CASE STUDY:

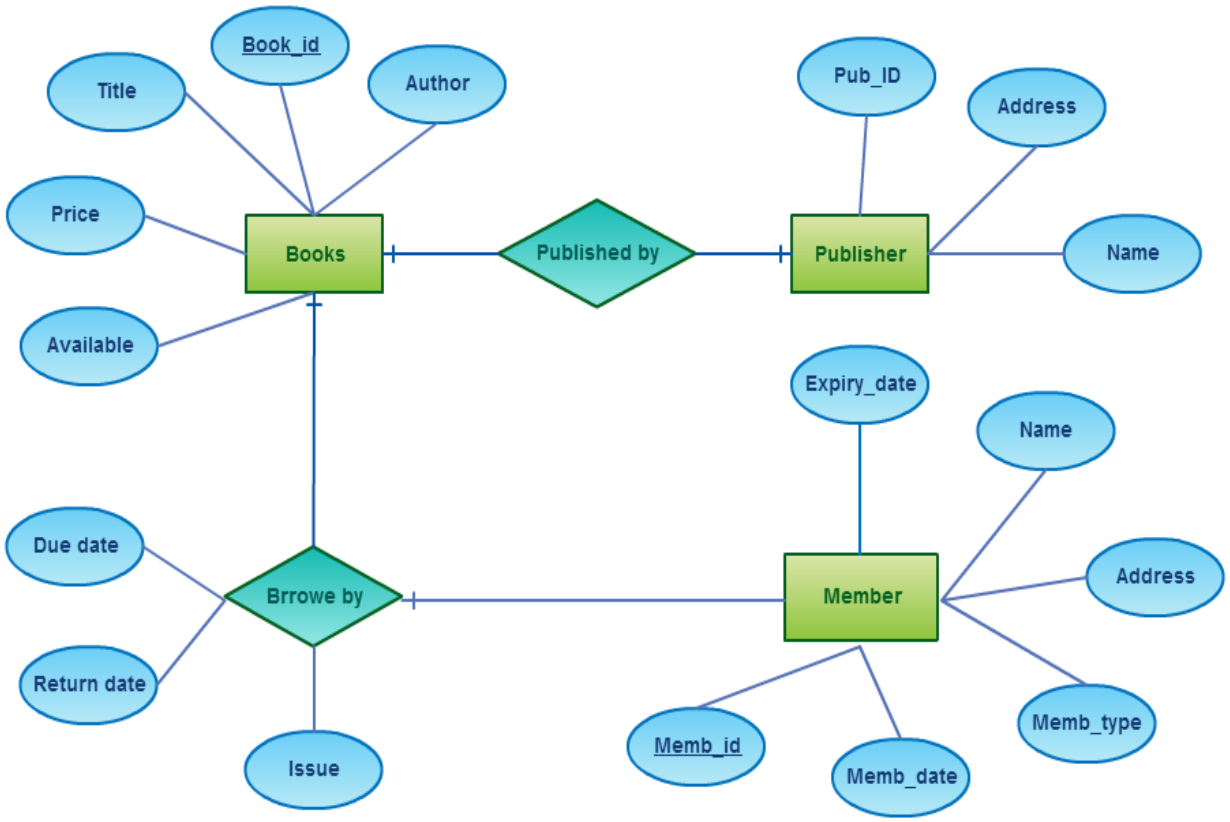
LIBRARY MANAGEMENT SYSTEM

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

Book_id	Title	Author	Price	Available	Pub_ID

Publisher

Pub_ID	Name	Address

Member

Memb_id	Name	Memb_type	Address	Memb_date	Expiry_date

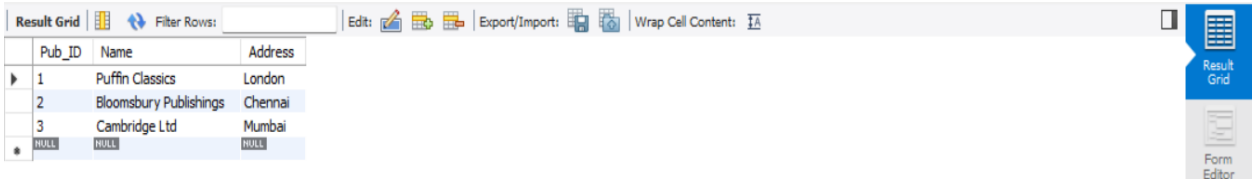
Borrowed

Memb_id	Book_id	Issue	Due date	Return date

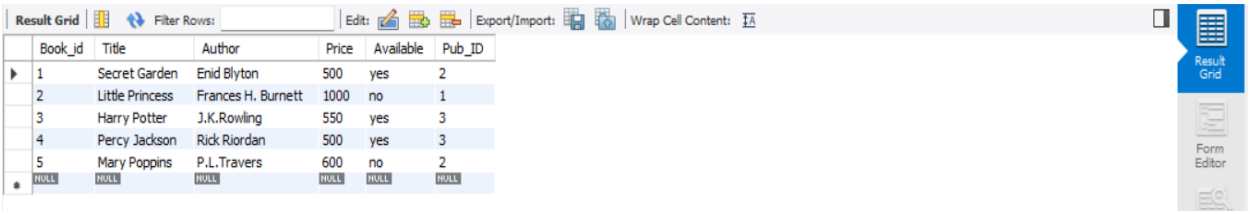
QUERIES:

```
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;
```

