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| **Test Name** | | Swipe Borrower Card Test | | | | | | | | |
| **Use Case Tested:** | | Borrow Book | | | | | | | | |
| **Test Description:** | | Test results of swiping card with members under different states. | | | | | | | | |
| **Pre-conditions** | | * cardReader exists, is visible and enabled * BorrowBookCTL added as listener to cardReader * memberDAO exists * BorrowBookCTL state == ***INITIALIZED*** | | | | | | | | |
| **Post-conditions** | | * **Member exists and not restricted** * Scanning panel of BorrowBookUI displayed * Complete, Cancel buttons enabled * cardReader is disabled * scanner is enabled * borrower details displayed * existing loans displayed * scan count initialized as number of * existing loans * existing fine message displayed if relevant * BorrowBookCTL state == ***SCANNING\_BOOKS*** * **Member exists and is restricted**   + Restricted panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is disabled   + borrower details displayed   + existing loans displayed   + existing fine message displayed if relevant   + overdue message displayed if relevant   + atLoanLimit message displayed if relevant   + borrowing restricted error message displayed   + BorrowBookCTL state == ***BORROWING\_RESTRICTED*** * **Member doesn’t exist** * Member doesn’t exist error shown | | | | | | | | |
| **TEST STEP** | | | | **EXPECTED TEST RESULTS** | | | P | F |
| Test 1 – member exists, no restrictions | | | | | | | | |
| 1. Enter memberID.(1) | | | | * Scanning panel of BorrowBookUI displayed * Complete, Cancel buttons enabled * cardReader is disabled * scanner is enabled * borrower details displayed * existing loans displayed * scan count initialized as number of * existing loans * existing fine message displayed if relevant * BorrowBookCTL state == ***SCANNING\_BOOKS*** | | | X |  |
| 1. Continue onto next operation. | | | |  | | |
| Test 2 – member exists, borrowing restricted | | | | | | | | |
| 1. Enter memberID (2, or any memberID whom has borrowing restricted). | | | | * Restricted panel of BorrowBookUI displayed * Cancel button enabled * cardReader is disabled * scanner is disabled * borrower details displayed * existing loans displayed * existing fine message displayed if relevant * overdue message displayed if relevant * atLoanLimit message displayed if relevant * borrowing restricted error message displayed * BorrowBookCTL state == ***BORROWING\_RESTRICTED*** | | | X |  |
| 1. Click cancel | | | | * Main menu screen displayed | | |
| Test 3 – member doesn’t exist | | | | | | | | |
| 1. Enter memberID (999 or any memberID not in the system) | | | | * Display error message “MemberID (ID) not found” | | | X |  |
| Test Data Table | | | | | | | | | |
|  | Test 1 | | Test 1 | | Test 1 |  | | | |
| MemberID | 1 | | 2 | | 999 |  | | | |

| **Test Name** | Begin Use Case Test | | | | |
| --- | --- | --- | --- | --- | --- |
| **Use Case Tested:** | Borrow Book | | | | |
| **Test Description:** | Test results of initializing the program. | | | | |
| **Pre-conditions** | * BorrowBookCTL class exists * memberDAO exists * loanDAO exists * bookDAO exists * display exists * cardReader exists * scanner exists * printer exists * BorrowBookCTL added as listener to cardReader and scanner * BorrowBookCTL state == ***CREATED*** | | | | |
| **Post-conditions** | * BorrowBookUI is displayed * SwipeCard panel of BorrowBookUI displayed * Cancel button enabled * cardReader is enabled * scanner is disabled * BorrowBookCTL state == ***INITIALIZED*** | | | | |
| **Notes** | This operation cannot fail unless code is manipulated. | | | | |
| **TEST STEP** | | **EXPECTED TEST RESULTS** | P | F |
| Test 1 – Start program without fail | | | | |
| 1. Run application | | * BorrowBookUI is displayed * SwipeCard panel of BorrowBookUI displayed * Cancel button enabled * cardReader is enabled * scanner is disabled * BorrowBookCTL state == ***INITIALIZED*** | X |  |

