





Set intersection operator

A INTERSECT B

- □ It performs the intersection of the two relational expressions A and B
 - relational expressions A and B may be generated by SELECT statements
 - it requires schema compatibility between A and B



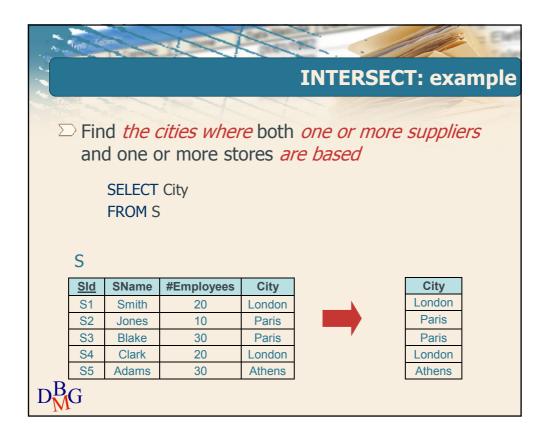


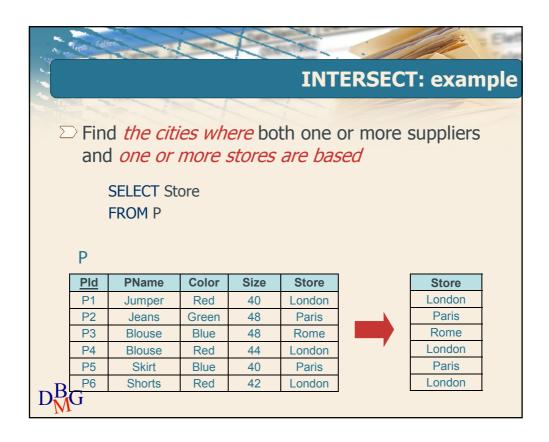
 □ Find the cities where both one or more suppliers and one or more stores are based

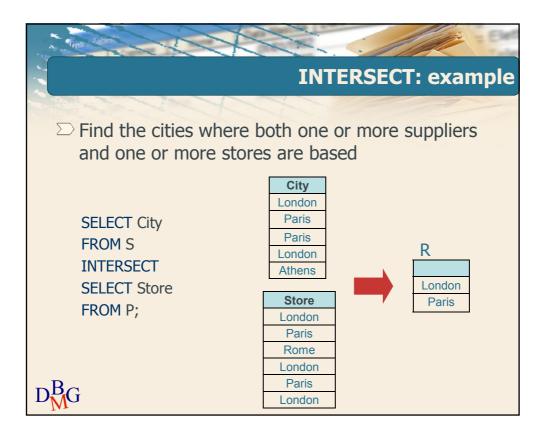
D	Pld	PName	Color	Size	Store
	P1	Jumper	Red	40	London
	P2	Jeans	Green	48	Paris
	P3	Blouse	Blue	48	Rome
	P4	Blouse	Red	44	London
	P5	Skirt	Blue	40	Paris
	P6	Shorts	Red	42	London

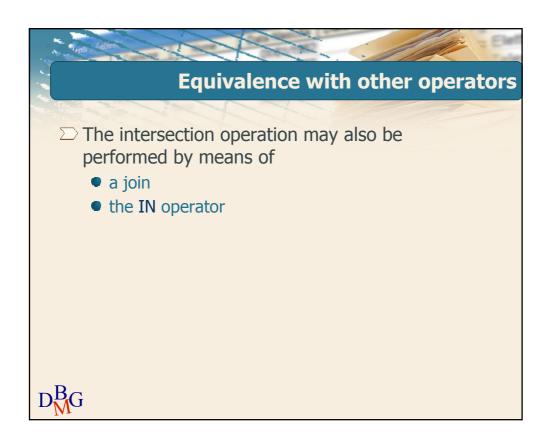
SName #Employees City Smith 20 London S1 S2 Jones 10 Paris S3 Blake 30 Paris 20 Clark London Athens Adams











Equivalence with join

- ☐ The FROM clause contains the relations involved in the intersection
- The WHERE clause contains join conditions between the attributes listed in the SELECT clauses of relational expressions A and B

 $D_{M}^{B}G$

Equivalence with join: example

 □ Find the cities where both one or more suppliers and one or more stores are based

> SELECT City FROM S, P WHERE S.City=P.Store;

 $D_{M}^{B}G$

Equivalence with the IN operator

- One of the two relational expressions is turned into a nested query using operator IN
- The attributes in the outer SELECT clause, joined together by a tuple constructor, make up the left-hand side of the IN operator

