UFHealth
INFORMATION TECHNOLOGY TRAINING

Office

Access Tables 1: Properties

training@health.ufl.edu

Access Tables 1: Properties

1.0 hours

UF UNIVERSITY of FLORIDA

Pandora Rose Cowart
Education/Training Specialist
UF Health IT Training

C3-013 Communicore
PO Box 100152
Gainesville, FL 32610-0152

(352) 273-5051
prcowart@ufl.edu
http://training.health.ufl.edu

Class Evaluation: https://ufl.qualtrics.com/jfe/form/SV_1OjjkI6lRsKV3XT

Updated: 7/27/2020

Naming Fields

Names fields, controls, and objects in Microsoft Access:

- Can be up to 64 characters long.
- Can include any combination of letters, numbers, spaces, and special characters
    - except a period (.), an exclamation point (!), an accent (`), and brackets ([ ]).
- Cannot begin with leading spaces.
- Cannot include control characters (ASCII values 0 through 31).

You can include spaces in field names, however they can produce naming conflicts in Visual Basic for Applications, VBA. I recommend avoiding using VBA in your database.

Data Types

Data Type	Description
Short Text	This data can contain any alphanumeric characters, up to 255 characters (letters, numbers, symbols, and punctuation).
Long Text	Long Text can contain any alphanumeric characters, up to 63,999 characters (letters, numbers, symbols, and punctuation).
Number	A Number field is limited to numeric input (numbers, decimal points, +/- signs). This is a field that can be used for mathematical purposes. -2^{31} to $2^{31}-1$
Large Number *(v.2016+)*	The Large Number data type stores a non-monetary, numeric value and is compatible with the SQL_BIGINT data type in ODBC. Use this data type to efficiently calculate large numbers. -2^{63} to $2^{63}-1$
Date/Time	Date/Time allows you to enter Dates and/or Times. Access will store these dates and times similarly to Excel, such that you will be able to do math with them.
Currency	This field type is a monetary value, accurate to four decimals. This means you will lose anything less than 0.0001. Good for home budget, bad for work.
AutoNumber	This field is most often used as a primary key, because it creates a unique sequential number for each record. Can be set to random instead of sequential.
Yes/No	This is a binary field, its format can be set to Yes/No, True/False, or On/Off. In each of these cases, there are only two options.
OLE Object	OLE - Object Linked or Embedded. This is the option you would use if you needed to embed or link a file to a record. Recommend to use an attachment instead.
Hyperlink	A hyperlink data type would be used for file paths, email addresses, and web pages. These can be up to 2048 characters.
Attachment	Allows you to attach a file to the record. Attachment fields provide greater flexibility than OLE fields, and they use storage space more efficiently. If you have many attachments, consider using a Hyperlink to a file folder to save space.
Calculated	Calculations are more efficient in Queries, Forms and Reports. However, you can use this to create a calculation in the table, based on values in this table.

A note about AutoNumbers

When AutoNumbers are set to increment the field will count in ascending order (1, 2, 3). When a record is deleted, the table is not renumbered*.

AutoNum	Name
1	Jack
2	Jill
3	John

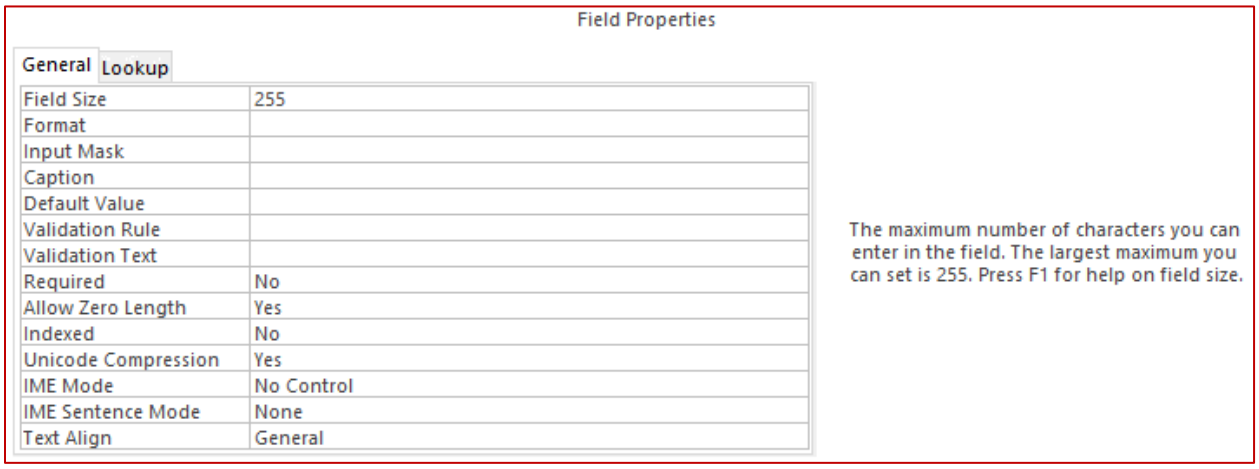
AutoNum	Name
1	Jack
~~2~~	~~Jill~~
3	John

