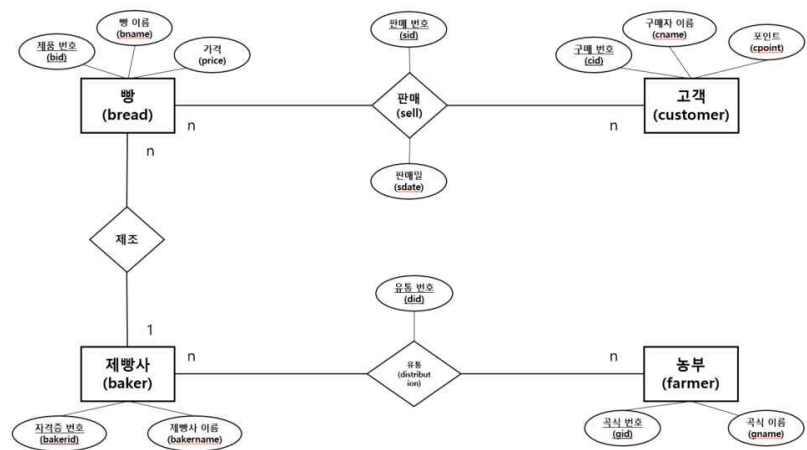# MariaDB 프로젝트

1. 데이터베이스 설계

1.1 데이터베이스 설명
 - 빵을 구매하는 고객과 그 빵을 만드는 제빵사와 밀, 보리 등을 농부에게서 유통하는 데이터베이스를 생성

1.2 ERD

1.3 데이터베이스 스키마

bread	
PK	bid
	bame
	price
FK	bakerid

sell	
PK	sid
FK	bid
	cid
	sdate

customer	
PK	cid
	cname
	cpoint

baker	
PK	bakerid
	bakername

distribution	
PK	did
FK	gid
	bakerid

farmer	
PK	gid
	gname

1.4 테이블 생성

1) baker table

```
MariaDB [Term_project1]> create table baker(
    -> bakerid int,
    -> bakername varchar(32),
    -> primary key(bakerid));
Query OK, 0 rows affected (0.037 sec)

MariaDB [Term_project1]> describe baker;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| bakerid   | int(11)     | NO   | PRI | NULL    |       |
| bakername | varchar(32) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
2 rows in set (0.053 sec)
```

2) customer table

```
MariaDB [Term_project1]> create table customer(
    -> cid int,
    -> cname varchar(32),
    -> cpoint int,
    -> primary key(cid));
Query OK, 0 rows affected (0.028 sec)

MariaDB [Term_project1]> describe customer;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| cid    | int(11)     | NO   | PRI | NULL    |       |
| cname  | varchar(32) | YES  |     | NULL    |       |
| cpoint | int(11)     | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.053 sec)
```

3) farmer table

```
MariaDB [Term_Project1]> create table farmer(
    -> gid int,
    -> gname varchar(32),
    -> primary key(gid));
Query OK, 0 rows affected (0.035 sec)

MariaDB [Term_Project1]> describe farmer;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| gid   | int(11)     | NO   | PRI | NULL    |       |
| gname | varchar(32) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
2 rows in set (0.080 sec)
```

4) bread table

```
MariaDB [Term_project1]> create table bread(
    -> bid int,
    -> bname varchar(32),
    -> price int,
    -> bakerid int,
    -> primary key(bid),
    -> foreign key(bakerid) references baker(bakerid));
Query OK, 0 rows affected (0.038 sec)

MariaDB [Term_project1]> describe bread;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| bid     | int(11)     | NO   | PRI | NULL    |       |
| bname   | varchar(32) | YES  |     | NULL    |       |
| price   | int(11)     | YES  |     | NULL    |       |
| bakerid | int(11)     | YES  | MUL | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.050 sec)
```

