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Department of Computer Engineering

Subject-OOPM (SEM-III)

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**MINI PROJECT REPORT**

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**Project Name: Library Management System**

**Problem Statement:**

Write a program for Library Management System. The program starts with a login frame where there are only two possible login that is Admin login or User Login. The program has database connectivity so all the data are stored into a table and then are retrieved from there.

When Admin logs in, he can view details of all users and all available books i.e. Technical and Non-Technical books. Technical Books also consists of Book Bank books which can be issued for a period of 6 months. He can also view books issued by all users. He has the authority to issue a book to a student and charge the penalty calculated if book is returned late. He can add as well as remove a book from the Library. Also, he can add and remove a user.

When User logs in he can view all available books i.e. Technical and Non-Technical books. He can also see the details of the books he has issued along with the issue date, return date and penalty charges (incase returned late) of every book.

**ABSTRACT:**

Library management system project report – The main objective of the Library Management system project is discipline of the planning, organizing and managing the library tasks. Our project aims at making the task of library easy. Library Management is entering the records of new book and retrieving the details of book available in the library. We can issue book to the library member and maintain their records and can also check the books that are issued and available in the library. There are two types of books in the library-Tech and Non Tech. The Tech books also include a separate section of books as Book Bank. In the project we can maintain the penalty of library member who return the issued book after the due date. This Library management system project in JAVA GUI and MS SQL server

**Language and Software tool used**

* JAVA
* GUI
* MS SQL SERVER 2014

**Names Of The Classes and Methods Used:**

1. Interface Home

1. void createHome()
2. void displayHome()

2. Class Library implents Home

1. public void createHome()
2. public void displayHome()
3. public void actionPerformed(ActionEvent e)

3. Class Account

1. Account()
2. void createAdminLogin()
3. public void displayAdminLogin()
4. public void createUserLogin()
5. public void displayUserLogin()
6. public void actionPerformed(ActionEvent e)
7. void getStudDetails()
8. void addNewUser()
9. void removeUser()

4. Class Admin

1. public void createAdmin()
2. public void displayAdmin()
3. public void actionPerformed(ActionEvent e)

5. Class User

1. void getId(int entId)
2. public void createUser()
3. public void displayUser()
4. public void actionPerformed(ActionEvent e)

6.Abstract Class Books

1. Books()
2. Books(String a,String b,String c,String d)
3. abstract void displayRegBooks()
4. void issueBook()
5. void displayIssuedStud(int entId)
6. String getCurrentDate()
7. String getReturnDate()
8. void returnBook()
9. Long getPenalty(String returnDate)
10. void removeBook()

7. Class Tech extends Books

1. Tech()
2. Tech(char ac)
3. void displayRegBooks()
4. void displayBbBooks()
5. void displayIssued()
6. void displayBbIssued()
7. int addNewBook()

8. Class NonTech extends Books

1. NonTech()
2. NonTech(char ac)
3. void displayRegBooks()
4. void displayIssued()
5. int addNewBook()

9. Class LibProject-(MAIN CLASS)

1. public static void main(String[] args)

**Features of the Program:**

**1.1 USER LOGIN**

This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system .The user id and password will be verified and if invalid id is there user is allowed to not enter the system. Functional requirements -user id is provided when they register -The system must only allow user with valid id and password to enter the system -The system performs authorization process which decides what user level can acess to. -The user must be able to logout after they finished using system.

**1.2 REGISTER NEW USER**

This feature can be performed only by the admin. Functional requirements – Admin will verify information and register user.

**1.3 REGISTER NEW BOOK**

This feature allows to add new books to the library Functional requirements -System must be able to verify information -System must be able to enter number of copies into table. - System must be able to not allow two books having same book id.

**1.4 DISPLAY ALL BOOKS**

This feature is found in book maintenance part . We can see book based on book id , book name , publication or by author name in all display all books. Functional requirements - System must be able to see the database based on book type – Technical and Non-Technical - System must be able to show the filtered book category in table view.

**1.5 ISSUE BOOKS AND RETURN BOOKS**

This feature allows to issue and return books and also view reports of book issued. Functional requirements -System must be able to enter issue information in database. -System must be able to update number of books. - System must be able to search if book is available or not before issuing books -System should be able to enter issue and return date information.

**Functionality of Admin Class:**

1. **User Related**
2. Add New User
3. View Student Details
4. Remove User
5. **Books Related**
6. Add New Book
7. View All Books
8. View All Book Bank Books
9. View All Issued Books
10. View All Issued Book Bank Books
11. Return Issued Books
12. Remove Book

**Functionality of User Class:**

1. View Available Books(Tech and NonTech)
2. View Available BookBank Books
3. View Issued Books(by the User)

**Java CONCEPTS UsED:**

**1. Abstract Class and Method-**Books class is abstract class, displayRegBooks() is abstract method.

**2. Interface-** Library implements Home.

**3. is\_a –** Tech is a Book & Non-Tech is a Book

**4. has\_a-** Library has Account.

**5. Association-** Account has Admin and Admin has Account, similarly Account has User and User has Account.

**6. Static Variable –** totalUserCount (To have total no of users)

**7. Overloading and Overriding –** addNewBook()

**8. this and super –** Constructor of Tech and NonTech

**9. Array of objects/Vector –** Display List of Books in Table in java

**10. Dynamic Method Dispatch** - Call displayIssuedBooks() from Tech and NonTech Class using object of Parent class.