데이터베이스 과제 1 Report

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[1번]

```
mysql> CREATE TABLE Constructors (
    ->      constructor varchar(20),
    ->      country varchar(20),
    ->      engine varchar(10),
    ->      races_entered INT,
    ->      height INT,
    ->      width INT,
    ->
    ->      primary key (constructor)
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> DESCRIBE Constructors;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| constructor   | varchar(20) | NO   | PRI | NULL    |       |
| country       | varchar(20) | YES  |     | NULL    |       |
| engine        | varchar(10) | YES  |     | NULL    |       |
| races_entered | int         | YES  |     | NULL    |       |
| height        | int         | YES  |     | NULL    |       |
| width         | int         | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
6 rows in set (0.02 sec)
```

```
mysql> CREATE TABLE Drivers (
    ->      driver varchar(20),
    ->      birthday DATE,
    ->      country varchar(20),
    ->      constructor varchar(20),
    ->
    ->      primary key (driver),
    ->      foreign key (constructor) references Constructors(constructor)
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> DESCRIBE Drivers
    -> ;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| driver      | varchar(20) | NO   | PRI | NULL    |       |
| birthday    | date        | YES  |     | NULL    |       |
| country     | varchar(20) | YES  |     | NULL    |       |
| constructor | varchar(20) | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE Races (
    ->     Name varchar(30),
    ->     beginDate DATE,
    ->     area varchar(20),
    ->
    ->     primary key (Name)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> DESCRIBE Races
    -> ;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Name      | varchar(30) | NO   | PRI | NULL    |       |
| beginDate | date        | YES  |     | NULL    |       |
| area      | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE Results (
    ->     Race varchar(30),
    ->     driver varchar(20),
    ->     race_rank varchar(20),
    ->
    ->     primary key (Race, driver),
    ->     foreign key (Race) references Races(name),
    ->     foreign key (driver) references Drivers(driver)
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> describe results;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| Race      | varchar(30) | NO   | PRI | NULL    |       |
| driver    | varchar(20) | NO   | PRI | NULL    |       |
| race_rank | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

[2번]

```
mysql> SELECT * FROM constructors;
+-------------+----------+----------+---------------+--------+-------+
| constructor | country  | engine   | races_entered | height | width |
+-------------+----------+----------+---------------+--------+-------+
| BMW Sauber  | German   | BMW      |            70 |     95 |   180 |
| Ferrari     | Italian  | Ferrari  |          1010 |     93 |   180 |
| Honda       | Japanese | Honda    |            88 |     91 |   175 |
| Jaguar      | British  | Cosworth |            85 |     93 |   178 |
| McLaren     | British  | Mercedes |           884 |     95 |   180 |
| Red bull    | Austrian | Honda    |           304 |     91 |   175 |
| Renault     | French   | Renault  |           660 |     91 |   175 |
| Toro Rosso  | Italian  | Ferrari  |           268 |     93 |   180 |
| Toyota      | Japanese | Toyota   |          1140 |     91 |   175 |
+-------------+----------+----------+---------------+--------+-------+
9 rows in set (0.01 sec)
```

```
mysql> select * from drivers;
+-------------+------------+------------+------------+
| driver      | birthday   | country    | constructor |
+-------------+------------+------------+------------+
| alonso      | 1981-07-29 | Spanish    | Renault    |
| barrichello | 1972-05-23 | Brazilian  | Honda      |
| button      | 1980-01-19 | British    | Honda      |
| hamilton    | 1985-01-07 | British    | McLaren    |
| heidfeld    | 1977-05-10 | German     | BMW Sauber |
| Irvine      | 1965-11-10 | British    | Jaguar     |
| kubica      | 1984-12-07 | Polish     | BMW Sauber |
| massa       | 1981-04-25 | Brazilian  | Ferrari    |
| raikkonen   | 1979-10-17 | Finnish    | Ferrari    |
| Schmacher   | 1969-01-03 | German     | Ferrari    |
| trulli      | 1974-07-13 | Italian    | Toyota     |
| vettel      | 1987-07-03 | German     | Toro Rosso |
| webber      | 1976-08-27 | Australian | Red Bull   |
+-------------+------------+------------+------------+
13 rows in set (0.00 sec)
```

