LIBRARY MANAGEMENT SYSTEM CODE:

**CLASS LIBRARY 1:**

**package** Library;

**public** **class** Library1 **extends** Library4 {

**int** id, id2, bookId, num, bookNo;

String username1, password1, bname1, name, name1, name2, name3, name4, des, des1;

// Generated appropriate getters and setters

**public** String getName4() {

**return** name4;

}

**public** **void** setName4(String name4) {

**this**.name4 = name4;

}

**public** String getName3() {

**return** name3;

}

**public** **void** setName3(String name3) {

**this**.name3 = name3;

}

**public** **int** getId2() {

**return** id2;

}

**public** **void** setId2(**int** id2) {

**this**.id2 = id2;

}

**public** String getUsername1() {

**return** username1;

}

**public** **void** setUsername1(String username1) {

**this**.username1 = username1;

}

**public** String getPassword1() {

**return** password1;

}

**public** **void** setPassword1(String password1) {

**this**.password1 = password1;

}

**public** String getBname1() {

**return** bname1;

}

**public** **void** setBname1(String bname1) {

**this**.bname1 = bname1;

}

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** String getName1() {

**return** name1;

}

**public** **void** setName1(String name1) {

**this**.name1 = name1;

}

**public** String getName2() {

**return** name2;

}

**public** **void** setName2(String name2) {

**this**.name2 = name2;

}

**public** String getDes() {

**return** des;

}

**public** **void** setDes(String des) {

**this**.des = des;

}

**public** String getDes1() {

**return** des1;

}

**public** **void** setDes1(String des1) {

**this**.des1 = des1;

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** **int** getBookId() {

**return** bookId;

}

**public** **void** setBookId(**int** bookId) {

**this**.bookId = bookId;

}

**public** **int** getNum() {

**return** num;

}

**public** **void** setNum(**int** num) {

**this**.num = num;

}

**public** **int** getBookNo() {

**return** bookNo;

}

**public** **void** setBookNo(**int** bookNo) {

**this**.bookNo = bookNo;

}

}

**CLASS LIBRARY 2:**

**package** Library;

**import** java.sql.PreparedStatement;

**import** java.sql.SQLException;

**import** java.util.Scanner;

**public** **class** Library2 **extends** Library1 {

// Librarian login credentials are pre-defined here

Scanner sc = **new** Scanner(System.***in***);

String username = "Admin";

String password = "admin1234";

**public** **void** liLogin() {

// Method for login by the librarian

// Librarian can able enter login credentials and can able dashboard

System.***out***.println("------------------------------------------");

System.***out***.println("Enter the Login Credentials: ");

System.***out***.println("Enter ID: ");

username1 = sc.next();

System.***out***.println("Enter Password: ");

password1 = sc.next();

System.***out***.println("------------------------------------------");

}

**public** **void** liCheck() {

//Validating the credentials entered by the Librarian

**if** (username1.equals(username) && password1.equals(password)) {

System.***out***.println("Welcome to LibraryManagementSystem");

System.***out***.println("");

// Displaying dashboard

System.***out***.println("Dashboard:");

System.***out***.println(" Enter 1 to Add Book ");

System.***out***.println(" Enter 2 to Issue a Book ");

System.***out***.println(" Enter 3 to Show Books ");

System.***out***.println(" Enter 4 to View issued Books ");

System.***out***.println(" Enter 5 to Return Books");

System.***out***.println(" Enter 6 to Logout");

setNum(sc.nextInt());

**if** (getNum() > 6) {

System.***out***.println("Invalid Entry");

liCheck();

}

} **else** {// Dsiplaying error message

System.***out***.println("Invalid Login");

}

}

**public** **void** liadd() **throws** SQLException {

// Librarian can able to add the books

**if** (getNum() == 1) {

System.***out***.println("-----------------------------");

System.***out***.println("");

System.***out***.println("Enter Book Details: ");

System.***out***.println("Set Book Number: ");

setBookNo(sc.nextInt());

System.***out***.println("Enter the Book Name: ");

setName(sc.nextLine());

setName(sc.nextLine());

// Displaying the books that are entered

System.***out***.println("-----------------------------");

System.***out***.println("Details:");

System.***out***.println(" Book ID: " + getBookNo());

