DBMS LAB PROGRAM 7(BOOK DATABASE)

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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)

CODE

```
create database bookdb1;
use bookdb1;

CREATE TABLE PUBLISHER
(NAME VARCHAR(20) PRIMARY KEY,
PHONE VARCHAR(10),
ADDRESS VARCHAR(20));

CREATE TABLE BOOK(
BOOK_ID INTEGER PRIMARY KEY,
TITLE VARCHAR(20),
PUB_YEAR VARCHAR(20),
PUBLISHER_NAME VARCHAR(20),
FOREIGN KEY (PUBLISHER_NAME) REFERENCES PUBLISHER (NAME) ON DELETE
CASCADE);

CREATE TABLE BOOK_AUTHORS(
AUTHOR_NAME VARCHAR(20),
BOOK_ID INTEGER,
PRIMARY KEY (BOOK_ID, AUTHOR_NAME),
FOREIGN KEY (BOOK_ID) REFERENCES BOOK (BOOK_ID) ON DELETE CASCADE );

CREATE TABLE LIBRARY_BRANCH (
BRANCH_ID INTEGER PRIMARY KEY,
BRANCH_NAME VARCHAR(20),
ADDRESS VARCHAR(20));


CREATE TABLE BOOK_COPIES
(
NO_OF_COPIES INTEGER,
BOOK_ID INTEGER,
BRANCH_ID INTEGER,
PRIMARY KEY (BOOK_ID, BRANCH_ID),
FOREIGN KEY (BOOK_ID) REFERENCES BOOK (BOOK_ID) ON DELETE CASCADE,
FOREIGN KEY (BRANCH_ID) REFERENCES LIBRARY_BRANCH (BRANCH_ID) ON DELETE
CASCADE);

CREATE TABLE CARD
(CARD_NO INTEGER PRIMARY KEY);
```

```
CREATE TABLE BOOK_LENDING(
DATE_OUT DATE,
DUE_DATE DATE,
BOOK_ID INTEGER,
BRANCH_ID INTEGER,
CARD_NO INTEGER,
PRIMARY KEY (BOOK_ID, BRANCH_ID, CARD_NO),
FOREIGN KEY (BOOK_ID) REFERENCES BOOK (BOOK_ID) ON DELETE CASCADE,
FOREIGN KEY (CARD_NO) REFERENCES CARD (CARD_NO) ON DELETE CASCADE,
FOREIGN KEY (BRANCH_ID) REFERENCES LIBRARY_BRANCH (BRANCH_ID) ON DELETE
CASCADE);

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


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

 INSERT INTO BOOK_AUTHORS VALUES ("NAVATHE","1"),
 ("NAVATHE","2"),
 ("TANENBAUM","3"),
 ("EDWARD ANGEL","4"),
 ("GALVIN","5");

 INSERT INTO LIBRARY_BRANCH VALUES ("10","RR NAGAR","BANGALORE"),
("11","RNSIT","BANGALORE"),
 ("12","RAJAJI NAGAR", "BANGALORE"),
 ("13","NITTE","MANGALORE"),
 ("14","MANIPAL","UDUPI");

INSERT INTO BOOK_COPIES
VALUES("10","1","10"),("5","1","11"),("2","2","12"),("5","2","13"),("7","3","14"),("1","5","10"),("3","4
","11");

INSERT INTO CARD VALUES ("100"),("101"),("102"),("103"),("104");

INSERT INTO BOOK_LENDING VALUES ("17-01-01","17-06-01","1","10","101"),
 ("17-01-17","17-03-17","3", "14", "101"),
 ("17-02-21","17-04-21", 2, 13, 101),
 ("17-03-15","17-07-15", "4", "11", "101"),
 ("17-04-12","17-05-12", "1", "11", "104");
```

SELECT * FROM PUBLISHER;

NAME	PHONE	ADDRESS
GRUPO PLANETA	7756120238	BANGALORE
HACHETTE LIVRE	8970862340	CHENNAI
MCGRAW-HILL	9989076587	BANGALORE
PEARSON	9889076565	NEWDELHI
RANDOM HOUSE	7455679345	HYDRABAD
NULL	NULL	NULL

PUBLISHER 3 ×

SELECT * FROM BOOK;

BOOK_ID	TITLE	PUB_YEAR	PUBLISHER_NAME
1	DBMS	JAN-2017	MCGRAW-HILL
2	ADBMS	JUN-2016	MCGRAW-HILL
3	CN	SEP-2016	PEARSON
4	CG	SEP-2015	GRUPO PLANETA
5	OS	MAY-2016	PEARSON
NULL	NULL	NULL	NULL

