical cloud incident data • System performance logs	• Requires large historical datasets • Does not include automated remediation • High dependency on manual intervention
3	**Anomaly Detection for Cloud Monitoring Systems (2019)**	L. Chen, M. Zhang	• Analyzed system performance data • Used statistical and pattern-based anomaly detection • Metrics: CPU usage, memory usage, network delay	• Cloud server performance datasets • Monitoring data collected over time	• Detects issues only after anomalies occur • No prediction of future failures • Does not provide automatic corrective actions