5) sell table

```
MariaDB [Term_project1]> create table sell(
    -> sid int,
    -> bid int,
    -> cid int,
    -> primary key(sid),
    -> foreign key(bid) references bread(bid),
    -> foreign key(cid) references customer(cid));
Query OK, 0 rows affected (0.029 sec)

MariaDB [Term_project1]> describe sell;
+-------+---------+------+-----+---------+-------+
| Field | Type    | Null | Key | Default | Extra |
+-------+---------+------+-----+---------+-------+
| sid   | int(11) | NO   | PRI | NULL    |       |
| bid   | int(11) | YES  | MUL | NULL    |       |
| cid   | int(11) | YES  | MUL | NULL    |       |
+-------+---------+------+-----+---------+-------+
3 rows in set (0.046 sec)
```

```
MariaDB [Term_Project1]> alter table sell add sdate date;
Query OK, 0 rows affected (0.019 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
MariaDB [Term_Project1]> desc sell;
+-------+---------+------+-----+---------+-------+
| Field | Type    | Null | Key | Default | Extra |
+-------+---------+------+-----+---------+-------+
| sid   | int(11) | NO   | PRI | NULL    |       |
| bid   | int(11) | YES  | MUL | NULL    |       |
| cid   | int(11) | YES  | MUL | NULL    |       |
| sdate | date    | YES  |     | NULL    |       |
+-------+---------+------+-----+---------+-------+
4 rows in set (0.022 sec)
```

6) distribution table

```
MariaDB [Term_Project1]> create table distribution(
    -> did int,
    -> gid int,
    -> bakerid int,
    -> primary key(did),
    -> foreign key(gid) references farmer(gid),
    -> foreign key(bakerid) references baker(bakerid));
Query OK, 0 rows affected (0.047 sec)

MariaDB [Term_Project1]> describe distribution;
+---------+---------+------+-----+---------+-------+
| Field   | Type    | Null | Key | Default | Extra |
+---------+---------+------+-----+---------+-------+
| did     | int(11) | NO   | PRI | NULL    |       |
| gid     | int(11) | YES  | MUL | NULL    |       |
| bakerid | int(11) | YES  | MUL | NULL    |       |
+---------+---------+------+-----+---------+-------+
3 rows in set (0.068 sec)
```

7) show tables

```
MariaDB [Term_Project1]> show tables;
+-------------------------+
| Tables_in_term_project1 |
+-------------------------+
| baker                   |
| bread                   |
| customer                |
| distribution            |
| farmer                  |
| sell                    |
+-------------------------+
6 rows in set (0.001 sec)
```

2. 질의

2.1 관심질문(3개)

1) 2016093의 id를 가지고 있는 제빵사가 만든 빵을 구매한 고객은?

2) wheat를 구입하는 제빵사들이 만든 빵은?

3) 고객별 구매한 빵의 가격은?

2.2 자료입력

1) insert customer table, select * from customer

```
MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (16004, "Park", 6120);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (17125, "Cho", 4100);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (19333, "Cho", 2310);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (20674, "Lee", 4590);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (13849,"Gee", 7400);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (12009, "Do", 3140);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (20043, "An", 8230);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (15339, "Choi", 1780);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (13002, "Kum", 190);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (16335, "Kim", 3290);
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (15223, "Lee", 3180);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (13002, "Park", 14300);
ERROR 1062 (23000): Duplicate entry '13002' for key 'PRIMARY'
MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (13003, "Park", 14300);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (19221, "Kim", 9260);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (20001, "An", 790);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into customer(cid, cname, cpoint) values
    -> (11375, "Woo", 12340);
Query OK, 1 row affected (0.008 sec)
```

```
MariaDB [Term_Project1]> select * from customer;
+-------+-------+--------+
| cid   | cname | cpoint |
+-------+-------+--------+
| 11375 | Woo   |  12340 |
| 12009 | Do    |   3140 |
| 13002 | Kum   |    190 |
| 13003 | Park  |  14300 |
| 13849 | Gee   |   7400 |
| 15223 | Lee   |   3180 |
| 15339 | Choi  |   1780 |
| 16004 | Park  |   6120 |
| 16335 | Kim   |   3290 |
| 17125 | Cho   |   4100 |
| 19221 | Kim   |   9260 |
| 19333 | Cho   |   2310 |
| 20001 | An    |    790 |
| 20043 | An    |   8230 |
| 20674 | Lee   |   4590 |
+-------+-------+--------+
15 rows in set (0.000 sec)
```

