

SQL Subqueries

Subqueries

- SQL queries take as input one or more tables and produce a table as result
- Decompose a complex query into simpler parts and then assemble them back together
- **Replace a table with a query (SELECT statement) in another query**

Scalar Subqueries

- Queries that return a single value (scalar) can be used in the WHERE clause for conditions
- ```
select *
from PC
where price = (select max(price) from PC)
```

# IN and NOT IN

- Check if a value is member in a set
- select maker  
from Product  
where type = 'pc' and  
maker **IN (select maker  
from Product  
where type = 'laptop')**

# EXISTS and NOT EXISTS

- Check if a query returns tuples or not (empty set)

- select \*

from PC

where **not exists**

**(select \***

**from PC PC1**

**where PC1.price > PC.price**

**)**

# LIMIT Clause

- Limit the number of tuples in the result
- select maker, ram  
from Product P, PC  
where P.model = PC.model  
order by ram DESC
- select maker, ram  
from Product P, PC  
where P.model = PC.model and  
not exists (select ram  
from PC PC1  
where PC1.ram > PC.ram)

**LIMIT 1**

# Correlated Subqueries

- Use attributes from an outer query inside a subquery

- select \*

from **PC**

where not exists

(select \*

from PC PC1

where PC1.price > **PC.price**

)

# Subqueries in FROM

- Any query can be placed in FROM because it is a table
- select P.model, maker, **SQ.price**

FROM Product P,

**(select model, price**

**from PC**

**where ram = (select max(ram) from PC)**

**) SQ**

where P.model = **SQ.model**



# Examples

- Computers
- TPCH