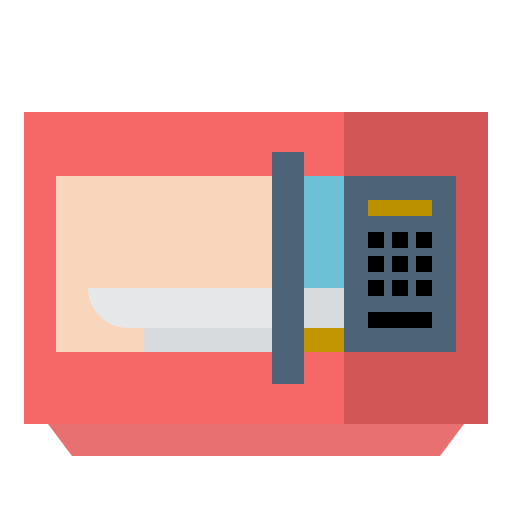
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**MICROWAVE**

# Library Management System

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Project Proposal

Assignment # 1

## Introduction

The library management system will maintain information related to readers and books in a library. It will store data in the SQLite database. For user interface, C# will be used. The details of the project are given below:

## List of Objects

The project mainly consists of following entities.

1. Book
2. User
3. Author
4. Publisher
5. Category
6. Shelf
7. Department
8. Employee
9. Penalties
10. Receipts
11. Popularity
12. State of Existence

*-More classes and methods may be added while the project is progressing.*

**Detailed Functions**

**1. Book**

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the book properities by new values. |
| Add | Adds book to system and user interface. |
| Delete | Deletes book from system. |
| Decrease\_Book\_Count | Decreases book count when a user takes a book. |
| Calculate\_Popularity\_Score | Increases or decreases popularity score when a book is taken or given back. |
| Change\_Popularity\_Stat | Changes popularity status in database according to the popularity score. |
| Give\_Book\_To\_User | Gives the book to a user. |
| Search\_Book\_By\_Name | Searches book by name in database and returns a datatable. |
| Search\_Book\_By\_ID | Searches book by ID in database and returns a datatable. |
| Search\_Book\_By\_Author | Searches book by Author in database and returns a datatable. |
| Search\_Book\_By\_Publisher | Searches book by Publisher in database and returns a datatable. |
| Search\_Book\_By\_Category | Searches book by Category in database and returns a datatable. |
| Search\_Book\_By\_Shelf | Searches book by Shelf in database and returns a datatable. |
| Search\_Book\_By\_Popularity | Searches book by Popularity in database and returns a datatable. |
| Show\_All\_Books | Shows all books in database. |

### 2. User

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the user properities by new values. |
| Add | Adds user to system and user interface. |
| Delete | Deletes user from system. |
| Give\_Book\_Back | Gives a book back to the library. |
| Calculate\_Fee | Calculates fee the user has. |
| Check\_Is\_Valid\_Email | Checks if an email is valid or not. |
| Search\_User\_By\_Name | Searches user by name in database and returns a datatable. |
| Search\_User\_By\_Surname | Searches user by surname in database and returns a datatable. |
| Search\_User\_By\_Email | Searches user by email in database and returns a datatable. |
| Search\_User\_By\_ID | Searches user by ID in database and returns a datatable. |
| Search\_User\_By\_Age | Searches user by age in database and returns a datatable. |
| Show\_All\_Users | Shows all users in database. |

**3. Author**

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the author properities by new values. |
| Add | Adds author to system and user interface. |
| Delete | Deletes author from system |
| Calculate\_Popularity\_Score | Increases or decreases popularity score of that author when him/her book is taken or given back. |
| Change\_Popularity\_Stat | Changes popularity status in database according to the popularity score. |
| Search\_Author\_By\_Name | Searches author by name in database and returns a datatable. |
| Search\_Author\_By\_Nation | Searches author by nation in database and returns a datatable. |
| Search\_Author\_By\_ID | Searches author by ID in database and returns a datatable. |
| Search\_Author\_By\_Gender | Searches author by gender in database and returns a datatable. |
| Show\_All\_Authors | Shows all authors in database.. |

