

Cose371-01 데이터베이스 hw2			
정보대학	컴퓨터학과	2018320211	진지과

```
[db_hw2=# \dt
          List of relations
 Schema |      Name      | Type  | Owner
-----+-----+-----+-----
 public | advisor        | table | postgres
 public | classroom      | table | postgres
 public | course         | table | postgres
 public | department     | table | postgres
 public | instructor     | table | postgres
 public | prereq         | table | postgres
 public | section        | table | postgres
 public | student        | table | postgres
 public | takes          | table | postgres
 public | teaches        | table | postgres
(10 rows)
```

[모든 table을 다 만든 후 확인하는 스크린샷]

```
ALTER TABLE takes
ADD foreign key ( course_id, sec_id, semester, year) references section,
ADD foreign key (ID) references student;

ALTER TABLE student
ADD foreign key (dept_name) references department;

ALTER TABLE course
ADD foreign key (dept_name) references department;

ALTER TABLE prereq
ADD foreign key (course_id) references course(course_id);

ALTER TABLE prereq
ADD foreign key (prereq_id) references course(course_id);

ALTER TABLE teaches
ADD foreign key (course_id, sec_id, semester, year) references section,
ADD foreign key (ID) references instructor;

ALTER TABLE instructor
ADD foreign key (dept_name) references department;

ALTER TABLE advisor
ADD foreign key (i_id) references instructor (ID),
ADD foreign key (s_id) references student (ID);

ALTER TABLE section
ADD foreign key (course_id) references course(course_id),
ADD foreign key (room_no,building) references classroom;
```

모든 테이블을 만든 후 foreign key를 alter로 추가을 해줍니다.

```

db_hw2=# \d department
          Table "public.department"
  Column      |          Type          | Collation | Nullable | Default
-----+-----+-----+-----+-----
 dept_name    | character varying(20)  |           | not null |
 building     | character varying(20)  |           |          |
 budget       | numeric(8,2)           |           |          |
Indexes:
 "department_pkey" PRIMARY KEY, btree (dept_name)
Referenced by:
 TABLE "course" CONSTRAINT "course_dept_name_fkey" FOREIGN KEY (dept_name) REFERENCES department(dept_name)
 TABLE "instructor" CONSTRAINT "instructor_dept_name_fkey" FOREIGN KEY (dept_name) REFERENCES department(dept_name)
 TABLE "student" CONSTRAINT "student_dept_name_fkey" FOREIGN KEY (dept_name) REFERENCES department(dept_name)

```

Foreign key 추가후 department의 모습입니다.

```

db_hw2=# INSERT INTO department VALUES
('comp.sci.','woozeong-info.',500000),
('gen.edu.','kyoyang-gwan',500000),
('mathematic','a-san',50000);
INSERT 0 3
db_hw2=# INSERT INTO department VALUES
('business','business-bilding',500000),
('french','west-bilding',50000),
('philosophy','west-bilding',50000),
('sociology','west-bilding',50000);
INSERT 0 4

```

dept_name	building	budget
comp.sci.	woozeong-info.	500000.00
gen.edu.	kyoyang-gwan	500000.00
mathematic	a-san	50000.00
business	business-bilding	500000.00
french	west-bilding	50000.00
philosophy	west-bilding	50000.00
sociology	west-bilding	50000.00

(7 rows)

[department에 튜플을 삽입하고 확인하는 스크린샷]

```

db_hw2=# select id, name
db_hw2=# from student
db_hw2=# where dept_name='comp.sci.';
   id   |      name
-----+-----
 32211  | jin-luca
 32244  | gang-hyeonmo
 32223  | lyu-jisuk
 32192  | son-jeamin
(4 rows)

```

1. [컴퓨터과 학생을 찾기]

```

db_hw2=# select distinct course_id, name
from instructor, teaches
where instructor.ID=teaches.ID;
 course_id |      name
-----+-----
 cose111   | kim-yeongsik
 soci153   | lee-heagyeong
 phil104   | hong-seonyoeng
 cose371   | zeong-yeondon
 gete016   | lee-suenyeong
 cose321   | seo-teawon
(6 rows)

```

2.[같은 교수가 가르치는 수업 찾기]

```
db_hw2=# select course_id, title, semester, year, grade
db_hw2=# from takes natural join course
db_hw2=# where id='32211';
```

course_id	title	semester	year	grade
gete016	thinking-and-writing	autumn	2018	A
gete016	thinking-and-writing	spring	2018	B
soci153	introduction-to-sociology	spring	2019	A
crpt411	basic-cryptography	spring	2018	B
cose111	mathematics-for-computer-science	spring	2018	B
phil104	philosophy-of-sex-&-desire	autumn	2019	A

(6 rows)

3.[32211학생이 들었던 수업과 성적 나열]

```
db_hw2=# select count (distinct course_id)
from section
where semester='autumn' and year=2019;
count
-----
      2
(1 row)
```

4.[2019가을에 열린 강의 카운트]

```
db_hw2=# select distinct student.id, student.name
from takes, student
where student.id=takes.id and course_id='cose371';
```

id	name
32192	son-jeamin
32223	lyu-jisuk

(2 rows)

5.[cose371을 수강한 학생 찾기]

```
db_hw2=# select section.course_id, semester, year, title
from section, course
where section.course_id=course.course_id and dept_name='comp.sci.';
```

course_id	semester	year	title
cose321	spring	2020	computer-system
cose371	autumn	2019	databases
cose371	spring	2020	databases
cose111	spring	2018	mathematics-for-computer-science

(4 rows)

6.[컴퓨터학과 수업찾기]

```
[db_hw2=# select avg(salary)
[db_hw2=# from instructor;
          avg
-----
 62500.000000000000
(1 row)
```

7, 교직원 평균 salary 구하기

```
[db_hw2=# select id, name
[db_hw2=# from student
[db_hw2=# where tot_cred>=180;
   id   |      name
-----+-----
 12050  | yang-jinkyong
 13109  | ga-eulhanul
 19006  | kim-yeongseo
(3 rows)
```

8.[수료생 찾기]

```
[db_hw2=# select distinct course_id
from section
where semester = 'autumn' and year= 2019 and
course_id in (select course_id
from section
where semester = 'spring' and year= 2020);
course_id
-----
cose371
(1 row)
```

9.[2019가을과 2020봄학기에 모두 열린 수업 찾기]

```
db_hw2=# update instructor
[db_hw2=# set salary = salary * 1.05
[db_hw2=# ;
UPDATE 6
[db_hw2=# select * from instructor;
   id   |      name      | dept_name | salary
-----+-----+-----+-----
 00001  | zeong-yeondon  | comp.sci. | 68250.00
 00002  | seo-teawon     | comp.sci. | 68250.00
 00004  | lee-heagyeong  | sociology | 68250.00
 00005  | hong-seonyoeng | philosophy | 68250.00
 00006  | kim-yeongsik   | comp.sci. | 68250.00
 00003  | lee-suenyeong  | gen.edu.  | 55125.00
(6 rows)
```

10.[전체 교직우녀 연봉인상]