

CPSC 203

DB - Week 3 Lab1

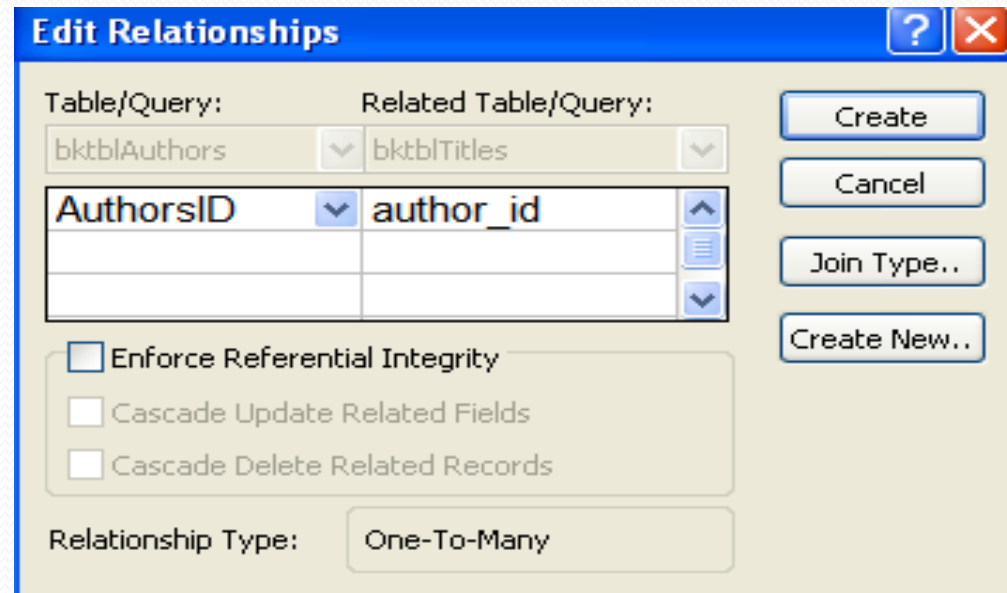
Introduction to Databases

Dina A. Said

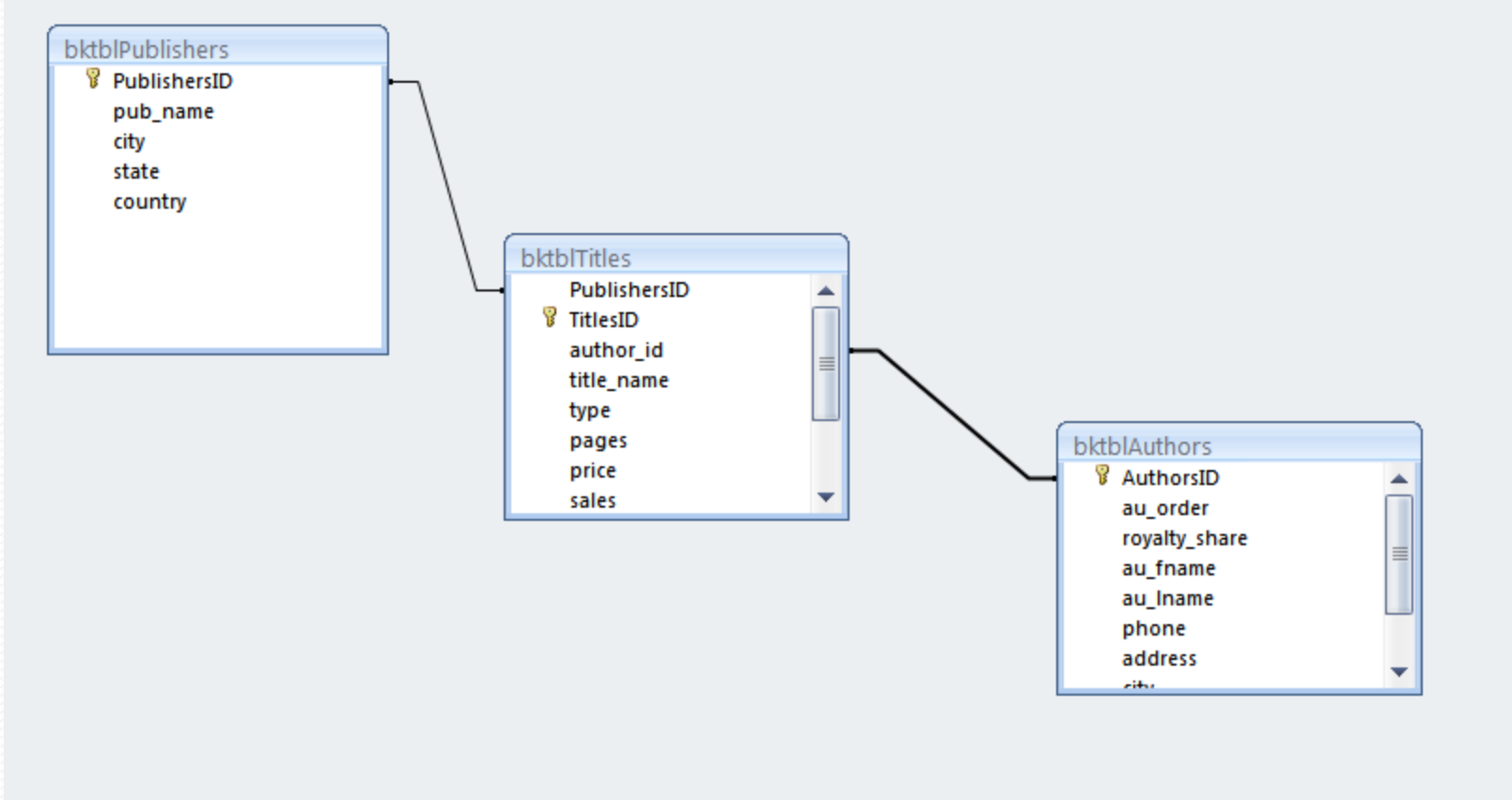
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Relationships

