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USN : 1BM19CS070
DATE : 23/06/21

DBMS LAB PROGRAM – 10

10. COLLEGE DATABASE

QUESTION :

CONSIDER THE SCHEMA FOR COLLEGE DATABASE:

STUDENT(USN, SNAME, ADDRESS, PHONE, GENDER)

SEMSEC(SSID, SEM, SEC)

CLASS(USN, SSID)

SUBJECT(SUBCODE, TITLE, SEM, CREDITS)

IAMARKS(USN, SUBCODE, SSID, TEST1, TEST2, TEST3, FINALIA)

WRITE SQL QUERIES TO

- I. LIST ALL THE STUDENT DETAILS STUDYING IN FOURTH SEMESTER 'C' SECTION.
 - II. COMPUTE THE TOTAL NUMBER OF MALE AND FEMALE STUDENTS IN EACH SEMESTER AND IN EACH SECTION.
 - III. CREATE A VIEW OF TEST1 MARKS OF STUDENT USN '1BI15CS101' IN ALL SUBJECTS.
 - IV. CALCULATE THE FINALIA (AVERAGE OF BEST TWO TEST MARKS) AND UPDATE THE CORRESPONDING TABLE FOR ALL STUDENTS.
 - V. CATEGORIZE STUDENTS BASED ON THE FOLLOWING CRITERION:
IF FINALIA = 17 TO 20 THEN CAT = 'OUTSTANDING'
IF FINALIA = 12 TO 16 THEN CAT = 'AVERAGE'
IF FINALIA < 12 THEN CAT = 'WEAK'
- GIVE THESE DETAILS ONLY FOR 8TH SEMESTER A, B, AND C SECTION STUDENTS.

PROGRAM CODE :

```
CREATE DATABASE COLLEGEDB;  
USE COLLEGEDB;  
CREATE TABLE STUDENT (  
USN VARCHAR (10) PRIMARY KEY,  
SNAME VARCHAR (25),  
ADDRESS VARCHAR (25),  
PHONE INT (10),  
GENDER CHAR (1));  
CREATE TABLE SEMSEC (  
SSID VARCHAR (5) PRIMARY KEY,
```

```

SEM INT (2),
SEC CHAR (1));
CREATE TABLE CLASS (
USN VARCHAR (10),
SSID VARCHAR (5), PRIMARY
KEY (USN, SSID),
FOREIGN KEY (USN) REFERENCES STUDENT (USN),
FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
CREATE TABLE SUBJECT (
SUBCODE VARCHAR (8),
TITLE VARCHAR (20),
SEM INT (2),
CREDITS INT (2),
PRIMARY KEY (SUBCODE));
CREATE TABLE IAMARKS (
USN VARCHAR (10),
SUBCODE VARCHAR (8),
SSID VARCHAR(5),
TEST1 INT(2),
TEST2 INT(2),
TEST3 INT(2),
FINALIA INT (2),
PRIMARY KEY (USN, SUBCODE, SSID),
FOREIGN KEY (USN) REFERENCES STUDENT (USN),
FOREIGN KEY (SUBCODE) REFERENCES SUBJECT (SUBCODE),
FOREIGN KEY (SSID) REFERENCES SEMSEC (SSID));
INSERT INTO STUDENT VALUES('1RN13CS020','AKSHAY','BELAGAVI',
88778811,'M');
INSERT INTO STUDENT VALUES('1RN13CS062','SANDHYA','BENGALURU',
77228299,'F');
INSERT INTO STUDENT VALUES('1RN13CS091','TEESHA','BENGALURU',
77123123,'F');
INSERT INTO STUDENT VALUES('1RN13CS066','SUPRIYA','MANGALURU',
88778811,'F');
INSERT INTO STUDENT VALUES('1RN14CS010','ABHAY','BENGALURU',
99002112,'M');
INSERT INTO STUDENT VALUES('1RN14CS032','BHASKAR','BENGALURU',
99232110,'M');
INSERT INTO STUDENT VALUES ('1RN14CS025','ASMI','BENGALURU', 78947373,'F');
INSERT INTO STUDENT VALUES ('1RN15CS011','AJAY','TUMKUR', 98450913,'M');

INSERT INTO STUDENT VALUES ('1RN15CS029','CHITRA','DAVANGERE',
76967721,'F');
INSERT INTO STUDENT VALUES ('1RN15CS045','JEEVA','BELLARY', 99448501,'M');
INSERT INTO STUDENT VALUES ('1RN15CS091','SANTOSH','MANGALURU',
8812332,'M');
INSERT INTO STUDENT VALUES('1RN16CS045','ISMAIL','KALBURGI',
99002322,'M');

