

SQL

NOTICE

day01.

1. 데이터베이스 서버구조, 클라이언트, 클라이언트 구조 설정 파일을 이해하고 활용할 수 있다.
2. 생성된 테이블의 구문을 활용할 수 있다.
3. 테이블의 데이터 추출문 SELECT 구문을 활용해서 결과를 리턴받을 수 있다.

=====

select 구문 → 함수(수치함수, 날짜 함수, 집계 함수) → 조인(무결성 규칙) → 서브쿼리 →
계정관리(CRUD) → table → p1/sql → function → 프로시저 → 트리거

- RDBMS: MySQL
- <https://dev.mysql.com/doc/refman/8.0/en/>
- <https://www.mysql.com/support/supportedplatforms/database.html>

```
C:\Program Files\MySQL\MySQL Server 8.1\bin
```

- 시스템 환경변수

```
C:\Users\lim78>mysql
ERROR 1045 (28000): Access denied for user 'ODBC'@'localhost' (using password: NO)

C:\Users\lim78>mysql -u root -p -h 127.0.0.1
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 955
Server version: 8.0.21 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> status
-----
mysql Ver 8.0.21 for Win64 on x86_64 (MySQL Community Server - GPL)

Connection id:          955
Current database:
Current user:            root@localhost
SSL:                    Cipher in use is TLS_AES_256_GCM_SHA384
Using delimiter:        ;
Server version:         8.0.21 MySQL Community Server - GPL
Protocol version:       10
Connection:              127.0.0.1 via TCP/IP
```

INNODB의 3대 특징

1. 동시성 제어 = 트랜잭션

- 트랜잭션(커밋(=저장)과 롤백): 트랜잭션에 따라 단가가 정해질 정도.

2. 복구율이 좋다

3. 버퍼풀

Table 조회

The screenshot shows the MySQL Workbench interface. On the left, the 'Navigator' pane displays a tree of schemas, with 'new_schema123' selected. The main window shows a SQL query in a file named 'new_schema123 - Schema'.

```
1 • USE MY_EMP;  
2 • SELECT * FROM dept
```

Below the query, the 'Result Grid' displays the results of the query. The grid has columns 'deptno', 'dname', and 'loc'. The results are as follows:

| deptno | dname | loc |
|--------|------------|----------|
| 10 | ACCOUNTING | NEW YORK |
| 20 | RESEARCH | DALLAS |
| 30 | SALES | CHICAGO |
| 40 | OPERATIONS | BOSTON |
| NULL | NULL | NULL |

At the bottom, a file explorer shows the directory structure: '로컬 디스크 (C:) > ProgramData > MySQL > MySQL Server 8.0 > Data > new_schema123'. It lists several files, including 'employee.ibd', 'my_table.ibd', 'transcount.ibd', and 'who_first9cols.ibd'.

```

C:\Users\Wlim78>mysql -u root -p -h localhost
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 977
Server version: 8.0.21 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use test02
ERROR 1049 (42000): Unknown database 'test02'
mysql> use new_schema123
Database changed
mysql> select user();
+-----+
| user() |
+-----+
| root@localhost |
+-----+
1 row in set (0.00 sec)

mysql>

```

show tables;

```

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> use test02
ERROR 1049 (42000): Unknown database 'test02'
mysql> use new_schema123
Database changed
mysql> select user();
+-----+
| user() |
+-----+
| root@localhost |
+-----+
1 row in set (0.00 sec)

mysql> show tables;
+-----+
| Tables_in_new_schema123 |
+-----+
| employee |
| my_table |
| transcount |
| who_first9cols |
+-----+
4 rows in set (0.00 sec)

mysql>

```

```

mysql> select *
      -> from employee;
+-----+-----+-----+-----+
| ename | deptname | addr | phone |
+-----+-----+-----+-----+
| kim   | 관리직   | 서울시 | 010-1111-1111 |
| park  | 관리직   | 부산시 | 010-2222-2222 |
| lee   | 영업직   | 광주시 | 010-3333-3333 |
| min   | 영업직   | 광주시 | 010-4444-4444 |
| song  | 개발직   | 광주시 | 010-5555-5555 |
+-----+-----+-----+-----+
5 rows in set (0.01 sec)

