
Access Basics: When and How

Hal Jankowski
CACUBO Winter Workshop
Kansas City, MO April 2014

Learning outcome disclaimer

Access is a complex tool that requires significant hands on time to become familiar. It is too complex to become proficient in an hour. The intention of this program is to introduce the concepts of Access/databases and provide just enough knowledge to know when Access is a better tool than Excel.

To become proficient, you must take a hands on course or series of courses and invest hours, perhaps days, learning, experimenting, reading, and experiencing bad data, bad structures, hung queries, and ugly reports.

Learning Outcomes

- Orient to data
- What is Access?
- Terms
- Working with Data/Pick the Right Tool
- Viewing Data/Reporting
- More advanced tools

Orient to data

	A	B	C	D	E	F
1	event_id	session_id	email_address	first_name	last_name	title
2	2014WWINDY	100		Steve		Nonverbal Communication: Obtaining Better Outcom
3	2014WWINDY	100		Brandy		Nonverbal Communication: Obtaining Better Outcom
4	2014WWINDY	100		Jean		Nonverbal Communication: Obtaining Better Outcom
5	2014WWINDY	100		Danlin		Nonverbal Communication: Obtaining Better Outcom
6	2014WWINDY	100		Robert		Nonverbal Communication: Obtaining Better Outcom
7	2014WWINDY	100		Jann		Nonverbal Communication: Obtaining Better Outcom

We deal in a collection of data every day. The question is what is the best tool for the job

Orient to data

Excel



- Good for calculations
- Good when data doesn't repeat
- Good when all data exists in only a few sheets
- Good when data doesn't change
- Good for simple reporting (e.g. mailmerge)

Access



- Good when segments of data repeat
- Good when multiple sources of data
- Good when data change and changes need to be reflected elsewhere
- Good for complex reporting

Orient to data

The screenshot displays several tables in an Access database:

- event_info**:

event_id	event_name	location	max_cpe
2014WWINDY	2014 CACUBO \ Indianapolis, IN		9.5
2014WWKC	2014 CACUBO \ Kansas City, MO		9.5
- session_info**:

event_id	session_id	title	track	conten
2014WWINDY	100	Nonverbal Communication: Obtaining Better Outcomes by "Hearing What is Not Said"	General	COMM
2014WWINDY	100-I	Nonverbal Communication: Obtaining Better Outcomes by "Hearing What is Not Said"	General	COMM
2014WWINDY	101		Accounting/Te	ACCT
2014WWINDY	101-I		Accounting/Te	ACCT
2014WWINDY	102		Technology	SPEC
2014WWINDY	102-I		Technology	SPEC
2014WWINDY	103		Leadership/Suj	BETH
2014WWINDY	103-I		Leadership/Suj	BETH
- participant_info**:

ID	first_name	last_name	email_addr
1	Jim		
- sessions_participant**:

participant	event_id	session_id
1	2014WWINDY	100
1	2014WWINDY	103
1	2014WWINDY	201
1	2014WWINDY	301
1	2014WWINDY	400
1	2014WWINDY	401
1	2014WWINDY	504
1	2014WWINDY	700
2	2014WWINDY	100
2	2014WWINDY	103
2	2014WWINDY	202

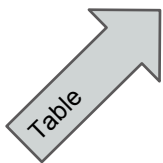
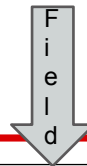
What is Access?

Microsoft Access is a database management program that combines a database engine with a graphic interface for interacting with that data.

It is particularly useful when a user doesn't have extensive programming experience or resources to program a full fledged desktop or web application.

Terms

Access	Excel "Equivalent"
Field. The most basic unit of data	Column
Record. A collection of related fields	Row
Table. A collection of related records	Worksheet
Database. A collection of related tables, records, and fields of data	Workbook



Working with data/pick the right tool

Take a dataset and separate out the data fields to the point where each record is 100% unique.

The screenshot shows a data management interface with three tables:

- event_info**:

event_id	event_name	location	max_cpe
2014WWINDY	2014 CACUBO \ Indianapolis, IN		9.5
2014WWKCC	2014 CACUBO \ Kansas City, MO		9.5
- session_info**:

event_id	session_id	title
2014WWINDY	100	Nonverbal Communication: Obtaining Better Outcomes by
2014WWINDY	100-1	Nonverbal Communication: Obtaining Better Outcomes by "H
2014WWINDY	101	
2014WWINDY	101-1	
2014WWINDY	102	
2014WWINDY	102-1	
2014WWINDY	103	
2014WWINDY	103-1	
- participant_info**:

ID	first_name	last_name	email_addr
1	Jim		
2	Sheila		

The **sessions_participant** table is partially visible at the bottom, showing a record for event_id 2014WWINDY and session_id 100.

