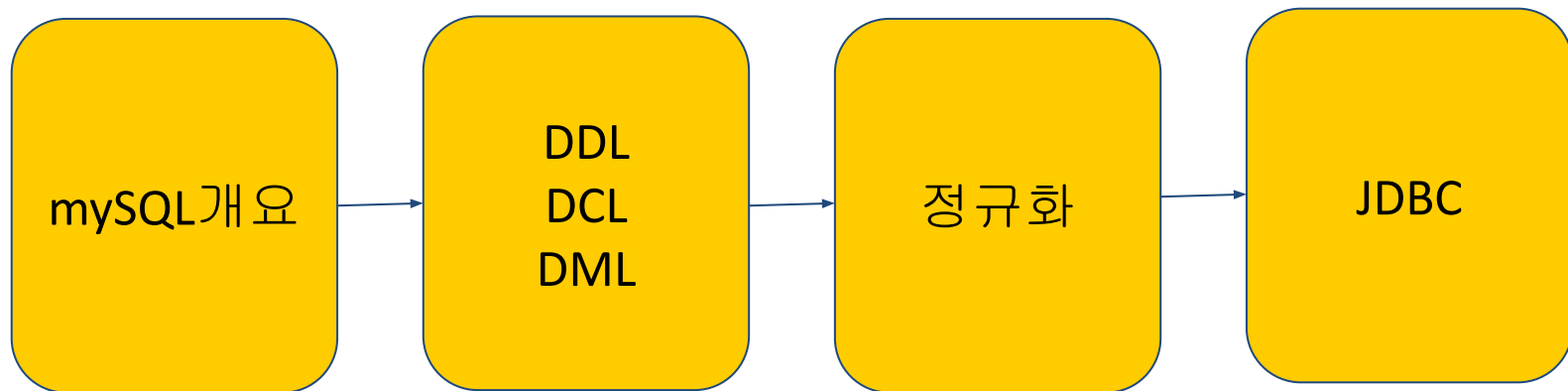


2024년 상반기 K-디지털 트레이닝

DML 기본

[KB] IT's Your Life



회원가입 상품정보 게시판 장바구니

TOTAL: 4000원

게시물 상세 페이지

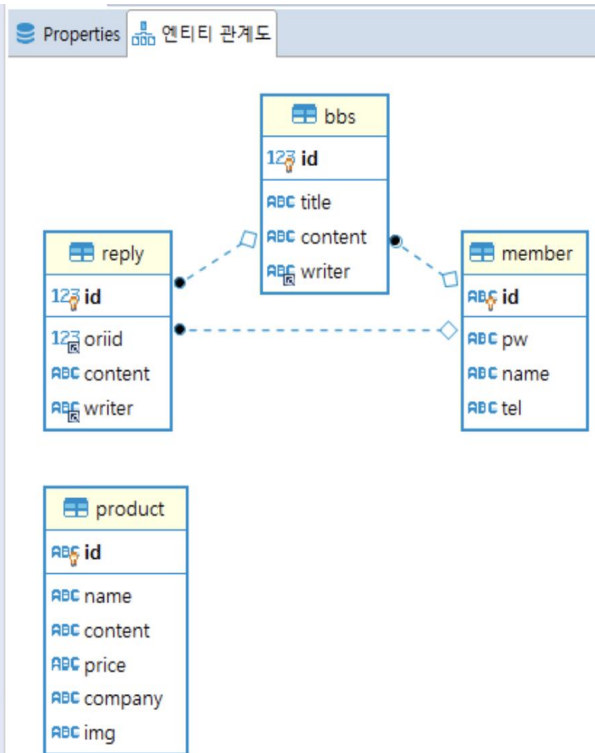
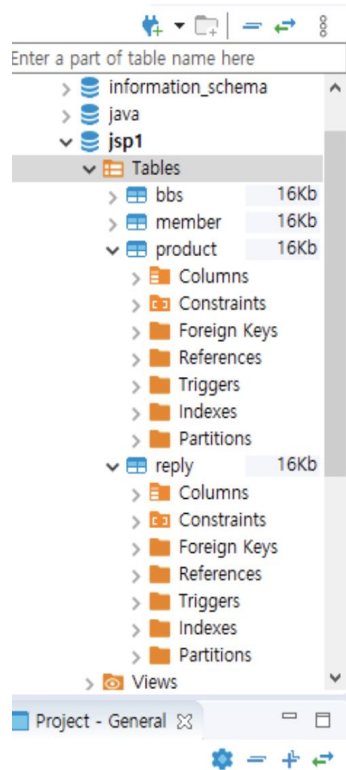
게시물 전체 목록으로!

번호	3
제목	spring2
내용	fun spring2
작성자	song

Reply : 진짜 댓글

best - song

OK

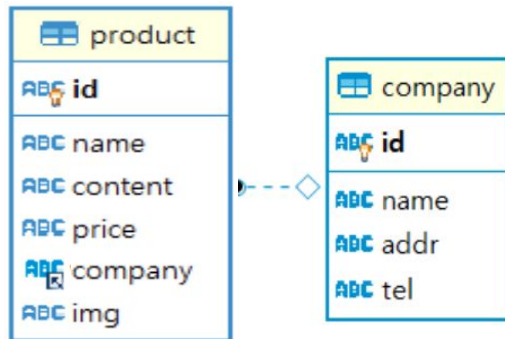
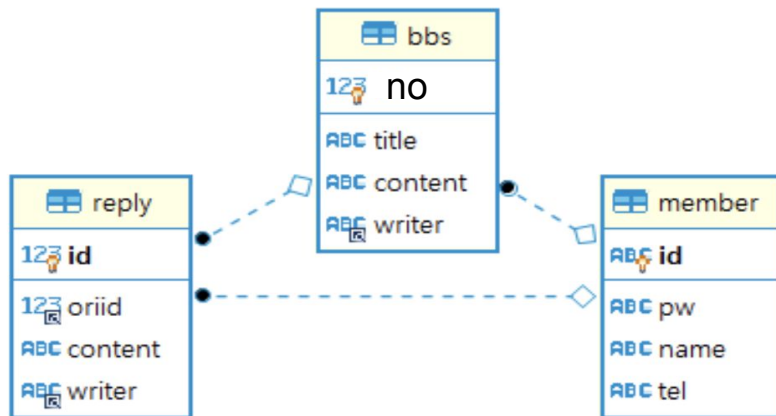


DML 개요

지금까지 학습내용

- DBMS
- 용어 중요!! entity, Schema, item, instance, domain, relationship
- Fk, Pk로 관계성 성립
- entity와 relation에 의한 결과는 table로 생성됨
- SQL
 - DDL, DML, DCL

