TERM WORK

IV

LIBRARY DATABSE

**Consider the following schema for a Library Database:**

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

**BOOK (Book\_id,Title, Pub\_Year, Publisher\_Name) BOOK\_AUTHORS (Author\_Name ,Book\_id)**

**LIBRARY\_BRANCH (Branch\_id, Branch\_Name, Address)**

**BOOK\_COPIES (No-of\_Copies , Book\_id, Branch\_id)**

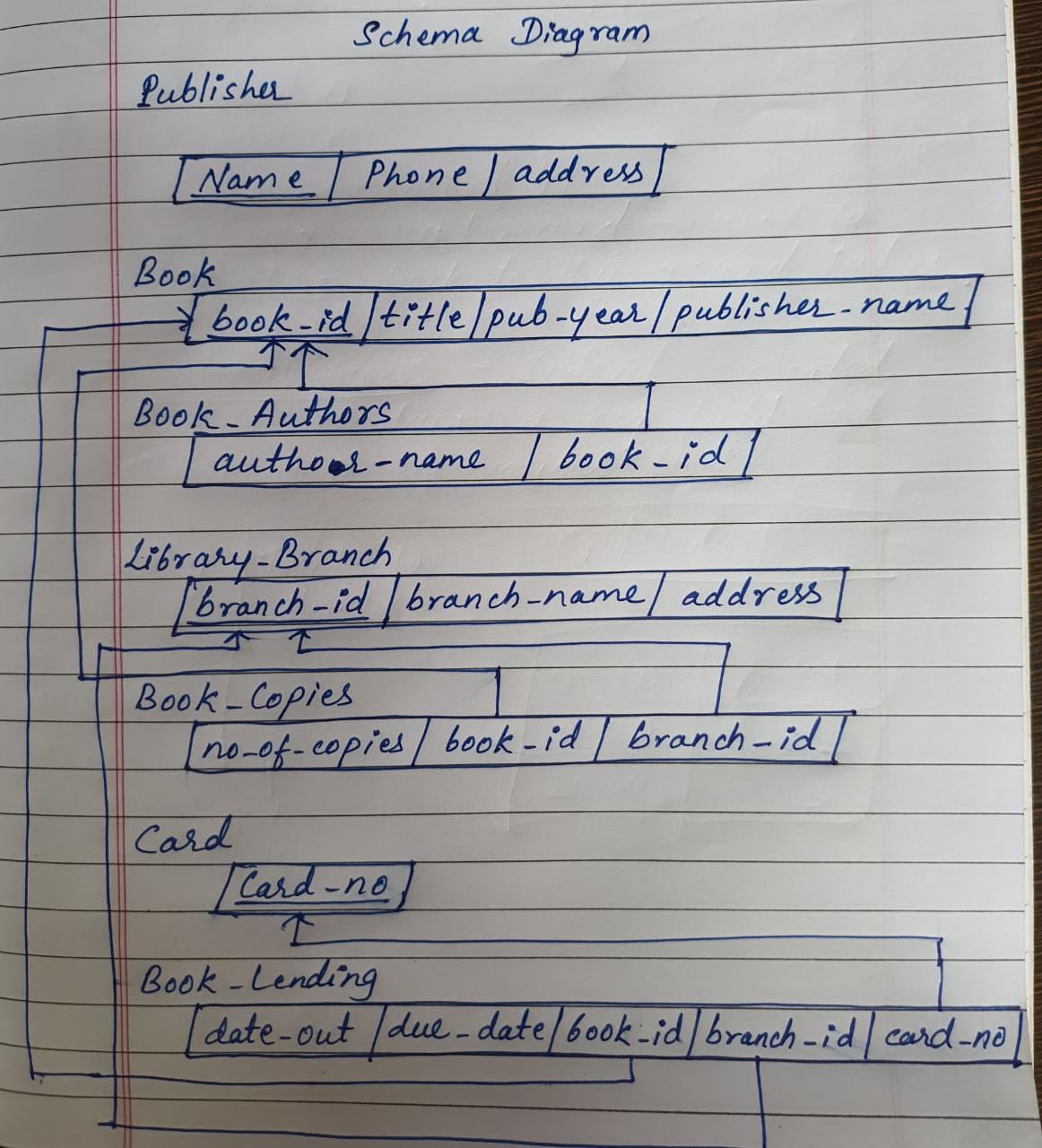
**CARD (card\_no)**

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

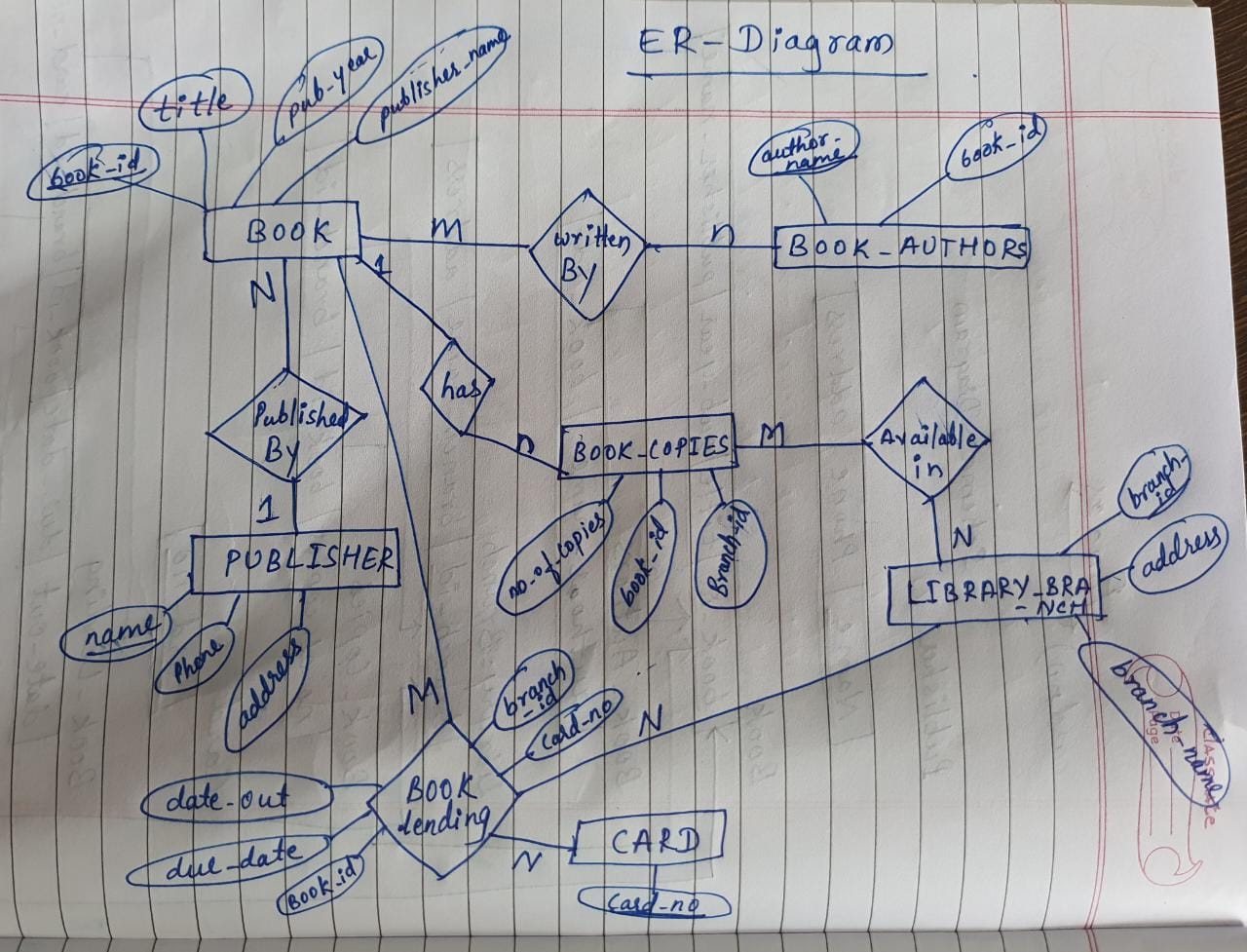
Write SQL queries to

1. Draw schema and ER diagram for database.
2. Create the above tables by properly specifying the primary keys and foreign keys.
3. Enter at least five tuples for each relation.
4. Retrieve details of all books in the library – id, title, name of publisher, authors, number of copies in each branch,etc.
5. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun2017
6. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.
7. Partition the BOOK table based on year of publication. Demonstrate its working with a simple query.
8. Create a view of all books and its number of copies that are currently available in the Library.

