

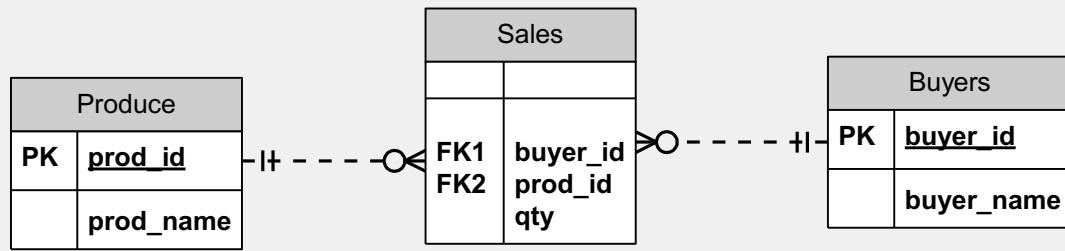
# JOIN

# Join

- Aliases for table names
- Introduction to Joins
- Using Inner Joins
- Using Outer Joins
- Using Cross Joins
- Joining More Than Two Tables
- Joining a Table to Itself

# Joindb

## Joindb Database Diagram



# Using Aliases for Table Names

```
SELECT buyer_name, sales.buyer_id, qty  
FROM buyers INNER JOIN sales  
ON buyers.buyer_id = sales.buyer_id
```

```
SELECT buyer_name, s.buyer_id, qty  
FROM buyers b INNER JOIN sales s  
ON b.buyer_id = s.buyer_id
```

# Using Aliases for Table Names

```
SELECT buyer_name, sales.buyer_id, qty  
FROM buyers, sales  
WHERE buyers.buyer_id = sales.buyer_id
```

```
SELECT buyer_name, s.buyer_id, qty  
FROM buyers b, sales s  
WHERE b.buyer_id = s.buyer_id
```

# Introduction to Joins

- Selects Specific Columns from Multiple Tables
  - JOIN keyword specifies that tables are joined and how to join them
  - ON keyword specifies join condition
- Queries Two or More Tables to Produce a Result Set
  - Use primary and foreign keys as join conditions
  - Use columns common to specified tables to join tables

# Inner Join

```
SELECT buyer_name, sales.buyer_id, qty  
FROM buyers INNER JOIN sales  
ON buyers.buyer_id = sales.buyer_id
```

buyers		sales		
buyer_name	buyer_id	buyer_id	prod_id	qty
Adam Barr	1	1	2	15
Sean Chai	2	1	3	5
Eva Corets	3	4	1	37
Erin O'Melia	4	3	5	11
Result				
buyer_name	buyer_id	buyer_id	prod_id	qty
Adam Barr	1	1	2	15
Adam Barr	1	1	3	5
Erin O'Melia	4	4	1	37
Eva Corets	3	3	5	11
Erin O'Melia	4	4	2	1003

# Outer Join

```
SELECT buyer_name, sales.buyer_id, qty  
FROM buyers LEFT OUTER JOIN sales  
ON buyers.buyer_id = sales.buyer_id
```

buyers		sales		
buyer_name	buyer_id	buyer_id	prod_id	qty
Adam Barr	1	1	2	15
Sean Chai	2	1	3	5
Eva Corets	3	4	1	37
Erin O'Melia	4	3	5	11
Result				
buyer_name	buyer_id	qty		
Adam Barr	1	15		
Adam Barr	1	5		
Erin O'Melia	4	37		
Eva Corets	3	11		
Erin O'Melia	4	1003		
Sean Chai	NULL	NULL		

# Cross Join

```
SELECT buyer_name, qty  
FROM buyers  
CROSS JOIN sales
```

buyers	
buyer_id	buyer_name
1	Adam Barr
2	Sean Chai
3	Eva Corets
4	Erin O'Melia

sales		
buyer_id	prod_id	qty
1	2	15
1	3	5
4	1	37
3	5	11
4	2	1003

Result	
buyer_name	qty
Adam Barr	15
Adam Barr	5
Adam Barr	37
Adam Barr	11
Adam Barr	1003
Sean Chai	15
Sean Chai	5
Sean Chai	37
Sean Chai	11
Sean Chai	1003
Eva Corets	15
...	...

# Joining More Than Two Tables

```
SELECT buyer_name, prod_name, qty
FROM buyers
INNER JOIN sales
    ON buyers.buyer_id = sales.buyer_id
INNER JOIN produce
    ON sales.prod_id = produce.prod_id
```

