

Queries that Really Count

Understanding Totals in Access

ELUNA 2010

Cathy Salika
CARLI



We're going to look at these three tables:

Microsoft Access - [PATRON : Table]

PATRON_ID	LAST_NAME	FIRST_NAME
1	Brown	Charlie
2	Brown	Sally
3	Dog	Snoopy
4	Van Pelt	Linus
5	Van Pelt	Lucy
6	Van Pelt	Rerun
7	Schroeder	L.

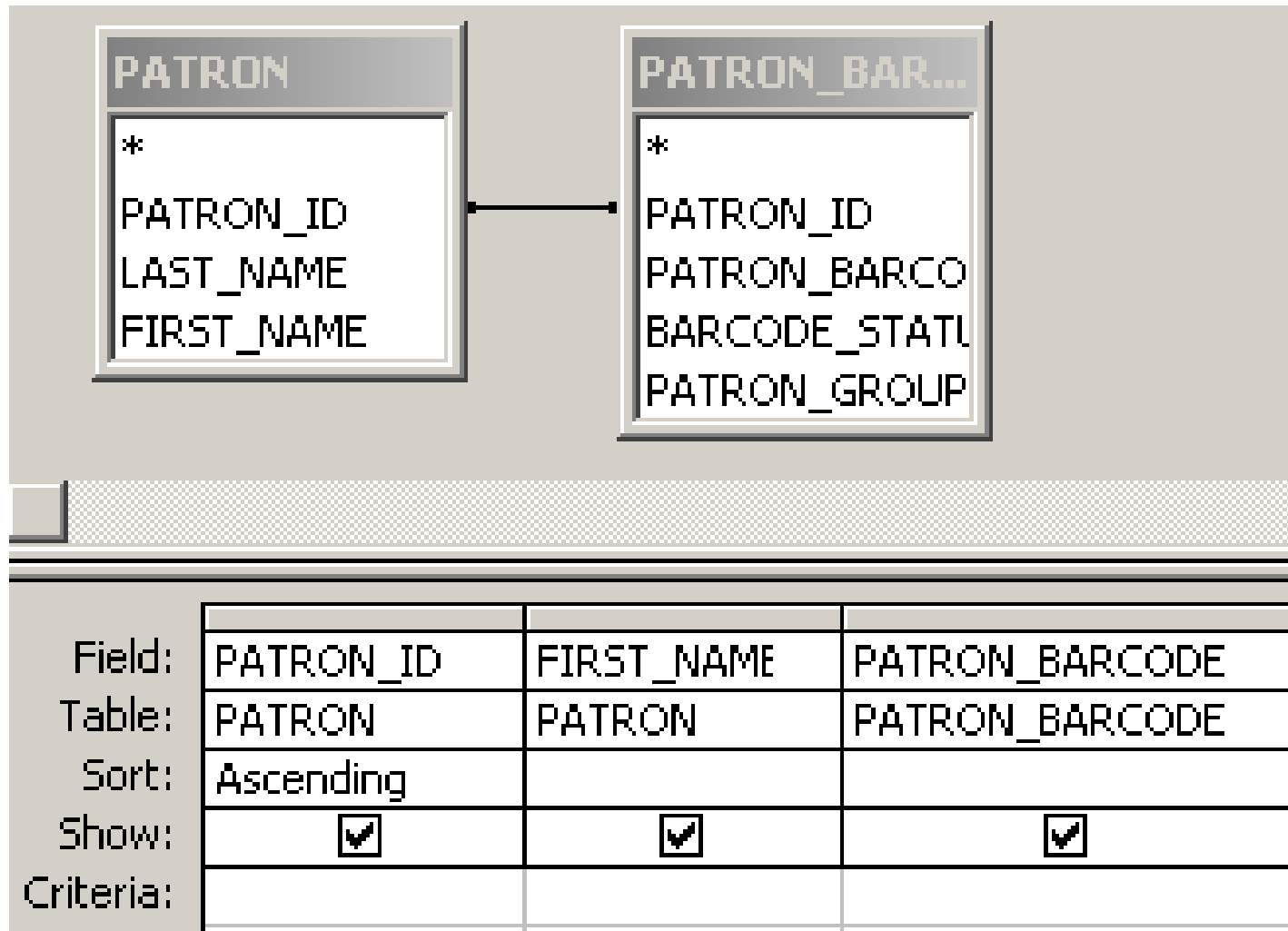
Microsoft Access - [PATRON_BARCODE : Table]

PATRON_ID	PATRON_BARCODE	BARCODE_STATUS	PATRON_GROUP_ID
1	1234	5	1
1	1234	1	2
2	2345	1	2
4	3456	5	1
4	3456	1	2
5	4567	1	2
5	4567	1	3
6	5678	1	1
7	6789	1	3

Microsoft Access - [PATRON_GROUP : Table]

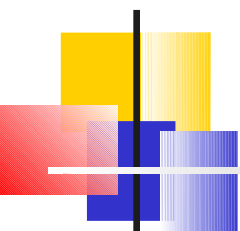
PATRON_GROUP_ID	PATRON_GROUP_NAME
1	Preschool
2	Grade School
3	Special Priv
4	Adult

Question 1: What will this query do?

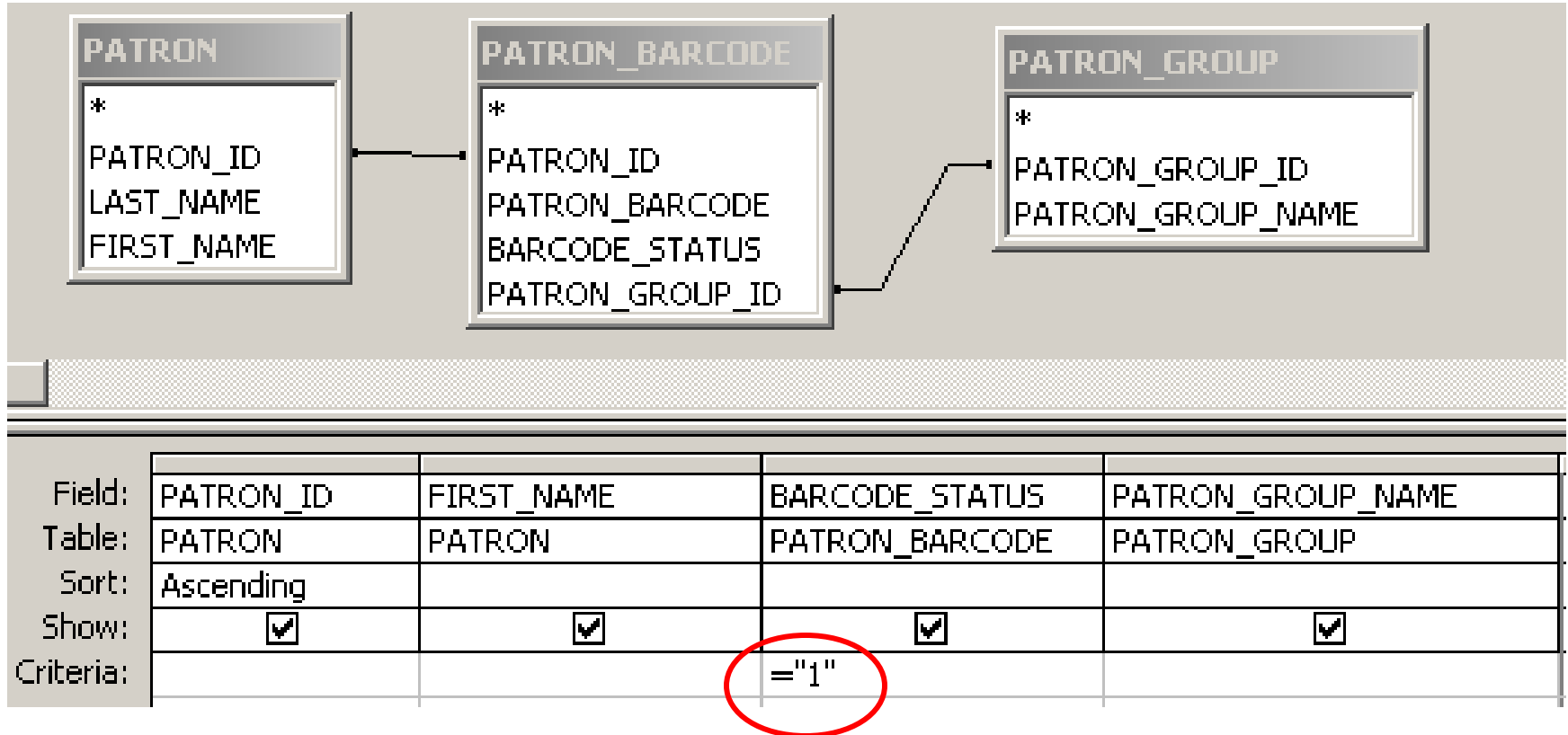


Answer 1:

PATRON_ID	FIRST_NAME	PATRON_BARCODE
1	Charlie	1234
1	Charlie	1234
2	Sally	2345
4	Linus	3456
4	Linus	3456
5	Lucy	4567
5	Lucy	4567
6	Rerun	5678
7	L.	6789

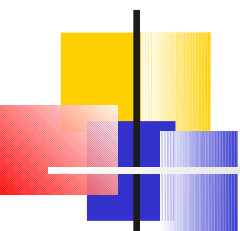


Question 2: What will this query do?



Answer 2:

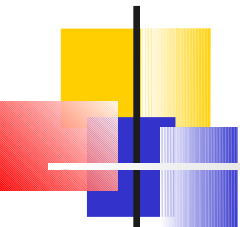
PATRON_ID	FIRST_NAME	BARCODE_STATUS	PATRON_GROUP_NAME
1	Charlie	1	Grade School
2	Sally	1	Grade School
4	Linus	1	Grade School
5	Lucy	1	Special Priv
5	Lucy	1	Grade School
6	Rerun	1	Preschool
7	L.	1	Special Priv



Why the Number of Rows Matters

Fundamentally, when you do counts in Access, you are counting rows...

So let's start counting things.



Create a Query: How many barcodes does each patron have?

The screenshot shows the Microsoft Access Query Design View. Two tables are connected: PATRON and PATRON_BARCODE. The PATRON table has fields PATRON ID, LAST_NAME, and FIRST_NAME. The PATRON_BARCODE table has fields PATRON_ID, PATRON_BARCODE, BARCODE_STATU, and PATRON_GROUP. A red arrow points to the Totals row in the design grid, which is currently empty. Below the design grid is a table showing the field list for the query.

Field:	LAST_NAME	FIRST_NAME	PATRON_BARCODE	
Table:	PATRON	PATRON	PATRON_BARCODE	
Sort:	Ascending	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:				

Create a Query: How many barcodes does each patron have?

The screenshot shows the Microsoft Access Query Design view. Two tables are connected: PATRON and PATRON_BARCODE. The PATRON table has fields PATRON ID, LAST_NAME, and FIRST_NAME. The PATRON_BARCODE table has fields PATRON_ID, PATRON_BARCODE, BARCODE_STATU, and PATRON_GROUP. A relationship line connects PATRON ID in the PATRON table to PATRON_ID in the PATRON_BARCODE table.

