A. 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

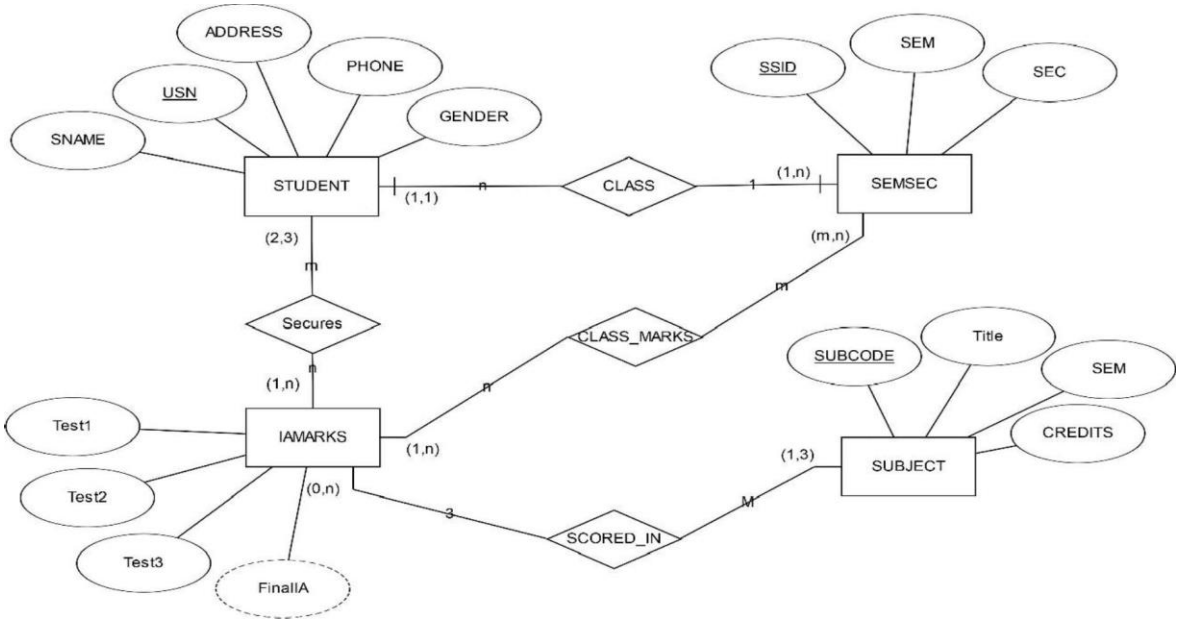
1. **List all the student details studying in fourth semester 'C' section.**
2. **Compute the total number of male and female students in each semester and in each section.**
3. **Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.**
4. **Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.**
5. **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 Objectives:

This course will enable students to

- Foundation knowledge in database concepts, technology and practice to groom students into well-informed database application developers.
- Strong practice in SQL programming through a variety of database problems.
- Develop database applications using front-end tools and back-end DBMS.