**1. Schema Diagram**



**Entity Relationship Diagram**



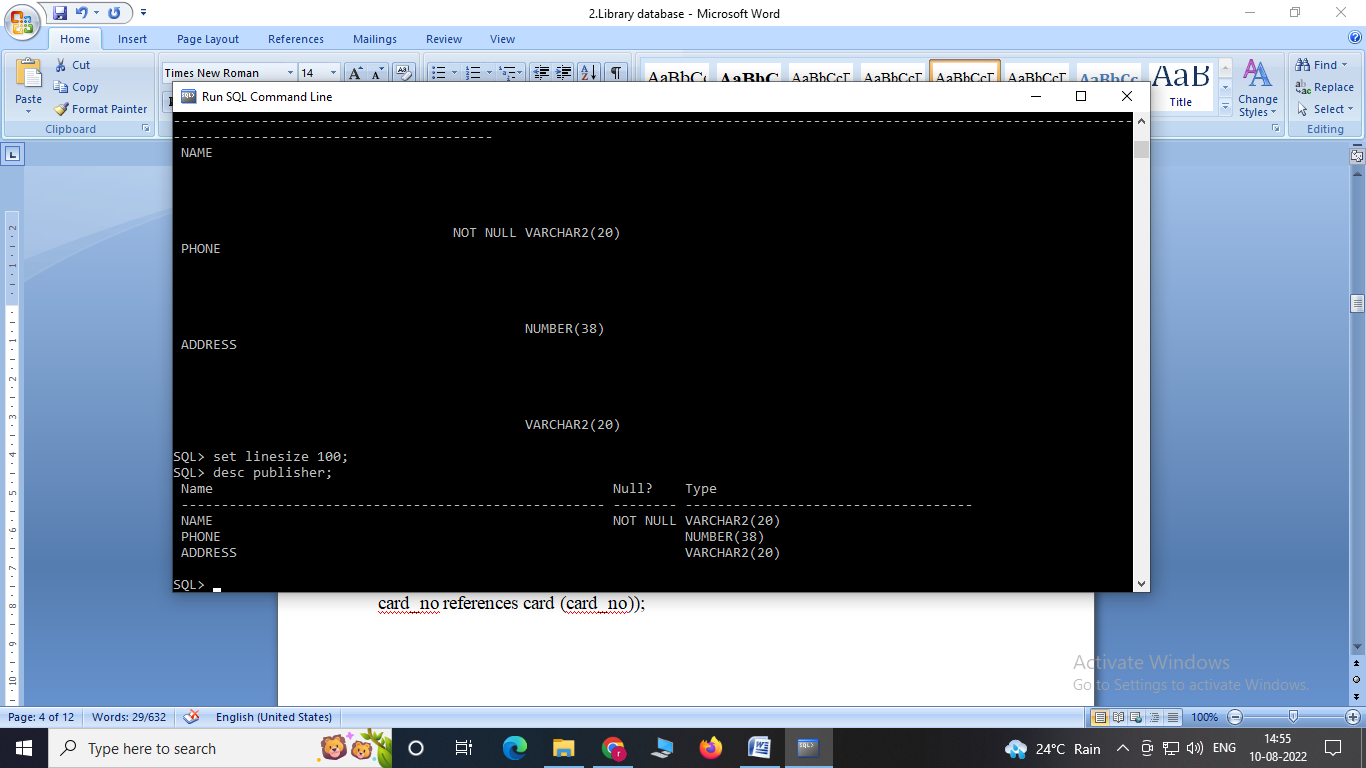
**2. Creation and Description of all tables:**

Create table publisher

(name varchar(20) primary key,

Phone integer,

address varchar (20));



Create table book

(book\_id int primary key,

title varchar(20),

Pub\_year varchar(20),

Publisher\_name references publisher (name)

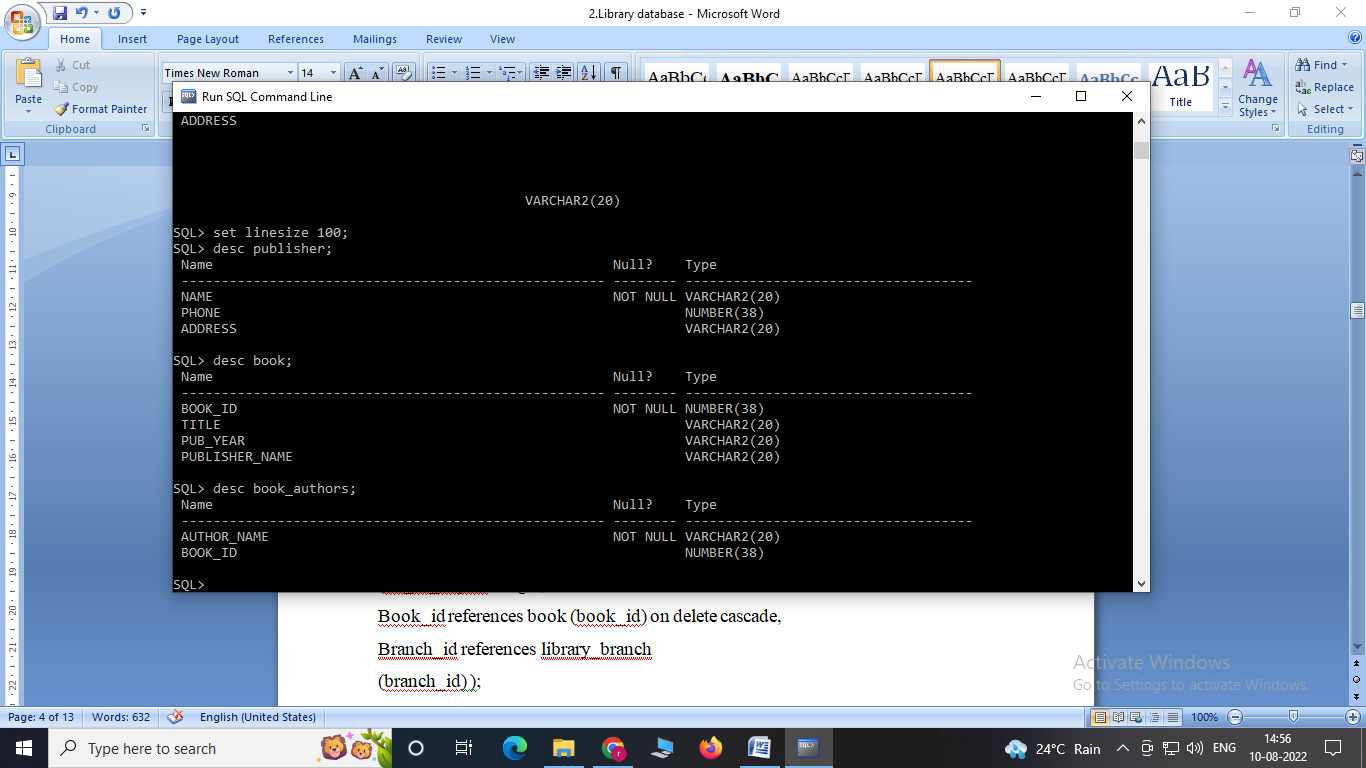
On delete cascade);



