

Tutorial 5

Advanced Queries and Enhancing Table Design

(Sessions 1 and 3 only)



The Panorama Database

- Panorama.accdb file
 - for Tutorials 5-8
 - object names include tags
 - no spaces in field names
 - to promote upsizing opportunities
 - but datasheet column headings do include spaces... how?

- Caption property
 - used as column's heading on a datasheet
 - used as field's label on Forms and Reports
 - field's name used when a field lacks a Caption



List-of-Values Match

- A record is selected only if its field value matches one of a list of specified permissible values
- Use the **In** operator
 - **In("Holland", "Rockford", "Saugatuck")** in City field
 - equivalent to **"Holland " OR "Rockford " OR "Saugatuck"**
- Practice Time:
 - Create a query to display title, type and issue for any business, law or political article, sorted by type. Save as [qryListOfValues](#) when working correctly.



Non-Matching Value

- A record is selected only if its field value does **not** match the specified criteria
 - use the **NOT** logical operator
 - eg: **NOT IN("Lifeguard", "Ski Patrol ")** in PositionTitle field
- Practice Time:
 - Copy [qryListOfValues](#) and save as [qryNotListOfValues](#). Modify to show any articles **except** business, law or political, still sorted by type. Save when working correctly.

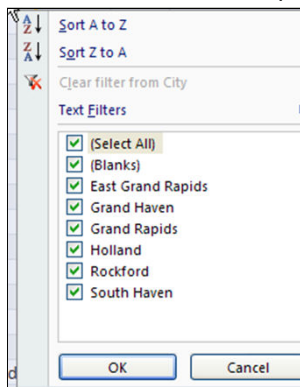
Defining Multiple Selection Criteria for Queries (review Tutorial 3)

- Combine two or more simple criteria using logical operators (AND, OR)
- AND
 - place conditions on the **same** Criteria row
 - **all** conditions on that row must be true for the record to be selected
- OR
 - place conditions on **separate** Criteria rows
 - **at least one** of the condition rows must be true for the record to be selected
- Practice Time:
 - Display title, type and issue for any business article or any article after the 1990's. Save as [qryMultiCriteria1](#) when working.
 - Modify criteria to display any business or law article as long as they were written by a freelance writer. Save as [qryMultiCriteria2](#) when working.

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Using AutoFilter

- AutoFilter List Box
 - at top of datasheet column
 - Select All, (Blanks), and a check box for each value present in the column



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Assigning a Conditional Value to a Calculated Field

- **Immediate If Function** (we used in Tutorial 3)
 - Returns one of two values, depending on a tested condition
 - IIF(condition, value_if_true, value_if_false)
 - Writer Type: IIF([Freelancer]=Yes, "Freelancer", "Staff Writer")
- **Concatenation operator** (we used in Tutorial 3)
 - & symbol
 - performs string addition
 - Author: [LastName] & ", " & [FirstName]
- **In Tutorial 5:**
Customer: IIF(IsNull([company]), [lastname] & ", " & [firstname], [company])

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Creating a Parameter Query

- Ideal when you run a query with **different criteria values** each time.
 - rather than editing query design grid, define a **parameter query** which prompts for desired value and automatically runs the query
- Place **[prompt message]** in the Criteria row to define the prompt message
 - can have multiple prompt placeholders
- Demo: create a query that prompts for a type of article (eg: BUS or POL) and then shows title, type, issue and length.
- When user presses Enter without typing a value, Null is used as the criteria value...
 - what was the fix? (page AC 236)

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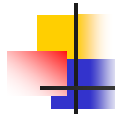


Practice Time: Parameter Query

- Create a query that prompts for both a start date and an end date, then shows title, type, issue and length for all articles published in the date range. Save as `qryDateRangeParameter` when working correctly.
- Create a query that prompts for a keyword, then scans the title field and displays title, type, issue and length for any articles containing the keyword. Save as `qryKeywordParameter` when working correctly.

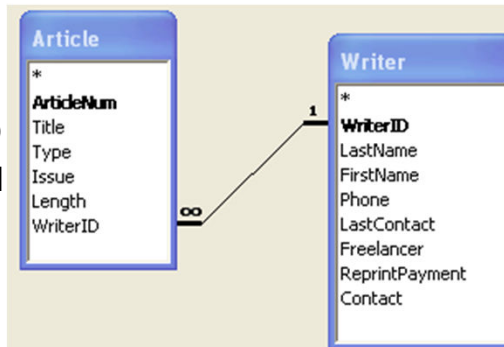
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Session 5.3



Lookup Field: Concepts

- Primary key
- Foreign key
- One-to-Many relationship
- For each Article, we need to **store** a _____
- When a user adds/edits a record in the Article table, they must identify the corresponding Writer but they won't have all the writerids memorized!



