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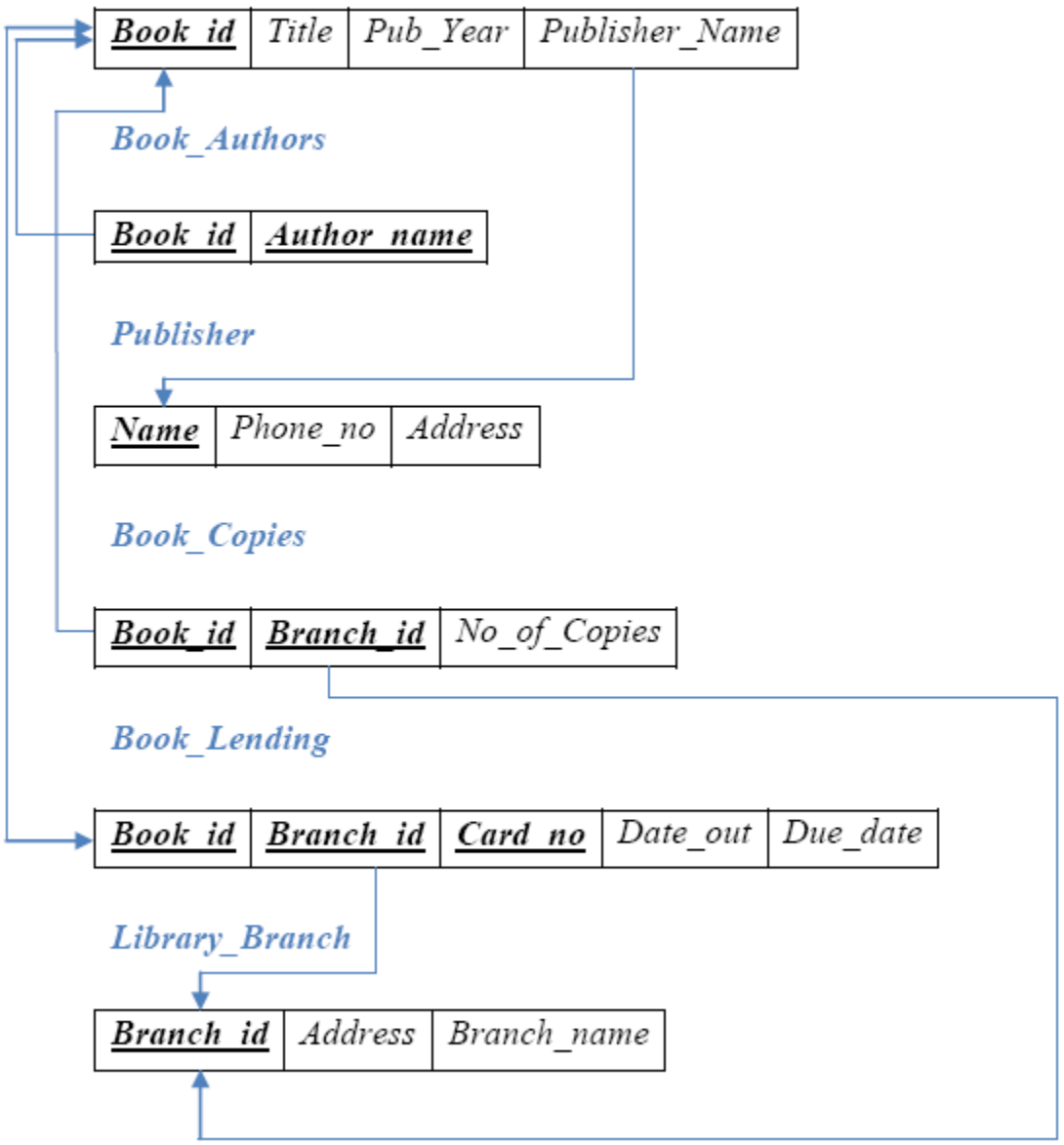
Program 7 : Book Database