2) insert baker table, select * from baker

```
MariaDB [Term_Project1]> insert into baker values(2016093, "Park");
Query OK, 1 row affected (0.003 sec)

MariaDB [Term_Project1]> insert into baker values(2016127, "Kim");
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into baker values(2017035, "Cho");
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into baker values(2020001, "Lee");
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into baker values(2019239, "Choi");
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> select * from baker;
+---------+-----------+
| bakerid | bakername |
+---------+-----------+
| 2016093 | Park      |
| 2016127 | Kim       |
| 2017035 | Cho       |
| 2019239 | Choi      |
| 2020001 | Lee       |
+---------+-----------+
5 rows in set (0.000 sec)
```

3) insert farmer table, select * from farmer

```
MariaDB [Term_Project1]> insert into farmer values (1001, "wheat");
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into farmer values (1002, "barley");
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into farmer values (1003, "beans");
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> select * from farmer;
+------+--------+
| gid  | gname  |
+------+--------+
| 1001 | wheat  |
| 1002 | barley |
| 1003 | beans  |
+------+--------+
3 rows in set (0.000 sec)
```

4) insert bread table, select * from bread

```
MariaDB [Term_Project1]> insert into bread values(1, "초코소라빵", 1500, 2016093);
Query OK, 1 row affected (0.004 sec)

MariaDB [Term_Project1]> insert into bread values(2, "단팥빵", 700, 2017035);    ;;
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into bread values(3, "슈크림빵", 800, 2019239);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into bread values(4, "식빵", 3500, 2019239);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into bread values(5, "피자빵", 2300, 2016093);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into bread values(6, "소세지빵", 1800, 2017035);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into bread values(7, "꽈배기", 1500, 2019239);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into bread values(8, "생크림케이크", 23000, 2016127);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into bread values(9, "치즈케이크", 27000, 2020001);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into bread values(10, "브라우니케이크", 30000, 2016093);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> select * from bread;
+-----+-----------------+-------+---------+
| bid | bname           | price | bakerid |
+-----+-----------------+-------+---------+
|   1 | 초코소라빵      |  1500 | 2016093 |
|   2 | 단팥빵          |   700 | 2017035 |
|   3 | 슈크림빵        |   800 | 2019239 |
|   4 | 식빵            |  3500 | 2019239 |
|   5 | 피자빵          |  2300 | 2016093 |
|   6 | 소세지빵        |  1800 | 2017035 |
|   7 | 꽈배기          |  1500 | 2019239 |
|   8 | 생크림케이크    | 23000 | 2016127 |
|   9 | 치즈케이크      | 27000 | 2020001 |
|  10 | 브라우니케이크  | 30000 | 2016093 |
+-----+-----------------+-------+---------+
10 rows in set (0.008 sec)
```

