Program 8:

Consider the following database of student enrollment in courses & books adopted for each course.

STUDENT (regno: string, name: string, major: string, bdate:date)

COURSE (course #:int, cname:string, dept:string)

ENROLL (regno:string, course#:int, sem:int, marks:int)

BOOK _ ADOPTION (course# :int, sem:int, book-ISBN:int)

TEXT (book-ISBN:int, book-title:string, publisher:string, author:string)

i. Create the above tables by properly specifying the primary keys and the foreign keys.

```
create database Lab8;
use Lab8;

create table student(
    regno varchar(15),
    name varchar(20),
    major varchar(20),
    bdate date,
    primary key (regno)
    );
desc student;
```

	regno	name	major	bdate
▶	1pe11cs002	b	sr	1993-09-24
	1pe11cs003	c	sr	1993-11-27
	1pe11cs004	d	sr	1993-04-13
	1pe11cs005	e	jr	1994-08-24
*	NULL	NULL	NULL	NULL

```
create table course(
    courseno int,
    cname varchar(20),
    dept varchar(20),
    primary key (courseno)
    );
desc course;
```

	Field	Type	Null	Key	Default	Extra
▶	courseno	int	NO	PRI	NULL	
	cname	varchar(20)	YES		NULL	
	dept	varchar(20)	YES		NULL	

```
create table enroll(
    regno varchar(15),
    courseno int,
    sem int,
    marks int,
    primary key (regno,courseno),
    foreign key (regno) references student (regno),
    foreign key (courseno) references course (courseno)
    );
```

desc enroll;

Field	Type	Null	Key	Default	Extra
regno	varchar(15)	NO	PRI	NULL	
courseno	int	NO	PRI	NULL	
sem	int	YES		NULL	
marks	int	YES		NULL	

```
create table text(
    book_isbn int,
    book_title varchar(20),
    publisher varchar(20),
    author varchar(20),
    primary key (book_isbn)
    );
```

desc text;

Field	Type	Null	Key	Default	Extra
book_isbn	int	NO	PRI	NULL	
book_title	varchar(20)	YES		NULL	
publisher	varchar(20)	YES		NULL	
author	varchar(20)	YES		NULL	

```
create table book_adoption(
    courseno int,
    sem int,
    book_isbn int,
    primary key (courseno,book_isbn),
    foreign key (courseno) references course (courseno),
    foreign key (book_isbn) references text(book_isbn)
    );
```

desc book_adoption;

Field	Type	Null	Key	Default	Extra
courseno	int	NO	PRI	NULL	
sem	int	YES		NULL	
book_isbn	int	NO	PRI	NULL	

ii. Enter at least five tuples for each relation.

```
insert into student (regno,name,major,bdate) values
    ('1pe11cs002','b','sr','19930924'),
    ('1pe11cs003','c','sr','19931127'),
    ('1pe11cs004','d','sr','19930413'),
    ('1pe11cs005','e','jr','19940824');
```

select * from student;

regno	name	major	bdate
1pe11cs002	b	sr	1993-09-24
1pe11cs003	c	sr	1993-11-27
1pe11cs004	d	sr	1993-04-13
1pe11cs005	e	jr	1994-08-24
NULL	NULL	NULL	NULL

```
insert into course values (111,'os','cse'),
    (112,'ec','cse'),
    (113,'ss','ise'),
    (114,'dbms','cse'),
    (115,'signals','ece');
```

select * from course;

	courseno	cname	dept
▶	111	os	cse
	112	ec	cse
	113	ss	ise
	114	dbms	cse
	115	signals	ece
*	NULL	NULL	NULL

insert into text values (book_isbn,book_title,publisher,author),

(10,'database systems','pearson','schield'),

(900,'operating sys','pearson','leland'),

(901,'circuits','hall india','bob'),

(902,'system software','peterson','jacob'),

(903,'scheduling','pearson','patil'),

(904,'database systems','pearson','jacob'),

(905,'database manager','pearson','bob'),

(906,'signals','hall india','sumit');