용어	Data Definition Language (DDL)	Data Manipulation Language (DML)	Data Control Language (DCL)	Transaction Control Language (TCL)
역할	데이터 항목 정의	데이터 조작	DBMS 제어 (계정승인, 권한부여/회수)	트랜잭션 제어
SQL 명령어	CREATE, ALTER, DROP, TRUNCATE	INSERT, SELECT, UPDATE, DELETE	GRANT, REVOKE	COMMIT, ROLLBACK



product3 ☆ 드라이브에 저장됨

파일 수정 보기 삽입 서식 데이터 도구 확장 프로그램 도움말

100% W % .0 .00 123 기본값... 10 +

	A	B	C	D	E	F
1	id	name	content	price	company	img
2	100	food1	fun food1	1000	c100	1.png
3	101	food2	fun food2	2000	c200	2.png
4	102	food3	fun food3	3000	c300	3.png
5	103	food4	fun food4	4000	c100	4.png
6	104	food5	fun food5	5000	c200	5.png
7	105	food6	fun food6	6000	c300	6.png
8	106	food7	fun food7	7000	c100	7.png
9	107	food8	fun food8	8000	c200	8.png
10	108	food9	fun food9	9000	c300	9.png
11	109	food10	fun food10	10000	c100	10.png

bbs ☆

파일 수정 보기 삽입 서식 데이터 도구 확장 프로

100% W % .0 .00 123

	A	B	C	D
1	no	title	content	writer
2	100	fun1	fun contents1	apple
3	101	fun2	fun contents1	apple
4	102	fun3	fun contents1	apple
5	103	fun4	fun contents1	apple
6	104	fun5	fun contents2	apple
7	105	fun6	fun contents2	apple
8	106	fun7	fun contents7	apple
9	107	fun8	fun contents8	apple
10	108	fun9	fun contents9	apple
11	109	fun10	fun contents10	apple
12	110	fun11	fun contents11	apple
13	111	fun12	fun contents12	apple
14	112	fun13	fun contents13	apple

member table

- FK가 없는 독립적인 테이블을 먼저 생성

bbs shop - Schema bbs member2 bbs bbs - Table bbs - Table bbs - Table

Table Name: member

Charset/Collation: utf8mb4 utf8mb4_0900_ai_ci

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	VARCHAR(45)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
pw	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
name	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
tel	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

▶	member	ⓘ ⚙️ 📄
▶	member3	🗑️

추가후, 반드시 **apply!**

Result Grid					Filter Rows:	Edit:	Export/Import:	Wrap Cell Cont
	id	pw	name	tel				
	apple	1111	apple	011				
	ice	2222	ice	012				
	melon	3333	melon	013				
▶	park	1234	park	011				
*	NULL	NULL	NULL	NULL				

member 1 x

Apply
 Revert

Table Name: Schema: **shop**

Charset/Collation: Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF
no	VARCHAR(45)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
title	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
content	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
writer	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

member2 - Table product bbs bbs bbs - Table member - Table member bbs bbs - Table

Table Name: Schema: **shop**

Charset/Collation: Engine:

Comments:

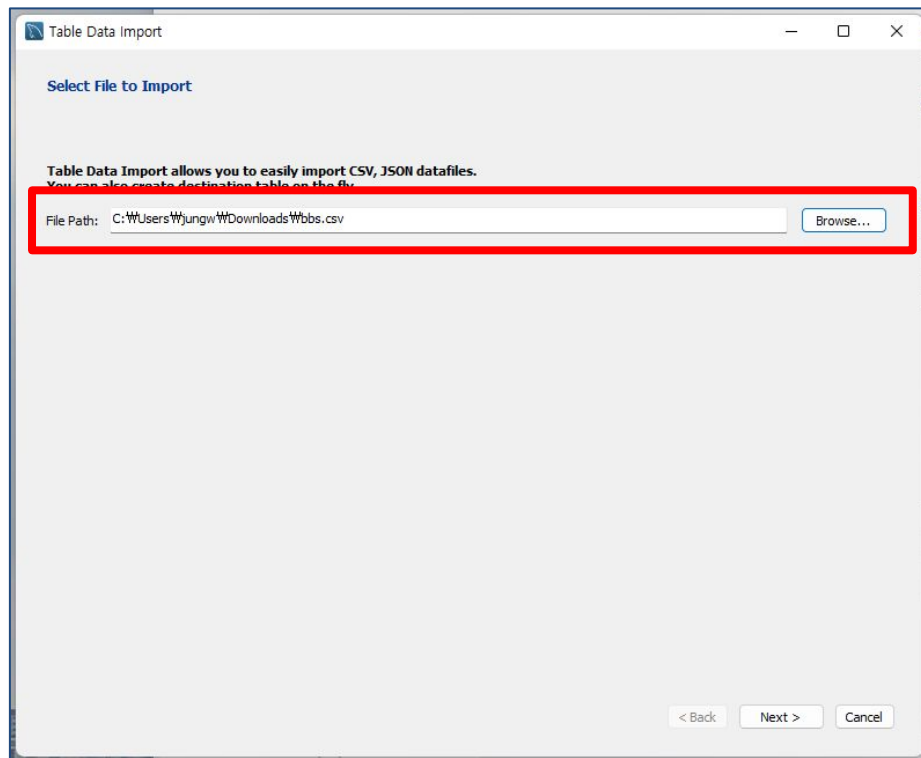
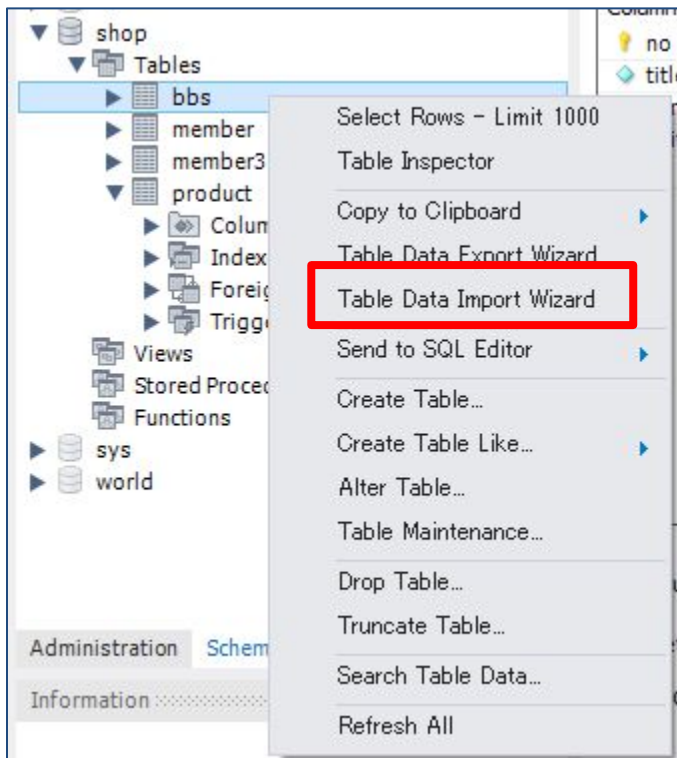
Foreign Key Name	Referenced Table	Column	Referenced Column	Foreign Key Options
fk_member2_id_1	shop.member	<input checked="" type="checkbox"/> writer	id	On Update: <input type="text" value="RESTRICT"/> On Delete: <input type="text" value="RESTRICT"/> <input type="checkbox"/> Skip in SQL generation

Foreign Key Comment:

Columns Indexes **Foreign Keys** Triggers Partitioning Options

bbs table(데이터 다운로드해서 읽어오기)

- 실습 데이터 csv 다운로드



bbs table(csv데이터 읽어오기)

Table Data Import

Select Destination

Select destination table and additional options.

