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)

CREATION:

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

CREATE TABLE SEMSEC(
SSID VARCHAR(5) PRIMARY KEY,
SEM INTEGER,
SEC CHAR(1));

CREATE TABLE CLASS(
USN VARCHAR(10) PRIMARY KEY,
SSID VARCHAR(5),
FOREIGN KEY(USN) REFERENCES STUDENT(USN),
FOREIGN KEY(SSID) REFERENCES SEMSEC(SSID));

CREATE TABLE SUBJECT(
SUBCODE VARCHAR(8) PRIMARY KEY,
TITLE VARCHAR(20),
SEM INTEGER,
CREDITS INTEGER);

CREATE TABLE IAMARKS(
USN VARCHAR(10),
SUBCODE VARCHAR(8),
SSID VARCHAR(5),
TEST1 INTEGER,
TEST2 INTEGER,
TEST3 INTEGER,
FINALIA INTEGER,
PRIMARY KEY(SUBCODE,USN,SSID),
FOREIGN KEY(USN) REFERENCES STUDENT(USN),
FOREIGN KEY(SUBCODE) REFERENCES SUBJECT(SUBCODE),
FOREIGN KEY(SSID) REFERENCES SEMSEC(SSID));
```

INSERTION:

```
INSERT INTO STUDENT VALUES ('1BI13CS020','ANAND','BELAGAVI',
1233423,'M');
INSERT INTO STUDENT VALUES
('1BI13CS062','BABIITHA','BENGALURU',43123,'F');
INSERT INTO STUDENT VALUES ('1BI15CS101','CHETHAN','BENGALURU',
534234,'M');
INSERT INTO STUDENT VALUES
('1BI13CS066','DIVYA','MANGALURU',534432,'F');
INSERT INTO STUDENT VALUES ('1BI14CS010','EESHA','BENGALURU',
345456,'F');
INSERT INTO STUDENT VALUES
('1BI14CS032','GANESH','BENGALURU',574532,'M');
INSERT INTO STUDENT VALUES ('1BI14CS025','HARISH','BENGALURU',
235464,'M');
INSERT INTO STUDENT VALUES ('1BI15CS011','ISHA','TUMKUR', 764343,'F');
INSERT INTO STUDENT VALUES ('1BI15CS029','JOEY','DAVANGERE',
235653,'M');
INSERT INTO STUDENT VALUES ('1BI15CS045','KAVYA','BELLARY',
865434,'F');
INSERT INTO STUDENT VALUES
('1BI15CS091','MALINI','MANGALURU',235464,'F');
INSERT INTO STUDENT VALUES ('1BI16CS045','NEEL','KALBURGI',
856453,'M');
INSERT INTO STUDENT VALUES ('1BI16CS088','PARTHA','SHIMOGA',
234546,'M');
INSERT INTO STUDENT VALUES ('1BI16CS122','REEMA','CHIKAMAGALUR',
853333,'F');
```

+ Options

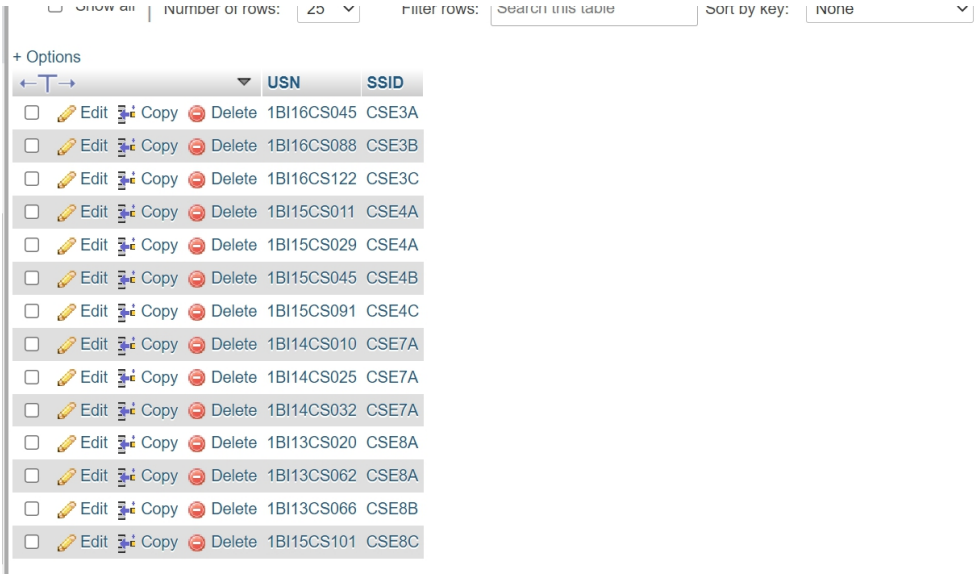
	USN	SNAME	ADDRESS	PHONE	GENDER
Edit Copy Delete	1BI13CS020	ANAND	BELAGAVI	1233423	M
Edit Copy Delete	1BI13CS062	BABIITHA	BENGALURU	43123	F
Edit Copy Delete	1BI13CS066	DIVYA	MANGALURU	534432	F
Edit Copy Delete	1BI14CS010	EESHA	BENGALURU	345456	F
Edit Copy Delete	1BI14CS025	HARISH	BENGALURU	235464	M
Edit Copy Delete	1BI14CS032	GANESH	BENGALURU	574532	M
Edit Copy Delete	1BI15CS011	ISHA	TUMKUR	764343	F
Edit Copy Delete	1BI15CS029	JOEY	DAVANGERE	235653	M
Edit Copy Delete	1BI15CS045	KAVYA	BELLARY	865434	F
Edit Copy Delete	1BI15CS091	MALINI	MANGALURU	235464	F
Edit Copy Delete	1BI15CS101	CHETHAN	BENGALURU	534234	M
Edit Copy Delete	1BI16CS045	NEEL	KALBURGI	856453	M
Edit Copy Delete	1BI16CS088	PARTHA	SHIMOGA	234546	M
Edit Copy Delete	1BI16CS122	REEMA	CHIKAMAGALUR	853333	F

