**Library Management System**

* **Objective:** Develop a Library Management System to with features like book cataloging, borrower management, due date tracking and fine calculation.
* **Scope:** Application has been developed for the Purpose of issuing books to Students of that University as well as any institute. Also, Teaching staff should be able to access those books. Also, whenever there is any update regarding books or if there are any new books added in library, then Student from that Institute should get notified.
* **Technology:** Core Java,SQL, JDBC etc.
* **Tools Used:** VS Code, MYSQL etc.
* **Functionality**

1. **Add/View/Delete/Update Books in Library.**
2. **Add/View/Delete/Update Students.**
3. **Display Category-wise Books.**
4. **Count Category-wise Books.**
5. **Search any Particular Book.**
6. **Issue Book to Student.**
7. **Show the Remaining Stock after Book Issue.**
8. **Display Student wise Books.**
9. **Display List of Most issued Books (Most read Books).**
10. **Submit the Fine if Student failed to return book on time.**
11. **Sending Update regarding Book details to Students by Email.**

* **Tables Required**

1. **Department Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. no | Field | Data Type | Size | Constraints |
| 1. | Dept\_id | Int | 5 | Primary key auto\_increment |
| 2. | Name | varchar | 30 | Not Null |

* **Dept\_id:** Holds the Department Id which will be Unique and acts as a Primary Key which can be used as foreign key in any other table.
* **Name:** Holds the Name of the Department to indicate Particular Student belongs to which Department will be Not Null.

1. **Students Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr no | Field | Data Type | Size | Constraints |
| 1. | Sid | Int | 5 | Primary Key auto\_increment |
| 2. | Name | Varchar | 20 | Not Null |
| 3. | Email | Varchar | 30 | Not Null Unique |
| 4. | Contact | Varchar | 15 | Not Null Unique |
| 5. | Dept\_id | Int | 5 | Foreign key on delete on update cascade |

* **Sid:** Holds the Unique Student Id of that Student and will be Primary key.
* **Name:** Store the Name of the Student.
* **Email:** Stores the Email Id of a Student which will be Unique and necessary to use it as email will be needed for sending Updates to Student on their Email Id.
* **Contact:** We will be Storing the Contact details of a student here.
* **Dept\_id:** Department Id will be foreign key from Department table which shows relation between both tables.

1. **Book Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No | Field | Data Type | Size | Constraints |
| 1. | Bid | Int | 5 | Primary Key auto\_increment |
| 2. | Name | Varchar | 20 | Not Null |
| 3. | Category | Varchar | 25 | Not Null |
| 4. | Author | Varchar | 20 | Not Null |
| 5. | Publication | Varchar | 20 | Not Null |

* **Bid:** This will be the unique Book Id which is Unique for Books in Library.
* **Name:** here we will store the Name of the Book.
* **Category:** Here we will be storing that book belongs to which Category.
* **Author:** we will mention Author of Book here.
* **Publication:** Holds publication of the Book.

1. **Book Issue Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No | Fields | Data Type | Size | Constraints |
| 1. | Bid | Int | 5 | Foreign key on delete cascade on update cascade |
| 2. | Sid | Int | 5 | Foreign key on delete cascade on update cascade |
| 3. | Status | Varchar | 20 | Not Null |
| 4. | Issuedate | Date | - | Not Null |
| 5. | Returndate | Date | - | Not Null |

* **Bid:** Here we are storing Book Id which is Primary key from Book Table and will be foreign key here.
* **Sid:** Here Student id will be primary key from Students table and here it is foreign key.
* **Status:** This column will hold the Status of the book whether it is issued or not.
* **issuedate:** Here we will be storing the date when the Book is issue to the student.
* **Returndate:** Here we will be storing the date when Student need to return the Book.