BOOK 4 ×

SELECT * FROM BOOK_AUTHORS;

AUTHOR_NAME	BOOK_ID
NAVATHE	1
NAVATHE	2
TANENBAUM	3
EDWARD ANGEL	4
GALVIN	5
NULL	NULL

BOOK_AUTHORS 5 ×

SELECT * FROM LIBRARY_BRANCH;

BRANCH_ID	BRANCH_NAME	ADDRESS
10	RR NAGAR	BANGALORE
11	RNSIT	BANGALORE
12	RAJAJI NAGAR	BANGALORE
13	NITTE	MANGALORE
14	MANIPAL	UDUPI
NULL	NULL	NULL

LIBRARY_BRANCH 6 ×

SELECT * FROM BOOK_COPIES;

NO_OF_COPIES	BOOK_ID	BRANCH_ID
10	1	10
5	1	11
2	2	12
5	2	13
7	3	14
3	4	11
1	5	10
NULL	NULL	NULL

BOOK_COPIES 7 ×

SELECT * FROM CARD;

CARD_NO
100
101
102
103
104
NULL

CARD 8 ×

SELECT * FROM BOOK_LENDING;

DATE_OUT	DUE_DATE	BOOK_ID	BRANCH_ID	CARD_NO
2017-01-01	2017-06-01	1	10	101
2017-04-12	2017-05-12	1	11	104
2017-02-21	2017-04-21	2	13	101
2017-01-17	2017-03-17	3	14	101
2017-03-15	2017-07-15	4	11	101
NULL	NULL	NULL	NULL	NULL

BOOK_LENDING 9 ×

I. 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;
```

BOOK_ID	TITLE	PUBLISHER_NAME	AUTHOR_NAME	NO_OF_COPIES	BRANCH_ID
1	DBMS	MCGRAW-HILL	NAVATHE	10	10
1	DBMS	MCGRAW-HILL	NAVATHE	5	11
2	ADBMS	MCGRAW-HILL	NAVATHE	2	12
2	ADBMS	MCGRAW-HILL	NAVATHE	5	13
3	CN	PEARSON	TANENBAUM	7	14
4	CG	GRUPO PLANETA	EDWARD ANGEL	3	11
5	OS	PEARSON	GALVIN	1	10

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;
```

CARD_NO
101

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;
```

```
SELECT * FROM BOOK;
```

BOOK_ID	TITLE	PUB_YEAR	PUBLISHER_NAME
1	DBMS	JAN-2017	MCGRAW-HILL
2	ADBMS	JUN-2016	MCGRAW-HILL
4	CG	SEP-2015	GRUPO PLANETA
5	OS	MAY-2016	PEARSON
NULL	NULL	NULL	NULL

```
SELECT * FROM BOOK_AUTHORS;
```

AUTHOR_NAME	BOOK_ID
NAVATHE	1
NAVATHE	2
EDWARD ANGEL	4
GALVIN	5
NULL	NULL

SELECT * FROM BOOK_COPIES;

NO_OF_COPIES	BOOK_ID	BRANCH_ID
10	1	10
5	1	11
2	2	12
5	2	13
3	4	11
1	5	10
NULL	NULL	NULL

SELECT * FROM BOOK_LENDING;

DATE_OUT	DUE_DATE	BOOK_ID	BRANCH_ID	CARD_NO
2017-01-01	2017-06-01	1	10	101
2017-04-12	2017-05-12	1	11	104
2017-02-21	2017-04-21	2	13	101
2017-01-17	2017-03-17	3	14	101
2017-03-15	2017-07-15	4	11	101
NULL	NULL	NULL	NULL	NULL

BOOK_LENDING 9 ×

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

CREATE VIEW YEAR_OF_PUBLICATION AS SELECT PUB_YEAR FROM BOOK;

SELECT * FROM YEAR_OF_PUBLICATION;

PUB_YEAR
JAN-2017
JUN-2016
SEP-2016
SEP-2015
MAY-2016

YEAR_OF_PUBLICATION 2 ×

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

```
CREATE VIEW BOOKS_AVAILABLE_IN_LIBRARY 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;

SELECT * FROM BOOKS_AVAILABLE_IN_LIBRARY;
```

	BOOK_ID	TITLE	NO_OF_COPIES
▶	1	DBMS	10
	1	DBMS	5
	2	ADBMS	2
	2	ADBMS	5
	3	CN	7
	4	CG	3
	5	OS	1