

**PES UNIVERSITY**  
**Department of Computer Science & Engineering**



**DBMS - UE20CS301**  
**Mini Project**  
**Library Management System**

**Submitted to:**

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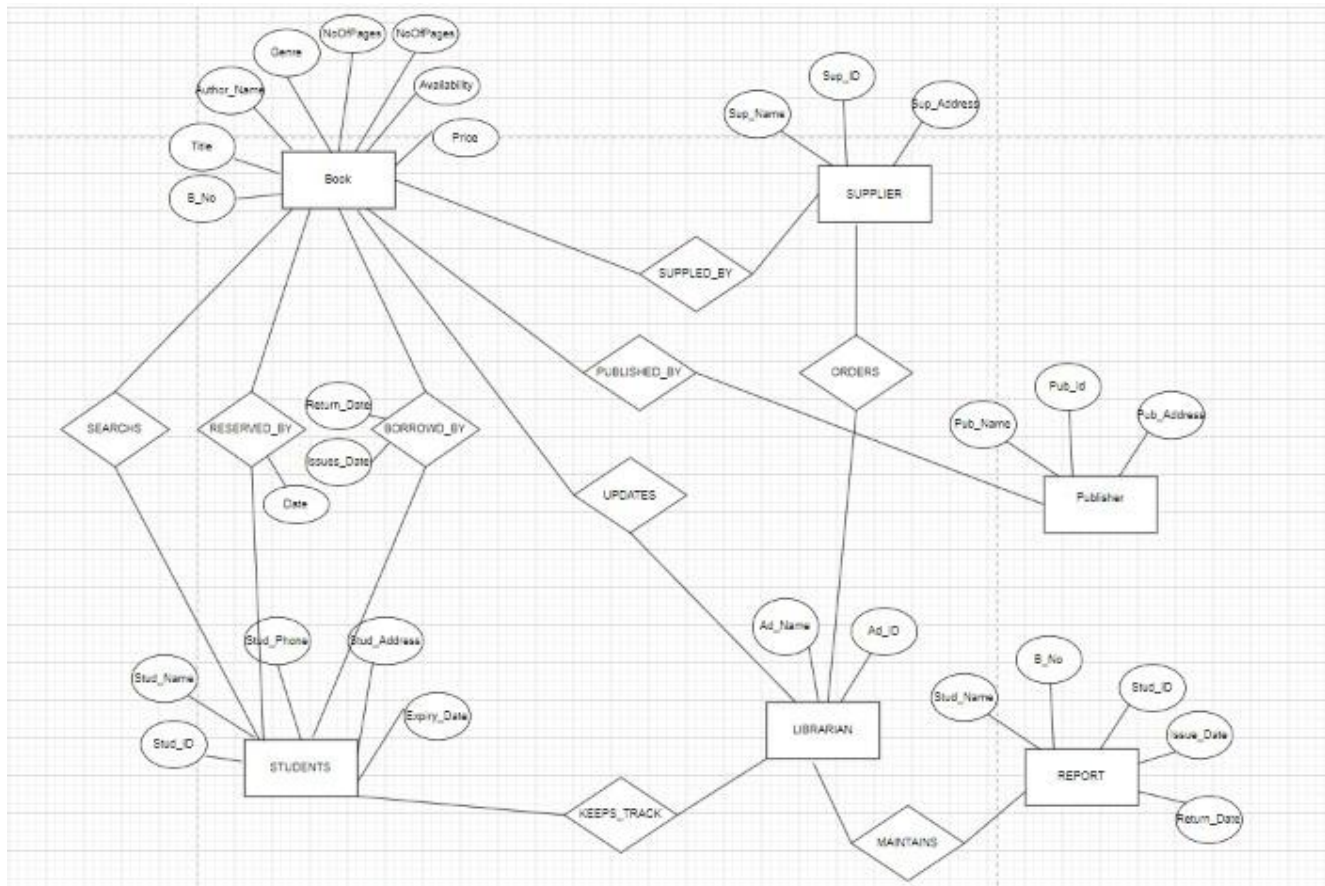
## **1. Short Description and Scope of the Project**

Database management systems help a great deal for Libraries to manage large amounts of information and to perform transactions on such large amounts of data. They reduce manual efforts hence enhance the quality of information retrieval services. Using this product, Libraries can keep track of numerous books along with all their details like author name, genre, series name, number of pages and publisher. Along with this the librarian can also keep track of users, books that were issued, due dates etc. Librarians will also be able to modify the details of the books like restock, worn out copies and new books whenever required. User details are also maintained (user name, gender, phone number, address). Users will be able to search books and view the book details of each book.

