

4 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)

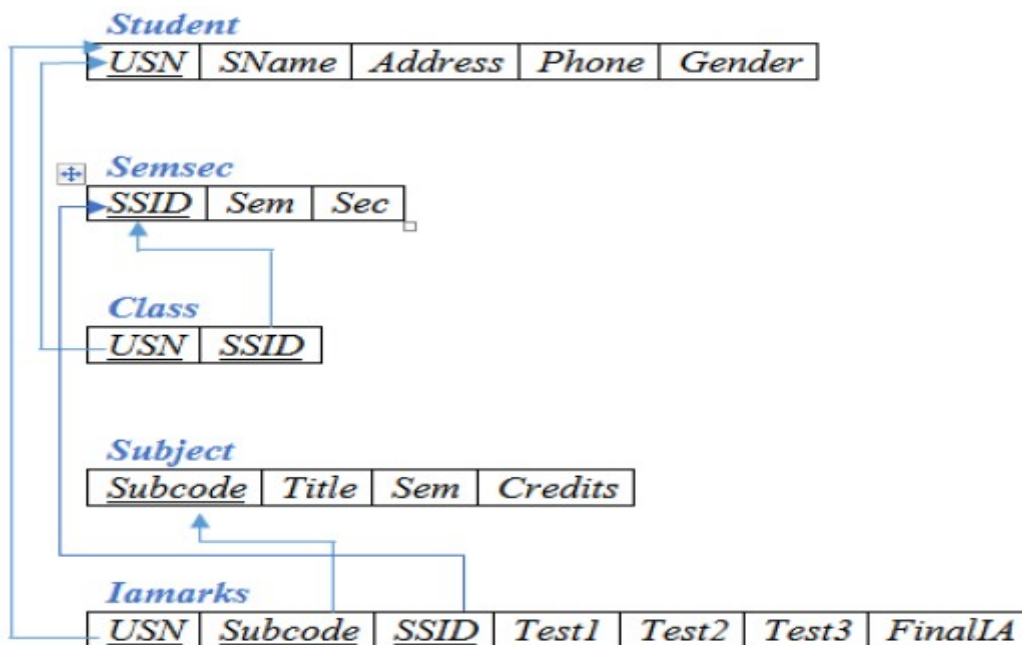
Write SQL queries to

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'

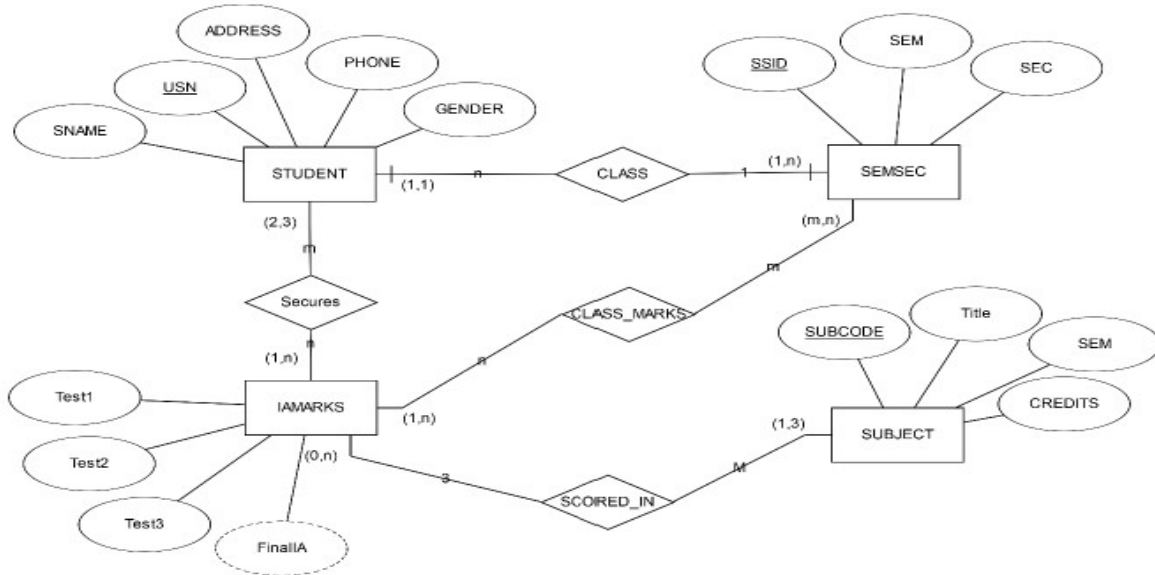
Give these details only for 8th semester A, B, and C section students.