```
mysql> select * from races;
+-------------------------+------------+---------------+
| Name                    | beginDate  | area          |
+-------------------------+------------+---------------+
| Abu Dhabi Grand Prix    | 2009-11-01 | Middle East   |
| Australian Grand Prix   | 2009-03-29 | Australia     |
| Brazilian Grand Prix    | 2008-11-02 | Sorth America |
| British Grand Prix      | 2009-06-21 | Europe        |
| Canadian Grand Prix     | 2007-06-10 | North America |
| European Grand Prix     | 2009-08-23 | Europe        |
| French Grand Prix       | 2007-07-01 | Europe        |
| German Grand Prix       | 2009-06-21 | Europe        |
| Italian Grand Prix      | 2007-09-09 | Europe        |
| Malaysian Grand Prix    | 2008-03-23 | Asia          |
| Monaco Grand Prix       | 2007-05-27 | Africa        |
| San Marino Grand Prix   | 2004-04-25 | Europe        |
| Singapore Grand Prix    | 2008-09-28 | Asia          |
| Spanish Grand Prix      | 2008-04-27 | Europe        |
| United States Grand Prix| 2007-06-17 | North America |
+-------------------------+------------+---------------+
15 rows in set (0.00 sec)
```

```
mysql> select * from results;
+-------------------------+-------------+--------------+
| Race                    | driver      | race_rank    |
+-------------------------+-------------+--------------+
| Abu Dhabi Grand Prix    | barrichello | third place  |
| Abu Dhabi Grand Prix    | button      | first place  |
| Abu Dhabi Grand Prix    | vettel      | second place |
| Australian Grand Prix   | barrichello | second place |
| Australian Grand Prix   | button      | third place  |
| Australian Grand Prix   | trulli      | first place  |
| Brazilian Grand Prix    | hamilton    | first place  |
| Brazilian Grand Prix    | massa       | second place |
| British Grand Prix      | barrichello | second place |
| British Grand Prix      | button      | first place  |
| British Grand Prix      | vettel      | third place  |
| Canadian Grand Prix     | alonso      | second place |
| Canadian Grand Prix     | hamilton    | first place  |
| Canadian Grand Prix     | massa       | third place  |
| European Grand Prix     | barrichello | second place |
| European Grand Prix     | button      | first place  |
| European Grand Prix     | webber      | third place  |
| French Grand Prix       | alonso      | second place |
| French Grand Prix       | hamilton    | first place  |
| French Grand Prix       | massa       | third place  |
| German Grand Prix       | button      | first place  |
| German Grand Prix       | vettel      | second place |
| German Grand Prix       | webber      | third place  |
| Italian Grand Prix      | alonso      | second place |
| Italian Grand Prix      | hamilton    | first place  |
| Malaysian Grand Prix    | hamilton    | first place  |
| Malaysian Grand Prix    | heidfeld    | second place |
| Malaysian Grand Prix    | raikkonen   | third place  |
| Monaco Grand Prix       | alonso      | first place  |
| Monaco Grand Prix       | hamilton    | second place |
| Monaco Grand Prix       | massa       | third place  |
| San Marino Grand Prix   | barrichello | second place |
| San Marino Grand Prix   | Schmacher   | first place  |
| Singapore Grand Prix    | hamilton    | first place  |
| Singapore Grand Prix    | kubica      | third place  |
| Singapore Grand Prix    | massa       | second place |
| Spanish Grand Prix      | hamilton    | second place |
| United States Grand Prix | alonso     | second place |
| United States Grand Prix | hamilton   | first place  |
| United States Grand Prix | massa      | third place  |
+-------------------------+-------------+--------------+
```

[3번]

a)