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Lookup Field: Concepts

- Selecting from a **combo box** is more convenient and less error-prone!
 - no need to memorize the writerid codes... just pick a writer by name!
- Practice Time:
 - Open Article table in Design View, then use Lookup Wizard in WriterID field to display last name and first name of writer, sort by last name and hiding the column of WriterIDs.
 - Switch to datasheet to verify

Typ	Issue	Leng	WriterID	Add
LAW	1995 May	1773	Yamamura	
POL	1996 Sep	1429	Waldeck	
POL	1973 Dec	1068	Waldeck	
ITV	1976 Dec	1994	Cox	
BUS	1977 Jul	803	Cohen	Julia Rice
EXP	1978 Apr	1866	Cox	Kelly
POL	1979 Aug	975	Epstein	Diane
EXP	1980 Jun	2085	Hall	Valerie
LAW	1981 Aug	1515	Johnson	Leroy W.
BUS	1982 Feb	1600	Kim	Chong
BUS	1984 Apr	1437	Kim	Chong
ADV	1985 May	1096	Lawton	Pat
EXP	1986 Jun	2103	Leavitt	Morris

- Re-establish Referential Integrity

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Lookup Field Properties

- Lookup Wizard sets a **foreign key** field's **properties** so you see descriptive text but store a value that matches the primary key value in the related table
- See the Properties in the field's **Lookup** tab

Field Name	Data Type	Description
ArticleNum	AutoNumber	
Title	Text	
Type	Text	
Issue	Date/Time	
Length	Number	
WriterID	Text	

Field	Table	Sort	Show	Criteria
WriterID	Writer	Ascending	<input checked="" type="checkbox"/>	
LastName	Writer	Ascending	<input checked="" type="checkbox"/>	
FirstName	Writer		<input checked="" type="checkbox"/>	

Enhancing a Lookup Wizard Combo Box

- Practice Time: use properties to have the combo box:
 - display **concatenated** full name
 - sort** the list rows



The screenshot shows a data grid with columns: ArticleNu, Title, Typ, Issue, Length, and WriterID. The WriterID column has a dropdown menu open, displaying a list of names. The names in the dropdown are: Yamamura, Shinjiro; Waldeck, Kristine; Waldeck, Kristine; Cox, Kelly; Cohen, Julia Rice; Cox, Kelly; Epstein, Diane; Hall, Valerie; Johnson, Leroy W.; Kim, Chong; Kim, Chong; Lawton, Pat; and Leavitt, Morris.

ArticleNu	Title	Typ	Issue	Length	WriterID
1	The Supreme Court's Business Attitude	LAW	1995 May	1773	Yamamura, Shinjiro
2	Wages and Prices Holding Steady	POL	1996 Sep	1429	Waldeck, Kristine
3	U.S. Plans Gas Rationing	POL	1973 Dec	1068	Waldeck, Kristine
4	Milton Friedman Interview	ITV	1976 Dec	1994	Cox, Kelly
5	Trans-Alaskan Oil Pipeline Opening	BUS	1977 Jul	803	Cohen, Julia Rice
6	Farm Aid Abuses	EXP	1978 Apr	1866	Cox, Kelly
7	Chrysler Asks U.S. For \$1 Billion	POL	1979 Aug	975	Epstein, Diane
8	Alternative Energy Sources	EXP	1980 Jun	2085	Hall, Valerie
9	25% Tax Cut Bill Approved	LAW	1981 Aug	1515	Johnson, Leroy W.
10	AT&T Antitrust Settlement	BUS	1982 Feb	1600	Kim, Chong
11	Building Trade Outlook	BUS	1984 Apr	1437	Kim, Chong
12	Cola Advertising War	ADV	1985 May	1096	Lawton, Pat
13	Bingham Family Scud	EXP	1986 Jun	2102	Leavitt, Morris

- Will this list show newly added writers?

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Lookup Wizard: List of Values (nib)

- Can define a List of Values
 - Guided Tour Assignment
 - the list of values is stored locally, within the field's definition
 - no need to join to another table... thus faster
- Practice Time:
 - Modify Writer table's Gender column to use a list of values. Have rows of the combo box display Female, Male, Unknown, but store space-saving codes of F, M, U.
 - Use datasheet to verify the Gender combo box works correctly.
- but the list of values is **static...**
 - to add/remove values from the list, you must edit the field's **RowSource** property

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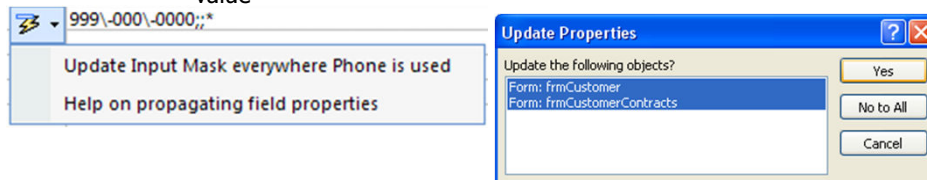
Using the Input Mask Wizard