☒ Use existing table: shop.bbs

☐ Create new table: shop . bbs

☐ Truncate table before import

< Back Next > Cancel

Table Data Import

Configure Import Settings

Detected file format: csv

Encoding: utf-8

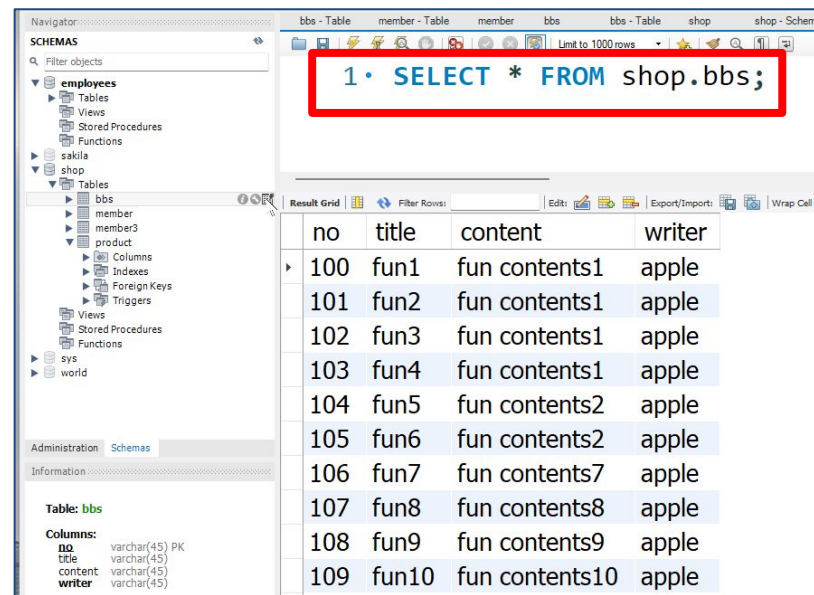
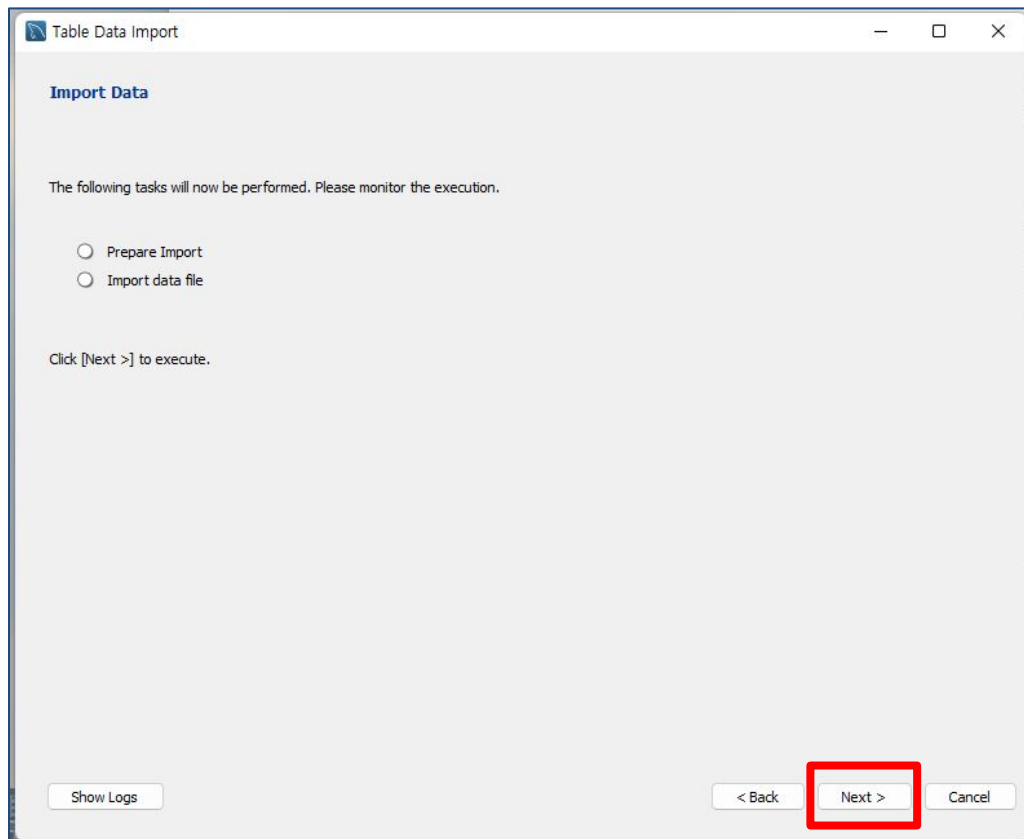
Columns:

Source Column	Dest Column
<input checked="" type="checkbox"/> no	no
<input checked="" type="checkbox"/> title	title
<input checked="" type="checkbox"/> content	content
<input checked="" type="checkbox"/> writer	writer

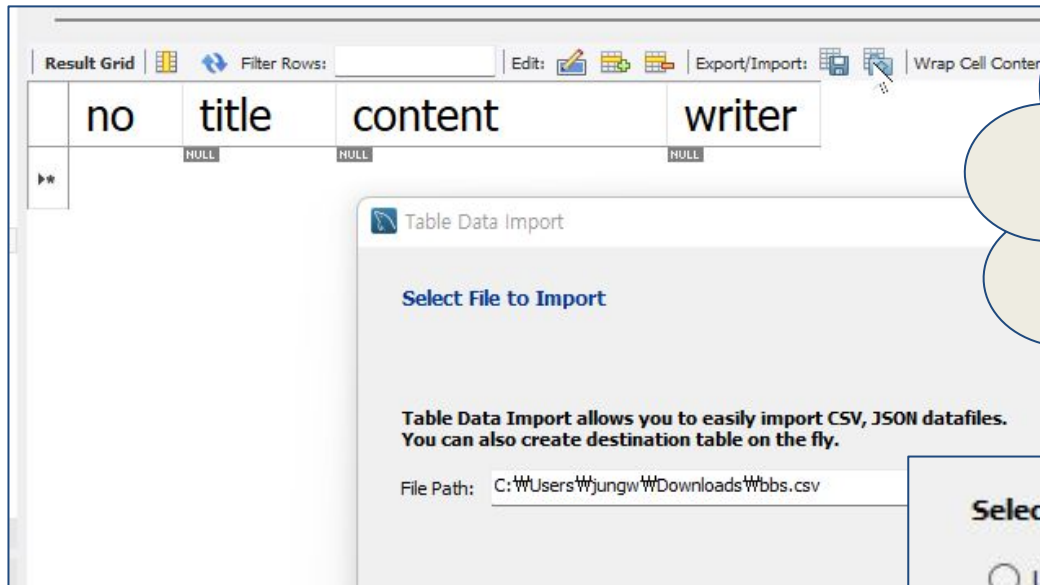
no	title	content	writer
100	fun1	fun content...	apple
101	fun2	fun content...	apple
102	fun3	fun content...	apple
103	fun4	fun content...	apple
104	fun5	fun content...	apple

< Back Next > Cancel

bbs table(csv데이터 읽어오기)



샘플 파일 위치



워크벤치에서 읽어온
데이터가 보이지 않을 때는
테이블을 지우고
import하면서 table을 새로
생성할 수 있음.
→ 테이블 생성 후, 제약조건
체크할 것.

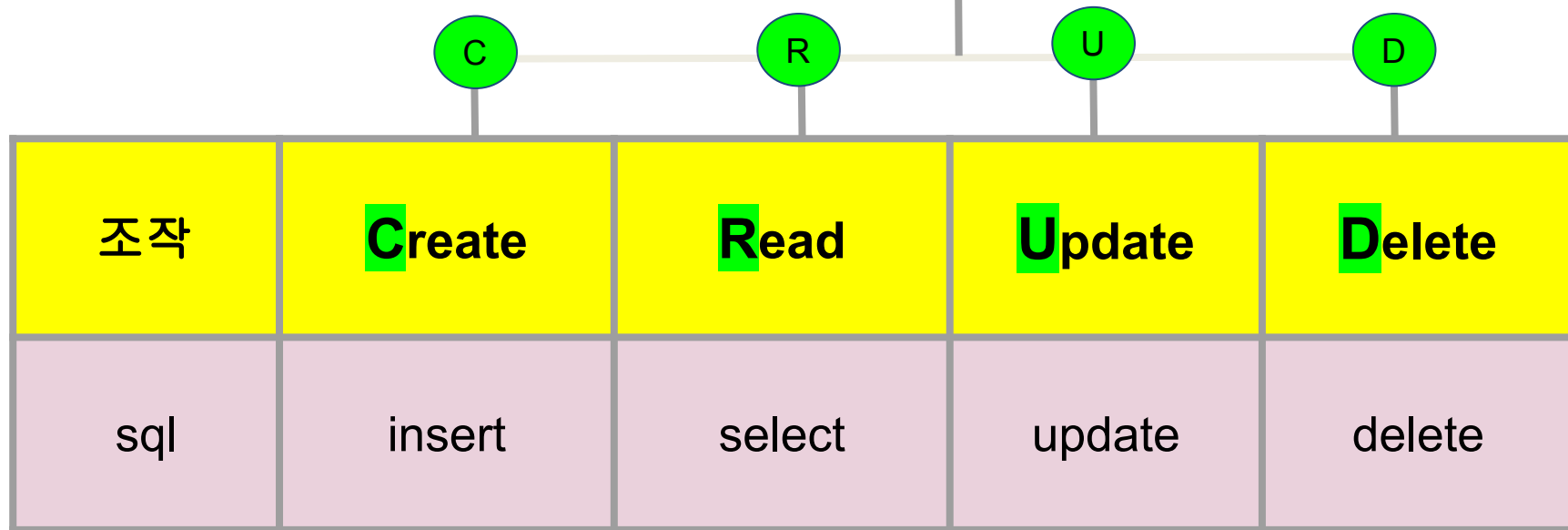
Select destination table and additional options.