System.***out***.println(" Name of Book: " + getName());

System.***out***.println("-----------------------------");

// Inserting the book details into data base

String query = "INSERT INTO library.book\_details values (?,?);";

PreparedStatement stem = *conn*.prepareStatement(query);

stem.setInt(1, getBookNo());

stem.setString(2, getName());

stem.execute();

System.***out***.println("-----------------------------------------");

// Asking Librarian to choose next option

System.***out***.println("You want to select next option Yes/No");

setDes1(sc.next());

**if** (getDes1().equalsIgnoreCase("Yes")) {

liCheck();

} **else** **if** (getDes1().equalsIgnoreCase("No")) {

}

}

}

}

**CLASS LIBRARY 3:**

**package** Library;

**import** java.sql.Connection;

**import** java.sql.PreparedStatement;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.text.SimpleDateFormat;

**import** java.util.Date;

**public** **class** Library3 **extends** Library2 {

**public** **void** liissue() **throws** SQLException {

**if** (getNum() == 2) {

//Issuing books that are present in database

System.***out***.println("-------------------------------");

System.***out***.println("Enter the person name who is taking the Book: ");

sc.nextLine();

setName1(sc.nextLine());

System.***out***.println("Enter the Book Name: ");

setName(sc.nextLine());

System.***out***.println("Enter the Book ID: ");

setId(sc.nextInt());

// System.out.println("Enter the date of issue: ");

// sc.nextLine();

// setDate1(sc.nextLine());

Date thisdate = **new** Date();

SimpleDateFormat dateForm = **new** SimpleDateFormat("DD/MM/Y");

//Verifying that entered book id is present in database or not

String sql ="select \* from library.book\_details where bookid="+ getId();

PreparedStatement stmt = *conn*.prepareStatement(sql);

ResultSet rs = stmt.executeQuery();

**if**(rs.next()) {

System.***out***.println("-------------------------------");

System.***out***.println("Book taken by:" + getName1());

System.***out***.println("Book: " + getName());

System.***out***.println("ID: " + getId());

System.***out***.println("Issue date: " + dateForm.format(thisdate));

//Inserting the book details that are issued into database

String query = "INSERT INTO library.issue\_details values (?,?,?,?);";

PreparedStatement stem = *conn*.prepareStatement(query);

stem.setInt(1, getId());

stem.setString(2, getName1());

stem.setString(3, getName());

stem.setString(4, dateForm.format(thisdate));

stem.execute();

String query1 = "delete from library.book\_details where bookid=" + getId();

PreparedStatement stem1 = *conn*.prepareStatement(query1);

stem1.executeUpdate();

}

**else** { System.***out***.println("Invalid Book Id");}

System.***out***.println("-------------------------------");

// Asking Librarian to choose next option

System.***out***.println("You want to select next option Yes/No");

sc.nextLine();

setDes1(sc.nextLine());

**if** (getDes1().equalsIgnoreCase("Yes")) {

liCheck();}

**else** **if** (getDes1().equalsIgnoreCase("No")) {

}

}}

**public** **void** displaybooks() **throws** SQLException{

**if** (getNum() == 3) {

//Displaying books that are present in database

System.***out***.println("-------------------------------");

String query = "select \* from library.book\_details";

PreparedStatement stem = *conn*.prepareStatement(query);

ResultSet rs = stem.executeQuery(query);

**while** (rs.next()) {

System.***out***.println("Book ID " + rs.getInt(1));

System.***out***.println("Book Name: " + rs.getString(2));

System.***out***.println("-------------------------------");

}

// Asking Librarian to choose next option

System.***out***.println("You want to select next option Yes/No");

sc.nextLine();

setDes1(sc.nextLine());

**if** (getDes1().equalsIgnoreCase("Yes")) {

liCheck();}

**else** **if** (getDes1().equalsIgnoreCase("No")) {

}

}}

**public** **void** showIssueBooks() **throws** SQLException{

**if** (getNum() == 4) {

//Displaying the books that are present in database

System.***out***.println("-------------------------");

String query = "select \* from library.issue\_details";

PreparedStatement stem = *conn*.prepareStatement(query);

ResultSet rs = stem.executeQuery(query);

**while** (rs.next()) {

System.***out***.println("Book ID: " + rs.getInt(1));