Create table book\_authors

(author\_name varchar (20) primary key,

book\_id references book (book\_id)On delete cascade);

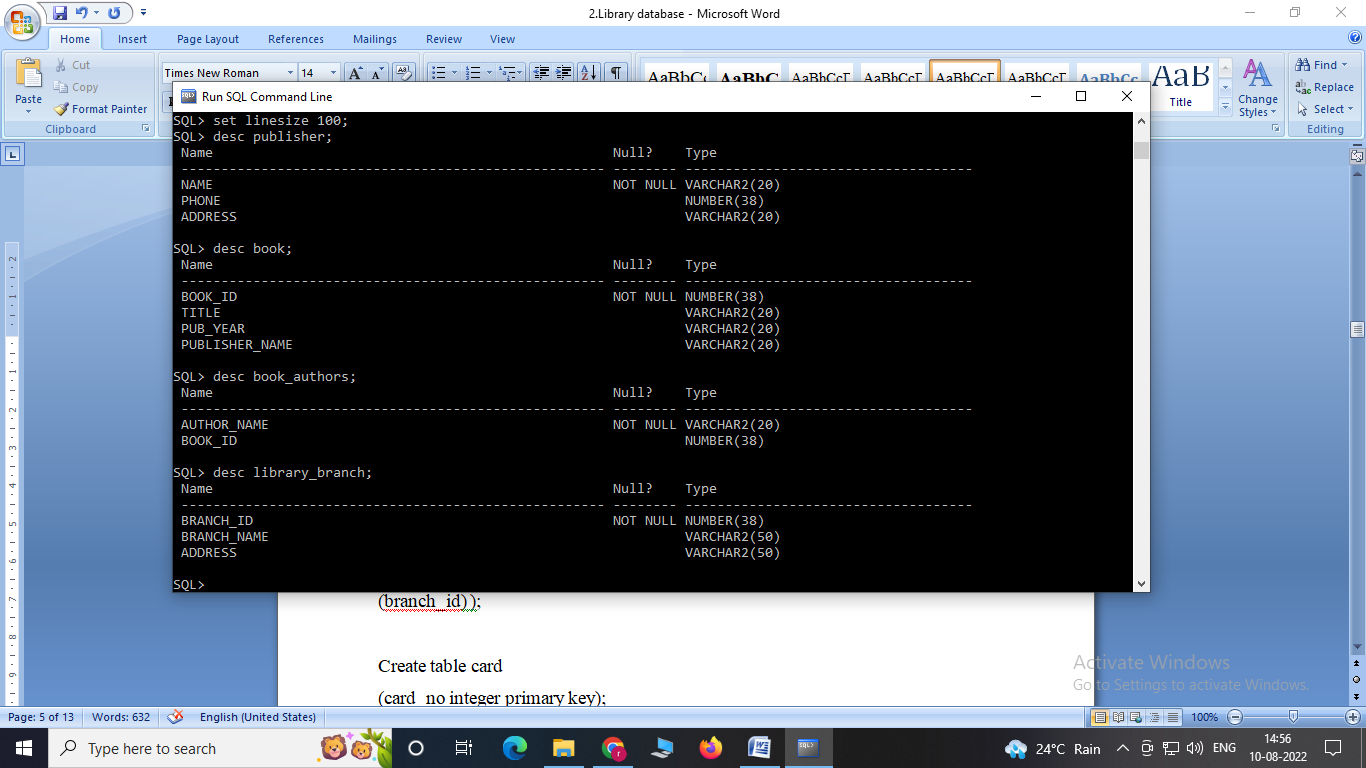


Create table library\_branch

(branch\_id int primary key,

Branch\_name varchar(50),

Address varchar (50));



