**IT252 Database Systems Lab Assignment - 1**

**Note:**

• Design, develop, and implement the specified queries for the following problem using MySQL under LINUX environment.

• Create Schema and insert at least 5 records for each table. Add appropriate database constraints.

**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, Programme\_id, No-of\_Copies)

BOOK\_LENDING(Book\_id, Programme\_id, Card\_No, Date\_Out, Due\_Date)

LIBRARY\_PROGRAMME(Programme\_id, Programme\_Name, Address)

**Write SQL queries to**

1. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in

each Programme, etc.

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

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 all books and its number of copies that are currently available in the Library.

**Table Creation**

CREATE TABLE PUBLISHER (NAME VARCHAR2 (20) PRIMARY KEY, PHONE INTEGER,

ADDRESS VARCHAR2 (20));

CREATE TABLE BOOK (BOOK\_ID INTEGER PRIMARY KEY, TITLE VARCHAR2 (20), PUB\_YEAR VARCHAR2 (20), PUBLISHER\_NAME REFERENCES PUBLISHER (NAME) ON DELETE CASCADE);

CREATE TABLE BOOK\_AUTHORS (AUTHOR\_NAME VARCHAR2 (20), BOOK\_ID REFERENCES BOOK (BOOK\_ID) ON DELETE CASCADE, PRIMARY KEY (BOOK\_ID, AUTHOR\_NAME));

CREATE TABLE LIBRARY\_BRANCH (BRANCH\_ID INTEGER PRIMARY KEY, BRANCH\_NAME VARCHAR2 (50), ADDRESS VARCHAR2 (50));

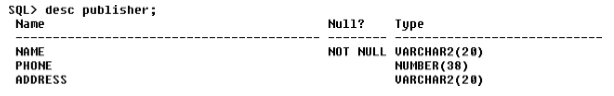
CREATE TABLE BOOK\_COPIES (NO\_OF\_COPIES INTEGER, BOOK\_ID REFERENCES BOOK (BOOK\_ID) ON DELETE CASCADE, BRANCH\_ID REFERENCES LIBRARY\_BRANCH (BRANCH\_ID) ON DELETE CASCADE, PRIMARY KEY (BOOK\_ID, BRANCH\_ID));

CREATE TABLE CARD (CARD\_NO INTEGER PRIMARY KEY);

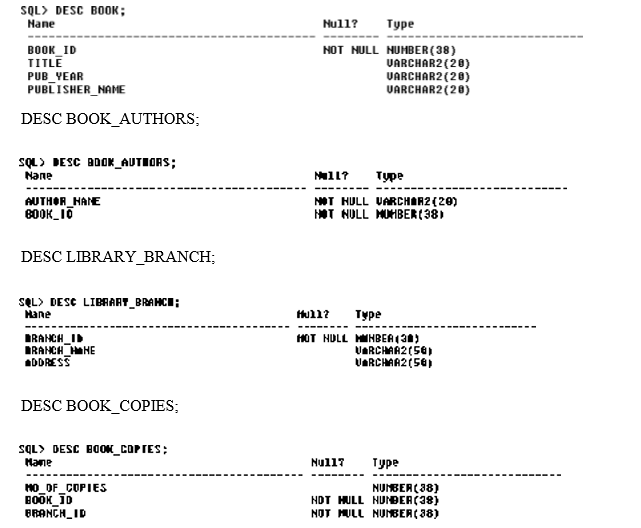
CREATE TABLE BOOK\_LENDING (DATE\_OUT DATE, DUE\_DATE DATE, BOOK\_ID REFERENCES BOOK (BOOK\_ID) ON DELETE CASCADE, BRANCH\_ID REFERENCES LIBRARY\_BRANCH (BRANCH\_ID) ON DELETE CASCADE, CARD\_NO REFERENCES CARD (CARD\_NO) ON DELETE CASCADE, PRIMARY KEY (BOOK\_ID, BRANCH\_ID, CARD\_NO));

**Table Descriptions**

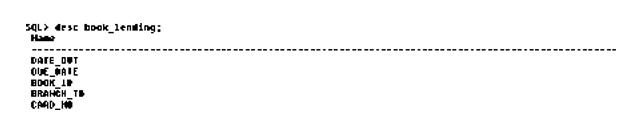
DESC PUBLISHER;