Solution:
Entity - Relationship Diagram



Schema Diagram

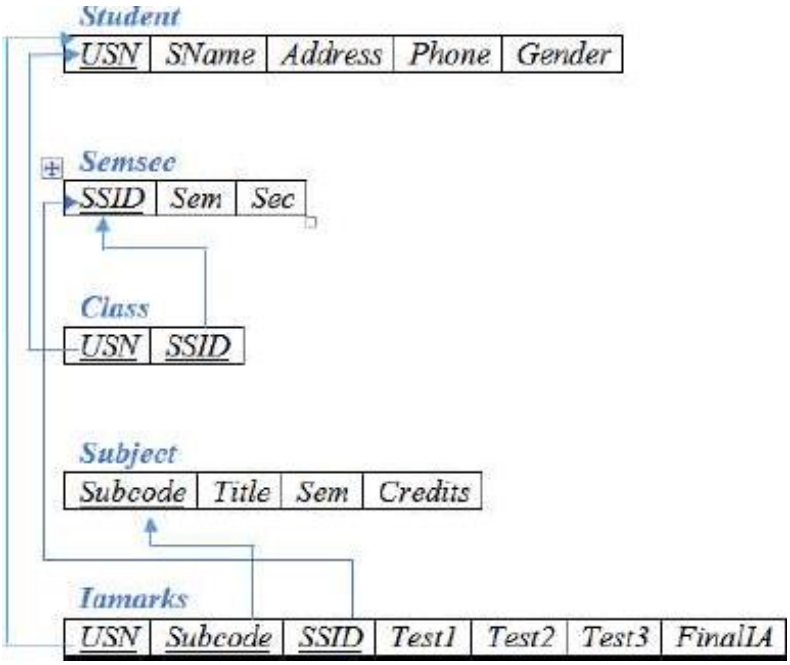


Table Creation

```
CREATE TABLE STUDENT (
USN VARCHAR (10) PRIMARY KEY,
SNAME VARCHAR (25),
ADDRESS VARCHAR (25),
PHONE BIGINT (10),
GENDER CHAR (1));

CREATE TABLE SEMSEC (
SSID VARCHAR (5) PRIMARY KEY,
SEM INT (5),
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(10)
PRIMARY KEY,
TITLE VARCHAR(20),
SEM INT,
CREDITS INT);
```

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));

Table Descriptions

DESC STUDENT;

```
mysql> DESC STUDENT;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| USN     | varchar(10) | NO   | PRI | NULL    |       |
| SNAME   | varchar(25) | YES  |     | NULL    |       |
| ADDRESS | varchar(25) | YES  |     | NULL    |       |
| PHONE   | bigint(10)  | YES  |     | NULL    |       |
| GENDER  | char(1)     | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

DESC SEMSEC;

```
mysql> DESC SEMSEC;
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| SSID  | varchar(5) | NO   | PRI | NULL    |       |
| SEM   | int(5)     | YES  |     | NULL    |       |
| SEC   | char(1)    | YES  |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

DESC CLASS;

```
mysql> DESC CLASS;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| USN   | varchar(10) | NO   | PRI |         |       |
| SSID  | varchar(5)  | NO   | PRI |         |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

DESC SUBJECT;

```
mysql> DESC SUBJECT;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| SUBCODE | varchar(10) | NO   | PRI | NULL    |       |
| TITLE   | varchar(20) | YES  |     | NULL    |       |
| SEM     | int(11)     | YES  |     | NULL    |       |
| CREDITS | int(11)     | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