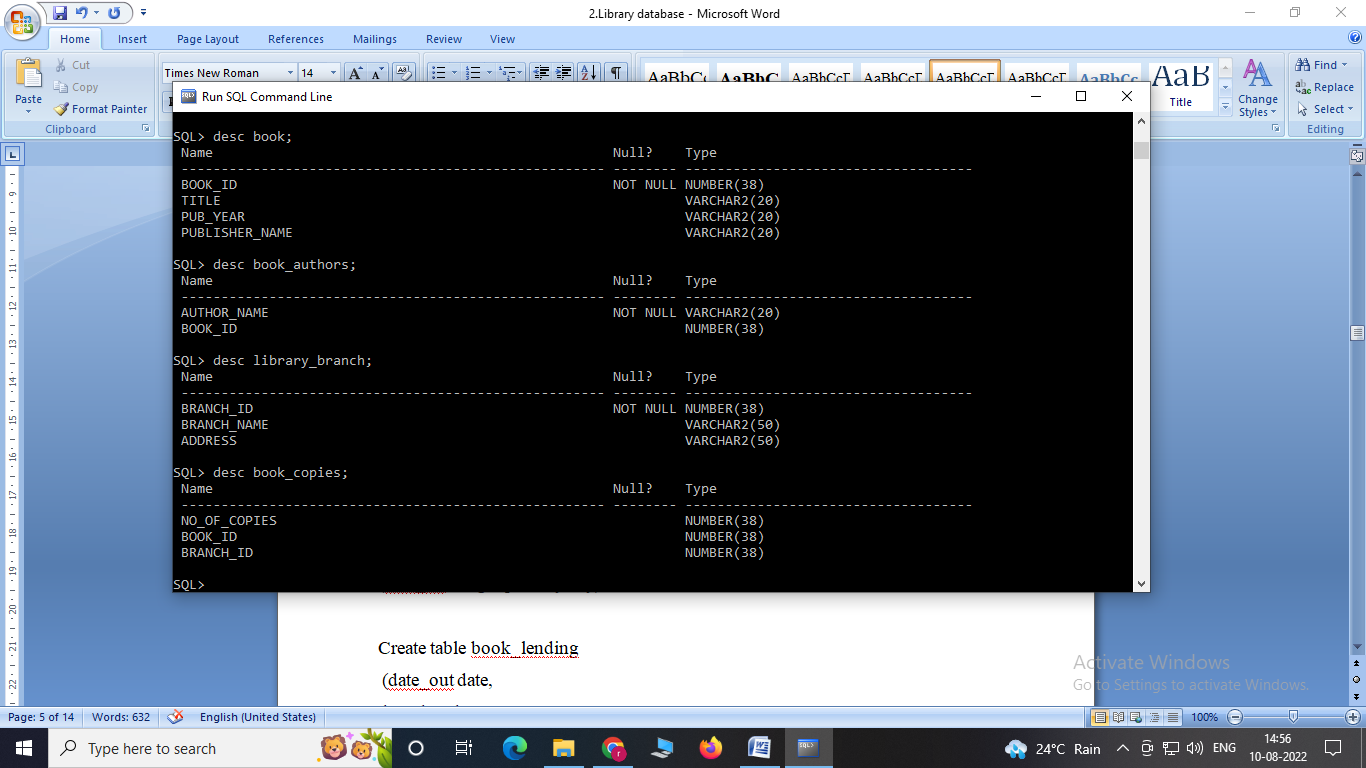
Create table book\_copies

(no\_of\_copies integer,

Book\_id references book (book\_id) on delete cascade,

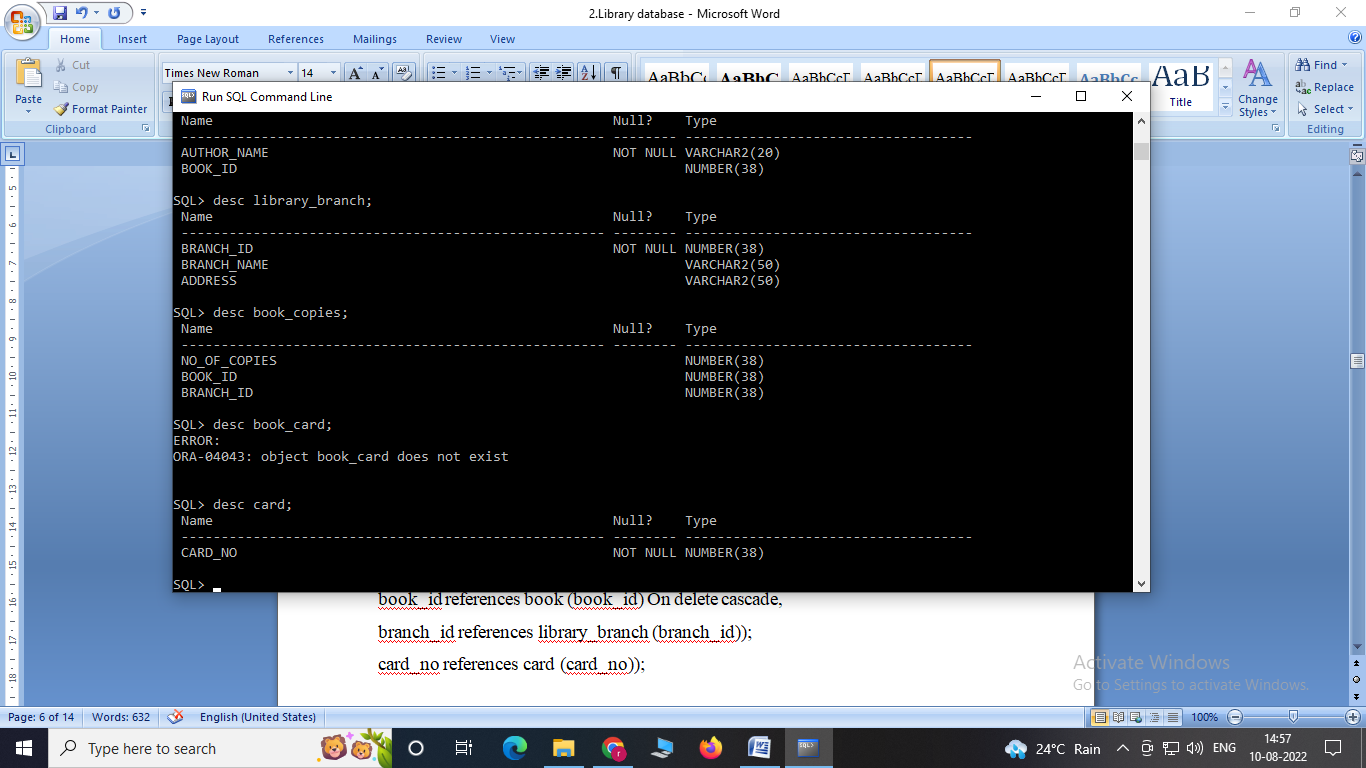
Branch\_id references library\_branch

(branch\_id) );



Create table card

(card\_no integer primary key);



create table book\_lending

(date\_out date,

due\_date date,

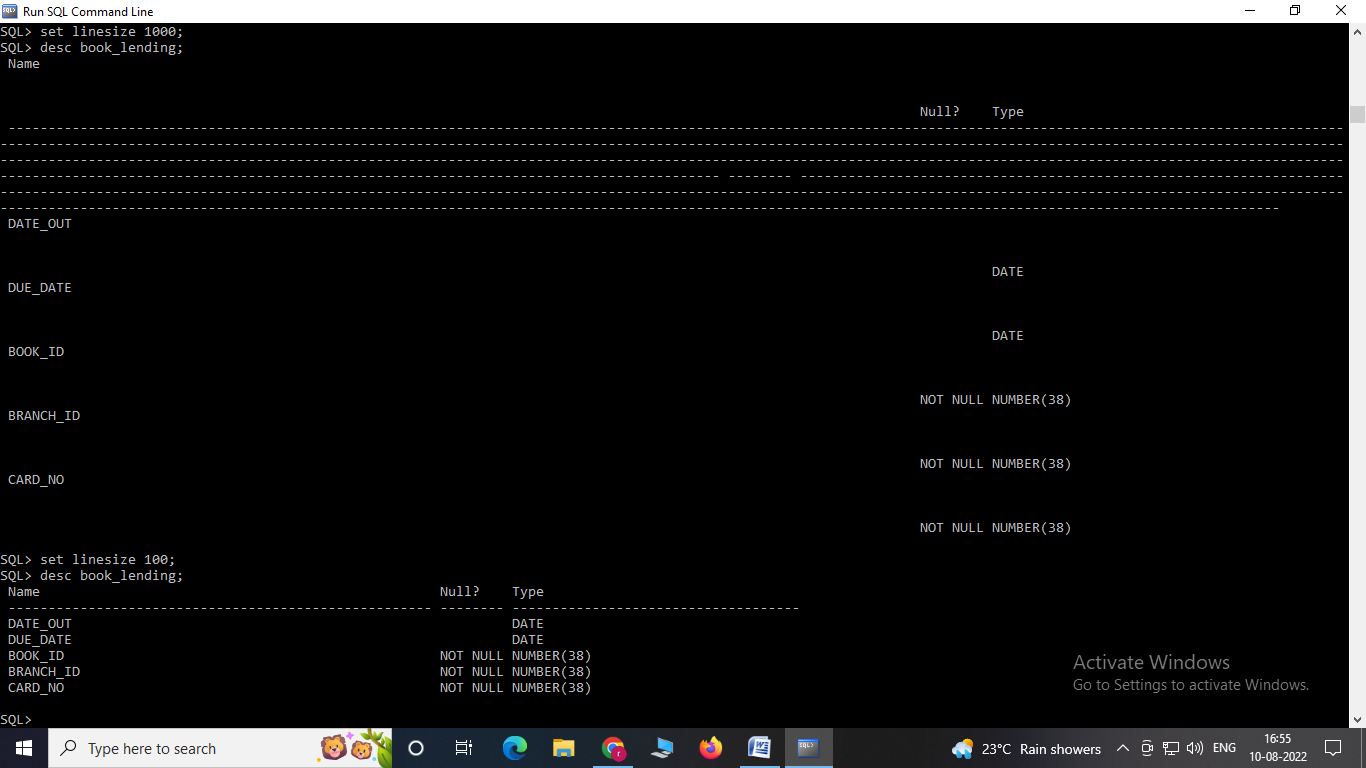
book\_id references book (book\_id) on delete cascade,

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));