```
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');
```

	SSID	SEM	SEC
Edit Copy Delete	CSE1A	1	A
Edit Copy Delete	CSE1B	1	B
Edit Copy Delete	CSE1C	1	C
Edit Copy Delete	CSE2A	2	A
Edit Copy Delete	CSE2B	2	B
Edit Copy Delete	CSE2C	2	C
Edit Copy Delete	CSE3A	3	A
Edit Copy Delete	CSE3B	3	B
Edit Copy Delete	CSE3C	3	C
Edit Copy Delete	CSE4A	4	A
Edit Copy Delete	CSE4B	4	B
Edit Copy Delete	CSE4C	4	C
Edit Copy Delete	CSE5A	5	A
Edit Copy Delete	CSE5B	5	B
Edit Copy Delete	CSE5C	5	C
Edit Copy Delete	CSE6A	6	A
Edit Copy Delete	CSE6B	6	B

```
INSERT INTO CLASS VALUES ('1BI13CS020','CSE8A');
INSERT INTO CLASS VALUES ('1BI13CS062','CSE8A');
INSERT INTO CLASS VALUES ('1BI13CS066','CSE8B');
INSERT INTO CLASS VALUES ('1BI15CS101','CSE8C');
INSERT INTO CLASS VALUES ('1BI14CS010','CSE7A');
INSERT INTO CLASS VALUES ('1BI14CS025','CSE7A');
INSERT INTO CLASS VALUES ('1BI14CS032','CSE7A');
```

```
INSERT INTO CLASS VALUES ('1BI15CS011','CSE4A');
INSERT INTO CLASS VALUES ('1BI15CS029','CSE4A');
INSERT INTO CLASS VALUES ('1BI15CS045','CSE4B');
INSERT INTO CLASS VALUES ('1BI15CS091','CSE4C');
INSERT INTO CLASS VALUES ('1BI16CS045','CSE3A');
INSERT INTO CLASS VALUES ('1BI16CS088','CSE3B');
INSERT INTO CLASS VALUES ('1BI16CS122','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);
```

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

	USN	SNAME	ADDRESS	PHONE	GENDER
Edit Copy Delete	1BI13CS020	ANAND	BELAGAVI	1233423	M
Edit Copy Delete	1BI13CS062	BABIITHA	BENGALURU	43123	F
Edit Copy Delete	1BI13CS066	DIVYA	MANGALURU	534432	F
Edit Copy Delete	1BI14CS010	EESHA	BENGALURU	345456	F
Edit Copy Delete	1BI14CS025	HARISH	BENGALURU	235464	M
Edit Copy Delete	1BI14CS032	GANESH	BENGALURU	574532	M
Edit Copy Delete	1BI15CS011	ISHA	TUMKUR	764343	F
Edit Copy Delete	1BI15CS029	JOEY	DAVANGERE	235653	M
Edit Copy Delete	1BI15CS045	KAVYA	BELLARY	865434	F
Edit Copy Delete	1BI15CS091	MALINI	MANGALURU	235464	F
Edit Copy Delete	1BI15CS101	CHETHAN	BENGALURU	534234	M
Edit Copy Delete	1BI16CS045	NEEL	KALBURGI	856453	M
Edit Copy Delete	1BI16CS088	PARTHA	SHIMOGA	234546	M
Edit Copy Delete	1BI16CS122	REEMA	CHIKAMAGALUR	853333	F