5) insert sell table, select * from sell

```
MariaDB [Term_Project1]> insert into sell values (2020001, 2, 13849);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020002, 5, 13002);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020003, 8, 13002);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into sell values (2020004, 1, 20043);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020005, 6, 13849);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020006, 3, 13002);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020007, 7, 16004);
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into sell values (2020008 ,4, 15223);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020009, 9, 15223);
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into sell values (2020010, 10, 19221);
Query OK, 1 row affected (0.008 sec)
```

```
MariaDB [Term_Project1]> insert into sell values (2020011, 3, 12009);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020012, 7, 12009);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020012, 7, 12009);
ERROR 1062 (23000): Duplicate entry '2020012' for key 'PRIMARY'
MariaDB [Term_Project1]> insert into sell values (2020013, 7, 12009);
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into sell values (2020014, 1, 16004);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020015, 2, 16004);
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into sell values (2020016, 1, 13003);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020017, 1, 13003);
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into sell values (2020018, 4, 13003);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020019, 3, 20043);
Query OK, 1 row affected (0.003 sec)

MariaDB [Term_Project1]> insert into sell values (2020020, 5, 20043);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020021, 1, 20001);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020022, 1, 20001);
Query OK, 1 row affected (0.001 sec)

MariaDB [Term_Project1]> insert into sell values (2020023, 1, 20001);
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into sell values (2020024, 1, 20001);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020025, 1, 20001);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020026, 5, 15339);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into sell values (2020027, 10, 11375);
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into sell values (2020028, 5, 15339);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into sell values (2020029, 4, 15339);
Query OK, 1 row affected (0.002 sec)

MariaDB [Term_Project1]> insert into sell values (2020030, 6, 15339);
Query OK, 1 row affected (0.009 sec)
```

```
MariaDB [Term_Project1]> update sell set sdate='2020-03-26' where sid=2020001;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-03-26' where sid=2020002;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-03-31' where sid=2020003;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-03' where sid=2020004;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-03' where sid=2020005;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-03' where sid=2020006;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-09' where sid=2020007;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020008;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020009;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020010;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020011;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020012;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020013;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-13' where sid=2020014;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-04-25' where sid=2020015;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
MariaDB [Term_Project1]> update sell set sdate='2020-04-25' where sid=2020016;
Query OK, 1 row affected (0.002 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-07' where sid=2020017;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-10' where sid=2020018;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-10' where sid=2020019;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020020;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020021;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020022;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020023;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020024;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020025;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-13' where sid=2020026;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-19' where sid=2020027;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-19' where sid=2020028;
Query OK, 1 row affected (0.009 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-19' where sid=2020029;
Query OK, 1 row affected (0.001 sec)
Rows matched: 1  Changed: 1  Warnings: 0

MariaDB [Term_Project1]> update sell set sdate='2020-05-19' where sid=2020030;
Query OK, 1 row affected (0.008 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
MariaDB [Term_Project1]> select * from sell;
+----------+------+-------+------------+
| sid      | bid  | cid   | sdate      |
+----------+------+-------+------------+
| 2020001  |    2 | 13849 | 2020-03-26 |
| 2020002  |    5 | 13002 | 2020-03-26 |
| 2020003  |    8 | 13002 | 2020-03-31 |
| 2020004  |    1 | 20043 | 2020-04-03 |
| 2020005  |    6 | 13849 | 2020-04-03 |
| 2020006  |    3 | 13002 | 2020-04-03 |
| 2020007  |    7 | 16004 | 2020-04-09 |
| 2020008  |    4 | 15223 | 2020-04-13 |
| 2020009  |    9 | 15223 | 2020-04-13 |
| 2020010  |   10 | 19221 | 2020-04-13 |
| 2020011  |    3 | 12009 | 2020-04-13 |
| 2020012  |    7 | 12009 | 2020-04-13 |
| 2020013  |    7 | 12009 | 2020-04-13 |
| 2020014  |    1 | 16004 | 2020-04-13 |
| 2020015  |    2 | 16004 | 2020-04-25 |
| 2020016  |    1 | 13003 | 2020-04-25 |
| 2020017  |    1 | 13003 | 2020-05-07 |
| 2020018  |    4 | 13003 | 2020-05-10 |
| 2020019  |    3 | 20043 | 2020-05-10 |
| 2020020  |    5 | 20043 | 2020-05-13 |
| 2020021  |    1 | 20001 | 2020-05-13 |
| 2020022  |    1 | 20001 | 2020-05-13 |
| 2020023  |    1 | 20001 | 2020-05-13 |
| 2020024  |    1 | 20001 | 2020-05-13 |
| 2020025  |    1 | 20001 | 2020-05-13 |
| 2020026  |    5 | 15339 | 2020-05-13 |
| 2020027  |   10 | 11375 | 2020-05-19 |
| 2020028  |    5 | 15339 | 2020-05-19 |
| 2020029  |    4 | 15339 | 2020-05-19 |
| 2020030  |    6 | 15339 | 2020-05-19 |
+----------+------+-------+------------+
30 rows in set (0.000 sec)
```