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| Test Data Table | | | | |
|  | Test 1 |  |  |  |
| - | - |  |  |  |

| **Test Name** | Scan Book Test | | | | |
| --- | --- | --- | --- | --- | --- |
| **Use Case Tested:** | Borrow Book | | | | |
| **Test Description:** | Test results of adding a book/books to list of intended/pending loans. | | | | |
| **Pre-conditions** | * BorrowBookCTL class exists * scanner exists * BorrowBookCTL added as listener to scanner * BorrowBookCTL state == ***SCANNING\_BOOKS*** | | | | |
| **Post-conditions** | * **Book not found**   + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book not found error message displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** * **Book not available**   + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book not available error message displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** * **Book already scanned**   + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book already scanned error message displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** * **Scan count < loan limit**   + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + scanCount incremented by 1   + scanned books details displayed   + new pending loan created   + pending loan added to pending loan list   + Current pending loan list displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** * **Scan count == loan limit**   + BorrowBookUI is displayed   + ConfirmingLoans panel of BorrowBookUI displayed   + final pending loan list displayed   + Cancel button enabled   + Reject button enabled   + cardReader is disabled   + scanner is disabled   + scanCount incremented by 1   + BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | | |
| **TEST STEP** | | **EXPECTED TEST RESULTS** | P | F |
| Test 1 – Scan one book, not exceeding loan limit | | | | |
| 1. Scan book (book1) | | * + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book details displayed   + new pending loan created   + pending loan added to pending loan list   + Current pending loan list displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| 1. Continue onto next operation. | |  |
| Test 2 – Scan two books, not exceeding loan limit | | | | |
| 1. Scan books (book1, book2) | | * + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + Both book details displayed   + new pending loans created   + pending loans added to pending loan list   + Current pending loan list displayed after each book is scanned   + BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| 1. Continue onto next operation. | | | | |
| Test 3 – Scan book, book not found | | | | |
| 1. Scan book (book3) | | * + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book not found error message displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| Test 4 – Scan book, book not available | | | | |
| 1. Scan book (book4) | | * + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + book not available error message displayed   + BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| Test 5 – Scan book, book already scanned | | | | |
| 1. Scan book (book1) | | * + BorrowBookUI is displayed   + Scanning panel of BorrowBookUI displayed   + Cancel button enabled   + cardReader is disabled   + scanner is enabled   + BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| 1. Scan book (book1) | | * + Book already scanned error message displayed |
| Test 6 – Scan book, loan limit exceeded | | | | |
| 1. Scan books (book1, book2, book3, book4, book5) | | * BorrowBookUI is displayed * Scanning panel of BorrowBookUI displayed * Cancel button enabled * cardReader is disabled * scanner is enabled * book details displayed * new pending loan created * pending loan added to pending loan list * Current pending loan list displayed * final pending loan list displayed * Display confirmation * BorrowBookCTL state == ***SCANNING\_BOOKS*** | X |  |
| 1. Scan book (book6) | | * Display borrowing restrictions notice * Display error that member cannot borrow. |  |  |

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| Test Data Table | | | | | | |
|  | Test 1 | Test 2 | Test 3 | Test 4 | Test 5 | Test 6 |
| Book | book1 details (author, title, call Number, ID) | book2 details (author, title, call Number, ID) | book3 details (author, title, call Number, ID) | book4 details (author, title, call Number, ID) | book1 details (author, title, call Number, ID) | book1, book2, book3, book4, book5 and book6 details (author, title, call Number, ID)  Member |