```
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)
VALUES ('1BI15CS101','10CS81','CSE8C', 15, 16, 18);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)
VALUES ('1BI15CS101','10CS82','CSE8C', 12, 19, 14);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)
VALUES ('1BI15CS101','10CS83','CSE8C', 19, 15, 20);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)
VALUES ('1BI15CS101','10CS84','CSE8C', 20, 16, 19);
INSERT INTO IAMARKS (USN, SUBCODE, SSID, TEST1, TEST2, TEST3)
VALUES ('1BI15CS101','10CS85','CSE8C', 15, 15, 12);
```

Showing rows 0 - 4 (5 total, Query took 0.0012 seconds.)

```
SELECT * FROM `iamarks`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

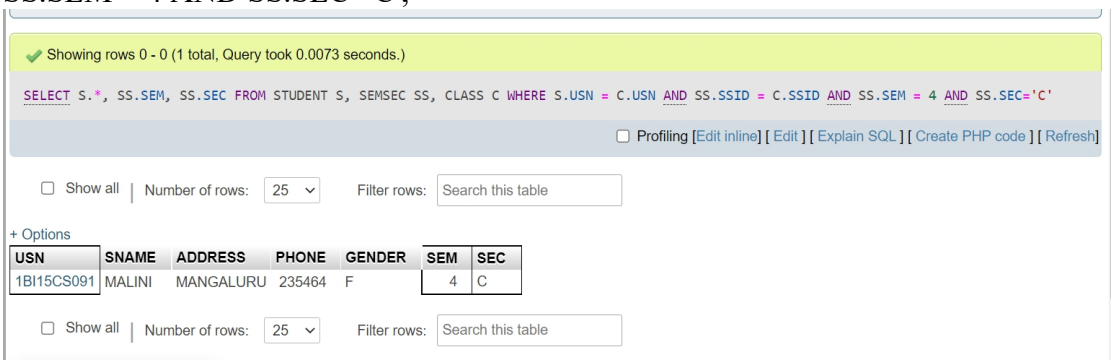
	USN	SUBCODE	SSID	TEST1	TEST2	TEST3	FINALIA
Edit Copy Delete	1BI15CS101	10CS81	CSE8C	15	16	18	NULL
Edit Copy Delete	1BI15CS101	10CS82	CSE8C	12	19	14	NULL
Edit Copy Delete	1BI15CS101	10CS83	CSE8C	19	15	20	NULL
Edit Copy Delete	1BI15CS101	10CS84	CSE8C	20	16	19	NULL
Edit Copy Delete	1BI15CS101	10CS85	CSE8C	15	15	12	NULL

Write SQL queries to

i. List all the student details studying in fourth semester ‘C’ section.

