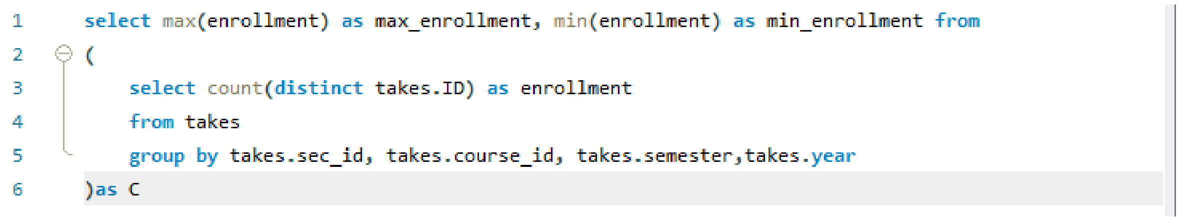
Mwangi Nelson Kamau – 134979

Advanced Database Systems Assignment

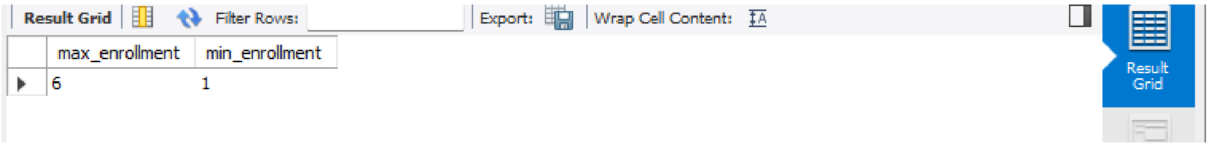
Intermediate SQL

1. **SQL query**



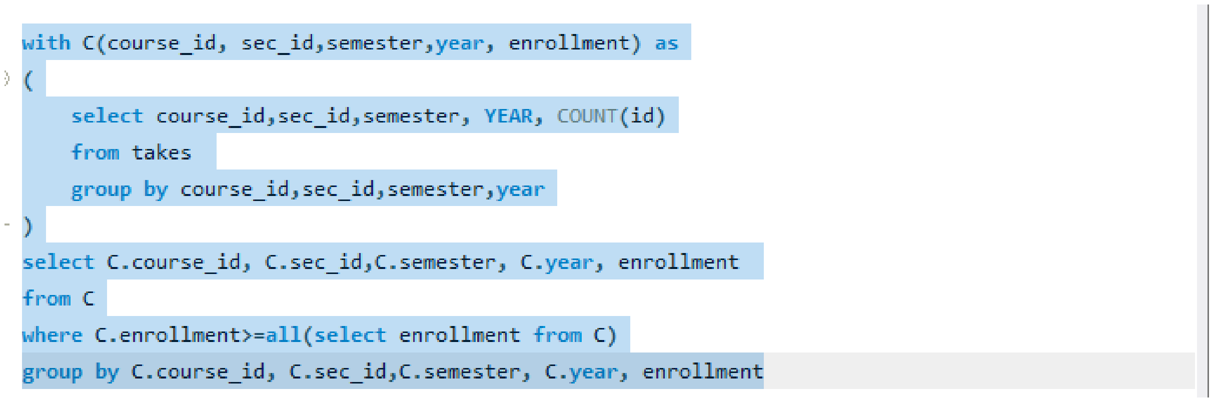
```
select max(enrollment) as max_enrollment, min(enrollment) as min_enrollment from
(
    select count(distinct takes.ID) as enrollment
    from takes
    group by takes.sec_id, takes.course_id, takes.semester,takes.year
)as C
```