- Create a relationship as follows:
 - One-to-many s.t. field author_id in titles table is a foreign key from field AuthorID in authors table
 - One-to-many s.t. field PublisherID in titles table is a foreign key from field PublisherID in publishers table
- Steps:
 - Database Tools → Relationships
 - Drag the foreign key in the first table to the primary key in the second table

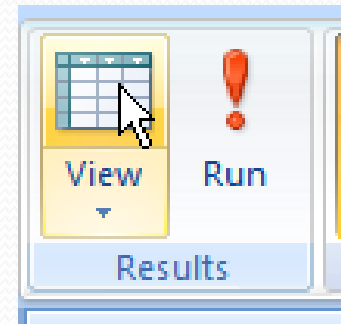
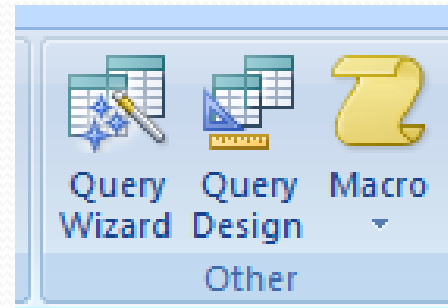


- Table/Query: is the table in which the field is a primary key
- Related Table/Query: is the table in which the field is a foreign key



Queries

- Create → Query Design
- In the view:
 - Database view → Results
 - SQL view → corresponding SQL
 - Design view → design the query
- Use Run! to execute the query
- Don't forget to save it



Design view facilities

Which field to select?

Which table?

Choose ascending, descending if the results are required to be sorted using this field

Check if this field will be shown in the results

Used for ANDing and Oring

Field:	Table:	Sort:	Show:	Criteria:	or:
			<input type="checkbox"/>		

Queries

- Make a query “QueryA” to display the author last name, book title, and publisher name

The screenshot displays a Microsoft Access query design grid for a query named 'QueryA'. The grid is based on three tables: bktblAuthors, bktblTitles, and bktblPublishers. The relationships between the tables are as follows:

- bktblAuthors (AuthorsID) is connected to bktblTitles (TitlesID).
- bktblTitles (PublishersID) is connected to bktblPublishers (PublishersID).

