

Set Operations in SQL

Using the CAP2 database in Postgres 8.3

Basic SELECT

```
select city
from customers
```

```
city
-----
Duluth
Dallas
Dallas
Duluth
Acheron
Kyoto
```

```
select city
from agents
```

```
city
-----
New York
Newark
Tokyo
New York
Duluth
Dallas
London
```

UNION and UNION ALL

```
select city
from customers
UNION
select city
from agents
```

```
city
-----
Acheron
Dallas
Duluth
Kyoto
London
New York
Newark
Tokyo
```

```
select city
from customers
UNION ALL
select city
from agents
```

```
city
-----
Duluth
Dallas
Dallas
Duluth
Acheron
Kyoto
New York
Newark
Tokyo
New York
Duluth
Dallas
London
```

Note the difference in the number of results with UNION vs. UNION ALL.
Note also the duplication.

INTERSECT

```
select city
from customers
INTERSECT
select city
from agents
```

Postgres 8.3 has no trouble with this. Most database systems today likely support this syntax.

```
city
-----
Dallas
Duluth
```

There are some exceptions, however...

```
select city
from customers
INTERSECT
select city
from agents
```

Although specified in the ANSI SQL-92 standard, SQL Server 2000 does not implement the intersect operator.

```
Server: Msg 156, Level 15, State 1, Line 3
Incorrect syntax near the keyword 'INTERSECT'.
```

There is a way to perform set intersection without in intersect operator:

```
select distinct city
from customers
where EXISTS
  (select *
   from agents
   where customers.city = agents.city
  )

city
-----
Dallas
Duluth
(2 row(s) affected)
```

EXCEPT (set difference)

```
select city
from customers
EXCEPT
select city
from agents
```

```
city
-----
Acheron
Kyoto
```