```

```
INSERT INTO STUDENT VALUES ('1RN16CS088','SAMEERA','SHIMOGA',  
99055422,'F');  
INSERT INTO STUDENT VALUES ('1RN16CS122','VINAYAKA','CHIKAMAGALUR',  
88008800,'M');
```

```
INSERT INTO SEMSEC VALUES ('CSE8A', 8,'A');  
INSERT INTO SEMSEC VALUES ('CSE8B', 8,'B');  
INSERT INTO SEMSEC VALUES ('CSE8C',8,'C');  
INSERT INTO SEMSEC VALUES ('CSE7A',7,'A');  
INSERT INTO SEMSEC VALUES ('CSE7B',7,'B');  
INSERT INTO SEMSEC VALUES ('CSE7C',7,'C');  
INSERT INTO SEMSEC VALUES ('CSE6A',6,'A');  
INSERT  
INTO SEMSEC VALUES ('CSE6B', 6,'B');  
INSERT INTO SEMSEC VALUES ('CSE6C', 6,'C');  
INSERT INTO SEMSEC VALUES ('CSE5A', 5,'A');  
INSERT INTO SEMSEC VALUES ('CSE5B', 5,'B');  
INSERT INTO SEMSEC VALUES ('CSE5C', 5,'C');  
INSERT INTO SEMSEC VALUES ('CSE4A',4,'A');  
INSERT INTO SEMSEC VALUES ('CSE4B', 4,'B');  
INSERT INTO SEMSEC VALUES('CSE4C',4,'C');  
INSERT INTO SEMSEC VALUES ('CSE3A', 3,'A');  
INSERT INTO SEMSEC VALUES ('CSE3B', 3,'B');  
INSERT INTO SEMSEC VALUES('CSE3C',3,'C');  
INSERT INTO SEMSEC VALUES ('CSE2A', 2,'C');  
INSERT INTO SEMSEC VALUES ('CSE2B', 2,'B');  
INSERT INTO SEMSEC VALUES ('CSE2C', 2,'C');  
INSERT INTO SEMSEC VALUES ('CSE1A', 1,'A');
```

```
INSERT INTO SEMSEC VALUES ('CSE1B', 1,'B');  
INSERT INTO SEMSEC VALUES ('CSE1C', 1,'C');
```

```
INSERT INTO CLASS VALUES('1RN13CS020','CSE8A');  
INSERT INTO CLASS VALUES('1RN13CS062','CSE8A');  
INSERT INTO CLASS VALUES('1RN13CS066','CSE8B');  
INSERT INTO CLASS VALUES('1RN13CS091','CSE8C');
```

```
INSERT INTO CLASS VALUES('1RN14CS010','CSE7A');  
INSERT INTO CLASS VALUES('1RN14CS025','CSE7A');  
INSERT INTO CLASS VALUES('1RN14CS032','CSE7A');
```

```
INSERT INTO CLASS VALUES('1RN15CS011','CSE4A');  
INSERT INTO CLASS VALUES('1RN15CS029','CSE4A');  
INSERT INTO CLASS VALUES('1RN15CS045','CSE4B');  
INSERT INTO CLASS VALUES('1RN15CS091','CSE4C');
```

```
INSERT INTO CLASS VALUES('1RN16CS045','CSE3A');  
INSERT INTO CLASS VALUES('1RN16CS088','CSE3B');
```

```

INSERT INTO CLASS VALUES('1RN16CS122','CSE3C');
INSERT INTO SUBJECT VALUES ('10CS81','ACA', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS82','SSM', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS83','NM', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS84','CC', 8, 4);
INSERT INTO SUBJECT VALUES ('10CS85','PW', 8, 4);

INSERT INTO SUBJECT VALUES ('10CS71','OOAD', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS72','ECS', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS73','PTW', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS74','DWDM', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS75','JAVA', 7, 4);
INSERT INTO SUBJECT VALUES ('10CS76','SAN', 7, 4);

INSERT INTO SUBJECT VALUES ('15CS51', 'ME', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS52','CN', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS53','DBMS', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS54','ATC', 5, 4);
INSERT INTO SUBJECT VALUES ('15CS55','JAVA', 5, 3);
INSERT INTO SUBJECT VALUES ('15CS56','AI', 5, 3);
INSERT INTO SUBJECT VALUES ('15CS41','M4', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS42','SE', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS43','DAA', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS44','MPMC', 4, 4);
INSERT INTO SUBJECT VALUES ('15CS45','OOC', 4, 3);
INSERT INTO SUBJECT VALUES ('15CS46','DC', 4, 3);
INSERT INTO SUBJECT VALUES ('15CS31','M3', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS32','ADE', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS33','DSA', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS34','CO', 3, 4);
INSERT INTO SUBJECT VALUES ('15CS35','USP', 3, 3);
INSERT INTO SUBJECT VALUES ('15CS36','DMS', 3, 3);

INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS81','CSE8C', 15, 16,18);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS82','CSE8C', 12, 19,14);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS83','CSE8C', 19, 15,20);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS84','CSE8C', 20, 16,19);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)VALUES
('1RN13CS091','10CS85','CSE8C', 15, 15,12);
SELECT * FROM STUDENT;
SELECT * FROM SEMSEC;
SELECT * FROM CLASS;
SELECT * FROM SUBJECT;
SELECT * FROM IAMARKS;