Below the design grid is the Query Table:

Field:	LAST_NAME	FIRST_NAME	PATRON_BARCODE
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Group By
Sort:	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

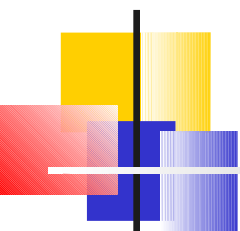
Create a Query: How many barcodes does each patron have?

The screenshot displays the Microsoft Access query design grid and the resulting query table. The design grid shows a relationship between the PATRON table and the PATRON_BARCODE table. The query table shows the fields LAST_NAME, FIRST_NAME, and PATRON_BARCODE, with the total for PATRON_BARCODE set to Count.

Field:	LAST_NAME	FIRST_NAME	PATRON_BARCODE
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Count
Sort:	Ascending	Ascending	Group By
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sum
Criteria:			Avg
or:			Min
			Max
			Count
			StDev
			Var

Create a Query: How many barcodes does each patron have?

LAST_NAME	FIRST_NAME	CountOfPATRON_BAF
Brown	Charlie	2
Brown	Sally	1
Schroeder	L.	1
Van Pelt	Linus	2
Van Pelt	Lucy	2
Van Pelt	Rerun	1



Q: Why did I choose to count the PATRON_BARCODE column?

The image shows a database query design grid with the following fields:

Field:	LAST_NAME	FIRST_NAME	PATRON_BARCODE
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Count
Sort:	Ascending	Ascending	Group By
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sum
Criteria:			Avg
or:			Min
			Max
			Count
			StDev
			Var

A: No particular reason.

These queries give the same results.

Field:	LAST_NAME	FIRST_NAME	BARCODE STATUS
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Count
Sort:	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

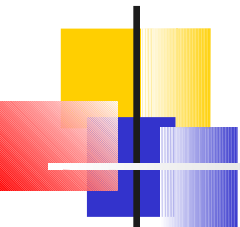
<<< A different field from the PATRON_BARCODE table

Any field from >>> the PATRON table

Field:	LAST_NAME	FIRST_NAME	LAST_NAME
Table:	PATRON	PATRON	PATRON
Total:	Group By	Group By	Count
Sort:	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

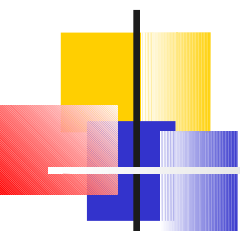
It *almost* doesn't matter which field we choose to count, because...

Fundamentally, when you do counts in Access, you are counting rows...



Notice the name of the counted column.

LAST_NAME	FIRST_NAME	CountOfPATRON_BAF
Brown	Charlie	2
Brown	Sally	1
Schroeder	L.	1
Van Pelt	Linus	2
Van Pelt	Lucy	2
Van Pelt	Rerun	1



Field: LAST_NAME FIRST_NAME BARCODE_STATUS

Table: PATRON PATRON PATRON_BARCODE

Total: Group By Group By Count

Sort: Ascending Ascending

Show:

<<< Access will call this one
CountOfBARCODE_STATU
S

Field: LAST_NAME FIRST_NAME LAST_NAME

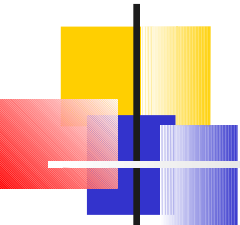
Table: PATRON PATRON PATRON

Total: Group By Group By Count

Sort: Ascending Ascending

Show:

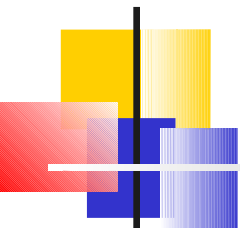
Access will call this one >>>
CountOfLAST_NAME



Changing the column label

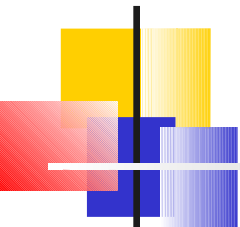
The diagram shows two tables: PATRON and PATRON_BARCODE. PATRON has columns PATRON_ID, LAST_NAME, and FIRST_NAME. PATRON_BARCODE has columns PATRON_ID, PATRON_BARCODE, BARCODE_STATU, and PATRON_GROUP. An arrow points from PATRON_ID in PATRON to PATRON_ID in PATRON_BARCODE.

	Field:	Table:	Total:	Sort:	Show:	Criteria:
	LAST_NAME	PATRON	Group By		<input checked="" type="checkbox"/>	
	FIRST_NAME	PATRON	Group By		<input checked="" type="checkbox"/>	
	Barcodes: PATRON_BARCODE	PATRON_BARCODE	Count		<input checked="" type="checkbox"/>	



That's better.

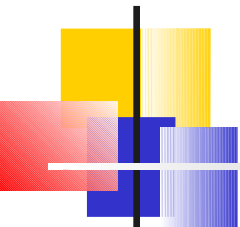
LAST_NAME	FIRST_NAME	Barcodes
Brown	Charlie	2
Brown	Sally	1
Schroeder	L.	1
Van Pelt	Linus	2
Van Pelt	Lucy	2
Van Pelt	Rerun	1



It *almost* doesn't matter which field we choose to count, because...

Fundamentally, when you do counts in Access, you are counting rows...

... except for Null.



Null is a special value that a field can have.

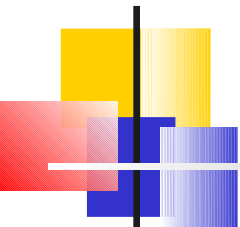
Null means that no value has been filled in.

For text fields, it's different from blank.

For numeric fields, it's different from zero.

Blank and zero are actual values.

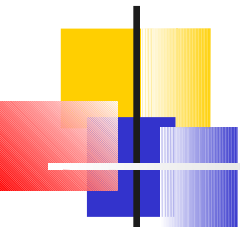
Null means that the database doesn't know what the value is.



Any field could have a value of Null.

But the fields used for joining will NEVER be Null

(unless you do a fancy outer join.)



This matters because...

Fundamentally, when you do counts in Access, you are counting rows...

...where the column you're counting is not null.

So I always choose to Count one of the `_ID` fields.

They'll NEVER be Null (unless you do a fancy outer join).

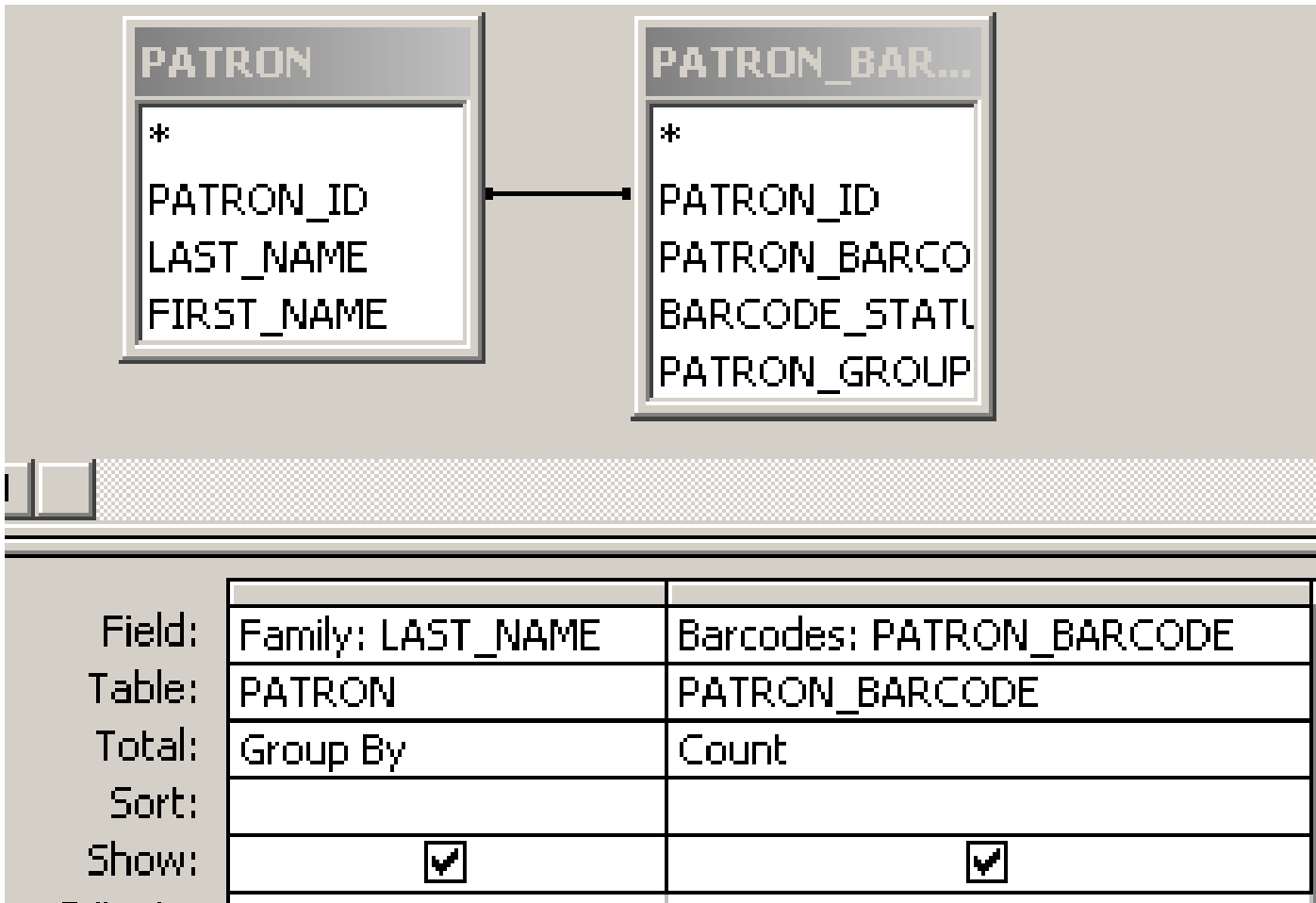
Back to This Query

The screenshot shows a database query design view. At the top, two tables are displayed: **PATRON** and **PATRON_BAR...**. The **PATRON** table contains fields: *** PATRON_ID**, **LAST_NAME**, and **FIRST_NAME**. The **PATRON_BAR...** table contains fields: *** PATRON_ID**, **PATRON_BARCO**, **BARCODE_STATU**, and **PATRON_GROUP**. A relationship line connects the **PATRON_ID** field in both tables. Below the tables is a table grid for the query design.

Field:	LAST_NAME	FIRST_NAME	Barcodes: PATRON_BARCODE
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Count
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

What do I need to change to count barcodes by family?

Barcodes by Family

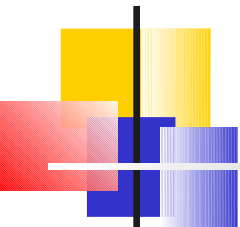


Be SURE that you Group By the right columns!