# 3. Insertion of Values to Tables

# PUBLISHER

# 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 ('oreily', 8970862340, 'chenai');

# insert into publisher values('hachette livre',7756120238,'bangalore');

# 

# BOOK

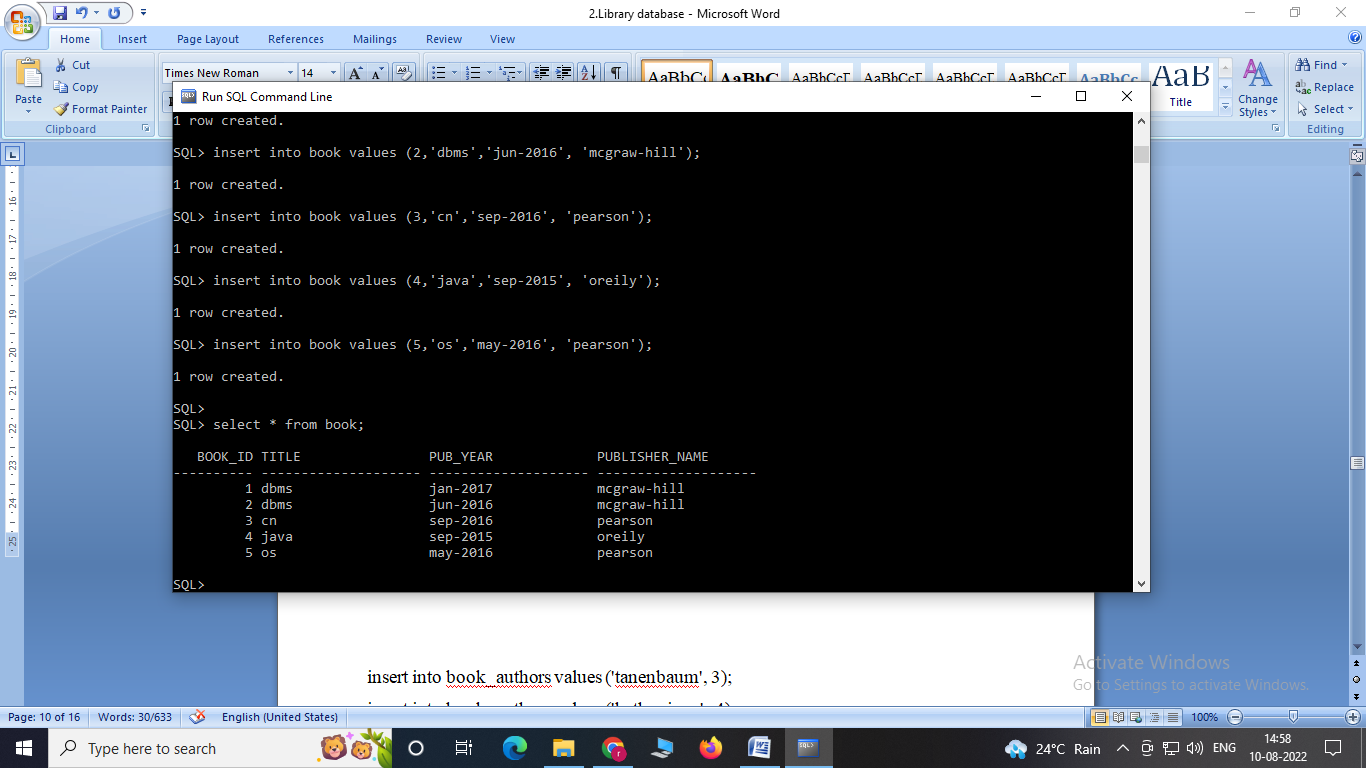
insert into book values (1,'dbms','jan-2017', 'mcgraw-hill');

insert into book values (2,'dbms','jun-2016', 'mcgraw-hill');

insert into book values (3,'cn','sep-2016', 'pearson');

insert into book values (4,'java','sep-2015', 'oreily');

insert into book values (5,'os','may-2016', 'pearson');



# BOOK\_AUTHORS

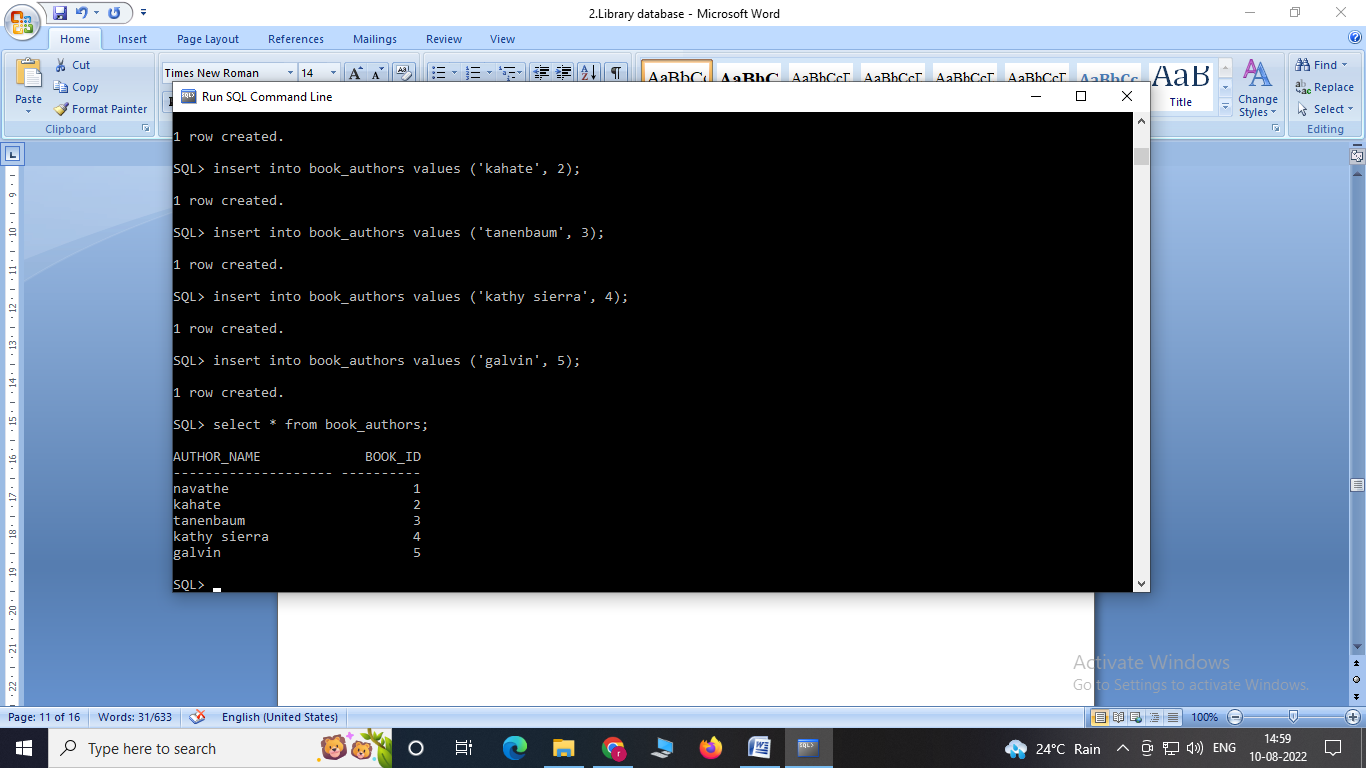
insert into book\_authors values ('navathe', 1);

insert into book\_authors values ('kahate', 2);

insert into book\_authors values ('tanenbaum', 3);

insert into book\_authors values ('kathy sierra', 4);

insert into book\_authors values ('galvin', 5);