```

```
SELECT S.*, SS.SEM, SS.SEC
FROM STUDENT S, SEMSEC SS, CLASS C
WHERE S.USN = C.USN AND
SS.SSID = C.SSID AND
SS.SEM = 4 AND
SS.SEC='C';
```

```
SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
FROM STUDENT S, SEMSEC SS, CLASS C
WHERE S.USN = C.USN AND
SS.SSID = C.SSID
GROUP BY SS.SEM, SS.SEC, S.GENDER
ORDER BY SEM;
```

```
CREATE VIEW STU_TEST1_MARKS_VIEW
AS
SELECT TEST1, SUBCODE
FROM IAMARKS
WHERE USN = '1RN13CS091';
```

```
-- QUERY 4
```

```
DELIMITER //
```

```
CREATE PROCEDURE AVG_MARKS()
BEGIN
DECLARE C_A INTEGER;
DECLARE C_B INTEGER;
DECLARE C_C INTEGER;
DECLARE C_SUM INTEGER;
DECLARE C_AVG INTEGER;
DECLARE C_USN VARCHAR(10);
DECLARE C_SUBCODE VARCHAR(8);
DECLARE C_SSID VARCHAR(5);
DECLARE C_IAMARKS CURSOR FOR
SELECT GREATEST(TEST1,TEST2) AS A, GREATEST(TEST1,TEST3) AS B, GREATEST(TEST3,TEST2) AS C, USN,
SUBCODE, SSID
FROM IAMARKS
WHERE FINALIA IS NULL
FOR UPDATE;
OPEN C_IAMARKS;
LOOP
FETCH C_IAMARKS INTO C_A, C_B, C_C, C_USN, C_SUBCODE, C_SSID;
IF (C_A != C_B) THEN
SET C_SUM=C_A+C_B;
ELSE
```

```

SET C_SUM=C_A+C_C;
END IF;
SET C_AVG=C_SUM/2;
UPDATE IAMARKS SET FINALIA = C_AVG
WHERE USN = C_USN AND SUBCODE = C_SUBCODE AND SSID = C_SSID;
END LOOP;
CLOSE C_IAMARKS;
END;
//

CALL AVG_MARKS();

SELECT * FROM IAMARKS;

SELECT * FROM IAMARKS;

-- QUERY 5

SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER,
(CASE
WHEN IA.FINALIA BETWEEN 17 AND 20 THEN 'OUTSTANDING'
WHEN IA.FINALIA BETWEEN 12 AND 16 THEN 'AVERAGE'
ELSE 'WEAK'
END) AS CAT
FROM STUDENT S, SEMSEC SS, IAMARKS IA, SUBJECT SUB
WHERE S.USN = IA.USN AND
SS.SSID = IA.SSID AND
SUB.SUBCODE = IA.SUBCODE AND
SUB.SEM = 8;