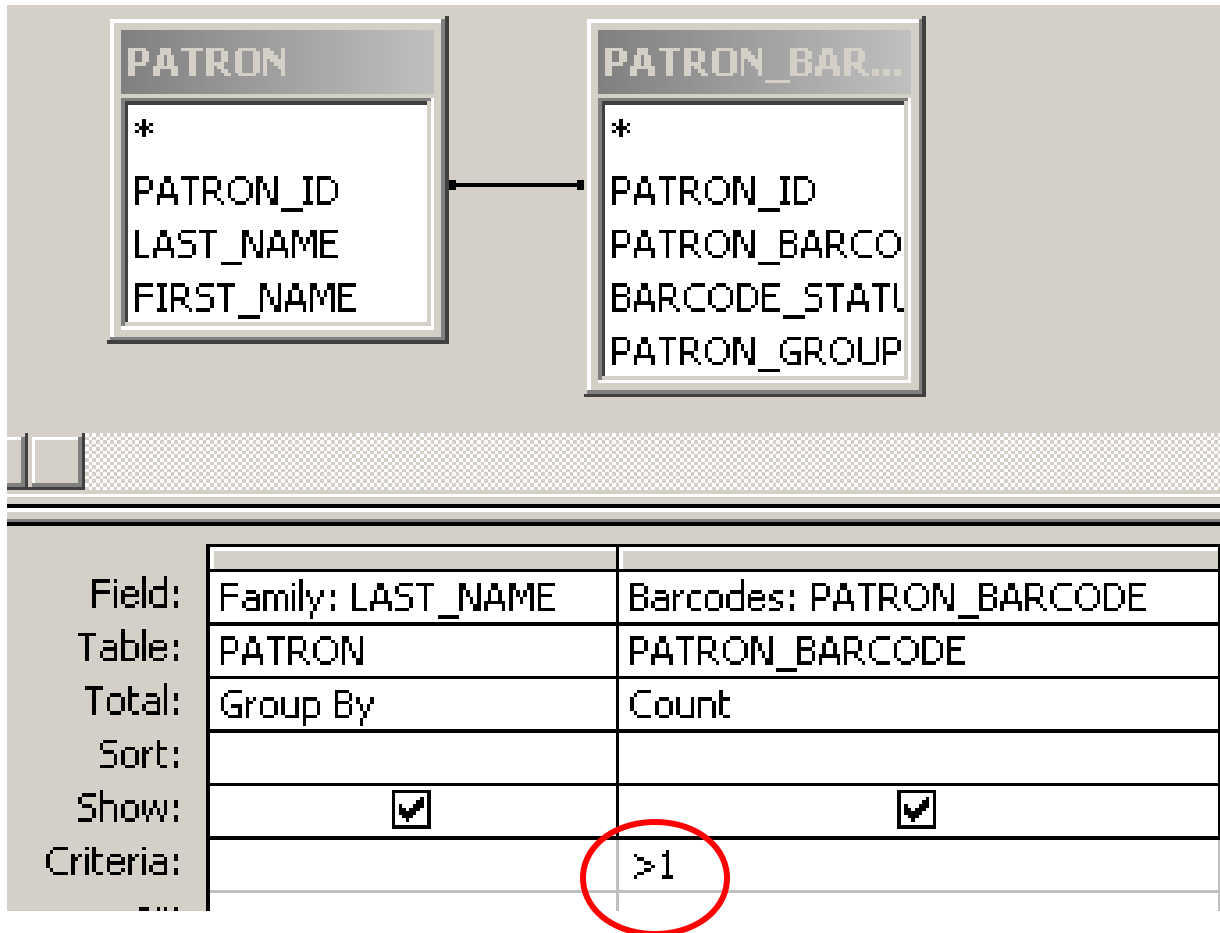
Barcodes per family results

Family	Barcodes
Brown	3
Schroeder	1
Van Pelt	5

Now, which families have more than one barcode?



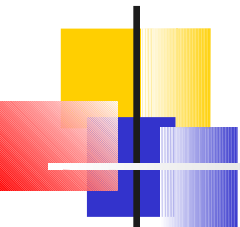
Families with more than one barcode



You can put a criterion on a Counted column.

Families with more than one barcode results

Family	Barcodes
Brown	3
Van Pelt	5



Other things you can do with Group By

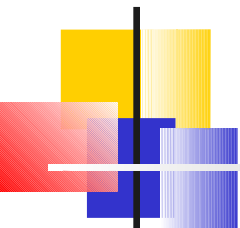
The image shows a database query design grid. At the top, two tables are connected by a line: PATRON and PATRON_BARCODE. PATRON has fields PATRON_ID, LAST_NAME, and FIRST_NAME. PATRON_BARCODE has fields PATRON_ID, PATRON_BARCODE, BARCODE_STATU, and PATRON_GROUP. Below this, a query design grid is shown with the following fields: LAST_NAME (from PATRON), FIRST_NAME (from PATRON), and PATRON_BARCODE (from PATRON_BARCODE). The 'Total' row shows 'Group By' for the first two fields and a dropdown menu for the third. The dropdown menu is open, showing options: Sum, Avg, Min, Max, Count (highlighted), StDev, and Var. The 'Sort' row shows 'Ascending' for the first two fields and 'Group By' for the third. The 'Show' row has checkboxes checked for the first two fields. The 'Criteria' row is empty.

Field:	LAST_NAME	FIRST_NAME	PATRON_BARCODE
Table:	PATRON	PATRON	PATRON_BARCODE
Total:	Group By	Group By	Count
Sort:	Ascending	Ascending	Group By
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Sum
Criteria:			Avg
or:			Min
			Max
			Count
			StDev
			Var

Other things you can do with Group By

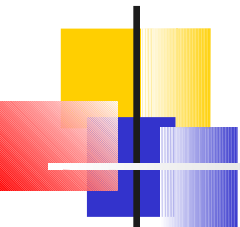
Sum	Total values in a field
Min	Lowest value in a field
Max	Highest value in a field
First	First value in a sorted list
Last	Last value in a sorted list
Avg	Average value in a field
StDev	Standard deviation
Var	Population variance

These are called “Aggregate Functions”.



Some fields in the FINE_FEE table

patron_id	Who owes it
item_id	For what item is the fine owed
create_date	When was the fine assessed
fine_fee_amount	How much was the fine
fine_fee_balance	How much remains to be paid



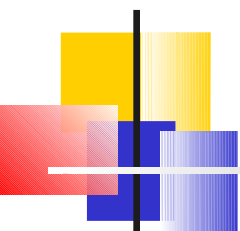
How much does each patron owe?

The image shows a database query design grid with two tables: FINE_FEE and PATRON. The FINE_FEE table has fields: FINE_FEE_ID (marked with an asterisk), PATRON_ID, ITEM_ID, and CREATE_DATE. The PATRON table has fields: PATRON_ID, NAME_TYPE, LAST_NAME, NORMAL_LAS, and FIRST_NAME. A line connects the PATRON_ID field in FINE_FEE to the PATRON_ID field in PATRON. Below the design grid is a table with the following data:

Field:	LAST_NAME	FIRST_NAME	FINE_FEE_BALANCE
Table:	PATRON	PATRON	FINE_FEE
Total:	Group By	Group By	Sum
Sort:	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

How much does each patron owe?

LAST_NAME	FIRST_NAME	SumOFFINE_FEE_BALANCE
Ball	Matthew	34850
Belman	Michael	0
Burke	Jane	1000
Dempsey	David	2000
Drescher	Robert	0
Ham	Jack	0
Hammond	Jeff	1000
Harnish	Kathryn	2000
Lorish	Ann	500
Marhefka	Leslie	0
Morgan	Felicity	0
Obo	Milton	1000



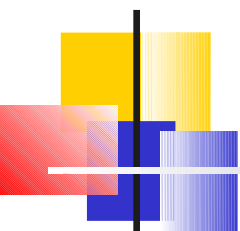
I want to
 rename the SumOfFINE_FEE_BALANCE
 column
 drop the people whose balance is zero

The screenshot shows a Microsoft Access query design grid. The query is named 'FinesOwed'. It includes fields from the 'PATRON' table: 'LAST_NAME', 'FIRST_NAME', and a calculated field 'FinesOwed'. The calculated field is defined as 'CCur([FINE_FEE_BALANCE]/100)'. The criteria for the 'FinesOwed' field is '>0'. A yellow arrow points to the calculated field expression.

Field:	LAST_NAME	FIRST_NAME	FinesOwed: CCur([FINE_FEE_BALANCE]/100)
Table:	PATRON	PATRON	
Total:	Group By	Group By	Sum
Sort:	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			>0

Tidier

LAST_NAME	FIRST_NAME	FinesOwed
Arms	Michele	\$18.00
Ball	Matthew	\$348.50
Burke	Jane	\$10.00
Dempsey	David	\$20.00
Hammond	Jeff	\$10.00
Harnish	Kathryn	\$20.00
Lorish	Ann	\$5.00
Obo	Milton	\$10.00
Smith	Donna	\$45.00
Smith	Sandy	\$25.00
Wentworth	Phillip	\$10.00



LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed
Arms	Michele	8/4/2000 3:30:58 PM	\$3.00
Arms	Michele	8/4/2000 3:29:42 PM	\$15.00
Ball	Matthew	12/16/1998 10:58:37 AM	\$20.00
Ball	Matthew	12/8/1999 4:04:10 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/16/1998 10:58:37 AM	\$20.00
Ball	Matthew	12/16/1998 10:58:36 AM	\$20.00
Ball	Matthew	12/8/1999 4:04:10 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	5/18/1999 5:52:56 PM	\$8.50
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$20.00
Ball	Matthew	12/16/1998 10:58:37 AM	\$20.00
Ball	Matthew	12/8/1999 4:04:10 PM	\$20.00
Ball	Matthew	12/8/1999 4:04:10 PM	\$20.00
Burke	Jane	8/1/2000 5:24:37 PM	\$10.00
Dempsey	David	12/8/1999 4:04:11 PM	\$10.00
Dempsey	David	12/8/1999 4:04:11 PM	\$10.00
Hammond	Jeff	12/16/1998 10:58:36 AM	\$10.00
Harnich	Kathryn	12/11/1999 2:27:54 PM	\$20.00

Limiting to fines that accrued before

1/1/2000

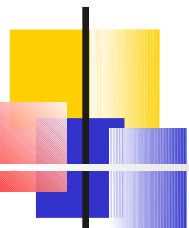
The screenshot shows a Microsoft Access query design grid. The design grid has four columns and several rows. The columns are labeled 'Field:', 'Table:', 'Total:', 'Sort:', 'Show:', and 'Criteria:'. The rows represent different fields: LAST_NAME, FIRST_NAME, CREATE_DATE, and FinesOwed. The 'Table:' row shows that LAST_NAME and FIRST_NAME are from the PATRON table, while CREATE_DATE and FinesOwed are from the FINE_FEE table. The 'Total:' row shows 'Group By' for the first three columns and 'Sum' for the last. The 'Sort:' row shows 'Ascending' for the first two columns. The 'Show:' row has checkboxes checked for the first three columns. The 'Criteria:' row has the criterion '<#1/1/2000#' for the CREATE_DATE field and '>0' for the FinesOwed field.

Field:	LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed: CCur([FINE_FEE_BALANCE]/100)
Table:	PATRON	PATRON	FINE_FEE	
Total:	Group By	Group By	Group By	Sum
Sort:	Ascending	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			<#1/1/2000#	>0

I added the CREATE_DATE column and entered the criterion.

Uh-oh! Why didn't I get totals by patron?

LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed
Ball	Matthew	12/8/1999 4:04:10 PM	\$80.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$180.00
Ball	Matthew	5/18/1999 5:52:56 PM	\$8.50
Ball	Matthew	12/16/1998 10:58:37 AM	\$60.00
Ball	Matthew	12/16/1998 10:58:36 AM	\$20.00
Dempsey	David	12/8/1999 4:04:11 PM	\$20.00
Hammond	Jeff	12/16/1998 10:58:36 AM	\$10.00
Harnish	Kathryn	12/11/1999 3:27:54 PM	\$20.00
Smith	Donna	12/10/1999 2:00:53 PM	\$45.00
Smith	Sandy	12/16/1998 10:58:37 AM	\$20.00
Smith	Sandy	10/16/1997 3:14:07 PM	\$5.00
Wentworth	Phillip	9/26/1997 10:07:24 AM	\$10.00



Because I didn't ask for totals by patron.

The screenshot shows a Microsoft Access query design grid. The design grid is divided into two columns: 'PATRON' and 'FINE_FEE'. The 'PATRON' table has fields: PATRON_ID, NAME_TYPE, LAST_NAME, NORMAL_LAS, and FIRST_NAME. The 'FINE_FEE' table has fields: FINE_FEE_ID, PATRON_ID, ITEM_ID, and CREATE_DATE. A red oval highlights the 'Total' row, which is set to 'Group By' for the first three fields. The 'Criteria' row shows a condition '<#1/1/2000#' for the 'CREATE_DATE' field and '>0' for the calculated field 'FinesOwed: CCur([FINE_FEE_BALANCE]/100)'.

Field:	LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed: CCur([FINE_FEE_BALANCE]/100)
Table:	PATRON	PATRON	FINE_FEE	
Total:	Group By	Group By	Group By	Sum
Sort:	Ascending	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			<#1/1/2000#	>0

I asked for totals by patron AND create_date.

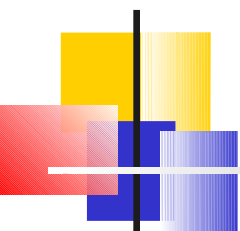
Use Where for columns that are only for criteria, not for grouping or calculating.

The image shows a Microsoft Access query design grid and a query table. The design grid shows two tables: FINE_FEE and PATRON. The FINE_FEE table has fields: FINE_FEE_ID (primary key), PATRON_ID, ITEM_ID, and CREATE_DATE. The PATRON table has fields: PATRON_ID (primary key), NAME_TYPE, LAST_NAME, NORMAL_LAS, and FIRST_NAME. The query table shows the following fields and criteria:

Field:	LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed: CCur([FINE_FEE_BALANCE]/100)
Table:	PATRON	PATRON	FINE_FEE	
Total:	Group By	Group By	Where	Sum
Sort:	Ascending	Ascending	Max	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Count	<input checked="" type="checkbox"/>
Criteria:			StDev	>0
or:			Var	
			First	
			Last	
			Expression	
			Where	

Ah!

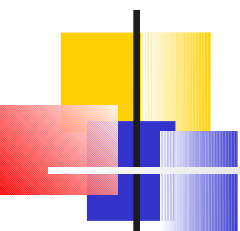
LAST_NAME	FIRST_NAME	FinesOwed
Ball	Matthew	\$348.50
Dempsey	David	\$20.00
Hammond	Jeff	\$10.00
Harnish	Kathryn	\$20.00
Smith	Donna	\$45.00
Smith	Sandy	\$25.00
Wentworth	Phillip	\$10.00



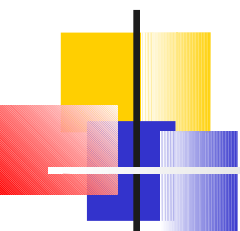
Another variation: Highest non-zero fine that accrued before 1/1/2000

The screenshot shows a Microsoft Access query design grid. At the top, two tables are displayed: **FINE_FEE** and **PATRON**. The **FINE_FEE** table contains fields: *** FINE_FEE_ID**, **PATRON_ID**, **ITEM_ID**, and **CREATE_DATE**. The **PATRON** table contains fields: **PATRON_ID**, **NAME_TYPE**, **LAST_NAME**, **NORMAL_LAS**, and **FIRST_NAME**. Below the tables is a query design grid with the following structure:

Field:	LAST_NAME	FIRST_NAME	CREATE_DATE	MaxFineOwed: CCur([FINE_FEE_BALANCE]/100)
Table:	PATRON	PATRON	FINE_FEE	
Total:	Group By	Group By	Where	Max
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			<#1/1/2000#	>0



LAST_NAME	FIRST_NAME	MaxFineOwed
Ball	Matthew	\$20.00
Dempsey	David	\$10.00
Hammond	Jeff	\$10.00
Harnish	Kathryn	\$20.00
Smith	Donna	\$10.00
Smith	Sandy	\$10.00
Wentworth	Phillip	\$10.00

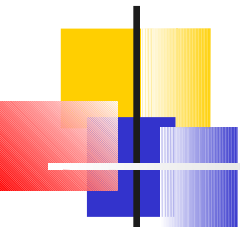


New query: How many items are currently charged to each patron group?

Items currently charged are in the CIRC_TRANSACTIONS table.

patron_group_id tells the patron group.

I can link to the PATRON_GROUP table to get the patron_group_code.



Current Circ Transactions, by Patron Group

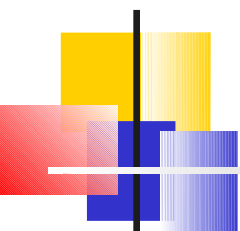
CIRC_TRANSACTIONS

- PATRON_ID
- PATRON_ID_PROXY
- PATRON_GROUP_ID
- CHARGE_DATE
- CHARGE_LOCATION

PATRON_GROUP

- *
- PATRON_GROUP_ID**
- PATRON_GROUP_CODE
- PATRON_GROUP_NAME
- PATRON_GROUP_DISPLAY

Field:	PATRON_GROUP_CODE	CurrentCharges: PATRON_GROUP_ID
Table:	PATRON_GROUP	PATRON_GROUP
Total:	Group By	Count
Sort:	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		



Current Circ Transactions, by Patron Group

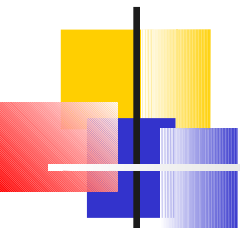
PATRON_GROUP_CODE	CurrentCharges
AL	13
FC	317
GR	111
IL	165
LL	17
LU	227
UBIN	1
UBLong	129
UBNonCirc	1
UBReg	169
UG	299

What do I have to do to add patron group name?

Current Circ Transactions, by Patron Group

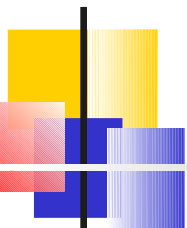
Field:	PATRON_GROUP_CODE	PATRON_GROUP_NAME	CurrentCharges: PATRON_GROUP_ID
Table:	PATRON_GROUP	PATRON_GROUP	PATRON_GROUP
Total:	Group By	Group By	Count
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

Am I Grouping By the right columns?



Current Circ Transactions, by Patron Group

PATRON_GROUP_CODE	PATRON_GROUP_NAME	CurrentCharges
AL	ALUM	13
FC	FACULTY	317
GR	GRAD STDNT	111
IL	INTERLIB	165
LL	LOCAL LOPRV	17
LU	LIBRARYUSE	227
UBIN	UBIN	1
UBLong	UBLong	129
UBNonCirc	UBNonCirc	1
UBReg	UBReg	169
UG	UNDERGRAD	299

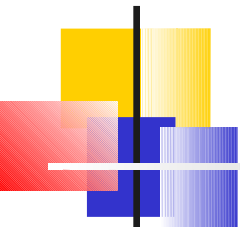


Do people renew my materials very much?

Let's look at circ transactions that were completed in the last year and see how many renewals there are on them.

Some fields in the CIRC_TRANS_ARCHIVE table:

discharge_date
renewal_count

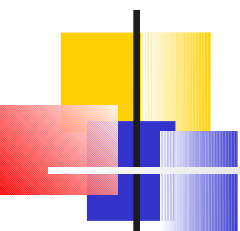


Circ Transactions by Renewal Count

CIRC_TRANS_ARCHIVE

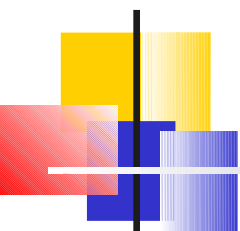
*
CIRC_TRANSACTION_ID
 ITEM_ID
 CIRC_POLICY_MATRIX_ID
 PATRON_GROUP_ID

Field:	RENEWAL_COUNT	NumTransactions: CIRC_TRANSACTION_ID	DISCHARGE_DATE
Table:	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE
Total:	Group By	Count	Where
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:			>#1/1/2009#



Circ Transactions by Renewal Count

RENEWAL_COUNT	NumTransactions
0	20729
1	3106
2	693
3	376
4	412
5	26
6	4
7	6
8	1
9	1

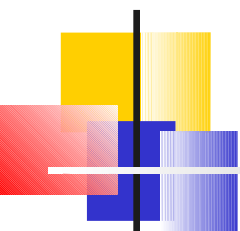


Circ Transactions Completed since 1/1/2009, by Renewal Count

CIRC_TRANS_ARCHIVE

*
CIRC_TRANSACTION_ID
ITEM_ID
CIRC_POLICY_MATRIX_ID
PATRON_GROUP_ID

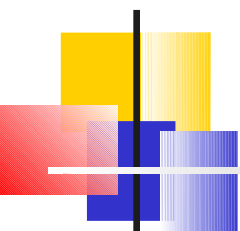
Field:	RENEWAL_COUNT	NumTransactions: CIRC_TRANSACTION_ID	DISCHARGE_DATE
Table:	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE
Total:	Group By	Count	Where
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:			>#1/1/2009#



Circ Transactions Completed in the Last 365 Days, by Renewal Count

CIRC_TRANS_ARCHIVE			
*			
CIRC_TRANSACTION_ID			
ITEM_ID			
CIRC_POLICY_MATRIX_ID			
PATRON_GROUP_ID			

Field:	RENEWAL_COUNT	NumTransactions: CIRC_TRANSACTION_ID	DISCHARGE_DATE
Table:	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE
Total:	Group By	Count	Where
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:			>Now()-365



