

ABSTRACT

Final-year students at Telkom University Purwokerto face challenges in selling their used goods as graduation approaches. The main problems include processes that are considered complicated and time-consuming, as well as the uncertainty of finding buyers, which leads many usable items to potentially become waste. The absence of a dedicated, structured, and organized platform creates a significant gap, despite the high demand for a safe and efficient marketplace within the internal campus environment. Existing solutions, such as word-of-mouth sales, have proven ineffective and have a limited reach. To address these issues, a *web*-based secondhand marketplace application was developed using the *Extreme programming* (XP) method. This system development followed four core phases—Planning, Design, Coding, and Testing—and was built using modern technologies such as TypeScript, Supabase, and Vercel. The application is equipped with essential features, ranging from product management, filtered search, *Wishlist*, and internal chat to a transaction system integrated with a payment gateway for payments and fund withdrawals. The result of this research is a functional and tested *web* application. Based on black box testing of 20 scenarios, all of the application's main features, including transaction flows and the validation of negative scenarios, were proven to function correctly and in accordance with the expected results. Thus, the application is deemed functionally feasible for use by the student community.

Keywords: Secondhand Marketplace, Extreme programming, Web Application, Black Box Testing, Integrated Transactions