

# Computer-assisted reporting using Microsoft Access

<u>Exercises</u>	<u>Page</u>
Hunting for trends in data with Access	2
Related story: Youths cause 1/3 of hunt accidents	18
Amusement Park accidents	19
Analyzing NEA grants	20
Kerry and Bush campaign finance	21
Where have all the zoo animals gone?	22
Related story: Zoo animals to go	24
Joining: Illinois child support	29
Related story: Illinois mired in child-support woes	35
Integrity checking your data	39
Cleaning dirty data	40
Fun with string functions	42

# Hunting for Trends in Data

## Using Microsoft Access

Data used: hunting.mdb

When Bob Imrie, an Associated Press reporter in Wausau, WI, went searching for information about hunting accidents, he ended up right on target. The state filed hard-copy reports on every accident detailing information such as weather, topography and the number of pieces of orange the victim was wearing. Imry had no way of digging out trends from the voluminous hard-copy reports and he had never used a computer database. But with some help over the phone from some nerdy colleagues, he created his own database to look at trends in hunting accidents in Wisconsin.

Here's what his database ended up looking like:

Table: DEER						
CASE	DATE	TIME	COUNTY	AREA		
	11/28/93	1030	Langlade	north	chest	
	11/26/93	700	Dunn	centrl	toe	
43	11/20/93	650	Door	north	arm	
44	11/20/93	845	Mainette	north	foot	
45	11/20/93	915	Sauk	south	leg	
46	11/20/93	930	Crawford	south	arm	
47	11/20/93	1100	Columbia	south	ankle	
48	11/20/93	1145	Washburn	north	toe	
49	11/20/93	1330	Vernon	south	hand	
50	11/21/93	1000	Sheboygan	south	hand	
51	11/21/93	1045	Dunn	centrl	toe	
52	11/21/93	1155	Portage	south	thigh	
53	11/21/93	1330	Waukesha	south	head	
54	11/22/93	1045	Walworth	south	arm	
55	11/23/93	1600	Sauk	south	head	
56	11/25/93	1215	Manitowoc	centrl	leg	
57	11/25/93	1230	Dunn	centrl	hand	
<6	11/21/92	730	Shawano	centrl	toe	
37	11/21/92	830	Waushara	centrl	arm	
38	11/21/92	900	Barron	north	shuldr	
39	11/21/92	1235	Marathon	centrl	head	
40	11/21/92	1300	Waupaca	centrl	thigh	

The record layout, which is the map to any database, is below. It shows the fields Imry created in the database, whether they were characters or numbers and the width of each field:

Field	Field Name	Type	Width	Description
1	CASE	Character	10	This is an identifier he created
2	DATE	Date	8	Date of accident
3	TIME	Numeric	4	Time of accident
4	COUNTY	Character	11	County of accident
5	AREA	Character	6	Region of state (he created the areas)
6	WOUND	Character	6	Part of body wounded
7	INJURY	Character	5	Severity of injury
8	TYPE	Character	2	Self-inflicted, or other (si=self-inflicted, sp=second person)
9	CAUSE	Character	30	Description of cause
10	SAGE	Numeric	2	Age of shooter
11	VAGE	Numeric	2	Age of victim
12	FIREARM	Character	7	Type of firearm
13	FACTION	Character	6	Faction of gun
14	ALCOHOL	Character	3	Alcohol involved
15	ALCOLEV	Numeric	5	Alcohol level
16	WEATHER	Character	11	Weather
17	TOPOGRO	Character	10	Typography
18	SEXPER	Numeric	2	Years of shooter's experience
19	VEXPER	Numeric	2	Years of victim's experience
20	SGRADUATE	Character	3	Shooter graduate of safety school
21	VGRADUATE	Character	3	Victim graduate of safety school
22	SSEX	Character	1	Sex of shooter
23	VSEX	Character	1	Sex of victim
24	GUNBRND	Character	13	Brand of gun
25	GUNGUAGE	Character	10	Guage of gun
26	TEMP	Numeric	2	Temperature
27	MUZDIS	Numeric	5	Muzzle distance
28	LAND	Character	3	Private or public
29	VORANGE	Numeric	1	Number of pieces of orange worn by victim
30	GUNSIGHT	Character	5	Open, scope or other
31	VACTIVTY	Character	10	Victim's activity
32	LOCATION	Character	6	Location of victim
33	PRECIP	Character	3	Precipitation

To bring up the data yourself, go to FILE/OPEN and in the data directory, open a file called Hunting.mdb.



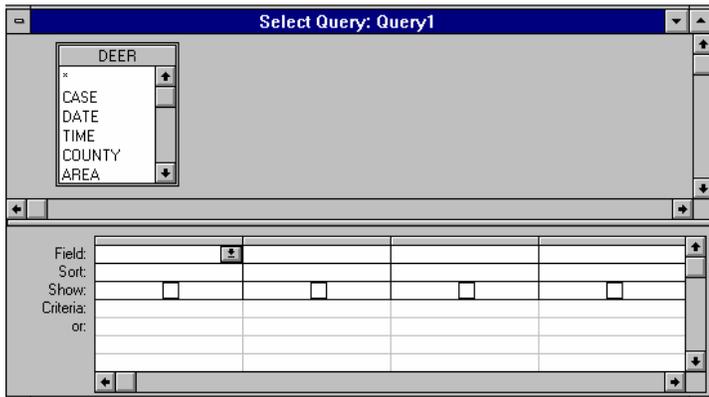
In Access a database may contain several individual data sets called “tables.” To open the Deer table, select it and click OPEN. Access will open the database to a browse window.

Interview your data.

Just as you do with people, you must get to know your data. Study it, look for patterns, look for special codes, upper case, lower case: all this will help when it's time to ask questions.

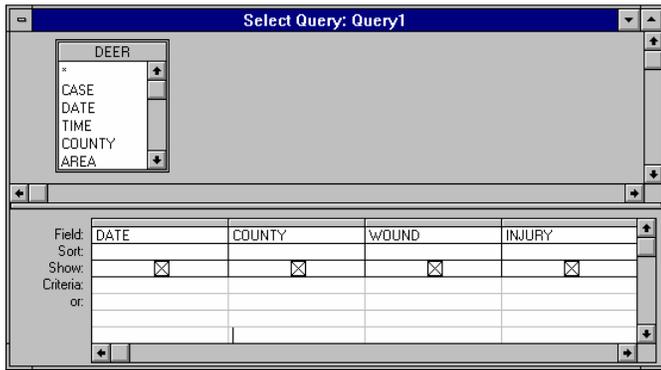
Just looking at this database triggers many questions. But let's start off with some basic queries. Remember, to bring up the query form select INSET/NEW/QUERY. You'll then see the following window. Then tell Access you want the DESIGN view.

Let's review the query form because it's the place you'll hang out the most in Access:



1. **Field...** Select Fields: this is where you pick the pieces of information you want to see
2. **Sort...** Put in order: do you want the most at the top, the oldest at the top?
3. **Criteria:** Pick the records you want. This allows you to limit your data to just part of the records.
4. **Group by...** Pile up the things that are alike.

These four steps may seem overly fussy, but if you follow them in more complex queries you can save yourself some trouble. Let's practice the first step by doing a query to show the following fields: DATE, COUNTY, WOUND and INJURY. Do this by clicking the FIELDS check boxes on the main query window. When you choose a field, Access automatically adds an X to the checkbox. This means it will show in your result.



Click  from the button bar to run your query.

Your result should look like this:

DATE	COUNTY	WOUND	INJURY
11/28/93	Langlade	chest	minor
11/26/93	Dunn	toe	minor
11/20/93	Door	arm	minor
11/20/93	Marinette	foot	major
11/20/93	Sauk	leg	major
11/20/93	Crawford	arm	minor
11/20/93	Columbia	ankle	major
11/20/93	Washburn	toe	minor
11/20/93	Vernon	hand	minor
11/21/93	Sheboygan	hand	minor
11/21/93	Dunn	toe	major
11/21/93	Portage	thigh	minor
11/21/93	Waukesha	head	major
11/22/93	Walworth	arm	minor
11/23/93	Sauk	head	fatal
11/25/93	Manitowoc	leg	major
11/25/93	Dunn	hand	minor
11/21/92	Shawano	toe	minor

The second step to any query is to sort it. In this case, we could organize the records by DATE. To go from your results back to your query window, hit the VIEW/QUERY DESIGN. Or use these buttons to toggle between the answer and the query form:



^ ^  
design table

To sort the data click in the box right below the field name. In this case, click below date. The query form also says "sort" on the left end of this line.

Field:	DATE	C
Sort:		
Show:	Ascending	
Criteria:	Descending	
or:	[not sorted]	

Access will prompt you to specify the order of your sort.

Run the query. Your answer should appear in descending date order.

### Limit the records

Step three of any query lets you take a bite out of your data. Say you didn't really care about all the deer hunting accidents in Wisconsin, you just wanted to see them for Jackson County. That's where the CRITERIA line of the query comes in handy. Click on the criteria line, in the COUNTY field and type: Jackson

Remember, Access is case-sensitive, so if Jackson is upper case -- type it that way in your query.

Other comparisons:

If you're screening your data, but you don't know the whole word in a field, Access will let you estimate using a \*, which is called a "wildcard." A wildcard stands for any combination of letters or numbers.

Typing this in the cause field would pull out all causes beginning with Careless:

Careless\*

This would pull out all causes containing the word wife:

\*wife\*

### Let's get Boolean

Sometimes you want more from a selection criteria than just one county. You might want the records for Jackson and Door counties. That's where OR comes in handy. Type OR between each item. In this case, type Jackson OR Door in the Criteria:

Field:	DATE	COUNTY	WOUND	INJURY
Sort:	Descending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		Jackson or Door		
or:				

Now run the query again. You told Access you wanted all the records where the COUNTY was either Jackson or Door. This might be useful if you covered a multiple county area. Using the OR to connect criteria is called Boolean logic. Another Boolean word is AND. AND is more restrictive than OR: with

AND both lines must be true in order for a record to be selected. We could use the AND if we wanted all causes containing both the word wife AND careless.