AutoNum	Name
1	Jack
3	John

AutoNumbers can be random instead of incremented. This allows the data to be shuffled, instead of being displayed in the order you created the records. Random numbers are treated the same as the incremented numbers. When the record is deleted its AutoNumber is gone.

General Properties

Each data type has different field properties that will appear at the bottom of the screen. These are the general properties for a Short Text field. The properties will change depending on the data type. Access provides a brief description of each properties in the Short Text on the on the right side of the window.



Field Size

Field Size Short Text

The maximum number of characters including spaces is 255. If you need more than 255 characters, a Long Text field can hold up to 63,999 characters (including spaces). If you need more than, a Large Short Text field can hold, you should place the Short Text in an outside file, such as Word, and link to it with a Hyperlink field or attach it using the Attachment field.

Access will hold the Short Text field to the limitation you set, for example for a "State" field you may limit the field size to two, so that the user will only be able to enter the abbreviations, "FL" instead of "Florida".

Access only saves the characters that are entered, no matter how large the Field size setting is for Short Text fields the storage size is only measured by the contents.

Field Size Number, AutoNumber

The field size of a Number or AutoNumber determines the range of the number as well as the size of the Long Text storage.

Setting	Description	Storage Size
Byte	Stores numbers from 0 to 255 (no fractions).	1 byte
Integer	Stores numbers from -32,768 to 32,767 (no fractions).	2 bytes
Long Integer	(Default) Stores numbers from -2,147,483,648 to 2,147,483,647 (no fractions).	4 bytes
Single	Stores numbers from -3.40E38 to-1.40E-45 for negative values and from 1.40E-45 to 3.40E38 for positive. (7 significant digits)	4 bytes
Double	Stores numbers from -1.8E308 to -4.9E-324 for negative values and from 1.8E308 to 4.9E-324 for positive values. (15 significant digits)	8 bytes
Replication ID	Do not use this value unless you are working in or implementing the design of a replicated database.	16 bytes
Decimal	Stores numbers from-10^28 -1 through 10^28 -1 (30 significant digits)	12 bytes

New Values

AutoNumber

This General Property only appears with AutoNumbers. The options are **Increment**, which means the AutoNumber will count each record, 1,2,3…, or **Random**, which means the AutoNumber will randomly choose a number within the field size to represent that record.

Format

Format Short Text, Long Text, Hyperlink

The selection box for these formats are empty, but you can create a few custom formats:

< (lowercase), > (uppercase), @ (requires data, at least a space), & (data not required)

Setting	Data Entered	Will Display
@@@-@@-@@@@	465043799	465-04-3799
@@@@@@@@@	465-04-3799	465043799
>	HSC/ITC Training	HSC/ITC TRAINING
	http://training.health.ufl.edu	HTTP://TRAINING.HEALTH.UFL.EDU
<	HSC/ITC Training	hsc/itc training
	http://training.health.ufl.edu	http://training.health.ufl.edu
@;"Unknown"	Null value (leave blank)	Unknown
	HSC/ITC Training	HSC/ITC Training

Format Number, Currency, AutoNumber

There are several options for the number format:

Setting	Description
General Number	(Default) Display the number as entered
Currency	Use the thousand separator, dollar sign, 2 decimals
Euro	Use the euro symbol, regardless of the currency symbol specified in the regional settings of Windows
Fixed	Display at least one digit, set Decimal places property with this format
Standard	Use the thousandth separator with two decimal places (equivalent to Excel's comma style)
Percent	Multiplies the value by 100 and append a percent sign (%)
Scientific	Use standard scientific notation. 4,000,000 = 4.00E+06

It is possible to create your own custom Number formats. Custom number formats can have one to four sections with semicolons (;) as the list separator. Each section contains the format specification for a different type of number.