The query design grid shows the following fields and criteria:

Field:	au_lname	title_name	pub_name		
Table:	bktblAuthors	bktblTitles	bktblPublishers		
Sort:					
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:					
or:					

Queries

- Choose view → SQL view

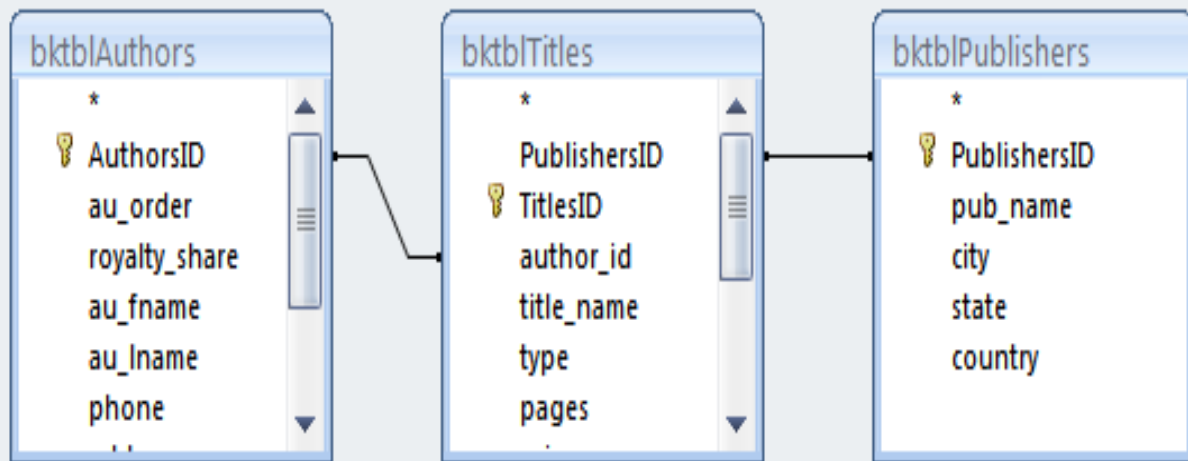
 Query1

```
SELECT bktblAuthors.au_lname, bktblTitles.title_name, bktblPublishers.pub_name  
FROM bktblPublishers INNER JOIN (bktblAuthors INNER JOIN bktblTitles ON bktblAuthors.AuthorsID = bktblTitles.author_id) ON bktblPublishers.PublishersID = bktblTitles.PublishersID;
```


Queries

- Modify the previous query to display the price of the book after the sale as well using this function:
 - $\text{Net_price} = \text{price} - \text{sales} / 100$

```
SELECT bktblAuthors.au_lname, bktblTitles.title_name,  
bktblPublishers.pub_name, [price]-[sales]/100 AS net_price  
FROM bktblPublishers INNER JOIN (bktblAuthors INNER JOIN  
bktblTitles ON bktblAuthors.AuthorsID = bktblTitles.author_id) ON  
bktblPublishers.PublishersID = bktblTitles.PublishersID;
```



	au_lname	title_name	pub_name	net_price: [price]-[sales]/100
Field:	au_lname	title_name	pub_name	net_price: [price]-[sales]/100
Table:	bktblAuthors	bktblTitles	bktblPublishers	
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				
or:				

- Make a query to display the author phone number and the complete name of the author.

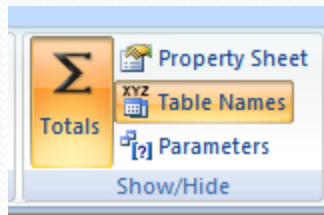


The screenshot shows a database query result window titled "Query2". The window displays a table with two columns: "phone" and "author_name". The first row is highlighted in orange and shows the phone number "718-496-7223" and the author name "Sarah Buchman". The subsequent rows show various phone numbers and author names, including "415-549-4278" for "Hallie Hull", "415-549-4278" for "Klee Hull", "303-986-7020" for "Wendy Heydemark", "650-836-7128" for "Kellsey", and "212-771-4680" for "Christian Kells". The table ends with an asterisk (*) in the first column of the last row.