CAUSE
<input checked="" type="checkbox"/>
*wife* and Careless*

This example also uses the \*. This is a “wildcard” that stands for any combination of letters and numbers in Access. Careless\* stands for any cause starting with Careless. \*wife\* stands for any cause containing the word wife.

You also can use criteria in two fields at the same time. For example, we might want just self-inflicted accidents from Jackson County. Click in the field area below COUNTY and choose TYPE. Then EXACTLY LIKE. Then si for self-inflicted:

Field:	DATE	COUNTY	WOUND	INJURY
Sort:	Descending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		"Jackson" Or "Door"		"si"
or:				

### Practice Exercises

1. Do a query to show all the injuries occurring physically on the body below, and including, the ankle.  
*Hint: here's a list of all possible wounds: abdomen, ankle, arm, back, butt, chest, ear, eye, face, finger, foot, groin, hand, head, hip, knee, leg, neck, scrotum, shoulder, stomach, thigh, thumb, toe.*
2. Do a query to show all self-inflicted accidents caused by shooters 50 and older.
3. How old was the oldest victim in Jackson County? What wound did they have? How old was the youngest? What wound?
4. How many accidents occurred overall on the first day of deer hunting season in 1994?

## Answers

1. Do a query to show all the injuries occurring physically below, and including, the ankle.

Field:	DATE	COUNTY	WOUND	INJURY
Sort:	Descending			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			foot or ankle or toe	
or:				

The answer contains 46 injuries.

2. Do a query to show all self-inflicted accidents caused by shooters 50 and older.

Field:	DATE	COUNTY	WOUND	INJURY	SAGE
Sort:					Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Criteria:					>49
or:					

3. How old was the oldest victim in Jackson County? What wound did they have? How old was the youngest? What wound?

Field:	SAGE	COUNTY	WOUND
Sort:	Descending		
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		Jackson	
or:			

Oldest: 62, thigh Youngest: 14, foot

4. How many accidents occurred overall on the first day of deer hunting season last year (November 19, 1994)?

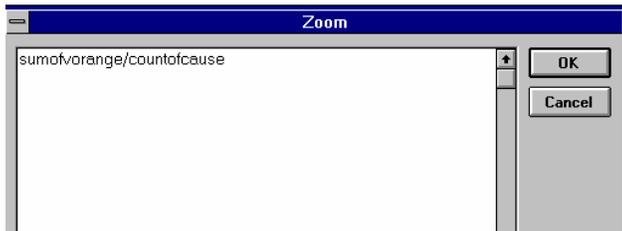
Field:	DATE	COUNTY	WOUND	INJURY
Sort:				
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:	11/19/94			
or:				

DATE	COUNTY	WOUND	INJURY
11/19/94	Chippewa	neck	fatal
11/19/94	Buffalo	shuldr	major
11/19/94	Dutagamie	thigh	minor
11/19/94	Marathon	leg	major
11/19/94	Calumet	abdomn	major
11/19/94	Green Lake	chest	fatal
11/19/94	Waupaca	foot	minor
11/19/94	Washburn	abdomn	fatal
11/19/94	Iowa	arm	major

The answer: 9 injuries

## Calculations

Just as in spreadsheet, sometimes you want to do calculations between columns or “fields.” Because a database has no cell addresses, you have to use the names of fields. In Access you use the ZOOM window to type in a calculation.



To get this window go to a new column on the query form and hit the -SHIFT- key then the F2 key. In this database, let's say you wanted to find cases where the shooter is older than the victim and compute their age difference. In the zoom window you would type:

**sage-vage**

Then click the OK button.

## Data Groupies

The fourth step of any query is the most powerful: GROUP BY lets you summarize your entire database. For example, in our deer database, we might want to know what the most common injury is. Before you do the query, think about what your result might look like. (I always think about what the chart I might print in the newspaper would look like.) In this case I would have two columns: the wounds and the number of times each wound occurred. My headline would be: What Gets Wounded in All Hunting Accidents.

Let's step through the four query steps:

1. Pick the fields: Select wound as a field in the first two columns. You need to pick it twice: once for the names of the wounds and another column to count the wounds.

Because we're summarizing the data, we need to click the summarize button:



Access will add a second line to the query form. With the word “total” along the left. Access also will put GROUP BY in each column. If you click on GROUP BY, Access will bring up a list of summary functions:

Field:	WOUND		
Total:	Group By		
Sort:		Group By	
Show:	<input checked="" type="checkbox"/>	Sum	
Criteria:		Avg	
or:		Min	
		Max	
		Count	
		StDev	
		Var	

Choose COUNT in the second column:

Field:	WOUND	WOUND
Total:	Group By	Count
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

**WORD OF WARNING:** Count only count's non-blank records – so your total may not reflect everything. If you want to include blanks (“null” in Access’s nerdy language) use COUNT(\*) on the FIELD line and EXPRESSION on the total line.

2. Sort: If we want to know the most common wound, we’d probably want the highest count at the top. Click the SORT check box below COUNT and WOUND. Select descending.

*Note: You can use this same technique for computing average, minimum, maximum and sum.*

3. Pick the records: Think of this step as the headline on your chart in the paper. In this case our headline is for ALL hunting accidents, not just self-inflicted, not just old hunters, but everyone. So here, we have no selection criteria, because we are not narrowing our population.

4. Group by: Keep one thing in mind: *Access isn’t as smart as you are.* As Access counts all the wounds, it doesn’t know to put all the butt wounds in one pile and all the knee wounds in another pile. We have to help. The same technique would apply if a giant truck filled with vegetables backed into the classroom right now and the driver asked us to count up the different types of vegetables. What would be the first thing you’d do? OK, OK, leave the room. Well, I probably would too. But we also might put all the carrots in one pile, all the onions in another, and all the potatoes in another so we could go back and count them. This is why WOUND must appear twice in the query form:

Field:	WOUND	WOUND
Total:	Group By	Count
Sort:		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

If everything looks okay, click the  button to run the query.

WOUND	CountOfWOUND
leg	41
arm	29
chest	26
thigh	25
foot	25
head	23
toe	19
hand	18
abdomn	9
shuldr	7
back	6
neck	5
face	3
butt	3
knee	3
hip	3
ankle	2
finger	2
ear	1
eye	1
scrotm	1

Record: 11 of 24

Leg injuries are most common, with 41 shot up.

Now, let's make a minor change to the query. Hit VIEW/QUERY DESIGN to throw away your answer. Say, we didn't care about all wounds, let's change that headline to: Most Common Types of Self-Inflicted Wounds. This would require changing just one thing in the four query steps. Often, we try to make this harder than it should be. Remember, if you're just changing the headline, all you need to do is change your criteria: Step 3. Add TYPE as a field and type si in the criteria box. But you don't have to X the check box, to use a field as a criteria.

*Note: when you use a criteria for a summary query, the GROUP BY line should be changed to WHERE. This isn't intuitive, but Access has to do something with that TOTAL line.*

Field:	WOUND	WOUND	TYPE
Total:	Group By	Count	Group By
Sort:		Descending	Max
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Count
Criteria:			StDev
or:			Var
			First
			Last
			Expression
			Where

Answer: 19 foot injuries

### Practice Exercises

1. What was the most common cause of hunting accidents? How many?
2. Which brand of gun is involved in the most hunting accidents? How many?
3. Which county had the most accidents? How many?
4. What is the average age for the shooters in butt-injury accidents?

## Answers

1. What was the most common cause of hunting accidents? How many?

Field:	CAUSE	CAUSE
Total:	Group By	Count
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

Answer: victim in line of fire, with 48

2. Which brand of gun is involved in most hunting accidents? How many?

Field:	GUNBRND	GUNBRND
Total:	Group By	Count
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

Comment [BH1]: 29

Answer: Remington, with 79

Note: What additional reporting would you have to do to use this answer?

3. Which county had the most accidents? How many?

Field:	COUNTY	COUNTY
Total:	Group By	Count
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

Answer: Marathon, with 9

4. What is the average age for the shooters in butt-injury accidents?  
(Hint: you don't want blanks or 0s)

Field:	SAGE	WOUND
Total:	Avg	Where
Sort:		
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:	>0	butt
or:		

Comment [BH2]: 31

Answer: 16.5

## Multi-Groupies

Another approach to the counting up self-inflicted wounds might be to group by both WOUND and TYPE.

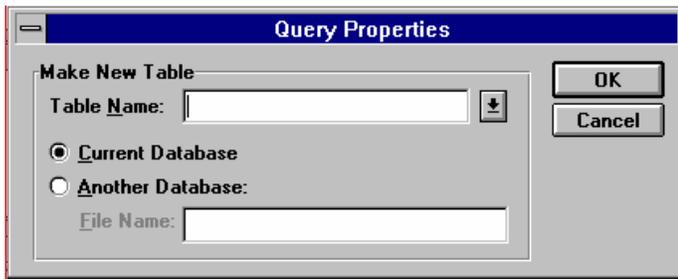
The steps:

1. Select WOUND, TYPE and COUNT of ??????. It can be difficult to decide what to count, but here's a hint: count will total the different combinations of everything you group by. So let's just ask for COUNT in a new WOUND column.
2. Order by: Do it so the biggest count is on top.
3. Selection criteria: I know, I know, we just pulled out self-inflicted. But now we want both self-inflicted, plus the other types. So remove the selection criteria.
4. Group by: group by both WOUND and TYPE.

Run the query. Your answer will show all the possible combinations of TYPE and WOUND and count them. Answer: 30 leg injuries by second person

Field:	WOUND	TYPE	TYPE
Total:	Group By	Group By	Count
Sort:			Descending
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			
or:			

*A note about output: On the main query form, the output is usually set to browse. This means that your answer pops up in a window. You can change this output to save your answer to a separate file. To do this go to **QUERY** on the main menu and select **MAKE TABLE**, Access will then prompt you for the name of the table. Then click **OK**.*



Comment [BH3]:

## Additional Exercises

1. What impact does attending gun safety school have on accidents? For what cause of accident did the fewest people have gun safety school?

