



UNDERGRADUATE THESIS

**APPLICATION OF BEHAVIOR AND TEST
DRIVEN DEVELOPMENT IN HYBRID AGILE ERP
SYSTEM DEVELOPMENT (CASE STUDY OF
PASYHA PHARMACY)**

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FACULTY OF COMPUTER SCIENCE
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SURABAYA
2026**

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Hereby declares that this undergraduate thesis contains no part of any other scientific work that has been submitted to obtain an academic degree at any higher education institution. Furthermore, it does not contain any work or opinions previously written or published by others, except for those which are explicitly cited in this thesis and listed completely in references.

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ABSTRACT

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Thesis Title : Application Of Behavior And Test Driven Development In Hybrid Agile Erp System Development (Case Study Of Pasyha Pharmacy)

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Pasyha Pharmacy faced various operational challenges due to its reliance on manual recording, including inaccurate stock monitoring, financial reporting errors, and limited capability to handle online transactions. This study aims to develop an integrated Enterprise Resource Planning (ERP) system using a Hybrid Agile methodology with the simultaneous application of Behavior Driven Development (BDD) and Test Driven Development (TDD) in each sprint iteration. BDD was applied in the External Loop using the Gherkin format with a Given-When-Then structure to bridge communication between developers and non-technical stakeholders, while TDD was applied in the Internal Loop through a Red-Green-Refactor cycle using PHPUnit to ensure code quality. The system was built using the Laravel framework with a MySQL database and encompasses twelve functional domains, including product management, POS transactions, automated financial reporting, supplier and stock management, e-commerce, CRM, digital prescription management, employee administration, payroll, analytics dashboard, and audit trail. Test results showed a BDD scenario acceptance rate without major revisions of 86.84% with an average stakeholder satisfaction score of 4.39 out of 5, and all 715 unit tests with 2,055 assertions were executed successfully without any failures. The resulting system proved effective in improving operational efficiency, reducing manual recording errors, and strengthening Pasyha Pharmacy's competitiveness in the digital market.

Keywords: Behavior Driven Development (BDD), Enterprise Resource Planning(ERP), Hybrid Agile, Pharmacy Information System, Test Driven Development (TDD)

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Surabaya, May 24th 2026

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