



인문정보 데이터베이스

제7강: SQL 실습(3)-DML/DDL

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이 저작물(PPT)의 인용 표시 방법:

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1. SQL 어휘

2. 테이블 생성

3. 데이터 입력

4. 데이터 수정/삭제

5. 뷰(VIEW)

❖ DML : Data Manipulation Language

- 데이터 검색: **select**
- 데이터 삽입: **insert**
- 데이터 삭제: **delete**
- 데이터 수정: **update**

❖ DDL : Data Definition Language

- 테이블 생성: **create table**
- 테이블 변경: **alter table**
- 테이블 삭제: **drop table**
- 뷰 생성: **create view**
- 뷰 삭제: **drop view**

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❖ schema 조회: institute

```
SELECT column_name, data_type, character_maximum_length  
FROM INFORMATION_SCHEMA.COLUMNS  
WHERE TABLE_NAME = 'institute'
```

column_name	data_type	character_maximum_length
institute_id	float	NULL
institute_name	nvarchar	255
type	nvarchar	255
zone	float	NULL
state	float	NULL
state_name	nvarchar	255
hasGis	float	NULL
latitude	float	NULL
longitude	float	NULL

❖ schema 조회: program

```
SELECT column_name, data_type, character_maximum_length,  
       FROM INFORMATION_SCHEMA.COLUMNS  
      WHERE TABLE_NAME = 'program'
```

column_name	data_type	character_maximum_length
program_id	float	NULL
institute_id	float	NULL
hasPart	float	NULL
program_name	nvarchar	255
department	nvarchar	255
establishment	float	NULL
language	float	NULL
major_ba	float	NULL
minor_ba	float	NULL
ma	float	NULL
phd	float	NULL
address	nvarchar	255
phone	nvarchar	255
fax	nvarchar	255
email	nvarchar	255
homepage	nvarchar	255
representative	nvarchar	255

새 테이블 생성

❖ Create table: institute_asia

```
CREATE TABLE institute_asia (
    institute_id      float           NOT NULL,
    institute_name   nvarchar(255)    NULL,
    type              nvarchar(255)    NULL,
    zone              float           NULL,
    state             float           NULL,
    state_name        nvarchar(255)    NULL,
    hasGis            float           NULL,
    latitude          float           NULL,
    longitude         float           NULL,
    primary key(institute_id)
)
```

❖ Create table: program_asia

```
CREATE TABLE program_asia (
    program_id          float            NOT NULL,
    institute_id        float            NULL,
    hasPart             float            NULL,
    program_name        nvarchar(255)   NULL,
    department          nvarchar(255)   NULL,
    establishment       float            NULL,
    language            float            NULL,
    major_ba            float            NULL,
    minor_ba            float            NULL,
    ma                 float            NULL,
    phd                float            NULL,
    address             nvarchar(255)   NULL,
    phone               nvarchar(255)   NULL,
    fax                nvarchar(255)   NULL,
    email               nvarchar(255)   NULL,
    homepage            nvarchar(255)   NULL,
    representative      nvarchar(255)   NULL,
    primary key(program_id)
)
```

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데이터 입력

- ❖ 기존 테이블의 내용을 copy: `institute_asia` ... 아시아 지역 기관

```
INSERT INTO institute_asia ( institute_id, institute_name, type,
                             zone, state, state_name, hasGis, latitude, longitude )
    SELECT institute_id, institute_name, type, zone, state,
           state_name, hasGis, latitude, longitude
      FROM institute
     WHERE zone = 4
```

```
INSERT INTO institute_asia
    SELECT *
      FROM institute
     WHERE zone = 4
```

- ❖ 결과 조회

```
SELECT * FROM institute_asia
```

- ❖ 기존 테이블 copy: `program_asia` 아시아 지역 프로그램

```
INSERT INTO program_asia
    SELECT program.* FROM program
    JOIN institute_asia
        ON program.institute_id = institute_asia.institute_id
```

- ❖ 결과 조회

```
SELECT * FROM program_asia
```

❖ 새로운 데이터 입력

```
INSERT INTO institute_asia ( institute_id, institute_name, type, zone, state,
    state_name, hasGis, latitude, longitude )
VALUES (
    200001,
    'The Academy of Korean Studies',
    'EDU',
    4,
    4100,
    '대한민국',
    1,
    37.391892,
    127.053372
)
```

```
SELECT * FROM institute_asia ORDER BY state DESC
```

