

**CASE STUDY:**

**LIBRARY MANAGEMENT SYSTEM**

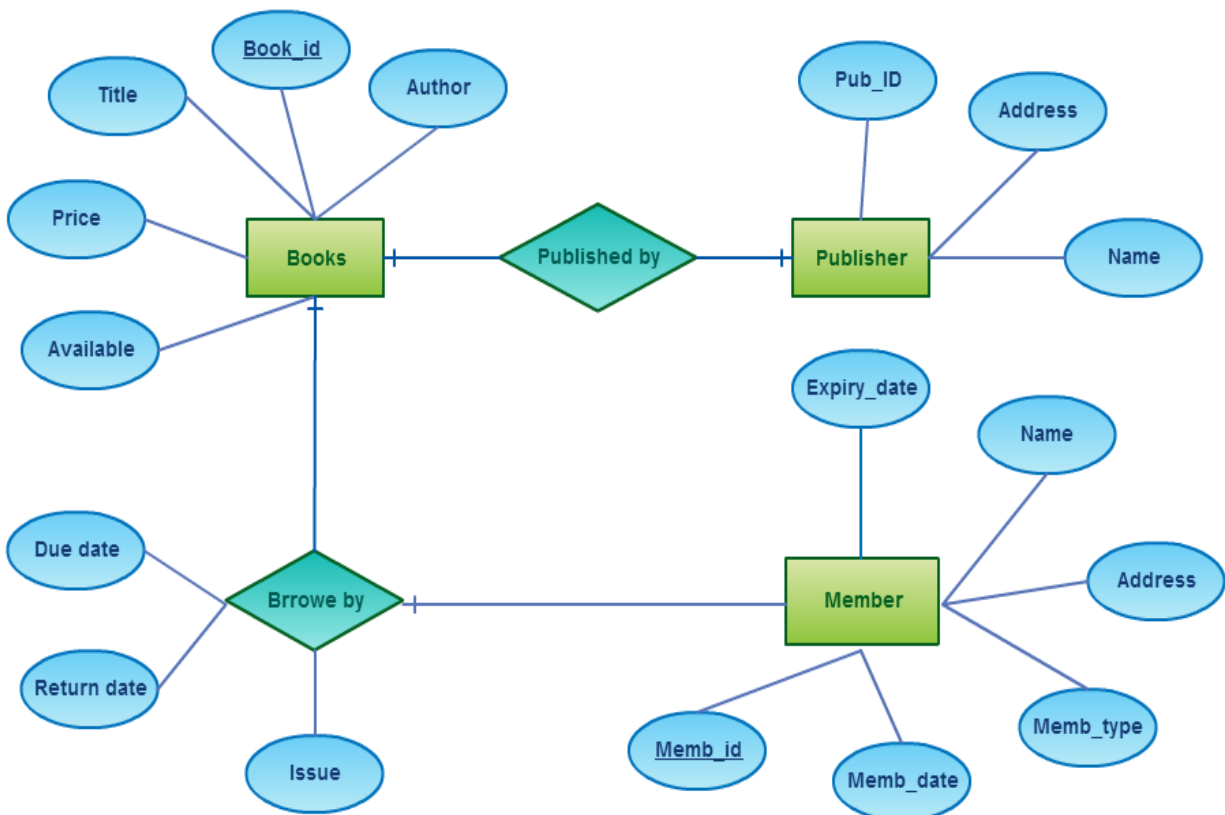
**Ex No: 13**

**Date: 03/05/2023**

**AIM:**

To develop a Case Study using any of the real life database applications - Library Management.

**ER DIAGRAM:**



## RELATIONAL TABLES:

### Books

<u>Book_id</u>	Title	Author	Price	Available	Pub_ID
----------------	-------	--------	-------	-----------	--------

### Publisher

<u>Pub_ID</u>	Name	Address
---------------	------	---------

### Member

<u>Memb_id</u>	Name	Memb_type	Address	Memb_date	Expiry_date
----------------	------	-----------	---------	-----------	-------------

### Borrowed

<u>Memb_id</u>	<u>Book_id</u>	Issue	Due date	Return date
----------------	----------------	-------	----------	-------------