System.***out***.println("Book taken by:"+rs.getString(2));

System.***out***.println("Book Name: " + rs.getString(3));

System.***out***.println("Issued date: "+rs.getString(4));

System.***out***.println("-------------------------------");

}

System.***out***.println("-------------------------------");

// Asking Librarian to choose next option

System.***out***.println("You want to select next option Yes/No");

sc.nextLine();

setDes1(sc.nextLine());

**if** (getDes1().equalsIgnoreCase("Yes")) {

liCheck();}

**else** **if** (getDes1().equalsIgnoreCase("No")) {

}

}}

**public** **void** returnbooks() **throws** SQLException{

**if**(getNum()==5) {

//Returning the books that are taken by customers

System.***out***.println("---------------------");

System.***out***.println("Book is returned by: ");

sc.nextLine();

setName3(sc.nextLine());

System.***out***.println("Enter Book ID: ");

setId2(sc.nextInt());

System.***out***.println("Enter Book name:");

sc.nextLine();

setName4(sc.nextLine());

Date thisdate = **new** Date();

SimpleDateFormat dateForm = **new** SimpleDateFormat("DD/mm/Y");

String sql ="select \* from library.issue\_details where bookid="+ getId2();

PreparedStatement stmt = *conn*.prepareStatement(sql);

ResultSet rs = stmt.executeQuery();

**if**(rs.next()) {

String query = "INSERT INTO library.book\_details values (?,?);";

PreparedStatement stem = *conn*.prepareStatement(query);

stem.setInt(1, getId2());

stem.setString(2, getName4());

stem.execute();

System.***out***.println("-------------------------------");

System.***out***.println("Book taken by:" + getName3());

System.***out***.println("Book: " + getName4());

System.***out***.println("ID: " + getId());

System.***out***.println("Return date: " + dateForm.format(thisdate));

String query1 = "delete from library.issue\_details where bookid=" + getId2();

PreparedStatement stem1 = *conn*.prepareStatement(query1);

stem1.executeUpdate();}**else** {System.***out***.println("Invalid Book ID");}

System.***out***.println("-------------------------------");

// Asking Librarian to choose next option

System.***out***.println("You want to select next option Yes/No");

setDes1(sc.nextLine());

**if** (getDes1().equalsIgnoreCase("Yes")) {

liCheck();}

**else** **if** (getDes1().equalsIgnoreCase("No")) {

}

}

}

**public** **void** liExit() {

//Librarian can able to logout from application

**if** (getNum() == 6) {

System.***out***.println("-------------------------------");

System.***out***.println("Are you sure you want to LogOut");

sc.nextLine();

setDes1(sc.nextLine());

**if** (getDes1().equalsIgnoreCase("Yes")) {

System.***out***.println("-------------------------------");

liLogin();

liCheck();}

**else** **if** (getDes1().equalsIgnoreCase("No")) {

}}

}

**public** **static** **void** main(String[] args) **throws** Exception {

//executing the methods

*createConnection*();

Library3 lib = **new** Library3();

lib.liLogin();

lib.liCheck();

lib.liadd();

lib.liissue();

lib.displaybooks();

lib.showIssueBooks();

lib.returnbooks();

lib.liExit();

}

}

CLASS LIBRARY 4:

**package** Library;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

**import** java.sql.Statement;

**public** **class** Library4 {

**static** Connection *conn*;

**public** **static** Connection createConnection() {

// Creating connection with database

**try** {

Class.*forName*("com.mysql.jdbc.Driver");

String url = "jdbc:mysql://localhost:3306/mysql";

String user = "root";

String pass = "Venkat@1";

*conn* = DriverManager.*getConnection*(url, user, pass);

System.***out***.println("Connection successfull");

**return** *conn*;

} **catch** (Exception e) {

System.***out***.println(e);

}

**return** **null**;

}

}

**PASTE THIS CODE IN MYSQL :**

**create database library;**

**use library;**

**create table book\_details(bookid int(11) primary key auto\_increment,**

**bookname varchar(100)**

**);**

**select\*from book\_details;**

**create table issue\_details(bookid int(11) primary key auto\_increment,**

**issuename varchar(100) ,**

**bookname varchar(100),**

**issuedate varchar(100)**

**);**

**select\*from issue\_details;**