**System Name:**

Simple library system

**System Description:**

Developing a system for a small library that enables librarians who are working at a work station to perform the following:

* The librarian should be able to register (add) a new person , which would like to join the library, to the library membership.
  + The new application needs to be verified by a senior librarian during the registration process.
* The librarian should be able to manage the processes of an existing member borrowing a book from the library and an existing member returning a book to the library.
* The librarian should be able to get a status of an existing member by scanning the barcode on the member’s library card.
  + The status of a member includes:
    - Card number
    - Person information:
      * forename & surname
      * address
      * phone number
      * fax
      * email address
    - list of borrowed books and return dates
    - includes possible fines at a fixed rate
* The librarian should be able to retrieve details of a book by scanning the barcode of the book.
  + The data that is retrieve includes:
    - Unique book number
    - Title
    - Author
    - ISBN
    - Year of publication
  + A borrowed book is marked as unavailable and the card number of the borrow is included.
* Receive a fine that has been paid by a member and updating the member’s status.
  + The system must interact with accounting software to record the detail of money paid to the library.
  + Only a senior librarian is allowed to void a fine.

**List of Actors:**

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| Senior Librarian: | The Senior Librarian actor handles the verifications in the system in which include: ensuring the verification of a *librarian’s* registration of a new person that would like to be added to the library’s membership; ensuring that fines that *members* receive due to late returns is valid. |
| Librarian: | The librarian actor is the main actor of the system and handles the majority of the system functions: the management of members (add, modify & delete); rental of books; verification of *member’s* status. |
| Member: | The member actor is handles their own record details via their library card and interacts with the *librarian* to borrow or return books and to pay fines. |
| Accounting System: | The accounting system is a system that is referenced when a fine is being paid by the *member*. The system must interact with an accounting software to record the detail of money paid to the library. |

**List of Use Cases:**

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| ***Title:*** | ***Description*** | |
| **Member’s Library Membership** | | |
| Scan Member’s Library Card | A member has scanned their library card or a librarian has scanned a member’s card and has identified either: a possible fine that the member is being charged for books being returned late; retrieved the member’s details. | |
| Check Fine | The system refers a senior librarian to verify that the fine being charged to a member is valid. The senior librarian is able to void any fines under certain circumstances. | |
| Charge Account | The system charges the member with the fine by interacting with an accounting software, that records the detail of money being paid by the member. Once the fine has been paid or void, the member’s status is updated. | |
| **Management of Member Records** | | |
| Manage Member Records | Librarians are able to manage the member’s records that are stored in the system. The system allows the librarian to add, modify or delete member records. | |
| Add Member Record | A librarian has identified a person that wishes to become a library member. The librarian will add a record holding the person’s card details: card number; her personal info, such as name, address, phone, fax and email. This record will be sent off for verification by a senior librarian. | |
| Modify Member Record | A librarian has identified a member that wishes to update or change their details stored in the system. The librarian is able to modify details, such as, as name, address, phone, fax and email. | |
| Delete Member Record | A librarian has identified a member that is no longer going to the library or has expressed that they do not want to be part of the library any longer and wishes their record to be deleted, so the librarian is able to remove this record. | |
| Verification | A librarian has submitted a record for a new member and wishes that the record can be verified so that the new member can start borrowing books. | |
| **Borrowing and returning process** | | |
| Scan Book’s Barcode | A librarian has scanned a book and has identified: that a member would like to know more about the book (retrieve book details); a member would like to check availability, so that they are able to borrow the book; verify the issue count or a member wishes to return a book. | |
| Retrieve book details | A book has been scanned into the system and the system outputs the book’s details. Such details includes a unique book number, title, author, ISBN, year of publication. A borrowed book is marked as unavailable and the card number of the borrower is included. | |
| Availability | A book has been identified by the system and the librarian would like to know the availability of the book. | |
| Issue Book | A book has been identified and the librarian would like to issue the book to a member. An issued book is marked as unavailable and the card number of the borrower is included. | |
| Renew Book | A book has been identified and is being returned, however the member wishes to renew the book, so the librarian is able to re-issue the book to the same member. | |
| Return Book | A book has been identified that is unavailable, thus the book is being returned. The system changes the status of the member and the status of the book and then checks if there is any fine for late return. | |
| **Member’s Status** | | |
| Retrieve Member’s Status | The system has identified that an action has taken place that requires the status of the member to be updated. The system also allows the librarian to retrieve the member’s details. | |
| Retrieve member’s details | The system has identified that the librarian would like to retrieve the member’s details and has displayed the details: card number; her personal info, such as name, address, phone, fax and email. | |
| Use Case Name | | Scan Member’s Library Card |
| Participating Actor(s) | | Member, Librarian |
| Flow of Events | | Normal path:   1. Member askes librarian to check their membership (fines / retrieve details) 2. Member gives librarian their membership card to scan 3. Librarian scans the member’s card   Alternative path:   1. Member askes librarian to check their membership (fines / retrieve details) 2. Member scans their membership card |
| Entry Condition(s) | | Member scans the card  Librarian scans the card |
| Exit Condition(s) | | Librarian has retrieve account details |

