

LIBRARY DATABASE

1) Consider the following schema for a Library Database:

BOOK (Book_id, Title, Publisher_Name, Pub_Year)

BOOK_AUTHORS (Book_id, Author_Name)

PUBLISHER (Name, Address, Phone)

BOOK_COPIES (Book_id, Branch_id, No-of_Copies)

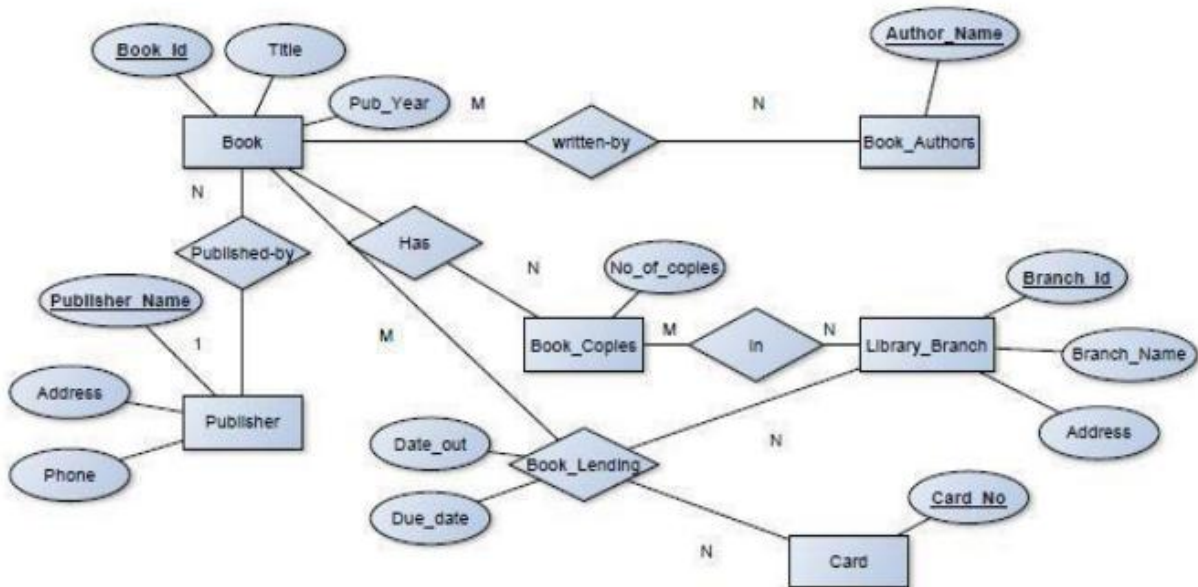
BOOK_LENDING (Book_id, Branch_id, Card_No, Date_Out, Due_Date)

LIBRARY_BRANCH (Branch_id, Branch_Name, Address)

Write SQL queries to

- 1) Retrieve the phone no and address whose name is pearson.
- 2) Get the particulars of borrowers who have borrowed more than 3 books.
- 3) Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
- 4) Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.
5. Create a view of library_branch.

ER-Diagram:



SCHEMA:

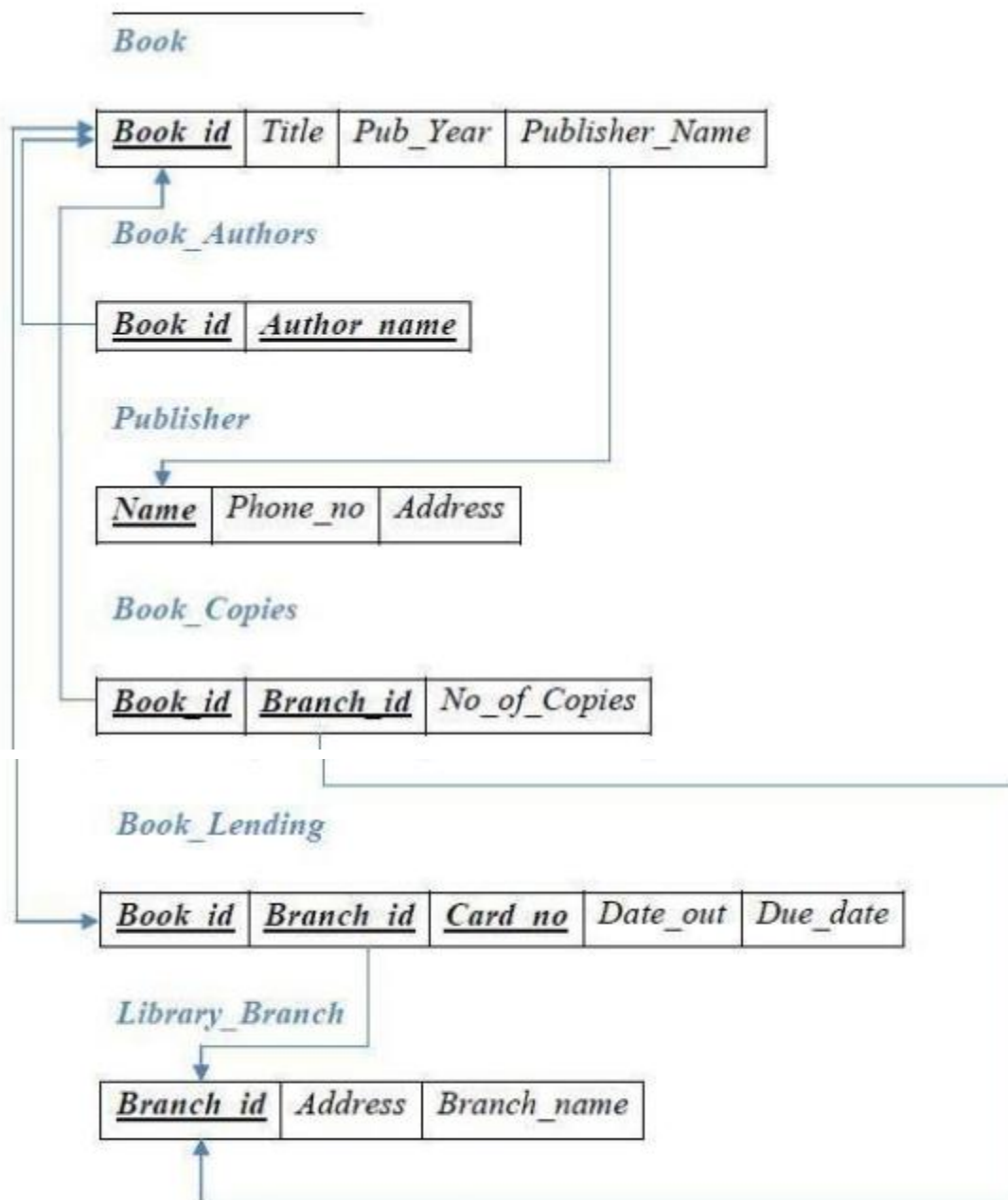


Table Creation:

PUBLISHER

MYSQL> CREATE TABLE PUBLISHER(NAME VARCHAR(18) PRIMARY KEY,

PHONE VARCHAR(10), ADDRESS VARCHAR(10));

```
mysql> desc publisher;
```

Field	Type	Null	Key	Default	Extra
NAME	varchar(18)	NO	PRI	NULL	
PHONE	varchar(10)	YES		NULL	
ADDRESS	varchar(10)	YES		NULL	

3 rows in set (0.00 sec)

BOOK

MYSQL>CREATE TABLE BOOK(BOOK_ID INT PRIMARY KEY,TITLE VARCHAR(20),PUB_YEAR INT(4),PUBLISHER_NAME VARCHAR(20)REFERENCES PUBLISHER(NAME));

```
mysql> DESC BOOK;
```

Field	Type	Null	Key	Default	Extra
BOOK_ID	int	NO	PRI	NULL	
TITLE	varchar(20)	YES		NULL	
PUB_YEAR	int	YES		NULL	
PUBLISHER_NAME	varchar(20)	YES		NULL	

4 rows in set (0.00 sec)

BOOK_AUTHORS

MYSQL> CREATE TABLE BOOK_AUTHORS(BOOK_ID INT REFERENCES BOOK(BOOK_ID), AUTHOR_NAME VARCHAR(20), PRIMARY KEY(BOOK_ID));

```
mysql> DESC BOOK_AUTHORS;
```

Field	Type	Null	Key	Default	Extra
BOOK_ID	int	NO	PRI	NULL	
AUTHOR_NAME	varchar(20)	YES		NULL	

2 rows in set (0.00 sec)

LIBRARY_BRANCH

MYSQL> CREATE TABLE LIBRARY_BRANCH(BRANCH_ID INT PRIMARY KEY, ADDRESS VARCHAR(15),BRANCH_NAME VARCHAR(18));

```
mysql> DESC LIBRARY_BRANCH;
```

Field	Type	Null	Key	Default	Extra
BRANCH_ID	int	NO	PRI	NULL	
ADDRESS	varchar(15)	YES		NULL	
BRANCH_NAME	varchar(18)	YES		NULL	

```
3 rows in set (0.00 sec)
```

BOOK_COPIES

```
MYSQL> CREATE TABLE BOOK_COPIES( BOOK_ID INT REFERENCES BOOK(BOOK_ID),
BRANCH_ID INT REFERENCES LIBRARY_BRANCH(BRANCH_ID), NO_OF_COPIES INT,
PRIMARY KEY(BOOK_ID,BRANCH_ID));
```

```
mysql> DESC LIBRARY_BRANCH;
```

