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USN : **1BM19CS070**

DATE : **26/05/21**

DBMS LAB PROGRAM – 5

5.STUDENT ENROLLMENT DATABASE

QUESTION :

Consider the following database of student enrollment in courses and books adopted for

each course.

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

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

ENROLL (regno: String, cname: String, 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.

ii) Enter at least five tuples for each relation.

iii) Demonstrate how you add a new text book to the database and make this book be

adopted by some department.

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.

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

PROGRAM CODE :

```
CREATE DATABASE STUDENT_ENROLLMENT;
USE STUDENT_ENROLLMENT;
CREATE TABLE STUDENT(REGNO VARCHAR(10), NAME VARCHAR(30), MAJOR VARCHAR(10), BDATE
DATE, PRIMARY KEY(REGNO));
CREATE TABLE COURSE(COURSE_NO INT, CNAME VARCHAR(30), DEPT VARCHAR(4), PRIMARY
KEY(COURSE_NO));
CREATE TABLE ENROLL(REGNO VARCHAR(10), COURSE_NO INT, SEM INT, MARKS INT, FOREIGN
KEY(REGNO) REFERENCES STUDENT(REGNO) ON DELETE CASCADE ON UPDATE CASCADE, FOREIGN
KEY(COURSE_NO) REFERENCES COURSE(COURSE_NO) ON DELETE CASCADE ON UPDATE CASCADE);
CREATE TABLE TEXTBOOK(ISBN INT, TITLE VARCHAR(30), PUBLISHER VARCHAR(30), AUTHOR
VARCHAR(30), PRIMARY KEY(ISBN));
CREATE TABLE ADOPTION(COURSE_NO INT, SEM INT, ISBN INT, FOREIGN KEY(COURSE_NO)
```

```sql
         REFERENCES COURSE(COURSE_NO) ON DELETE CASCADE ON UPDATE CASCADE, FOREIGN KEY(ISBN)
         REFERENCES TEXTBOOK(ISBN) ON DELETE CASCADE ON UPDATE CASCADE);
         INSERT INTO STUDENT VALUES("CS01", "RAM" ,"DS" ,"1986-03-12"),
         ("IS02" ,"SMITH" ,"USP" ,"1987-12-23"),
         ("EC03" ,"AHMED" ,"SNS" ,"1985-04-17"),
         ("CS03" ,"SNEHA" ,"DBMS" ,"1987-01-01"),
         ("TC05" ,"AKHILA" ,"EC" ,"1986-10-06");
         INSERT INTO COURSE VALUES(11 ,"DS" ,"CS"),
         (22 ,"USP" ,"IS"),
         (33 ,"SNS" ,"EC"),
         (44 ,"DBMS" ,"CS"),
         (55 ,"EC" ,"TC");
         INSERT INTO ENROLL VALUES("CS01" ,11 ,4 ,85),
         ("IS02" ,22, 6, 80),
         ("EC03", 33, 2, 80),
         ("CS03", 44, 6, 75),
         ("TC05", 55, 2, 8);
         INSERT INTO TEXTBOOK VALUES(1 ,"DS and C" ,"Princeton" ,"Padma Reddy"),
         (2 ,"Fundamentals of DS" ,"Princeton", "Godse"),
         (3 ,"Fundamentals of DBMS" ,"Princeton" ,"Navathe"),
         (4 ,"SQL" ,"Princeton" ,"Foley"),
         (5 ,"Electronic circuits" ,"TMH" ,"Elmasri"),
         (6 ,"Adv unix prog" ,"TMH" ,"Stevens");
         INSERT INTO ADOPTION VALUES(11 ,4 ,1),
         (11 ,4 ,2),
         (44 ,6 ,3),
         (44 ,6 ,4),
         (55 ,2 ,5),
         (22, 6, 6);
         #Demonstrate how you add a new text book to the database and make this book be
         adopted by some department.
         INSERT INTO TEXTBOOK VALUES(7, "Operating System Concepts","Wiley","Silberschatz-
         Galvin-Gagne");
         INSERT INTO ADOPTION VALUES(55, 2, 7);
         SELECT * FROM TEXTBOOK;
         /*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.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WHERE
         C.DEPT = "CS" AND C.COURSE_NO = A.COURSE_NO AND A.ISBN = T.ISBN;
         /*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, TEXTBOOK T, ADOPTION A
WHERE T.PUBLISHER = "PRINCETON" AND C.COURSE_NO = A.COURSE_NO AND A.ISBN = T.ISBN)
AND C.DEPT NOT IN (SELECT C.DEPT FROM COURSE C, TEXTBOOK T, ADOPTION A
WHERE T.PUBLISHER != "PRINCETON" AND C.COURSE_NO = A.COURSE_NO AND A.ISBN =
T.ISBN);
```