2. Do accidents of certain causes of accidents tend to have higher or lower rates of orange-wearing?  
 (Hint: you'll need to create a new file: call it ORANGE) and do a second query on ORANGE.DBF)

3. Did more accidents occur in bad weather?

4. What was the most common cause for fatal accidents? Were most of those inflicted by someone else or by the shooter?

**Answers**

1. What impact does attending gun safety school have on accidents? For what cause of accident did the fewest people have gun safety school?

Field:	CAUSE	SGRADUATE	CAUSE
Total:	Group By	Group By	Count
Sort:	Descending		Descending
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			
or:			

CAUSE	CountOfCAUSE
victim stumbled and fell	1
victim out of sight of shooter	19
victim out of sight of shooter	14
victim out of sight of shooter	8
victim mistaken for game	2
victim mistaken for deer-dakns	1
victim mistaken for deer	5
victim mistaken for deer	3
victim in line of fire-not hnt	1
victim in line of fire-in tree	1
victim in line of fire-illegal	1
victim in line of fire-dark	1
victim in line of fire	28
victim in line of fire	14
victim in line of fire	5
victim in line of fire	1
victim in car-stray bullet	2
victim fell from tree	1
unloading gun	1
unloading firearm-gloves	1
unloading firearm-dropped it	1

Answer: A larger proportion of: victim in line of fire did not have gun safety school. (But I'd get a real definition on this one -- doesn't being in the line of fire make them the victim in the first place?) And this answer may seem to show a trend that might make you think that in safety school, they practice on trees.

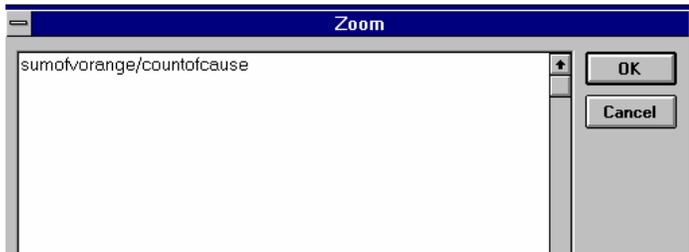
2. Do accidents of certain types tend to have higher or lower rates of orange-wearing?

This is a two-part answer. What you really want in your end result is a list of pieces of orange per type of accident (cause). Tell Access you want to do a MAKE TABLE query and call the table ORANGE.

Field:	CAUSE	CAUSE	VORANGE
Total:	Group By	Count	Sum
Sort:		Descending	
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			
or:			

CAUSE	CountOfCAUSE	SumOfVORANGE
victim in line of fire	48	107
victim out of sight o	41	97
careless handling-tr	16	38
loaded firearm in ve	12	23
shooter stumbled ai	11	28
Loading firearm	9	20
ricochet-bullet thru	8	17
victim mistaken for	8	17
defective firearm	5	15
unloading firearm	5	11
ricochet	3	8
ricochet-tree	3	8
careless handling-d	2	6
victim mistaken for	2	4
careless handling-s	2	5
careless handling-tr	2	4
trigger caught on ol	2	4
victim in car-stray b	2	2
firearm fell-tree invo	2	3
firearm fell, insecure	2	5
careless handling o	2	5

Next, do another query on ORANGE to compute sum\_vorang/cnt to get orange per accident type:



Field:	CAUSE	Expr1: sumofvoran
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

CAUSE	Expr1
careless handling-casing loaded	3
victim in line of fire-illegal	3
victim in line of fire-dark	3
victim fell from tree	3
careless handling-gloves	3
ricochet-corn	3
careless handling-fell asleep	3
victim in line of fire-in tree	3
careless handling-wife involved	3
unloading firearm-gloves	3
careless handling-gun on lab	3
careless handling-gun on ground	3
careless handling-gun on foot	3
careless handling-loaded in cs	3
careless handling-muzzle on foot	3
victim stumbled and fell	3
careless handling-raising gun	3

3. Did more accidents occur in bad weather? What other fields could you use for this query?

Field:	WEATHER	WEATHER
Total:	Group By	Count
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		
or:		

WEATHER	CountOFWEATH
clear	125
cloudy	95
partly cldy	28
unknown	4
ptly cloudy	1
	0

Answer: no, most accidents occurred in clear weather.

4. What was the most common cause for fatal accidents? Were most of those inflicted by someone else or by the shooter?

Answer: "victim in line of fire" with 11 (most were inflicted by a second person)

Field:	CAUSE	CAUSE	TYPE	INJURY
Total:	Group By	Count	Group By	Where
Sort:		Descending		
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Criteria:				fatal
or:				

CAUSE	CountOfCAUSE	TYPE
victim in line of fire	10	sp
victim out of sight of shooter	3	sp
victim mistaken for deer	2	
victim out of sight of shooter	1	
victim in line of fire-dark	1	sp
victim in line of fire	1	
victim in car-stray bullet	1	
victim fell from tree	1	si
shooter stumbled and fell	1	sp
firearm fell-tree involved	1	si
careless handling-tree involv	1	si
careless handling-tree involv	1	si
careless handling-finger on tr	1	sp
careless handling-dropped gu	1	si
bullet went thru home	1	

Good job! You're done hunting for trends in data.

YOUTHS CAUSE 1/3 OF HUNT ACCIDENTS  
BY ROBERT IMRIE; ASSOCIATED PRESS  
WAUSAU May 1, 1995

One out of three hunters who shot someone while deer hunting was a teenager or younger, and carelessness contributed to nearly half of the 255 hunting accidents in Wisconsin over the last nine years.

An Associated Press review found 27 people died in those accidents -- including a 2-year-old boy struck by a stray bullet as he played in his home. Of those wounded, 164 required hospitalization and another 64 suffered minor injuries, a computer-assisted analysis of hunting accident reports shows.

Carelessness in handling guns -- from resting a loaded gun on a hunter's foot to hauling one up a tree with a rope -- accounted for 43 percent of all accidents reviewed.

One-third of the known shooters -- 83 -- were younger than 19. Of that group, 36 were younger than 15.

One boy blew a hole in his chest when he dropped his gun on a rainy day.

"A half an inch either way and I would have been dead," said 15-year-old Travis Bayer of Neenah. "Now I understand the power of it. I could have taken more precautions, but you don't think about those things."

In a state in which hunting is almost a rite of manhood, some experts contend the accidents suggest more safety training should be required to keep that rite from being so deadly. The only requirement now is that hunters born after Jan. 1, 1973, take a single, minimum 10-hour safety course.

"We need a basic course for adults, a basic course for students and an advanced course for both. I am working on that. But we all know the wheels of government turn slowly," said Tim Lawhern, hunting education administrator for the Department of Natural Resources.

Sixty-nine of those shot in the mishaps were 19 or younger, seven of whom died, the analysis showed. Of those wounded, six -- aged 6 to 15 -- were hurt although they carried no guns, weren't licensed to hunt and simply tagged along with other hunters.

Just last season, the review showed, three young hunters involved in shooting mishaps had not graduated from the mandated safety class.

Deer hunting in Wisconsin is steeped with tradition, with 650,000 hunters taking to the fields on opening weekend.

Pressure from that tradition, combined with lack of judgment and experience, causes most accidents by young hunters, said T.J. Edwards, a 20-year DNR warden in Spooner.

"Up here, you are a failure as a man if you don't get a deer. It is the most bogus thing," he said.

Younger hunters have been required since 1985 to graduate from the safety courses, but Lawhern emphasizes those classes, taught by volunteers, are only the "first step in the right direction."

In Wisconsin, one must be 12 to get a deer license. Those born after Jan. 1, 1973, are also required to present proof of graduation from one of the safety courses, which are taught by volunteers.

The sellers of the licenses, sometimes mom and pop stores, are responsible for checking that certification. But as is evidenced by the three cases last year, some young hunters slip by.

Hunting in Wisconsin is safer than it was nearly a century ago. The DNR reports there were 47 deaths among 20,000 hunters in 1908.

"You are more likely to get killed driving to a baseball game than going deer hunting," Edwards said.

The AP review found only seven accidents where investigators noted alcohol use and that is surprising, Lawhern said.

"One would expect much larger numbers," he said.

Careless handling of guns accounted for 109 of the 255 accidents. In 1990, James Luedke, 13, of Cambria had his right arm blown off when a gun his 15-year-old brother had on his shoulder fired while the pair were searching for a downed deer.

James hadn't yet taken a hunter safety course and blames himself for the accident, saying he was "young and stupid. I knew I shouldn't have been there. When you are out hunting, don't stand in front of the gun."

# Texas amusement Park Accidents

## Record layout

Database: amusement.mdb

<u>ID</u>	<u>Field name</u>	<u>Description</u>	<u>Type</u>	<u>Codes</u>
1	Record	Operator Id	Text	
2	Fixed/Mobile	Operator type	Text	F=fixed, M=mobile
3	Filing Date	Filing Date		
4	Injury Date	Injury Date		
5	Ride name	Ride name		
6	Ride Type	Ride Type		
7	Serial No	Ride serial number		
8	Gender	Victim gender		
9	Age	Victim age		
10	Body part	Victim body part		
11	Injury	Victim injury type		
12	Cause	Cause of injury		
13	Other	Notes		
14	Ride Name Orig	Original ride name (corrected by Ride name)		
15	Status	Operator status		
16	Refer/Note	Notes		
17	CL DT	Close date		
18	Name of Operation	Name of Operation		
19	Owner/Operator	Owner/Operator		
20	Information	Information		
21	Address	Address		
22	City	City		for mobile operators, this will not be where it happened
23	St	State		
24	Zip	Zip		
25	Telephone	Telephone		
26	Type	Operator type (fixed, waterpark, etc...)		