- ☐ Use existing table: shop.bbs
- ☒ Create new table: shop . bbs
- ☒ Drop table if exists

DML

(Data Manipulation Language)

조작 4가지



Create(insert) - 특정 컬럼만 선정하여 삽입가능

- insert into member values (모든 컬럼 값);
- insert into member(id, pw, name) values ('555', '555', 'song');
 - 앞에서 명시한 컬럼의 순서대로 값을 넣어주면 됨.
- insert into member values ('555', '555', 'song', null);

member	
ABC	id
ABC	pw
ABC	name
ABC	tel

방법 1) 테이블 복사 (스키마+데이터)

- sql을 사용하는 것이 더 간단

-- 테이블 복사

CREATE TABLE member2
AS SELECT * FROM "MEMBER"

방법2) 테이블복사 (스키마+데이터)

Navigation

SCHEMAS

Filter objects

- employees
 - Tables
 - Views
 - Stored Procedures
 - Functions
- sakila
 - shop
 - Tables
 - bbs
 - member**
 - member3
 - product
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - Views
 - Stored Procedures
 - Functions
 - sys
 - world

Administration Schemas

Information

Table: member

Columns:

- id varchar(45) PK
- pw varchar(45)
- name varchar(45)

member - Table member2 - Table product bbs bbs bbs - Table member - Table member bbs bbs - Table shop shop - Schema bbs - Table

Limit to 1000 rows

```
3 CREATE TABLE `member` (  
4   `id` varchar(45) NOT NULL,  
5   `pw` varchar(45) NOT NULL,  
6   `name` varchar(45) NOT NULL,  
   `tel` varchar(45) DEFAULT NULL,  
   PRIMARY KEY (`id`)  
   ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_
```

자동 붙여넣기됨

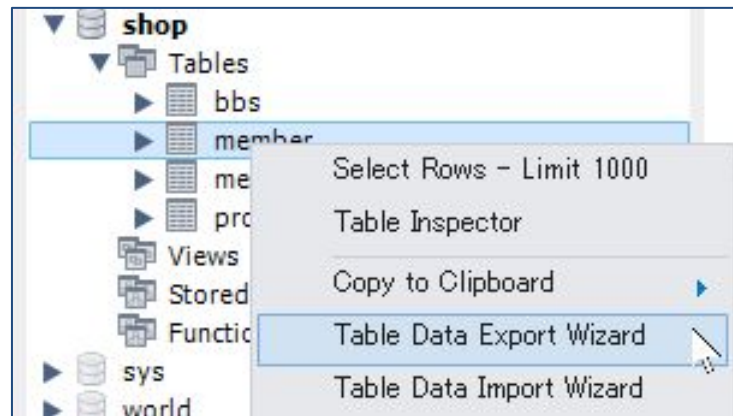
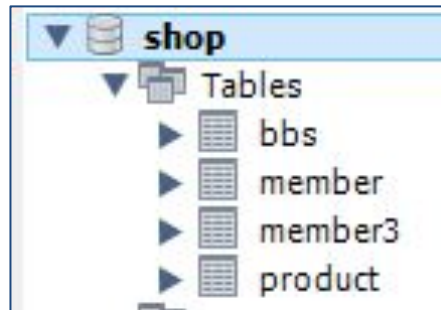
writer

101	fun	fun contents1	apple
102	fun3	fun contents1	apple

방법2) 테이블복사 (스키마+데이터)

```
CREATE TABLE `member3` (
  `id` varchar(45) NOT NULL,
  `pw` varchar(45) NOT NULL,
  `name` varchar(45) NOT NULL,
  `tel` varchar(45) DEFAULT NULL,
  PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai
```

member3로
변경후 실행



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: I A

Export recordset to an external file

	id	pw	name	tel
▶	apple	1111	apple	011
	ice	2222	ice	012
	melon	3333	melon	013
	park	1234	park	011
*	NULL	NULL	NULL	NULL

방법2) 테이블복사 (스키마+데이터)

Table Data Import

Select File to Import

Table Data Import allows you to easily import CSV, JSON datafiles. You can also create destination table on the fly.

File Path: C:\Users\Wjungg\WDownloads\Wbbs.csv

열기

구성 새 폴더

이름 수정한 날짜

오늘 (4)

- member.csv 2024-04-05 오후 4:22
- bbs3.csv 2024-04-05 오후 4:21
- bbs.csv 2024-04-05 오후 4:06
- product.csv 2024-04-05 오후 4:05

어제 (1)

- employees 2024-04-04 오후 9:36

파일 이름(N): member.csv Comma Separated Values (*.csv)

Select Destination

Select destination table and additional options.

☒ Use existing table: shop.member3

☐ Create new table: shop . member

☐ Truncate table before import

1. SELECT * FROM shop.member3;

id	pw	name	tel
apple	1111	apple	011
ice	2222	ice	012
melon	3333	melon	013
park	1234	park	011

member3 1 x

Output

Action Output

#	Time	Action
78	16:19:58	SELECT * FROM shop.bbs LIMIT 0;
79	16:21:36	SELECT * FROM shop.member LIM
80	16:22:52	SELECT * FROM shop.member3 LIM

Create(insert)

SQL File 6* member bbs member3 member3 - Table x

Table Name: member3 Schema: shop

Charset/Collation: utf8mb4 utf8mb4_0900_ai_ci Engine: InnoDB

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	VARCHAR(45)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
pw	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
name	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
tel	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
team	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL

Edit attribute COLUMN1

Name: team

Properties:

Name	Value
Type	DATE
Length	100
Precision	0
Scale	
Not Null	[]
디폴트	
Comment	

취소

날짜만 넣어주고자 하는 경우

Apply SQL Script to Database

Review SQL Script

Apply SQL Script

Online DDL

Algorithm: Default Lock Type: Default

```

1 ALTER TABLE 'shop'. 'member3'
2 ADD COLUMN 'team' DATE NULL AFTER 'tel';
3

```

Back Apply Cancel

INSERT INTO MEMBER3 VALUES ('555', '555', 'jung', '011', sysdate)

SELECT * FROM MEMBER3

Results 1

SELECT * FROM MEMBER3

R/R	ID	PW	NAME	TEL	TEAM
1	park	1234	park	011	[NULL]
2	apple	1111	apple	011	[NULL]
3	ice	2222	ice	012	[NULL]
4	melon	3333	melon	013	[NULL]
5	555	555	jung	011	2022-10-26 13:08:33

날짜와 시각까지 넣어주고자 하는 경우

Properties

컬럼명: TEAM

Type: TIMESTAMP

Length: 11

Precision:

Scale: 6

☒ Not Null

```
14 • insert into member3 values (
15     5,5, 'name', 'tel' , now());
16
17 • select * from member3;
```

id	pw	name	tel	team
5	5	name	tel	2024-04-05
apple	1111	apple	011	NULL
ice	2222	ice	012	NULL
melon	3333	melon	013	NULL
park	1234	park	011	NULL
NULL	NULL	NULL	NULL	NULL

```
14 • insert into member3 values (
15     6, 5, 'name', 'tel' , date('2021-01-02')) ;
16
```

id	pw	name	tel	team
5	5	name	tel	2024-04-05
6	5	name	tel	2021-01-02
7	5	name	tel	2021-01-02
apple	1111	apple	011	NULL

컬럼명	#	Data Type	Not Null	Auto Increment
ABC id	1	varchar(10)	[]	[]
ABC pw	2	varchar(10)	[]	[]
ABC name	3	varchar(10)	[]	[]
ABC tel	4	varchar(10)	[]	[]
🕒 team	5	datetime	[]	[]

날짜와 시각까지 넣어주고 하는 경우

```
-- mysql team datatype ==> datetime  
SELECT * FROM member3
```

```
insert into member3  
values ('5555', '5555', 'jung', '011', now())
```

member3 1 x

SELECT * FROM member3 Enter a SQL expression to filter results (use Ctrl+Space)

	id	pw	name	tel	team
1	555	555	jung	011	2022-10-27 00:00:00
2	5555	5555	jung	011	2022-10-27 11:22:00

Value x
555

Create(insert)-default

- 입력하지 않으면 기본으로 넣어주는 값 설정

Table Name: Schema: **shop**

Charset/Collation: Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
id	VARCHAR(45)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
pw	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
name	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
tel	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
team	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
company	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	'multi'

디폴트값 설정시 '(싱글따옴표)를
사용해야함.

Properties 엔티티 관계도

MEMBER3 Enter a SQL expression to filter results (use Ctrl+Space)

	ID	PW	NAME	TEL	TEAM	COMPANY
1	park	1234	park	011	[NULL]	multi
2	apple	1111	apple	011	[NULL]	multi
3	ice	2222	ice	012	[NULL]	multi
4	melon	3333	melon	013	[NULL]	multi
5	555	555	jung	011	2022-10-26 13:08:33	multi

기존에 있던 값들은
default값이 multi로 모두
채워짐.

Create(insert)-default

- **created_at**은 행이 처음 생성될 때 현재의 타임스탬프를 기본값으로 사용
- **updated_at**은 행이 업데이트될 때마다 자동으로 현재 타임스탬프로 갱신

```
CREATE TABLE example1 (  
  id INT AUTO_INCREMENT,  
  name VARCHAR(50),  
  created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP,  
  updated_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,  
  PRIMARY KEY (id)  
);
```

Create(insert)-default

- **TIMESTAMP** 컬럼에 명시적으로 값 삽입 가능

```
INSERT INTO example1 (name, created_at, updated_at)  
VALUES ('John Doe', '2022-07-01 12:34:56', '2022-07-01 12:34:56');
```

- 기본 **TIMESTAMP** 값 사용 가능

```
INSERT INTO example1 (name) VALUES ('Jane Smith');
```

Create(insert)-default

```
CREATE TABLE example3 (  
    id INT AUTO_INCREMENT PRIMARY KEY,  
    description TEXT,  
    updated_at TIMESTAMP NULL DEFAULT CURRENT_TIMESTAMP  
);
```

```
INSERT INTO example3 (description) VALUES ('이것은 설명입니다.');
```

-- 'updated_at'은 기본값인 **CURRENT_TIMESTAMP**를 사용하여 채워짐.

```
INSERT INTO example3 (description, updated_at) VALUES ('또 다른 설명', NULL);
```

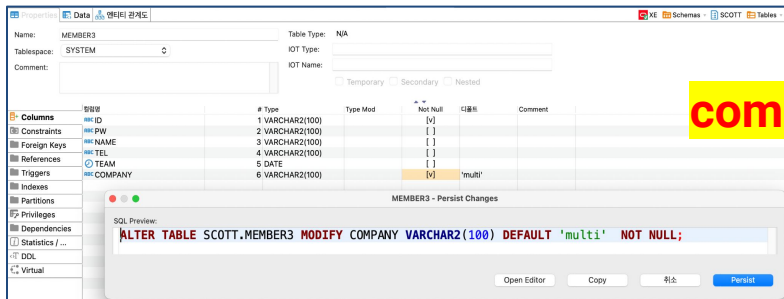
-- 'updated_at'은 명시적으로 **NULL**을 할당 가능

Create(insert)- now()와 비교

특성	NOW()	CURRENT_TIMESTAMP
형식	함수	키워드/함수
호출 방식	소괄호를 사용 (NOW())	소괄호 사용 가능 (CURRENT_TIMESTAMP() 또는 CURRENT_TIMESTAMP)
반환 타입	DATETIME	TIMESTAMP
시간대 변동	시간대에 따른 값 변동 적용	시간대에 따른 값 변동 적용
SQL 표준 준수	MySQL/MariaDB 특화	ANSI SQL 표준 준수
범용성	주로 MySQL 및 MariaDB에서 사용	다양한 SQL 데이터베이스 시스템에서 일관된 사용 가능

Oracle과 Microsoft
SQL Server에서도
사용 가능

Create(insert)-default



company → not null check!!

```
INSERT INTO MEMBER3(id, pw) VALUES ('999', '999')
```

```
SELECT * FROM MEMBER3
```

results 1

SELECT * FROM MEMBER3 | Enter a SQL expression to filter results (use Ctrl+Space)

	ID	PW	NAME	TEL	TEAM	COMPANY
1	park	1234	park	011		[NULL] multi
2	apple	1111	apple	011		[NULL] multi
3	ice	2222	ice	012		[NULL] multi
4	melon	3333	melon	013		[NULL] multi
5	555	555	jung	011	2022-10-26 13:08:33	multi
6	777	777	song	015		[NULL] lg
7	999	999	[NULL]	[NULL]		[NULL] multi

not null인 것만 insert해보자
→ default값을 그대로 사용하고자
하는 경우에는 입력안해도 됨.











Table Name:

Schema: **shop**

Charset/Collation:

Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
 id	VARCHAR(45)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 pw	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 name	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
 tel	VARCHAR(45)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 team	DATE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 company	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	'multi'
 location	VARCHAR(45)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Create(insert)-unique

8	888	888	[NULL]	[NULL]	[NULL]	multi	seoul
9	111	111	[NULL]	[NULL]	[NULL]	multi	seoul

Data error

! Error synchronizing data with database

이유:
SQL Error [1] [23000]: ORA-00001: unique constraint (SCOTT.MEMBER3_UN) violated

<< 세부사항 (D) 확인

SQL Error [1] [23000]: ORA-00001: unique constraint (SCOTT.MEMBER3_UN) violated
Error : 1, Position : 0, Sql = UPDATE SCOTT.MEMBER3 x
SET x.LOCATION=:1
WHERE x.ID=:2 , OriginalSql = UPDATE SCOTT.MEMBER3 x
SET x.LOCATION=?
WHERE x.ID=?, Error Msg = ORA-00001: unique constraint (SCOTT.MEMBER3_UN) violated

mysql에서는

- 1)pk설정 후, 2)autoincrement체크, **data type은 int**

member bbs member3 SQL File 6* member3 - Table member3 - Table member3 - Table m








Table Name: Schema: **shop**

Charset/Collation: Engine:

Comments:

Column Name	Datatype	PK	NN	UQ	B	UN	ZF	AI	G	Default/Expression
 no	INT	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
 title	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 content	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
 writer	TEXT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NULL
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