Section	Description
First	The format for positive numbers.
Second	The format for negative numbers.
Third	The format for zero values.
Fourth	The format for Null values.

For example, you could use the following custom Currency format:

$#,##0.00[Green];($#,##0.00)[Red];"Zero";"Null"

You can create custom number formats by using the following symbols.

Symbol	Description
. (period)	Decimal separator. Separators are set in the regional settings in Windows.
, (comma)	Thousand separators.
0	Digit placeholder. Display a digit or 0.
#	Digit placeholder. Display a digit or nothing.
$	Display the literal character "$".
%	Percentage. The value is multiplied by 100 and a percent sign is appended.
E- or e-	Scientific notation with a minus sign (-) next to negative exponents and nothing next to positive exponents as in 0.00E-00 or 0.00E00.
E+ or e+	Scientific notation with a minus sign (-) next to negative exponents and a plus sign (+) next to positive exponents, as in 0.00E+00.

Custom Number Format Examples:

General	0	12	12.3456	12345678.9	0.123456789
0	0	12	12	12345679	0
#		12	12	12345679	
#.00	.00	12.00	12.35	12345678.90	.12
0.00	0.00	12.00	12.35	12345678.90	0.12
$0.00	$0.00	$12.00	$12.35	$12345678.90	$0.12
Currency	$0.00	$12.00	$12.35	$12,345,678.90	$0.12
Euro	€0.00	€12.00	€12.35	€12,345,678.90	€0.12
Fixed	0.00	12.00	12.35	12345678.90	0.12
Standard	0.00	12.00	12.35	12,345,678.90	0.12
Percent	0.00%	1200.00%	1234.56%	1234567890.00%	12.35%
Scientific	0.00E+00	1.20E+01	1.23E+01	1.23E+07	1.23E-01

Format Date/Time

General Date	6/19/1994 5:34:23 PM
Long Date	Sunday, June 19, 1994
Medium Date	19-Jun-94
Short Date	6/19/1994
Long Time	5:34:23 PM
Medium Time	5:34 PM
Short Time	17:34

The preset formats for the Date/Time field are shown on the left. As with our Number field, Date/Time fields are not limited to the options given, we can build our own custom formats. If you wish to make your own date/time format use the table below as a guide.

Dates for Tuesday, February 3, 2004					
Day		**Month**		**Year**	
d	3	m	2	yy	04
dd	03	mm	02		
ddd	Tue	mmm	Feb	yyyy	2004
dddd	Tuesday	mmmm	February		
Times for 1:02:05					
Hours		**Minutes**		**Seconds**	
h	1	n	2	s	5
hh	01	nn	02	ss	05

If you would like to use the 12-hour clock you need to add the appropriate designator at the end. Access will accept any of the following: AM/PM; am/pm; A/P; a/p; AMPM.

Single Y for the year will give you the number of days. For example, February 2nd would be 33.

If you want to add a comma or other separator to a custom format, enclose the separator in quotation marks as follows: mmm d", "yyyy.

Examples:

Setting	Result
ddd", "mmm d", "yyyy	Mon, Jun 2, 1997
mmmm dd", "yyyy	June 02, 1997
"This is week # "ww	This is week # 22
"Today is "dddd	Today is Tuesday

Symbol	Description
ddddd	Same as the Short Date predefined format.
dddddd	Same as the Long Date predefined format.
w	Day of the week (1 to 7).
ww	Week of the year (1 to 53).
q	Quarter of the year (1 to 4).
y	Number of the day of the year (1 to 366).
ttttt	Same as the Long Time predefined format.