buyers	
buyer_id	buyer_name
1	Adam Barr
2	Sean Chai
3	Eva Corets
4	Erin O'Melia

sales		
buyer_id	prod_id	qty
1	2	15
1	3	5
3	1	37
4	5	11
2	2	1003

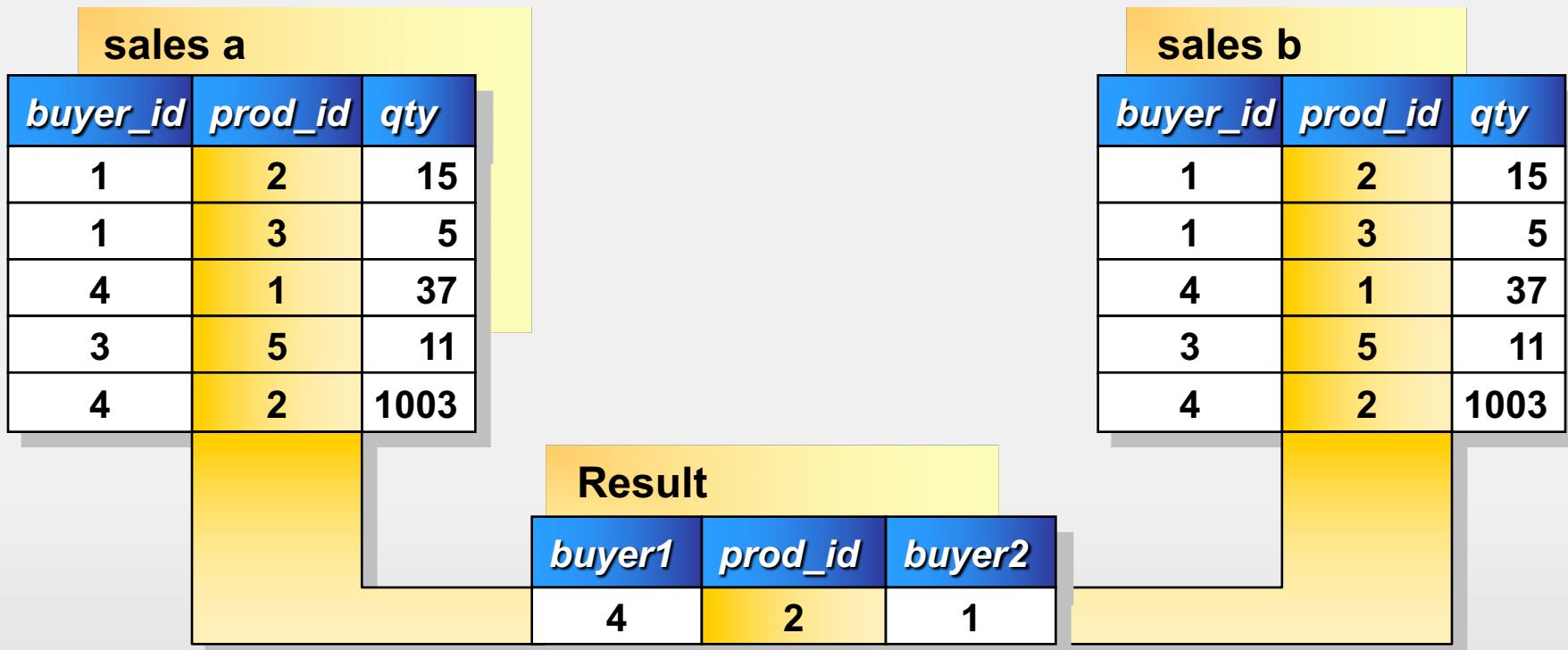
produce	
prod_id	prod_name
1	Apples
2	Pears
3	Oranges
4	Bananas
5	Peaches

Result

buyer_name	prod_name	qty
Erin O'Melia	Apples	37
Adam Barr	Pears	15
Erin O'Melia	Pears	1003
Adam Barr	Oranges	5
Eva Corets	Peaches	11

# Joining a Table to Itself

```
SELECT a.buyer_id AS buyer1, a.prod_id  
      ,b.buyer_id AS buyer2  
  FROM sales a  
 JOIN sales b  
    ON a.prod_id = b.prod_id  
 WHERE a.buyer_id > b.buyer_id
```



# Exercise

- Select the names of products and the companies that supply the products. Products without listed suppliers and suppliers without current products should be not included in the result set.
- Select the names of customers who placed orders after 1/1/98

# Exercise

- Select customers with order dates. Customers without any order should be not included in the result set
- Select all customers with order dates
- Select customers without any order
- Select all customers without any order in 1997

# Exercise

- Display a list of products ordered each day
- Display a list of products ordered 7/8/96
- Display a list of products ordered in 1997

# Exercise

- Display pairs of employees who have the same job title
- Display employees and their subordinates
- Select employees without subordinates

# Exercise

- For each product display its category name and its supplier name
- Display customers who have bought products from the „confections” category

# Exercise

- For each customer display the number of orders
- For each customer display the number of orders in march 1997
- For each customer display the number of orders by each month

# Exercise

- For each shipper display the number of orders
- For each shipper display the number of orders in march 1997
- For each shipper display the number of orders by each month
- Which shipper was most active in 1997

# Exercise

- Display the total amount of the order 10250
- For each order display its total amount
- Display the total amount (including freight) of the order 10250
- For each order display its total amount (including freight)

# Exercise

- For each customer display the total amount of its orders
- For each customer display the total amount (including freight) of its orders