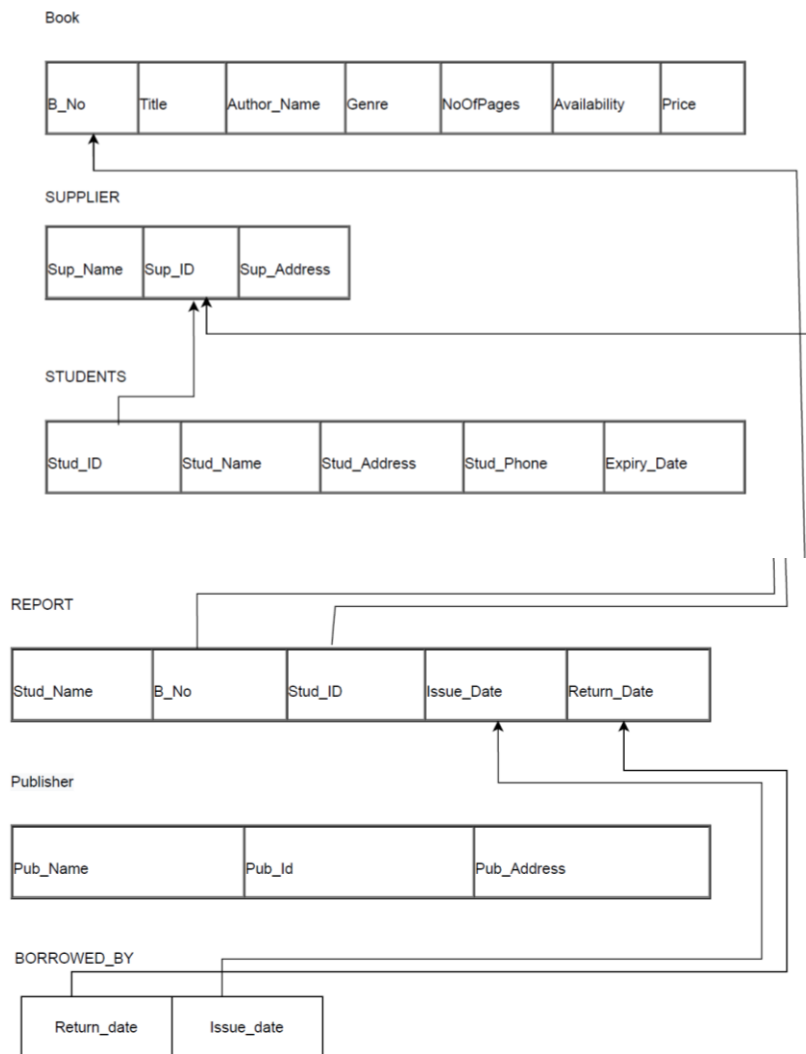
### **Project Scope:**

- To have an application that secures data records.
- To have an application that keeps track of books issued, due dates and related details in a simple format.
- To have an application that reduces the errors and efforts of the librarian.
- To have an application that can track the user activities
- The application shall have a login page for allowing only authorized users to access the application.

