

Test Plan for ByteKart Python Inventory Management System

Project Overview

Project Name: ByteKart Python Inventory Management System

Project Objective: To develop a user-friendly inventory management system with features tailored for small businesses, including inventory tracking, checkout, and sales reporting.

Target Users: Admin and Cashier roles.

Scope of Testing

This test plan covers functional, non-functional, and user acceptance testing to ensure the system meets specified requirements. Testing will validate the following:

1. User authentication for Admin and Cashier roles.
 2. Core inventory management functionalities (Add, Update, Delete, View).
 3. Checkout and bill generation.
 4. Sales reporting and analytics.
 5. GUI usability and performance.
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Test Objectives

1. Ensure the system functions as per the functional requirements.
 2. Identify and fix defects before deployment.
 3. Validate usability, performance, and security aspects.
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Test Deliverables

- Test Plan Document
 - Test Cases Document
 - Bug Report
 - Final Test Summary Report
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Testing Methodology

- **Functional Testing:** Validate features against requirements.
 - **Integration Testing:** Ensure modules interact seamlessly.
 - **GUI Testing:** Verify interface usability and responsiveness.
 - **User Acceptance Testing (UAT):** Confirm system usability for Admin and Cashier roles.
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Roles and Responsibilities

Role	Responsibility
Test Lead	Develop and oversee the test plan execution.
QA Engineer	Design test cases, execute tests, and report bugs.
Developer	Fix defects and ensure successful re-testing.
End Users (UAT Team)	Conduct user acceptance testing.

Test Environment

- **Operating System:** Windows 10 or later
 - **Python Version:** Python 3.10+
 - **Database:** SQLite
 - **IDE:** Visual Studio Code
 - **Tools:**
 - Tkinter for GUI testing
 - SQLite Viewer for database verification
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Test Schedule

Phase	Start Date	End Date
Test Planning	Day 1	Day 2
Test Case Development	Day 3	Day 5
Test Execution	Day 6	Day 10
Defect Reporting & Fixes	Day 6	Day 12
UAT	Day 13	Day 14

Test Scenarios and Acceptance Criteria

1. User Authentication

- **Test Scenario:** Validate login functionality for Admin and Cashier.
- **Acceptance Criteria:**
 - Correct credentials allow login based on roles.
 - Incorrect credentials display an error message.
 - Admin has full access; Cashier has restricted access.

2. Inventory Management

- **Test Scenario 1:** Add a new inventory item.
 - **Acceptance Criteria:** Item is added with correct details (name, price, quantity).
- **Test Scenario 2:** Update item quantity.
 - **Acceptance Criteria:** Item quantity is updated correctly.
- **Test Scenario 3:** Delete an inventory item.
 - **Acceptance Criteria:** Item is removed from the database.
- **Test Scenario 4:** View stock levels.
 - **Acceptance Criteria:** Current stock is displayed accurately.

3. Checkout Process

- **Test Scenario 1:** Select items and generate a bill.
 - **Acceptance Criteria:**
 - Total price calculation is accurate.
 - Bill displays purchased items, quantities, and prices.
 - Inventory updates after checkout.

4. Sales Reporting

- **Test Scenario:** Generate sales reports.
 - **Acceptance Criteria:**
 - Report displays best-selling items.
 - Total sales data aligns with transaction history.

5. GUI Testing

- **Test Scenario 1:** Verify navigation and layout.
 - **Acceptance Criteria:**
 - All buttons and links function correctly.
 - GUI layout is visually appealing and responsive.
- **Test Scenario 2:** Verify error messages.

- Acceptance Criteria:
 - Proper error messages appear for invalid inputs or system errors.

6. Performance Testing

- Test Scenario: Validate system performance under load.
 - Acceptance Criteria:
 - System remains responsive with 100+ inventory items.
 - Sales report generation completes within 5 seconds.

7. Security Testing

- Test Scenario: Test user authentication and data protection.
 - Acceptance Criteria:
 - Passwords are stored securely.
 - Unauthorized users cannot access restricted functionalities.

Test Cases

Test Case ID	Test Scenario	Steps	Expected Result
TC001	Login as Admin	Enter valid admin credentials and click "Login".	Admin Dashboard opens with full access.
TC002	Login as Cashier	Enter valid cashier credentials and click "Login".	Cashier Dashboard opens with limited access.
TC003	Add Inventory Item	Fill item details (name, price, quantity) and click "Add".	Item appears in inventory list.

Test Case ID	Test Scenario	Steps	Expected Result
TC004	Generate Bill	Select items and quantities, click "Generate Bill".	Bill displays items, quantities, prices, and total; inventory updates accordingly.
TC005	View Sales Report	Navigate to "Reports" and generate a sales report.	Report displays accurate data for sales transactions, including best-selling items and total revenue.

Defect Management

- All defects will be logged in a bug tracker.
- Defects will be categorized by severity (Critical, High, Medium, Low).
- Developers will address issues based on priority.

Exit Criteria

- All critical and high-severity defects resolved.
- 100% of test cases executed with at least 95% passing rate.
- UAT sign-off received from key stakeholders.

Sign-Off

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Date:10/24/2024