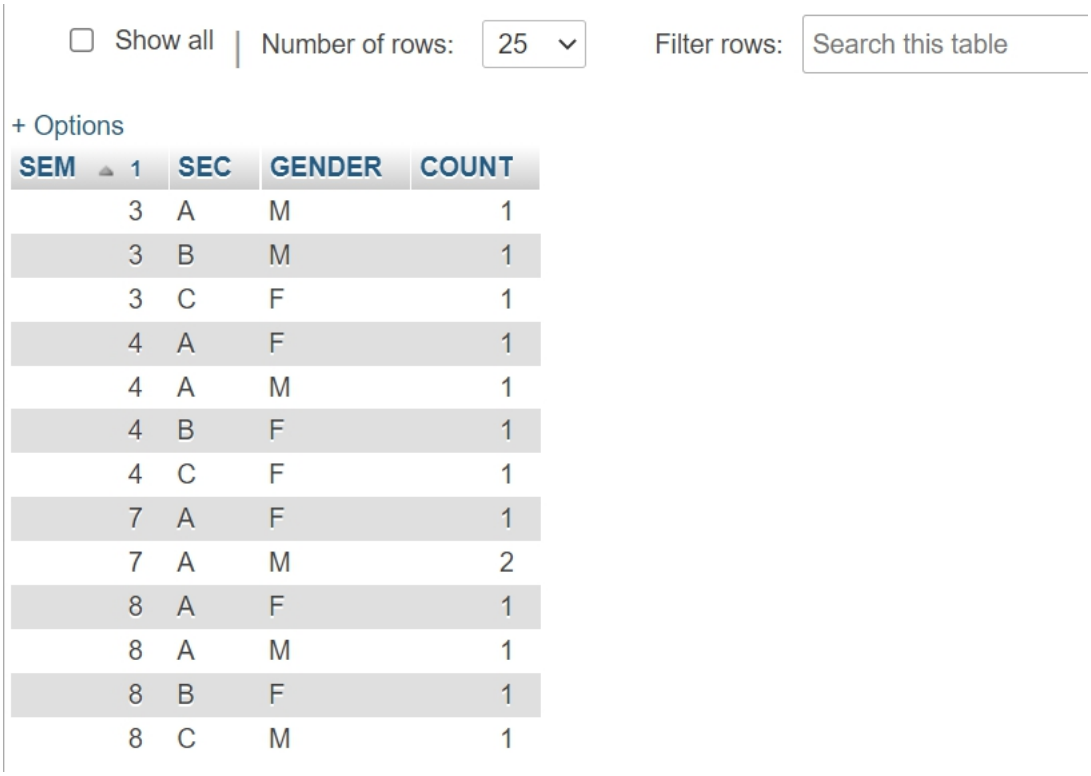
```
SELECT S.*, SS.SEM, SS.SEC
FROM STUDENT S, SEMSEC SS, CLASS C
WHERE S.USN = C.USN AND
```

SS.SSID = C.SSID AND
SS.SEM = 4 AND SS.SEC='C';



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

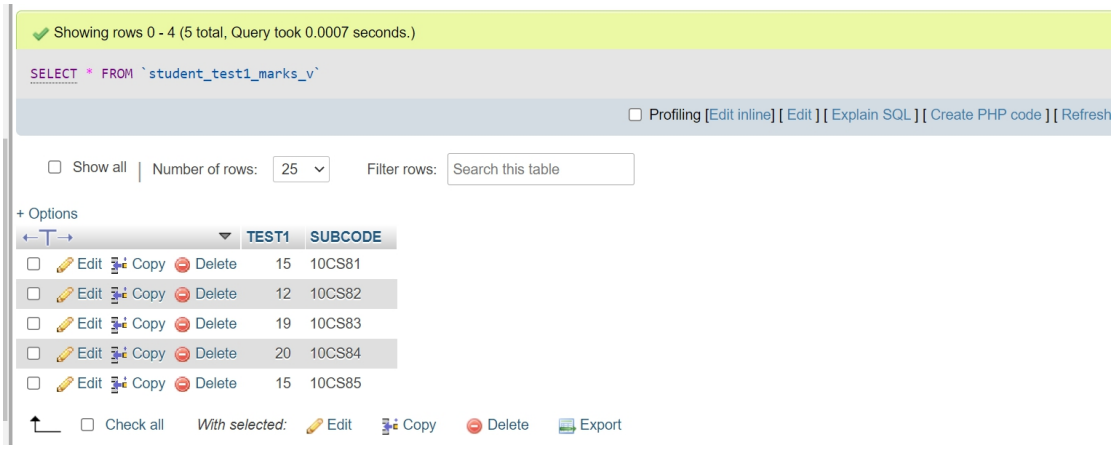
SELECT SS.SEM, SS.SEC, S.GENDER, COUNT(S.GENDER) AS COUNT
FROM STUDENT S, SEMSEC SS, CLASS C
WHERE S.USN = C.USN AND
SS.SSID = C.SSID
GROUP BY SS.SEM, SS.SEC, S.GENDER
ORDER BY SEM;