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| **Test Name** | | Complete Scans Test | | | | | | | | |
| **Use Case Tested:** | | Borrow Books | | | | | | | | |
| **Test Description:** | | Test results of finishing scanning books. | | | | | | | | |
| **Pre-conditions** | | * BorrowBookCTL class exists * Pending loan list exists * BorrowBookCTL state == ***SCANNING\_BOOKS*** | | | | | | | | |
| **Post-conditions** | | * BorrowBookUI is displayed * Confirming Loan panel of BorrowBookUI is displayed * List of pending loans displayed * Cancel button enabled * cardReader is disabled * scanner is disabled * BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | | | | | | |
| **TEST STEP** | | | | **EXPECTED TEST RESULTS** | | | P | F |
| Test 1 – Complete scans successfully | | | | | | | | |
| 1. Click completed. | | | | * BorrowBookUI is displayed * Confirming Loan panel of BorrowBookUI is displayed * List of pending loans displayed * Cancel button enabled * cardReader is disabled * scanner is disabled * BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | X |  |
| 2. Continue to next operation. | | | | | | |
| Test 2 – Automatic completion due to loan limit met | | | | | | | | |
| 1. Scan 5 books (book1, book2, book3, book4, book5) | | | | * BorrowBookUI is displayed * Confirming Loan panel of BorrowBookUI is displayed * List of pending loans displayed * Cancel button enabled * cardReader is disabled * scanner is disabled * BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | X |  |
| 2. Continue to next operation. | | | | | | |
| Test Data Table | | | | | | | | | |
|  | Test 1 | | Test 2 | | Test 3 |  | | | |
| Book | - | | book1, book2, book3, book4, book5 and book6 details (author, title, call Number, ID) | |  |  | | | |

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| **Test Name** | | Confirm Loans Test | | | | | | | | |
| **Use Case Tested:** | | Borrow Book | | | | | | | | |
| **Test Description:** | | Test results of completing the borrowing book process. | | | | | | | | |
| **Pre-conditions** | | * BorrowBookCTL class exists * Pending loan list exists * BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | | | | | | |
| **Post-conditions** | | * Main Menu is displayed * All pending loans are committed and recorded * Loan slip of committed loans printed * cardReader is disabled * scanner is disabled   BorrowBookCTL state == ***COMPLETED*** | | | | | | | | |
| **TEST STEP** | | | | **EXPECTED TEST RESULTS** | | | P | F |
| Test 1 – Confirm loans successfully | | | | | | | | |
| 1. Click confirm | | | | * Main Menu is displayed * All pending loans are committed and recorded * Loan slip of committed loans printed * cardReader is disabled * scanner is disabled * BorrowBookCTL state == ***COMPLETED*** | | | X |  |
| Test 2 – Cancel instead of confirming loans | | | | | | | | |
| 1. Click cancel | | | | * Main Menu is displayed * All pending loans deleted * BorrowBookCTL state == ***INITIALIZED*** | | | X |  |
| Test Data Table | | | | | | | | | |
|  | Test 1 | | Test 2 | | Test 3 |  | | | |
| - | - | |  | |  |  | | | |

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| **Test Name** | | Reject Loans | | | | | | | | |
| **Use Case Tested:** | | Borrow Book | | | | | | | | |
| **Test Description:** | | Test results of rejecting the current list of pending loans and start the scanning process again | | | | | | | | |
| **Pre-conditions** | | * BorrowBookCTL class exists * Pending loan list exists * BorrowBookCTL state == ***CONFIRMING\_LOANS*** | | | | | | | | |
| **Post-conditions** | | * BorrowBookUI is displayed * Scanning panel of BorrowBookUI displayed * Borrower details displayed * Existing loan details displayed * pending loan list is empty * scan count == number of existing loans * Cancel button enabled * cardReader is disabled * scanner is enabled * BorrowBookCTL state == ***SCANNING\_BOOKS*** | | | | | | | | |
| **TEST STEP** | | | | **EXPECTED TEST RESULTS** | | | P | F |
| Test 1 – Reject Loans | | | | | | | | |
| 1. Click reject | | | | * BorrowBookUI is displayed * Scanning panel of BorrowBookUI displayed * Borrower details displayed * Existing loan details displayed * pending loan list is empty * scan count == number of existing loans * Cancel button enabled * cardReader is disabled * scanner is enabled * BorrowBookCTL state == ***SCANNING\_BOOKS*** | | | X |  |
| Test 2 – Cancel instead of rejecting loans | | | | | | | | |
| 1. Click cancel | | | | * Main Menu is displayed * All pending loans deleted * BorrowBookCTL state == ***INITIALIZED*** | | | X |  |
| Test Data Table | | | | | | | | | |
|  | Test 1 | | Test 2 | | Test 3 |  | | | |
| - | - | |  | |  |  | | | |