DESC BOOK;



DESC BOOK\_LENDING;



**Insertion of Values to Tables**

INSERT INTO PUBLISHER VALUES (‗MCGRAW-HILL„, 9989076587, ‗BANGALORE„); INSERT INTO PUBLISHER VALUES (‗PEARSON„, 9889076565, ‗NEWDELHI„); INSERT INTO PUBLISHER VALUES (‗RANDOM HOUSE„, 7455679345, ‗HYDRABAD„); INSERT INTO PUBLISHER VALUES (‗HACHETTE LIVRE„, 8970862340, ‗CHENAI„); INSERT INTO PUBLISHER VALUES (‗GRUPO PLANETA„, 7756120238, ‗BANGALORE„);

INSERT INTO BOOK VALUES (1,„DBMS„,„JAN-2017„, ‗MCGRAW-HILL„); INSERT INTO BOOK VALUES (2,„ADBMS„,„JUN-2016„, ‗MCGRAW- HILL„); INSERT INTO BOOK VALUES (3,„CN„,„SEP-2016„, ‗PEARSON„); INSERT INTO BOOK VALUES (4,„CG„,„SEP-2015„, ‗GRUPO PLANETA„); INSERT INTO BOOK VALUES (5,„OS„,„MAY-2016„, ‗PEARSON„);

INSERT INTO BOOK\_AUTHORS VALUES („NAVATHE„, 1); INSERT INTO BOOK\_AUTHORS VALUES („NAVATHE„, 2); INSERT INTO BOOK\_AUTHORS VALUES („TANENBAUM„, 3); INSERT INTO BOOK\_AUTHORS VALUES („EDWARD ANGEL„, 4); INSERT INTO BOOK\_AUTHORS VALUES („GALVIN„, 5);

INSERT INTO LIBRARY\_BRANCH VALUES (10,„RR NAGAR„,„BANGALORE„); INSERT INTO LIBRARY\_BRANCH VALUES (11,„RNSIT„,„BANGALORE„); INSERT INTO LIBRARY\_BRANCH VALUES (12,„RAJAJI NAGAR„, „BANGALORE„); INSERT INTO LIBRARY\_BRANCH VALUES (13,„NITTE„,„MANGALORE„); INSERT INTO LIBRARY\_BRANCH VALUES (14,„MANIPAL„,„UDUPI„);

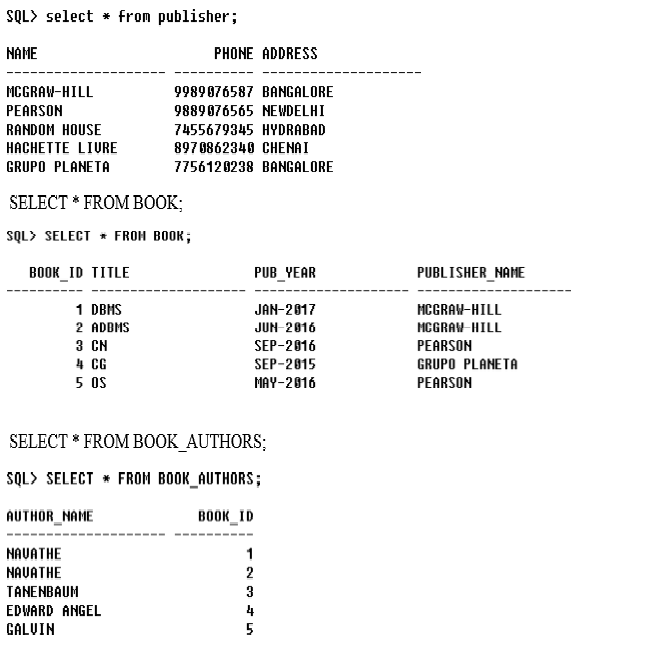
INSERT INTO BOOK\_COPIES VALUES (10, 1, 10); INSERT INTO BOOK\_COPIES VALUES (5, 1, 11); INSERT INTO BOOK\_COPIES VALUES (2, 2, 12); INSERT INTO BOOK\_COPIES VALUES (5, 2, 13); INSERT INTO BOOK\_COPIES VALUES (7, 3, 14); INSERT INTO BOOK\_COPIES VALUES (1, 5, 10); INSERT INTO BOOK\_COPIES VALUES (3, 4, 11);

