VISVESVARAYA TECHNOLOGICAL UNIVERSITY
"Jnana Sangama", Belagavi-560014, Karnataka

A PROJECT REPORT ON

"CLOUD INFRASTRUCTURE FAILURE DETECTION USING MACHINE LEARNING"

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE & ENGINEERING

Submitted By

Gayithridevi K M (1SV19CS030)

Lavanya T S (1SV19VS040)

Nandan Kumar M (1SV19CS046)

Nayana H S (1SV19CS048)

Under the guidance of

Mr. Shanmukaswamy C.V B.E., M.E.,MISTE

Associate Professor, Dept. of CSE.

SHRIDEVI
EDUCATION

PRINCIPAL
SIET. TUMKUR.

Department of Computer Science and Engineering

SHRIDEVI INSTITUTE OF ENGINEERING AND TECHNOLOGY
(Affiliated To Visvesvaraya Technological University)
Sira Road, Tumakuru – 572 106, Karnataka.
2022-23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that, the project entitled "**CLOUD INFRASTRUCTURE FAILURE DETECTION USING MACHINE LEARNING**" has been successfully carried out by 1. Gayithridevi K M [1SV19CS030], 2. Lavanya T S [1SV19CS040], 3. Nandan Kumar M [1SV19CS046] and 4. Nayana H S [1SV19CS048], in partial fulfillment for the award of **Bachelor of Engineering** in **Computer Science & Engineering** of the **Visvesvaraya Technological University, Belagavi** during the academic year **2022-23.** It is certified that all the corrections/suggestions indicated for internal assessments have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

24/5/23

Signature of the Guide
Mr. Shanmukaswamy C.V B.E., M.E., MISTE.,
Associate Professor,
Dept. of CSE,
SIET, Tumakuru.

Signature of the H.O.D
Dr. Basavesha.D B.E.,M.Tech.,PhD.,MISTE
Associate Professor & HOD
Dept. of CSE,
SIET, Tumakuru.

Signature of the Principal
Dr.Narendra Viswanath M.E., Ph.D., MIE, MISTE, MIWS., FIV.,
Principal,
SIET, Tumakuru

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SIET. TUMKUR.

External Viva

Name of the Examiners
1. Dr. Basavesha.D
2. Lalatimodd-

Signature with Date
25/5/23
25/5/23

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

We, 1. **Gayithridevi K M [1SV19CS030], 2. Lavanya T S [1SV19CS040], 3. Nandan Kumar M [1SV19CS046] and 4. Nayana H S [1SV19CS048]**, student of VIII semester **B.E** in Computer Science & Engineering, at Shridevi Institute of Engineering & Technology, Tumakuru, hereby declare that, the project work-II entitled **"Cloud Infrastructure Failure Detection using Machine Learning"**, embodies the report of our project work carried out by our team under the guidance of **Mr. Shanmukaswamy C.V, Associate Professor, Department of CSE,** SIET, Tumakuru as partial fulfillment of requirements for the award of the degree in **Bachelor of Engineering in Computer Science & Engineering of Visvesvaraya Technological University, Belagavi,** during the academic year **2022-23**. The project has been approved as it satisfies the academic requirements in respect to the Project work-II.

Place: Tumakuru

Date: 26/05/2023

Student Name & Signature

Gayithridevi K M[1SV19CS030] Gayithridevi KM

Lavanya T S [1SV19CS040] Lavanya TS

Nandan Kumar M[1SV19CS046] Nandan Kumar M

Nayana H S [1SV19CS048] Nayana H.S

PRINCIPAL
SIET. TUMKUR.

Date: 22/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. GAYITHRIDEVI K M** bearing USN **1SV19CS030** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled "Cloud Infrastructure Failure Detection Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations

Authorized Signature

PRINCIPAL
SIET. TUMKUR.

ShriTEK Innovations

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⦿ Skill & Career Development Centre, Room No. 3, Ground Floor, SIET Campus, Sira Road, Tumakuru - 572 106. Karnataka.
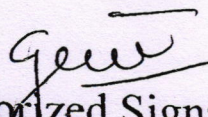
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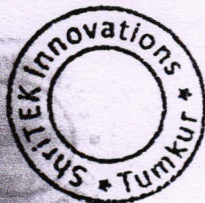
TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. LAVANYA T S** bearing USN **1SV19CS040** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled "Cloud Infrastructure Failure Detection Using Machine Learning".

We wish every success in her career.

For ShriTEK Innovations

Authorized Signature

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Date: 22/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Mr. NANDAN KUMAR M** bearing USN **1SV19CS046** Student of **Shridevi Institute of Engineering & Technology** has successfully completed his Project Work titled "Cloud Infrastructure Failure Detection Using Machine Learning".

We wish every success in his career.

For ShriTEK Innovations

PRINCIPAL
SIET. TUMKUR.

Authorized Signature

Date: 22/05/2023

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Ms. NAYANA H S** bearing USN **1SV19CS048** Student of **Shridevi Institute of Engineering & Technology** has successfully completed her Project Work titled "Cloud Infrastructure Failure Detection Using Machine Learning".
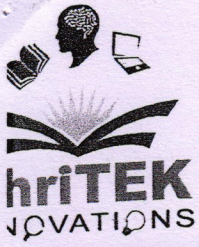
We wish every success in her career.

For ShriTEK Innovations

PRINCIPAL
SIET. TUMKUR.

Authorized Signature

ACKNOWLEDGEMENT

This project work will be incomplete without thanking the personalities responsible for this venture, which otherwise would not have become a reality.

We express our profound gratitude to **Dr.Narendra Viswanath,** Principal, S.I.E.T, for his moral support towards completing our project work.

We would like to thank Head of Department **Dr. Basavesha D**. Associate Professor & Head, Department of CSE, SIET for providing all the support and facility.

We would like to thank our guide **Mr. Shanmukaswamy C.V, Associate Professor,** Department of computer Science and Engineering, SIET for his help, sharing his technical expertise and timely advice.

We whole heartedly thank, **Mr. Girish L,** Project coordinator & Assistant Professor, Department of Computer Science and Engineering, for the support.

We would like to express our sincere gratitude to all teaching and non-teaching faculty of the Department of CSE for guiding us throughout the course of this project by giving valuable suggestion and encouragement.

By,

Gayithridevi K M [1SV19CS030]

Lavanya T S [1SV19CS040]

Nandan Kumar M [1SV19CS046]

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ABSTRACT

Cloud computing has become an essential part of many businesses and organizations, providing on-demand access to computing resources and services. However, the reliability of cloud services can be impacted by various factors, including hardware failures, software bugs, and network outages. This can lead to service disruptions and downtime, resulting in significant losses for businesses.

Machine learning-based approaches can be used for online cloud failure detection, providing real-time monitoring and alerting for potential issues. In this approach, data from various sources, including system logs, network traffic, and application metrics, are collected and analyzed using machine learning algorithms to detect anomalies and potential failure patterns.

This paper discusses the use of machine learning for online cloud failure detection, including the challenges and benefits of this approach. We also review some of the commonly used machine learning algorithms for this task, including clustering, classification, and anomaly detection techniques. Finally, we present some case studies that illustrate the effectiveness of machine learning-based approaches for online cloud failure detection in various applications.

Overall, machine learning-based approaches have shown great promise in improving the reliability of cloud services by providing early detection of potential issues and enabling proactive measures to prevent service disruptions.

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