## 2. ER Diagram



### 3. Relational Schema



## 4. DDL statements - Building the database

```
CREATE TABLE `books` (  
  `b_no` int(5) NOT NULL,  
  `title` varchar(40) DEFAULT NULL,  
  `author_name` varchar(30) DEFAULT NULL,  
  `genre` varchar(20) DEFAULT NULL,  
  `description` varchar(20) DEFAULT NULL,  
  `publisher` varchar(20) DEFAULT NULL,  
  `copies` int(5) NOT NULL,  
  `availability` boolean(5) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `studs` (  
  `stud_id` varchar(10) NOT NULL,  
  `stud_name` varchar(20) NOT NULL,  
  `stud_phone` int(12) NOT NULL,  
  `stud_address` varchar(30) NOT NULL,  
  `expiry_date` date(10) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```
CREATE TABLE `lib`.`librarian` (  
  `lib_name` varchar(20) NOT NULL,  
  `lib_id` varchar(10) DEFAULT NULL  
);  
""
```

```
CREATE TABLE `reports` (  
  `stud_name` varchar(20) DEFAULT NULL,  
  `b_no` varchar(5) DEFAULT NULL,  
  `stud_id` varchar(10) DEFAULT NULL,  
  `issue_date` date(10) DEFAULT NULL,  
  `return_date` date(10) DEFAULT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;  
""
```

```
CREATE TABLE `lib`.`publisher` (  
  `pub_name` varchar(20) NOT NULL,  
  `pub_id` varchar(10) DEFAULT NULL,  
  `pub_address` varchar(30) DEFAULT NULL  
); ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

```

CREATE TABLE `issue_status` (
`issue_id` varchar(10) NOT NULL,
`issued_book_name` varchar(40) DEFAULT NULL,
`issued_book_no` varchar(5) DEFAULT NULL,
`issued_date` date(10) NOT NULL,
`issued_stud` varchar(10) NOT NULL,
PRIMARY KEY (issue_id),
CONSTRAINT FOREIGN key (issued_book_no) REFERENCES books(b_no),
CONSTRAINT FOREIGN key (issued_book_name) REFERENCES books(title),
CONSTRAINT FOREIGN KEY (issued_stud) REFERENCES student(stud_id)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

```

## 5. Populating the Database

### Table – Books

```

INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10001,'Harry Potter and the philosopher\'s stone','fantasy','Harry Potter, an
eleven-year-old orphan, discovers that he is a wizard and is invited to study at
Hogwarts.','J K Rowling',' Bloomsbury (UK)','Yes',13);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10002,'Harry Potter and the chamber of secrets','fantasy','A house-elf warns
Harry against returning to Hogwarts, but he decides to ignore it. ','J K Rowling','
Bloomsbury (UK)','Yes',12);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10003,'Harry Potter and the prisoner of Azkaban','fantasy','Harry Potter, a
young wizard, in his third year at Hogwarts School of Witchcraft and Wizardry.','J K
Rowling',' Bloomsbury (UK)','Yes',14);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10004,'Harry Potter and the goblet of fire','fantasy','When Harry gets chosen
as the fourth participant in the inter-school Triwizard Tournament, he is unwittingly
pulled into a dark conspiracy that slowly unveils its dangerous agenda.','J K Rowling','
Bloomsbury (UK)','Yes',10);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10005,'Harry Potter and the order of phoenix','fantasy','Harry Potter and
Dumbledore\'s warning about the return of Lord Voldemort is not heeded by the wizard
authorities who, in turn, look to undermine Dumbledore\'s authority at Hogwarts and
discredit Harry.','J K Rowling',' Bloomsbury (UK)','Yes',12);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)
VALUES (10006,'Harry Potter and the half blood prince','fantasy','Dumbledore and
Harry Potter learn more about Voldemort\'s past and his rise to power.','J K Rowling','
Bloomsbury (UK)','Yes',10);
INSERT INTO `` (`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`)

```

```

VALUES (10007,'Harry Potter and the deathly hallows','fantasy',' seventh and final
novel of the main Harry Potter series.','J K Rowling',' Bloomsbury (UK)','Yes',11);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10008,'Divergent','Science fiction','In a futuristic world, people are divided into
factions. When Beatrice Prior realises that she must hide to escape the wrath of
powerful forces.','Veronica Roth',' Katherine Tegen Books','Yes',7);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10009,'Insurgent','Science fiction','Insurgent is a 2012 science fiction young adult
novel by American novelist Veronica Roth and the second book in the Divergent
trilogy. ','Veronica Roth','Katherine Tegen Books','Yes',6);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10010,'Alligiant','Science fiction','The faction-based society that Tris Prior once
believed in is shattered—fractured by violence and power struggles and scarred by loss
and betrayal.','Veronica Roth','Katherine Tegen Books','Yes',8);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10011,'Hunger games','fiction','The Hunger Games is an annual event in which one boy
and one girl aged 12–18 from each of the twelve districts fight to death.','Suzzane
Collins',' Scholastic','Yes',6);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10012,'Catching fire','fiction','Science fiction young adult novel by the American
novelist Suzanne Collins, the second book in The Hunger Games series','Suzzane
Collins',' Scholastic','Yes',4);
INSERT INTO `books`
(`num`,`title`,`genre`,`des`,`author`,`publisher`,`availability`,`copies`) VALUES
(10013,'Mocking Jay','fiction','The book continues the story of Katniss Everdeen, who
agrees to unify the districts of Panem in a rebellion against the tyrannical
Capitol.','Suzzane Collins',' Scholastic','Yes',7);

```

## Table – Students