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| Use Case Name | Check Fine |
| Participating Actor(s) | Senior Librarian, |
| Flow of Events | Normal path:   1. Member’s details are retrieved from the system identifying that there is a fine 2. The details are sent to a senior librarian 3. The senior librarian checks to see if the fine is valid 4. The fine is valid and the member is charged 5. The system updates the member’s status   Alternative path:   1. Member’s details are retrieved from the system identifying that there is a fine 2. The details are sent to a senior librarian 3. The senior librarian checks to see if the fine is valid 4. The fine is not valid and the member is not charged 5. The system updates the member’s status |
| Entry Condition(s) | Member is returning a book  Member’s library book has been scanned and a fine is found |
| Exit Condition(s) | Senior librarian has found that the fine is void  Senior librarian has not found that the fine is void |

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| Use Case Name | Charge Account |
| Participating Actor(s) | Accounting Software  Member |
| Flow of Events | Normal path:   1. The member has been charge with a fine 2. The system interacts with an accounting software to record the detail of money paid to the library 3. The member pays the amount 4. The system updates the member’s status |
| Entry Condition(s) | A senior librarian has found that the fine was not void |
| Exit Condition(s) | Member has paid their fine |

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| Use Case Name | Manage Member Records |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal Path   1. The Librarian enters the system 2. The librarian browses the member’s records 3. The librarian manages the records (add, remove or modify) |
| Entry Condition(s) | Librarian needs to manage the records |
| Exit Condition(s) | Record has been managed |

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| Use Case Name | Add Member Record |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal Path   1. A person has expressed interest in joining the library’s membership 2. The person fills out a form with their details into it 3. The Librarian copies the data from the form to the system in a new member record 4. The new member record is then submitted by the librarian to be verified |
| Entry Condition(s) | Librarian must be managing the records  New person must want to join the library |
| Exit Condition(s) | The record must be filled out  The registration must be cancelled |

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| Use Case Name | Modify Member Record |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal Path   1. A member has expressed interest in modifying their membership 2. The member fills out a form with their new or modified details on it 3. The Librarian copies the data from the form to the system into existing member record. 4. The members record is then saved. |
| Entry Condition(s) | Member would like to modify their membership records |
| Exit Condition(s) | The member’s records were modified |

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| Use Case Name | Delete Member Record |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal Path   1. A member has expressed interest in deleting their membership 2. The member signs a form saying they requested the membership to end 3. The Librarian deletes the member’s record 4. The members record is deleted   Alternative path   1. Member has not used their library card in 5 years and have not expressed interest in using it 2. The librarian will be able to delete the record 3. Record deleted |
| Entry Condition(s) | Member would like to delete their membership records  Member has not been to library in 5 years. |
| Exit Condition(s) | The member’s records were modified |

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| Use Case Name | Verification |
| Participating Actor(s) | Senior Librarian |
| Flow of Events | Normal path   1. A member’s record has been sent to be verified 2. The senior librarian checks the record 3. The senior librarian then approves or disapproves of the record |
| Entry Condition(s) | A record has been created and needs verification |
| Exit Condition(s) | The record has been verified |