**LIBRARY\_BRANCH**

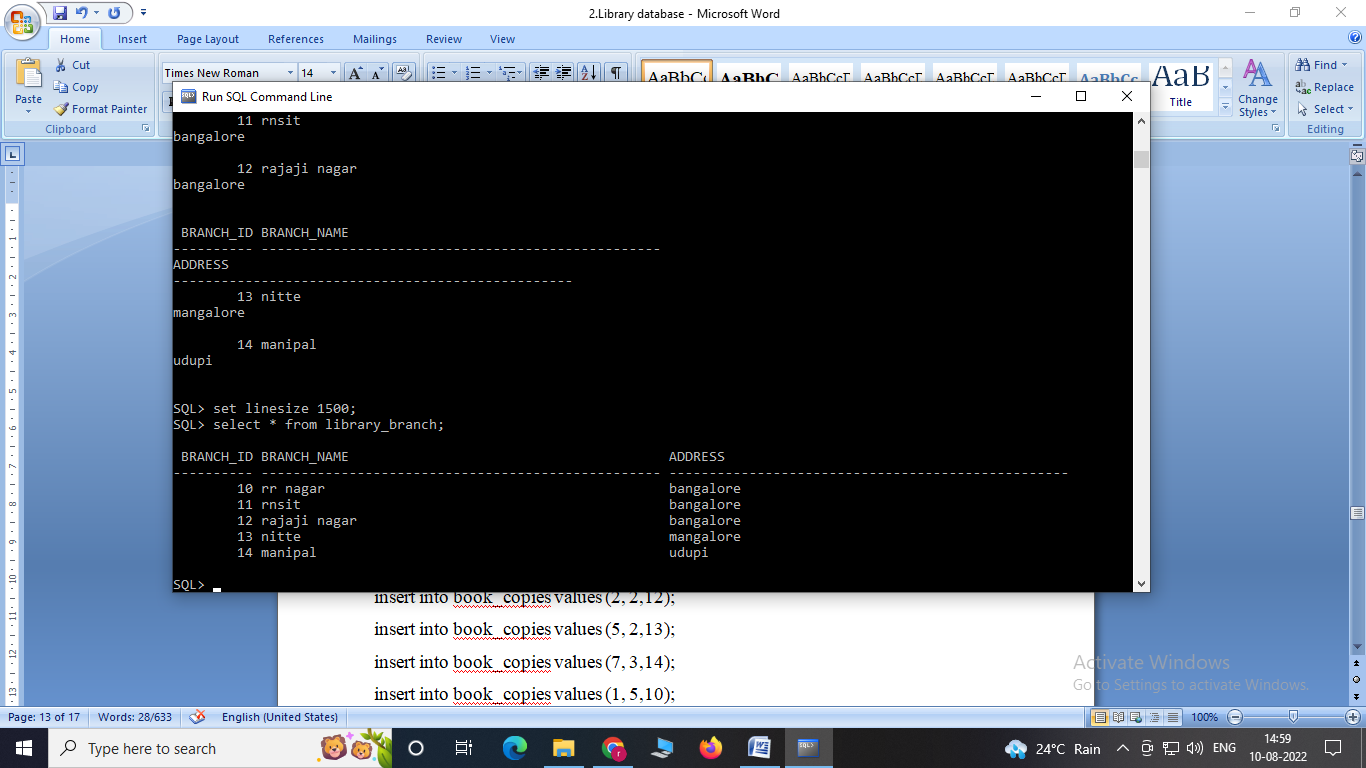
insert into library\_branch values (10,'rr nagar','bangalore');

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');



# BOOK\_COPIES

# 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);

# 

# CARD

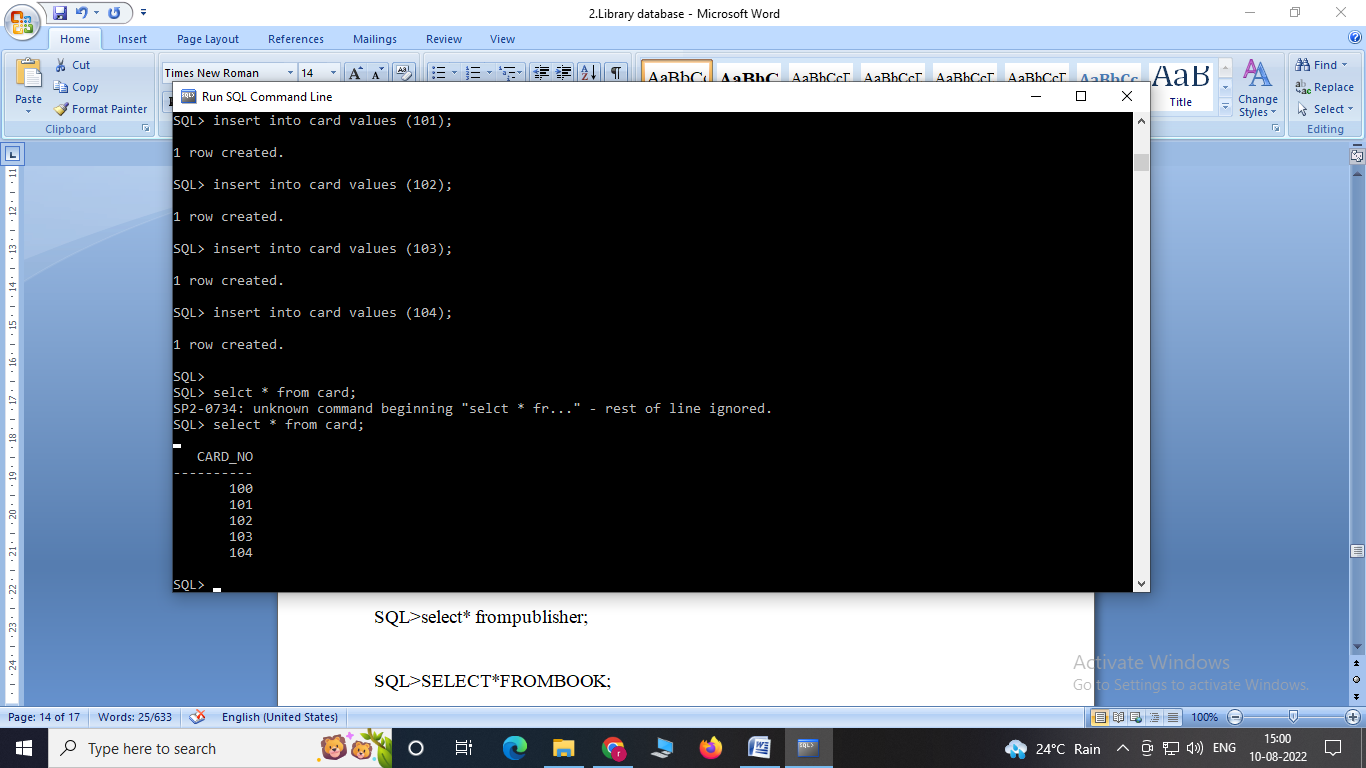
insert into card values (100);

insert into card values (101);

insert into card values (102);

insert into card values (103);

insert into card values (104);



# BOOK\_LENDING

insert into book\_lending values ('1-jan-17','01-jun-17', 1, 10,101);

insert into book\_lending values ('11-jan-17','11-mar-17', 3, 14,102);

insert into book\_lending values ('21-feb-17','21-apr-17', 2, 13,101);

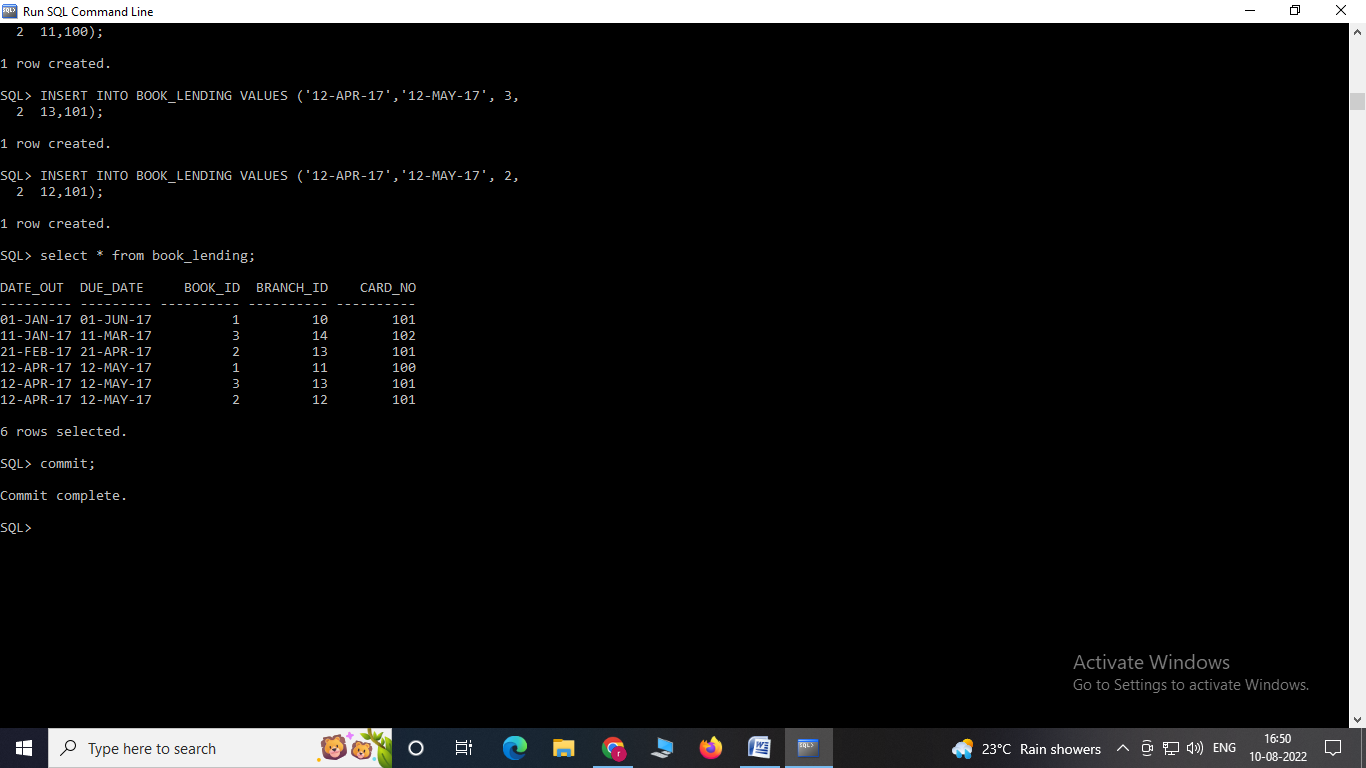
insert into book\_lending values ('21-jan-17','21-jun-17', 2, 13,101);