```

INSERT INTO `studs` (`sid`,`name`,`address`,`phone`,`expiry`,`mem`) VALUES
(401,'Rory gilmore','stars hollow',785412369,'2022-11-30','Yes');
INSERT INTO `studs` (`sid`,`name`,`address`,`phone`,`expiry`,`mem`) VALUES
(402,'Jess Meriano','new york',852147896,'2022-11-30','Yes');
INSERT INTO `studs` (`sid`,`sname`,`address`,`phone`,`expiry`,`mem`) VALUES
(403,'Paris','hardford',995412369,'2022-11-30','Yes');
INSERT INTO `studs` (`sid`,`sname`,`address`,`phone`,`expiry`,`mem`) VALUES
(404,'Dean','stars hollow',455412369,'2022-11-30','Yes');
INSERT INTO `studs` (`sid`,`sname`,`address`,`phone`,`expiry`,`mem`) VALUES

```



```
(405,'Logan','new york',930147896,'2022-11-30','Yes');
INSERT INTO `studs` (`sid`,`sname`,`address`,`phone`,`expiry`,`mem`) VALUES
(406,'Mardy','yale',702147896,'2022-11-30','Yes');
```

## Table – Reports

```
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(5,'Paris',10010,403,'2022-10-13','2022-10-27');
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(6,'Dean',10004,404,'2022-11-08','2022-11-14');
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(7,'Mardy',10004,406,'2022-11-20','2022-11-30');
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(8,'Jess Meriano',10012,402,'2022-10-15','2022-10-27');
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(9,'Jess Meriano',10013,402,'2022-11-15','2022-11-27');
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES
(10,'JRory gilmore',10013,401,'2022-10-15','2022-10-27');
```

## Table - Publisher

```
INSERT INTO `publisher` (`pub_name`,`pub_id`,`pub_address`) VALUES (' Katherine
Tegen Books',29324,'alley 12, manhattan');
INSERT INTO `publisher` (`pub_name`,`pub_id`,`pub_address`) VALUES
('Bloomsbury (UK)',69324,'main street 2 london');
INSERT INTO `publisher` (`pub_name`,`pub_id`,`pub_address`) VALUES
('Scholastic',89324,'street 5 new york');
```

## 6. Join Queries

Showcase at least 4 join queries

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

1. Inner Join of books table with publisher info table with common attribute as publisher name

```
SELECT publisher
FROM books
INNER JOIN publisher
ON books.publisher=publisher.pub_name;
```

2. To check which book was issued on what date to which student, combining studs and reports table

```
SELECT studs.sid,bnum,reports.issued
```

```
FROM studs
```

```
INNER JOIN reports
```

```
ON studs.sid=reports.sid;
```

3. To make sure that the student will be returning a book before their membership expires

```
SELECT studs.sid,expiry,reports.returned
```

```
FROM studs
```

```
LEFT JOIN reports
```

```
ON studs.sid=reports.sid;
```

4. There are multiple copies of each book, cross join of books and reports table helps keep tabs on each of those books getting issued and returned