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

Schema Diagram



Creation of tables and entering tuple values:

```
create database librarydb;
use librarydb;

create table Book(
        book_id int not null,
        title varchar(10) not null,
        pub_year varchar(20) not null,
   publisher_name varchar(20) not null,
        primary key(book_id)
);

create table BookAuthors(
        book_id int not null,
        author_name varchar(20) not null,
        primary key(book_id,author_name),
        foreign key(book_id) references Book(book_id) on delete cascade
);

create table Publisher(
        p_name varchar(20) not null,
        phone_no varchar(10) not null,
        address varchar(20) not null,
        primary key(p_name)
);

create table LibraryBranch(
        branch_id int not null,
        address varchar(20) not null,
        branch_name varchar(20) not null,
        primary key(branch_id)
);

create table BookCopies(
        book_id int not null,
        branch_id int not null,
        no_of_copies int not null,
        primary key(book_id,branch_id),
        foreign key(book_id) references Book(book_id)on delete cascade,
        foreign key(branch_id) references LibraryBranch(branch_id) on delete cascade
);

create table Card(
        card_no int not null,
   primary key(card_no)
);

create table BookLending(
        book_id int not null,
```

```
        branch_id int not null,
        card_no int not null,
        date_out date not null,
        due_date date not null,
        primary key(book_id,branch_id,card_no),
        foreign key(book_id) references Book(book_id) on delete cascade,
        foreign key(branch_id) references LibraryBranch(branch_id) on delete cascade,
        foreign key(card_no) references Card(card_no) on delete cascade
);

insert into Publisher(p_name,phone_no,address)
        values ('McGraw Hill','9989076587','Bangalore'),
                ('Pearson','9889076565','New Delhi'),
                ('Random House','7455679345','Hyderabad'),
                ('Hachette Livre','8970862340','Chennai'),
                ('Grupo Planeta','7756120238','Bangalore');

insert into Book(book_id,title,pub_year,publisher_name)
        values (1,'DBMS','2017-01','McGraw Hill'),
                (2,'ADBMS','2016-06','McGraw Hill'),
                (3,'CN','2016-09','Pearson'),
                (4,'CG','2015-09','Grupo Planeta'),
                (5,'OS','2016-05','Pearson');

insert into BookAuthors(author_name,book_id)
        values ('Navathe',1),
                ('Navathe',2),
                ('Tanenbaum',3),
                ('Edward Angel',4),
                ('Galvin',5);

insert into LibraryBranch(branch_id,branch_name,address)
        values (10,'RR Nagar','Bangalore'),
                (11,'RNSIT','Bangalore'),
                (12,'Rajajinagar','Bangalore'),
                (13,'Nitte','Mangalore'),
                (14,'Manipal','Udupi');

insert into BookCopies(book_id,branch_id,no_of_copies)
        values (1,10,10),
                (1,11,5),
                (2,12,2),
                (2,13,5),
                (3,14,7),
                (5,10,1),
                (4,11,3);

insert into Card(card_no)
        values (100),
                (101),
```

```
        (102),
        (103),
        (104);

insert into BookLending(date_out,due_date,book_id,branch_id,card_no)
    values ('2017-01-01','2017-06-01',1,10,101),
        ('2017-01-11','2017-03-11',3,14,101),
        ('2017-02-21','2017-04-21',2,13,101),
        ('2017-03-15','2017-07-15',4,11,101),
        ('2017-04-12','2017-05-12',1,11,104);
```

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,ba.author_name,b.publisher_name,b.pub_year,bc.no_of_copies,lb.branch_name
from Book b,BookCopies bc,LibraryBranch lb,BookAuthors ba
 where b.book_id = bc.book_id and lb.branch_id = bc.branch_id and b.book_id = ba.book_id;
```

book_id	title	author_name	publisher_name	pub_year	no_of_copies	branch_name
1	DBMS	Navathe	McGraw Hill	2017-01	10	RR Nagar
1	DBMS	Navathe	McGraw Hill	2017-01	5	RNSIT
2	ADBMS	Navathe	McGraw Hill	2016-06	2	Rajajinagar
2	ADBMS	Navathe	McGraw Hill	2016-06	5	Nitte
4	CG	Edward Angel	Grupo Planeta	2015-09	3	RNSIT
5	OS	Galvin	Pearson	2016-05	1	RR Nagar

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

```
select card_no
from BookLending where date_out between '2017-01-01' and '2017-06-30'
group by card_no
having count(book_id) > 3;
```

card_no

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

```
delete from Book where title = 'CN';
select * from Book;
```

book_id	title	pub_year	publisher_name
1	DBMS	2017-01	McGraw Hill
2	ADBMS	2016-06	McGraw Hill
4	CG	2015-09	Grupo Planeta
5	OS	2016-05	Pearson
NULL	NULL	NULL	NULL

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

```
create view book_dates as
select pub_year from Book;
select * from book_dates;
```

pub_year
2017-01
2016-06
2015-09
2016-05

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

```
create view book_view as
select b.book_id,b.title,lb.branch_name,bc.no_of_copies
from Book b,BookCopies bc,Librarybranch lb
where b.book_id = bc.book_id and lb.branch_id = bc.branch_id;
select * from book_view;
```

book_id	title	branch_name	no_of_copies
1	DBMS	RR Nagar	10
1	DBMS	RNSIT	5
2	ADBMS	Rajajinagar	2
2	ADBMS	Nitte	5
4	CG	RNSIT	3
5	OS	RR Nagar	1