### Practice questions:

1. How many accidents have there been at Six Flags in Arlington?
2. How many accidents involved water slides?
3. Who was the oldest person injured on a roller coaster?
4. How many accidents involved mobile amusement rides?
5. On what type of ride have the most accidents occurred?
6. At what park/company have the most accidents occurred?

Think of some questions to ask on your own – data doesn't come with questions.

# National Endowment for the Arts Grants

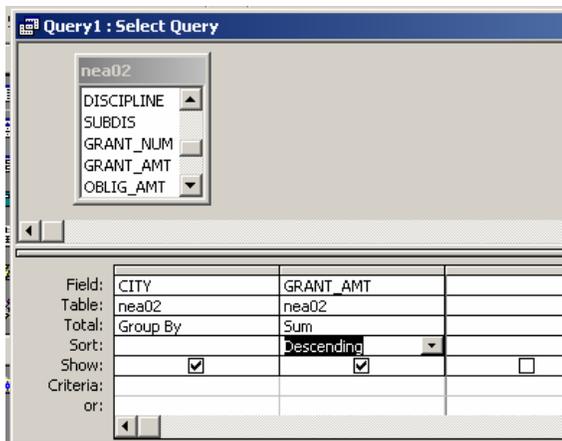
Database: nea02.mdb

## Record layout:

1	Name	Who got the grant
2	City	What city they are in
3	State	What state they are in
4	ZIP	Recipient's ZIP
5	FY	Fiscal year
6	Official	Official dealing with the grant
7	Category	The grant program
8	Discipline	The art category for which the grant was given
9	Subdis	Subdiscipline
10	Grant_num	Id for the grant
11	Grant_amt	Amount received
12	Oblig_amt	Amount originally obligated
13	Projdesc1	Description of the project – this flows over five fields
14	Projdesc2	Description of the project – this flows over five fields
15	Projdesc3	Description of the project – this flows over five fields
16	Projdesc4	Description of the project – this flows over five fields
17	Projdesc5	Description of the project – this flows over five fields

Spend some time with this database and think about some questions you might want to ask.

There's an additional type of information in this database – money. Unlike the hunting accidents, we might want to add up the money. To do that, use the SUM function. So, for example, to find out which city got the most money, you would GROUP BY city and under Grant\_amt choose SUM.



Answer: New York with \$11,279,590

# Kerry\_Bush Campaign Finance

Database: Kerry\_Bush.mdb

Record layout:

CANDID	Candidate ID number
CAND_NAME	Name of candidate
TRNSTYPE	Type of transaction (these are all individual)
NAME	Donor name
CITY	Donor city
STATE	Donor state
ZIPCODE	Donor ZIP
JOB	Donor occupation
INDUSTRY	Donor industry
SUBIND	Donor subindustry
MONTH	Month of contribution
DAY	Day of contribution
YEAR	Year of contribution
AMOUNT	Amount of contribution

Practice questions

1. From which city did the most contributions come? (Think here – I could ask this another way: What's the most common city in this database?)
2. Which industry made the most contributions to Kerry?
3. From which ZIP code did the most contributions go to Bush?
4. Which ZIP code in Texas made the most contributions to Kerry?
5. What date range does this database span?

# Where have all the zoo animals gone?

Database: zoo.mdb

## Record Layout:

### Table: zoomain

ISIS_KEY	This is the unique identifier for the animal (sort of like a vin number on a car)
DATEIN	Date that the institution received the animal
institcode	Unique identifier for the zoo
DCODE	Dispensation code -- what they did with the animal when it went to the recipient
DATEOUT	Date animal went to the recipient
RECIPIENT	Unique identifier for the recipient
RECIP_NAME	Name of recipient
TYPE	Type of recipient -- if recipient is something other than a zoo -- can be multiple types such as dealer/ranch
TAXON	Latin name for animal
SEX	Sex of animal
BIRTH_DATE	Birth date of animal
Age	Age of animal in months at time it left the institution
ADDRESS	Address of recipient
CITY	City of recipient
STATE	State of recipient
COUNTRY	Country of recipient
COMMONAME	Common name of animal

### Table: institution

institcode	Unique identifier for the zoo
Institution_name	name of the institution
AZA	indicates whether the institution is a member of the AZA (zoo association)

### Table: endangered

TAXON	Latin name for animal
COMMONAME	common name for animal
HRANGE	range of animal in wild
STATUS	T=threatened, E=endangered

### Table: Disp-codes

Dcode	Dispensation code
Meaning	description of dispensation code

## Questions:

1. How many animals went to dealers?
2. How many animals went to Earl Tatum?
3. How old was the oldest animal that went to a dealer?
4. In years, how old was the oldest animal that went to another zoo?
5. Name at least two things you need to be aware of when you're analyzing this data set by age.
6. Which dealer received the most animals?
7. Which zoo (by name) sent the most animals to dealers?
8. Which dealer does the San Diego Zoo use most often?
9. How many endangered animals went to dealers?
10. Which species of endangered animal was most likely to go to a dealer?
11. What is the most common dispensation code when an animal goes to a dealer?

THE ANIMAL BUSINESS MANY **ZOOS** GIVE AWAY OR SELL OFF SURPLUS MAMMALS,  
WHICH OFTEN END UP EXPLOITED OR EVEN HUNTED DESPITE SAFEGUARDS

By LINDA **GOLDSTON**, Mercury News Staff Writer

America's **zoos** have a little secret: They breed animals with no intention of keeping them.

Every year, animals once admired at dozens of the country's major **zoos** are sold or given away to dealers, contributing to a multibillion-dollar-a-year exotic species marketplace where they can be resold, auctioned off to the highest bidder or advertised to the public in specialty magazines.

Some of these surplus **zoo** animals -- including threatened or endangered species -- end up as backyard pets, at a growing number of unaccredited roadside **zoos** or in the private collections of celebrities such as Michael Jackson and Kirstie Alley.

Some are shot as trophies on fenced hunting ranches. And some are killed for their meat, pelts and hides, the result of a market so saturated with some species that lions and tigers are worth more dead than alive and buying rare monkeys can be as easy in some states as acquiring purebred dogs.

"**Zoos** have been very successful breeding grounds for many species . . . (and) it's definitely a draw to always have babies on display," said Craig Hoover, a former special agent with the U.S. Fish and Wildlife Service who is now program manager with TRAFFIC North America, a wildlife trade monitoring arm of the World Wildlife Fund and the World Conservation Union. "But what do you do with those animals when they're not babies anymore? Certainly the open market is the best place to sell them."

That's a distorted picture, insist officials at accredited **zoos** and their professional organization, the American **Zoo** and Aquarium Association.

"I feel sure AZA **zoos** do not contribute to the exotic pet trade," said Sydney Butler, executive director of the association, which is the membership and accrediting organization for 183 **zoos** and aquariums in North America. "The Access Training

mission of AZA and its members is to conserve the living and natural world, and we take that mission very seriously. We have very strong guidelines and an ethics code to make sure animals in our care or that leave our care remain under the best possible care."

Many surplus **zoo** animals do end up at other accredited **zoos** or in responsible hands. And while **zoo** officials acknowledge that overbreeding in the 1970s and 1980s helped boost the exotic animal trade, they say that in the early 1990s guidelines were tightened on the disposition of surplus.

These changes came in the wake of media reports in 1990 and additional accusations by the Humane Society of the United States in 1994 about **zoos** allowing their surplus to end up in the wrong places.

Since then, several **zoos** around the country, including the Sacramento **Zoo** and Happy Hollow **Zoo** in San Jose, have virtually stopped working with dealers.

But an analysis of **zoo**-animal transactions, including a computer database used by the AZA and its members to keep track of animals, shows that little has changed at many **zoos**.

From the beginning of 1992 through mid-1998, roughly 1,000 exotic animals a year were sold, traded, donated or loaned by **zoos** to dealers, auctions, hunting ranches, unidentified individuals, or unaccredited **zoos** and game farms whose owners actively deal in the animal marketplace.

Professional dealers, who get most of these animals, often breed them first to produce still more animals for the trade.

**Zoos** that sent the largest numbers of animals to dealers include the renowned San Diego **Zoo** and its sister institution, the San Diego Wild Animal Park, as well as **zoos** in Buffalo, N.Y.; Baton Rouge, La.; Omaha, Neb.; Fort Worth; Cleveland; Miami; Denver and Cincinnati, according to the transaction data.

"These dealers couldn't buy them if the **zoos** didn't make them available," said Carolyn Atchison, who founded and co-owns, with her husband, the Animal House Zoological Park in Moulton, Ala., and who purchased animals before working undercover on several federal exotic-wildlife investigations. "We can't keep allowing this to go on and looking the other way, because the trailer they're hauled away in is the best environment those **zoo** animals are going to have from that point on."

Most animals in the well-oiled network of open and under-the-table trafficking in **zoo** surplus are not threatened or endangered species, but some are, including polar bears that sold for \$100, snow leopards and various rare primates.

Lions and tigers have been declawed and defanged for sale as pets, killed for mounting or, in rare instances, for food.

Loin of lion was served at a La Jolla restaurant in 1997. One tiger bought from a **zoo** was killed for mounting by inserting an ice pick into its ears so the head and hide would not be damaged, according to David McMullen, assistant director of law enforcement for the U.S. Fish and Wildlife Service's western region. He declined to identify the **zoo** or when the incident occurred.

#### ANIMAL TRACKING

Two-year investigation looks at **zoos**, dealers

A two-year Mercury News investigation found that:

\* Of the 19,361 mammals that left the nation's accredited **zoos** from 1992 through mid-1998, 7,420 -- or 38 percent -- went to dealers, auctions, hunting ranches, unidentified individuals or unaccredited **zoos** or game farms whose owners actively buy and sell animals, according to transaction data from the International Species Information System.

The database and other **zoo** animal disposition records are closely held by the AZA and its members, who have long refused to make them public. They were obtained through sources or requests under federal and state public-records laws.