Circ Transactions Completed between Specified Dates, by Renewal Count

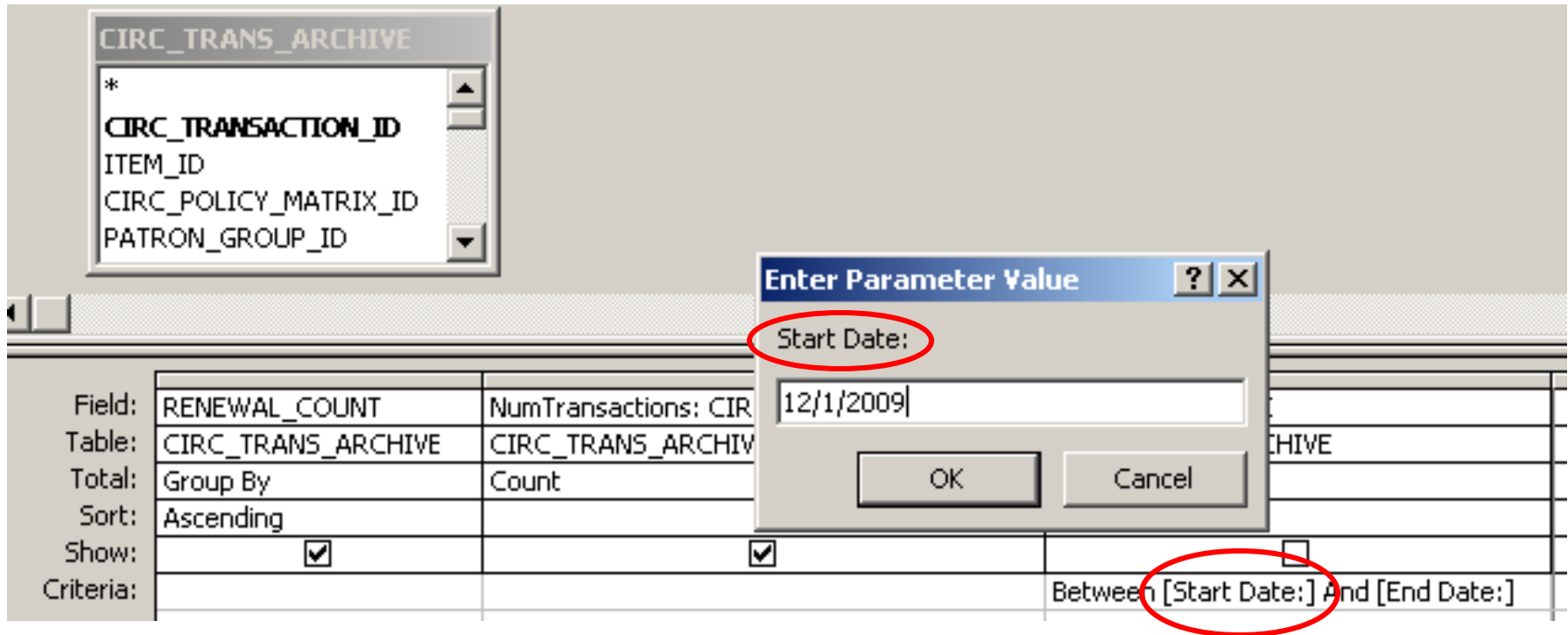
The screenshot shows a database query interface. At the top, a window titled "CIRC_TRANS_ARCHIVE" contains a list of fields: CIRC_TRANSACTION_ID, ITEM_ID, CIRC_POLICY_MATRIX_ID, and PATRON_GROUP_ID. Below this, a table structure is displayed with the following columns: RENEWAL_COUNT, NumTransactions: CIRC_TRANSACTION_ID, and DISCHARGE_DATE. The table is grouped by RENEWAL_COUNT and sorted in ascending order. The criteria for the query are defined as "Between [Start Date:] And [End Date:]", which is circled in red.

Field:	RENEWAL_COUNT	NumTransactions: CIRC_TRANSACTION_ID	DISCHARGE_DATE
Table:	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCHIVE
Total:	Group By	Count	Where
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:			Between [Start Date:] And [End Date:]

This is an example of a Parameter Query.

It has 2 parameters, "Start Date:" and "End Date:"

It prompts me for a start date.



I think I'll run this for December, 2009.

It prompts me for an end date.

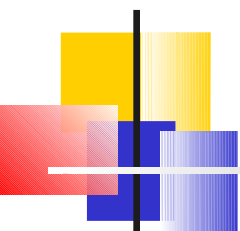
The screenshot shows a database application interface. On the left, a window titled 'CIRC_TRANS_ARCHIVE' contains a list of fields: CIRC_TRANSACTION_ID, ITEM_ID, CIRC_POLICY_MATRIX_ID, and PATRON_GROUP_ID. Below this is a table with columns for Field, Table, Total, Sort, Show, and Criteria. The 'Criteria' row shows a date range filter: 'Between [Start Date:] And [End Date:]'. A dialog box titled 'Enter Parameter Value' is overlaid on the table, with 'End Date:' and the date '1/1/2010' circled in red. The dialog has 'OK' and 'Cancel' buttons.

Field:	Table:	Total:	Sort:	Show:	Criteria:
RENEWAL_COUNT	CIRC_TRANS_ARCHIVE	NumTransactions: C	Group By	<input checked="" type="checkbox"/>	
	CIRC_TRANS_ARCH	Count	Ascending	<input checked="" type="checkbox"/>	
				<input type="checkbox"/>	Between [Start Date:] And [End Date:]

If I'm running this for December, 2009, why did I enter 1/1/2010 as the end date?

Most date fields in Voyager have the date AND the time. Remember this?

LAST_NAME	FIRST_NAME	CREATE_DATE	FinesOwed
Ball	Matthew	12/8/1999 4:04:10 PM	\$80.00
Ball	Matthew	12/8/1999 4:04:09 PM	\$180.00
Ball	Matthew	5/18/1999 5:52:56 PM	\$8.50
Ball	Matthew	12/16/1998 10:58:37 AM	\$60.00
Ball	Matthew	12/16/1998 10:58:36 AM	\$20.00
Dempsey	David	12/8/1999 4:04:11 PM	\$20.00
Hammond	Jeff	12/16/1998 10:58:36 AM	\$10.00
Harnish	Kathryn	12/11/1999 3:27:54 PM	\$20.00
Smith	Donna	12/10/1999 2:00:53 PM	\$45.00
Smith	Sandy	12/16/1998 10:58:37 AM	\$20.00
Smith	Sandy	10/16/1997 3:14:07 PM	\$5.00
Wentworth	Phillip	9/26/1997 10:07:24 AM	\$10.00



A date without a time defaults in 12:00 a.m. the morning of the date given.

The screenshot shows a database application interface. On the left, a table view for 'CIRC_TRANS_ARCHIVE' is visible. The table has the following structure:

Field:	RENEWAL_COUNT	NumTransactions: C	DATE
Table:	CIRC_TRANS_ARCHIVE	CIRC_TRANS_ARCH	ARCHIVE
Total:	Group By	Count	
Sort:	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:			Between [Start Date:] And [End Date:]

An 'Enter Parameter Value' dialog box is open, showing the 'End Date' field with the value '1/1/2010' entered. The dialog box has 'OK' and 'Cancel' buttons.

If I entered 12/31/2009, I would miss transactions done on 12/31/2009 after 12:00 a.m.

New Query: How many times have items circulated in the last 5 years?

I want to include both current and completed circ transactions.

So I'll use "Circulation Transactions (Charges)"

It combines CIRC_TRANSACTIONS and
CIRC_TRANS_ARCHIVE

I want the results in shelf order
i.e., location and call#

I want the charge count and the date of the most recent charge.

Finding Circulation Transactions (Charges)

The screenshot displays a database interface with several tables and their relationships. The tables shown are:

- ITEM**: ITEM_ID, PERM_LOCATION, TEMP_LOCATION, ITEM_TYPE_ID
- MFHD_ITEM**: MFHD_ID, ITEM_ID, ITEM_ENUM, CHRON
- MFHD_MASTER**: MFHD_ID, LOCATION_ID, CALL_NO_TYPE, NORMALIZED_CALL_NO, DISPLAY_CALL_NO
- LOCATION**: LOCATION_ID, LOCATION_CODE, LOCATION_NAME, LOCATION_DISPLAY
- ITEM_BARCODE**: ITEM_ID, ITEM_BARCODE, BARCODE_STATUS, BARCODE_STATUS_DATE

Relationships are indicated by arrows: ITEM_ID in MFHD_ITEM points to ITEM_ID in ITEM; MFHD_ID in MFHD_MASTER points to MFHD_ID in MFHD_ITEM; LOCATION_ID in MFHD_MASTER points to LOCATION_ID in LOCATION; and ITEM_ID in ITEM_BARCODE points to ITEM_ID in ITEM.

A 'Show Table' dialog box is open, showing a list of tables. The 'Tables' tab is selected, and the 'ITEM BARCODE' table is highlighted. A red circle is drawn around the 'Tables' tab label.

Below the table list, there are fields for 'Field:', 'Table:', 'Sort:', 'Show:', and 'Criteria:'. The 'Show:' field has two checkboxes, both of which are unchecked.

Finding Circulation Transactions (Charges)

The screenshot displays a database interface with several tables and their relationships:

- ITEM**: * ITEM_ID, PERM_LOCATION, TEMP_LOCATION, ITEM_TYPE_ID
- MFHD_ITEM**: * MFHD_ID, ITEM_ID, ITEM_ENUM, CHRON
- MFHD_MASTER**: * MFHD_ID, LOCATION_ID, CALL_NO_TYPE, NORMALIZED_CALL_NO, DISPLAY_CALL_NO
- LOCATION**: * LOCATION_ID, LOCATION_CODE, LOCATION_NAME, LOCATION_DISPLAY
- ITEM_BARCODE**: * ITEM_ID, ITEM_BARCODE, BARCODE_STATUS, BARCODE_STATUS_DATE

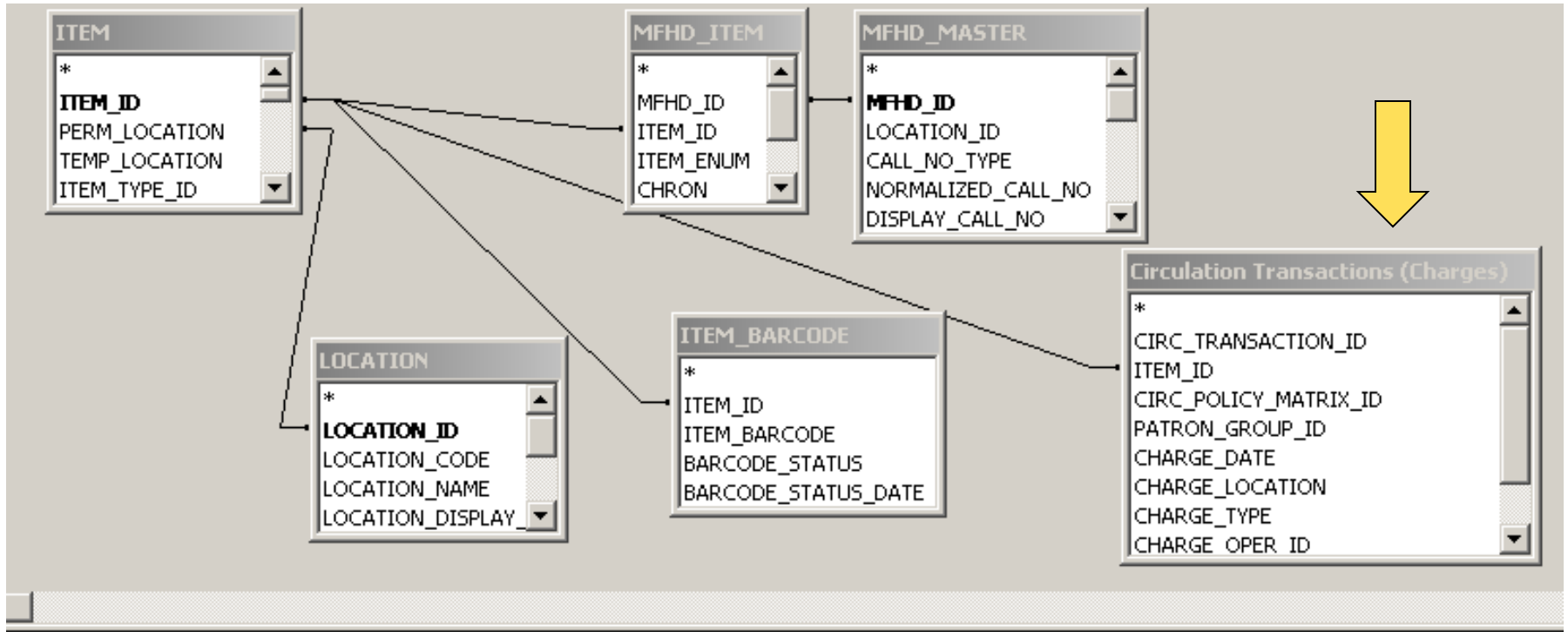
Relationships are indicated by arrows: ITEM to MFHD_ITEM, MFHD_ITEM to MFHD_MASTER, ITEM to LOCATION, and ITEM to ITEM_BARCODE.

