Session 6-1 Cartesian Join

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Purpose of Joins

- Joins are used to link tables and reconstruct data in a relational database
- Joins can be created through:
  - **Traditional method:** Conditions in WHERE clause
  - **Join method:** Use of JOIN keywords in FROM clause

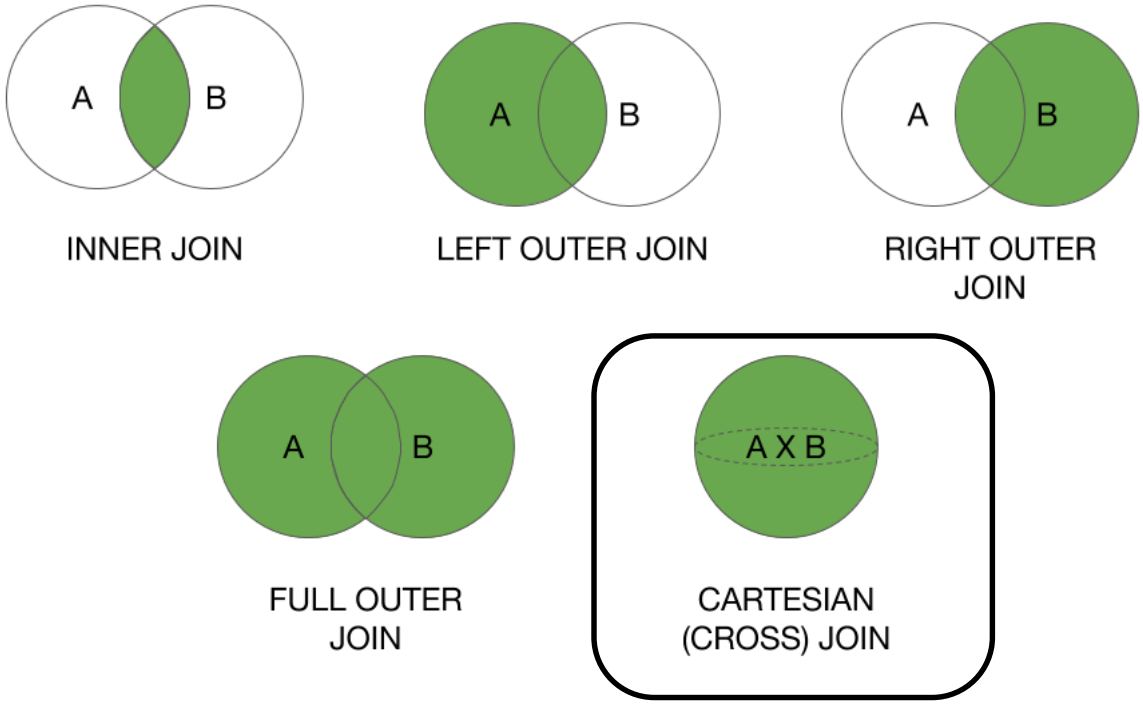
Types of Joins

Cartesian Joins

Inner Joins

- Equality Joins
- Non-equality Joins
- Self Joins

Outer Joins



Cartesian Joins

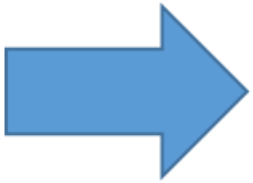
- Created by **omitting joining condition** in the WHERE clause or through CROSS JOIN keywords in the FROM clause
- Results in every possible row combination (*m* * *n*)

(Intended) Cartesian Joins

Tables

Color
Red
Blue

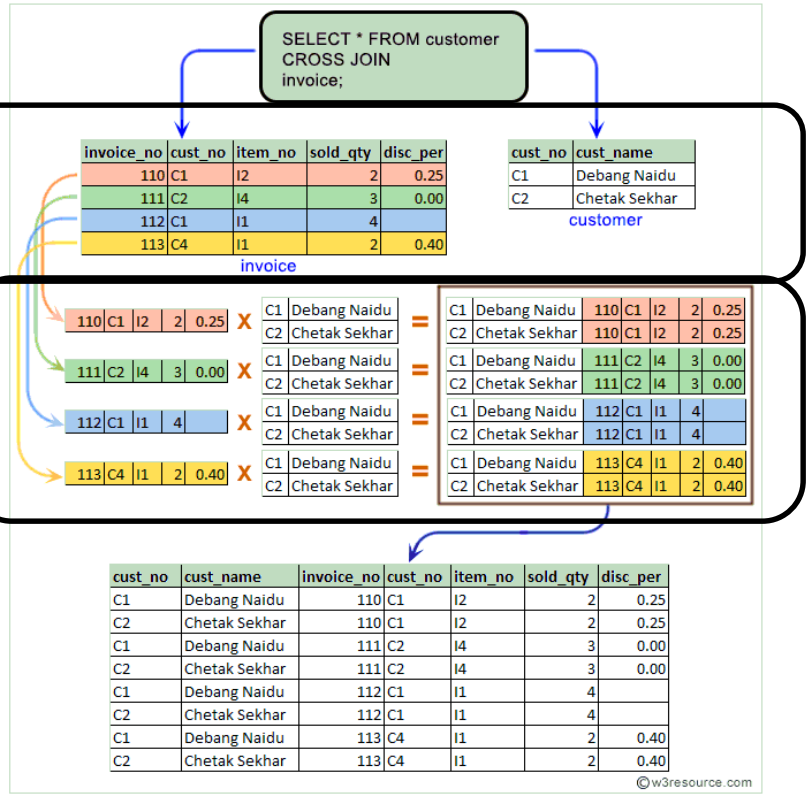
Size
Small
Medium
Large
Extra Large



Query Result

Color	Size
Red	Small
Blue	Small
Red	Medium
Blue	Medium
Red	Large
Blue	Large
Red	Extra Large
Blue	Extra Large