The vast majority of these transactions, more than 5,200, involved professional animal dealers, Access Training

some of whom are unlicensed.

\* Subsequent transactions are difficult to track, since they are not usually recorded by the inventory system.

"There is no way for an animal to be tracked beyond the initial sale, and there is no way that AZA or anybody could be held accountable for offspring down the road," Butler said.

The AZA and its members make no effort to keep track of the offspring of zoo surplus.

Officials at several **zoos** said they use dealers only as transporters because they are qualified and have specialized equipment, and that the **zoos** keep track of where the animals are ultimately headed.

But the **zoos'** own tracking system lists most transactions with dealers as sales to them, and several **zoos** either refused or were unable to verify where the animals went after dealers had them.

Officials at the San Diego **Zoo** and its sister, the Wild Animal Park, which together send out the most **zoo** surplus animals, said releasing such information would violate the privacy of those who ultimately received the animals.

When presented with a list of **zoo** transactions with dealers, Buffalo **Zoo** officials had to contact the dealers to track down where the animals went.

The director of animal management at the Oklahoma City Zoological Park said that although everyone who buys an animal is required to sign a form that says animals will not be disposed of improperly, the **zoo** makes no attempt to follow up.

Officials at the Cincinnati **Zoo**, which claims to have "transaction forms" to be signed by recipients of animals, refused to provide them.

Various species studbooks, used by AZA members to track genetic histories of animals, list hundreds of animals as "lost to follow-up" after being sold, loaned, traded or donated to dealers. These include many rare and exotic deer and antelope, which are the backbone of game farms and hunting ranches, and jaguars, ring-tailed lemurs, tigers and leopards.

Laurie Bingaman Lackey, keeper of the studbook for giraffes for the AZA, wrote in the

1997 North American Regional Giraffe Studbook that "over 600 animals have been lost-to-follow up, mostly to dealers" since 1970. She declined to be interviewed.

\* Dealers often enjoy close relationships with **zoos**.

Dealer Ron Surrat owned Premier Wildlife Ranch until he was hired by Fort Worth **Zoo** as a curator in 1995, and his dealings stopped.

In San Antonio, four Texas game ranch owners sit on the board of directors of the San Antonio **Zoo**. Five years ago, at least a half-dozen ranch owners were on the board.

**Zoo** Director Stephen McCusker refused to identify the ranch owners who sit on the board and angrily defended the ranchers' membership as directors. He acknowledged, however, that those board members are allowed to buy **zoo** surplus.

\* Animals in private hands pose an increasing risk to public safety. There have been numerous incidents of dangerous animals escaping from private collections, and certain species of monkeys carry viruses that alarm public health officials.

The thousands of primates in the pet trade, along with the growing number of such dangerous exotic animals as lions and tigers in private hands, "is a train wreck waiting to occur," said Dr. Sarah Shapiro Hurley, a veterinarian and deputy administrator with the Wisconsin Department of Natural Resources.

\* There is such a glut of some species, particularly big cats, that they are worth more dead than alive, creating an incentive to kill them.

Lions that can be purchased for a few hundred dollars as would-be pets or attractions at roadside **zoos** bring at least \$2,000 for the hide alone if the animal is a big male, \$1,500 if it's a female. A large male black leopard, an endangered species, can bring \$2,000 or more for its hide.

In addition to the hide, big cats and bears can bring as much as \$1,000 for meat from their carcasses -- \$3 per pound wholesale, \$14.99 per pound retail at exotic meat shops -- said Sherry Access Training

Roche, an animal dealer in Illinois.

\* Regulation and enforcement are spotty.

Few laws exist to regulate the trafficking of animals other than threatened or endangered species, and law-enforcement officials are skeptical that **zoos** can police themselves.

"We've had a number of investigations over the past several years involving animals, primarily big cats, that have gone through different dealers and individuals involved in the exotic animal trade, everything from roadside **zoos** and displays, private collectors, auction houses, Animal Finders' Guide and canned hunts," said Kevin Adams, chief of the law enforcement division of the U.S. Fish and Wildlife Service.

Adams, whose 225 special agents are responsible for the protection of endangered and threatened species in all 50 states, said: "We always hear about the industry, the **zoos** and every place else self-regulating; well, that would clean it up. But it isn't going to happen. It hasn't happened in 2,000 years."

AZA officials say they don't have the resources to monitor their members' transactions, adding that they have never done a computer analysis of the ISIS database to find out what member **zoos** do with their surplus.

Terry Maple, president of the AZA and head of **Zoo** Atlanta, who is credited with turning around one of the worst **zoos** in the country, said: "I'm convinced, and a lot of us are convinced, that we're going to have to be a lot more proactive than that. We have all these things going on around us that are crying out for our action."

**Zoo** officials around the country and at the AZA alternately agonize over the **zoo**-surplus issue and defend their disposition practices.

They say breeding is necessary to ensure genetically diverse collections for various species. That and limited space at their **zoos** create the surplus, they say, not a desire to make money by breeding and selling animals.

"I have no problem with having an animal go to a breeder who will then transact offspring to another reputable dealer, because I believe in numbers," said Gerald Aquilina, curator of the

Buffalo, N.Y., **zoo**, which has sent the second highest number of animals to dealers of any **zoo** in the country since 1992. "Numbers are the only thing that are going to support and maintain exotic wildlife."

And thus, a dilemma.

"What do you do with surplus animals?" asked Michael Hutchins, director of conservation and science for the AZA. "Do you find a responsible person to take care of them? Do you send them to another accredited institution? Use them for research? Do you euthanize? These are all choices that have to be faced."

Ironically, as **zoos** have improved living conditions for some animals at their facilities, that has meant less space for other animals held in captivity.

"I think all **zoos** have to place that (surplus) as a problem," said Cheryl Asa, director of research at the St. Louis **Zoo** and for the past nine years head of the AZA's Contraception Advisory Committee. "I mean, no matter how conscientious they are about good animal management and conservation, there's so much pressure from the public and so much positive feedback from the public whenever there are babies."

**Zoo** directors are reluctant to admit they breed for babies, despite their enormous draw.

"Sometimes we do breed for babies," said Thomas Garlock, executive director of the Buffalo Zoological Gardens. "It is incredibly popular with the public when we have polar bear babies. But to manage the populations effectively, you do have to move animals."

In the free-wheeling exotic-animal marketplace, the most heavily traded species are various hoofed animals, such as exotic deer, antelope and gazelle, which are popular attractions at hunting ranches that advertise on the Internet and in magazines.

But the market for buying and selling just about any animal, from apes to zebras, is active.

The Animal Finders' Guide, a catalog of exotic animals for sale, is published 18 times a year and is filled with ads from dealers, private parties, breeders, ranchers and non-accredited **zoos**, some openly advertising that their animals are **zoo** surplus.

One "**Zoo** Surplus Monthly" ad in the Sept. Access Training

15, 1996, issue of the Animal Finders' Guide lists such deals as a 7-month-old female black-eared marmoset, a tiny primate, for \$2,250, and a pair of 3 1/2-year-old servals, a type of exotic cat, for \$3,250.

"Many of the rare and endangered animals people used to treasure have become just another commodity to buy and sell," Atchison said.

Surplus **zoo** animals are just a portion of the thriving exotic-animal marketplace.

"It's unbelievable how large the market is," said Mitchel Kalmanson, president of the Lester Kalmanson Agency Inc. in Maitland, Fla, the largest insurer of **zoo** and exotic animals in the country. "It's hard to quantify whether the market is \$2 billion or \$20 billion, but there's no question it's colossal."

AZA members have their own monthly catalog of surplus called the Animal Exchange. Intended for AZA **zoos** only, the publication lists about 3,000 surplus animals for sale or free, according to several copies obtained by the Mercury News.

#### THE PAPER TRAIL

Transaction documents point to violations

While most **zoo** transactions are legal and don't violate AZA guidelines, an analysis of thousands of documents obtained from state and federal wildlife and agriculture officials, and **zoos** themselves, showed some transactions in apparent violation of AZA policies; some in violation of state or federal laws; and a few in violation of public health regulations issued by the Centers for Disease Control and Prevention to prevent the spread of disease.

\* In Alabama, officials at the Birmingham **Zoo**, also an AZA-accredited institution, claimed that nearly 20 spider monkeys -- most only 1 or 2 years old -- died on the same day on Sept. 27, 1989.

Animal transaction records and interviews showed some of those "dead" monkeys were sold by Birmingham to dealer Ed Novack of New York, who then sold them to Burton Sipp, a private **zoo** and pet store owner in New Jersey. Sipp acknowledged receiving spider monkeys from the Birmingham **Zoo** via Novack around that time.

Birmingham **Zoo** Director Jerry Wallace, who

was not at the **zoo** at the time, said the issue stemmed from a clerical error.

"They had these real old computers and they said, 'OK, now we're going to computerize,'" he said. "Here's the 18 monkeys, they all died and we don't have any records or detail of how they died so we're just going to put (all of the deaths) on this one date (Sept. 27, 1989). It was a matter of clerical ease."

But Wallace was criticized in a recent audit by the city of Birmingham for accepting cash for some animals and recording others as dead when they had been sold to dealers.

Wallace denied those allegations and said the city auditors were biased.

\* In Little Rock, Ark., **zoo** Director David Westbrook sold hundreds of animals directly to the owner of the Little Ponderosa Animal Auction in Illinois for the past 20 years in direct violation of AZA policy.

Westbrook was finally forced to resign May 15, but Little Rock Deputy Parks Director Bryan Day said it had nothing to do with selling animals to an auction. Day previously had defended Westbrook and his policies to the Mercury News.

Shortly after that, Little Rock lost its AZA accreditation, but for a different reason.

The suspension was for "a simple clerical error," said AZA spokeswoman Jane Ballentine. The **zoo** failed to mail a check to the U.S. Department of Agriculture to renew its license and had been operating without one.