In the bottom right, a **Show Table** dialog box is open. The **Queries** tab is selected and circled in red. The list of queries includes:

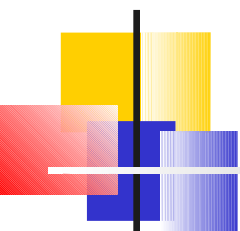
- Cannot delete patron
- Charge and Renew with HapLoc and Date
- Circulation intervals set in System Administr...
- Circulation Stat 1: Circulation by Item Locati
- Circulation Stat 2: Circulation by Happening
- Circulation Stat 3: Circulation by Patron Gro
- Circulation Stat 4: Serial Circulation
- Circulation Stat 5: Comprehensive Circulatio
- Circulation Transactions (Charges)** (highlighted)
- Circulation Transactions (Renewals)
- Circulation Transactions by Dewey Decimal C
- Circulation Transactions by Item Statistical C
- Circulation Transactions by Library of Congr

Below the dialog box, a table structure is visible with columns for Field, Table, Sort, Show, Criteria, and Operator.

Finding Circulation Transactions (Charges)



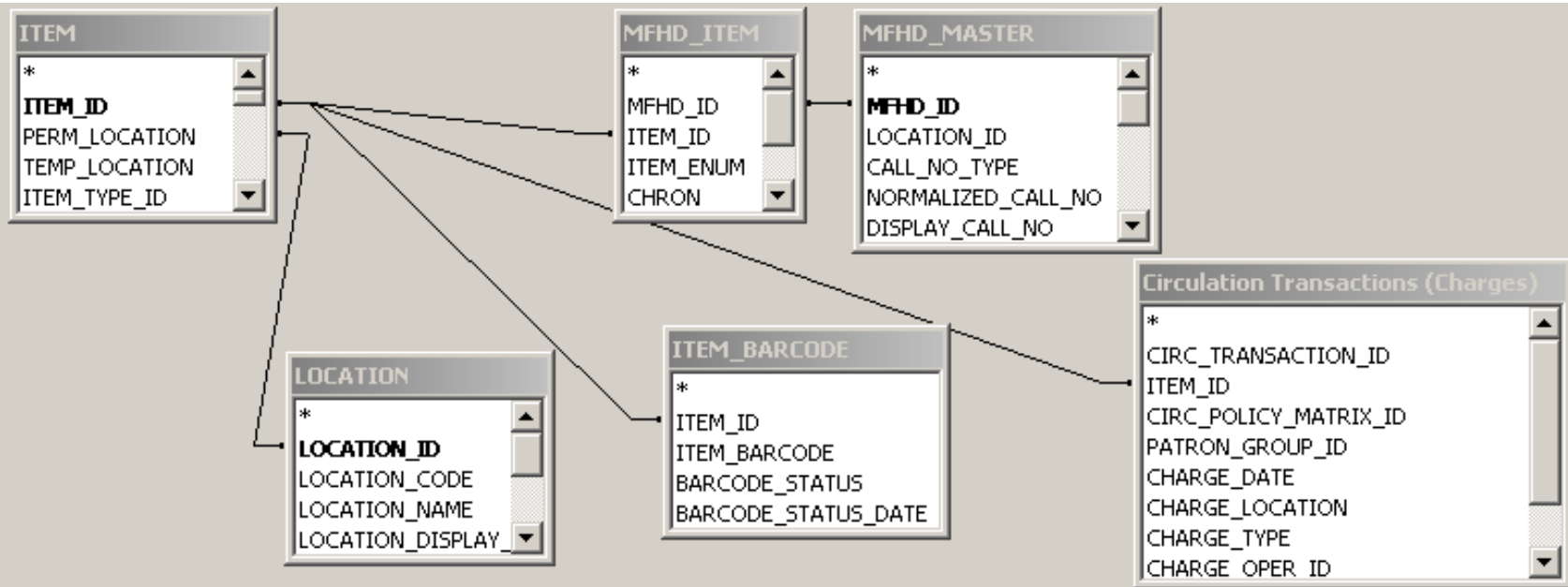
Field:	LOCATION_CODE	DISPLAY_CALL_NO	NORMALIZED_CALL_NO	ITEM_BARCODE	CHARGE_DATE	
Table:	LOCATION	MFHD_MASTER	MFHD_MASTER	ITEM_BARCODE	Circulation Transactions (Charges)	
Sort:	Ascending		Ascending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:					>#1/1/2005#	



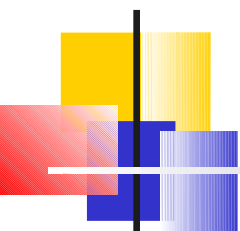
So far, so good. Now let's add the grouping.

LOCATION_CODE	DISPLAY_CALL_NO	ITEM_BARCODE	CHARGE_DATE
archiv	Archives 267.5 Wi	32511000011348	7/6/2007 12:02:35 PM
CIRC		32511000233393	3/3/2005 3:10:38 PM
CIRC		32511000233393	10/14/2009 1:34:20 PM
CIRC		32511000233393	10/4/2007 11:26:21 AM
CIRC		32511000233393	3/21/2007 1:49:13 PM
CIRC		32511000233393	5/23/2006 4:58:01 PM
CIRC		32511000233393	3/23/2005 10:49:36 AM
CIRC		32511000233393	1/12/2006 6:35:21 PM
CIRC		32511000233393	2/21/2006 8:10:48 PM
CIRC		32511000233393	9/22/2006 2:22:39 PM
CIRC		32511000233393	6/13/2005 11:01:15 AM
CIRC		32511000233393	4/25/2006 1:33:48 PM
CIRC	155.418 STR	32511000004561	7/28/2009 1:42:21 PM
CIRC	155.418 STR	32511000004561	2/20/2007 3:00:12 PM
CIRC	155.418 STR	32511000004561	3/23/2009 12:34:23 PM
CIRC	230.0924 BO-E	32511000009438	2/22/2006 3:34:25 PM
CIRC	296.02 AUS	32511000012373	3/2/2009 9:34:13 PM
CIRC	302.23 EME	32511000013375	11/17/2006 3:02:26 PM
CIRC	302.23 EME	32511000013375	4/9/2008 8:22:10 PM
CIRC	302.23 EME	32511000013375	9/7/2007 4:54:41 PM
CIRC	610.7301 NAT	32511000038689	10/10/2008 1:28:03 PM
CIRC	610.7301 NAT	32511000038689	10/6/2009 12:27:32 PM
CIRC	610.7301 NAT	32511000038689	10/10/2008 1:27:08 PM

Adding the Grouping

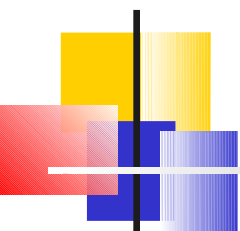


Field:	LOCATION_CODE	DISPLAY_CALL_NO	NORMALIZED_CALL_NO	ITEM_BARCODE	LastCharge: CHARGE_DATE	ChargeCount: ITEM_ID
Table:	LOCATION	MFHD_MASTER	MFHD_MASTER	ITEM_BARCODE	Circulation Transactions (Charges)	ITEM
Total:	Group By	Group By	Group By	Group By	Max	Count
Sort:	Ascending		Ascending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					>#1/1/2005#	

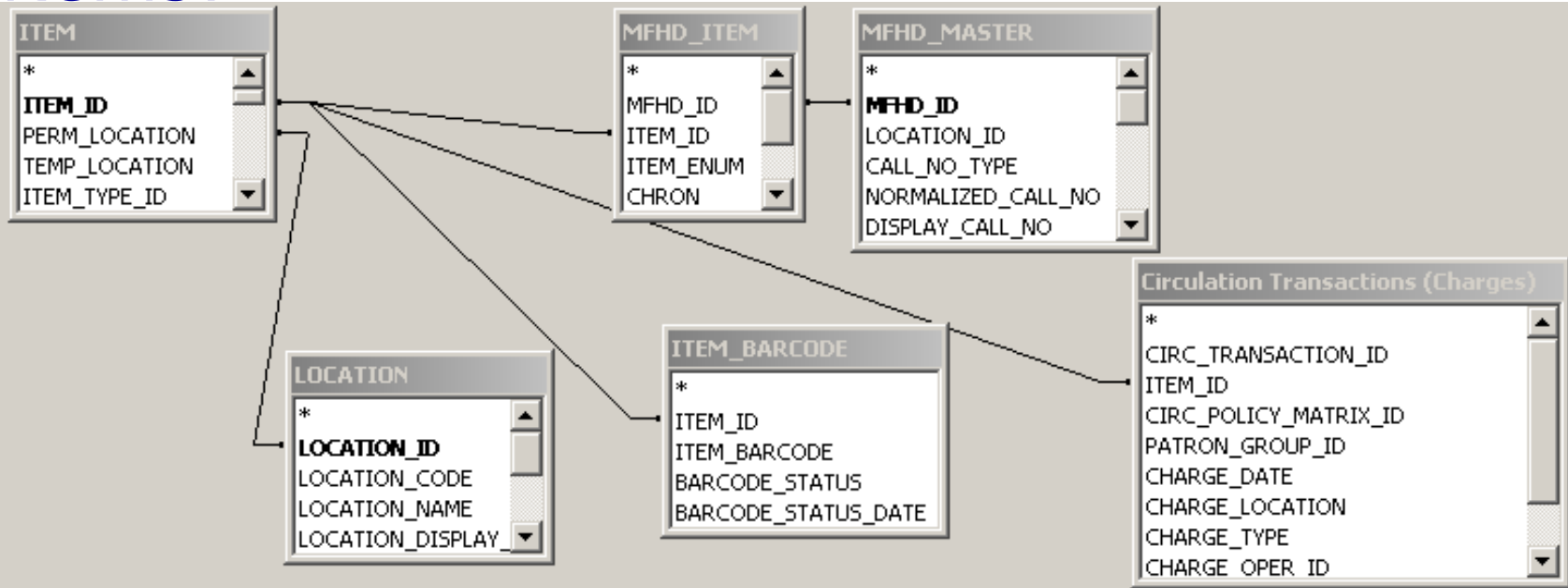


With the Grouping

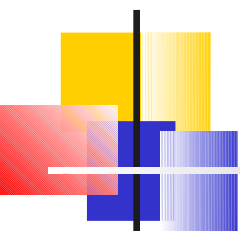
LOCATION_CODE	DISPLAY_CALL_NO	ITEM_BARCODE	LastCharge	ChargeCount
archiv	Archives 267.5 Wi	32511000011348	7/6/2007 12:02:35 PM	1
CIRC		32511000233393	10/14/2009 1:34:20 PM	14
CIRC	155.418 STR	32511000004561	7/28/2009 1:42:21 PM	4
CIRC	230.0924 BO-E	32511000009438	2/22/2006 3:34:25 PM	1
CIRC	296.02 AUS	32511000012373	3/2/2009 9:34:13 PM	1
CIRC	302.23 EME	32511000013375	4/9/2008 8:22:10 PM	3
CIRC	610.7301 NAT	32511000038689	10/6/2009 12:27:32 PM	6
CIRC	940.5481 LEC	32511000065266	10/14/2009 3:31:57 PM	5
CIRC	946 Wil	32511000242104	4/22/2009 3:31:08 PM	3
CIRC	970 BAN	32511000067450	11/11/2009 4:21:39 PM	1
CIRC	977.02 ROO	32511000070659	10/7/2009 11:43:33 AM	1