6) insert distribution table, select * from distribution

```
MariaDB [Term_Project1]> insert into distribution values (20001, 1001, 2016093);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into distribution values (20002, 1001, 2016127);
Query OK, 1 row affected (0.004 sec)

MariaDB [Term_Project1]> insert into distribution values (20003, 1002, 2016127);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into distribution values (20004, 1003, 2016127);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into distribution values (20005, 1003, 2016093);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into distribution values (20006, 1002, 2017035);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> insert into distribution values (20007, 1003, 2019239);
Query OK, 1 row affected (0.009 sec)

MariaDB [Term_Project1]> insert into distribution values (20008, 1002, 2020001);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into distribution values (20009, 1001, 2020001);
Query OK, 1 row affected (0.008 sec)

MariaDB [Term_Project1]> insert into distribution values (20010, 1002, 2019239);
Query OK, 1 row affected (0.010 sec)

MariaDB [Term_Project1]> select * from distribution;
+-------+------+---------+
| did   | gid  | bakerid |
+-------+------+---------+
| 20001 | 1001 | 2016093 |
| 20002 | 1001 | 2016127 |
| 20003 | 1002 | 2016127 |
| 20004 | 1003 | 2016127 |
| 20005 | 1003 | 2016093 |
| 20006 | 1002 | 2017035 |
| 20007 | 1003 | 2019239 |
| 20008 | 1002 | 2020001 |
| 20009 | 1001 | 2020001 |
| 20010 | 1002 | 2019239 |
+-------+------+---------+
10 rows in set (0.000 sec)
```

2.3 SELECT문과 결과화면

1) 2016093 의 id를 가지고 있는 제빵사가 만든 빵을 구매한 고객은?

select a.bakername, b.bname, d.cid, d.cname from ((baker a join bread b on (a.bakerid = b.bakerid) join sell c on (b.bid = c.bid)) join customer d on (c.cid = d.cid)) where a.bakerid = 2016093 group by d.cid;

```
MariaDB [Term_Project1]> select a.bakername, b.bname, d.cid, d.cname from ((baker a join bread b on (a.bakerid = b.ba
kerid) join sell c on (b.bid = c.bid)) join customer d on (c.cid = d.cid)) where a.bakerid = 2016093 group by d.cid;
+------------+--------------+-------+-------+
| bakername  | bname        | cid   | cname |
+------------+--------------+-------+-------+
| Park       | 브라우니케이크 | 11375 | Woo   |
| Park       | 피자빵        | 13002 | Kum   |
| Park       | 초코소라빵     | 13003 | Park  |
| Park       | 피자빵        | 15339 | Choi  |
| Park       | 초코소라빵     | 16004 | Park  |
| Park       | 브라우니케이크 | 19221 | Kim   |
| Park       | 초코소라빵     | 20001 | An    |
| Park       | 초코소라빵     | 20043 | An    |
+------------+--------------+-------+-------+
8 rows in set (0.012 sec)
```

2016093의 id를 가진 제빵사의 빵을 구매한 고객은 13002, 19221, 20043이라는 id를 가진 3명이다.

2) wheat를 구입하는 제빵사들이 만든 빵은?

select a.gname, c.bakername, d.bname from ((farmer a join distribution b on (a.gid = b.gid)) join baker c on (b.bakerid = c.bakerid)) join bread d on (c.bakerid = d.bakerid) where a.gname = "wheat";

```
MariaDB [Term_Project1]> select a.gname, c.bakername, d.bname from ((farmer a join distribution b on (a.gid = b.gid))
join baker c on (b.bakerid = c.bakerid)) join bread d on (c.bakerid = d.bakerid) where a.gname = "wheat";
+-------+------------+--------------+
| gname | bakername  | bname        |
+-------+------------+--------------+
| wheat | Park       | 초코소라빵     |
| wheat | Park       | 피자빵        |
| wheat | Park       | 브라우니케이크 |
| wheat | Kim        | 생크림케이크   |
| wheat | Lee        | 치즈케이크     |
+-------+------------+--------------+
5 rows in set (0.002 sec)
```

wheat를 구입하는 제빵사들은 Park, Kim, Lee이며 그들이 만드는 빵은 초코소라빵, 피자빵, 브라우니케이크, 생크림케이크, 치즈케이크이다.