```
use lib;
```

```
SELECT num,title,issued,returned
```

```
FROM books
```

```
CROSS JOIN reports;
```

The screenshot displays three SQL queries and their corresponding result grids in a database management tool.

**Query 1:** `use lib;`  
`SELECT publisher,publisher.pub_id`  
`FROM books`  
`INNER JOIN publisher`  
`ON books.publisher=publisher.pub_name;`

**Result Grid 1:**

publisher	pub_id
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Bloomsbury (UK)	69324
Katherine Tegen Books	29324
Scholastic	89324
Scholastic	89324
Scholastic	89324

**Query 2:** `use lib;`  
`SELECT studs.sid,bnum,reports.issued`  
`FROM studs`  
`INNER JOIN reports`  
`ON studs.sid=reports.sid;`

**Result Grid 2:**

sid	bnum	issued
401	10003	2022-11-13
401	10005	2022-11-13
401	10012	2022-11-20
402	10004	2022-11-14
402	10007	2022-11-15
402	10012	2022-10-15
402	10013	2022-11-15
403	10010	2022-10-13
404	10004	2022-11-08
404	10012	2022-11-20
406	10004	2022-11-20

**Query 3:** `use lib;`  
`SELECT studs.sid,expiry,reports.returned`  
`FROM studs`  
`LEFT JOIN reports`  
`ON studs.sid=reports.sid;`

**Result Grid 3:**

sid	expiry	returned
401	2022-11-30	2022-11-27
401	2022-11-30	2022-11-28
401	2022-11-30	2022-11-28
401	2022-11-30	2022-11-29
402	2022-11-30	2022-11-26
402	2022-11-30	2022-11-27
402	2022-11-30	2022-10-27
402	2022-11-30	2022-11-27
403	2022-11-30	2022-10-13
404	2022-11-30	2022-11-14
404	2022-11-30	2022-11-20
405	2022-11-30	2022-11-27
406	2022-11-30	2022-11-30

**Query 4:** `use lib;`  
`SELECT num,title,issued,returned`  
`FROM books`  
`CROSS JOIN reports;`

**Result Grid 4:**

num	title	issued	returned
10002	Harry Potter and the chamber of secrets	2022-11-15	2022-11-27
10002	Harry Potter and the chamber of secrets	2022-11-13	2022-11-28
10002	Harry Potter and the chamber of secrets	2022-11-14	2022-11-26
10002	Harry Potter and the chamber of secrets	2022-11-13	2022-11-27
10003	Harry Potter and the prisoner of Azkaban	2022-11-20	2022-11-20
10003	Harry Potter and the prisoner of Azkaban	2022-11-20	2022-11-29
10003	Harry Potter and the prisoner of Azkaban	2022-11-15	2022-11-27
10003	Harry Potter and the prisoner of Azkaban	2022-10-15	2022-10-27
10003	Harry Potter and the prisoner of Azkaban	2022-11-20	2022-11-30
10003	Harry Potter and the prisoner of Azkaban	2022-11-08	2022-11-14
10003	Harry Potter and the prisoner of Azkaban	2022-10-13	2022-10-27
10003	Harry Potter and the prisoner of Azkaban	2022-11-15	2022-11-27
10003	Harry Potter and the prisoner of Azkaban	2022-11-13	2022-11-28

## 7. Aggregate Functions

Showcase at least 4 Aggregate function queries

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results.

1. Average number of copies of each book available in the library

```
SELECT title, AVG(copies)
```

```
FROM books
```

```
GROUP BY title;
```

2. How many books are published by one particular author

```
SELECT books.publisher,COUNT(*)
```

```
FROM books,publisher
```

```
WHERE books.publisher=publisher.pub_name
```

```
GROUP BY publisher;
```

3. Which was the most popularly borrowed book by count() on books table and reports table

```
SELECT books.num,books.title,COUNT(*)
```

```
FROM books,reports
```

```
WHERE books.num=reports.bnum
```

```
GROUP BY title;
```

4. Which student is the most frequent borrower

```
SELECT studs.sid,reports.bnum,COUNT(*)
```

```
FROM reports,studs
```

```
WHERE studs.sid=reports.sid
```

```
GROUP BY sid;
```

5. Total number of copies of all books available at the library