```

SCREENSHOTS OF THE PROGRAM OUTPUT :

➔ CREATION AND INSERTION OF VALUES

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

airline_database
airlines
banking
banking_enterpri
banking_test
banking_test1
banktest1_134
bms_db
book_dealer
book_dealer_dat
bookdealer
books_adopted_
college
insurance
movie
student_enrollm

Administration

SQL File 3*

SQL File 3*

Limit to 1000 rows

60 99055422,'F');
61 INSERT INTO STUDENT VALUES ('1RN16CS122','VINAYAKA','CHIKAMAGALUR',
62 88008800,'M');
63
64 INSERT INTO SEMSEC VALUES ('CSE8A', 8,'A');
65 INSERT INTO SEMSEC VALUES ('CSE8B', 8,'B');
66 INSERT INTO SEMSEC VALUES ('CSE8C', 8,'C');

Result Grid

USN	SNAME	ADDRESS	PHONE	GENDER
1RN16CS020	AKSHAY	BELAGAVI	88778811	M
1RN16CS062	SANDHYA	BENGALURU	77228299	F
1RN16CS066	SUPRIYA	MANGALURU	88778811	F
1RN16CS091	TEESHA	BENGALURU	77123123	F
1RN16CS010	ABHAY	BENGALURU	99002112	M
1RN16CS025	ASHI	BENGALURU	78947373	F
1RN16CS032	BHASKAR	BENGALURU	99232110	M

SQLAdditions

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

airline_database
airlines
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banking_test
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banktest1_134
bms_db
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Administration

SQL File 3*

SQL File 3*

Limit to 1000 rows

60 99055422,'F');
61 INSERT INTO STUDENT VALUES ('1RN16CS122','VINAYAKA','CHIKAMAGALUR',
62 88008800,'M');
63
64 INSERT INTO SEMSEC VALUES ('CSE8A', 8,'A');
65 INSERT INTO SEMSEC VALUES ('CSE8B', 8,'B');
66 INSERT INTO SEMSEC VALUES ('CSE8C', 8,'C');

Result Grid

SSID	SEM	SEC
CSE1A	1	A
CSE1B	1	B
CSE1C	1	C
CSE2A	2	C
CSE2B	2	B
CSE2C	2	C
CSE3A	3	A

SQLAdditions

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

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

airline_database
airlines
banking
banking_enterpri
banking_test
banking_test1
banktest1_134
bms_db
book_dealer
book_dealer_dat
bookdealer
books_adopted_
college
insurance
movie
student_enrollm

Administration

SQL File 3*

SQL File 3*

Limit to 1000 rows

60 99055422,'F');
61 INSERT INTO STUDENT VALUES ('1RN16CS122','VINAYAKA','CHIKAMAGALUR',
62 88008800,'M');
63
64 INSERT INTO SEMSEC VALUES ('CSE8A', 8,'A');
65 INSERT INTO SEMSEC VALUES ('CSE8B', 8,'B');
66 INSERT INTO SEMSEC VALUES ('CSE8C', 8,'C');

Result Grid

USN	SSID
1RN16CS045	CSE3A
1RN16CS088	CSE3B
1RN16CS122	CSE3C
1RN16CS011	CSE4A
1RN16CS029	CSE4A
1RN16CS045	CSE4B
1RN16CS091	CSE4C

SQLAdditions

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

LAB6_MOVIES SQL File 3* SQL File 4*

Limit to 1000 rows

```

155
156 • SELECT S.*, SS.SEM, SS.SEC
157 FROM STUDENT S, SEMSEC SS, CLASS C
158 WHERE S.USN = C.USN AND
159 SS.SSID = C.SSID AND
160 SS.SEM = 4 AND
161 SS.SEC='C';
162
163 • SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
164 FROM STUDENT S, SEMSEC SS, CLASS C
165 WHERE S.USN = C.USN AND
166 SS.SSID = C.SSID
167 GROUP BY SS.SEM, SS.SEC, S.GENDER
168 ORDER BY SEM;