3) 고객별 구매한 빵의 가격은?

select a.cid, a.cname, sum(c.price) "price" from (customer a left join sell b on (a.cid = b.cid)) left join bread c on (b.bid = c.bid) group by a.cid;

```
MariaDB [Term_Project1]> select a.cid, a.cname, sum(c.price) "price" from (customer a left join sell b on (a.cid = b.
cid)) left join bread c on (b.bid = c.bid) group by a.cid;
+-------+-------+-------+
| cid   | cname | price |
+-------+-------+-------+
| 11375 | Woo   | 30000 |
| 12009 | Do    |  3800 |
| 13002 | Kum   | 26100 |
| 13003 | Park  |  6500 |
| 13849 | Gee   |  2500 |
| 15223 | Lee   | 30500 |
| 15339 | Choi  |  9900 |
| 16004 | Park  |  3700 |
| 16335 | Kim   |  NULL |
| 17125 | Cho   |  NULL |
| 19221 | Kim   | 30000 |
| 19333 | Cho   |  NULL |
| 20001 | An    |  7500 |
| 20043 | An    |  4600 |
| 20674 | Lee   |  NULL |
+-------+-------+-------+
15 rows in set (0.007 sec)
```

고객별 구매한 빵의 가격은 다음과 같으며 구매를 한 기록이 없는 경우 NULL로 표시되고 있다.

3. 다차원 자료 모델

3.1 질문(3개)

1) 어떤 제빵사의 어떤 빵이 어느 달에 가장 높은 수익을 냈는가?
　사실 : 판매(sell)
　측정값 : 가격(price)-합계
　차원 : 제빵사(baker), 빵(bread), 판매일(sdate)
　차원계층 : 판매일(sdate)-월(month)

2) 어떤 빵(케이크 제외)이 어느 날(하루)에 가장 많이 팔렸는가?
　사실 : 판매(sell)
　측정값 : 판매번호(sid)-개수
　차원 : 빵(bread), 판매일(sdate)
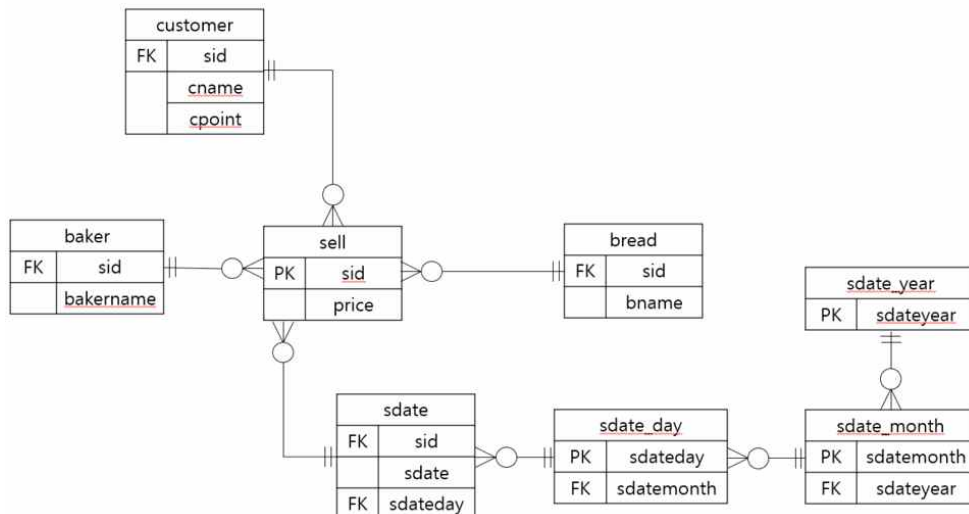　차원계층 : 판매일(sdate)-일(day)

3) 포인트가 5000 이상인 고객 중 한 종류의 빵을 가장 많이 구매한 고객은?
　사실 : 판매(sell)
　측정값 : 판매번호(sid)-개수
　차원 : 빵(bread), 고객(customer)

3.2 다차원 자료 모델(ERD)