- insert시 해당 자동증가 컬럼값은 넣지 않음.

```
insert into bbs (null, "title", "content", "apple");
```

The screenshot shows a MySQL SQL client window with the following SQL query entered:

```
26. insert into bbs  
27 values (null, 'title', 'content', 'apple');  
28  
29. select * from bbs;
```

Below the query, the result grid shows the following data:

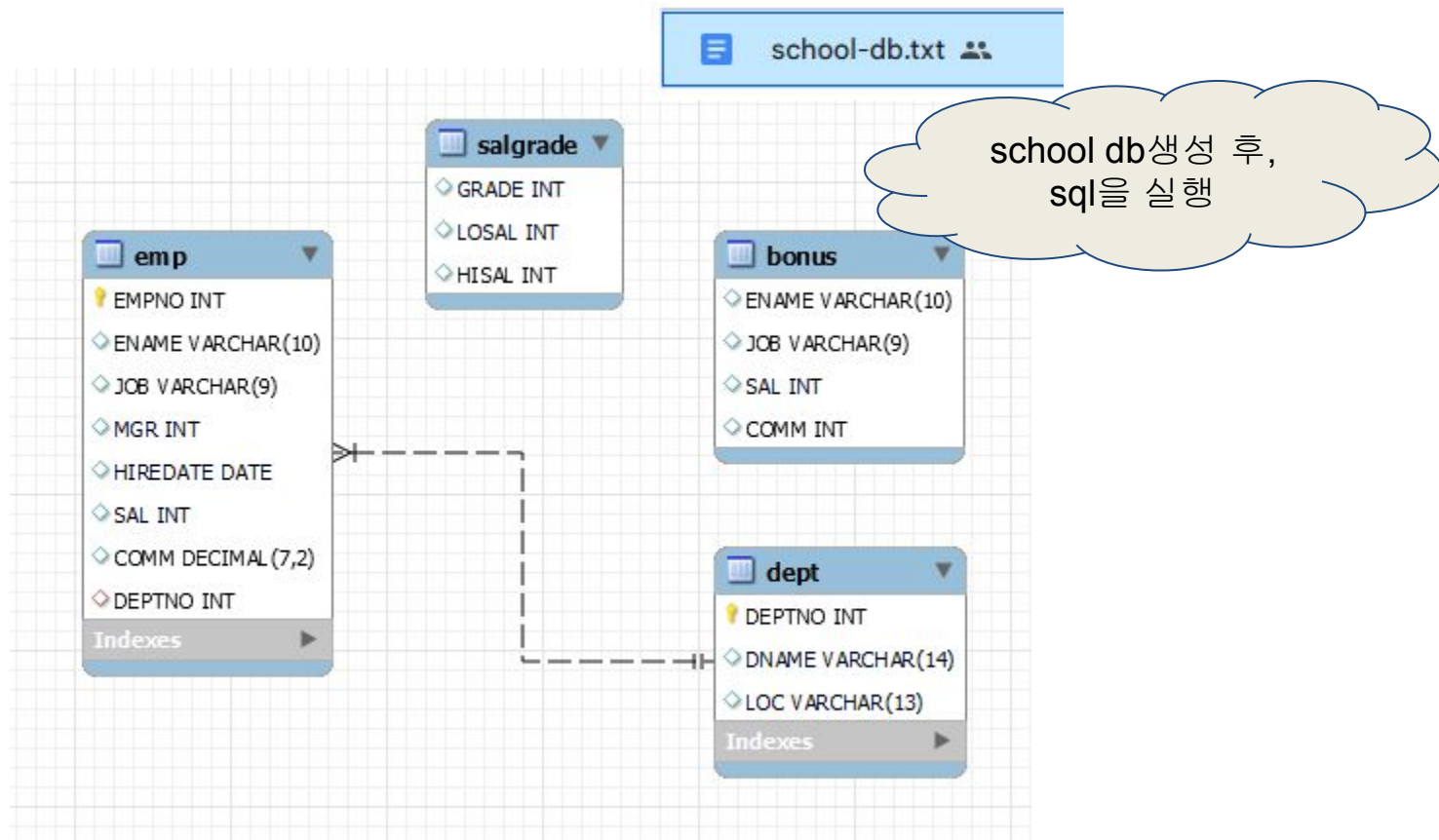
	no	title	content	writer
	108	fun9	fun contents9	apple
	109	fun10	fun contents10	apple
	110	fun11	fun contents11	apple
	111	fun12	fun contents12	apple
	112	fun13	fun contents13	apple
	113	title	content	apple

위 식을 정리(제약조건을 넣어 테이블 생성 시)

```
CREATE TABLE "MEMBER4"
```

```
(  ID VARCHAR(100) PRIMARY KEY,  
   PW VARCHAR(100),  
   NAME VARCHAR(100),  
   TEL VARCHAR(100),  
   TEAM DATE, - - 나중에 sysdate를 넣을 항목  
   COMPANY VARCHAR(100) DEFAULT 'multi' NOT NULL,  
   LOCATION VARCHAR(100) UNIQUE  
)
```

→ MEMBER4를 만들고, instance를 넣어 적용한 제약조건이 맞는지 확인해보자.



```
CREATE TABLE DEPT
(
    DEPTNO int(2),
    DNAME VARCHAR(14),
    LOC VARCHAR(13)
);
```

```
CREATE TABLE EMP(
    EMPNO int(11),
    ENAME VARCHAR(10),
    JOB VARCHAR(9),
    MGR int(11),
    HIREDATE DATE,
    SAL int(11),
    COMM decimal(7,2),
    DEPTNO int(2)
);
```

```
CREATE TABLE SALGRADE
(
    GRADE int(11),
    LOSAL int(11),
    HISAL int(11)
);
```

```
CREATE TABLE BONUS
(
    ENAME VARCHAR(10),
    JOB VARCHAR(9),
    SAL int(11),
    COMM int(11)
);
```

```
ALTER TABLE DEPT ADD (  
CONSTRAINT PK_DEPT  
PRIMARY KEY(DEPTNO));
```

```
ALTER TABLE EMP ADD (  
CONSTRAINT PK_EMP  
PRIMARY KEY(EMPNO));
```

```
ALTER TABLE EMP ADD (  
CONSTRAINT FK_DEPTNO  
FOREIGN KEY (DEPTNO)  
REFERENCES DEPT (DEPTNO));
```