```

DB → tables → entity → 주종관계 → null,0

attribute 암기

- 싱글, 복합 어트리뷰트를 가질 수 있다.(책으로 다시 확인해보기)
- db안에 테이블 확인

- 스키마 확인

```
mysql> desc emp;
```

| Field | Type | Null | Key | Default | Extra |
|----------|--------------|------|-----|---------|----------------|
| empno | int | NO | PRI | NULL | auto_increment |
| ename | varchar(20) | YES | | NULL | |
| job | varchar(20) | YES | | NULL | |
| mgr | smallint | YES | | NULL | |
| hiredate | date | YES | | NULL | |
| sal | decimal(7,2) | YES | | NULL | |
| comm | decimal(7,2) | YES | | NULL | |
| deptno | int | YES | MUL | NULL | |

8 rows in set (0.00 sec)

- entity 구조 확인

```
mysql> desc dept;
```

| Field | Type | Null | Key | Default | Extra |
|--------|-------------|------|-----|---------|----------------|
| deptno | int | NO | PRI | NULL | auto_increment |
| dname | varchar(20) | YES | | NULL | |
| loc | varchar(20) | YES | | NULL | |

3 rows in set (0.00 sec)

- dept 구조 확인

varchar2: 배로

number

datetime

pri는 중복데이터 허용x, 열값 x

classicmodels 데이터

- customers

```
1 • USE classicmodels;
2 • SELECT * FROM customers;
```

| | customerNumber | customerName | contactLastName | contactFirstName | phone | addressLine1 | addressLine2 |
|---|----------------|------------------------------|-----------------|------------------|-------------------|------------------------------|-----------------|
| ▶ | 103 | Atelier graphique | Schmitt | Carine | 40.32.2555 | 54, rue Royale | NULL |
| | 112 | Signal Gift Stores | King | Jean | 7025551838 | 8489 Strong St. | NULL |
| | 114 | Australian Collectors, Co. | Ferguson | Peter | 03 9520 4555 | 636 St Kilda Road | Level 3 |
| | 119 | La Rochelle Gifts | Labruno | Janine | 40.67.8555 | 67, rue des Cinquante Otages | NULL |
| | 121 | Baane Mini Imports | Bergulfsen | Jonas | 07-98 9555 | Erling Skakkes gate 78 | NULL |
| | 124 | Mini Gifts Distributors Ltd. | Nelson | Susan | 4155551450 | 5677 Strong St. | NULL |
| | 125 | Havel & Zbyszek Co | Piestrzeniewicz | Zbyszek | (26) 642-7555 | ul. Filtrów 68 | NULL |
| | 128 | Blauer See Auto, Co. | Keitel | Roland | +49 69 66 90 2555 | Lyonerstr. 34 | NULL |
| | 129 | Mini Wheels Co. | Murphy | Julie | 6505555787 | 5557 North Pendale Street | NULL |
| | 131 | Land of Toys Inc. | Lee | Kwai | 2125557818 | 897 Long Airport Avenue | NULL |
| | 141 | Euro+ Shopping Channel | Freyre | Diego | (91) 555 94 44 | C/ Morazarzal, 86 | NULL |
| | 144 | Volvo Model Replicas, Co | Berglund | Christina | 0921-12 3555 | Berguvsvägen 8 | NULL |
| | 145 | Danish Wholesale Imports | Petersen | Jytte | 31 12 3555 | Vinbæltet 34 | NULL |
| | 146 | Saveley & Henriot, Co. | Saveley | Mary | 78.32.5555 | 2, rue du Commerce | NULL |
| | 148 | Dragon Souvenirs, Ltd. | Natividad | Eric | +65 221 7555 | Bronz Sok. | Bronz Apt. 3... |

```

1 • USE classicmodels;
2   -- SELECT * FROM customers;
3 • desc customers;