phone	author_name
718-496-7223	Sarah Buchman
415-549-4278	Hallie Hull
415-549-4278	Klee Hull
415-549-4278	Klee Hull
303-986-7020	Wendy Heydemark
650-836-7128	Kellsey
650-836-7128	Kellsey
303-986-7020	Wendy Heydemark
415-549-4278	Hallie Hull
415-549-4278	Klee Hull
650-836-7128	Kellsey
303-986-7020	Wendy Heydemark
212-771-4680	Christian Kells
718-496-7223	Sarah Buchman
303-986-7020	Wendy Heydemark
415-549-4278	Klee Hull
718-496-7223	Sarah Buchman
*	

Aggregate Queries

- Make a query to display the number of books for each publisher
 - Create → Query design
 - Where is this information?
 - Publisher name in publisher table
 - No of books can be obtained from titles table
 - Select pub_name to display
 - Click



- You notice that additional row has been added “total”
- The word “Group by” is written under the pub_name
- Choose “count” for TitlesID field and write its name as “NoOfBooks”

Field:	pub_name	NoOfBooks: TitlesID
Table:	bktblPublishers	bktblTitles
Total:	Group By	Count
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

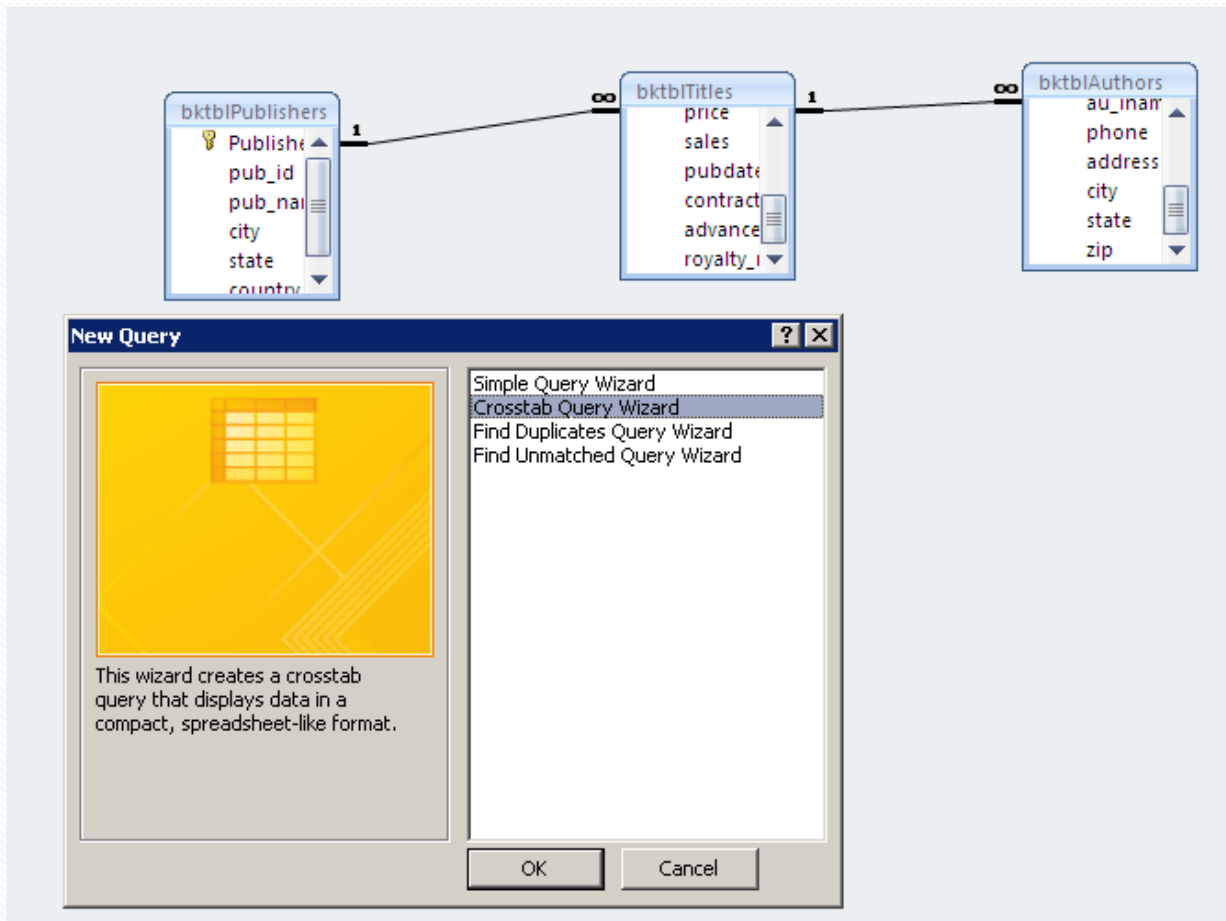
```
SELECT bktblPublishers.pub_name,  
Count(bktblTitles.TitlesID) AS NoOfBooks  
FROM bktblPublishers INNER JOIN  
bktblTitles ON bktblPublishers.PublishersID =  
bktblTitles.PublishersID  
GROUP BY bktblPublishers.pub_name;
```

