

# ORIE 3120

Lecture 5: SQL #4 [INNER JOIN]

# INNER JOIN

# Joining Tables in Queries

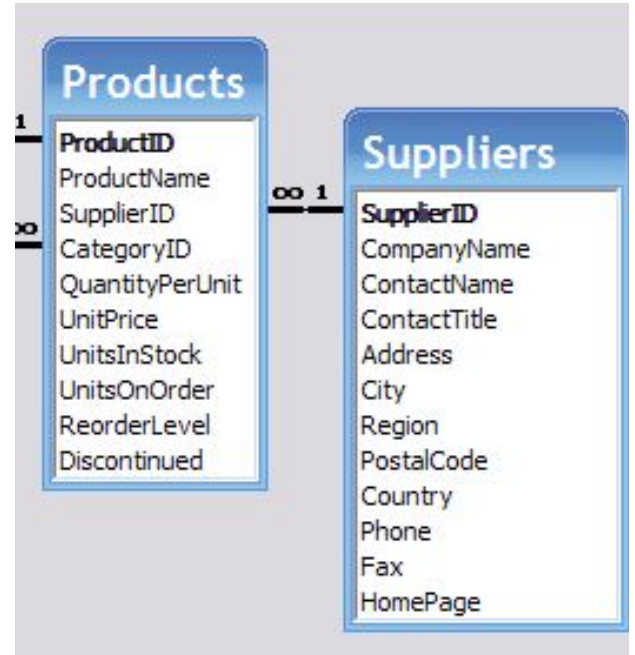
- Having the capability to select data from multiple tables is one of SQL's most powerful features.
- The most practical queries are those whose data is acquired from multiple tables within the database.

# Joins

- A join combines two or more tables to retrieve data from multiple tables.
- They often join a child's foreign key on the field it references in the parent.
- We'll cover a few types of joins
  - Inner joins
  - Left joins
  - Right joins
  - Full Outer joins

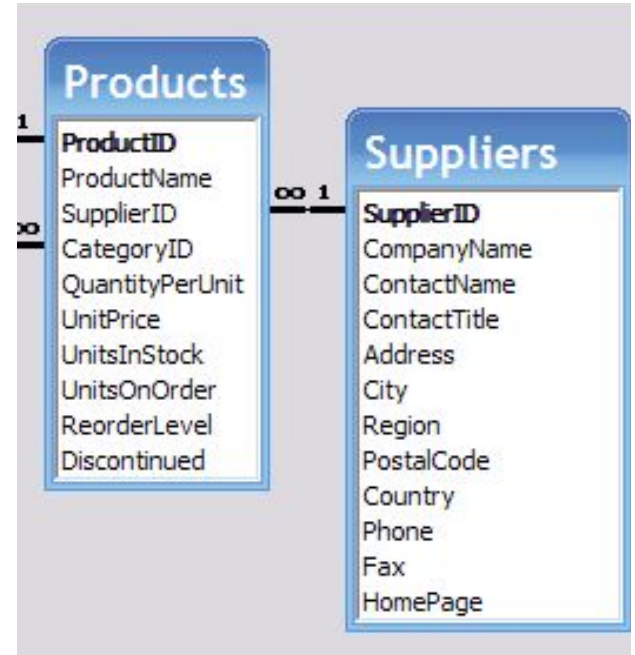
# Inner Join

- The inner join joins two tables with a common column.
- Let's look at the Products and Suppliers tables from our previous example
- I want a list of product names with the name of the company that supplies each product



# Inner Join

- As you can see, the data is in two tables.
- ProductName is in the Products table
- CompanyName is in the Suppliers table
- We can bring them together using an inner join



# Inner Join Syntax

```
SELECT Suppliers.SupplierID,  
Products.ProductName,  
Suppliers.CompanyName  
FROM Products, Suppliers  
WHERE Products.SupplierID = Suppliers.SupplierID;
```

# Example: INNER JOIN

## Products

ProductName	SupplierID
Aniseed Syrup	1
Chai	1
Chang	1
Chef Anton's Cajun Seasoning	2
Tofu	6

## Suppliers

SupplierID	CompanyName
1	Exotic Liquids
2	New Orleans Cajun Delights
3	Grandma Kelly's Homestead

```
SELECT Suppliers.SupplierID,  
       Products.ProductName,  
       Suppliers.CompanyName  
FROM Products,Suppliers  
WHERE Products.SupplierID =  
       Suppliers.SupplierID;
```

SupplierID	ProductName	CompanyName
1	Chai	Exotic Liquids
1	Chang	Exotic Liquids
1	Aniseed Syrup	Exotic Liquids
2	Chef Anton's Cajun Seasoning	New Orleans Cajun Delights



# Let's practice (Q1)

T1

id	a
1	57
2	23
3	9

T2

id	b
1	2
3	11
4	42
5	30
5	56
2	12
1	70

```
SELECT T1.id, T1.a, T2.b  
FROM T1  
INNER JOIN T2  
ON T1.id = T2.id
```

How many records are returned?

- (a) 3
- (b) 4
- (c) 5
- (d) 6
- (e) 7

# Let's practice (Q2)

T1

id	a
1	57
2	23
3	9

T2

id	b
1	2
3	11
4	42
5	30
5	56
2	12
1	70

```
SELECT T1.id, T1.a, T2.b
FROM T1
INNER JOIN T2
ON T1.a > T2.b
```

How many records are returned?