```

| Field | Type | Null | Key | Default | Extra |
|-------------------|---------------|------|-----|---------|-------|
| ▶ customerNumber | int | NO | PRI | NULL | |
| customerName | varchar(50) | NO | | NULL | |
| contactLastName | varchar(50) | NO | | NULL | |
| contactFirstName | varchar(50) | NO | | NULL | |
| phone | varchar(50) | NO | | NULL | |
| addressLine1 | varchar(50) | NO | | NULL | |
| addressLine2 | varchar(50) | YES | | NULL | |
| city | varchar(50) | NO | | NULL | |
| state | varchar(50) | YES | | NULL | |
| postalCode | varchar(15) | YES | | NULL | |
| country | varchar(50) | NO | | NULL | |
| salesRepEmploy... | int | YES | MUL | NULL | |
| creditLimit | decimal(10,2) | YES | | NULL | |

• 칼럼 조회

SELECT 뒤에 필요한 칼럼 명을 입력하고 어떠한 테이블에서 데이터를 가져올지 FROM 뒤에 입력

- `SELECT customerNumber`
`FROM classicmodels.customers`

| | customerNumber |
|---|----------------|
| ▶ | 125 |
| | 169 |
| | 206 |
| | 223 |
| | 237 |
| | 247 |
| | 273 |
| | 293 |
| | 303 |
| | 307 |
| | 335 |
| | 348 |
| | 356 |
| | 361 |
| | 369 |
| | 409 |

- 상품개수

- 1 • `SELECT COUNT(country)`
- 2 `FROM classicmodels.customers;`

```
SELECT COUNT(요청 번호)
FROM DB 명.customers
```

2. 집계 함수

```
SELECT 집계함수(COUNT, SUM, AVG등등)
FROM DB 명. table 이름;
```

- employees table
-

| Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content: | | | | | | | | |
|---|----------------|-----------|-----------|-----------|---------------------------------|------------|-----------|----------------------|
| | employeeNumber | lastName | firstName | extension | email | officeCode | reportsTo | jobTitle |
| ▶ | 1002 | Murphy | Diane | x5800 | dmurphy@classicmodelcars.com | 1 | NULL | President |
| | 1056 | Patterson | Mary | x4611 | mpatterso@classicmodelcars.com | 1 | 1002 | VP Sales |
| | 1076 | Firrelli | Jeff | x9273 | jfirrelli@classicmodelcars.com | 1 | 1002 | VP Marketing |
| | 1088 | Patterson | William | x4871 | wpatterson@classicmodelcars.com | 6 | 1056 | Sales Manager (APAC) |
| | 1102 | Bondur | Gerard | x5408 | gbondur@classicmodelcars.com | 4 | 1056 | Sale Manager (EMEA) |
| | 1143 | Bow | Anthony | x5428 | abow@classicmodelcars.com | 1 | 1056 | Sales Manager (NA) |
| | 1165 | Jennings | Leslie | x3291 | ljennings@classicmodelcars.com | 1 | 1143 | Sales Rep |
| | 1166 | Thompson | Leslie | x4065 | lthompson@classicmodelcars.com | 1 | 1143 | Sales Rep |
| | 1188 | Firrelli | Julie | x2173 | jfirrelli@classicmodelcars.com | 2 | 1143 | Sales Rep |
| | 1216 | Patterson | Steve | x4334 | spatterson@classicmodelcars.com | 2 | 1143 | Sales Rep |
| | 1286 | Tseng | Foon Yue | x2248 | ftseng@classicmodelcars.com | 3 | 1143 | Sales Rep |
| | 1323 | Vanauf | George | x4102 | gvanauf@classicmodelcars.com | 3 | 1143 | Sales Rep |
| | 1337 | Bondur | Loui | x6493 | lbondur@classicmodelcars.com | 4 | 1102 | Sales Rep |
| | 1370 | Hernandez | Gerard | x2028 | ghernande@classicmodelcars.com | 4 | 1102 | Sales Rep |
| | 1401 | Castillo | Pamela | x2759 | pcastillo@classicmodelcars.com | 4 | 1102 | Sales Rep |
| | 1501 | Bott | Larry | x2311 | lbott@classicmodelcars.com | 7 | 1102 | Sales Rep |

```
SELECT SUM(officecode),
COUNT(officecode)
FROM classicmodels.employees;
```

| | SUM(officecode) | COUNT(officecode) |
|---|-----------------|-------------------|
| ▶ | 84 | 23 |