DESC IAMARKS;

```
mysql> DESC IAMARKS;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| USN     | varchar(10) | NO   | PRI |         |       |
| SUBCODE | varchar(8)  | NO   | PRI |         |       |
| SSID    | varchar(5)  | NO   | PRI |         |       |
| TEST1   | int(2)      | YES  |     | NULL    |       |
| TEST2   | int(2)      | YES  |     | NULL    |       |
| TEST3   | int(2)      | YES  |     | NULL    |       |
| FINALIA | int(2)      | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

Insertion of values to tables

INSERT INTO STUDENT VALUES ('4AD13CS020','AKSHAY','BELAGAVI', 8877881122,'M');
INSERT INTO STUDENT VALUES ('4AD13CS062','SANDHYA','BENGALURU', 7722829912,'F');
INSERT INTO STUDENT VALUES ('4AD13CS091','TEESHA','BENGALURU', 7712312312,'F');
INSERT INTO STUDENT VALUES ('4AD13CS066','SUPRIYA','MANGALURU', 8877881122,'F');
INSERT INTO STUDENT VALUES ('4AD14CS010','ABHAY','BENGALURU', 9900211201,'M');
INSERT INTO STUDENT VALUES ('4AD14CS032','BHASKAR','BENGALURU', 9923211099,'M');
INSERT INTO STUDENT VALUES ('4AD14CS025','ASMI','BENGALURU', 7894737377,'F');
INSERT INTO STUDENT VALUES ('4AD15CS011','AJAY','TUMKUR', 9845091341,'M');
INSERT INTO STUDENT VALUES ('4AD15CS029','CHITRA','DAVANGERE', 7696772121,'F');
INSERT INTO STUDENT VALUES ('4AD15CS045','JEEVA','BELLARY', 9944850121,'M');
INSERT INTO STUDENT VALUES ('4AD15CS091','SANTOSH','MANGALURU', 8812332201,'M')
INSERT INTO STUDENT VALUES ('4AD16CS045','ISMAIL','KABURGI', 9900232201,'M');
INSERT INTO STUDENT VALUES ('4AD16CS088','SAMEERA','SHIMOGA', 9905542212,'F');
INSERT INTO STUDENT VALUES ('4AD16CS122','VINAYAKA','CHIKAMAGALUR', 8800880011,'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,'A');
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 ('4AD13CS020','CSE8A');
INSERT INTO CLASS VALUES ('4AD13CS062','CSE8A');
INSERT INTO CLASS VALUES ('4AD13CS066','CSE8B');
INSERT INTO CLASS VALUES ('4AD13CS091','CSE8C');
INSERT INTO CLASS VALUES ('4AD14CS010','CSE7A');
INSERT INTO CLASS VALUES ('4AD14CS025','CSE7A');
INSERT INTO CLASS VALUES ('4AD14CS032','CSE7A');
INSERT INTO CLASS VALUES ('4AD15CS011','CSE4A');
INSERT INTO CLASS VALUES ('4AD15CS029','CSE4A');
INSERT INTO CLASS VALUES ('4AD15CS045','CSE4B');
INSERT INTO CLASS VALUES ('4AD15CS091','CSE4C');
INSERT INTO CLASS VALUES ('4AD16CS045','CSE3A');
INSERT INTO CLASS VALUES ('4AD16CS088','CSE3B');
INSERT INTO CLASS VALUES ('4AD16CS122','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); I
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  VALUES ('4AD13CS091','10CS81','CSE8C', 15, 16, 18,0);
INSERT INTO IAMARKS  VALUES ('4AD13CS091','10CS82','CSE8C', 12, 19, 14,0);
INSERT INTO IAMARKS  VALUES ('4AD13CS091','10CS83','CSE8C', 19, 15, 20,0);
INSERT INTO IAMARKS VALUES ('4AD13CS091','10CS84','CSE8C', 20, 16, 19,0);
INSERT INTO IAMARKS VALUES ('4AD13CS091','10CS85','CSE8C', 15, 15, 12,0);
```

SELECT * FROM STUDENT;

```
mysql> SELECT * FROM STUDENT;
+------------+----------+---------------+------------+--------+
| USN        | SNAME    | ADDRESS       | PHONE      | GENDER |
+------------+----------+---------------+------------+--------+
| 4AD13CS020 | AKSHAY   | BELAGAVI      | 8877881122 | M      |
| 4AD13CS062 | SANDHYA  | BENGALURU     | 7722829912 | F      |
| 4AD13CS066 | SUPRIYA  | MANGALURU     | 8877881122 | F      |
| 4AD13CS091 | TEESHA   | BENGALURU     | 7712312312 | F      |
| 4AD14CS010 | ABHAY    | BENGALURU     | 9900211201 | M      |
| 4AD14CS025 | ASMI     | BENGALURU     | 7894737377 | F      |
| 4AD14CS032 | BHASKAR  | BENGALURU     | 9923211099 | M      |
| 4AD15CS011 | AJAY     | TUMKUR        | 9845091341 | M      |
| 4AD15CS029 | CHITRA   | DAVANGERE     | 7696772121 | F      |
| 4AD15CS045 | JEEVA    | BELLARY       | 9944850121 | M      |
| 4AD15CS091 | SANTOSH  | MANGALURU     | 8812332201 | M      |
| 4AD16CS045 | ISMAIL   | KABURGI       | 9900232201 | M      |
| 4AD16CS088 | SAMEERA  | SHIMOGA       | 9905542212 | F      |
| 4AD16CS122 | VINAYAKA | CHIKAMAGALUR  | 8800880011 | M      |
+------------+----------+---------------+------------+--------+
14 rows in set (0.00 sec)
```

