**Semester Project Documentation**

**Semester Project Title**: **Library Management System**

**Student Details**

(Fill according to number of team/group members)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Student Name | Student Reg # | Student Degree |
| Student-1 | Abdul Mouiz | 2024013 | MGS |
| Student-2 | Emaan Hassan | 2024155 | MGS |
| Student-3 | M. Ayub Khan | 2024301 | MGS |
| Student-4 | Rida Fatima | 2024539 | MGS |

**Main Features**

*(Mention each by numbering as 1, 2, 3 … etc)*

1. Adding a new book to the library.
2. Displaying all the books added by the user.
3. Searching for a book using its ID (automatically assigned).
4. Issuing a book to a user (student).
5. Returning an issued book.
6. Searching for books using their shelf numbers.

**Types of Users**

*(Just Mention the types of users For Example: Teacher, Student … etc)*

1. Library Administrator(s)
2. Students

**Requirements Breakdown**

*(Write requirements of each feature by numbering. For example: Requirements of feature # 1. It will be mentioned as 1.1, 1.2. Similarly for feature # 2 it will be 2.1, 2.2, 2.3 … etc.)*

**Feature #1: Add a Book**

1.1: Takes in book details such as name, author, shelf number and price.

1.2: Create a place where the book ID will be auto given.

1.3: The book count shouldn’t exceed the maximum limit.

**Feature #2: Display All Books**

2.1:Print all books with their details such as their ID, name, author, shelf number, price and issue status.

**Feature #3: Search Book by ID**

3.1: Enter the book’s unique ID and look up the book in the database.

3.2: If the book is found, show relevant details, otherwise, show a message saying that there is no such book here.

**Feature #4: Issue a Book**

4.1: Mark a book as issued when the user inputs the book ID.

4.2: Check first whether the book is already issued and update its status.

**Feature #5: Return a Book**

5.1: Mark the book as returned by accepting its ID.

5.2: Check that the book has been issued before changing the status of the book.

**Feature #6: Search Books by Shelf**

6.1: Input a shelf number to list all books stored on that shelf.

**Features to Codding Matrix**

*(In the following table you will mention the following items for each feature, mention the items in each column for each feature of your application)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Sr  no. | Feature Name | Concept Used | Functions Created | Variables / Obj Created | Line of Code Written |
| 1 | Add a Book | |  | | --- | | Loops, Input Handling |  |  | | --- | |  | | |  | | --- | | addBook() |  |  | | --- | |  | | bookID, bookName, authorName, etc. | Almost 20 |
| 2 | Display All Books | Loops, Conditionals | |  | | --- | | displayBooks() |  |  | | --- | |  | | bookID, bookName, authorName, etc. | Almost 15 |
| 3 | Search Book by ID | Loops, Conditions | searchBookByID() | searchID, found | Almost 15 |
| 4 | Issue a Book | Boolean | returnBook() | isIssued, searchID, found | Almost 20 |
| 5 | Return a Book | Boolean | returnBook() | isIssued, searchID, found | Almost 20 |
| 6 | Search Books by Shelf Number | Loops | searchBookByShelf() | shelfNumber, bookName, authorName | Almost 10 |