Result image



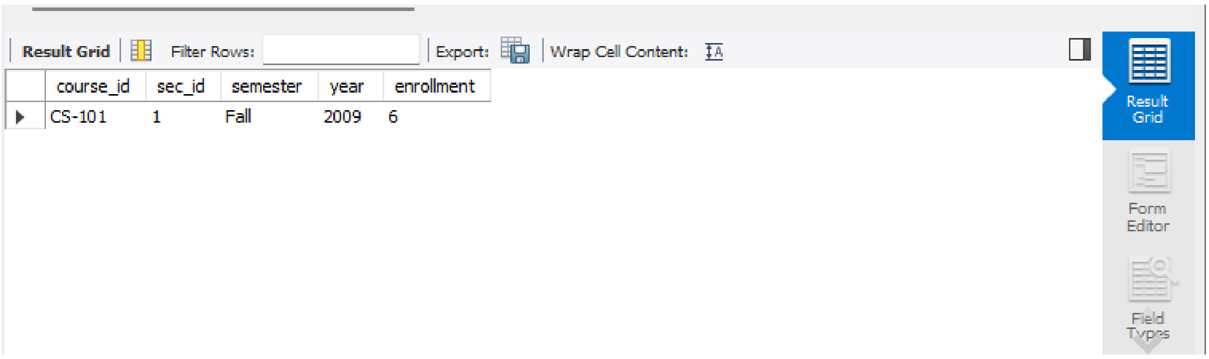
max_enrollment	min_enrollment
6	1

2. **SQL Query**



```
with C(course_id, sec_id,semester,year, enrollment) as
(
    select course_id,sec_id,semester, YEAR, COUNT(id)
    from takes
    group by course_id,sec_id,semester,year
)
select C.course_id, C.sec_id,C.semester, C.year, enrollment
from C
where C.enrollment>=all(select enrollment from C)
group by C.course_id, C.sec_id,C.semester, C.year, enrollment
```

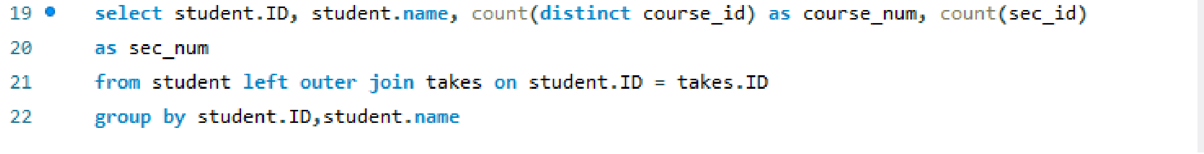
Result Image



course_id	sec_id	semester	year	enrollment
CS-101	1	Fall	2009	6

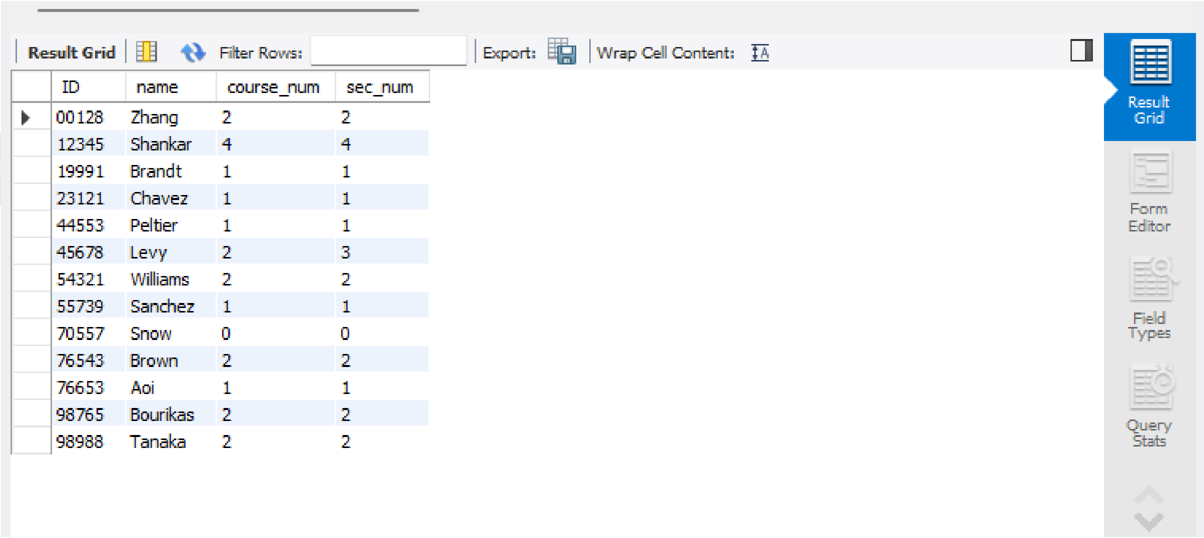
3. SQL Query

(Using aggregation on left-outer join)



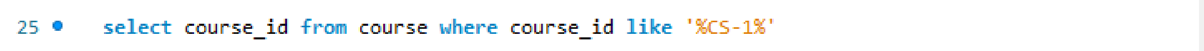
```
select student.ID, student.name, count(distinct course_id) as course_num, count(sec_id)
as sec_num
from student left outer join takes on student.ID = takes.ID
group by student.ID,student.name
```

