# Database Midterm
# [Solution]

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Contents

**Problem**

1. create table of classroom (โครงสร้างตาม schema)
2. create table of instructor and instructor name must not null value
3. delete student relation
4. delete all content from instructor
5. add new attribute named year in student relation
6. delete total credit attribute in student relation
7. list all content in instructor
8. find all student name
9. show all ‘course id’ with remove duplicate
10. show the ‘instructor’s name’ who have salary more than 50000
11. show ‘course name’ and ‘title’ that open in summer 2017
12. show ‘advisor name’ and ‘advisee name’
13. find ‘course name’ and ‘pre request course name’
14. list the student id that have name with 5 character
15. list the instructor id that have name at least 3 charater
16. list the course id have name begin with “Intro”
17. find the sum of instructor’s salary
18. find the sum of instructor’s salary in department
19. find the number of advisee for each instructor
20. find the number of course that open in summer 2017

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# Solution

1. 
```
create table classroom
        (building           varchar(15),
         room_number        varchar(7),
         capacity           numeric(4,0),
         primary key (building, room_number))
```
2. 
```
create table instructor
        (ID                 varchar(5),
         name               varchar(20) not null,
         dept_name          varchar(20),
         salary             numeric(8,2) check (salary > 29000),
         primary key (ID),
         foreign key (dept_name) references department)
```
3. 
```
drop table student
```
4. 
```
delete from instructor
```
5. 
```
alter table student add year int
```
6. 
```
alter table student drop tot_cred
```
7. 
```
select *
from instructor
```
8. 
```
select name
from instructor
```
9. 
```
select distinct course_id
from course
```
10. 
```
select name
from instructor
where salary > 50000
```
11. 
```
select course_id, title
from section as s, course as c
where s.course_id = c.course_id
        and semester = "summer"
        and year = 2017
```
```
select course_id, title
from section as s natural join course as c
where semester = "summer"
        and year = 2017
```
12. 
```
select i.name as advisor_name, s.name as advisee_name
from instructor as i
join (advisor
        join student as s
        on s_ID = s.ID)
on i_ID = i.ID
```

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13. 
```
select c1.title as course_name, c2.title as prerequest
from course as c1
join (prereq as p
        join course as c2
        on p.prereq_id = c2.course_id)
on c1.course_id = p.course_id
```
14. 
```
select id
from student
where name like "_ _ _ _ _"          // ของจริงไม่เว้นวรรคนะ เว้นให้เห็นเฉยๆ
```
15. 
```
select id
from instructor
where name like "_ _ _%"
```
16. 
```
select course_id
from course
where title like "Intro%"
```
17. 
```
select sum(salary)
from instructor
```
18. 
```
select dept_name, sum(salary) as sum_salary
from instructor
group by dept_name
```
19. 
```
select i.name, count(distinct s.name) as count_advisee
from instructor as i
left join (advisor
        join student as s
        on s_id = s.id)
on i.id = i_id
group by i.name
```
20. 
```
select count(distinct course_id)
from section
where semester = 'summer' and year = 2017
```