Combining Queries

> *query1 UNION [ALL] query2*
> *query1 INTERSECT [ALL] query2*
> *query1 EXCEPT [ALL] query2*

Here we use the following tables as example

```
create table T1
(
    num  int primary key,
    name varchar(10)
);
insert into T1(num, name)
values (1, 'qqq'),
       (2, 'yyy'),
       (4, 'zzz'),
       (7, 'qqq'),
       (8, 'zzz');

create table T2
(
    num  int primary key,
    name varchar(10)
);
insert into T2(num, name)
values (2, 'yyy'),
       (4, 'qqq'),
       (6, 'qqq');
```

UNION and UNION ALL

`UNION` effectively appends the result of *`query2`* to the result of *`query1`* (although there is no guarantee that this is the order in which the rows are actually returned). Furthermore, it eliminates duplicate rows from its result, in the same way as `DISTINCT`, unless `UNION ALL` is used.

Experiment 1: Union

```
-- same attribution name
select num from T1
UNION
select num from T2;

-- attribution names are same with T1
select * from T1
UNION
select * from T2;
```

Tips: First combine all, then do the distinct.

Experiment 2: Union ALL

```
-- Union all
select num from T1
UNION all
select num from T2;

-- union all + order by
select num from T1
UNION all
select num from T2
order by num;

-- union all + order by II
select * from T1
UNION all
select * from T2
order by num;

-- union all + distict
select distinct(U.*) from(
select * from T1
UNION all
select * from T2
) U;
```

X all + distinct = X (X is a set operation)

INTERSECT and INTERSECT ALL

`INTERSECT` returns all rows that are both in the result of *`query1`* and in the result of *`query2`*. Duplicate rows are eliminated unless `INTERSECT ALL` is used.

Experiment 3: INTERSECT

```
-- intersect
select name from T1
intersect
select name from T2;
```

Tips: First intersect all, then do the distinct.

Experiment 4: INTERSECT ALL

```
-- intersect all
select name from T1
intersect all
select name from T2;
```

```
-- intersect all + distinct
select distinct (I.name)
from (
         select name
         from T1
         intersect all
         select name
         from T2
     )I;
```

EXCEPT

`EXCEPT` returns all rows that are in the result of *`query1`* but not in the result of *`query2`*. (This is sometimes called the *difference* between two queries.) Again, duplicates are eliminated unless `EXCEPT ALL` is used.

Experiment 5: EXCEPT

```
-- except I
select name
from T1
    except
select name
from T2;

-- except II
select name
from T2
    except
select name
from T1;
```

Tips: Notice the order of tables.

Experiment 6: EXCEPT ALL

```
-- EXCEPT ALL
select name
from T1
    except all
select name
from T2;

-- EXCEPT ALL + distinct
select distinct(E.name)
from (
         select name
         from T1
             except all
```

```
        select name
        from T2
    ) E;
```