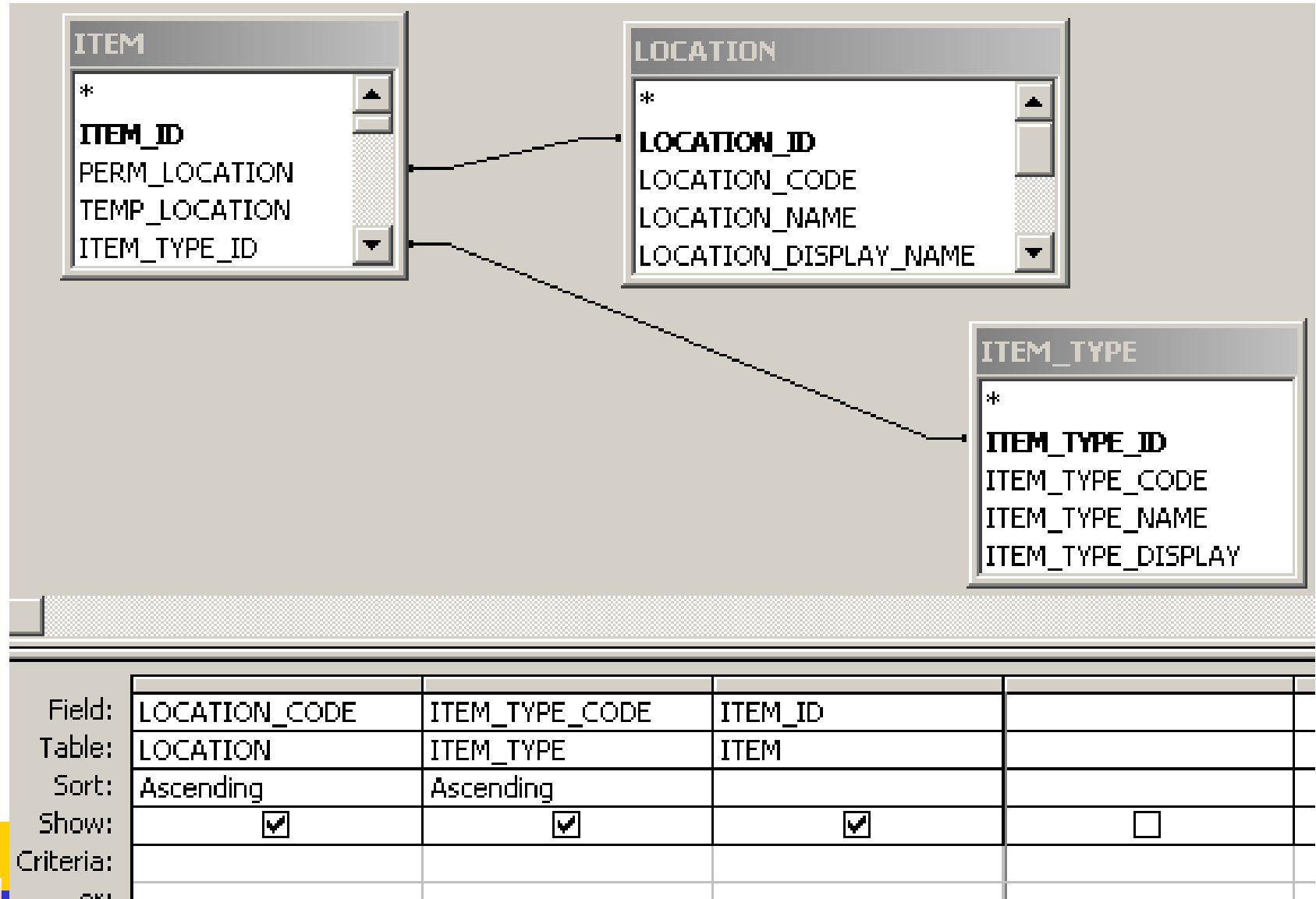
Is this a shelf list? Does it list all my items?



Field:	LOCATION_CODE	DISPLAY_CALL_NO	NORMALIZED_CALL_NO	ITEM_BARCODE	LastCharge: CHARGE_DATE	ChargeCount: ITEM_ID
Table:	LOCATION	MFHD_MASTER	MFHD_MASTER	ITEM_BARCODE	Circulation Transactions (Charges)	ITEM
Total:	Group By	Group By	Group By	Group By	Max	Count
Sort:	Ascending		Ascending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					>#1/1/2005#	



Items by Permanent Location and Item Type

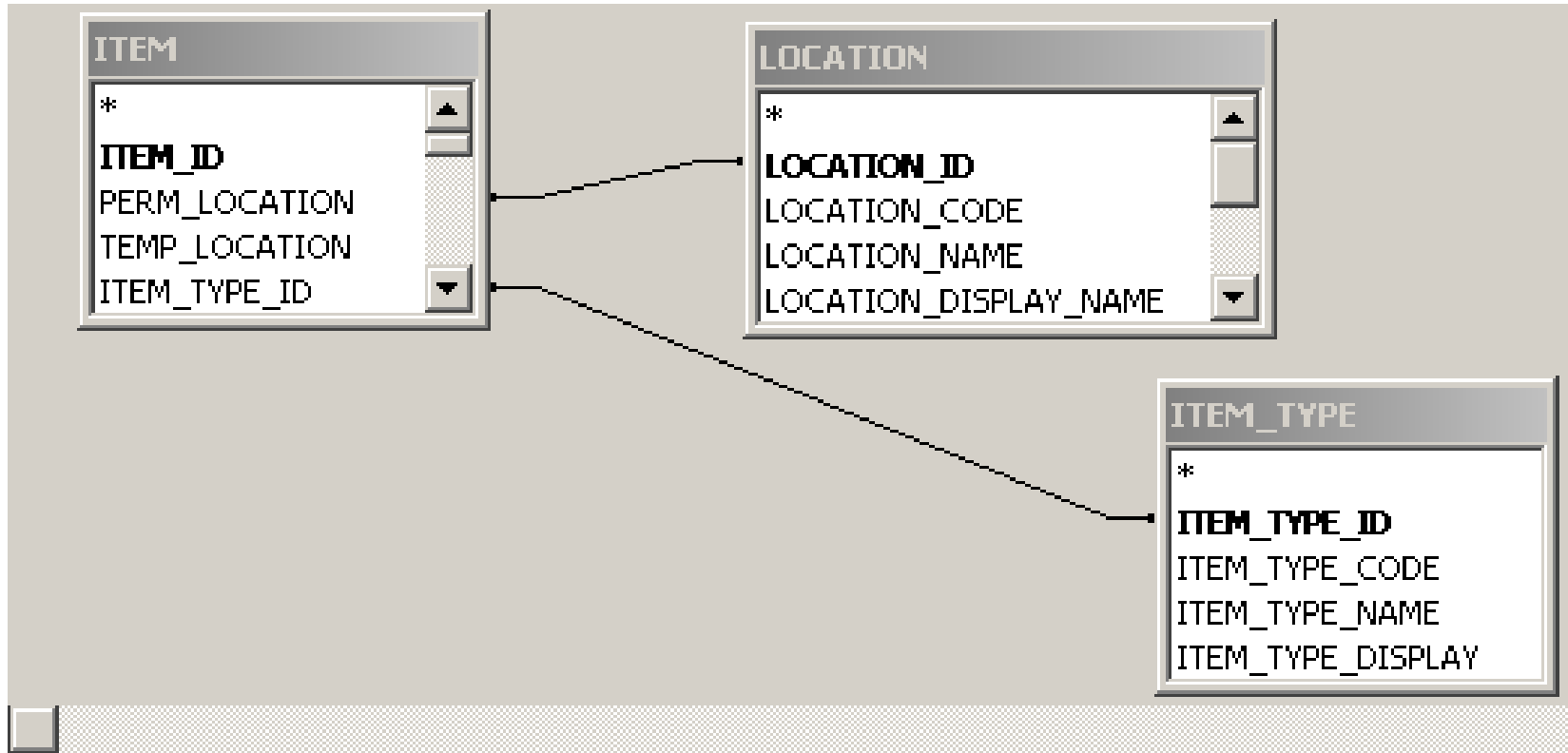


Items by Permanent Location and Item Type

LOCATION_CODE	ITEM_TYPE_CODE	ITEM_ID
CIRC	AV1	124569
CIRC	Book1	146875
CIRC	Book1	146993
CIRC	Book1	146252
CIRC	Book1	138200
CIRC	Book1	146686
CIRC	Book1	73856
CIRC	Book1	1565
CIRC	Book1	15196
CIRC	Book1	28174
CIRC	Book1	75344
CIRC	Book1	40100
CIRC	Book1	55708
CIRC	Book1	51222
CIRC	Book1	25427
RESER	Book1	148008
RESER	Book1	137294
RESER	Book1	146295
RESER	Book1	138233
RESER	Recording1	148001
RESER	Reserve1	143119

So far, so good. Let's do the grouping.

Items by Perm Loc and Item Type: Totals



Field:	LOCATION_CODE	ITEM_TYPE_CODE	ITEM_ID	
Table:	LOCATION	ITEM_TYPE	ITEM	
Total:	Group By	Group By	Count	
Sort:	Ascending	Ascending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:				



Items by Perm Loc and Item Type: Totals

LOCATION_CODE	ITEM_TYPE_CODE	CountOfITEM_ID
CIRC	AV1	1
CIRC	Book1	14
RESER	Book1	4
RESER	Recording1	1
RESER	Reserve1	109
RESER	Reserve3	20
SCCIRC	BookLR	2
SCCIRC	BookN	1
archiv	AVN	1
archiv	ArchiveN	102
archiv	Book1	1
archiv	BookN	45
error	Book1	1
error	Error	107
imc	AV1	108
imc	Book1	56
imc	BookLR	1229
imc	BookN	7
imc	Video1	218
imcref	BookN	9
jenks	Book1	1
jenks	BookN	6955
jenks	RecordingN	42
jenks	SerialN	3
jenks	Video1	1

Items by Perm Loc and Item Type: Crosstab

The screenshot shows the Microsoft Access Query Design View. Three tables are included in the design grid:

- ITEM**: ITEM_ID, PERM_LOCATION, TEMP_LOCATION, ITEM_TYPE_ID
- LOCATION**: LOCATION_ID, LOCATION_CODE, LOCATION_NAME, LOCATION_DISPLAY
- ITEM_TYPE**: ITEM_TYPE_ID, ITEM_TYPE_CODE, ITEM_TYPE_NAME, ITEM_TYPE_DISPLAY

A context menu is open over the ITEM_TYPE table, with the following options:

- Select Query
- Crosstab Query** (highlighted)
- Make-Table Query...
- Update Query
- Append Query...
- Delete Query

Below the design grid, the following table summarizes the field, table, total, sort, and show criteria for each field:

Field:	LOCATION_CODE	ITEM_TYPE_CODE	ITEM_ID		
Table:	LOCATION	ITEM_TYPE	ITEM		
Total:	Group By	Group By	Count		
Sort:	Ascending	Ascending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Criteria:					

Items by Perm Loc and Item Type: Crosstab

The screenshot shows a database query design view with three tables: ITEM, LOCATION, and ITEM_TYPE. Arrows indicate relationships between fields in these tables. Below the tables is a crosstab query design grid with a yellow arrow pointing to the 'Crosstab' property.

