Charles Schatmeyer
IE6700 HW3

1.
7.1E

```
select SUPNR, PURCHASE_PRICE, DELIV_PERIOD from supplies
WHERE prodnr = '0468' AND deliv_period IN (1, 2);
```

7.2E

```
select prodnr, AVG(PURCHASE_PRICE) as Average_Price,
VARIANCE(PURCHASE_PRICE) as Price_Variance
from supplies
group by prodnr;
```

7.3E

```
SELECT s1.supnr AS supplier1, s2.supnr AS supplier2, s1.prodnr,
s1.purchase_price AS price1, s2.purchase_price AS price2
FROM supplies s1
JOIN supplies s2
ON s1.prodnr = s2.prodnr
AND s1.supnr > s2.supnr;
```

7.12E

```
select s.supnr, s.supname, COUNT(p.ponr) as outstanding_orders from supplier s
left join purchase_order p
on s.supnr = p.supnr
group by s.supnr
```

7.13E

```
select supnr, COUNT(prodnr) as Num_Products
from supplies
group by supnr
having COUNT(prodnr) > 5
```

2.

```
CREATE TABLE Hotel (
hotel_id int primary key,
name string,
address string,
price float
);

CREATE TABLE Resort (
resort_id int primary key,
hotel_id int,
minStay int,
foreign key (hotel_id) references Hotel(hotel_id)
);

CREATE TABLE Activity (
activity_id int primary key,
name string,
season string
);

CREATE TABLE Resort_Activity (
resort_id int,
activity_id int,
primary key (resort_id, activity_id),
foreign key (resort_id) references Resort(resort_id),
foreign key (activity_id) references Activity(activity_id)
);
```

3.
a.

```
select m.personName, COUNT(p.picture)
from member m
left join picture p
on m.groupName = p.groupName
group by m.personName
```

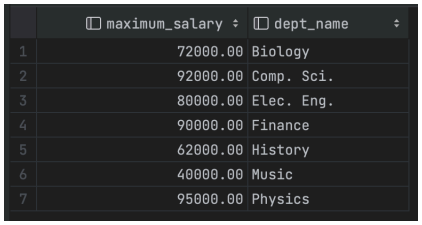
b.

```
select personName
from (
select personName1 as personName
from friend
union all
select personName2 as personName
from friend
)
group by personName
having count(personName) >= 40
```

4.

a.

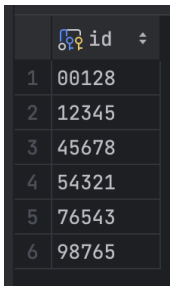
select max(salary) as maximum_salary, dept_name from instructor group by dept_name



	maximum_salary	dept_name
1	72000.00	Biology
2	92000.00	Comp. Sci.
3	80000.00	Elec. Eng.
4	90000.00	Finance
5	62000.00	History
6	40000.00	Music
7	95000.00	Physics

b.

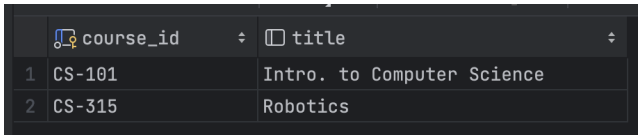
select distinct takes.id from takes join teaches on takes.course_id = teaches.course_id and takes.sec_id = teaches.sec_id join instructor on teaches.id = instructor.id where instructor.name = ‘Katz’



	id
1	00128
2	12345
3	45678
4	54321
5	76543
6	98765

c.

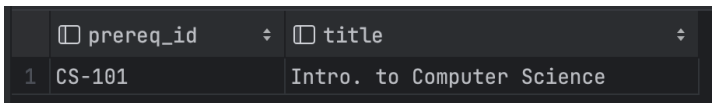
select distinct course.course_id, course.title from course join section on course.course_id = section.course_id join time_slot on section.time_slot_id = time_slot.time_slot_id where course.dept_name = ‘Comp. Sci.’ and time_slot.end_hr >= 12



	course_id	title
1	CS-101	Intro. to Computer Science
2	CS-315	Robotics

d.