Solution:

Schema Diagram:



Entity – Relationship Diagram



Creating Tables (Relations):

- create table **student** (usn varchar (10) primary key, sname varchar (25), address varchar (25), phone_no int, gender char (1));
- create table **semsec** (ssid varchar (5) primary key, sem int, 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, credits int, primary key (subcode));
- create table **iamarks** (usn varchar (10), subcode varchar (8), ssid varchar (5), test1 int, test2 int, test3 int, finalia int, primary key (usn, subcode, ssid), foreign key (usn) references student (usn), foreign key (subcode) references subject (subcode), foreign key (ssid) references semsec (ssid));

Insertion of Values to Tables

student Table

```
insert into student values ('1GA13IS020','akshay','belagavi', 1277881122,'m');
insert into student values ('1 GA13IS062','sandhya','bengaluru', 1222829912,'f');
insert into student values ('1 GA13IS091','teesha','bengaluru', 1212312312,'f');
insert into student values ('1 GA13IS066','supriya','mangaluru', 1234881122,'f');
insert into student values ('1 GA13IS010','abhay','bengaluru', 1234211201,'m');
insert into student values ('1 GA13IS032','bhaskar','bengaluru', 1243211099,'m');
```

semsec table

```
insert into semsec values ('Ise8a', 8,'a');
insert into semsec values ('ise8b', 8,'b');
insert into semsec values ('ise8c', 8,'c');
insert into semsec values ('ise4a', 4,'a');
insert into semsec values ('ise4b', 4,'b');
insert into semsec values ('ise4c', 4,'c');
insert into semsec values ('ise6a', 6,'a');
insert into semsec values ('ise6b', 6,'b');
insert into semsec values ('ise6c', 6,'c');
insert into semsec values ('ise1c', 1,'c');
```

class table

```
insert into class values ('1GA13IS020','ise8a');
insert into class values ('1GA13IS066','ise8a');
insert into class values ('1GA13IS66','ise8b');
insert into class values ('1GA13IS 091','ise8c');
insert into class values ('1GA14IS010','ise4a');
insert into class values ('1GA14IS010','ise4c');
insert into class values ('1GA14IS032','ise4a');
insert into class values ('1GA13IS 011','ise4a');
insert into class values ('1GA13IS 029','ise4a');
```

subject Table

```
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','ood', 7, 4);
```

iamarks Table

```
insert into iamarks (usn, subcode, ssid, test1, test2, test3) values ('1GA13IS091','10cs81','ise8c', 15, 16, 18);
insert into iamarks (usn, subcode, ssid, test1, test2, test3) values ('1GA13IS091','10cs82','ise8c', 12, 19, 14);
insert into iamarks (usn, subcode, ssid, test1, test2, test3) values ('1GA13IS091','10cs83','ise8c', 19, 15, 20);
insert into iamarks (usn, subcode, ssid, test1, test2, test3) values ('1GA13IS091','10cs84','ise8c', 20, 16, 19);
insert into iamarks (usn, subcode, ssid, test1, test2, test3) values ('1GA13IS091','10cs85','ise8c', 15, 15, 12);
```

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';
```

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	S	G	COUNT
4	c	f	1
4	c	m	1
7	a	m	2
8	a	f	1
8	a	m	1
8	b	f	1

6 rows selected.

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

```
create view stu_test1_view
as
select test1, subcode
from iamarks
where usn = '1vk13cs091';
```

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

```
Update iamarks set finalia=((test1+test2+test3)-least(test1,test2,test3))/2;
```

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.

```
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;
```