ITEM Table:

- * (Primary Key)
- ITEM_ID
- PERM_LOCATION
- TEMP_LOCATION
- ITEM_TYPE_ID

LOCATION Table:

- * (Primary Key)
- LOCATION_ID
- LOCATION_CODE
- LOCATION_NAME
- LOCATION_DISPLAY_NAME

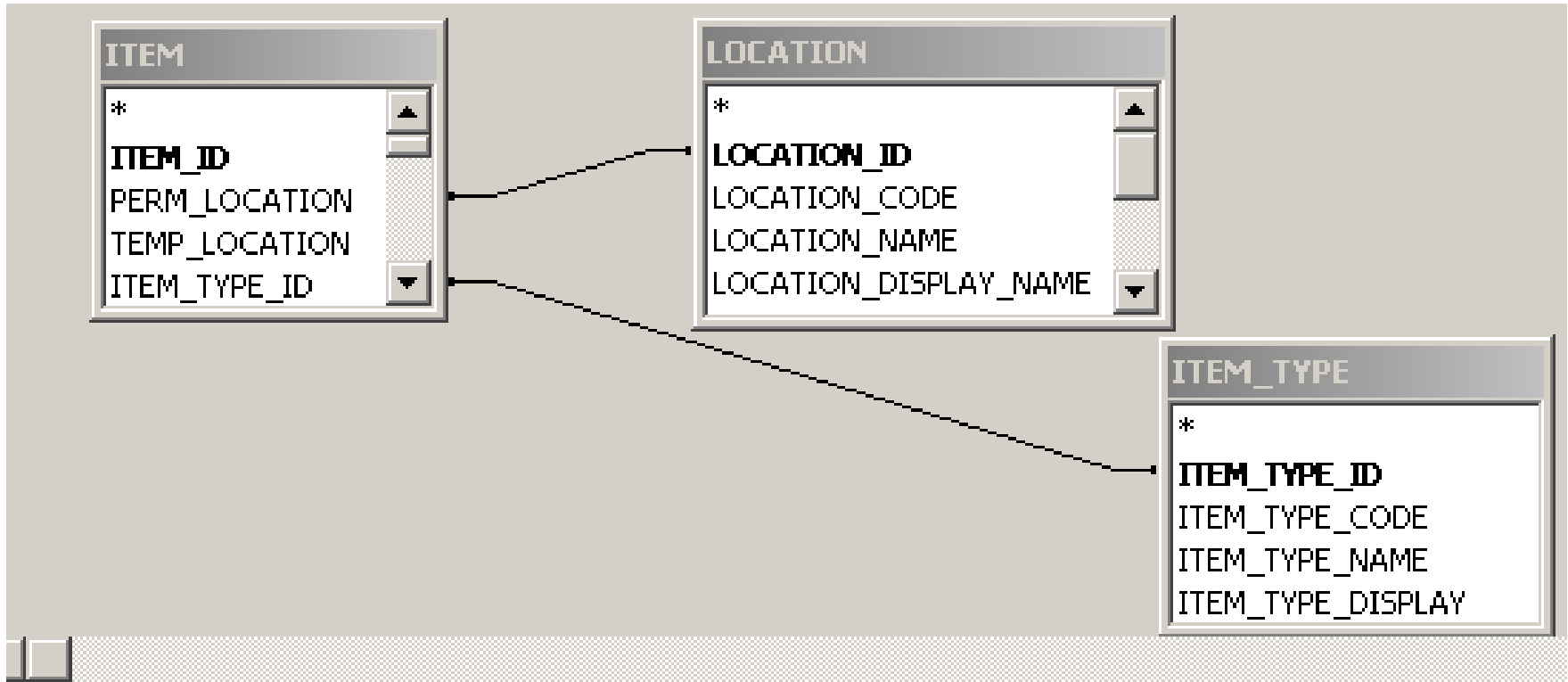
ITEM_TYPE Table:

- * (Primary Key)
- ITEM_TYPE_ID
- ITEM_TYPE_CODE
- ITEM_TYPE_NAME
- ITEM_TYPE_DISPLAY

Crosstab Query Design Grid:

Field:	LOCATION_CODE	ITEM_TYPE_CODE	ITEM_ID		
Table:	LOCATION	ITEM_TYPE	ITEM		
Total:	Group By	Group By	Count		
Crosstab:					
Sort:	Row Heading	Ascending			
Criteria:	Column Heading				
or:	Value				
	(not shown)				

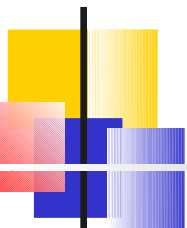
Items by Perm Loc and Item Type: Crosstab



Field:	LOCATION_CODE	ITEM_TYPE_CODE	ITEM_ID		
Table:	LOCATION	ITEM_TYPE	ITEM		
Total:	Group By	Group By	Count		
Crosstab:	Row Heading	Column Heading	Value		
Sort:	Ascending	Ascending			

Items by Perm Loc and Item Type: Crosstab

LOCATION_CODE	ArchiveN	AV1	AVN	Book1	BookLR	BookN	Err
archiv	102		1	1		45	
CIRC		1		14			
error				1			
imc		108		56	1229	7	
imcref						9	
jenks				1		6955	
juv				36	1715	2	
laptop							
linc				1352		1	
lrare						1	
lref						126	
main			1	67134	208	11	
med1		79	4	35	6		
med2				4	6		



Circ by Patron Group and Month

Field:	PATRON_GROUP_CODE	CHARGE_DATE	CIRC_TRANSACTION_ID
Table:	PATRON_GROUP	Circulation Transactions (Charges)	Circulation Transactions (Charges)
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

These tables are both familiar by now.

I need to get the month and year out of charge_date.

Field:	PATRON_GROUP_CODE	ChargedYr: Year([CHARGE_DATE])	ChargedMon: Month([CHARGE_DATE])	CIRC_TRANSACTION_ID
Table:	PATRON_GROUP			Circulation Transactions (Charges)
Sort:	Ascending	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				

ChargedYr: Year(CHARGE_DATE)

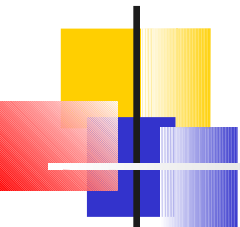
ChargedMon:
Month(CHARGE_DATE)

Circ by Patron Group and Month

PATRON_GROUP_CODE	ChargedYr	ChargedMon	CIRC_TRANSACTION_ID
AL	2000	6	36360
AL	2002	6	4
AL	2002	6	23
AL	2002	6	19
AL	2002	7	351
AL	2002	7	355
AL	2002	7	353
AL	2002	7	660
AL	2002	7	656
AL	2002	7	354
AL	2002	8	1392
AL	2002	8	1383
AL	2002	8	1384
AL	2002	8	1390
AL	2002	8	1207
AL	2002	8	778
AL	2002	8	1389

Circ by Patron Group and Month: Totals

Field:	PATRON_GROUP_CODE	ChargedYr: Year([CHARGE_DATE])	ChargedMon: Month([CHARGE_DATE])	CIRC_TRANSACTION_ID
Table:	PATRON_GROUP			Circulation Transactions (Charges)
Total:	Group By	Group By	Group By	Count
Sort:	Ascending	Ascending	Ascending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



Circ by Patron Group and Month: Totals

PATRON_GROUP_CODE	ChargedYr	ChargedMon	CountOfCIRC_TRANSACTION_
AL	2000	6	1
AL	2002	6	3
AL	2002	7	6
AL	2002	8	7
AL	2002	9	7
AL	2002	10	15
AL	2002	11	6
AL	2002	12	1
AL	2003	1	9
AL	2003	2	1
AL	2003	3	2
AL	2003	4	6
AL	2003	5	5
AL	2003	6	2
AL	2003	7	11
AL	2003	8	6
AI	2003	9	10

Circ by Patron Group and Month: Crosstab

The screenshot shows a Microsoft Access query design grid for a crosstab query. The design grid has four columns:

- Column 1: Field: PATRON_GROUP_CODE, Table: PATRON_GROUP, Total: Group By, Crosstab: Column Heading, Sort: Ascending, Criteria: (empty)
- Column 2: Field: ChargedYr: Year([CHARGE_DATE]), Table: (empty), Total: Group By, Crosstab: Row Heading, Sort: Ascending, Criteria: (empty)
- Column 3: Field: ChargedMon: Month([CHARGE_DATE]), Table: (empty), Total: Group By, Crosstab: Row Heading, Sort: Ascending, Criteria: (empty)
- Column 4: Field: CIRC_TRANSACTION_ID, Table: Circulation Transactions (Charges), Total: Count, Crosstab: Value, Sort: Ascending, Criteria: (empty)

The design grid is connected to two tables: Circulation Transactions (Charges) and PATRON_GROUP. The fields in these tables are:

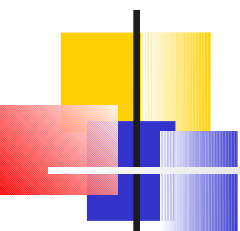
- Circulation Transactions (Charges): CIRC_TRANSACTION_ID, ITEM_ID, CIRC_POLICY_MATRIX_ID, PATRON_GROUP_ID, CHARGE_DATE, CHARGE_LOCATION
- PATRON_GROUP: PATRON_GROUP_ID, PATRON_GROUP_CODE, PATRON_GROUP_NAME, PATRON_GROUP_DISPLAY

You can have up to 3 fields as row headings.

I'm using both ChargedYr and ChargedMon.

Circ by Patron Group and Month: Crosstab

ChargedYr	ChargedMon	AL	EF	FC	GR	IL	LL
2002	11	6		181	109	83	
2002	12	1		90	55	51	
2003	1	9		197	187	112	
2003	2	1		246	267	96	
2003	3	2		177	173	48	15
2003	4	6		225	99	42	
2003	5	5		148	138	58	
2003	6	2		125	100	72	
2003	7	11		135	104	64	
2003	8	6		68	13	35	
2003	9	10		260	260	60	
2003	10	10		280	384	92	24
2003	11	5		221	113	54	
2003	12	4		74	59	17	
2004	1	15		249	303	81	
2004	2	13		288	390	73	17
2004	3	8		218	155	71	
2004	4	4		226	231	84	19
2004	5	15		169	107	46	13
2004	6	9		221	143	29	
2004	7	3		174	61	40	



Thank you!