SCREENSHOTS OF PROGRAM OUTPUT :

Local instance MySQL80 ×

File Edit View Query Database Server Tools Scripting Help

STUDENT ENROLLMENT* ×

Limit to 1000 rows

```
21      (55 ,"EC" ,"TC");
22  ●   SHOW TABLES;
23  ●   INSERT INTO ENROLL VALUES("CS01" ,11 ,4 ,85),
24      ("IS02" ,22, 6, 80),
25      ("EC03", 33, 2, 80),
26      ("CS03", 44, 6, 75),
27      ("TC05", 55, 2, 8);
28  ●   SHOW TABLES;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: ⊺A

Tables_in_student_enrollment
adoption
course
enroll
student
textbook

Result 8 ×   ❶ Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✔	1 16:57:20	SHOW TABLES	5 row(s) returned	0.234 sec / 0.000 sec
✔	2 16:57:46	SHOW TABLES	5 row(s) returned	0.000 sec / 0.000 sec
✔	3 16:58:31	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec

SQLAdditions

Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.

Context Help Snippets

Local instance MySQL80 ×

File Edit View Query Database Server Tools Scripting Help

STUDENT ENROLLMENT* ×

Limit to 1000 rows

```
26      ("CS03", 44, 6, 75),
27      ("TC05", 55, 2, 8);
28  ●   SHOW TABLES;
29  ●   INSERT INTO TEXTBOOK VALUES(1 ,"DS and C" ,"Princeton" ,"Padma Reddy"),
30      (2 ,"Fundamentals of DS" ,"Princeton" ,"Godse"),
31      (3 ,"Fundamentals of DBMS" ,"Princeton" ,"Navathe"),
32      (4 ,"SQL" ,"Princeton" ,"Foley"),
33      (5 ,"Electronic circuits" ,"TMH" ,"Elmasri"),
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: ⊺A

Tables_in_student_enrollment
adoption
course
enroll
student
textbook

Result 8 ×   ❶ Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✔	1 16:57:20	SHOW TABLES	5 row(s) returned	0.234 sec / 0.000 sec
✔	2 16:57:46	SHOW TABLES	5 row(s) returned	0.000 sec / 0.000 sec
✔	3 16:58:31	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec

SQLAdditions

Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.

Context Help Snippets

Window 1 — STUDENT ENROLLMENT*

```
36   INSERT INTO ADOPTION VALUES(11 ,4 ,1),
37   (11 ,4 ,2),
38   (44 ,6 ,3),
39   (44 ,6 ,4),
40   (55 ,2 ,5),
41   (22, 6, 6);
42   SHOW TABLES;
43   #Demonstrate how you add a new text book to the database and make this book be adopted by some department.
```

Result Grid — Tables_in_student_enrollment
- adoption
- course
- enroll
- student
- textbook

Result 8

Action Output

#	Time	Action	Message	Duration / Fetch
1	16:57:20	SHOW TABLES	5 row(s) returned	0.234 sec / 0.000 sec
2	16:57:46	SHOW TABLES	5 row(s) returned	0.000 sec / 0.000 sec
3	16:58:31	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec

SQLAdditions — Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Window 2 — STUDENT ENROLLMENT*

```
44
45   INSERT INTO TEXTBOOK VALUES(7, "Operating System Concepts","Wiley","Silberschatz-Galvin-Gagne");
46   INSERT INTO ADOPTION VALUES(55, 2, 7);
47
48   SELECT * FROM TEXTBOOK;
49
50   /*Produce a list of text books (include Course #, Book-ISBN, Book-title) in the
51   alphabetical order for courses offered by the 'CS' department that use more than two
```

Result Grid

ISBN	TITLE	PUBLISHER	AUTHOR
1	DS and C	Princeton	Padma Reddy
2	Fundamentals of DS	Princeton	Godse
3	Fundamentals of DBMS	Princeton	Navathe
4	SQL	Princeton	Foley
5	Electronic circuits	TMH	Elmasri
6	Adv unix prog	TMH	Stevens
7	Operating System Concepts	Wiley	Silberschatz-Galvin-Gagne
NULL	NULL	NULL	NULL

TEXTBOOK 9

Action Output

#	Time	Action	Message	Duration / Fetch
1	16:57:20	SHOW TABLES	5 row(s) returned	0.234 sec / 0.000 sec
2	16:57:46	SHOW TABLES	5 row(s) returned	0.000 sec / 0.000 sec
3	16:58:31	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec
4	17:00:36	SELECT * FROM TEXTBOOK LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec

SQLAdditions — Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

File   Edit   View   Query   Database   Server   Tools   Scripting   Help

STUDENT ENROLLMENT* ×

Limit to 1000 rows

```
47
48 ●  SELECT * FROM TEXTBOOK;
49
50    /*Produce a list of text books (include Course #, Book-ISBN, Book-title) in the
51      alphabetic order for courses offered by the 'CS' department that use more than two
52      books.*/
53 ●  SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WHERE C.DEPT = "CS" AND C.COURSE_NO = A.COURSE_NO AND
54
```

Result Grid   Filter Rows: Export: Wrap Cell Content: ΙΑ

COURSE_NO	ISBN	TITLE
11	1	DS and C
11	2	Fundamentals of DS
44	3	Fundamentals of DBMS
44	4	SQL

Result Grid

Form Editor

Result 11 ×   Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
● 3	16:58:31	SHOW TABLES	5 row(s) returned	0.015 sec / 0.000 sec
● 4	17:00:36	SELECT * FROM TEXTBOOK LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
● 5	17:01:05	SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WH...	4 row(s) returned	0.000 sec / 0.000 sec
● 6	17:01:10	SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WH...	4 row(s) returned	0.000 sec / 0.000 sec

Object Info   Session

File   Edit   View   Query   Database   Server   Tools   Scripting   Help

STUDENT ENROLLMENT* ×

Limit to 1000 rows

```
50    /*Produce a list of text books (include Course #, Book-ISBN, Book-title) in the
51      alphabetic order for courses offered by the 'CS' department that use more than two
52      books.*/
53 ●  SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WHERE C.DEPT = "CS" AND C.COURSE_NO = A.COURSE_NO AND
54
55      /*List any department that has all its adopted books published by a specific publisher.*/
56
57 ●  SELECT DISTINCT C.DEPT FROM COURSE C
```

Result Grid   Filter Rows: Export: Wrap Cell Content: ΙΑ

DEPT
CS

Result Grid

Form Editor

COURSE 12 ×   Read Only

Output

Action Output

#	Time	Action	Message	Duration / Fetch
● 4	17:00:36	SELECT * FROM TEXTBOOK LIMIT 0, 1000	7 row(s) returned	0.000 sec / 0.000 sec
● 5	17:01:05	SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WH...	4 row(s) returned	0.000 sec / 0.000 sec
● 6	17:01:10	SELECT C.COURSE_NO ,T.ISBN,T.TITLE FROM COURSE C, TEXTBOOK T, ADOPTION A WH...	4 row(s) returned	0.000 sec / 0.000 sec
● 7	17:01:36	SELECT DISTINCT C.DEPT FROM COURSE C WHERE C.DEPT IN (SELECT C.DEPT FROM C...	1 row(s) returned	0.000 sec / 0.000 sec

Object Info   Session

** END OF WEEK5 PROGRAM **