## QUERIES:

```
create database library;  
use library;
```

```
create table books(Book_id int auto_increment, Title varchar(30),  
                  Author varchar(30), Price float,  
                  Available varchar(10), Pub_ID int, primary  
key(Book_id));
```

```
create table Publisher(Pub_ID int auto_increment, Name varchar(30),  
                      Address varchar(30), primary key(Pub_id));
```

```
create table Member(Memb_id int auto_increment, Name varchar(20),  
                   Memb_type varchar(25), Address varchar(30),  
                   Memb_date date, Expiry_date date, primary  
key(Memb_id));
```

```
create table Borrowed(Memb_id int , Book_id int, issue int,  
                      Due_date date, Return_date date);
```

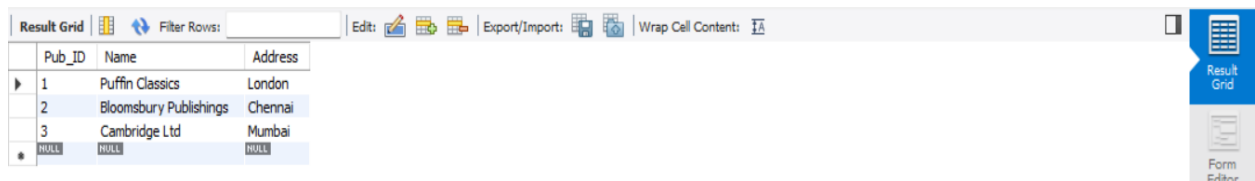
```
alter table books add constraint f1 foreign key(Pub_ID) references  
Publisher(Pub_ID);
```

```
alter table Borrowed add constraint f2 foreign key(Memb_id) references  
Member(Memb_id);
```

```
alter table Borrowed add constraint f3 foreign key(Book_id) references  
books(Book_id);
```

```
insert into Publisher(Pub_ID, Name, Address) values(1, "Puffin Classics",  
                                                    "London"),  
                                                    (2, "Bloomsbury Publishings", "Chennai"),  
                                                    (3, "Cambridge Ltd", "Mumbai");
```

```
select * from Publisher;
```



The screenshot shows a database application interface. At the top, there is a toolbar with icons for 'Result Grid', 'Filter Rows', 'Edit', 'Export/Import', and 'Wrap Cell Content'. Below the toolbar is a table with three columns: 'Pub\_ID', 'Name', and 'Address'. The table contains three rows of data. The first row has '1' in the 'Pub\_ID' column, 'Puffin Classics' in the 'Name' column, and 'London' in the 'Address' column. The second row has '2' in the 'Pub\_ID' column, 'Bloomsbury Publishings' in the 'Name' column, and 'Chennai' in the 'Address' column. The third row has '3' in the 'Pub\_ID' column, 'Cambridge Ltd' in the 'Name' column, and 'Mumbai' in the 'Address' column. To the right of the table, there is a vertical sidebar with a 'Result Grid' button and a 'Form Editor' button.

Pub_ID	Name	Address
1	Puffin Classics	London
2	Bloomsbury Publishings	Chennai
3	Cambridge Ltd	Mumbai

```
insert into books(Title,Author,Price,Available,Pub_ID) values  
("Secret Garden", "Enid Blyton", 500, "yes", 2),  
("Little Princess","Frances H. Burnett", 1000, "no", 1),  
("Harry Potter","J.K.Rowling",550, "yes", 3),  
("Percy Jackson","Rick Riordan", 500, "yes", 3),  
("Mary Poppins","P.L.Travers", 600, "no", 2);
```

```
select * from books;
```

Book_id	Title	Author	Price	Available	Pub_ID
1	Secret Garden	Enid Blyton	500	yes	2
2	Little Princess	Frances H. Burnett	1000	no	1
3	Harry Potter	J.K.Rowling	550	yes	3
4	Percy Jackson	Rick Riordan	500	yes	3
5	Mary Poppins	P.L.Travers	600	no	2
HULL	HULL	HULL	HULL	HULL	HULL

insert into Membr(Name,Memb\_type,Address,Memb\_date,Expiry\_date)  
values

("Farheen","Standard","North Carolina","2023-02-03", "2024-02-03"),

("Tom", "Premium","Chennai","2021-05-01", "2025-05-01"),

("Mary", "Standard", "Trichy","2022-08-14", "2023-08-14");

select \* from Membr;

Memb_id	Name	Memb_type	Address	Memb_date	Expiry_date
1	Farheen	Standard	North Carolina	2023-02-03	2024-02-03
2	Tom	Premium	Chennai	2021-05-01	2025-05-01
3	Mary	Standard	Trichy	2022-08-14	2023-08-14
HULL	HULL	HULL	HULL	HULL	HULL

insert into Borrowed values(1, 3, 10, "2023-05-10", "2023-05-08"),  
(3, 5, 8, "2023-02-06", "2023-02-06");

select \* from Borrowed;