4. 다차원 자료 분석

4.1 데이터 큐브를 위한 뷰

```
MariaDB [Term_Project1]> create view data_cube as select a.cname, a.cpoint, b.sid, b.sdate, c.bid, c.bname, c.price, d.b
akername from ((customer a join sell b on (a.cid=b.cid)) join bread c on(b.bid=c.bid)) join baker d on (c.bakerid=d.bake
rid);
Query OK, 0 rows affected (0.011 sec)
```

cname	cpoint	sid	sdate	bid	bname	price	bakername
An	8230	2020004	2020-04-03	1	초코소라빵	1500	Park
Park	6120	2020014	2020-04-13	1	초코소라빵	1500	Park
Park	14300	2020016	2020-04-25	1	초코소라빵	1500	Park
Park	14300	2020017	2020-05-07	1	초코소라빵	1500	Park
An	790	2020021	2020-05-13	1	초코소라빵	1500	Park
An	790	2020022	2020-05-13	1	초코소라빵	1500	Park
An	790	2020023	2020-05-13	1	초코소라빵	1500	Park
An	790	2020024	2020-05-13	1	초코소라빵	1500	Park
An	790	2020025	2020-05-13	1	초코소라빵	1500	Park
Kum	190	2020002	2020-03-26	5	피자빵	2300	Park
An	8230	2020020	2020-05-13	5	피자빵	2300	Park
Choi	1780	2020026	2020-05-13	5	피자빵	2300	Park
Choi	1780	2020028	2020-05-19	5	피자빵	2300	Park
Kim	9260	2020010	2020-04-13	10	브라우니케이크	30000	Park
Woo	12340	2020027	2020-05-19	10	브라우니케이크	30000	Park
Kum	190	2020003	2020-03-31	8	생크림케이크	23000	Kim
Gee	7400	2020001	2020-03-26	2	단팥빵	700	Cho
Park	6120	2020015	2020-04-25	2	단팥빵	700	Cho
Gee	7400	2020005	2020-04-03	6	소세지빵	1800	Cho
Choi	1780	2020030	2020-05-19	6	소세지빵	1800	Cho
Kum	190	2020006	2020-04-03	3	슈크림빵	800	Choi
Do	3140	2020011	2020-04-13	3	슈크림빵	800	Choi
An	8230	2020019	2020-05-10	3	슈크림빵	800	Choi
Lee	3180	2020008	2020-04-13	4	식빵	3500	Choi
Park	14300	2020018	2020-05-10	4	식빵	3500	Choi
Choi	1780	2020029	2020-05-19	4	식빵	3500	Choi
Park	6120	2020007	2020-04-09	7	꽈배기	1500	Choi
Do	3140	2020012	2020-04-13	7	꽈배기	1500	Choi
Do	3140	2020013	2020-04-13	7	꽈배기	1500	Choi
Lee	3180	2020009	2020-04-13	9	치즈케이크	27000	Lee

4.2 질문(3개)

1) 어떤 제빵사의 어떤 빵이 어느 달에 가장 높은 수익을 냈는가?

피벗 테이블 보고서

합계 : price	sdate_month			
bakername-bname	3월	4월	5월	총합계
Cho	700	2500	1800	5000
단팥빵	700	700		1400
소세지빵		1800	1800	3600
Choi		9600	7800	17400
꽈배기		4500		4500
슈크림빵		1600	800	2400
식빵		3500	7000	10500
Kim	23000			23000
생크림케이크	23000			23000
Lee		27000		27000
치즈케이크		27000		27000
Park	2300	34500	45900	82700
브라우니케이크		30000	30000	60000
초코소라빵		4500	9000	13500
피자빵	2300		6900	9200
총합계	26000	73600	55500	155100