Result Image



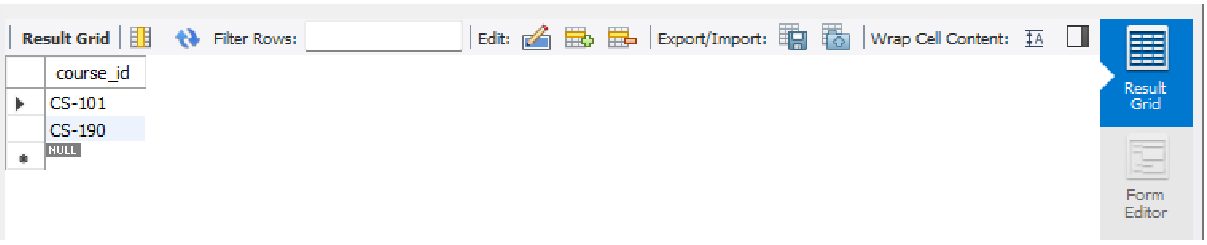
ID	name	course_num	sec_num
00128	Zhang	2	2
12345	Shankar	4	4
19991	Brandt	1	1
23121	Chavez	1	1
44553	Peltier	1	1
45678	Levy	2	3
54321	Williams	2	2
55739	Sanchez	1	1
70557	Snow	0	0
76543	Brown	2	2
76653	Aoi	1	1
98765	Bourikas	2	2
98988	Tanaka	2	2

4. SQL Query



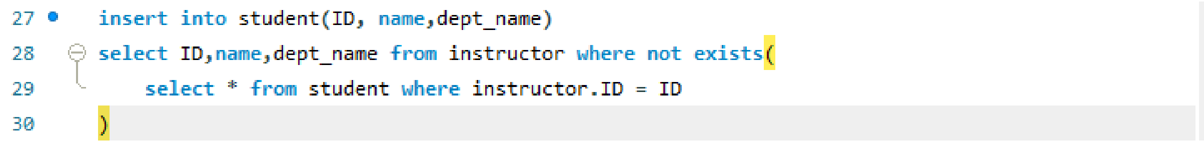
```
select course_id from course where course_id like '%CS-1%'
```

Result Image



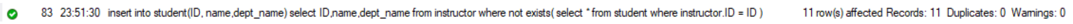
course_id
CS-101
CS-190
NULL

5. SQL query



```
insert into student(ID, name,dept_name)
select ID,name,dept_name from instructor where not exists(
    select * from student where instructor.ID = ID
)
```

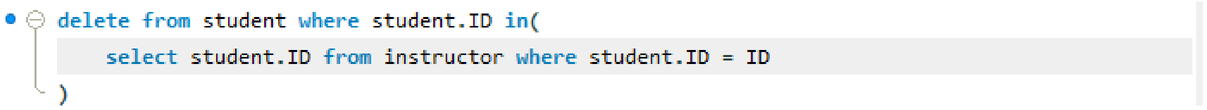
Result Image



```
83  23:51:30  insert into student(ID, name,dept_name) select ID,name,dept_name from instructor where not exists( select * from student where instructor.ID = ID )     11 row(s) affected Records: 11  Duplicates: 0  Warnings: 0
```

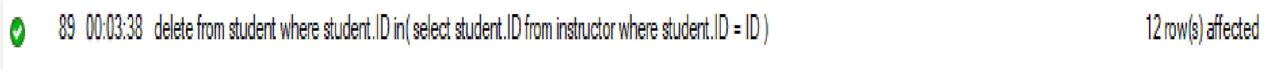
6.

7. **SQL query**



```
delete from student where student.ID in(
    select student.ID from instructor where student.ID = ID
)
```

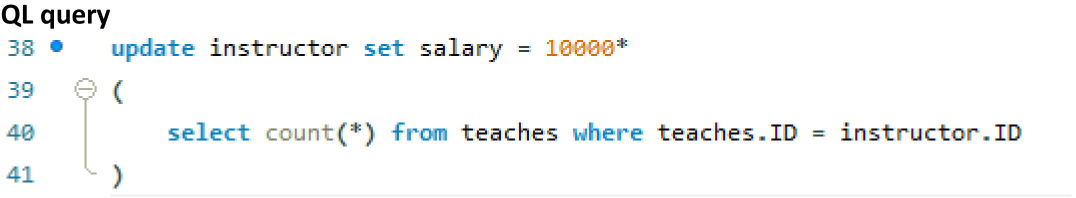
Result Image



```
89  00:03:38  delete from student where student.ID in( select student.ID from instructor where student.ID = ID )        12 row(s) affected
```

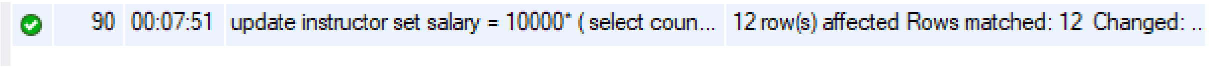
8.

