

Library Management System

Software Testing

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**Black-Box Testing for Issue Book Module:**

Test Case 1: Number of books allowed to be issued at once by a single user.

**Division of Input Domain**: (Equivalence Classes)

EC1: 0 to 4 🡪 Valid domain.

EC2: 5 🡪 Valid domain.

EC3: Greater than 5 🡪 Invalid domain.

EC4: Lesser than 0 🡪 Invalid domain.  
EC5: Empty 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 Allow user to issue more books.  
For EC2: Expected output 🡪 Ask user to return a book to issue more.

For EC3: Expected output 🡪 Alert for invalid data.  
For EC4: Expected output 🡪 Alert for invalid data.

For EC5: Expected output 🡪 Alert for invalid data.

Test Case 2: Number of days allowed to keep a book issued.

**Division of Input Domain**: (Equivalence Classes)

EC1: 0 to 30 🡪 Valid domain.

EC2: Greater than 30 🡪 Invalid domain.

EC3: Lesser than 0 🡪 Invalid domain.  
EC4: Empty 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 User returned book on time.  
For EC2: Expected output 🡪 Calculate fine at Rs. 50 per day over the due date.

For EC3: Expected output 🡪 Alert for invalid data.  
For EC4: Expected output 🡪 Alert for invalid data.

Test Case 3: Issue a **specific book** to a member.

**Division of Input Domain**: (Equivalence Classes)

EC1: Book not issued by another member 🡪 Valid domain.

EC2: Book issued by another member 🡪 Invalid domain.

EC3: Empty 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 Issue book to the member and store in database.  
For EC2: Expected output 🡪 Alert book already issued by another member.

For EC3: Expected output 🡪 Alert for invalid book.

Test Case 4: Issue book to a **specific member**.

**Division of Input Domain**: (Equivalence Classes)

EC1: Member ID found in database 🡪 Valid domain.

EC2: Member ID not found in database 🡪 Invalid domain.

EC3: Empty Member ID 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 Issue book to the specific member and store in database.  
For EC2: Expected output 🡪 Alert invalid Member ID used.

For EC3: Expected output 🡪 Alert for invalid data entry.

**Black-Box Testing for Return Book Module:**

Test Case 5: Return a **specific book** issued by a member.

**Division of Input Domain**: (Equivalence Classes)

EC1: Book issued by a member 🡪 Valid domain.

EC2: Book not issued by any member 🡪 Invalid domain.

EC3: Empty 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 Return book issued by the member and update the database.  
For EC2: Expected output 🡪 Alert book not issued by any member.

For EC3: Expected output 🡪 Alert for invalid book.

Test Case 6: Return a book to a **specific member**.

**Division of Input Domain**: (Equivalence Classes)

EC1: Book issued to the specific Member ID found in database 🡪 Valid domain.

EC2: Book issued to the specific Member ID not found in database 🡪 Invalid domain.

EC3: Empty Member ID 🡪 Invalid domain.

**Division of Output Domain:** (Equivalence Classes)  
For EC1: Expected output 🡪 Return book by the specific member and store in database.  
For EC2: Expected output 🡪 Alert book not issued by the specific Member ID.

For EC3: Expected output 🡪 Alert for invalid data entry.