

Querying the Database



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Transact-SQL (T-SQL)

Microsoft's and Sybase's proprietary extension to the SQL (Structured Query Language) used to interact with relational databases.

All applications that communicate with an instance of SQL Server do so by sending Transact-SQL statements to the server, regardless of the user interface of the application.



```
select *  
from dbo.stations  
where usaf = '007026' and wban = '99999'  
order by country, elev desc
```

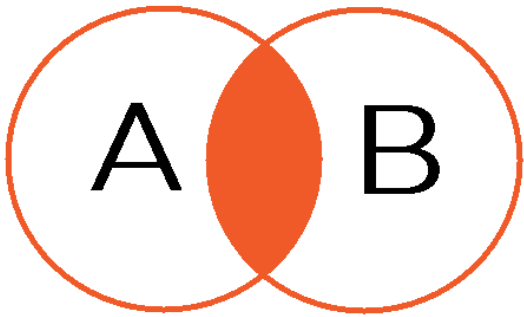
Basic Select Statement

“select *” returns all columns

“select usaf, wban, name, country” returns just those columns



Common SQL Joins



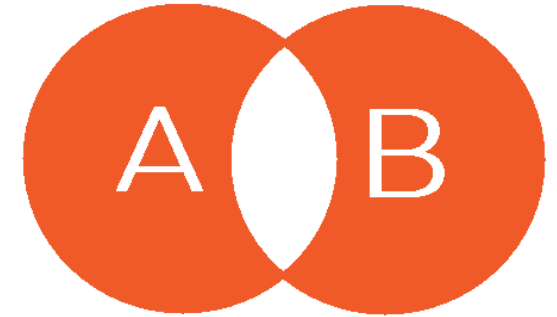
Inner join



Left outer join



Right outer join



Full outer join
(with where clause)



```
select s.usaf, s.wban, s.name, g.mo as month,  
       g.da as day, g.temp, g.prcp  
from dbo.stations as s inner join dbo.gsod2017 g  
     on s.usaf = g.stn and s.wban = g.wban  
where usaf = '007026'  
order by month, day
```

Inner Join

Inner join returns matching data only

Aliases save typing and can improve readability



Common Aggregate Functions

Min

Max

Avg

Sum

Count



```
select max(temp) from dbo.gsod2017;
```

```
select s.usaf, s.wban, s.name, max(g.temp) as max_temp  
from dbo.stations as s join dbo.gsod2017 g  
    on s.usaf = g.stn and s.wban = g.wban  
group by s.usaf, s.wban, s.name  
order by max_temp desc;
```

Max Daily-mean Temperature in 2017

First query returns the max daily-mean temperature

Second query returns information about the stations and requires “group by” clause



Demo



Creating a T-SQL select statement in SSMS

Preventing SQL Injection attacks in code



Summary



Introduction to querying with T-SQL

How to guard from SQL Injection attacks

