

ABSTRAK

Rancang bangun aplikasi web sistem rekomendasi investasi kripto dalam penelitian ini mengintegrasikan estimasi harga berbasis *machine learning* dengan pemetaan profil risiko pengguna, serta memanfaatkan teknologi blockchain untuk penyimpanan data secara transparan. Melalui pendekatan kuantitatif dan rekayasa sistem, model *Linear Regression* yang dibekali 8 fitur teknikal multi-skala diuji menggunakan 3.011 observasi harian Bitcoin dan Ethereum (2018–2026). Distribusi data dilakukan secara kronologis (80:20) guna mengeliminasi risiko kebocoran data (*data leakage*). Pengujian menunjukkan akurasi tinggi yang mampu menyaingi performa *deep learning*, dengan capaian R^2 sebesar 0,9875 (MAPE 1,62%) untuk Bitcoin dan 0,9831 (MAPE 2,54%) pada Ethereum. Sistem berbasis Flask ini sukses mensinergikan estimasi harga tersebut dengan profil risiko dari 109 responden didominasi tipe agresif sebesar 43,1% melalui proses *end-to-end* yang responsif selama 15–25 detik. Penelitian ini memperkaya khazanah literatur teknologi finansial (*FinTech*) sekaligus menawarkan cetak biru (*blueprint*) aplikatif bagi pengembang dalam merancang platform investasi yang aman untuk investor pemula.

Kata Kunci: Sistem Rekomendasi, Aset Kripto, Regresi Linear, Profil Risiko, Blockchain.

ABSTRACT

This study develops a web-based cryptocurrency investment recommendation system that integrates machine learning price estimation with user risk profiling, utilizing blockchain technology for transparent data storage. Employing a quantitative approach and systems engineering, a Linear Regression model equipped with eight multi-scale technical features was evaluated using 3,011 daily observations of Bitcoin and Ethereum from 2018 to 2026. The dataset was split chronologically (80:20) to eliminate the risk of data leakage. The experimental results demonstrate high predictive accuracy that rivals deep learning performance, achieving an R^2 score of 0.9875 (MAPE 1.62%) for Bitcoin and 0.9831 (MAPE 2.54%) for Ethereum. This Flask-based system successfully synergizes these price estimations with the risk profiles of 109 respondents predominantly categorized as aggressive (43.1%) delivering responsive end-to-end recommendations within 15 to 25 seconds. This study enriches the financial technology (*FinTech*) literature while offering a practical blueprint for developers designing secure investment platforms for novice investors.

Keywords: Recommendation System, Cryptocurrency, Linear Regression, Risk Profile, Blockchain.