Format Yes/No

The preset formats for the Yes/No field are Yes/No, True/False, or On/Off. It is possible to create custom formats as well, however, no matter which format you choose you will only see the check box in the datasheet view. To change the check box into a Short Text field so you can see your formatting options, you must go to the Lookup properties tab and change the Display Control to a Short Text Box.

To build a custom format you **must** start with a leading semicolon (;) then what to do if the item is true, a semicolon, and what to do if it is false.

Example: ; Always (blue); Never (red)

Decimal Places

Numbers, Currency

The list gives the numbers 0 through 15. The Decimal Places property setting has no effect if the Format property is blank or is set to General Number. Your choice will affect only the number of decimal places that display, not how many decimal places are actually stored.

Input Mask

Short Text, Numbers, Date/Time, Currency

Input masks allow us to set a template, a pattern that our data must follow. This gives our data a consistent look. Input masks must be Short Text or Date fields. There is an Input Mask Wizard. To launch the wizard, put yourself in the input mask option of your general properties and press the ellipsis (…) button that will appear at the end of the line.

The Input Mask Wizard has several predefined formats for the most common data entry items, such as Phone Number, Socical Security Number and Zip Code.

The input mask option appears for Short Text, Numbers, Date/Time and Currency fields, but the Wizard will only build the mask for Short Text and Date/Time fields. If you would like to build your own Input Mask such that it will be added to the Wizard you can click on the Edit List button on the first screen of your Wizard. From here you can add in Masks that you may need on a regular basis. Things such as Medical Record Numbers or GatorLink ID's.

L for letters; 9 for optional numbers; 0 for required numbers; A for alphanumeric characters

Examples:

000-00-0000	Social Security Number
(999) 000-0000	Phone Number
00000-9999	US Postal Code
00/00/9900	Date
0000-0000	Med Rec #

Caption

All Field Types

Captions replace the field name in the datasheet view of tables and queries, and are used as labels on the forms and reports. The caption overrides the field name for all data display purposes, but maintains the field name in the design views or text boxes. If you need to have the columns shown with the actual field names, you can delete the captions.

Default Value

Short Text, Long Text, Number, Date/Time, Currency, Yes/No, Hyperlink

The Default Value is the data that will be automatically entered into the field when doing your data entry. For example, most of your customers live in Florida, so you may set the default state to FL so you can skip over that column while doing your data entry.

Validation Rule

Short Text, Long Text, Number, Date/Time, Currency, Yes/No, Hyperlink

Validation Rules limit the values that are entered into this field. Any valid expression can be entered for your rules. Most of the common logic values can be used to create your Validation rules. See the Queries 2 handout for a more extensive list, including using wildcards.

Logic Value	Meaning	Examples	
<	Less Than	< 25	<1/1/2005
>	Greater Than	>12	>Now( )
<>	Not Equal	<>0	<> "Monday"
=	Equal	*Used combinatorial with other validation.*	
And	Combinational And	>12 And <32	>#1/1/05 And <#2/1/05#
Or	Combinational Or	="M" or ="F"	="FL" or ="GA"
Is Null	Can be left blank	*Used combinatorial with other validation.*	

Validation Short Text

Short Text, Long Text, Number, Date/Time, Currency, Yes/No, Hyperlink

Validation Short Text is the error message that will be displayed when your data does not match the Validation Rule Property. You have 255 characters for your error message.

Required

Short Text, Long Text, Number, Date/Time, Currency, Hyperlink, Attachment

This option asks if data is required to be entered into the field. If you mark this property **Yes**, the record cannot be saved without an entry, but Access will allow an entry such as a space.

Allow Zero Length

Short Text, Long Text, Hyperlink

This property is similar to the **Required** field, however it will not allow you to leave the field with spaces, this property forces you to actually enter data into the field.

Indexed

Short Text, Long Text, Number, Date/Time, Currency, AutoNumber, Yes/No, Hyperlink

An index speeds up searches and sorting on a field, but may slow updates. There are three choices for indexing your data: "No", "Yes - Allow Duplicates", "Yes - No Duplicates". The "Yes - No Duplicates" option is automatically used for Primary keys, and will prohibit duplicate values in the field.

