https://www.scribd.com/document/431317329/Lab-Programs-of-DBMS

1. Consider the following schema for a Library Database:

2. BOOK (*Book_id, Title, Publisher_Name, Pub_Year*)

3. BOOK_AUTHORS (Book_id, Author_*Name*)

1. PUBLISHER (*Name, Address, Phone*)

5. BOOK_COPIES (*Book_id, Programme_id, No-of_Copies*)

6. BOOK_LENDING (*Book_id, Programme_id, Card_No, Date_Out, Due_Date*)

4. LIBRARY_PROGRAMME (*Programme_id, Programme_Name, Address*)

Write SQL queries to

i. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each Programme, etc.

ii. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017

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

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

v. Create a view of all books and its number of copies that are currently available in the Library.

Table Creation

- Create Table **Publisher** (Name Varchar (20) Primary Key, Phone Integer, Address Varchar (20));

```
mysql> desc Publisher;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| Name    | varchar(20) | NO   | PRI | NULL    |       |
| Phone   | int         | YES  |     | NULL    |       |
| Address | varchar(20) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
3 rows in set (0.01 sec)
```

- Create Table **Book** (Book_Id Integer Primary Key, Title Varchar (20), Pub_Year Varchar (20),Publisher_Name Varchar(10),Foreign Key (Publisher_Name) references Publisher (Name) On Delete Cascade);

```
mysql> desc Book;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| Book_Id        | int         | NO   | PRI | NULL    |       |
| Title          | varchar(20) | YES  |     | NULL    |       |
| Pub_Year       | varchar(20) | YES  |     | NULL    |       |
| Publisher_Name | varchar(10) | YES  | MUL | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

- Create Table **Book_Authors** (Author_Name Varchar (20), Book_Id Integer, Foreign Key (Book_Id) References Book (Book_Id) On Delete Cascade, Primary Key (Book_Id, Author_Name));

```
mysql> desc Book_Authors;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Author_Name | varchar(20) | NO   | PRI | NULL    |       |
| Book_Id     | int         | NO   | PRI | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

- Create Table **Library_Programme** (Programme_Id Integer Primary Key, Programme_Name Varchar (50), Address Varchar (50));

```
mysql> desc Library_Programme;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| Programme_Id   | int         | NO   | PRI | NULL    |       |
| Programme_Name | varchar(50) | YES  |     | NULL    |       |
| Address        | varchar(50) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

- Create Table **Book_Copies** (No_Of_Copies Integer, Book_Id Integer, foreign key (Book_Id) References Book (Book_Id) On Delete Cascade, Programme_Id Integer ,foreign key (Programme_Id) References Library_Programme (Programme_Id) On Delete Cascade, Primary Key (Book_Id, Programme_Id));

```
mysql> desc Book_Copies;
+--------------+------+------+-----+---------+-------+
| Field        | Type | Null | Key | Default | Extra |
+--------------+------+------+-----+---------+-------+
| No_Of_Copies | int  | YES  |     | NULL    |       |
| Book_Id      | int  | NO   | PRI | NULL    |       |
| Programme_Id | int  | NO   | PRI | NULL    |       |
+--------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

- Create Table **Book_Lending** (Date_Out Date, Due_Date Date, Book_Id Integer, foreign key (Book_Id) References Book (Book_Id) On Delete Cascade, Programme_Id Integer ,foreign key (Programme_Id) References Library_Programme (Programme_Id) On Delete Cascade, Card_No integer,Primary Key (Book_Id, Programme_Id, Card_No));

```
mysql> desc Book_Lending;
+--------------+------+------+-----+---------+-------+
| Field        | Type | Null | Key | Default | Extra |
+--------------+------+------+-----+---------+-------+
| Date_Out     | date | YES  |     | NULL    |       |
| Due_Date     | date | YES  |     | NULL    |       |
| Book_Id      | int  | NO   | PRI | NULL    |       |
| Programme_Id | int  | NO   | PRI | NULL    |       |
| Card_No      | int  | NO   | PRI | NULL    |       |
+--------------+------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

Queries:

i. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each Programme, etc.

Select B.Book_Id, B.Title, B.Publisher_Name, A.Author_Name, C.No_Of_Copies, L.Programme_Id

From Book B, Book_Authors A, Book_Copies C, Library_Programme L

Where B.Book_Id=A.Book_Id And B.Book_Id=C.Book_Id

And L.Programme_Id=C.Programme_Id;

ii. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.

```
Select Card_No
From Book_Lending
Where Date_Out Between '2017-01-01' And '2017-07-01'
Group By Card_No
Having Count(*)>3;
```

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

```
Delete From Book
Where Book_Id=3;
```

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

```
Create View V_Publication As
Select Pub_Year
From Book;
```

v. Create a view of all books and its number of copies that are currently available in the Library.

```
Create View V_Books As
Select B.Book_Id, B.Title, C.No_Of_Copies
From Book B, Book_Copies C, Library_Programme L
Where B.Book_Id = C.Book_Id
And C.Programme_Id=L.Programme_Id;
```