**Test Plan**

(IEEE 829 Format)

**Test Plan Identifier**

* **Identifier:** AutomatedEquipmentCheckoutSystem\_TestPlan\_v2.0
* **Date:** December 8, 2024
* **Version: 2.0**
* **Author:** Victor Camacho

**Introduction**

* **Purpose:**

This test plan outlines the testing approach for the Automated Equipment Checkout System. The plan covers unit and integration testing for functionalities such as user authentication, check-in and check-out processes, overdue notifications, and equipment status updates. The purpose of this plan is to ensure that all features meet the specified requirements outlined in the IEEE 830 SRS and function correctly within the overall system architecture.

* **Scope:**

This test plan applies to all the Automated Equipment Checkout System's main functionalities, including employee equipment checkouts, returns, real-time status views, loss reporting, and report generation for management.

* **References:**
  + Business Problem Scenario
  + Software Requirements Specification (SRS)
  + UML Diagrams (Use Case, Class, and VOPC Matrix)
* **Assumptions:**
  + The testing environment is fully configured and accessible before testing.
  + Test data accurately reflects real-world conditions.
  + All necessary team members are available to support test execution as scheduled.

**Test Items**

* **List of Test Items:**
  + User Authentication: Ensure secure login with unique credentials (REQ-001).
  + Equipment Check-In and Check-Out: Validate accurate updates to equipment status (REQ-002, REQ-003).
  + Real-Time Equipment Status Updates: Confirm functionality for tracking availability, in-use, and overdue statuses (REQ-004).
  + Overdue Notifications: Verify automatic notifications for overdue equipment (REQ-005).
  + Generate Usage Reports: Test the system’s ability to generate management reports highlighting trends (REQ-006).
  + Logging Transactions: Ensure accurate recording of all equipment transactions for accountability (REQ-008).
* **Description:** Each item is a functional component outlined in the requirements and supported by UML diagrams. Testing will validate these functions for accuracy, reliability, and user acceptance.

**Features To Be Tested**

* **User Authentication**: The system should authenticate users with unique credentials to ensure secure access.  
  **Risk Level**: High Risk
* **Checkout Equipment**: Employees should be able to check out equipment by entering their ID, and the system should accurately update the equipment status to "checked out."  
  **Risk Level**: High Risk
* **Return Equipment**: Employees should return equipment, and the system should update the status to "available" for future use.  
  **Risk Level**: High Risk
* **View Equipment Status**: Supervisors should view real-time status and location information for all equipment.  
  **Risk Level**: Medium Risk
* **Overdue Notifications**: Supervisors and managers should receive automatic notifications when equipment is overdue for return.  
  **Risk Level**: High Risk
* **Generate Report**: Supervisors should generate and export reports on equipment usage and status in PDF or Excel format.  
  **Risk Level**: Medium Risk

**Features Not To Be Tested**

* **Front-end design elements:** The focus is strictly on functionality.
* **Advanced error handling:** Out of scope for this testing phase.

**Approach**

* **Unit Testing**: Test individual classes (e.g., User, Checkout, Equipment) to ensure they function as expected in isolation.
* **Integration Testing**: Validate the interaction between modules, such as User authentication and equipment check-out workflows.
* **Black-Box Testing**: Evaluate functionalities without examining internal code structures.
* **White-Box Testing**: Analyze the flow of logic within the code for critical components.

**Item Pass/Fail Criteria**

* A test passes if all expected outputs match the actual results as defined in the test cases document.
* A test fails if there is any deviation from the expected results.

**Suspension Criteria And Resumption Requirements**

* **Suspension:** Tests will be suspended if critical defects block further execution.
* **Resumption:** Testing will resume after defects are resolved and verified**.**

**Test Deliverables**

* Completed test cases document based on IEEE Standard 829.
* Test results summary, including pass/fail status for all test cases.
* Updated source code with test artifacts.

**Test Tasks**

* **Unit Testing:** December 4, 2024
* **Integration Testing:** December 6, 2024

**Responsibilities**

* **Tester:** Victor Camacho
* **Test Case Creator:** Victor Camacho

**Risks and Contingencies**

* Limited time for testing may result in incomplete defect detection.
* Changes to requirements during testing may introduce unexpected issues.

**Approvals**

**Approved by: Victor Camacho  
Date: December 8, 2024**