Indexes are most useful in very large databases, when searching, filtering and sorting the data may be time consuming. For the databases you will build, you probably should not index beyond the primary key fields.

Unicode Compression

Short Text, Long Text, Hyperlink

Beginning with Access 2000, Microsoft changed the way Access saved Short Text type data fields. In Access 97 and earlier each character represented one byte, under the new Unicode Character-Encoding Scheme, each character represents two bytes, thus new versions of Access now require more storage space. Unicode Compression is automatically set to Yes to compress the data as it's saved. The data is automatically uncompressed as it is accessed. For more information on Unicode compression, see the Access Help File.

IME Mode

Short Text, Long Text, Date/Time, Hyperlink

The Input Method Editor (IME) allows users to enter and edit Chinese, Japanese, and Korean characters. See the help files for more details on the options.

IME Sentence Mode

Short Text, Long Text, Date/Time, Hyperlink

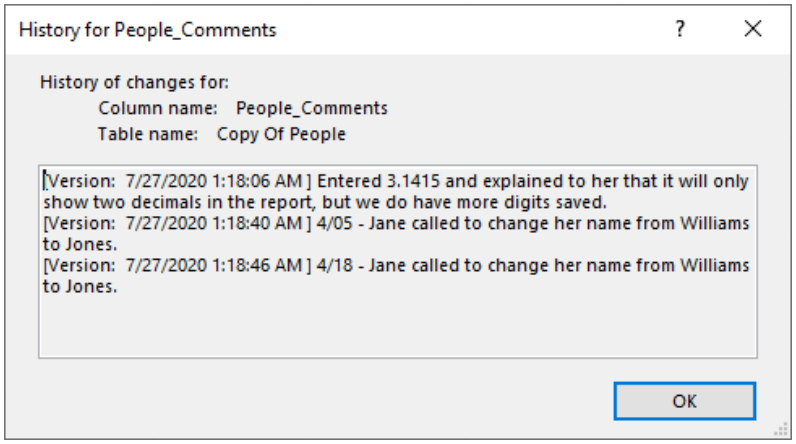
As with the IME Mode, this option is for use of Chinese, Japanese, and Korean characters.

Text Format

Long Text

A Long Text field can be set to have **Rich Text** Formats. That means that you can change font formats and use bullets inside a Long Text field if you set this field property to Rich Text.

In the datasheet view you can right-click in the cell and choose **Show Column History**. You'll see a window like this:



Text Align

Short Text, Long Text, Number, Date/Time, Currency, AutoNumber, Yes/No, OLE, Hyperlink

This property allows you to set the Text alignment. By default, text appears on the left of the cell, numbers and dates on the right. This property allows you to set your own horizontal alignment.

Append Only

Long Text, Hyperlink

This property tracks the field update history. You can view the history of an Append Only field by right-clicking a value in the field, and then clicking Show column history on the shortcut menu. Access displays a history of changes to the field value.

Show Date Picker

Date/Time

The default for this value is always with dates, so there is a little calendar that appears at the end of any Date/Time field. The calendar is not helpful with older dates (such as birthdays) nor with times. If you set this value to Never, it will remove the calendar.

Class Exercise

1. If necessary download the database
   a. https://training.health.ufl.edu/zoom/access/

2. Open the database Access-Tables1.accdb

3. NOTE: I'm leaving out the "People" prefix and adding spaces for ease of viewing the fieldnames.

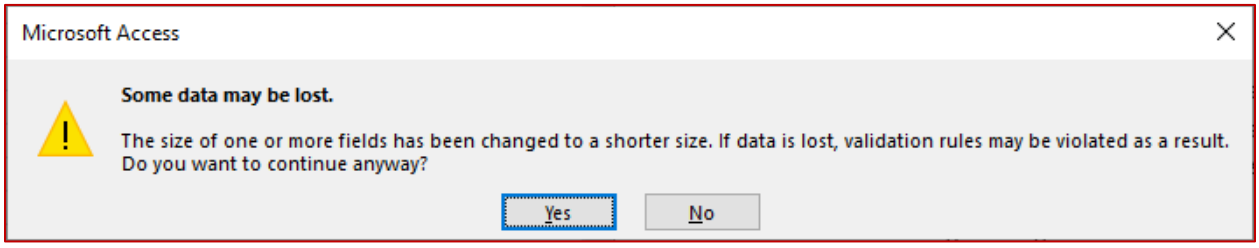
4. Open table People, set the properties in the **Design** view
   a. Field sizes

   How many characters, or how big of a number do you want to allow? Text values will save only the characters you type, but numbers will take up a block of memory based on its field size. See Page 5 for details.