Memb_id	Book_id	issue	Due_date	Return_date
1	3	10	2023-05-10	2023-05-08
3	5	8	2023-02-06	2023-02-06

## VIEWS:

/\* Since the Customers (Members) don't need to know the Book\_id and Pub\_ID so we create a view of books table containing the remaining attributes as well as publisher name taken from the Publisher table \*/

create view CustomerBooksView as select Title, Author, Price, Available, Publisher.Name as publisher from books inner join Publisher on books.Pub\_ID = Publisher.Pub\_ID;

```
select * from CustomerBooksView;
```



The screenshot shows a database application interface with a 'Result Grid' tab selected. The grid displays the following data:

	Title	Author	Price	Available	publisher
▶	Little Princess	Frances H. Burnett	1000	no	Puffin Classics
	Secret Garden	Enid Blyton	500	yes	Bloomsbury Publishings
	Mary Poppins	P.L.Travers	600	no	Bloomsbury Publishings
	Harry Potter	J.K.Rowling	550	yes	Cambridge Ltd
	Percy Jackson	Rick Riordan	500	yes	Cambridge Ltd

On the right side of the interface, there are buttons for 'Result Grid' and 'Form Editor'.

## STORED PROCEDURES:

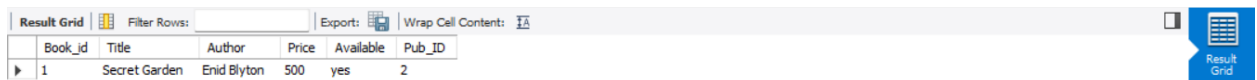
1. We write a stored procedure which takes a book ID as input parameter and return the details of the corresponding book.

### fetchBook - Routine:

```
CREATE DEFINER='root'@'localhost' PROCEDURE `fetchBook`(in  
bid int)  
BEGIN  
select * from books where Book_id = bid;  
END
```

### Driver Query:

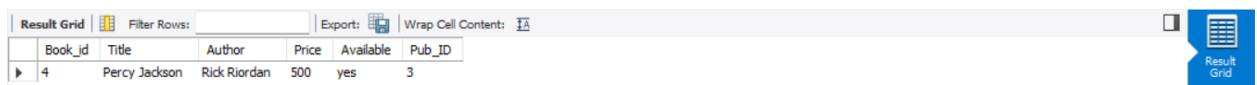
```
call fetchBook(1);
```



The screenshot shows the 'Result Grid' tab with the following data:

	Book_id	Title	Author	Price	Available	Pub_ID
▶	1	Secret Garden	Enid Blyton	500	yes	2

```
call fetchBook(4);
```



The screenshot shows the 'Result Grid' tab with the following data:

	Book_id	Title	Author	Price	Available	Pub_ID
▶	4	Percy Jackson	Rick Riordan	500	yes	3

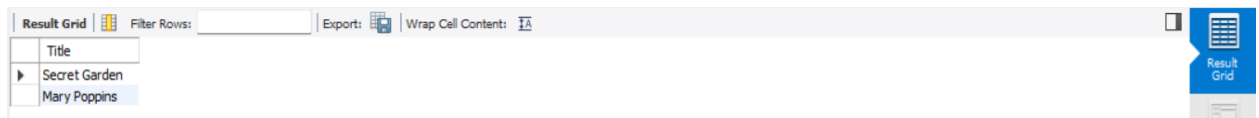
2. We write a procedure which takes the publisher name as input parameter and fetches all the books published by that particular publisher.

**findBooks - Routine:**

```
CREATE DEFINER='root'@'localhost' PROCEDURE `findBooks`(in  
pub varchar(30))  
BEGIN  
select Title from Books inner join Publisher on Books.Pub_ID =  
Publisher.Pub_ID where Publisher.Name = pub;  
END
```

**Driver Query:**

```
call findBooks("Bloomsbury Publishings");
```



The screenshot shows a database client interface with a 'Result Grid' tab selected. The grid contains three rows: 'Title', 'Secret Garden', and 'Mary Poppins'. The 'Mary Poppins' row is highlighted. The interface also includes a 'Filter Rows' field, an 'Export' button, and a 'Wrap Cell Content' checkbox.

Title
Secret Garden
Mary Poppins

**RESULT:**

Hence, successfully studied a real life database application - Library Management and developed a Case Study on it.