\* Despite their claims of thoroughness in checking where dealers might place their animals, several **zoos** apparently did such a poor job of background checks that dealers and brokers convicted of state and federal wildlife charges are sold animals by such **zoos** as San Diego, Cleveland **Zoo**, Miami Metrozoo, Busch Gardens in Tampa, Fla., and Lincoln Park

Zoological Gardens in Chicago.

\* Although the AZA allows selling or loaning animals to circuses, some of those deals violated its mandatory standards that animals from member **zoos** "do not find their way into the hands of those not qualified to care for them properly."

In 1990, the Los Angeles **Zoo** sold an elephant to John Cuneo's Hawthorn Corp. in Grayslake, Ill., which rents elephants to circuses. Two of Hawthorn's elephants, including Hattie from the Los Angeles **Zoo**, died of tuberculosis in the summer of 1996 while on tour with Circus Vargas in Los Angeles. Both elephants had lost hundreds of pounds of weight, and autopsies showed the disease had infected 80 percent of their lungs. Yet both animals were worked until a couple of days before they died. The year before, in 1995, an elephant born at the Portland, Ore., **zoo** died in a maintenance shed at the Luxor Hotel in Las Vegas after being injured while performing tricks.

And in Milwaukee, city officials tried for more than two years to retrieve an elephant they had given to Hawthorn Corp. after learning in 1996 their elephant also had been exposed to TB, yet was on tour with a circus. The elephant had been at the Milwaukee **zoo** for 36 years when she was given to Cuneo.

"Lota (the elephant) did test positive for TB," said Thomas Mollan, chief of staff to Milwaukee County Executive F. Thomas Ament. Mollan said the **zoo** had a verbal agreement with the Hawthorn Corp. that Lota "would just be a companion to the herd" in Illinois. Instead, she was trained for circus and elephant rides.

Cuneo finally agreed last year to let Milwaukee have the elephant back -- if the **zoo** paid for her.

Lota will live out her life at a non-profit elephant sanctuary in Tennessee.

## Access practice exercises: Child-support in Illinois

(Adapted from an original NICAR exercise by Jim Mosely, of the St. Louis Post-Dispatch. All of the data sets in this version have been abbreviated from previous versions of this exercise.)

### Data and record layout

When Tim Novak worked for the Post-Dispatch, he knew that Illinois had been lax in collecting child support. He wanted to know how lax. He wondered: If Illinois is not aggressive in collecting child-support from parents who work at private companies, could it possibly be letting state employees get away without paying? To test the idea, he acquired two databases: A list of judicial orders against delinquent parents, and a list of state employees. These are your data tables.

#### Orders

Field Name	Type	Description
NAME	Text	Name of debtor, in the form LNAME SUFFIX FNAME MNAME
STREET	Text	Street address
CITY	Text	City of residence at the time of the order
STATE	Text	State of residence at the time of the order
ZIP	Text	Zip of residence at the time of the order
DOB	Date/Time	Date of Birth
ORD_DAT	Date/Time	Date of the order
DEBT	Number	Amount of the debt
NUM_KIDS	Number	Number of children it applies to

Note that each record refers to a judicial order, not a person. It's quite possible that one parent has been slapped with more than one judgment. You should also note the format of the name, along with any useful fields for identifying people.

#### Payroll

Field name	Type	Description
NAME	Text	Name of the employee in the form LNAME SUFFIX FNAME MNAME
STREET	Text	
CITY	Text	
STATE	Text	
ZIP	Text	
JOB_TITLE	Text	
AGENCY	Text	
RATE	Number	Pay rate (hourly, weekly or monthly)
YTD_GROSS	Number	Year-to-date actual pay

Note that the pay rate isn't comparable from one employee to another. Sometimes it's expressed as an hourly rate, other times it's expressed as a monthly rate. So if you want to know about pay, you'll have to use the YTD\_GROSS field. You should also note the format of the name, along with any useful fields for identifying people. In particular, pay attention to what's missing: Some employees' zip codes and addresses.

### Basic questions

1. Who has the most orders against him? Who owes the most? How much? What problems did you have?
2. From which city is the most child-support owed? What else would you need to know for this to be newsworthy?
3. Who owes the most in Peoria?

### Creating new data from old

4. Who has the largest per-child order? (In other words, what's the highest amount per kid listed in the database?) What happened to the orders for parents with no kids?
5. Create a table with all of the information you need about a person rather than an order. (HINT: Check to see which fields you'll want to see once you join it to the ILPAY table.)

### Joining

6. Joining solely on name, how many parents who work for the state of Illinois owe delinquent child-support payments?
7. How does this change if you make your join more selective, by joining on Name and Zip code?
8. How does it change if you make it even more selective, by joining on Name, Zip code, and Street Address?
9. What kinds of mistakes do you know exist in your match in joining only on name? What kind of mistakes happen when you make it more selective? What can you do about them?

## Answers: Child-support in illinois

### 1. Finding the person with the most orders, and the person who owes the most:

There are many possible ways to find out who owes the most. The most common way is also the worst:

Field:	NAME	NAME
Table:	Orders	Orders
Total:	Group By	Count
Sort:		Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		

Query1 : Select Query			
	NAME	CountOfNAME	Su
▶	WILLIAMS MICHAEL	12	
	JONES RODNEY	7	
	DAVIS COOPER	7	
	DAVIS MICHAEL	6	

In this view, Michael Williams had 12 orders against him, out of a database of 9,735 names. Problem is, there could be many Michael Williams' in Illinois who owe delinquent child-support payments.

If you look in your answer, you'll find five separate entries for Michael Williams, each with a different date of birth.

That's why good reporters never, ever use a name as the only way to distinguish one person from another. The only reasonably reliable way we have is to identify people by their Social Security numbers. However, because we can rarely get those from public records, we have to use alternatives. Try repeating this, making it more distinct by adding the date of birth, city, or both.

Field:	NAME	CITY	DOB	NAME
Table:	Orders	Orders	Orders	Orders
Total:	Group By	Group By	Group By	Count
Sort:				Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:				
or:				

Query1 : Select Query				
	NAME	CITY	DOB	CountOfNAME
▶	DAVIS COOPER	CHICAGO	10/13/51	7
	LOVELACE WILLIE	WAUKEGAN		3
	SMITH HENRY	DOLTON	11/28/48	3
	DUNCAN DANNY	CHICAGO	3/27/46	2

### 2. The debtor who owed the most was:

	NAME	CITY	DOB	CountOfNAME	SumOfDEBT
▶	MEEKS MELVIN	CHICAGO	4/16/46	1	100814.5
	TUCKER DAVID	PARIS		1	71125
	JAMES JR CHARLES	CHICAGO	7/8/49	1	70973.03
	ALEXANDER WILLIAM	CHICAGO	4/12/51	1	67600

3. *Chicago has the most due in child-support payments.*

This shouldn't be surprising. It's by far the biggest city. You'd need per capita debts to make it newsworthy.

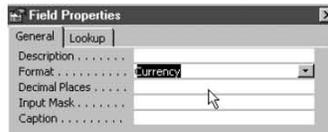
Field:	CITY	NAME	DEBT
Table:	Orders	Orders	Orders
Total:	Group By	Count	Sum
Sort:			Descending
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			

CITY	CountOfNAME	SumOfDEBT
CHICAGO	1532	\$6,490,501.86
CHGO	63	\$389,996.54
PEORIA	112	\$381,719.57
ROCKFORD	79	\$377,523.28
EAST ST LOUIS	74	\$359,059.45
SPRINGFIELD	70	\$357,705.01

Note that the second-biggest city is "CHGO," perhaps a misspelling of Chicago?

HINT: To get the values formatted as currency, use the menu item View, Properties while your cursor is anywhere in the column holding the Sum. Change the Format to Currency:



4. *Thomas Levi owes the most from Peoria, with \$34,359 in debts.*

Field:	NAME	CITY	NAME	DEBT
Table:	Orders	Orders	Orders	Orders
Total:	Group By	Where	Count	Sum
Sort:				Descending
Show:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:		"peoria"		

**Creating new data from old**

5. *Largest per-child order.*

Field:	PERKID
Table:	Orders
Total:	Group By
Sort:	
Show:	<input checked="" type="checkbox"/>
Criteria:	

To get a bigger form on which you can type your formula, press the "Expression Builder" button after typing PERKID:= into a blank Field column.



You have one other step: You have to filter for only parents with kids. In other words, Access (like every other program) can't compute anything divided by zero. It's infinity. So you need a criteria to tell it to only try on records that meet that criteria:

Field:	CITY	NAME	DEBT	NUM_KIDS	PERKID: (DEBT)/N
Table:	ILDEBTOR	ILDEBTOR	ILDEBTOR	ILDEBTOR	
Sort:					Descending
Show:	<input checked="" type="checkbox"/>				
Criteria:				<>0	

	NAME	DOB	PERKID
▶	BARNES NICKOLAS	9/10/54	46405.02
	ORR ROY		46140
	SMITH RICHARD	6/3/39	45606
	RICE LUTHER	12/29/50	44818
	POLING MICHAEL		41037
	DEESE DWIGHT	11/26/53	38410.28

6. Create a table for further work:

To create a table instead of seeing your answers, choose Make-Table under the Query menu item. Remember, this means you won't see your answer.

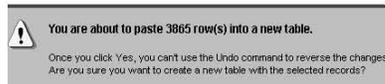


Call the table DEBTORS if you want to be able to follow along in the next step.

Now decide which fields you'll use to distinguish one person from another. I chose Name, DOB, City and Zip. Note that under STREET, I've chosen to use the last address that Access finds for this person, assuming that it's compiled chronologically. This means that if everything else is equal, I'm picking up only one record. Otherwise, an address like 101 E. 23<sup>rd</sup> Place will create a different record from 101 East 23<sup>rd</sup> Pl.

