TOPSIS: REVEALING THE SECRET STRATEGY TO OPTIMIZE STOCK INVESTMENTS

KRISTIAN GUNAWAN
Informatics Study Program, Faculty of Science and Technology
University of Technology Yogyakarta
Jl. Ringroad Utara, Jombor, Sleman, Yogyakarta
Email: kristianguna1@gmail.com

ABSTRACT

This study aims to develop a web-based decision support system to assist novice investors in objectively selecting the best stocks using the TOPSIS method (Technique for Order Preference by Similarity to Ideal Solution). The system leverages real-time stock data from the Alpha Vantage API and processes it based on multiple criteria, including closing price, trading volume, and risk level. The application is developed using Python with the Flask framework, while data management is handled through a MySQL database. Users can select a risk profile—conservative, moderate, or aggressive—which dynamically adjusts the weighting of the analysis. The web interface is designed using HTML, CSS, JavaScript, and Bootstrap to ensure a responsive and user-friendly experience. The development process involves requirements analysis, system design using UML and ERD, implementation, and functional testing through the Black Box method. The results show that the system effectively provides accurate stock recommendations, supporting data-driven investment decisions and empowering users to navigate the stock market with greater confidence.

Keywords*: TOPSIS, Stock Investment, Flask, API, MySQL.*