SELECT * FROM SEMSEC;

```
mysql>   SELECT * FROM SEMSEC;
+--------+------+------+
| SSID   | SEM  | SEC  |
+--------+------+------+
| CSE1A  |    1 | A    |
| CSE1B  |    1 | B    |
| CSE1C  |    1 | C    |
| CSE2A  |    2 | A    |
| CSE2B  |    2 | B    |
| CSE2C  |    2 | C    |
| CSE3A  |    3 | A    |
| CSE3B  |    3 | B    |
| CSE3C  |    3 | C    |
| CSE4A  |    4 | A    |
| CSE4B  |    4 | B    |
| CSE4C  |    4 | C    |
| CSE5A  |    5 | A    |
| CSE5B  |    5 | B    |
| CSE5C  |    5 | C    |
| CSE6A  |    6 | A    |
| CSE6B  |    6 | B    |
| CSE6C  |    6 | C    |
| CSE7A  |    7 | A    |
| CSE7B  |    7 | B    |
| CSE7C  |    7 | C    |
| CSE8A  |    8 | A    |
| CSE8B  |    8 | B    |
| CSE8C  |    8 | C    |
+--------+------+------+
24 rows in set (0.00 sec)
```

SELECT * FROM CLASS;

```
mysql> SELECT * FROM CLASS;
+------------+-------+
| USN        | SSID  |
+------------+-------+
| 4AD16CS045 | CSE3A |
| 4AD16CS088 | CSE3B |
| 4AD16CS122 | CSE3C |
| 4AD15CS011 | CSE4A |
| 4AD15CS029 | CSE4A |
| 4AD15CS045 | CSE4B |
| 4AD15CS091 | CSE4C |
| 4AD14CS010 | CSE7A |
| 4AD14CS025 | CSE7A |
| 4AD14CS032 | CSE7A |
| 4AD13CS020 | CSE8A |
| 4AD13CS062 | CSE8A |
| 4AD13CS066 | CSE8B |
| 4AD13CS091 | CSE8C |
+------------+-------+
14 rows in set (0.00 sec)
```

SELECT * FROM SUBJECT;

```
mysql> SELECT * FROM SUBJECT;
+---------+-------+------+---------+
| SUBCODE | TITLE | SEM  | CREDITS |
+---------+-------+------+---------+
| 10CS71  | OOAD  |    7 |       4 |
| 10CS72  | ECS   |    7 |       4 |
| 10CS73  | PTW   |    7 |       4 |
| 10CS74  | DWDM  |    7 |       4 |
| 10CS75  | JAVA  |    7 |       4 |
| 10CS76  | SAN   |    7 |       4 |
| 10CS81  | ACA   |    8 |       4 |
| 10CS82  | SSM   |    8 |       4 |
| 10CS83  | NM    |    8 |       4 |
| 10CS84  | CC    |    8 |       4 |
| 10CS85  | PW    |    8 |       4 |
| 15CS31  | M3    |    3 |       4 |
| 15CS32  | ADE   |    3 |       4 |
| 15CS33  | DSA   |    3 |       4 |
| 15CS34  | CO    |    3 |       4 |
| 15CS35  | USP   |    3 |       3 |
| 15CS36  | DMS   |    3 |       3 |
| 15CS41  | M4    |    4 |       4 |
| 15CS42  | SE    |    4 |       4 |
| 15CS43  | DAA   |    4 |       4 |
| 15CS44  | MPMC  |    4 |       4 |
| 15CS45  | OOC   |    4 |       3 |
| 15CS46  | DC    |    4 |       3 |
| 15CS51  | ME    |    5 |       4 |
| 15CS52  | CN    |    5 |       4 |
| 15CS53  | DBMS  |    5 |       4 |
| 15CS54  | ATC   |    5 |       4 |
| 15CS55  | JAVA  |    5 |       3 |
| 15CS56  | AI    |    5 |       3 |
+---------+-------+------+---------+
29 rows in set (0.00 sec)
```