select prereq.prereq_id, course.title
from prereq
join course on prereq.prereq_id = course.course_id
where prereq.course_id = 'CS-315'



	prereq_id	title
1	CS-101	Intro. to Computer Science

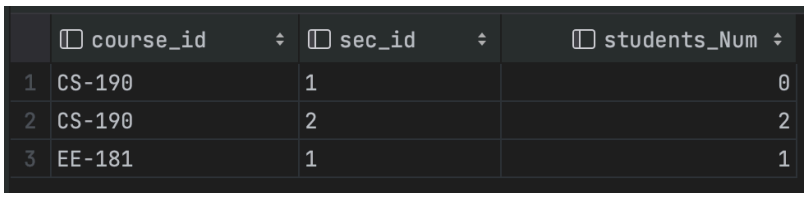
e.

```
select takes.course_id, takes.sec_id, count(takes.ID) as students_Num
from takes
where takes.semester = 'Spring' and takes.year = 2017
group by takes.course_id, takes.sec_id
```

	course_id	sec_id	students_Num
1	CS-190	2	2
2	EE-181	1	1

f.

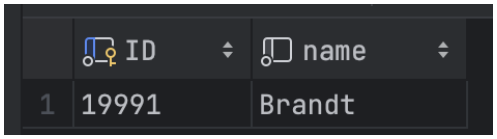
```
select section.course_id, section.sec_id, count(takes.ID) AS students_Num
from section
left join takes on section.course_id = takes.course_id
        and section.sec_id = takes.sec_id
        and section.semester = takes.semester
        and section.year = takes.year
where section.semester = 'Spring' and section.year = 2017
group by section.course_id, section.sec_id
```



	course_id	sec_id	students_Num
1	CS-190	1	0
2	CS-190	2	2
3	EE-181	1	1

g.

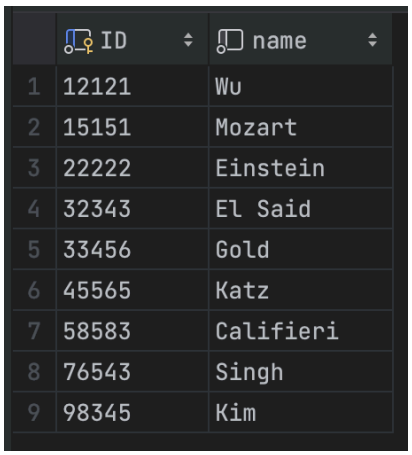
```
select student.ID, student.name
from student
where student.dept_name = 'History'
and not exists (
   select *
   from takes
   join course on takes.course_id = course.course_id
   where takes.ID = student.ID
   and course.dept_name = 'Music'
)
```



	ID	name
1	19991	Brandt

h.

```
select instructor.ID, instructor.name
from instructor
where not exists (
    select *
    from teaches
    join takes on teaches.course_id = takes.course_id
        and teaches.sec_id = takes.sec_id
        and teaches.semester = takes.semester
        and teaches.year = takes.year
    where teaches.ID = instructor.ID
    and takes.grade = 'A'
)
```



	ID	name
1	12121	Wu
2	15151	Mozart
3	22222	Einstein
4	32343	El Said
5	33456	Gold
6	45565	Katz
7	58583	Califieri
8	76543	Singh
9	98345	Kim

i.

```
insert into course values ('CS-001', 'Weekly Seminar', 'Comp. Sci.', 2)
```

j.

```
insert into section values ('CS-001', '1', 'Spring', 2022, NULL, NULL, NULL)
```

k.

```
insert into takes
select ID, 'CS-001', '1', 'Spring', 2022
from student
where dept_name = 'Comp. Sci.'
```

l.

```
delete from takes
where course_id = 'CS-001' and sec_id = '1' and semester = 'Spring' and year = 2022 and ID =
'12345';
```

5.

a.

```
select StNum, StName, age, gpa from Student where class = ‘FR’ and Major = ‘BIO’
```

b.

```
select s.gpa, s.age, s.StNum, s.StName, f.AdvNum, f.Name as AdvisorName from Student s
join Fac f on f.AdvNum = s.AdvNum where s.gpa < 2
```

c.

```
select stNum, stName, age, (age + 3) as Expected_Age_as_a_Senior from student where class
= ‘FR’
```

d.

```
select AdvNum, Name from fac where office like ‘B%’
```