insert into book\_lending values ('15-jul-17','11-sept-18', 4, 11,104);

insert into book\_lending values ('12-apr-17','12-may-17', 1,11,100);

insert into book\_lending values ('12-apr-17','12-may-17', 3,13,101);

insert into book\_lending values ('12-apr-17','12-may-17', 2,12,101);



# SQLQueries

**4. 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,

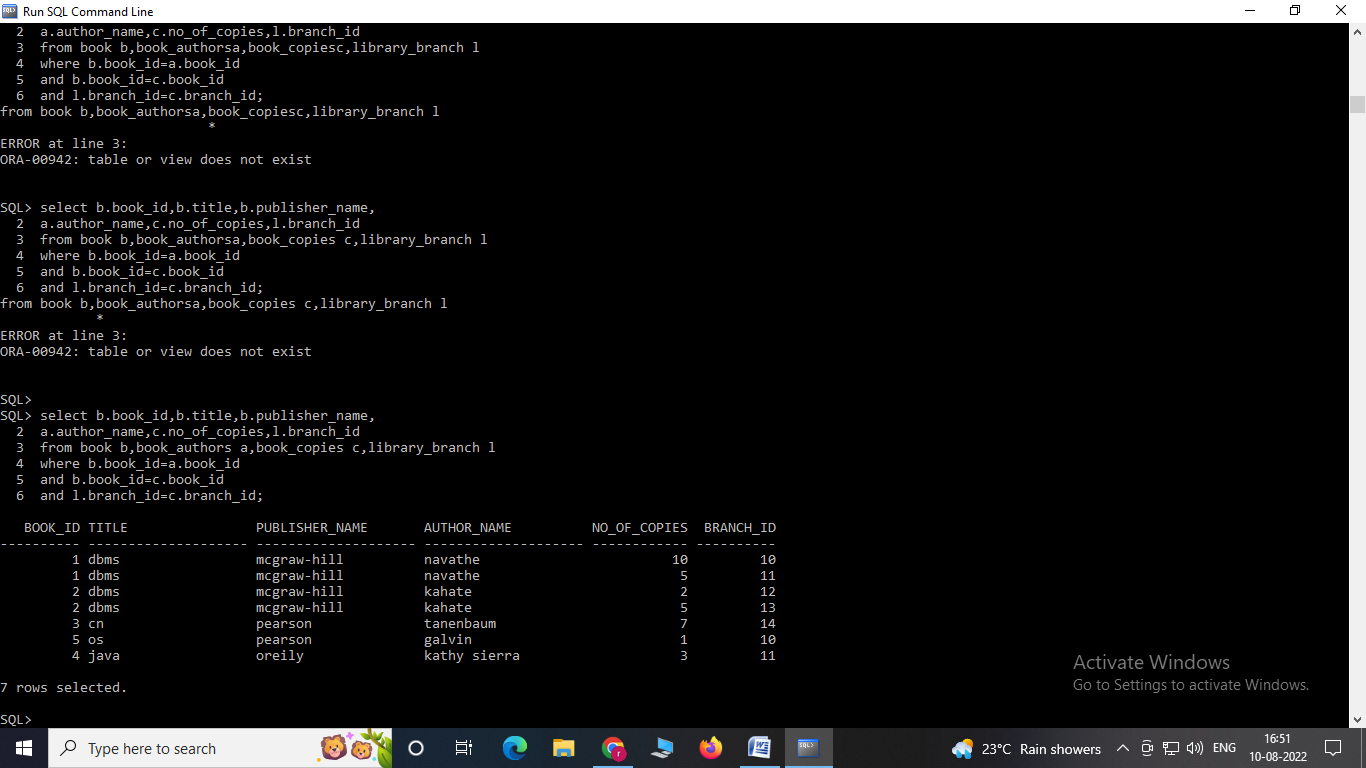
a.author\_name,c.no\_of\_copies,l.branch\_id

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;