Adding a condition

- Modify the previous query to display only publishers who published more than two books

```
SELECT bktblPublishers.pub_name, Count(bktblTitles.TitlesID) AS  
NoOfBooks  
FROM bktblPublishers INNER JOIN bktblTitles ON  
bktblPublishers.PublishersID = bktblTitles.PublishersID  
GROUP BY bktblPublishers.pub_name  
HAVING (((Count(bktblTitles.TitlesID))>2));
```

Crosstab Query



Crosstab Query Wizard

Which table or query contains the fields you want for the crosstab query results?

To include fields from more than one table, create a query containing all the fields you need and then use this query to make the crosstab query.

Query: qry8_calcProfitClass
 Query: qry9_PublishersProfitClass_Crosstab
Query: Query1
 Query: Query1_Crosstab
 Query: Query1_Crosstab1
 Query: Query2
 Query: Query4
 Query: Query6

View
 Tables Queries Both

Sample:

	Header1	Header2	Header3
	TOTAL		

Cancel < Back **Next >** Finish

Crosstab Query Wizard

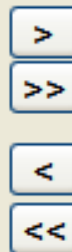
Which fields' values do you want as **row headings?**

You can select up to three fields.

Select fields in the order you want information sorted. For example, you could sort and group values by Country and then Region.

Available Fields:

title_name
pub_name



Selected Fields:

au_lname

Sample:

au_lname	Header1	Header2	Header3
au_lname1	TOTAL		
au_lname2			
au_lname3			
au_lname4			

Cancel

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Finish

Crosstab Query Wizard

Which field's values do you want as column headings?

For example, you would select Employee Name to see each employee's name as a column heading.

title_name
pub_name

Sample:

au_lname	pub_name1	pub_name2	pub_name3
au_lname1	TOTAL		
au_lname2			
au_lname3			
au_lname4			

Cancel

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Finish

Crosstab Query Wizard

What number do you want calculated for each column and row intersection?

For example, you could calculate the sum of the field Order Amount for each employee (column) by country and region (row).

Do you want to summarize each row?

Yes, include row sums.

Fields:

title_name

Functions:

Count

First

Last

Max

Min

Sample:

au_lname	pub_name1	pub_name2	pub_name3
au_lname1	Count(title_name)		
au_lname2			
au_lname3			
au_lname4			

Cancel

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Finish

au_lname	Total Of title_name	Abatis Publishers	Core Dump Books	Schadenfreude Press
Buchman	4	3		1
Heydemark	1		1	
Hull	8	6		2

If statement

- Make a query based on QueryA by adding another field so that
 - If the net_price of the book $\geq 20 \rightarrow$ expensive
 - Else if it is $\geq 10 \rightarrow$ ok
 - Otherwise \rightarrow cheap

```
class: IIf(netPrice>=20," expensive",IIf(netPrice>=10," ok", "cheap"))
```

The same format as excel but use IIF instead of IF
Don't forget quotes for string