Field:	NAME	DOB	STREET	CITY	ZIP	DEBT	NUM_KIDS
Table:	ILDEBTOR						
Sort:	Group By	Group By	Last	Group By	Group By	Sum	Sum
Show:	<input checked="" type="checkbox"/>						
Criteria:							

Using my method, you'll get a message saying that 3,865 rows will be pasted into a new table. You won't see your answer until you switch to the Table section of the database (behind the query) and double-click on the new DEBTOR table.



As a last step, check the kinds of records you got. Remember, Access looks for exact matches. So Charles Abron of 317 W 101<sup>st</sup> Pl. shows up twice, because there are two dates of birth two days apart. This may be a mistake, or it may be two people. You don't know.

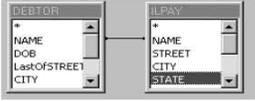
CHARLES ABRON	3/7/55	2635 W 118TH CHICAGO	60622
ABRON CHARLES	6/24/54	317 W 101ST P CHICAGO	60628
ABRON CHARLES	6/26/54	317 W 101ST P CHICAGO	60628

## JOINING

### 1. Parents working for the state (joining on name only)

Join by two fields by adding a line between the tables in your main query area.

Now decide which fields to use. I choose anything that will help me determine whether or not I have the same people in both tables: Date of birth, both of the addresses, and job titles. (For instance, if I have a 16-year-old official with a big-sounding title, I probably have a mistake.)



Now choose the fields you want to see. I choose anything that might help me identify whether or not there is more than one person in either file, and whether the match is close, or far away.

	NAME	DOB	JOB_TITLE	STREET	ADDRESS
▶	ABRON CHARLES	6/24/54	EXECUTIVE I	317 W 101ST PLACE	317 W 101ST PL
▶	ABRON CHARLES	6/26/54	EXECUTIVE I	317 W 101ST PLACE	317 W 101ST PLACE
▶	ADAMS FRED	6/28/53	PA INCOME MAINTENANCE SPEC I	5628 S HOYNE AVE	5628 S HOYNE AVE
▶	ADAMS MICHAEL	3/13/56	CHILD WELFARE SUPERVISOR	ADDRESS SUPPRESSED PER	1 SCARLETTE DR
▶	ADAMS MICHAEL	7/1/54	CHILD WELFARE SUPERVISOR	ADDRESS SUPPRESSED PER	3001 S KING DR
▶	ADAMS MICHAEL	3/2/63	CHILD WELFARE SUPERVISOR	ADDRESS SUPPRESSED PER	TAYLORVILLE CORR. CENTER

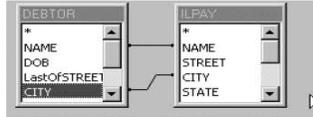
You get 354 names to check.

Pay attention to what happens here. Charles Abron and Michael Adams each appear once in the Payroll table. But the names appear more than once in the Debtor table. Access has linked each of the Debtor entries to the corresponding Payroll entry. This can have a big effect on your counts. For instance, if you have 4 David Smiths in one table, and 15 in another table, you'll get 4 x 15, or 60, matching records.

Make the match more selective by adding CITY as a join condition:

Add a line connecting the two CITY fields. (Note that they don't have to have the same names. One could be called CITY, the other PAYCITY.)

This time, you get 224 matches, with the main difference being that all of the employees without addresses (the ADDRESS SUPPRESSED records) are missing.



▶	ALBARRAN ALBERTICO	9/19/65	MENTAL HEALTH TECH III	144 WASHINGTON PK	144 WASHINGT
▶	ALVERIO SALVADOR	1/11/50	WORKER BLDG SERV	3044 N KEDZIE	3044 N KEDZIE
▶	ANDERSON DORIS	2/8/38	OFFICE ASSOCIATE	1326 E WASHINGTON ST	1326 E WASHIN
▶	ASBURY IRA	3/8/61	MENTAL HEALTH TECH II	3021 EZEKIEL AVE	3021 EZEKIEL A
▶	ASH JOSEPH	4/10/57	OFFICE ADMINISTRATOR II	801 S KEDVALE AVE	801 S KEDVALE
▶	AUTMAN JERMEL	6/28/72	MENTAL HEALTH TECH II	1825 GREENVIEW	1825 GREENVIE

Record: 1 of 224

Michael Adams is missing this time from the match, and Charles Abron still shows up twice.

Try it matching on Zip code, also.

This time you get 211 records. In other words, only 13 people had the same name in the same city, but not the same zip code.

December 19, 1994, Monday

## ILLINOIS MIRED IN CHILD-SUPPORT WOES; CRACKDOWN DISCOVERS WORKERS ON STATE PAYROLL LISTED AS DEADBEAT PARENTS

BY Tim Novak Illinois State Correspondent Data Analysis By Jim Mosley Of the Post-Dispatch Staff  
1994, St. Louis Post-Dispatch

Last spring, Gov. Jim Edgar declared war on deadbeat parents, asking everyone to help Illinois track down hundreds of people behind in their child-support payments.

Illinois officials could have started in their own offices.

The state's massive list of deadbeat parents includes more than 250 state employees who owe a total of about \$ 880,000 in child support, according to the state's computer records. Those deadbeat parents include 39 employees of the Illinois Department of Public Aid, the state agency charged with collecting child support.

State officials also would have found more than 600 deadbeat parents had they targeted accountants, real estate agents, nurses and others licensed by the Illinois Department of Professional Regulation. Those deadbeat parents owe a combined \$ 3.9 million, state computer records show.

A law, which has been in effect two years, allows the state to suspend or revoke the license of any professional whose child-support payments are delinquent. The state has never suspended any professional's license for being delinquent.

State officials say they have started withholding child support from employees hired since 1993, and currently are collecting about \$ 57,000 a year from 574 employees.

And, the state says, it began going after licensed professionals four months ago, collecting more than \$154,000 so far.

The state workers and licensed professionals are among about 217,000 parents who owe \$ 1.4 billion in back child support, state records show.

The state admits that some of its general figures on child support may be wrong and that, in fact, there may be people on the delinquent rolls who owe more, less or nothing.

State officials maintain that 95 percent of their records are accurate. They just can't say which ones.

"I think what you will find is that while the numbers may be a little bit off, the majority of the numbers are on-line," said Dianna Durham-McLoud, the administrator of the Illinois child-support enforcement unit. "I won't sit here and tell you there are no problems with our current computer system."

### Deadbeat State Employees

By examining the state's computer records of deadbeat parents, the Post-Dispatch found that the data included employees who work at a variety of state agencies - Department of Corrections, Department of the Lottery, Department of Mental Health, Department of Transportation - and state universities.

The newspaper found those employees by using computer software to match the state's payroll with a list of people who are behind in their child-support payments.

The computer analysis matched only people with the same name and street addresses on both computer lists.

Henry Smith, a staff assistant to Attorney General Roland Burris, apparently is one of those employees. Smith owes the state \$ 9,491.99 for welfare payments

that his children have received, according to the computer records and a check of his paper file. Those welfare payments were related to his being behind in his child-support payments.

Smith said he did not believe that information was correct. He pointed out that state officials withhold \$205 from his paycheck for child support.

"I am not a deadbeat dad," Smith said. "I am not a deadbeat dad working for the attorney general's office."

But Smith said he really did not know if he owes back child support, or if he needed to reimburse the state for welfare payments.

"I feel it's just better to give them the money and be done with it," Smith said. "I don't want to get in a battle with Public Aid. You can't win. They can say whatever they want."

State employees may have child-support payments withheld from their paycheck, but they are still classified as deadbeats - a term used by the state - if their payments are not current, Durham-McLoud said.

"As far as we're concerned, they still have an arrearage that needs to be satisfied, which leads to some level of contention," she said.

Because Illinois has a reputation for operating one of the most inept child-support collection systems in the country, experts in the field were not surprised to learn that more than 250 state employees are listed as delinquent.

"We, as taxpayers, are paying their salaries, so the least they can do is make sure state employees pay their child support so we are not supporting their children on welfare, in addition to paying their salaries," said Geraldine Jensen, president of the Association for Children for Enforcement of Support, a nonprofit group based in Toledo, Ohio.

If Illinois officials cannot collect from their co-workers and people who need a state license to work, Jensen and others wonder how the state could ever expect to collect from those who are hiding.

Durham-McLoud said: "I'm not sure a person who's looking at the facts would necessarily come to that conclusion."

She said child support had been withheld from the paychecks of 574 state workers who have been hired since 1993, when the state started cracking down on its own employees. Those 574 employees pay a total of \$57,133 a year in child support, about \$ 99 per person.

So what about the more than 250 state employees listed as deadbeats?

"We've started to run all of the state employees through the system," Durham-McLoud said. "Give us another year or so and we'll have everybody. . . . It's just a question of how quickly we get them."

Not quickly enough, says a suit filed against the state by the Legal Assistance Foundation of Chicago.

"We're saying they don't collect child support in accordance with federal law," said Joan Colen, an attorney for the Legal Assistance Foundation. "We're saying they don't do it enough and they don't do it fast enough. It bothers me that there are parents who won't support their children, and there are laws that would require them to do it, but the laws aren't enforced."

State officials are fighting the suit. But they say the child-support system has many problems: high caseloads, overburdened courts and parents who refuse to pay.

#### Professional Deadbeats

Illinois requires thousands of professionals - ranging from boxers to surgeons - to have a license to work in the state. Those licenses can be suspended or revoked for a variety of reasons, including the failure to pay back a student loan or make child-support payments.

No one ever has had a license suspended or revoked for falling behind in child-support payments.

The Post-Dispatch found that hundreds of those professionals are listed as deadbeat parents in the state's computer records.

State officials started cracking down on licensed professionals about four months ago, Durham-McLoud said. So far, she said, the state has collected \$154,102 in child support from professionals who agreed to pay rather than lose their license.

Tommy Brewer, director of enforcement for professional regulation, said state officials hoped to begin holding hearings next month to suspend the licenses of some professionals who owe child support.

Brewer added: "The idea is to get the money so the children can get the money. It's going to take maybe a year to get everything running smoothly."