```
mysql> SELECT constructor, country FROM Constructors where races_entered>=100;
+-------------+----------+
| constructor | country  |
+-------------+----------+
| Ferrari     | Italian  |
| McLaren     | British  |
| Red bull    | Austrian |
| Renault     | French   |
| Toro Rosso  | Italian  |
| Toyota      | Japanese |
+-------------+----------+
6 rows in set (0.00 sec)
```

b)

```
mysql> SELECT constructor, engine, races_entered from Constructors wher
e (height!=95 and width<180) ORDER BY engine, races_entered;
+-------------+----------+---------------+
| constructor | engine   | races_entered |
+-------------+----------+---------------+
| Jaguar      | Cosworth |            85 |
| Honda       | Honda    |            88 |
| Red bull    | Honda    |           304 |
| Renault     | Renault  |           660 |
| Toyota      | Toyota   |          1140 |
+-------------+----------+---------------+
5 rows in set (0.00 sec)
```

c)

```
mysql> SELECT constructor from Constructors where engine='Ferrari';
+-------------+
| constructor |
+-------------+
| Ferrari     |
| Toro Rosso  |
+-------------+
2 rows in set (0.00 sec)
```

d)

```
mysql> SELECT driver as newBoys from Drivers where birthday>='1980-01-01';
+----------+
| newBoys  |
+----------+
| alonso   |
| button   |
| hamilton |
| kubica   |
| massa    |
| vettel   |
+----------+
6 rows in set (0.00 sec)
```

e)

```
mysql> SELECT driver,Race from Results where race_rank='first place';
+----------+-------------------------+
| driver   | Race                    |
+----------+-------------------------+
| button   | Abu Dhabi Grand Prix    |
| trulli   | Australian Grand Prix   |
| hamilton | Brazilian Grand Prix    |
| button   | British Grand Prix      |
| hamilton | Canadian Grand Prix     |
| button   | European Grand Prix     |
| hamilton | French Grand Prix       |
| button   | German Grand Prix       |
| hamilton | Italian Grand Prix      |
| hamilton | Malaysian Grand Prix    |
| alonso   | Monaco Grand Prix       |
| Schmacher| San Marino Grand Prix   |
| hamilton | Singapore Grand Prix    |
| hamilton | United States Grand Prix|
+----------+-------------------------+
14 rows in set (0.00 sec)
```

f)

```
mysql> SELECT * from Races where area='Europe' ORDER BY Name;
+------------------------+------------+--------+
| Name                   | beginDate  | area   |
+------------------------+------------+--------+
| British Grand Prix     | 2009-06-21 | Europe |
| European Grand Prix    | 2009-08-23 | Europe |
| French Grand Prix      | 2007-07-01 | Europe |
| German Grand Prix      | 2009-06-21 | Europe |
| Italian Grand Prix     | 2007-09-09 | Europe |
| San Marino Grand Prix  | 2004-04-25 | Europe |
| Spanish Grand Prix     | 2008-04-27 | Europe |
+------------------------+------------+--------+
7 rows in set (0.00 sec)
```

g)

```
mysql> SELECT driver from Drivers where driver like 'H%';
+----------+
| driver   |
+----------+
| hamilton |
| heidfeld |
+----------+
2 rows in set (0.00 sec)
```

h)

```
mysql> SELECT constructor from Constructors where constructor like '_% _%';
+-------------+
| constructor |
+-------------+
| BMW Sauber  |
| Red bull    |
| Toro Rosso  |
+-------------+
3 rows in set (0.00 sec)
```

[4번]

a)

```
mysql> SELECT D.driver from Drivers as D, Constructors as C where (C.co
untry='Italian' and C.constructor=D.constructor);
+-----------+
| driver    |
+-----------+
| massa     |
| raikkonen |
| Schmacher |
| vettel    |
+-----------+
4 rows in set (0.00 sec)
```

b)

```
mysql> SELECT D.driver from Constructors as C, Drivers as D where (C.co
untry=D.country and C.constructor=D.constructor);
+----------+
| driver   |
+----------+
| heidfeld |
| Irvine   |
| hamilton |
+----------+
3 rows in set (0.00 sec)
```

c)