(Unintended) Cartesian Joins



4 rows in invoice *
2 rows in customer
= 8 rows

1 million rows *
2000 rows
= 2 billion rows

Cartesian Join Example: Traditional Method

Enter SQL Statement:

```
SELECT title, name
 FROM books, publisher;
```

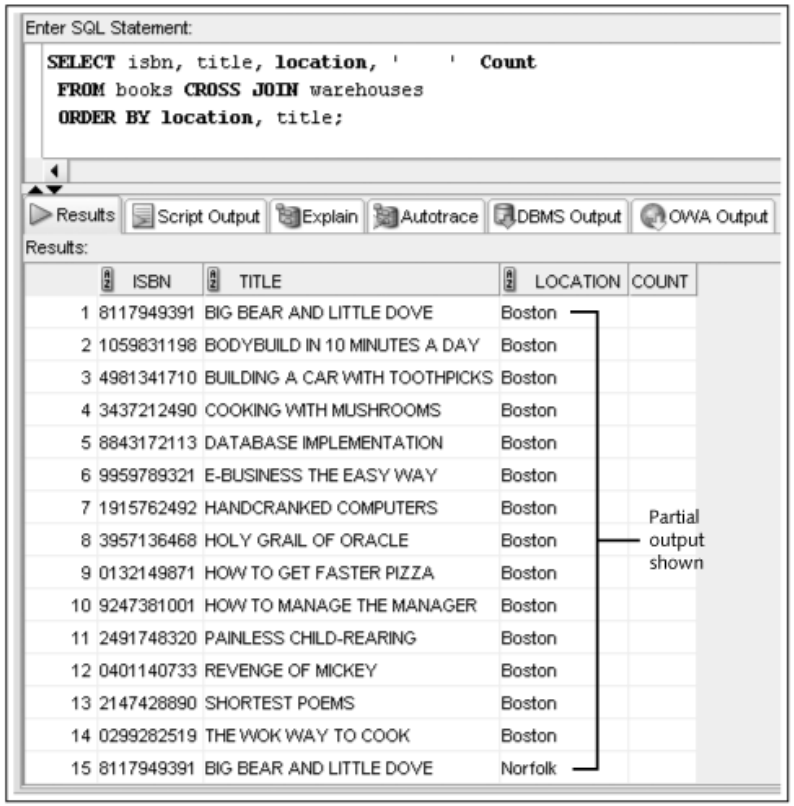
Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

Results:

	TITLE	NAME
1	BODYBUILD IN 10 MINUTES A DAY	PRINTING IS US
2	REVENGE OF MICKEY	PRINTING IS US
3	BUILDING A CAR WITH TOOTHPICKS	PRINTING IS US
4	DATABASE IMPLEMENTATION	PRINTING IS US
5	COOKING WITH MUSHROOMS	PRINTING IS US
6	HOLY GRAIL OF ORACLE	PRINTING IS US
7	HANDCRANKED COMPUTERS	PRINTING IS US
8	E-BUSINESS THE EASY WAY	PRINTING IS US
9	PAINLESS CHILD-REARING	PRINTING IS US
10	THE WOK WAY TO COOK	PRINTING IS US
11	BIG BEAR AND LITTLE DOVE	PRINTING IS US
12	HOW TO GET FASTER PIZZA	PRINTING IS US
13	HOW TO MANAGE THE MANAGER	PRINTING IS US
14	SHORTEST POEMS	PRINTING IS US
15	BODYBUILD IN 10 MINUTES A DAY	PUBLISH OUR WAY

Partial output shown

Cartesian Join Example: JOIN Method (CROSS JOIN)



Enter SQL Statement:

```
SELECT isbn, title, location, '    ' Count
 FROM books CROSS JOIN warehouses
 ORDER BY location, title;
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

Results:

	ISBN	TITLE	LOCATION	COUNT
1	8117949391	BIG BEAR AND LITTLE DOVE	Boston	
2	1059831198	BODYBUILD IN 10 MINUTES A DAY	Boston	
3	4981341710	BUILDING A CAR WITH TOOTHPICKS	Boston	
4	3437212490	COOKING WITH MUSHROOMS	Boston	
5	8843172113	DATABASE IMPLEMENTATION	Boston	
6	9959789321	E-BUSINESS THE EASY WAY	Boston	
7	1915762492	HANDCRANKED COMPUTERS	Boston	
8	3957136468	HOLY GRAIL OF ORACLE	Boston	
9	0132149871	HOW TO GET FASTER PIZZA	Boston	
10	9247381001	HOW TO MANAGE THE MANAGER	Boston	
11	2491748320	PAINLESS CHILD-REARING	Boston	
12	0401140733	REVENGE OF MICKEY	Boston	
13	2147428890	SHORTEST POEMS	Boston	
14	0299282519	THE WOK WAY TO COOK	Boston	
15	8117949391	BIG BEAR AND LITTLE DOVE	Norfolk	

Partial output shown

Wrap-up

- Cartesian Join to generate every possible combinations of the records between two tables (by omitting conditions)
- Not useful in most cases
- Huge load on servers