#### Computer Headaches

Perhaps the biggest obstacle to collecting child support in Illinois is an antiquated computer filled with inaccurate data. The inaccuracies create headaches for parents - those who are supposed to pay and those who should get the money - and headaches for prosecutors who say they cannot rely on the state to accurately say what anyone owes.

"We experience problems in what we do here because of some computer problems with the state, disparity in amounts," said St. Clair County State's Attorney Robert Haida. "It's garbage in, garbage out."

The Post-Dispatch obtained a copy of the state's computer records for parents who are classified as behind in child-support payments. Some of them owe as much as \$200,000, and others as little as two cents, according to the records. But state officials admit some of those who are listed as deadbeats may actually owe nothing.

The Post-Dispatch picked 20 people from the computer system and had state officials double-check the amount of child support owed in each case. After checking their paper records, state officials reported different amounts in all but one case. Sometimes the debts were higher than what the computer said, and sometimes they were lower.

For instance, a Chicago man owed \$ 176,806 in child support, according to the state's computer records. When state officials double-checked his paper records, they said he owed \$ 226,710.

Such disparities further complicate an already difficult process.

"Put yourself in the position of the state's attorney trying to convince a judge that these numbers are right," said Robert Lyons, who runs the child-support division for the Cook County State's Attorney.

#### Clearing A Case

Timothy Szwed, an associate judge in Cook County, is very familiar with the child-support mess in Illinois.

The state's computer records say Szwed was \$ 3,965 behind in his payments for his two daughters. At the Post-Dispatch's request, state officials reviewed the judge's paper files and reported that he owed \$ 2,655.

Szwed said both numbers were wrong because he has never missed a payment.

"My money is taken right from my check by the state," Szwed said. "I've had to deal with errors between the (Circuit Court) clerk's office and the state before. This is now the third time.

"If word is out that I'm a deadbeat on child support, I'm a little bit miffed because that affects my reputation," the judge said.

Szwed mailed copies of his child-support payments to the Post-Dispatch, along with letters he had written to state officials disputing their claims that he was delinquent. Public Aid sent him a letter in October 1993, stating that he was, indeed, current.

But since then, Szwed has received another letter telling him that his income tax returns would be intercepted because he was behind in his child support. Szwed suspected that state officials had failed to update their records in February when his child-support payments were reduced from \$ 1, 100 a month to \$ 805, because one of his daughters moved in with him.

At the Post-Dispatch's request, Durham-McLoud checked Szwed's case again. The new verdict? Szwed is current in his child support and he never was a deadbeat.

Durham-McLoud said the state was unaware of the court order reducing Szwed's child support, even though he sent the state a copy of the order.

"We never got a copy of the court order reducing the child support," she said. "This is probably going to come out very clean for him."

Durham-McLoud said these kinds of problems should be eliminated when the state gets a new computer system late next year. That new system will allow court clerks and prosecutors to update the case files, instead of leaving it solely up to her staff.

"In order to make sure our records are as accurate as possible, we are going through all of our records with the clerks," she said. "They'll be enhanced greatly."

# Integrity checking your data

No database is perfect. Neither is a source or document. But there are ways to bulletproof your work so that you can take those things into account.

1. Do you have all the records?
2. Is there any way to double-check totals or counts?
3. Have you consistency-checked all fields?  
Do this by running a GROUP BY and sorting alphabetically by every important field – check it for spelling inconsistencies. For example, if you're analyzing a database of highway accidents, GROUP BY and sort ascending on the road name to check for inconsistencies.
4. Have you done other basic checks – all states are included, all cities/counties are included?
5. Do you have any missing data or blank fields?
6. Have you checked your methodology (if necessary) against other similar research?



## Cleaning dirty data in Access

One of the integrity checks everyone should do when they get a database is to do a group by on all the fields you plan to use to check for inconsistencies. For example, highway accident data from the state of California has highways listed in all sorts of ways: I-880, Interstate 880, I 880, The Nimitz... If you were to query based on road names, you might not get the correct answer.

Using an old practice data set: Tennessee campaign finance, let's practice using a lookup table to make the occupation field consistent.

First, let's do our check on the table called TENNGIVE:

OCCUPATION
CLAYTON HOMES INC
CLOTHING DIST
COBBLE PERS INC
COLBAR INC
COMMERCIAL REALTY CO
COMMUNITY VOLUNTEER
COMPUTERIZED RESEARCH TEC
CONNOR CONCEPTS
CONSULTANT
CONSULTEC SCIENTIFIC INC
COOPERS & LYBRAND
COULTER, JUSTUS & ASSOC
DENARK SMITH INC
DENARK-SMITH INCORPORATED
DEPT OF ENERGY
DEROYAL INDUSTRIES INC
DISTRIBUTOR
DIVERSIFIED ENERGY
DIXIE COIN MACHINE
DOCTOR
DOR ANESTHESIOLOGISTS
E TN BAPTIST HOSPITAL
EAST TENN CHILDRENS HOSP

As we go down the list of occupations, we notice that some occupations are really employers – so we might want to move them to a different field. Also, we see “attorney” and “lawyer.” We see “doctor” and “physician.” We need to make those fields consistent.

As you can imagine, go through all these records by hand or doing a search and replace would be VERY time consuming. In addition, we might not want to mess with this original field in case we actually do need to come back to what it said. So we're going to create a lookup table that will help us fill in consistent occupations.

First, we need to go back to our query design and run this query into a new table. To do this in the query design window go to QUERY| MAKE TABLE QUERY. Access will prompt you for a table name. Let's call it OCCUPATION. Then RUN the query. Access will tell you that it's about to copy 253 records to a new table – click OK.

Go back on open your occupation table. Click on the design icon to show the table's design. We need to add some more information to this table. Type a new field name in the second line. Call it NewOccupation. The choose FILE|SAVE and close the table. When you open it again, you'll see that the NewOccupation field is blank. We're going to fill it with the exact same information in the Occupation field. Click on the Occupation field name and choose EDIT|COPY, then click on the NewOccupation field header and choose EDIT|PASTE.

Now, let's go through the list and make some fixes. The way to do the fixes is to change NewOccupation to what you want it to be. For example, if we want to make Access change LAWYER to ATTORNEY – type ATTORNEY in the NewOccupation field next the LAWYER.

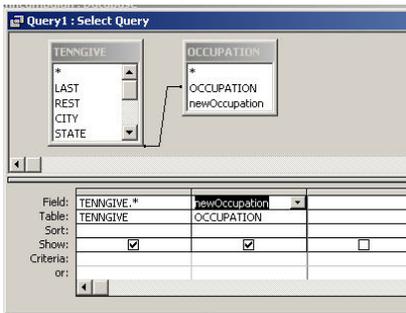
Other fixes are just cleanup. See below where it says DENARK-SMITH INC and DENARK-SMITH INCORPORATED. Let's make them consistent. (The easiest way to do this is to copy and paste the correction.)

OCCUPATION
CLAYTON HOMES INC
CLOTHING DIST
COBBLE PERS INC
COLBAR INC
COMMERCIAL REALTY CO
COMMUNITY VOLUNTEER
COMPUTERIZED RESEARCH TEC
CONNOR CONCEPTS
CONSULTANT
CONSULTEC SCIENTIFIC INC
COOPERS & LYBRAND
COULTER, JUSTUS & ASSOC
DENARK-SMITH INC
DENARK-SMITH INCORPORATED
DEPT OF ENERGY
DEROYAL INDUSTRIES INC
DISTRIBUTOR
DIVERSIFIED ENERGY
DIXIE COIN MACHINE
DOCTOR
DOR ANESTHESIOLOGISTS
E TN BAPTIST HOSPITAL
EAST TENN CHILDRENS HOSP

Some cleanup choices take some more critical thinking. For example do you want to make all DOCTORS doctors? If one occupation says SURGEON, should you change that to DOCTOR? These are some of the decisions you have to make. Do it by thinking about how you want to use the data – what you need from the data.

Once you've made all the fixes save and close the OCCUPATION table.

Now we have to do another query to make our fixes. Set up a QUERY for the TENNGIVE table. Then add the OCCUPATION table to the query (QUERY|SHOW TABLE). Now, set up the join. You'll want to join the tables by Occupation. Add all the fields from TENNGIVE and newOccupation from OCCUPATION:



Let's make a new table from this query called TENNGIVE2. You'll end up with a table with the original occupation (in case you need it later) and the new occupation.

What other fields in this database would you want to check for consistency problems?



## Fun with string functions

This is a sample of how to split apart strings using access. In this example, let's say our original field (called name) looks like this and it's all in a field called NAME:

FNAME LNAME TITLE

Create new fields for each of the parts you want to gain from your splits. You'll always want to keep the old information, in case something goes wrong.

Do an update query to update the FNAME field.

Click in the box where you type in what you update to and hit CTRL-F2 to bring up the expression builder.

Here's what you want to put in the expression builder. (Assume table1 is your table and address is your original address field)

Update FNAME with: `Left([Table1]![name],InStr(1,[Table1]![name]," ")-1)`

*In English: Pull off all the letters left of the space off the name field and stick it into the FNAME field*

Update LNAME with: `Mid([Table1]![name],InStr(1,[Table1]![name],"")+1,InStr(InStr(1,[Table1]![name],"")+1,[Table1]![name]," ")-(InStr(1,[Table1]![name],"")+1))`

*In English: Find the second space and pull off everything from one space past the first space to the second space and stick that in the LNAME field.*

Update TITLE with: `Right([Table1]![name],Len([Table1]![name])-InStr(InStr(1,[Table1]![name],"")+1,[Table1]![name]," ")))`

*In English: Pull off all the letters from the right (the length of name minus where the second space is) and stick it in the TITLE field.*

This process will work if you have other things such as commas or & separating the items in a field. If you have a word, such as AND, it's best to search for ' AND ' (a space before and after) so it doesn't just search for names that contain AND.