```
mysql> SELECT R.driver, C.engine, C.races_entered FROM Results as R, Dr
ivers as D, Constructors as C where (R.Race='Monaco Grand Prix' and R.d
river=D.driver and D.constructor=C.constructor);
+----------+----------+---------------+
| driver   | engine   | races_entered |
+----------+----------+---------------+
| alonso   | Renault  |           660 |
| hamilton | Mercedes |           884 |
| massa    | Ferrari  |          1010 |
+----------+----------+---------------+
3 rows in set (0.00 sec)
```

d)

```
mysql> select constructor from Drivers group by constructor having coun
t(driver)=1;
+-------------+
| constructor |
+-------------+
| Jaguar      |
| McLaren     |
| Red Bull    |
| Renault     |
| Toro Rosso  |
| Toyota      |
+-------------+
6 rows in set (0.00 sec)
```

e)

```
mysql> SELECT distinct(D.driver) from Drivers as D, Results as R where
(R.driver=D.driver and R.Race='Spanish Grand Prix' or D.constructor='BM
W Sauber');
+----------+
| driver   |
+----------+
| heidfeld |
| kubica   |
| hamilton |
+----------+
3 rows in set (0.01 sec)
```

f)

```
mysql> select D.driver, C.races_entered from Drivers as D, Constructors
 as C where (D.constructor=C.constructor) order by races_entered desc,
driver desc;
+-------------+----------------+
| driver      | races_entered  |
+-------------+----------------+
| trulli      |           1140 |
| Schmacher   |           1010 |
| raikkonen   |           1010 |
| massa       |           1010 |
| hamilton    |            884 |
| alonso      |            660 |
| webber      |            304 |
| vettel      |            268 |
| button      |             88 |
| barrichello |             88 |
| Irvine      |             85 |
| kubica      |             70 |
| heidfeld    |             70 |
+-------------+----------------+
13 rows in set (0.00 sec)
```

g)

```
mysql> select c1.country from constructors c1 INNER JOIN constructors c2 ON c
2.country=c1.country AND c2.engine='Mercedes' WHERE c1.engine='Cosworth';
+---------+
| country |
+---------+
| British |
+---------+
1 row in set (0.00 sec)
```

h)

```
mysql> select distinct(r1.driver) from results r1 INNER JOIN results r2 ON r1
.driver=r2.driver AND r1.race_rank='first place' WHERE r2.race_rank!='first p
lace';
+----------+
| driver   |
+----------+
| button   |
| hamilton |
| alonso   |
+----------+
3 rows in set (0.02 sec)
```

i)

```
mysql> SELECT result.driver, date_format(race.beginDate,'%Y-%m') FROM Races as race
, Results as result WHERE (beginDate between '2008-01-01' and '2009-12-31') AND res
ult.race=race.Name;
+-------------+-------------------------------------+
| driver      | date_format(race.beginDate,'%Y-%m') |
+-------------+-------------------------------------+
| barrichello | 2009-11                             |
| button      | 2009-11                             |
| vettel      | 2009-11                             |
| barrichello | 2009-03                             |
| button      | 2009-03                             |
| trulli      | 2009-03                             |
| hamilton    | 2008-11                             |
| massa       | 2008-11                             |
| barrichello | 2009-06                             |
| button      | 2009-06                             |
| vettel      | 2009-06                             |
| barrichello | 2009-08                             |
| button      | 2009-08                             |
| webber      | 2009-08                             |
| button      | 2009-06                             |
| vettel      | 2009-06                             |
| webber      | 2009-06                             |
| hamilton    | 2008-03                             |
| heidfeld    | 2008-03                             |
| raikkonen   | 2008-03                             |
| hamilton    | 2008-09                             |
| kubica      | 2008-09                             |
| massa       | 2008-09                             |
| hamilton    | 2008-04                             |
+-------------+-------------------------------------+
24 rows in set (0.01 sec)
```