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Hong Kong Stock Exchange: A Machine Learning-Based Time Series Analysis for Stock Prediction

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Abstract: *The Hong Kong Stock Exchange (HKEX) is one of the most prominent financial markets globally, offering a wide range of investment opportunities. This research paper focuses on analyzing the top 25 stocks listed on the HKEX using time series analysis and machine learning techniques. The study involves data collection, preprocessing, feature engineering, and the application of advanced machine learning models such as ARIMA and XGBoost to predict stock prices. The results are visualized through interactive dashboards built using Streamlit, enabling users to explore future price trends. The paper also highlights the use of anomaly detection techniques like Isolation Forest to identify irregularities in stock price movements. The findings demonstrate the effectiveness of machine learning in financial market analysis and provide actionable insights for investors*

Keywords: Hong Kong Stock Exchange, Time Series Analysis, Machine Learning, ARIMA, XGBoost, Isolation Forest, Streamlit Dashboard.