MULTIVARIATE TIME SERIES FORECASTING

Project-III (IT208PPC31) report submitted to

Guru Ghasidas Vishwavidyalaya

in partial fulfilment for the award of the degree of

Bachelor of Technology

in

Information Technology

by

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(21036120, 21036107, 21036106)

Under the supervision of

Dr. Amit Dewangan

Department of Information Technology

Guru Ghasidas Vishwavidyalaya

April,2025

April 3 , 2025

DEPARTMENT OF INFORMATION TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA
BILASPUR - 495009, INDIA

CERTIFICATE

This is to certify that the project report entitled " **MULTIVARIATE TIME SERIES FORECASTING** " submitted by **Devendra Saha, Aditya Singh, Aditi Ranjan** (Roll No. 21036120, 21036107, 21036106) to Guru Ghasidas Vishwavidyalaya towards partial fulfilment of requirements for the award of degree of Bachelor of Technology in Information Technology is a record of bonafide work carried out by him under my supervision and guidance during April,2025.

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Abstract

Name of the student: **Devendra Saha, Aditya Singh, Aditi Ranjan**

Roll No: **21036120, 21036107, 21036106**

Degree for which submitted: **Bachelor of Technology**

Department: **Department of Information Technology**

Thesis title: **MULTIVARIATE TIME SERIES FORECASTING**

Thesis supervisor: **Dr. Amit Dewangan**

Month and year of thesis submission: **April 3 , 2025**

Multivariate Time Series is an ML-based project that focuses on predicting multiple time-dependent variables using historical data. Unlike univariate forecasting, which predicts a single variable, this approach analyzes the interdependencies among multiple variables to enhance prediction accuracy. The project leverages statistical models like Vector Auto Regression (VAR) and machine learning techniques such as Long Short-Term Memory (LSTM) networks to capture complex temporal patterns. By utilizing these models, the project aims to provide accurate future trend forecasts based on past observations, making it applicable in domains like finance, healthcare, and retail for better decision-making.