   Set the field sizes

   - Middle Initial ..... 1 character
   - Handedness ..... 1 character
   - Favorite Number ..... Double

   Click **Yes** on the warning message:



   b. Format

   How do you want the data to be displayed in the datasheet view? This does not change the values in the saved data, only how it is displayed. These properties can be changed in the individual queries, forms, and reports.

   Set the formats

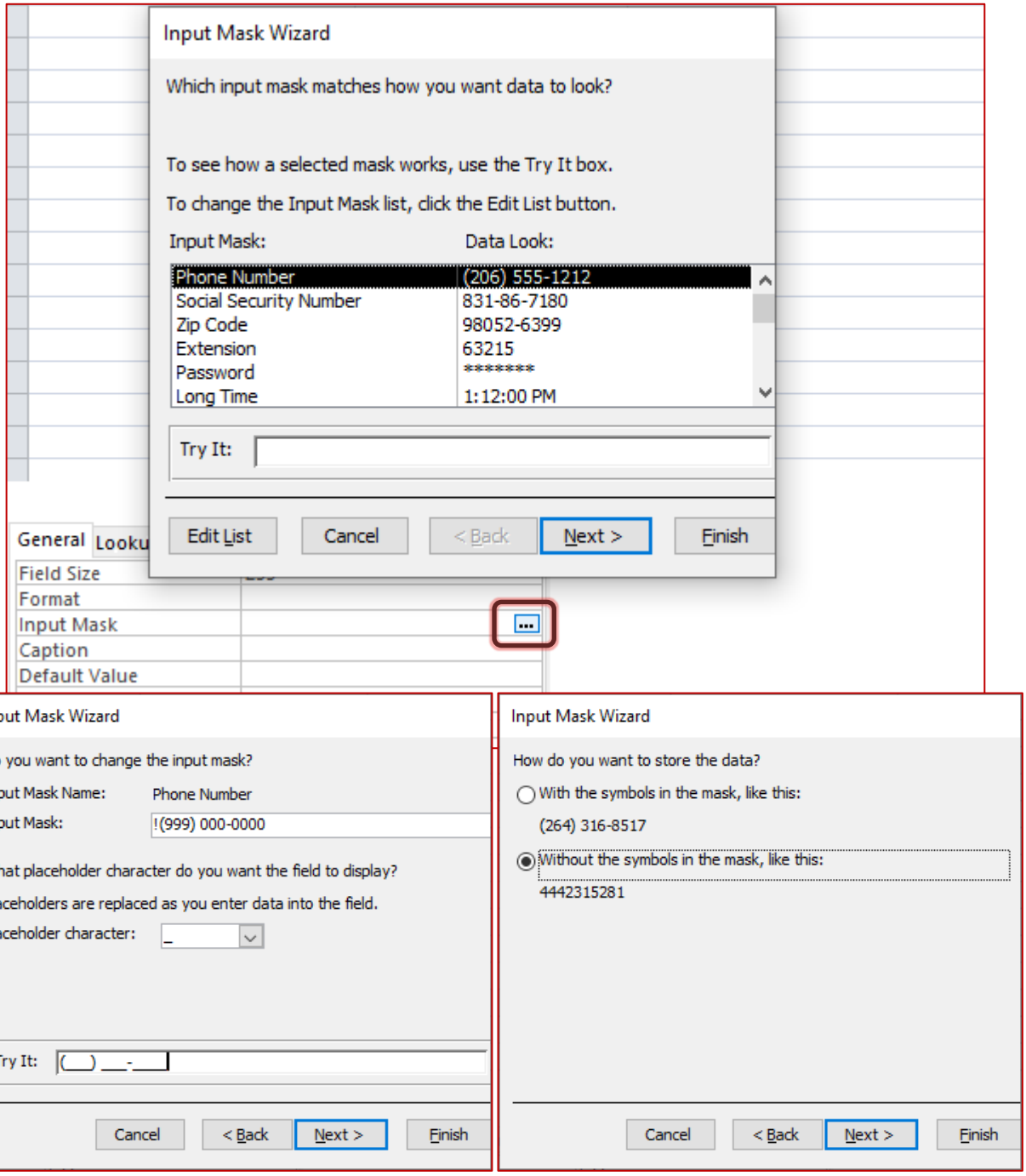
   - Uppercase Last Name ..... >
     - View datasheet
     - Remove format
   - Lowercase Email Addresses ..... <
   - Capitalize Handedness ..... >
   - Favorite Number ..... Standard, 2 decimals
   - Format Begin Date ..... mm/dd/yyyy
   - Format Begin Time ..... Medium Time