EMP_DATA.csv

SALGRADE_DATA.csv

DEPT_DATA.csv

data import

1. SELECT * FROM school.salgrade;

GRADE	LOSAL	HISAL
1	700	1200
2	1201	1400
3	1401	2000
4	2001	3000
5	3001	9999

1. SELECT * FROM school.emp;

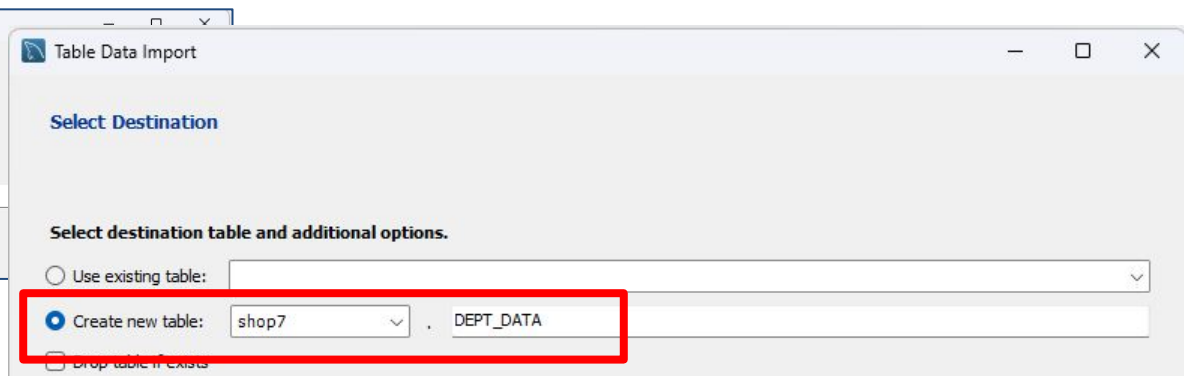
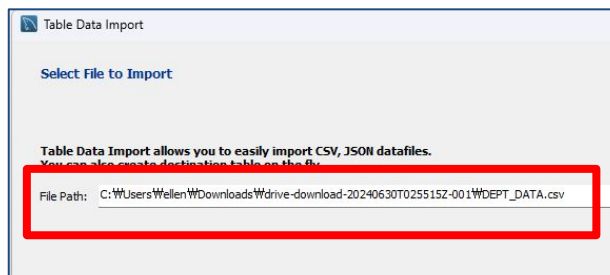
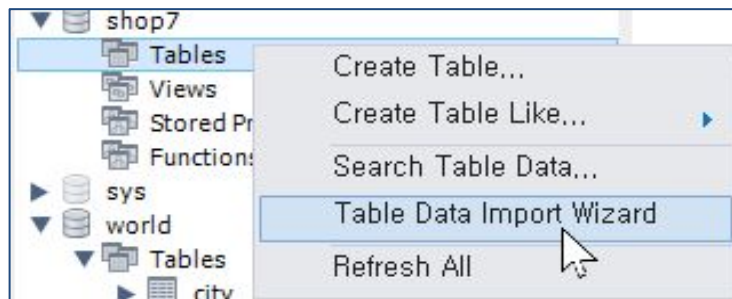
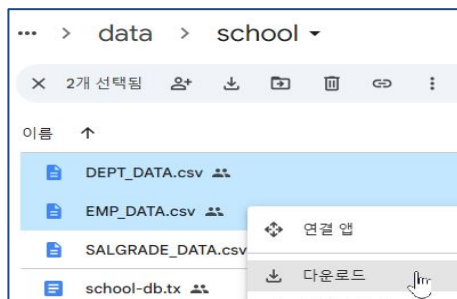
EMPNO	ENAME	JOB	MGR	HIREDATE	SAL	COMM	DEPTNO
7499	ALLEN	SALESMAN	7698	1981-02-20	1600	300.00	30
7521	WARD	SALESMAN	7698	1981-02-22	1250	500.00	30
7654	MARTIN	SALESMAN	7698	1981-09-28	1250	1400.00	30
7844	TURNER	SALESMAN	7698	1981-09-08	1500	0.00	30

1. SELECT * FROM school.dept;

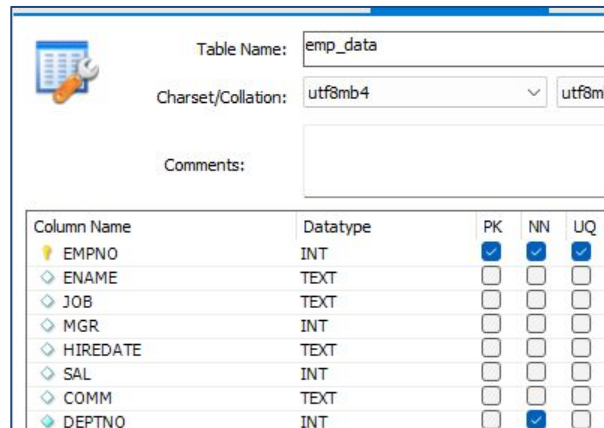
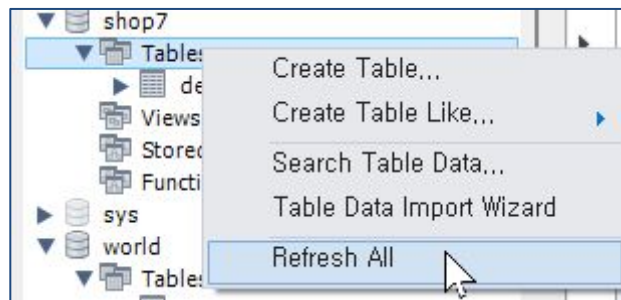
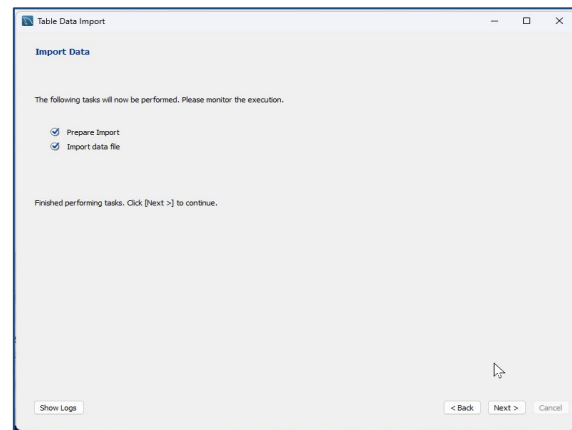
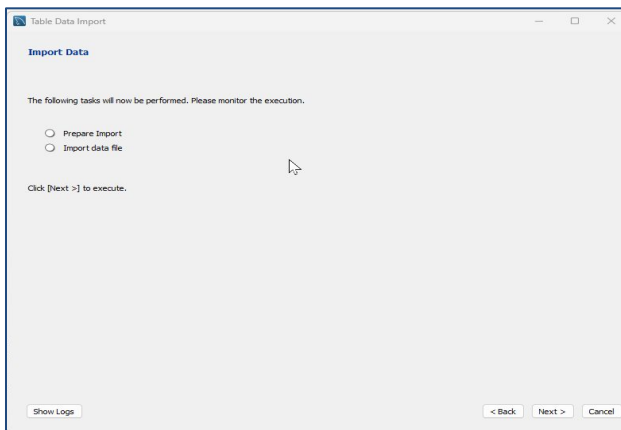
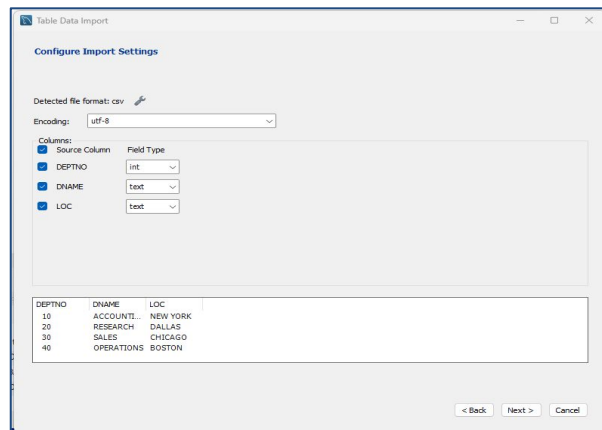
DEPTNO	DNAME	LOC
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

import data가 모두 되지 않는 경우

- 1) 외래키 삭제 2) 기존 emp테이블을 삭제 후, 3)다음과 같이 import하여 테이블 명 수정



import data가 모두 되지 않는 경우



import data가 모두 되지 않는 경우

- 외래키 설정 (emp_data table의 deptno와 dept_data table의 deptno)

The screenshot shows the MySQL Workbench interface with the 'emp_data' table selected in the 'shop7' schema. The 'Foreign Keys' tab is active, displaying the configuration for the 'dept_no_fk' foreign key. The foreign key is set to reference the 'dept_data' table in the 'shop7' schema, specifically the 'DEPTNO' column. The 'On Update' and 'On Delete' actions are set to 'NO ACTION'.