9. **SQL query**



```
update instructor set salary = 10000*
(
    select count(*) from teaches where teaches.ID = instructor.ID
)
```

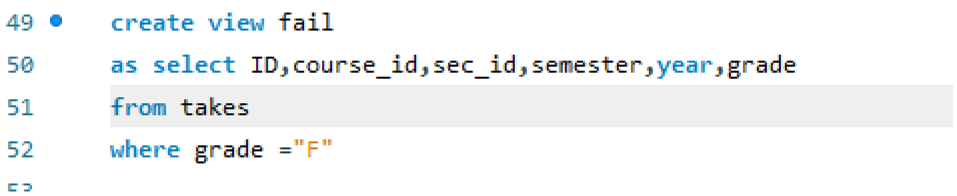
Result Image



```
90  00:07:51  update instructor set salary = 10000* ( select coun...  12 row(s) affected Rows matched: 12  Changed: ..
```

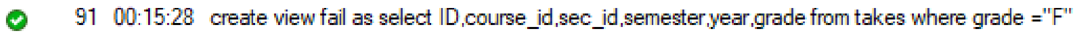
Advanced SQL

1. **SQL query**



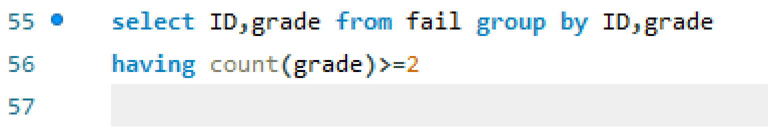
```
create view fail
as select ID,course_id,sec_id,semester,year,grade
from takes
where grade ="F"
```

Result Image



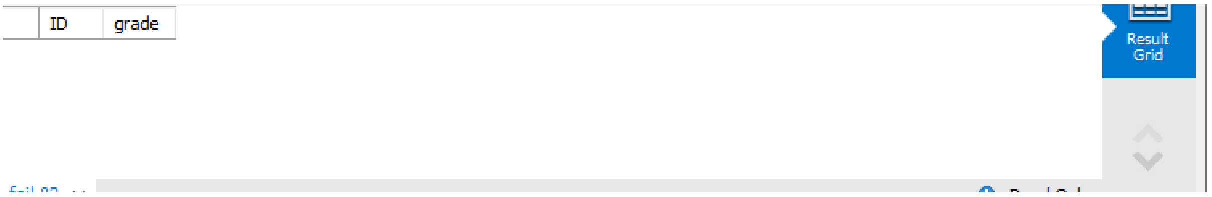
```
91  00:15:28  create view fail as select ID,course_id,sec_id,semester,year,grade from takes where grade ="F"
```

2. **SQL query**



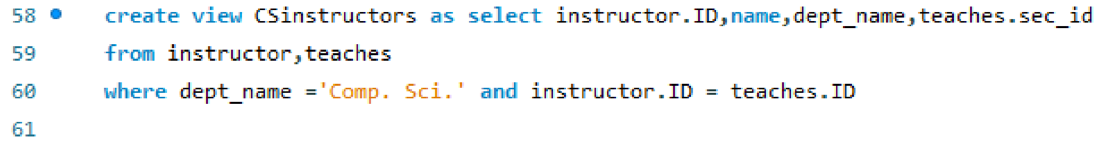
```
select ID,grade from fail group by ID,grade
having count(grade)>=2
```

Result Image



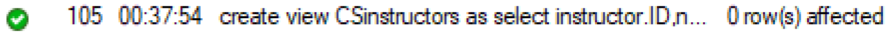
	ID	grade

6. SQL QUERY



```sql
create view CSinstructors as select instructor.ID,name,dept_name,teaches.sec_id
from instructor,teaches
where dept_name ='Comp. Sci.' and instructor.ID = teaches.ID
```

Result Image



```
105  00:37:54  create view CSinstructors as select instructor.ID,n...  0 row(s) affected
```