- (a) 4
- (b) 6
- (c) 8
- (d) 10
- (e) 12

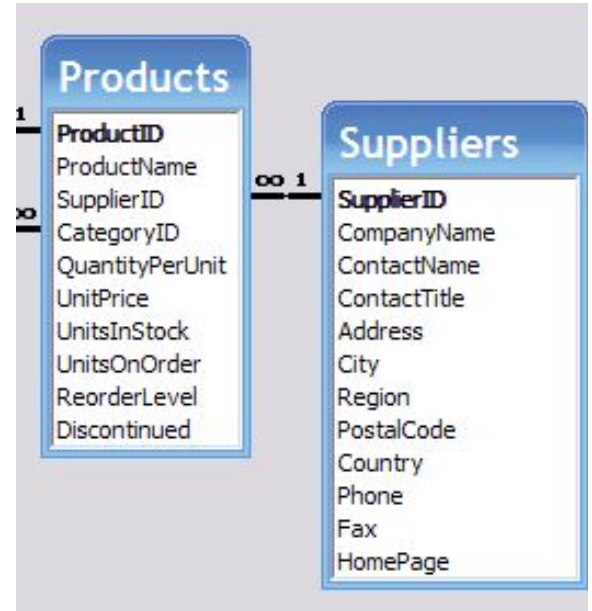
# Qualify columns to prevent ambiguity

- Each column in this SELECT clause is preceded by the associated table name
- This is called *qualifying the columns* in a query.
- Qualifying the columns is only needed for columns that exist in more than one table referenced by a query.

# Did we need to qualify this column?

```
SELECT Products.ProductName,  
Suppliers.CompanyName  
FROM Products, Suppliers  
WHERE Products.SupplierID =  
Suppliers.SupplierID
```

- (a) Yes
- (b) No



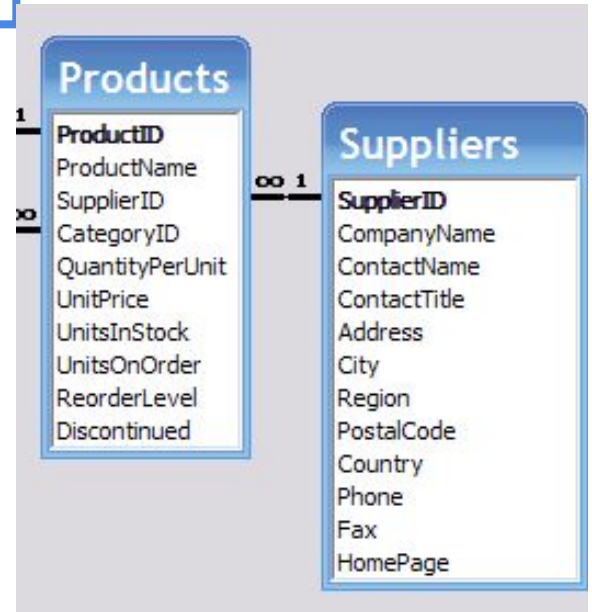
# Did we need to qualify this column?

```
SELECT Products.ProductName,  
Suppliers.CompanyName
```

(a) Yes  
(b) No

```
FROM Products, Suppliers
```

```
WHERE Products.SupplierID =  
Suppliers.SupplierID
```



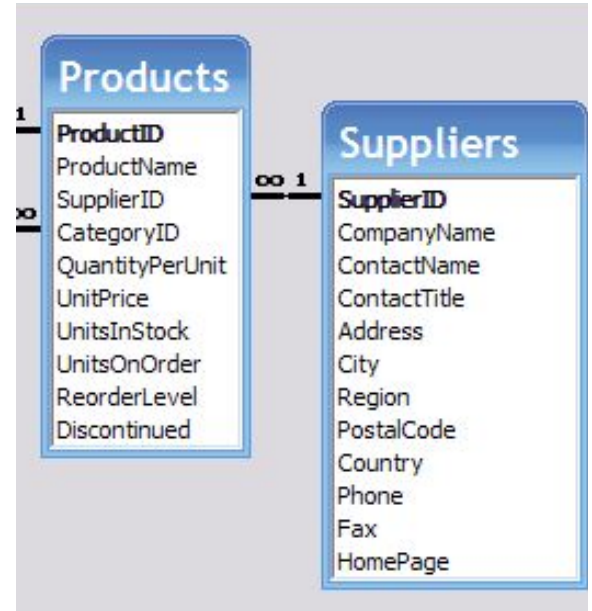
# Did we need to qualify these columns?

```
SELECT Products.ProductName,  
Suppliers.CompanyName
```

```
FROM Products, Suppliers
```

```
WHERE Products.SupplierID =  
Suppliers.SupplierID
```

- (a) Yes  
(b) No



# Alternative Inner Join Syntax

```
SELECT Products.ProductName,  
       Suppliers.CompanyName  
FROM   Products  
INNER JOIN Suppliers  
ON Products.SupplierID = Suppliers.SupplierID
```

# You can choose which syntax to use

- You can use either syntax
- You should understand both