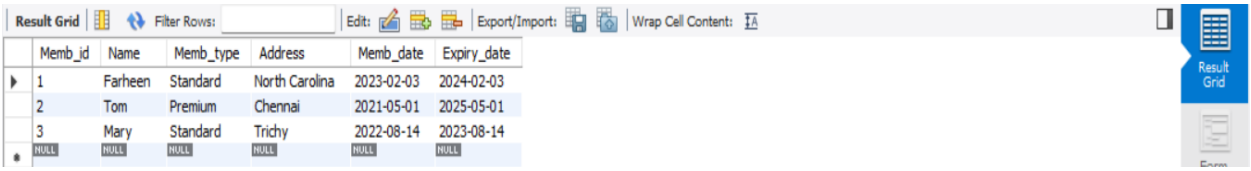



```
insert into books(Title,Author,Price,Available,Pub_ID) values
        ("Secret Garden", "Enid Blyton", 500, "yes", 2),
        ("Little Princess","Frances H. Burnett", 1000, "no", 1),
        ("Harry Potter","J.K.Rowling",550, "yes", 3),
        ("Percy Jackson","Rick Riordan", 500, "yes", 3),
 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

select * from books;
```



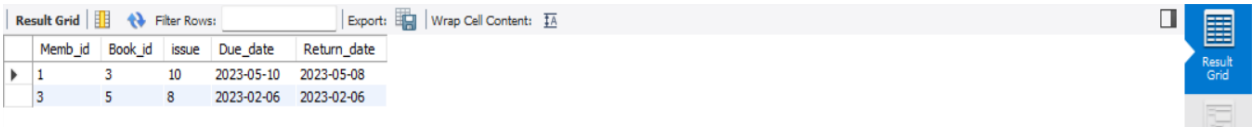
Book_id	Title	Author	Price	Available	Pub_ID
1	Secret Garden	Enid Blyton	500	yes	2
2	Little Princess	Frances H. Burnett	1000	no	1
3	Harry Potter	J.K.Rowling	550	yes	3
4	Percy Jackson	Rick Riordan	500	yes	3
5	Mary Poppins	P.L.Travers	600	no	2

```
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

```
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;
```



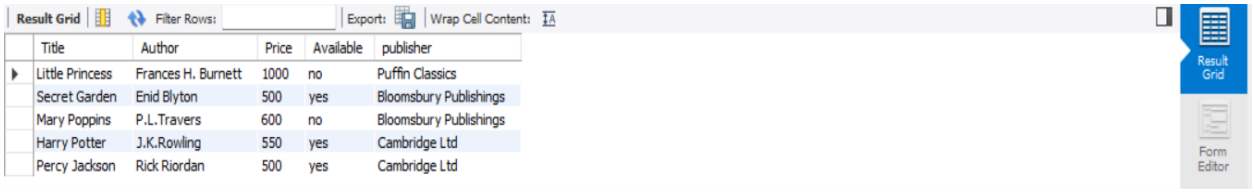
Memb_id	Book_id	issue	Due_date	Return_date
1	3	10	2023-05-10	2023-05-08
3	5	8	2023-02-06	2023-02-06

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;



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

STORED PROCEDURES:

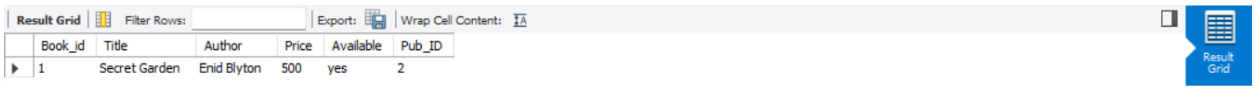
1. We write a stored procedure which takes a book ID as input parameter and return the details of the corresponding book.

   fetchBook - Routine:

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

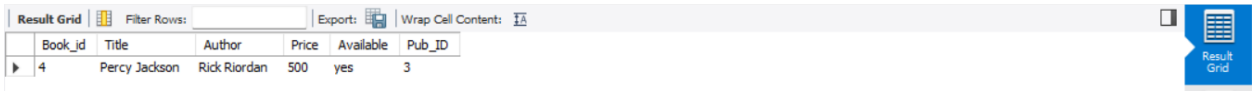
   Driver Query:

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



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

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



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

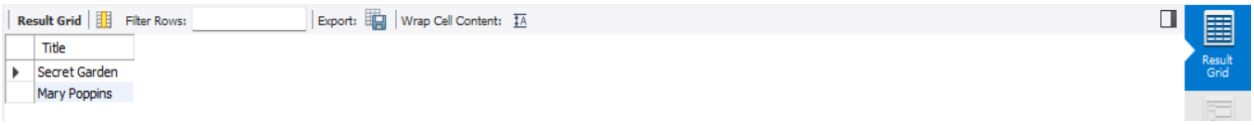
2. We write a procedure which takes the publisher name as input parameter and fetches all the books published by that particular publisher.

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");
```



RESULT:

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