select * from text;

	book_isbn	book_title	publisher	author
▶	0	NULL	NULL	NULL
	10	database systems	pearson	schield
	900	operating sys	pearson	leland
	901	circuits	hall india	bob
	902	system software	peterson	jacob
	903	scheduling	pearson	patil
	904	database systems	pearson	jacob
	905	database manager	pearson	bob
	906	signals	hall india	sumit
*	NULL	NULL	NULL	NULL

insert into enroll (regno,courseno,sem,marks) values

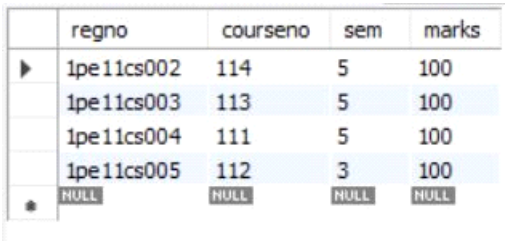
('1pe11cs002',114,5,100),

('1pe11cs003',113,5,100),

('1pe11cs004',111,5,100),

('1pe11cs005',112,3,100);

select * from enroll;



	regno	courseno	sem	marks
▶	1pe11cs002	114	5	100
	1pe11cs003	113	5	100
	1pe11cs004	111	5	100
	1pe11cs005	112	3	100
*	NULL	NULL	NULL	NULL

insert into book_adoption (courseno,sem,book_isbn) values

(111,5,900),

(111,5,903),

(111,5,904),

(112,3,901),

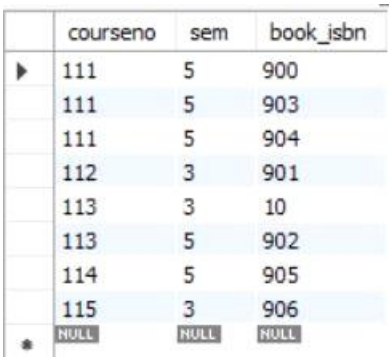
(113,3,10),

(114,5,905),

(113,5,902),

(115,3,906);

select * from book_adoption;



	courseno	sem	book_isbn
▶	111	5	900
	111	5	903
	111	5	904
	112	3	901
	113	3	10
	113	5	902
	114	5	905
	115	3	906
*	NULL	NULL	NULL

iii. Demonstrate how you add a new text book to the database and make this book be adopted by some department.

insert into text values (907,'ai','hall india','sumit');

insert into book_adoption values(115, 2, 907);

select * from text;

select * from book_adoption;

book_isbn	book_title	publisher	author
0	NULL	NULL	NULL
10	database systems	pearson	schield
900	operating sys	pearson	leland
901	circuits	hall india	bob
902	system software	peterson	jacob
903	scheduling	pearson	patil
904	database systems	pearson	jacob
905	database manager	pearson	bob
906	signals	hall india	sumit
907	ai	hall india	sumit
NULL	NULL	NULL	NULL

courseno	sem	book_isbn
111	5	900
111	5	903
111	5	904
112	3	901
113	3	10
113	5	902
114	5	905
115	3	906
115	2	907
NULL	NULL	NULL

iv. Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.

select b.book_isbn, b.courseno, t.book_title from book_adoption b, text t where t.book_isbn = b.book_isbn and b.courseno in(

select courseno from course where dept = 'cse' and courseno in (select courseno from book_adoption group by courseno having count(*)>2));

	book_isbn	courseno	book_title
▶	900	111	operating sys
	903	111	scheduling
	904	111	database systems

v. List any department that has all its adopted books published by a specific publisher.

```
select distinct c.dept
    from course c
    where c.dept in
    ( select c.dept
    from course c,book_adoption b,text t
    where c.courseno=b.courseno
    and t.book_isbn=b.book_isbn
    and t.publisher='hall india')
    and c.dept not in
    (select c.dept
    from course c,book_adoption b,text t
    where c.courseno=b.courseno
    and t.book_isbn=b.book_isbn
    and t.publisher != 'hall india');
```

	dept
▶	ece