```
SELECT SUM(copies) total
```

```
FROM books;
```

The screenshot displays a database query editor with five queries and their results. The first query calculates the average number of copies for each book title. The second query counts the number of books published by each publisher. The third query identifies the most popular book by counting reports. The fourth query identifies the most frequent borrower by counting reports per student. The fifth query calculates the total number of copies of all books.

title	AVG(copies)
Harry Potter and the philosopher's stone	13.0000
Harry Potter and the chamber of secrets	12.0000
Harry Potter and the prisoner of Azkaban	14.0000
Harry Potter and the goblet of fire	10.0000
Harry Potter and the order of phoenix	12.0000
Harry Potter and the half blood prince	10.0000
Harry Potter and the deathly hallows	11.0000
Divergent	7.0000
Insurgent	6.0000
Alligant	8.0000
Hunger games	6.0000
Catching fire	4.0000
Mocking Jay	7.0000
aaaa	0.0000

publisher	COUNT(*)
Bloomsbury (UK)	7
Katherine Tegen Books	1
Scholastic	3

num	title	COUNT(*)
10003	Harry Potter and the prisoner of Azkaban	1
10004	Harry Potter and the goblet of fire	3
10005	Harry Potter and the order of phoenix	1
10007	Harry Potter and the deathly hallows	1
10010	Alligant	1
10012	Catching fire	3
10013	Mocking Jay	1

sid	bnum	COUNT(*)
401	10003	3
402	10004	4
403	10010	1
404	10004	2
406	10004	1

total
120

## Set Operations

Showcase at least 4 Set Operations queries

Write the query in English Language, Show the equivalent SQL statement and also a screenshot of the query and the results

### 1. UNION ALL

SELECT \* FROM reports

UNION ALL

SELECT \* FROM studs;

2. UNION of specific genres of books displayed along with titles, so all books of each genre are grouped together

SELECT copies,title,genre

FROM books

WHERE genre = "fantasy"

UNION

SELECT copies,title,genre

FROM books

WHERE genre = "fiction"

3. Availability of books from a specific publisher

use lib;

SELECT copies,title,publisher,availability

FROM books

WHERE publisher = " Bloomsbury (UK)"

UNION

SELECT copies,title,publisher,availability

FROM books

WHERE publisher = "Katherine Tegen Books"



regnum	sname	bnum	sid	issued	returned
3	Rory glimore	10005	401	2022-11-13	2022-11-28
4	Jess Meriano	10007	402	2022-11-15	2022-11-27
5	Paris	10010	403	2022-10-13	2022-10-27
6	Dean	10004	404	2022-11-08	2022-11-14
7	Mardy	10004	406	2022-11-20	2022-11-30
8	Jess Meriano	10012	402	2022-10-15	2022-10-27
9	Jess Meriano	10013	402	2022-11-15	2022-11-27
10	Rory glimore	10012	401	2022-11-20	2022-11-29
11	Dean	10012	404	2022-11-20	2022-11-20
401	Rory glimore	stars ...	765...	2022-11-30	Yes
402	Jess Meriano	new ...	852...	2022-11-30	Yes
403	Paris	hardf...	995...	2022-11-30	Yes
404	Dean	stars ...	455...	2022-11-30	Yes
405	Logan	new ...	930...	2022-11-30	Yes
406	Mardy	yale	702...	2022-11-30	Yes

copies	title	genre
13	Harry Potter and the philosopher's stone	fantasy
12	Harry Potter and the chamber of secrets	fantasy
14	Harry Potter and the prisoner of Azkaban	fantasy
10	Harry Potter and the goblet of fire	fantasy
12	Harry Potter and the order of phoenix	fantasy
10	Harry Potter and the half blood prince	fantasy
11	Harry Potter and the deathly hallows	fantasy
6	Hunger games	fiction
4	Catching fire	fiction
7	Mocking Jay	fiction

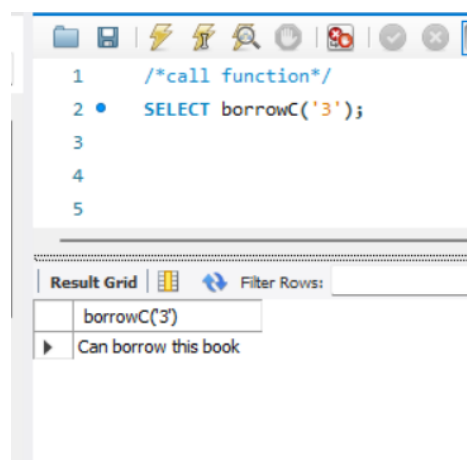
copies	title	publisher	availability
13	Harry Potter and the philosopher's stone	Bloomsbury (UK)	Yes
12	Harry Potter and the chamber of secrets	Bloomsbury (UK)	Yes
14	Harry Potter and the prisoner of Azkaban	Bloomsbury (UK)	Yes
10	Harry Potter and the goblet of fire	Bloomsbury (UK)	Yes
12	Harry Potter and the order of phoenix	Bloomsbury (UK)	Yes
10	Harry Potter and the half blood prince	Bloomsbury (UK)	Yes
11	Harry Potter and the deathly hallows	Bloomsbury (UK)	Yes
6	Insurgent	Katherine Tegen Books	Yes
8	Alligiant	Katherine Tegen Books	Yes

## Functions and Procedures

Create a Function and Procedure. State the objective of the function / Procedure. Run and display the results.

Function - If all copies of a book are borrowed then copy count will be zero and no borrow request for those books can go through.