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| Use Case Name | Scan Book’s Barcode |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal path   1. A member that wishes to retrieve information on a book, borrow a book or return a book 2. The member hands the book to the librarian 3. The librarian scans the book 4. The system retrieves the books details 5. The system outputs the book’s details |
| Entry Condition(s) | A member wishes to scan a book |
| Exit Condition(s) | The book is found |

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| Use Case Name | Retrieve book details |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal path   1. A member that wishes to retrieve details of a book 2. The member passes the book to the librarian 3. The librarian scans the book 4. The system retrieves the books details 5. The system outputs the book’s details 6. The librarian prints off the details for the member |
| Entry Condition(s) | A member wishes to retrieve a book’s details |
| Exit Condition(s) | The member gets the book’s information |

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| Use Case Name | Availability |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal path   1. A member that wishes to find out if a book is available 2. The member asks the librarian about the book 3. The librarian scans the book / searches 4. The system retrieves the books details 5. The system outputs the book’s details 6. The librarian checks to see if the book is available 7. The librarian tells the member if the book is avaible |
| Entry Condition(s) | A member wishes to find out whether a book is avaliable |
| Exit Condition(s) | The member finds out whether the book is available |

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| Use Case Name | Issue Book |
| Participating Actor(s) | Librarian  Member |
| Flow of Events | Normal path   1. A member that wishes to borrow a book 2. The member hands the book to the librarian 3. The librarian scans the book 4. The system retrieves the books details 5. The system outputs the book’s details 6. The Librarian askes for the member’s Library Card 7. The member gives the librarian their member’s card 8. The librarian scans the member’s card 9. The system updates the member’s status to say they have borrowed a book 10. The system updates the book’s availability 11. The librarian then gives the book the member |
| Entry Condition(s) | A member wishes to borrow a book |
| Exit Condition(s) | The member borrows the book |

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| Use Case Name | Renew Book |
| Participating Actor(s) | Librarian  Member |
| Flow of Events | Normal path   1. A member that wishes to renew a book 2. The member hands the book to the librarian 3. The librarian scans the book 4. The system retrieves the books details 5. The system outputs the book’s details. 6. The system shows that the book is unavailable 7. The Librarian askes for the member’s Library Card 8. The member gives the librarian their member’s card 9. The librarian scans the member’s card 10. The system changes the return date 11. The system updates the book’s availability 12. The librarian then gives the book back to the member |
| Entry Condition(s) | A member wishes to renew a book |
| Exit Condition(s) | The member renews the book |

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| Use Case Name | Return Book |
| Participating Actor(s) | Librarian |
| Flow of Events | Normal path   1. A member that wishes to return a book 2. The member hands the book to the librarian 3. The librarian scans the book 4. The system retrieves the books details 5. The system outputs the book’s details 6. The system shows that the book is unavailable 7. The system updates the member’s status 8. The system updates the book’s availability   Alternative path   1. If the book is returned on a date that is after it’s due date, the member is fined |
| Entry Condition(s) | A member wishes to return a book |
| Exit Condition(s) | The book is returned (doesn’t have to be by member) |

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| Use Case Name | Retrieve Member’s Status |
| Participating Actor(s) | Librarian  Member |
| Flow of Events | Normal path   1. The librarian scans the member’s card 2. The system retrieves the status of the member 3. The system then displays the status of the member   Alternative path   1. The system requires to update the member’s status |
| Entry Condition(s) | Status of member needs to be updated or viewed |
| Exit Condition(s) | Status of member is updated or viewed |

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| Use Case Name | Retrieve member’s details |
| Participating Actor(s) | Librarian  Member |
| Flow of Events | Normal path   1. The librarian scans the member’s card 2. The system retrieves the status of the member 3. The system retrieves the member’s details 4. The system displays the member’s details to the librarian |
| Entry Condition(s) | The member wants to modify their member’s details  Librarian wants to look up member’s details |
| Exit Condition(s) | Members details viewed |