

OPTIMALISASI APLIKASI FLUTTER UNTUK SISTEM POINT OF SALES (POS) DI PERANGKAT MOBILE LOW END

Nama Mahasiswa : Yosi Rumandha

Nim : 630421453

Dosen Pembimbing : Muhammad Asep Subandri,M.Kom

ABSTRAK

Penelitian ini bertujuan mengembangkan aplikasi *Point of Sales* (POS) berbasis Flutter yang ringan dan dapat berjalan stabil pada perangkat *mobile low-end*. Aplikasi dirancang untuk membantu pelaku UMKM dalam mengelola transaksi penjualan, data barang, serta laporan keuangan secara offline. Metode penelitian menggunakan SDLC dengan pendekatan *Waterfall*. Teknik optimalisasi yang diterapkan meliputi *lazy loading*, *GetX state management*, kompresi asset, dan *build optimization*. Pengujian dilakukan menggunakan *Black Box Testing*, *Flutter DevTools*, *App Size Analyzer*, dan ADB. Hasil penelitian menunjukkan ukuran APK berhasil dikurangi dari ± 30 MB menjadi 17,3 MB, penggunaan memori menurun dari ± 92 MB menjadi 11,6 MB, serta performa aplikasi meningkat hingga 60 FPS dengan *loading time* kurang dari 1 detik. Aplikasi yang dikembangkan dinilai ringan, responsif, dan sesuai digunakan pada perangkat berspesifikasi rendah.

Kata Kunci: Flutter, *Point of Sales* (POS), optimalisasi aplikasi, *perangkat low-end*, UMKM.

FLUTTER APPLICATION OPTIMIZATION FOR POINT OF SALES (POS) SYSTEMS ON LOW-END MOBILE DEVICES

Nama Mahasiswa : Yosi Rumandha

Nim : 630421453

Dosen Pembimbing : Muhammad Asep Subandri,M.Kom

ABSTRACT

This study aims to develop a lightweight Flutter-based Point of Sales (POS) application that can run stably on low-end mobile devices. The application is designed to help MSMEs manage sales transactions, product data, and financial reports offline. The research method used is SDLC with the Waterfall approach. The optimization techniques applied include lazy loading, GetX state management, asset compression, and build optimization. Testing was conducted using Black Box Testing, Flutter DevTools, App Size Analyzer, and ADB. The results show that the APK size was reduced from approximately 30 MB to 17.3 MB, memory usage decreased from approximately 92 MB to 11.6 MB, and application performance improved to 60 FPS with loading times under 1 second. The developed application is considered lightweight, responsive, and suitable for low-specification devices.

Keywords: *Flutter, Point of Sales (POS), application optimization, low-end devices, MSMEs.*