```
DELIMITER $$
CREATE FUNCTION borrowC(copies INT)
RETURNS varchar(255)
DETERMINISTIC
BEGIN
DECLARE num INT;
DECLARE answer VARCHAR(255);
SET num = (SELECT COUNT(books.copies)
FROM books
WHERE copies = books.copies);
IF num < 0 THEN
SET answer = "cannot borrow this book as its copies count is over as its borrowed
completely";
ELSE
SET answer = "Can borrow this book";
END IF;
RETURN answer;
END $$
```



## 8. Triggers and Cursors

Create a Trigger and a Cursor. State the objective. Run and display the results.

Trigger – A student can not borrow more than 3 books at any given instance of time

```
DELIMITER $$
```

```
CREATE TRIGGER limited_borrows
```

```
BEFORE INSERT ON reports
```

```
FOR EACH ROW BEGIN
```

```
DECLARE error_msg VARCHAR(255) ;
```

```
DECLARE countstud int;
```

```
SET countstud= (SELECT count(sid) FROM reports WHERE sid=NEW.sid GROUP  
BY sid);
```

```
SET error_msg =(
```

```
'The new report for this student cannot be generated as its number exceeds 3 in the  
record'
```

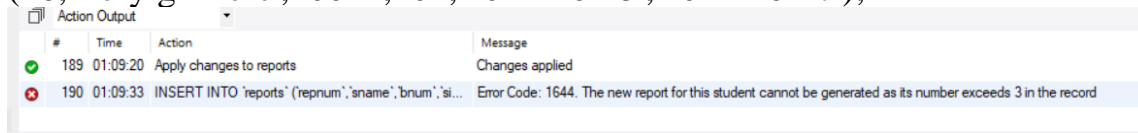
```
) ; IF countstud >=3 THEN SIGNAL SQLSTATE '45000'
```

```
SET MESSAGE_TEXT = error_msg ;
```

```
END IF;
```

```
END $$ DELIMITER ;
```

```
INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`sid`,`issued`,`returnd`) VALUES  
(16,'Rory gilmore',10012,401,'2022-10-15','2022-10-27');
```



#	Time	Action	Message
189	01:09:20	Apply changes to reports	Changes applied
190	01:09:33	INSERT INTO `reports` (`repnum`,`sname`,`bnum`,`si...	Error Code: 1644. The new report for this student cannot be generated as its number exceeds 3 in the record

Cursors –