**4. Publisher**

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the publisher properities by new values. |
| Add | Adds publisher to system and user interface. |
| Delete | Deletes publisher from system. |
| Search\_Publisher\_By\_Name | Searches publisherby name in database and returns a datatable. |
| Search\_Publisher\_By\_ID | Searches publisher by ID in database and returns a datatable. |
| Show\_All\_Publishers | Shows all publishers in system. |

**5. Category**

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the category properities by new values. |
| Add | Adds category to system and user interface. |
| Delete | Deletes category from system. |
| Search\_Category\_By\_Name | Searches category by name in database and returns a datatable. |
| Search\_Category\_By\_ID | Searches category by ID in database and returns a datatable. |
| Show\_All\_Categories | Shows all categories in database. |

### 6. Shelf

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the shelf properities by new values. |
| Add | Adds shelf to system and user interface. |
| Delete | Deletes shelf from system. |
| Search\_Shelf\_By\_Name | Searches shelf by name in database and returns a datatable. |
| Search\_Shelf\_By\_ID | Searches shelf by ID in database and returns a datatable. |
| Show\_All\_Shelves | Shows all shelves in database. |

### 7. Department

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Add | Adds department to system and user interface. |
| Edit | Edits the department properities by new values. |
| Delete | Deletes department from database. |
| Show\_All\_Departments | Shows all departments in database. |

### 8. Employee

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Edit | Edits the employee properities by new values. |
| Add | Adds employee to system and user interface. |
| Login | Checks email and password and finds the system manager. |
| Send Email | Sends email to a user or another employee. |
| Delete | Deletes employee from system. |
| Search\_Employee\_By\_Name | Searches employee by name in database and returns a datatable. |
| Search\_Employee\_By\_Surname | Searches employee by surname in database and returns a datatable. |
| Search\_Employee\_By\_ID | Searches book by ID in database and returns a datatable. |
| Search\_Employee\_By\_Email | Searches employee by email in database and returns a datatable. |
| Search\_Employee\_By\_Gender | Searches employee by gender in database and returns a datatable. |
| Search\_Employee\_By\_Department | Searches employee by Department in database and returns a datatable. |
| Show\_All\_Employees | Shows all employees in database. |

### 9. Penalties

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Add | Adds penalty to system and user interface. |
| Delete | Deletes penalty from system. |
| Create\_Penalty\_Message | Creates penalty message to send the user as mail. |
| Search\_Penalty\_By\_Name | Searches penalty card by name in database and returns a datatable. |
| Search\_Penalty\_By\_User\_Name | Searches penalty card by user name in database and returns a datatable. |
| Search\_Penalty\_By\_Librarian\_Name | Searches penalty card by librarian name in database and returns a datatable. |
| Search\_Penalty\_By\_ID | Searches penalty card by ID in database and returns a datatable. |
| Show\_All\_Penalties | Show all penalties in database. |

### 10. Receipts

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Add | Adds receipt card to system and user interface. |
| Delete | Deletes receipt from system. |
| Create\_Receipt\_Message | Creates receipt message to send the user as mail. |
| Search\_Receipt\_By\_Name | Searches receipt by name in database and returns a datatable. |
| Search\_Receipt\_By\_User\_Name | Searches receipt by user name in database and returns a datatable. |
| Search\_Receipt\_By\_Librarian\_Name | Searches receipt by librarian name in database and returns a datatable. |
| Search\_Receipt\_By\_ID | Searches receipt by ID in database and returns a datatable. |
| Shows\_All\_Receipts | Shows all receipts in database. |

### 11. Popularity

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Add | Adds popularity type in database. |
| Edit | Updates popularity type and set new values. |
| Delete | Deletes popularity type from database. |

### 12. State of Existence

|  |  |
| --- | --- |
| **Function Name** | **Description** |
| Add | Adds state type in database. |
| Update | Updates state type and set new values. |
| Delete | Deletes state type from database. |