```

100% 1:169 20 errors found

Result Grid Filter Rows: Search Export:

SEM	SEC	GENDER	COUNT
3	A	M	1
3	B	F	1
4	A	F	1
4	A	M	1
4	B	M	1
4	C	M	1
7	A	F	1
7	A	M	2
8	A	F	1
8	A	M	1
8	B	F	1
8	C	F	1

Result Grid Form Editor Field Types

LAB6_MOVIES SQL File 3* SQL File 4*

Limit to 1000 rows

```

155
156 • SELECT S.*, SS.SEM, SS.SEC
157 FROM STUDENT S, SEMSEC SS, CLASS C
158 WHERE S.USN = C.USN AND
159 SS.SSID = C.SSID AND
160 SS.SEM = 4 AND
161 SS.SEC='C';
162
163 • SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
164 FROM STUDENT S, SEMSEC SS, CLASS C
165 WHERE S.USN = C.USN AND
166 SS.SSID = C.SSID
167 GROUP BY SS.SEM, SS.SEC, S.GENDER
168 ORDER BY SEM;

```

100% 1:169 20 errors found

Result Grid Filter Rows: Search Export:

SEM	SEC	GENDER	COUNT
3	A	M	1
3	B	F	1
4	A	F	1
4	A	M	1
4	B	M	1
4	C	M	1
7	A	F	1
7	A	M	2
8	A	F	1
8	A	M	1
8	B	F	1
8	C	F	1

Result Grid Form Editor Field Types

LAB6_MOVIES SQL File 3* SQL File 4*

Limit to 1000 rows

```

183 DECLARE C_A INTEGER;
184 DECLARE C_B INTEGER;
185 DECLARE C_C INTEGER;
186 DECLARE C_SUM INTEGER;
187 DECLARE C_AVG INTEGER;
188 DECLARE C_USN VARCHAR(10);
189 DECLARE C_SUBCODE VARCHAR(8);
190 DECLARE C_SSID VARCHAR(5);
191 DECLARE C_IAMARKS CURSOR FOR
192 SELECT GREATEST(TEST1,TEST2) AS A, GREATEST(TEST1,TEST3) AS B, GREATEST(TEST3,TEST2) AS C, USN, SUBCODE, SSID
193 FROM IAMARKS
194 WHERE FINALIA IS NULL
195 FOR UPDATE;
196 OPEN C_IAMARKS;

```

100% 1:21

Result Grid Filter Rows: Search Edit: Export/Import:

USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINALIA
1RN13CS091	10CS81	CSE8C	15	16	18	17
1RN13CS091	10CS82	CSE8C	12	19	14	17
1RN13CS091	10CS83	CSE8C	19	15	20	20
1RN13CS091	10CS84	CSE8C	20	16	19	20
1RN13CS091	10CS85	CSE8C	15	15	12	15
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Result Grid Form Editor Field Types

LAB6_MOVIES SQL File 3* SQL File 4*

Limit to 1000 rows

```

213
214 SELECT * FROM IAMARKS;
215
216 SELECT * FROM IAMARKS;
217
218 -- QUERY 5
219
220 SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER,
221 (CASE
222 WHEN IA.FINALIA BETWEEN 17 AND 20 THEN 'OUTSTANDING'
223 WHEN IA.FINALIA BETWEEN 12 AND 16 THEN 'AVERAGE'
224 ELSE 'WEAK'
225 END) AS CAT
226 FROM STUDENT S, SEMSEC SS, IAMARKS IA, SUBJECT SUB
227 WHERE S.USN = IA.USN AND
228 SS.SSID = IA.SSID AND
229 SUB.SUBCODE = IA.SUBCODE AND
230 SUB.SEM = 8;

```

100% 13:230

Result Grid Filter Rows: Search Export:

USN	SNAME	ADDRESS	PHONE	GENDER	CAT
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	OUTSTANDING
1RN13CS091	TEESHA	BENGALURU	77123123	F	AVERAGE

Result Grid Form Editor

**** END OF WEEK 10 PROGRAM ****