```
CREATE TABLE backuprep LIKE reports;
```

```
DELIMITER $$
```

```
CREATE TRIGGER backupUpdate
```

```
BEFORE DELETE ON reports
```

```
FOR EACH ROW
```

```
BEGIN
```

```
INSERT INTO backuprep
```

```
SELECT * FROM reports
```

```
WHERE reports.repnum=OLD.repnum;
```

```
END $$
```

```
DELIMITER ;
```

```

3 • DELETE FROM reports WHERE repnum='8';
4 /*check backup table*/
5 • SELECT * FROM backuprep;

```

Result Grid					Output			
Filter Rows:					Action Output			
#	Time	Action	Message					
194	01:13:30	DELETE FROM reports WHERE repnum='8'	1 row(s) affected					
195	01:13:30	SELECT * FROM backuprep LIMIT 0, 1000	1 row(s) returned					

## 9. Developing the Frontend

The frontend should support

1. Addition, Modification and Deletion of records from any chosen table
2. There should be an window to accept and run any SQL statement and display the result

Menu

- ☒ Add Books
- ☐ View Books
- ☐ Edit Books
- ☐ Remove Books

Menu

- ☒ Add Books
- ☐ View Books
- ☐ Edit Books
- ☐ Remove Books

Menu

- ☐ Add Books
- ☒ View Books
- ☐ Edit Books
- ☐ Remove Books

### Library Management System

#### Enter Book Details:

Book No	Book Title	Genre	mini description
10014	Five feet apart	young adult	Seventeen-year-old St
Author	Publisher	Availability	Number of copies
Mikki	simon	Yes	3 <small>Press Enter to apply</small>

Add this book to the library

### Library Management System

#### Enter Book Details:

Book No	Book Title	Genre	mini description
10014	Five feet apart	young adult	Seventeen-year-old St
Author	Publisher	Availability	Number of copies
Mikki	Simon	Yes	3.00

Add this book to the library

Successfully added the book: Five feet apart

#### View created records

	Book no	Book Title	Genre	Description
4	10005	Harry Potter and the order of phoenix	fantasy	Harry Potter and Dumbledore's warning
5	10006	Harry Potter and the half blood prince	fantasy	Dumbledore and Harry Potter learn more
6	10007	Harry Potter and the deathly hallows	fantasy	seventh and final novel of the main Harry
7	10008	Divergent	Science fiction	In a futuristic world, people are divided in
8	10009	Insurgent	Science fiction	Insurgent is a 2012 science fiction young
9	10010	Alligiant	Science fiction	The faction-based society that Tris Prior
10	10011	Hunger games	fiction	The Hunger Games is an annual event in
11	10012	Catching fire	fiction	Science fiction young adult novel by the
12	10013	Mocking Jay	fiction	The book continues the story of Katniss
13	10014	Five feet apart	young adult	Seventeen-year-old Stella spends most

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- ☐ Add Books
  - ☐ View Books
  - ☒ Edit Books
  - ☐ Remove Books

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  - ☒ Remove Books

- Menu
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  - ☐ View Books
  - ☐ Edit Books
  - ☒ Remove Books

10	10011	Hunger games	fiction	The Hunger Games is an annual event in
11	10012	Catching fire	fiction	Science fiction young adult novel by the
12	10013	Mocking Jay	fiction	The book continues the story of Katniss I

Book details to Edit

Alligiant

Books No	Book Title	Genre	mini description
10010	Allegiant (book 3)	Science fiction	The faction-based soc
Author	Publisher	Availability	Number of copies
Veronica Roth	Katherine Tegen Book	Yes	11 <small>Press Enter to apply</small> - +

Update Book Details

12	10013	Mocking Jay	fiction	The book continues the story of Katniss E
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Book details to Edit

Alligiant

Books No	Book Title	Genre	mini description
10010	Allegiant sequel 3	Science fiction	The faction-based soc
Author	Publisher	Availability	Number of copies
Veronica Roth	Katherine Tegen Book	Yes	11 - +

Update Book Details

Successfully updated values for book:: Alligiant to ::Allegiant sequel 3

## Delete any book that you are taking off the library

Current books

Book to Delete

Five feet apart

Do you want to delete book::Five feet apart

Delete Book

## Delete any book that you are taking off the library

Current books

Book to Delete

Five feet apart

Do you want to delete book::Five feet apart

Delete Book

Book has been deleted successfully



## **12. Conclusion**

This Library management system provides all the necessary operations like adding, modifying and deleting books to the library database. A report of borrowing books is generated and maintained, with return date extension option and no student can borrow over 3 books at any instance of time, if book copy number becomes 0 as all copies are borrowed further borrow requests are declined for that book. A student membership table is also maintained in this database, when a student membership expires it asks to renew. Its a very easy to use interface to handle and maintain the database, saving the manual labour.

## **References (If any)**