- Input Mask property
 - a pattern for data to be **entered** in a field
 - author didn't have you do any data entry after setting an Input Mask!
 - controls the values a user can enter (helps with data validation)
 - makes data entry easier, more consistent, less error prone
 - symbol meanings: Help system or page AC 260
- Practice Time:
 1. change Writer table's Phone Input Mask to **(000) 000-0000;0;_**
 2. switch to datasheet; in a new row try to enter **602 555 gg32** what happens?
 3. change Writer table's WriterID Input Mask to **L000;1;***
 4. switch to datasheet; in a new row try to enter **FF38**; then **3FF8**; then **F338**, then **F33** then press [Tab] without entering last digit

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Propagating Property Changes

- Used to **propagate** field property changes to dependent objects
 - eg: you change a field's Input Mask property in the table, but previously built forms still have the old Input Mask
 - appears when you leave a property row after changing a property value



- ensures consistency and saves lots of time!
- A new SmartTag in Access 2003

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Object Dependencies

- Some database objects are dependent upon other objects
 - eg: a query that depends on one or more tables
 - eg: a report that depends on a query (which in turn depends on one or more tables)
- Database Tools | Object Dependencies
 - dependency info is generated for tables, queries, forms, reports
 - The Track Name AutoCorrect option must be enabled
 - Task Pane reveals
 - Objects that depend on Me
 - Objects that I depend on

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Data Validation

- Access automatically validates the field value entered against the field's data type
 - e.g.: rejects abc.33 in a Currency field
 - e.g.: rejects months other than 1-12 in a Date field
- Validation Rule property
 - a rule that sets limits on what can be entered in a field
 - an expression that evaluates as either True or False
 - checked when you leave the **field**
 - when the expression evaluates False, Access won't store the field value
- Validation Text property
 - specifies a message to display when a Validation Rule is **violated**
- Demo: Writer table's ReprintPayment field should have nonnegative values and should warn users when they enter anything invalid.

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Practice Time

- Since this publishing business was founded on 7/1/1992, the Writer table's LastContact field should accept only values between 7/1/1992 and today's date, and should display a helpful message to the user when they enter anything else.
 1. Use Validation Rule and Validation Text properties to perform the validation
 2. Switch to datasheet view and test that LastContact responds appropriately when a value of 1/1/1988 is entered and when a value of 12/25/2027 is entered.

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Table's Validation Rule

- Used to validate field values in the same record **against one another**
 - eg: [ClockedIn] < [ClockedOut]
- An expression that evaluates as either True or False
 - when the expression evaluates False, Access won't store the record
- Evaluated as the record is saved
- Is placed in the table's Property Sheet
- Demo:
 - (([Freelancer]=Yes And [ReprintPayment] Between 0 And 500) Or ([Freelancer]=No And [ReprintPayment]=0)



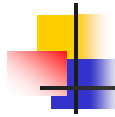
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Additional Field Properties

- Required property (nib)
 - when set to Yes, Access won't store the record if a required field lacks a value
 - Demo:
 - Set Required property to Yes for Article table's Title field
 - Change to Datasheet view and enter a new article without providing a Title
 - Note the less-than-friendly error message displayed to the user...

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Using a Validation Rule to Require a Value

- This technique provides better control over the error message.
- Practice Time:
 - Use the Validation Rule and Validation Text properties, shown at right.
 - Switch to datasheet and delete the title for an article, then try to leave the record with an empty title.
 - After viewing the error message, press [Esc] to abandon the change and restore the article's title.

Field Name	Data Type
ArticleNum	AutoNumber
Title	Text
Type	Text
Issue	Date/Time
Length	Number
WriterID	Text

Field Properties	
General	Lookup
Field Size	44
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Is Not Null
Validation Text	You must provide a Title for this article.
Required	No

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Working with Memo Fields

- Memo fields
 - longer, free-form text entries, typically sentences or paragraphs
 - ≤ 1GB, of which you can display 65,535 characters in a control on a form or report
 - store either plain text or rich (formatted) text
- Text Format property
 - determines whether a Memo field can store rich-formatted text
- Append Only property
 - determines whether Access tracks changes made to a Memo field
 - defaults to No
 - when set to Yes, Access keeps track of all versions of the Memo field value so can view each version of the field value, along with a date and time stamp
 - view the history by right-clicking Memo field in datasheet (nib!)

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Designating a Trusted Folder

- Trusted Folder
 - a folder that you designate as trusted and where you place files (databases, spreadsheets, documents) that you know are safe
 - i.e., files that don't contain malicious macros or VBA code
 - Permits execution of macros and Visual Basic code
 - when you open a database from a trusted folder, Access doesn't display a Security Warning
 - File | Options | Trust Center | Trust Center Settings... | Trusted Locations

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