SELECT * FROM IAMARKS;

```
mysql> SELECT * FROM IAMARKS;
+------------+---------+-------+-------+-------+-------+---------+
| USN        | SUBCODE | SSID  | TEST1 | TEST2 | TEST3 | FINALIA |
+------------+---------+-------+-------+-------+-------+---------+
| 4AD13CS091 | 10CS81  | CSE8C |    15 |    16 |    18 |       0 |
| 4AD13CS091 | 10CS82  | CSE8C |    12 |    19 |    14 |       0 |
| 4AD13CS091 | 10CS83  | CSE8C |    19 |    15 |    20 |       0 |
| 4AD13CS091 | 10CS84  | CSE8C |    20 |    16 |    19 |       0 |
| 4AD13CS091 | 10CS85  | CSE8C |    15 |    15 |    12 |       0 |
+------------+---------+-------+-------+-------+-------+---------+
5 rows in set (0.00 sec)
```

Queries:

1.List all the student details studying in fourth semester 'C' section.

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'

USN	SNAME	ADDRESS	PHONE	GENDER	SEM	SEC
4AD15CS091	SANTOSH	MANGALURU	8812332201	M	4	C

1 row in set (0.00 sec)

2. Compute the total number of male and female students in each semester and in each section.

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;

SEM	SEC	GENDER	COUNT
3	A	M	1
3	B	F	1
3	C	M	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

13 rows in set (0.00 sec)

Create a view of Test1 marks of student USN '1BI15CS101' in all subjects.

CREATE VIEW VW_STUDENT_TEST AS SELECT TEST1,SUBCODE FROM IAMARKS WHERE USN='4AD13CS091';

SELECT * FROM VW_STUDENT_TEST

mysql> SELECT * FROM VW_STUDENT_TEST;

TEST1	SUBCODE
15	10CS81
12	10CS82
19	10CS83
20	10CS84
15	10CS85

5 rows in set (0.00 sec)

1.Calculate the FinalIA (average of best two test marks) and update the corresponding table for all students.

```
UPDATE IAMARKS
SET FINALIA=GREATEST(TEST1+TEST2,TEST2+TEST3,TEST1+TEST3)/2;
```

Note: Before execution above SQL statement, IAMARKS table contents are:

SELECT * FROM IAMARKS;

```
mysql> SELECT * FROM  IAMARKS;
+------------+---------+-------+-------+-------+-------+---------+
| USN        | SUBCODE | SSID  | TEST1 | TEST2 | TEST3 | FINALIA |
+------------+---------+-------+-------+-------+-------+---------+
| 4AD13CS091 | 10CS81  | CSE8C |    15 |    16 |    18 |       0 |
| 4AD13CS091 | 10CS82  | CSE8C |    12 |    19 |    14 |       0 |
| 4AD13CS091 | 10CS83  | CSE8C |    19 |    15 |    20 |       0 |
| 4AD13CS091 | 10CS84  | CSE8C |    20 |    16 |    19 |       0 |
| 4AD13CS091 | 10CS85  | CSE8C |    15 |    15 |    12 |       0 |
+------------+---------+-------+-------+-------+-------+---------+
5 rows in set (0.00 sec)
```

```
SQL> CREATE OR REPLACE PROCEDURE AVGMARKS
IS
CURSOR C_IAMARKS IS
SELECT GREATEST (TEST1, TEST2) AS A, GREATEST(TEST1,TEST3) AS B,
GREATEST(TEST3,TEST2) AS C
FROM IAMARKS
WHERE FINALIA IS NULL
FOR UPDATE;

C_A NUMBER; C_B NUMBER; C_C NUMBER; C_SM NUMBER; C_AV NUMBER;

BEGIN
OPEN C_IAMARKS;
LOOP
FETCH C_IAMARKS INTO C_A,C_B,C_C; EXIT WHEN C_IAMARKS%NOTFOUND;
--DBMS_OUTPUT.PUT_LINE(C_A||''||C_B||''||C_C);
IF(C_A!=C_B)THEN
C_SM:=C_A+C_B;
ELSE
```

```
C_SM:=C_A+C_C;
ENDIF;
C_AV:=C_SM/2;
--DBMS_OUTPUT.PUT_LINE('SUM='||C_SM);
--DBMS_OUTPUT.PUT_LINE('AVERAGE='||C_AV);
UPDATE IAMARKS SET FINALIA=C_AV WHERE CURRENT OF C_IAMARKS;
END LOOP;
CLOSE C_IAMARKS;
END;
/
```