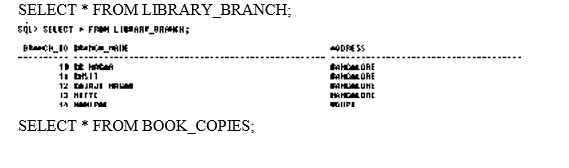
INSERT INTO CARD VALUES (100); INSERT INTO CARD VALUES (101); INSERT INTO CARD VALUES (102);

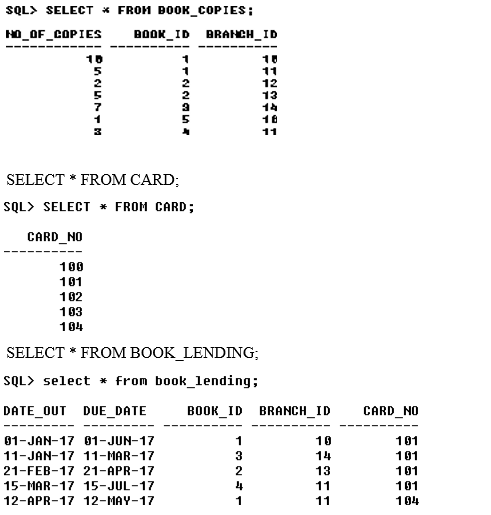
INSERT INTO CARD VALUES (103);

INSERT INTO CARD VALUES (104);

INSERT INTO BOOK\_LENDING VALUES („01-JAN-17„,„01-JUN-17„, 1, 10, 101); INSERT INTO BOOK\_LENDING VALUES („11-JAN-17„,„11-MAR-17„, 3, 14, 101); INSERT INTO BOOK\_LENDING VALUES („21-FEB-17„,„21-APR-17„, 2, 13, 101); INSERT INTO BOOK\_LENDING VALUES („15-MAR-17„,„15-JUL-17„, 4, 11, 101); INSERT INTO BOOK\_LENDING VALUES (‗12-APR-17„,„12-MAY-17„, 1, 11, 104); SELECT \* FROM PUBLISHER;



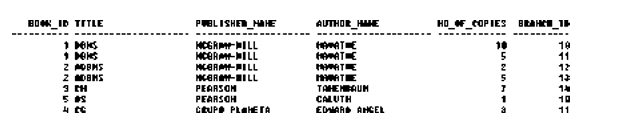




**Queries:**

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

SELECT B.BOOK\_ID, B.TITLE, B.PUBLISHER\_NAME, A.AUTHOR\_NAME, C.NO\_OF\_COPIES, L.BRANCH\_ID FROM BOOK B, BOOK\_AUTHORS A, BOOK\_COPIES C, LIBRARY\_BRANCH L WHERE B.BOOK\_ID=A.BOOK\_ID AND B.BOOK\_ID=C.BOOK\_ID AND L.BRANCH\_ID=C.BRANCH\_ID;



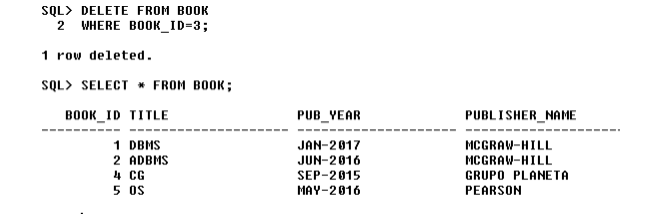
**2. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.**

SELECT CARD\_NO FROM BOOK\_LENDING WHERE DATE\_OUT BETWEEN „01-JAN-2017„ AND „01-JUL-2017„ GROUP BY CARD\_NO HAVING COUNT (\*)>3;



**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=3;



**4. 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;



**5. 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\_BRANCH L WHERE B.BOOK\_ID=C.BOOK\_ID AND C.BRANCH\_ID=L.BRANCH\_ID;

