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1BM19CS217
CSE SEC “A”

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)

Database applications laboratory GCEM DEPARTMENT OF CSE Page - 5 - 5th semester

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

ii. Enter at least five tuples for each relation.

CODE

```
create database studentenrollment;  
use studentenrollment;
```

```
CREATE TABLE STUDENT(  
reg_no VARCHAR(20),  
name VARCHAR(20),  
major VARCHAR(20),  
bdate DATE,  
PRIMARY KEY(reg_no));
```

```
CREATE TABLE COURSE(  
course_no INT,  
cname VARCHAR(20),  
dept VARCHAR(20),  
PRIMARY KEY (course_no));
```

```
CREATE TABLE ENROLL(  
reg_no VARCHAR(15),  
course_no INT,  
sem INT,  
marks INT,  
PRIMARY KEY (reg_no,course_no),  
FOREIGN KEY (reg_no) REFERENCES student (reg_no),  
FOREIGN KEY (course_no) REFERENCES course (course_no));
```

```
CREATE TABLE TEXT(  
book_isbn INT,  
book_title VARCHAR(20),  
publisher VARCHAR(20),  
author VARCHAR(20),  
PRIMARY KEY (book_isbn));
```

```
CREATE TABLE BOOK_ADOPTION(  
course_no INT,  
sem INT,  
book_isbn INT,  
PRIMARY KEY (course_no,book_isbn),  
FOREIGN KEY (course_no) REFERENCES course (course_no),  
FOREIGN KEY (book_isbn) REFERENCES text(book_isbn));
```

```
INSERT INTO STUDENT (reg_no,name,major,bdate) VALUES ('1pe11cs001','a','sr',19931230),  
('1pe11cs002','b','sr','19930924'),  
('1pe11cs003','c','sr','19931127'),  
('1pe11cs004','d','sr','19930413'),  
('1pe11cs005','e','jr','19940824');
```

```
INSERT INTO COURSE(course_no,cname,dept) VALUES  
('111',"OS","CSE"),  
('112',"EC","CSE"),  
('113',"SS","ISE"),  
('114',"DBMS","CSE"),  
('115',"SIGNALS","ECE");
```

```
INSERT INTO TEXT(book_isbn,book_title,publisher,author) VALUES  
('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");
```

```
INSERT INTO BOOK_ADOPTION(course_no,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");
```

```
INSERT INTO ENROLL(reg_no,course_no,sem,marks) VALUES  
('1pe11cs001',"115","3","100"),  
('1pe11cs002',"114","5","100"),  
('1pe11cs003',"113","5","100"),  
('1pe11cs004',"111","5","100"),  
('1pe11cs005',"112","3","100");
```

SELECT * FROM STUDENT;

	reg_no	name	major	bdate
▶	1pe11cs001	a	sr	1993-12-30
	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

STUDENT 6 ×

SELECT * FROM COURSE;

	course_no	cname	dept
▶	111	OS	CSE
	112	EC	CSE
	113	SS	ISE
	114	DBMS	CSE
	115	SIGNALS	ECE
*	NULL	NULL	NULL

COURSE 7 ×

SELECT * FROM TEXT;

	book_jsbn	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
*	NULL	NULL	NULL	NULL

TEXT 8 ×

SELECT * FROM ENROLL;

	reg_no	course_no	sem	marks
▶	1pe11cs001	115	3	100
	1pe11cs002	114	5	100
	1pe11cs003	113	5	100
	1pe11cs004	111	5	100
	1pe11cs005	112	3	100
*	NULL	NULL	NULL	NULL

ENROLL 9 ×

SELECT * FROM BOOK_ADOPTION;

	course_no	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

BOOK_ADOPTION 10 ×

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

```
INSERT INTO TEXT(book_isbn,book_title,publisher,author) VALUES("907","COMPUTER NETWORKS","PEARSON","FORTAN");
```

```
INSERT INTO BOOK_ADOPTION(course_no,sem,book_isbn) VALUES("111","3","907");
```

```
SELECT * FROM TEXT;
```

	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
	907	COMPUTER NETWORKS	PEARSON	FORTAN
*	NULL	NULL	NULL	NULL

TEXT 1 ×

```
SELECT * FROM BOOK_ADOPTION;
```

	course_no	sem	book_isbn
▶	111	5	900
	111	5	903
	111	5	904
	111	3	907
	112	3	901
	113	3	10
	113	5	902
	114	5	905
	115	3	906
*	NULL	NULL	NULL

BOOK_ADOPTION 2 ×

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 c.course_no,t.book_isbn,t.book_title
FROM course c,book_adoption ba,text t
WHERE c.course_no=ba.course_no
AND ba.book_isbn=t.book_isbn AND c.dept='CSE'AND 2<(
    SELECT COUNT(book_isbn)
    FROM book_adoption b WHERE c.course_no=b.course_no)
ORDER BY t.book_title;
```

	course_no	book_isbn	book_title
▶	111	907	COMPUTER NETWORKS
	111	904	DATABASE SYSTEMS
	111	900	OPERATING SYS
	111	903	SCHEDULING

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

```
SELECT c.dept
FROM course c, book_adoption ba
WHERE c.course_no=ba.course_no
GROUP BY c.dept
HAVING count(ba.book_isbn)=(SELECT count(ba2.book_isbn)
FROM TEXT t,book_adoption ba2,course c2
WHERE t.book_isbn=ba2.book_isbn AND c2.course_no=ba2.course_no AND
t.publisher='HALL INDIA' AND c2.dept=c.dept);
```

	dept
▶	ECE