Field	Type	Null	Key	Default	Extra
BRANCH_ID	int	NO	PRI	NULL	
ADDRESS	varchar(15)	YES		NULL	
BRANCH_NAME	varchar(18)	YES		NULL	

```
3 rows in set (0.00 sec)
```

BOOK_LENDING

```
MYSQL> CREATE TABLE BOOK_LENDING( BOOK_ID INT REFERENCES BOOK(BOOK_ID),
BRANCH_ID INT REFERENCES LIBRARY_BRANCH(BRANCH_ID), CARD_NO INT,
DATE_OUT DATE, DUE_DATE DATE, PRIMARY KEY(BOOK_ID,BRANCH_ID,CARD_NO));
```

```
mysql> DESC BOOK_LENDING;
```

Field	Type	Null	Key	Default	Extra
BOOK_ID	int	NO	PRI	NULL	
BRANCH_ID	int	NO	PRI	NULL	
CARD_NO	int	NO	PRI	NULL	
DATE_OUT	date	YES		NULL	
DUE_DATE	date	YES		NULL	

```
5 rows in set (0.00 sec)
```

Values for tables:

PUBLISHER

```
MYSQL>INSERT INTO PUBLISHER VALUES('PEARSON','BANGALORE','9875462530');
INSERT INTO PUBLISHER VALUES('MCGRAW','NEWDELHI','7845691234');
INSERT INTO PUBLISHER VALUES('SAPNA','BANGALORE','7845963210');
```

```
mysql> SELECT *FROM PUBLISHER;
```

NAME	PHONE	ADDRESS
MCGRW	NEWDELHI	7845691234
PEARSON	BANGALORE	9875462530
SAPNA	BANGALORE	7845963210

```
3 rows in set (0.00 sec)
```

BOOK

```
MYSQL> INSERT INTO BOOK VALUES(1111,'SE',2005,'PEARSON');
INSERT INTO BOOK VALUES(2222,'DBMS',2004,'MCGRW');
INSERT INTO BOOK VALUES(3333,'ANOTOMY',2010,'PEARSON');
INSERT INTO BOOK VALUES(4444,'ENCYCLOPEDIA',2010,'SAPNA');
```

```
mysql> SELECT *FROM BOOK;
```

BOOK_ID	TITLE	PUB_YEAR	PUBLISHER_NAME
1111	SE	2005	PEARSON
2222	DBMS	2004	MCGRW
3333	ANOTOMY	2010	PEARSON
4444	ENCYCLOPEDIA	2010	SAPNA

```
4 rows in set (0.00 sec)
```

BOOK_AUTHORS

```
MYSQL> INSERT INTO BOOK_AUTHORS VALUES(1111,'SOMMERVILLE');
INSERT INTO BOOK_AUTHORS VALUES(2222,'NAVATHE');
INSERT INTO BOOK_AUTHORS VALUES(3333,'HENRY GRAY');
INSERT INTO BOOK_AUTHORS VALUES(4444,'THOMAS');
```

```
mysql> SELECT *FROM BOOK_AUTHORS;
```

BOOK_ID	AUTHOR_NAME
1111	SOMMERVILLE
2222	NAVATHE
3333	HENRY GRAY
4444	THOMAS

```
4 rows in set (0.00 sec)
```

LIBRARY_BRANCH

```
MYSQL> INSERT INTO LIBRARY_BRANCH VALUES(11, 'MG ROAD','CENTRAL  
TECHNICAL');
```

```
INSERT INTO LIBRARY_BRANCH VALUES(22, 'BH ROAD','MEDICAL');
```

```
INSERT INTO LIBRARY_BRANCH VALUES(33, 'SS PURAM','CHILDREN');
```

```
INSERT INTO LIBRARY_BRANCH VALUES(44, 'SIRAGATE','SECRETARIAT');
```

```
INSERT INTO LIBRARY_BRANCH VALUES(55, 'JAYANAGAR','GENERAL');
```

```
mysql> SELECT *FROM LIBRARY_BRANCH;
```

BRANCH_ID	ADDRESS	BRANCH_NAME
11	MG ROAD	CENTRAL TECHNICAL
22	BH ROAD	MEDICAL
33	SS PURAM	CHILDREN
44	SIRAGATE	SECRETARIAT
55	JAYANAGAR	GENERAL

5 rows in set (0.00 sec)

BOOK_COPIES

```
MYSQL> INSERT INTO BOOK_COPIES VALUES(1111,11,5);
```

```
INSERT INTO BOOK_COPIES VALUES(3333,22,6);
```

```
INSERT INTO BOOK_COPIES VALUES(4444,33,10);
```

```
INSERT INTO BOOK_COPIES VALUES(2222,11,12);
```

```
INSERT INTO BOOK_COPIES VALUES(4444,55,3);
```

```
mysql> SELECT *FROM BOOK_COPIES;
```