Foreign Key Name	Referenced Table
dept_no_fk	`shop7`.`dept_data`

Column	Referenced Column
<input type="checkbox"/> EMPNO	
<input type="checkbox"/> ENAME	
<input type="checkbox"/> JOB	
<input type="checkbox"/> MGR	
<input type="checkbox"/> HIREDATE	
<input type="checkbox"/> SAL	
<input type="checkbox"/> COMM	
<input checked="" type="checkbox"/> DEPTNO	DEPTNO

Foreign Key Options

On Update: NO ACTION

On Delete: NO ACTION

Foreign Key Comment generation

fk 설정

Read(select)-행단위, 열단위

- emp테이블을 이용
 - 행단위 검색: selection
 - 열단위 검색: projection
- **select * from emp;**
- **select deptno from emp;** 특정컬럼
- **select distinct deptno from emp;** 중복제거
- **select ename, sal * 12 as yearsal from emp;** as(alias, 별칭)
- **select * from emp order by sal;** sal컬럼의 값 순서대로 정렬(오름차순)
- **select * from emp order by sal desc;** sal컬럼의 값 순서대로 정렬(내림차순)

Read(select)-where(조건검색)

- `select * from emp where deptno = 30;`
- `select * from emp where not deptno = 30;`
- `select * from emp where deptno = 30 and job = 'salesman';`
- `select * from emp where deptno = 30 or job = 'salesman';`
- `select * from emp where sal >= 3000;`
- `select * from emp where sal != 3000;`
- `select * from emp where job in ('MANAGER', 'SALESMAN', 'CLERK');` or 연산, 포함
- `select * from emp where job not in ('MANAGER', 'SALESMAN', 'CLERK');`
- `select * from emp where sal between 2000 and 3000;` 사이값
- `select * from emp where sal not between 2000 and 3000;`

Read(select)-where(조건검색, %(0~무한대) _(한글자))

- `select * from emp where ename like '_L%';` L앞에는 한글자, 뒤에는 0~무한대
- `select * from emp where ename like '%AM%';` AM이 앞에오거나, 가운데 오거나, 맨뒤에 와도 됨
- `select * from emp where ename not like '%AM%';`
- `select * from emp where comm is null;`
- `select * from emp where comm is not null;`
- `SELECT * FROM EMP WHERE HIREDATE > '1981-01-01';`

Update(update), Delete(delete)

- dept테이블을 dept_temp2로 복사
- update dept_temp2 set loc = 'SEOUL'; 전체수정
- update dept_temp2 set dname = 'DATABASE', loc = 'SEOUL' where deptno = 40;
- delete from dept_temp2 where job = 'MANAGER';

- EMP 테이블 추가 제약조건

1. 참조 무결성 강화 : 매니저가 실제로 존재하는 직원인지 검증

```
ALTER TABLE EMP ADD CONSTRAINT FK_MGR  
FOREIGN KEY (MGR) REFERENCES EMP(EMPNO);
```

2. 데이터 유효성 검사 : SAL (급여)이나 COMM (커미션)과 같은 금액 관련 필드에 최소값을
설정하여 음수 값이 입력되지 않도록 설정

```
ALTER TABLE EMP  
ADD CONSTRAINT CHK_SAL CHECK (SAL >= 0),  
ADD CONSTRAINT CHK_COMM CHECK (COMM >= 0);
```


- **EMP** 테이블 추가 제약조건

3. 데이터 유효성 검사 : **JOB** 필드가 가질 수 있는 값으로
'MANAGER', 'SALESMAN', 'CLERK', 'ANALYST'를 지정

-- EMP 테이블의 **JOB** 컬럼을 **ENUM** 타입으로 변경

```
ALTER TABLE EMP MODIFY JOB ENUM('MANAGER', 'SALESMAN', 'CLERK', 'ANALYST')  
NOT NULL;
```

```
INSERT INTO EMP (EMPNO, ENAME, JOB, MGR, HIREDATE, SAL, COMM, DEPTNO)  
VALUES  
(7902, 'FORD', 'ANALYST', 7566, '1981-12-03', 3000, 0.00, 20);
```

- DEPT 테이블 추가 제약조건

1. **유일성 강화** : **DNAME** (부서 이름)이 유니크하다는 제약을 추가하여, 같은 이름의 부서가 중복되어 생성되지 않도록 설정

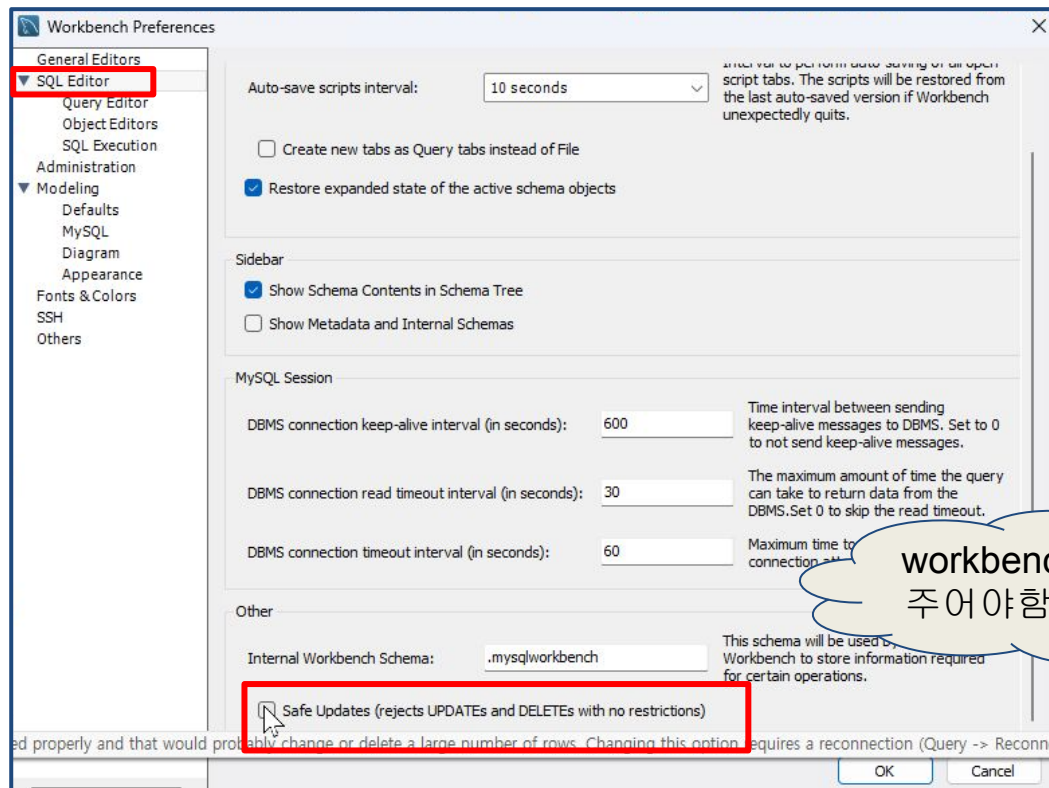
```
ALTER TABLE DEPT ADD CONSTRAINT UNQ_DNAME UNIQUE (DNAME);
```

- SALGRADE 테이블 추가 제약조건

1. **데이터 유효성 검사** : **LOSAL**과 **HISAL**이 올바른 범위 내에 있도록 하고, **LOSAL**이 **HISAL**보다 항상 작거나 같아야 한다는 제약을 추가

```
ALTER TABLE SALGRADE
```

```
ADD CONSTRAINT CHK_SALGRADE_RANGE CHECK (LOSAL <= HISAL);
```



- **DML, CRUD**
- **Create** : now(), default, sequence, unique
- **Read** : where, distinct, order by, and, or, not, in
- **Update** : where, cell단위(칸)
- **Delete** : where, record단위(행), commit/rollback 대상(취소가능, truncate와 비교-취소불가능)