**LIBRARY MANAGEMENT SYSTEM**

**JAVA CODE:**

**package** data;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Statement;

**import** java.util.Scanner;

**public** **class** Main {

**static** Connection getConnection(String url, String uname, String pass) **throws** SQLException, java.sql.SQLException{

Connection con=DriverManager.*getConnection* (url,uname,pass);

**return** con;

}

**private** **static** Connection *con* = **null**;

**private** **static** Statement *statement* = **null**;

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

Main obj1= **new** Main();

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

String uname ="root";

String pass = "lekhana";

**try**

{

*con* = Main.*getConnection*(url, uname, pass);

System.***out***.println("Welcome to the Library");

System.***out***.println("Enter login Credentials");

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

System.***out***.print(" Enter user name: ");

String userName = sr.nextLine();

System.***out***.print(" Enter password: ");

String password = sr.nextLine();

**if** ("sindhu".equals(userName) && "pass123".equals(password)) {

System.***out***.println(" User successfully logged-in.. ");

System.***out***.println("Enter your choice from 1-6: \n 1.Add book \n 2.Delete book \n 3.Update Book \n 4.Search Book\n 5.Issue Book \n 6.Exit");

**int** sel = sr.nextInt();

**switch**(sel)

{

**case** 1: obj1.*add*();

**break**;

**case** 2: obj1.delete();

**break**;

**case** 3: obj1.*update*();

**break**;

**case** 4: obj1.*search*();

**break**;

**case** 5: obj1.issue();

**break**;

**case** 6:System.***out***.println("exit");

**break**;

**default**:System.***out***.println("invalid choice");

}

}

**else** {

System.***out***.println(" In valid userName or password ");

}

}

**catch**(SQLException ex)

{

ex.printStackTrace();

}

}

////////////////// ADD BOOK /////////////////////////

**private** **static** **void** add() **throws** Exception

{

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

String sql ="insert into book(Book\_ID,Book\_Name,Book\_author,Book\_quantity) values (?,?,?,?)";

PreparedStatement ps= *con*.prepareStatement(sql);

System.***out***.println("Enter book number");

ps.setInt(1,sr.nextInt());

System.***out***.println("Enter book name");

ps.setString(2,sr.next());

System.***out***.println("Enter author name");

ps.setString(3,sr.next());

System.***out***.println("Enter book quantity");

ps.setInt(4,sr.nextInt());

**int** rows =ps.executeUpdate();

**if**(rows>0)

{

System.***out***.println("record intered successfully");

}

}

/// //////////////////////// DELETE //////////////////////

**private** **void** delete() **throws** SQLException {

String sql = "delete from book where Book\_ID = ?";

PreparedStatement ps = *con*.prepareStatement(sql);

System.***out***.println("Enter book number to delete");

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

ps.setInt(1,sr.nextInt());

**int** numberOfRow = ps.executeUpdate();

**if**(numberOfRow > 0)

{

System.***out***.println(numberOfRow + " delete is success");

}

**else**

{

System.***out***.println(numberOfRow + " delete unsuccessfull");

}

}

//////////////////// UPDATE ///////////////////////////

**private** **static** **void** update() **throws** SQLException

{

String sql = "UPDATE book set Book\_quantity=? WHERE Book\_ID=?";

PreparedStatement ps = *con*.prepareStatement(sql);

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

System.***out***.println("Enter book number to update");

**int** Book\_ID=se.nextInt();

System.***out***.println("Enter a new quantity");

**int** Book\_quantity= se.nextInt();

ps.setInt(1,Book\_quantity);

ps.setInt(2,Book\_ID);

**int** numberOfRow = ps.executeUpdate();

System.***out***.println(numberOfRow + " row is updated..");

}

///////////////////////// SEARCH BOOK ////////////////////////////

**private** **static** **void** search() **throws** SQLException

{

**try** {

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

System.***out***.print("Enter book name or author name: ");

String searchKeyword = scanner.nextLine();

String query = "SELECT \* FROM book WHERE Book\_Name LIKE ? OR Book\_author LIKE ?";

**try** {

PreparedStatement preparedStatement = *con*.prepareStatement(query);

preparedStatement.setString(1, "%" + searchKeyword + "%");

preparedStatement.setString(2, "%" + searchKeyword + "%");

ResultSet resultSet = preparedStatement.executeQuery();

**boolean** found = **false**;

**while** (resultSet.next()) {

**int** Book\_ID = resultSet.getInt("Book\_ID");

String Book\_Name = resultSet.getString("Book\_Name");

String Book\_author = resultSet.getString("Book\_author");

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

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

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

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

found = **true**;

}

**if** (!found) {

System.***out***.println("Book not available.");

}

resultSet.close();

preparedStatement.close();

} **catch** (SQLException e) {

e.printStackTrace();

}

*con*.close();

} **catch** (SQLException e) {

e.printStackTrace();

}

}

//////////////// ISSUE BOOK //////////////////////

**private** **void** issue() **throws** SQLException

{

Scanner sr1= **new** Scanner(System.***in***);

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

**int** ud=sr1.nextInt();

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

**int** bd=sr1.nextInt();

System.***out***.println("Enter ISSUE DATE : (YYYY-MM-DD) ");

String idate=sr1.next();

// ISSUE BOOK QUERY

String q1="Insert into issue(User\_ID,Book\_ID,Issue\_Date) values(?,?,?);";

// UPDATE BOOK QUERY

String q2="Update book set book\_quantity=book\_quantity-1 where Book\_ID=?;";

PreparedStatement p1=*con*.prepareStatement(q1);

p1.setInt(1, ud);

p1.setInt(2, bd);

p1.setString(3, idate);

PreparedStatement p2=*con*.prepareStatement(q2);

p2.setInt(1, bd);

p1.executeUpdate();

p2.executeUpdate();

System.***out***.println("Issued book successfully!!\n");

}

}

SQL QUERY:

-----------Database-------

create database library;

use library;

**--------------USER---------------**

create table user(

User\_ID int primary key ,

User\_Name varchar(40)

);

-- inserting into user--

insert into user values (1,”suma”),(2,"Lekhana"),(3,"Tanu"),(4,"thanushree"),(5,"Rachana"),(6,"Shambahavi"),(7,"Ruchitha");

select \* from user;

**----------BOOK----------------------**

create table book(

Book\_ID int primary key,

Book\_Name varchar(50) not null,

Book\_author varchar(50) not null,

Book\_quantity int not null

);

alter table book add check(quantity>0);

----describe book------------

insert into book values

(1,"Basic Electronics","Anne Frank",11),

(2,"python","prakash",44),

(3,"Microwave antenna","lee noha",12),

(4,"oops","Robin rai",11),

(5,”Networks”," Chetan kumar ",58);

select \* from book;

**-------------------------------ISSUE-------------------**

create table issue(

Issue\_ID int primary key auto\_increment,

User\_ID int ,

Book\_ID int ,

Issue\_Date varchar(15) not null,

foreign key (User\_ID) references user(User\_ID),

foreign key (Book\_ID) references book(Book\_ID)

);

insert into issue(User\_ID,Book\_ID,Issue\_date) values

(1,2,"2023-08-01"),

(2,3,"2023-08-09"),

(3,4,"2023-08-12"),

(4,5,"2023-08-11");

select \* from issue;

delete from issue where issue\_ID=3;

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