**Backwoods Regional Library System**

Version Information

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| **Version** | **Date** | **Remarks** | **Author** |
| 1.0 | 29/09/2019 | Master Plan | Anubodh Karki |

# Management summary

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| This document represent Master Test Plan for the Backwoods Regional Library System Project**.**  **Project objective**  The project objective is to render a functional library system that incorporates usage of various hardware devices to enable a patron to borrow book and assess loan while identifying patrons having withstanding loans or overdue books. In addition, the system enables the librarian to have whole access for adding or removing library items, patrons, handling the fine etc. |
| **Test objective**  The test objective is to finding defects and prevent it. The objective is also to ensure the Business Requirement Specification and System Requirement Specification are attained and the end result is in conformance with business and user requirements. |
| **Short description of the test approach**  The test approach uses a java based mocking framework Mockito alongside another framework JUnit. It enables creating objects which are of service. Any external dependencies are omitted and a dummy data is returned by mock objects. The executed code is then validated. |
| **Qualitative objectives**  Every test level should be finished on schedule. It should be clear for every system object in the event that it is in conformance with criteria of acceptance. |

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# Introduction

## Project and project objective

Backwoods Regional Library System Project aims in creating a functional system for library personnel and library members a decent level of usability. The system is expected to enable patrons to borrow books via usage of a scanner. The system also includes monitoring of the loan and imposing library fines while allowing the librarian to have whole access for adding or removing library items, patrons, handling the fine etc.

## Objective of the master test plan

The goal of the Master Test Plan is to notify everyone who are engaged with the test procedure about the methodology, the exercises, including the shared relations and dependencies, and a completely utilitarian framework to be provided for Backwoods Regional Library System(BRLS) Project This plan portrays the methodology, the exercises and final results that need further briefing in the other system test plans. Abstraction from the master test plan is required by system test plan altogether.

# Documentation

## Basis for the master test plan

The basis for this master test plan used documents provided on BRLS.

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| **Document name** | **Version** | **Date** | **Author** |
| BRLS Vision | 201960 | 27/08/2019 | Backwoods Correctional Centre Software Development Corporation |
| BRLS Architecture Notebook | 201960 | 27/08/2019 | Backwoods Correctional Centre Software Development Corporation |

## Test basis

The test basis is in conformance to:

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| --- | --- | --- | --- |
| **Document name** | **Version** | **Date** | **Author** |
| BRLS – Borrow Book – Entity Class Software Specification | 1.0 | 29/08/2019 | Backwoods Correctional Centre Software Development Corporation |
| BRLS – Borrow Book – Full Use Case Description | 1.0 | 29/08/2019 | Backwoods Correctional Centre Software Development Corporation |

# Test strategy

Critical aspects of the program is strategized to be tested i.e. classes that are of primary prospects namely Book, Borrow, Library, Loan and Patron. Similarly, non-critical prospects, such as fine, return book shall be omitted from testing as they are of secondary priority and without which the system still performs its primary objective i.e. allowing patrons to borrow book(s). The aforementioned critical classes is where the core business value lies and is the basis of the overall system, so their testing is prioritized over the rest. Also this test strategy is in conformation with the principle of the test strategy where effective choice, efficiency and risk factor are taken into utmost consideration.

## Product risk analyses

The functional requirement for the library system enables adding patron, adding books, take out loan for patron to enable borrowing the book and the patron upon having more than specified books or loans is halted from further borrowing .

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| --- | --- | --- | --- |
| **Product Risk** | **Description** | **Characteristic** | **Classification** |
| 1. | Add books | Functionality | Low chance of failure |
| 2. | Add Patrons | Functionality | Low chance of failure |
| 3. | Take out loan | Functionality | Low chance of failure |

## Risk analyses

## Test strategy

The critical elements of the system are library, patron, book, loan whereas fine and increment data the least critical. The critical elements are at the highest risk and should be prioritized to cover the risks as earliest as possible in the test project. Approach

## Test levels

For this MTP the following test levels are acknowledged:

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| --- | --- |
| **Test level** | **Goal** |
| Unit test | Book, Library, Loan, Patron |
| Integration test | BorrowBook |

### Goal

The goal of the testing is to asses compliance of the system to Backwood Regional Library System specification.

### Short description

The test covers critical aspects of the library system which enables valid patron to borrow book(s) from the library. Those classes of priority being Book, Borrow Book, Library, Loan and Patron. The test is to carried out using java based mocking framework Mockito alongside another framework JUnit. It is to be carried out in organized and well named manner and good structure namely arrange, act, assert internal structure. The tests are isolated and test for error condition is to be included. Each test is supposed to have one assert per test. Lastly, the tests are to be separated from production code.

## Entrance and exit criteria for each test level

Entry Criteria:

* Facilitation of the testable code
* Adequately defined and verified requirements.
* Preparedness of test data.
* Set up of test environment with proper resources
* Assessment to make sure the preconditions are fulfilled.

Exit Criteria:

* Sureness of test cases passing
* Attain functional coverage
* Identification and fixation of prioritized defects
* Fixation of all critical defects
* Re-testing and closure of defects.

## Test environments

Test environment is isolated from the natural code environment. This is useful in unveiling unrequired dependencies among the code that is being tested and rest of the units in the product. Thus, those dependencies can be eradicated.

## Defects procedure

Upon confrontation with defect, the defect will be raised with a status “New”, the validity of the defect would then be confirmed, followed by whether to process it or omit it altogether. A defect log is then maintained followed by marking it as known defect and attempted for its reproducibility to verify its occurrence. The defect would then be fixed and its correspondence is assessed. It would then be readily tested and upon creating no further issue, will be marked as defect being closed.