피벗 차트
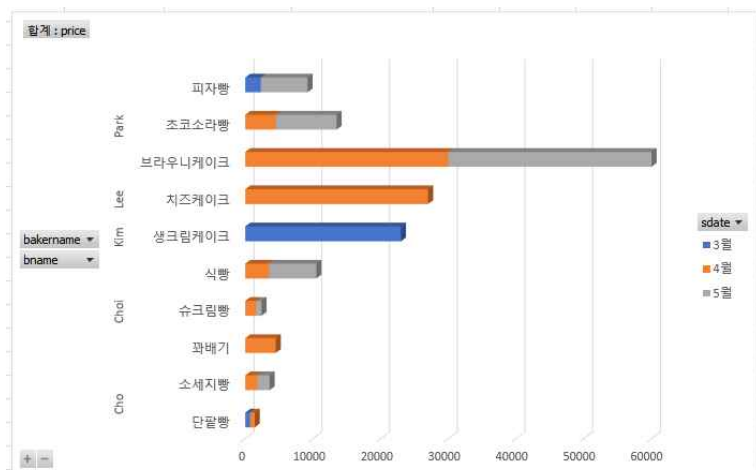
2) 어떤 빵(케이크 제외)이 어느 날(하루)에 가장 많이 팔렸는가?
피벗 테이블 보고서

개수 : sid bname	3월26일	4월3일	4월9일	4월13일	4월25일	5월7일	5월10일	5월13일	5월19일	총합계
꽈배기			1	2						3
단팥빵	1				1					2
소세지빵		1						1		2
슈크림빵		1		1			1			3
식빵				1			1	1		3
초코소라빵		1		1	1	1		5		9
피자빵	1							2	1	4
총합계	2	3	1	5	2	1	2	7	3	26

피벗 차트
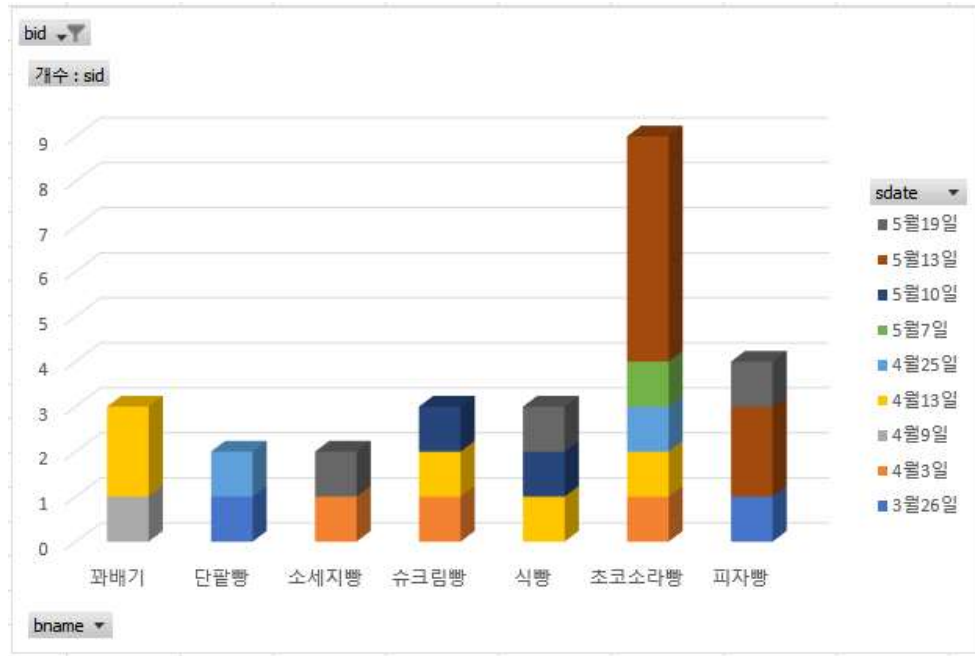
3) 포인트가 5000 이상인 고객 중 한 종류의 빵을 가장 많이 구매한 고객은?
피벗 테이블 보고서

개수 : sid 행 레이블	꽈배기	단팥빵	브라우니케이크	소세지빵	슈크림빵	식빵	초코소라빵	피자빵	총합계
An					1		1	1	3
Gee		1		1					2
Kim			1						1
Park	1	1				1	3		6
Woo			1						1
총합계	1	2	2	1	1	1	4	1	13

피벗 차트