Procedure created.

(Note: Before execution of PL/SQL procedure, IAMARKS table contents are)

OR

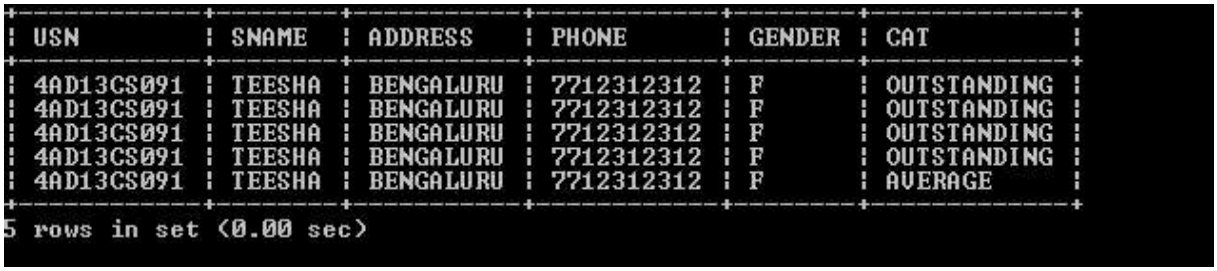
```
UPDATE IAMARKS
 SET FINALIA=GREATEST(TEST1+TEST2,TEST2+TEST3,TEST1+TEST3)/2;
```

After executing above SQL statement, IAMARKS table contents are:

```
mysql> SELECT * FROM  IAMARKS;
+------------+---------+-------+-------+-------+-------+----------+
| USN        | SUBCODE | SSID  | TEST1 | TEST2 | TEST3 | FINALIA  |
+------------+---------+-------+-------+-------+-------+----------+
| 4AD13CS091 | 10CS81  | CSE8C |    15 |    16 |    18 |       17 |
| 4AD13CS091 | 10CS82  | CSE8C |    12 |    19 |    14 |       17 |
| 4AD13CS091 | 10CS83  | CSE8C |    19 |    15 |    20 |       20 |
| 4AD13CS091 | 10CS84  | CSE8C |    20 |    16 |    19 |       20 |
| 4AD13CS091 | 10CS85  | CSE8C |    15 |    15 |    12 |       15 |
+------------+---------+-------+-------+-------+-------+----------+
5 rows in set (0.00 sec)
```

2. **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.

```
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;
```



USN	SNAME	ADDRESS	PHONE	GENDER	CAT
4AD13CS091	TEESHA	BENGALURU	7712312312	F	OUTSTANDING
4AD13CS091	TEESHA	BENGALURU	7712312312	F	OUTSTANDING
4AD13CS091	TEESHA	BENGALURU	7712312312	F	OUTSTANDING
4AD13CS091	TEESHA	BENGALURU	7712312312	F	OUTSTANDING
4AD13CS091	TEESHA	BENGALURU	7712312312	F	AVERAGE

5 rows in set (0.00 sec)