Working with data/pick the right tool

Hal's rule of thumb. Access is the wrong tool unless:

- More than ~1,000 unique records -OR-
- More than 3 tables -OR-
- Mailmerge won't work for reporting -OR-
- Data isn't static/data integrity is critical to project

Working with data/pick the right tool

More than ~1,000 unique records

Why? Manipulation becomes cumbersome after a certain point--what if you don't copy a formula or sort ALL of the data?

Working with data/pick the right tool

More than 3 tables

Why? Multiple lookups and nested IF formulas are ugly (and hard to manage):

- =IF(ISNA(VLOOKUP(A130,Exceptions!\$A\$2:\$B\$1048576,2,FALSE))=TRUE,"N","Y")
 - =IF(L130="Y",VLOOKUP(A130,Exceptions!\$A\$2:\$B\$1048576,2,FALSE),"")
 - =IF(L169="Y",VLOOKUP(A169,Exceptions!\$A\$2:\$C\$1048576,3,FALSE),"")
- =IF(G242="N",IF(AND(E242="G",F242="Y"),MIN(400,40*IF(L242="Y",N242,C242)),IF(AND(E242="U",F242="Y"),MIN(400,34*IF(L242="Y",N242,C242))),
- IF(AND(E242="G",F242="N"),MIN(450,45*IF(L242="Y",N242,C242)),MIN(450,38*IF(L242="Y",N242,C242))))),SUM(I242:J242))

Working with data/pick the right tool

Mailmerge won't work for reporting

Why? Mailmerge is great when there is one record per recipient. When there is more than one, each recipient will get two (or more!) items. There is a way to combine these items in Word, but it's hard, and you need to know SQL anyway, so why not do it in Access?

Working with data/pick the right tool

Data isn't static/data integrity is critical to project

Why? Finding all the right fields to update in a massive spreadsheet is time consuming and prone to error/omission. Example--a key vendor changed addresses.

Which tool?

Name	Street Address	City	State	Zip	Phone	Birthday
John Doe	123 Street Road	City	ST	12345	123-456-7890	1/2/68
Jane Smith	987 Avenue Court	Town	ST	23456	123-987-6543	6/5/47
John Smith	456 Road Blvd	Village	ST	34567	123-321-0987	6/5/58
Jane Doe	6 High Rise Dr, #1	City	ST	12346	123-654-7890	9/8/81

Which tool?

Name	Order Number	Order Date	Product	Quantity
Jane Smith	1234	4/9/2014	Erasers	3
Jane Smith	1234	4/9/2014	Pencils	2
Jane Smith	1235	4/10/2014	Erasers	2
Bob Jones	1233	4/9/2014	Pencils	10
John Doe	1232	4/9/2014	Pencils	15
John Doe	1236	4/10/2014	Trash Can	3
John Doe	1237	4/11/2014	Trash Bag	200

Which tool?

Name	Order Number	Order Date	Product	Quantity
Jane Smith	1234	4/9/2014	Erasers	3
Jane Smith	1234	4/9/2014	Pencils	2
Jane Smith	1235	4/10/2014	Erasers	2
Bob Jones	1233	4/9/2014	Pencils	10
John Doe	1232	4/9/2014	Pencils	15
John Doe	1236	4/10/2014	Trash Can	3
John Doe	1237	4/11/2014	Trash Bag	200

Which tool?

- Customer Table
 - Customer ID
 - Customer Name
 - Other unique info, e.g. address (maybe) telephone (maybe), customer anniversary, etc...
- Product Table
 - Product ID
 - Product Supplier
 - Product Name
 - Product Price (maybe)
 - Other unique info, e.g. dimensions, description, etc...
- Order Detail Table
 - Order ID
 - Product ID
 - Quantity
- Order Summary Table
 - Order ID
 - Order Date
 - Customer ID

Viewing data/reporting

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5	2014WWINDY	100		Danlin		Outcom
6	2014WWINDY	100		Robert		Outcom
				Jann		Outcom

session_id: 100

title: Nonverbal Communication: Obtaining Better Outcomes by "Hearing What is Not Said"

first name: Jim, Sheila, Logan, Keith, Corey, Kevin

last name: [Redacted]

Viewing data/reporting

- Define relationships
 - One-to-one (should be all one table...)
 - One-to-many (one customer has many orders; one order has many products)
- Define how data is joined
 - Inner join
 - Outer join
- Sometimes a diagram helps

More advanced tools

- Forms
 - Reports
 - Write queries
 - Crosstab queries
 - Union queries
 - ODBC
 - Custom functions
-

Additional resources

- Access: The Missing Manual
- <http://allenbrowne.com/tips.html>
- Google (seriously)

I use all of these, nearly all the time. There are a lot of smart people who have posted good information to the web--unless you are doing something REALLY complex, you can usually find the answer online.

Questions

Thank you!

Hal Jankowski
jankowhl@uc.edu