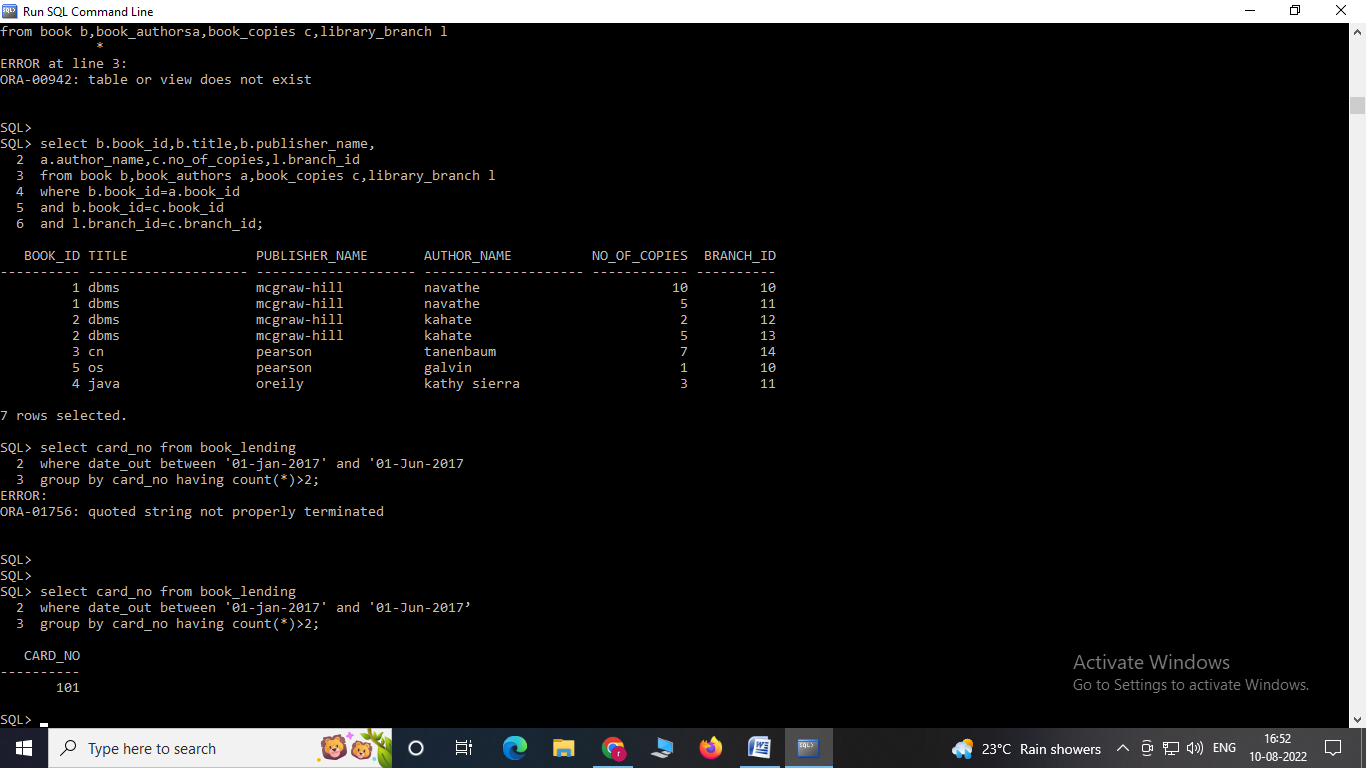


**5. Get the particulars of borrowers who have borrowed more than 3books, but from Jan2017 to Jun2017.**

select card\_no from book\_lending

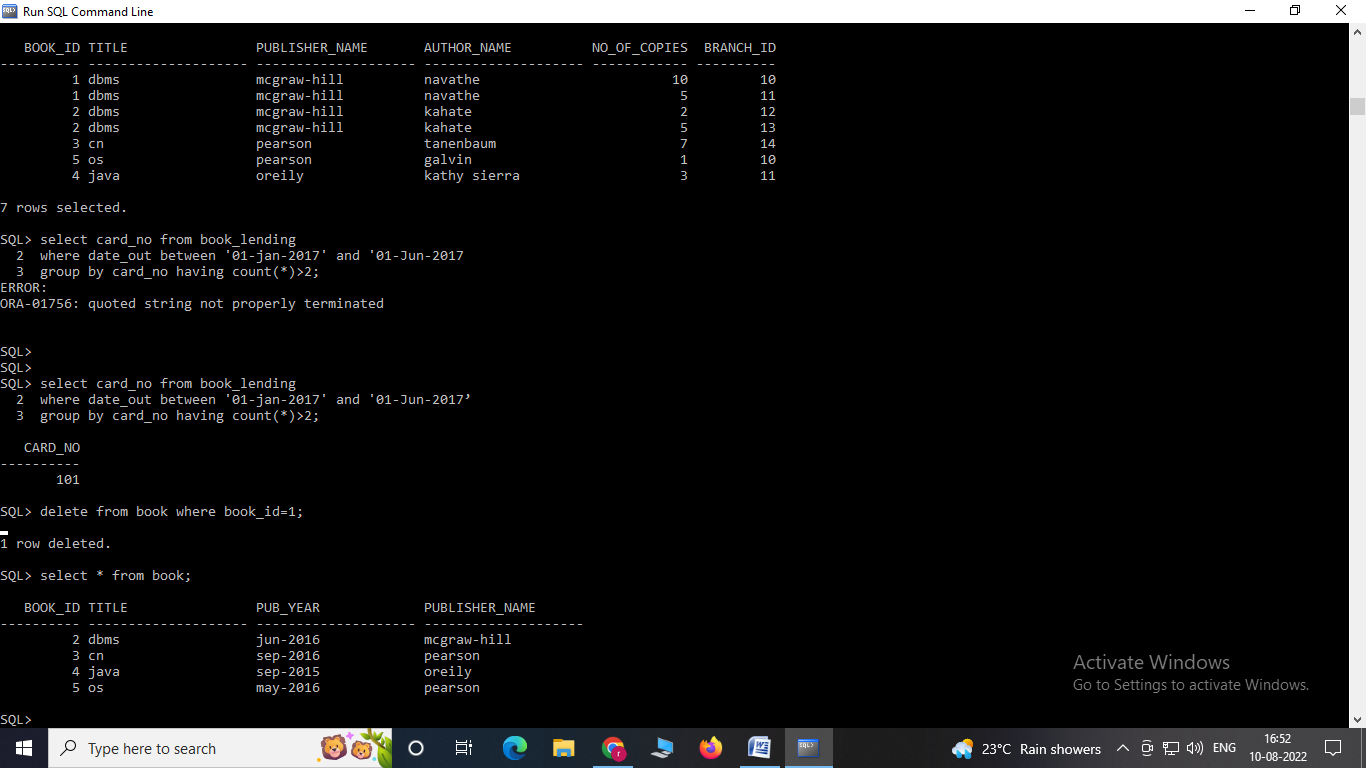
where date\_out between '01-jan-2017' and '01-Jun-2017’

group by card\_no having count(\*)>2;



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

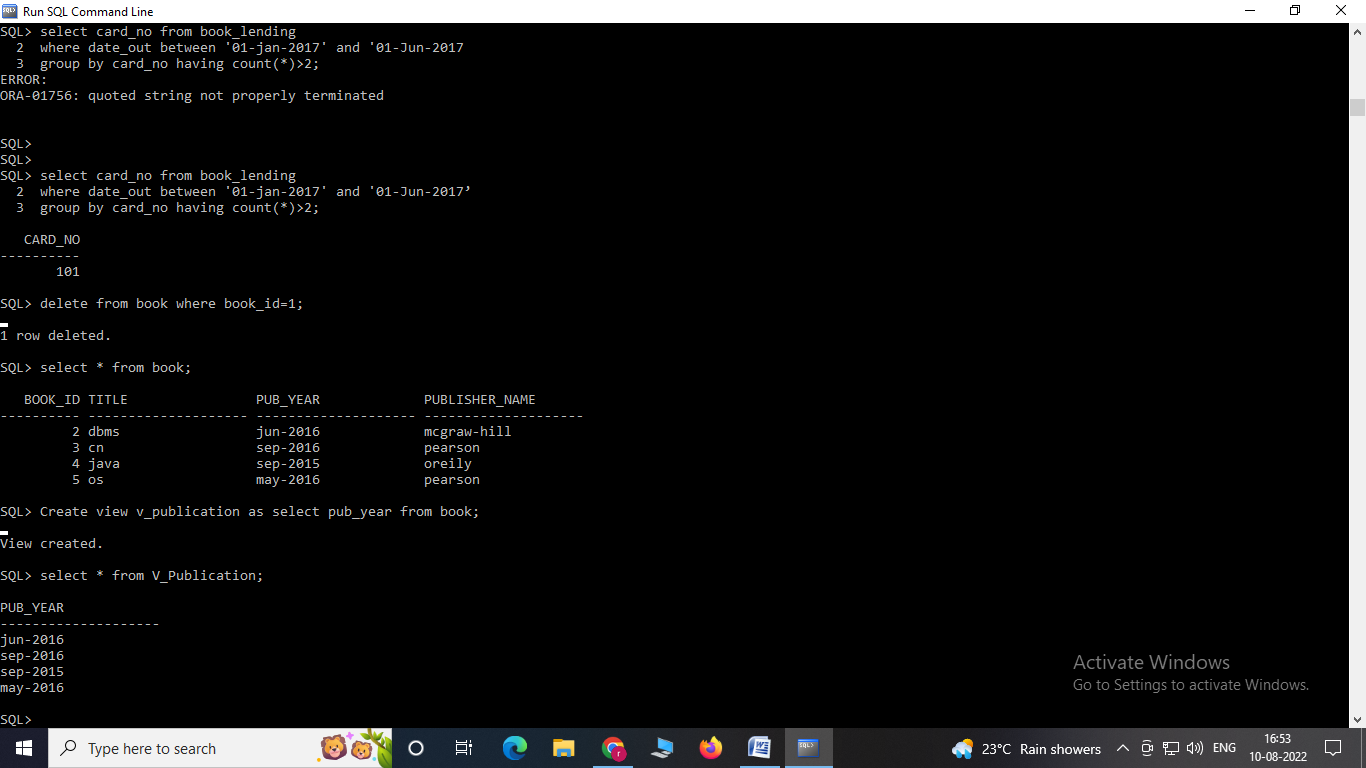
delete from book where book\_id=1;



**7. 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;

select \* from V\_Publication;



**8. 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;

select \* from V\_BOOKS;