BOOK_ID	BRANCH_ID	NO_OF_COPIES
1111	11	5
2222	11	12
3333	22	6
4444	33	10
4444	55	3

5 rows in set (0.00 sec)

BOOK_LENDING

```
MYSQL> INSERT INTO BOOK_LENDING VALUES(2222,11,1,'2017-01-10','2017-08-12');
```

```
INSERT INTO BOOK_LENDING VALUES(3333,22,2,'2017-08-09','2017-08-12');
```

```
INSERT INTO BOOK_LENDING VALUES(4444,55,1,'2017-04-11','2017-08-09');
```

```
INSERT INTO BOOK_LENDING VALUES(2222,11,5,'2017-09-09','2017-08-19');
```

```
INSERT INTO BOOK_LENDING VALUES(4444,33,1, '2017-06-10','2017-08-15');
```

```
INSERT INTO BOOK_LENDING VALUES(1111,11,1,'2017-05-12','2017-06-10');
```

INSERT INTO BOOK_LENDING VALUES(3333,22,1,'2017-08-11','2017-08-15');

```
mysql> SELECT *FROM BOOK_LENDING;
```

BOOK_ID	BRANCH_ID	CARD_NO	DATE_OUT	DUE_DATE
1111	11	1	2017-05-12	2017-06-10
2222	11	1	2017-01-10	2017-08-12
2222	11	5	2017-09-09	2017-08-19
3333	22	1	2017-08-11	2017-08-15
3333	22	2	2017-08-09	2017-08-12
4444	33	1	2017-06-10	2017-08-15
4444	55	1	2017-04-11	2017-08-09

```
7 rows in set (0.00 sec)
```

1)Retrieve the phone no and address from publisher whose name is pearsn

```
SELECT PHONE,ADDRESS
FROM PUBLISHER
WHERE NAME='PEARSON';
```

```
mysql> SELECT PHONE,ADDRESS
-> FROM PUBLISHER
-> WHERE NAME='PEARSON';
```

PHONE	ADDRESS
BANGALORE	9875462530

```
1 row in set (0.00 sec)
```

2)Get the particulars of borrowers who have borrowed more than 3 books.

```
SELECT CARD_NO,
FROM BOOK_LENDING
GROUP BY CARD_NO
HAVING COUNT(*) > 3;
```

```
mysql> SELECT CARD_NO
->          FROM BOOK_LENDING
-> GROUP BY CARD_NO
-> HAVING COUNT(*) > 3;
+-----+
| CARD_NO |
+-----+
|      1 |
+-----+
1 row in set (0.00 sec)
```

3) Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.

```
DELETE FROM BOOK WHERE BOOK_ID = '3333';
```

```
mysql> DELETE FROM BOOK WHERE BOOK_ID = '3333';
Query OK, 1 row affected (0.11 sec)
```

```
mysql> SELECT *from book_id;
ERROR 1146 (42S02): Table 'library.book_id' doesn't exist
mysql> SELECT *from book;
+-----+-----+-----+-----+
| BOOK_ID | TITLE          | PUB_YEAR | PUBLISHER_NAME |
+-----+-----+-----+-----+
| 1111 | SE              | 2005    | PEARSON        |
| 2222 | DBMS           | 2004    | MCGRAW         |
| 4444 | ENCYCLOPEDIA   | 2010    | SAPNA          |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

4) Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.

```
SELECT BOOK_ID, TITLE, PUBLISHER_NAME, PUB_YEAR
FROM BOOK
ORDER BY PUBLISHER_NAME;
```



```
mysql> SELECT BOOK_ID, TITLE, PUBLISHER_NAME, PUB_YEAR
-> FROM BOOK
-> ORDER BY PUBLISHER_NAME;
```

BOOK_ID	TITLE	PUBLISHER_NAME	PUB_YEAR
2222	DBMS	MCGRAW	2004
1111	SE	PEARSON	2005
4444	ENCYCLOPEDIA	SAPNA	2010

```
3 rows in set (0.00 sec)
```

5. Create a view of BOOK. by the name NEWBOOK.

```
CREATE VIEW NEWBOOK AS
SELECT BOOK_ID,PUBLISHER_NAME
FROM BOOK;
```

```
mysql> CREATE VIEW NEWBOOK AS
-> SELECT BOOK_ID,PUBLISHER_NAME
-> FROM BOOK;
Query OK, 0 rows affected (0.10 sec)

mysql> SELECT *FROM NEWBOOK;
```

BOOK_ID	PUBLISHER_NAME
1111	PEARSON
2222	MCGRAW
4444	SAPNA

```
3 rows in set (0.01 sec)
```