 $D_{M}^{B}G$

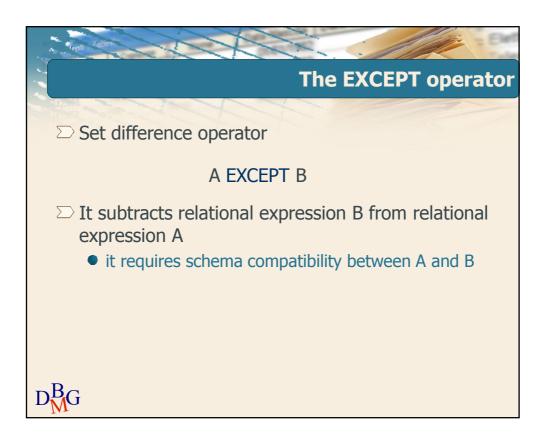
Equivalence with IN: example

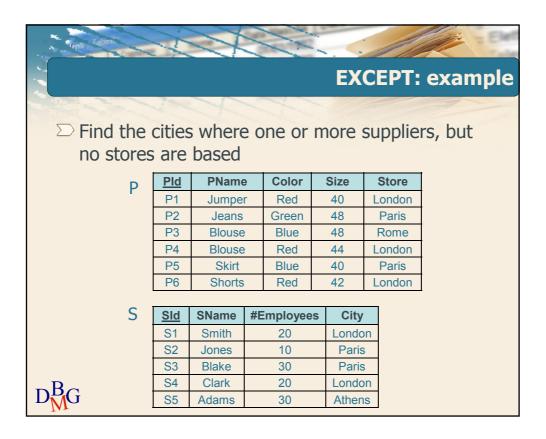
□ Find the cities where both one or more suppliers and one or more stores are based

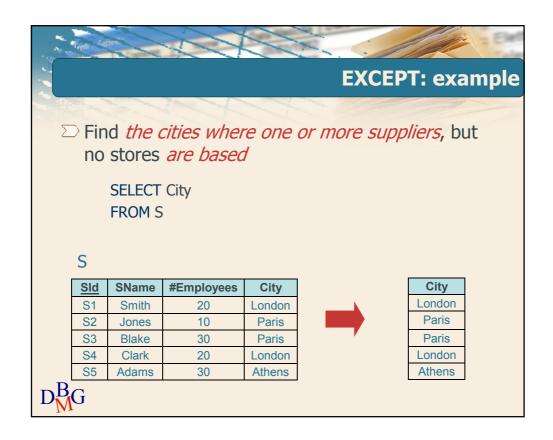
SELECT Store
FROM P
WHERE Store IN (SELECT City
FROM S);

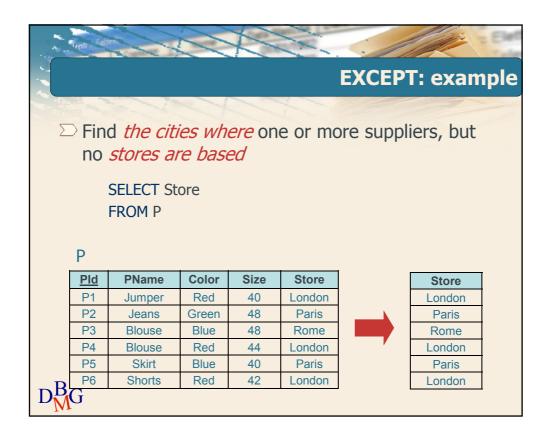
 $D_{M}^{B}G$

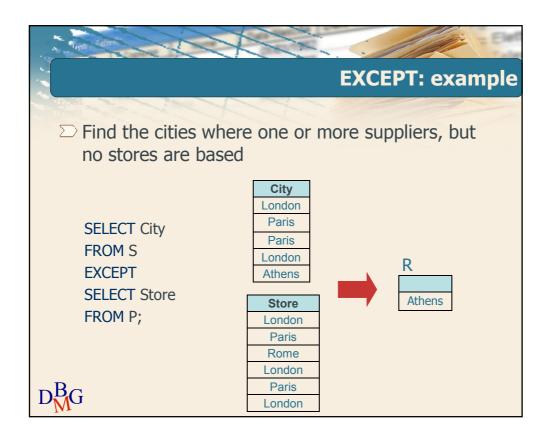












Equivalence with the NOT IN operator

- □ The difference operation may also be performed by means of the NOT IN operator
 - relational expression B is nested within the NOT IN operator
 - the attributes in the SELECT clause of relational expression A, joined together by a tuple constructor, make up the left-hand side of the NOT IN operator



Equivalence with the NOT IN operator: example

□ Find the cities where one or more suppliers, but no stores are based

SELECT City
FROM S
WHERE City NOT IN (SELECT Store
FROM P);