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

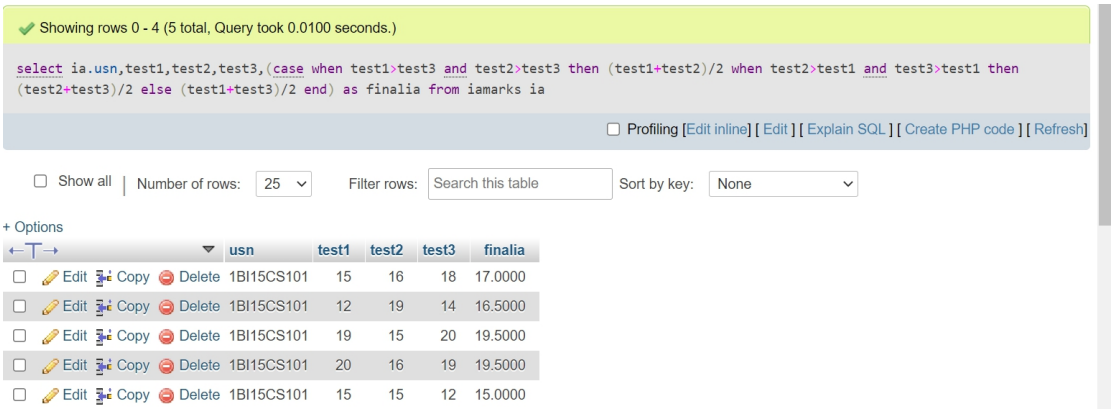
iii. Create a view of Test1 marks of student USN ‘1BI15CS101’ in all subjects.

CREATE VIEW STUDENT_TEST1_MARKS_V
AS
SELECT TEST1, SUBCODE
FROM IAMARKS
WHERE USN = '1BI15CS101';



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

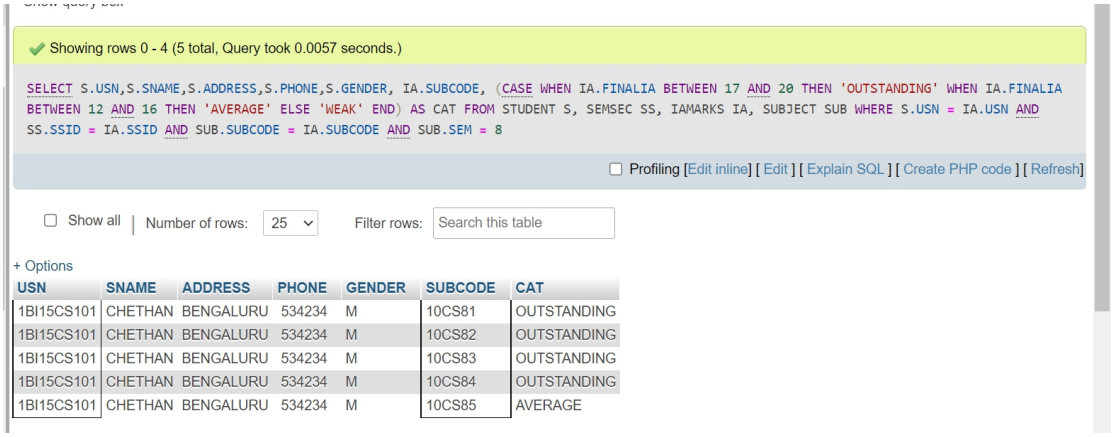
```
select ia.usn,test1,test2,test3,(case
                when test1>test3 and test2>test3 then (test1+test2)/2
                when test2>test1 and test3>test1 then (test2+test3)/2
                else (test1+test3)/2 end) as finalia from iamarks ia;
update iamarks set finalia= case finalia when test1>test2 and test2>test3 then
(test1+test2)/2
                when test2>test3 and test3>test1 then (test2+test3)/2
                else (test1+test3)/2 end;
```



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.

```
SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER, IA.SUBCODE,
(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
```



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```
SELECT S.USN,S.SNAME,S.ADDRESS,S.PHONE,S.GENDER, IA.SUBCODE, (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
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

+ Options

USN	SNAME	ADDRESS	PHONE	GENDER	SUBCODE	CAT
1BI15CS101	CHETHAN	BENGALURU	534234	M	10CS81	OUTSTANDING
1BI15CS101	CHETHAN	BENGALURU	534234	M	10CS82	OUTSTANDING
1BI15CS101	CHETHAN	BENGALURU	534234	M	10CS83	OUTSTANDING
1BI15CS101	CHETHAN	BENGALURU	534234	M	10CS84	OUTSTANDING
1BI15CS101	CHETHAN	BENGALURU	534234	M	10CS85	AVERAGE