❖ 새로운 데이터 입력

```
INSERT INTO program_asia ( program_id, institute_id, hasPart, program_name,
    department, establishment, language, major_ba, minor_ba, ma,phd,
    address, phone, fax, email, homepage, representative )
VALUES (
    2000010001,
    200001,
    1,
    'The Graduate School of Korean Studies',
    'Korean Classics and Global Communication',
    2016,
    0, 0, 0, 1, 1,
    'Unjung-dong, Seongnam-si, Gyeonggi-do, Republic of Korea',
    '(82) 31 709 8111',
    NULL,
    'classic@aks.ac.kr',
    'http://classic.aks.ac.kr',
    'Choi Jin-Deok'
)
```

❖ 새로운 데이터 입력

```
INSERT INTO program_asia
VALUES (
    2000010002,
    200001,
    1,
    'Center for International Affairs at AKS',
    'Promotion of Korean Studies Abroad',
    1978,
    0, 0, 0, 0, 0,
    'Unjung-dong, Seongnam-si, Gyeonggi-do, Republic of Korea',
    '(82) 31 709 8111',
    NULL,
    'cefia@aks.ac.kr',
    'http://cefia.aks.ac.kr',
    'Kim Hyeon'
)
```

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❖ 데이터 수정

```
SELECT * FROM program_asia WHERE institute_id=200001
```

```
UPDATE program_asia  
SET address=  
'323 Haogae-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-791, Republic of Korea'  
WHERE institute_id=200001
```

```
SELECT * FROM program_asia WHERE institute_id=200001
```

테이블 스키마 변경: 속성(열) 추가

- ❖ 새로운 데이터 입력속성(열) 추가: ALTER TABLE ADD

```
ALTER TABLE institute_asia ADD city nvarchar(255)
```

```
UPDATE institute_asia  
    SET city = 'Seongnam-si'  
 WHERE institute_id=200001
```

```
SELECT * FROM institute_asia ORDER BY state DESC
```

테이블 스키마 변경: 속성(열) 삭제

- ❖ 속성 (열) 삭제: ALTER TABLE DROM COLUMN.....

```
SELECT * FROM institute_asia ORDER BY state DESC
```

```
ALTER TABLE institute_asia DROP COLUMN city
```

```
SELECT * FROM institute_asia ORDER BY state DESC
```

- ❖ 데이터 (행) 삭제: `DELETE FROM WHERE`

```
DELETE FROM program_asia  
WHERE program_id = 2000010001
```

```
DELETE FROM program_asia  
WHERE program_id = 2000010002
```

```
DELETE FROM institute_asia  
WHERE institute_id = 200001
```

```
SELECT * FROM program_asia ORDER BY institute_id DESC
```

```
SELECT * FROM institute_asia ORDER BY institute_id DESC
```

❖ 테이블 삭제: **DROP TABLE**

DROP TABLE program_asia

DROP TABLE institute_asia

SELECT * FROM program_asia

개체 이름 'program_asia'이(가) 잘못되었습니다.

SELECT * FROM institute_asia

개체 이름 'institute_asia'이(가) 잘못되었습니다.

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❖ 물리적 테이블의 생성

- ```
SELECT institute_id, state_name, type, institute_name
INTO institute_asia
FROM institute
WHERE zone= 4
```

## ❖ 가상 테이블(뷰)의 생성

- **CREATE VIEW** `institute_asian AS`  

```
SELECT institute_id, state_name, type, institute_name
FROM institute WHERE zone= 4
```
- **ALTER VIEW** `institute_asian AS`  

```
SELECT institute_id, state_name, type, institute_name , longitude, latitude
FROM institute
WHERE zone= 4 and hasGIS=1
```
- `SELECT * FROM institute_asian`

## ❖ 조인 뷰의 생성

- **CREATE VIEW** institute\_phd **AS**

```
SELECT state_name, institute_name, type, program_name, homepage
FROM institute
JOIN program
ON institute.institute_id = program.institute_id
WHERE phd=1
```

- **SELECT \* FROM** institute\_phd