PES UNIVERSITY

Department of Computer Science and Engineering (AI & ML)

Project Report on

Multi-Modal Approach to Stock Analysis

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Abstract

This project presents an AI-powered platform for stock market analysis, prediction, and portfolio optimization. The system integrates data from multiple modalities—numerical stock data, textual news sentiment, and time-series signals—to provide investors with accurate insights. It leverages machine learning, deep learning, and NLP-based sentiment analysis for robust prediction. The platform is implemented as a Streamlit web application with a Flask-based REST API for programmatic access.

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1. Project Overview

The 'Multi-Modal Approach to Stock Analysis' project aims to develop an intelligent platform that combines real-time stock data, technical indicators, and news sentiment for predictive insights. The system integrates multiple AI components: traditional ML models like Random Forest, time-series models such as ARIMA, and deep learning architectures including BiLSTM and CNN. The interface allows end-users to visualize data, analyze sentiment, and optimize portfolios interactively.