c. Input Mask

Do you want Access to fill in the extra characters? This property allows data to be entered in using a pattern you set. Use the build button (…) at the end of the property to launch the wizard to build this data mask. Nine for optional numbers, zero for required.

Set the input masks

- Phone # ..... Phone Number - (999) 000-0000
- Begin Date ..... Short Date - 99/99/0000



d. Caption

Do you want the titles/headers to be different than the field names? Remember this setting will follow through to the creation of the queries, forms, and reports.

Set the Caption

- People_AutoNumberID..... AutoID
- People_FirstName..... First Name
- People_MiddleInitial..... Middle
- People_LastName ..... Last Name

e. Default Value

Do you have a value in mind for a field? These entries will show on new records but can be changed in the cells at any time. Numbers often have a default value of zero. The danger of default values is that the data will be filled in automatically. If we leave Favorite Number with the default of zero, we may end up with lots of people listed with a zero value.

Set the Default Values

- Favorite Number..... Leave blank
- Email List ..... Yes
- Create Date ..... Date( )

Right-click on the column heading to hide Create Date Column in Datasheet view.

f. Validation Rule

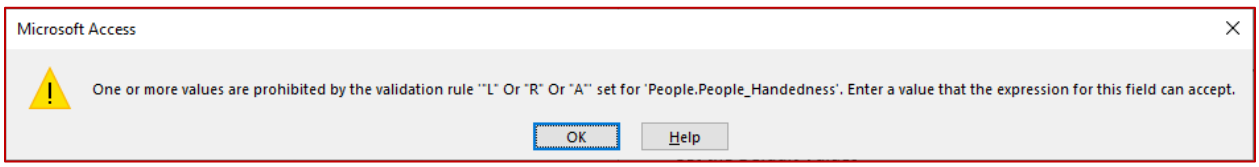
Do you only want to allow certain values in this field? Use Logic functions to create criteria for data entry.

Set the validation rules

- Handedness ..... "L" or "R" or "A"
- Begin Date..... > #1/1/2020#

g. Validation Text

Change this setting if you would you like a more user-friendly error message than this one:



Set the validation text

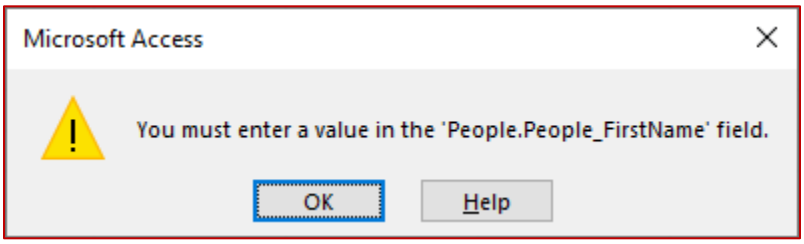
- Handedness ..... Please enter L, R, A or leave blank
- Begin Date..... Date must be after 1/1/2020

h. Required

Are there fields that you always want completed before you save the record? Access will not check to see if this value is entered until you try to save the record.

Set the Required fields

- First Name..... Yes
- Last Name ..... Yes

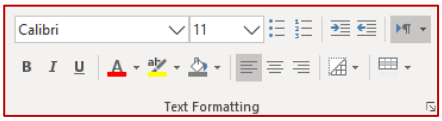


i. Text Format

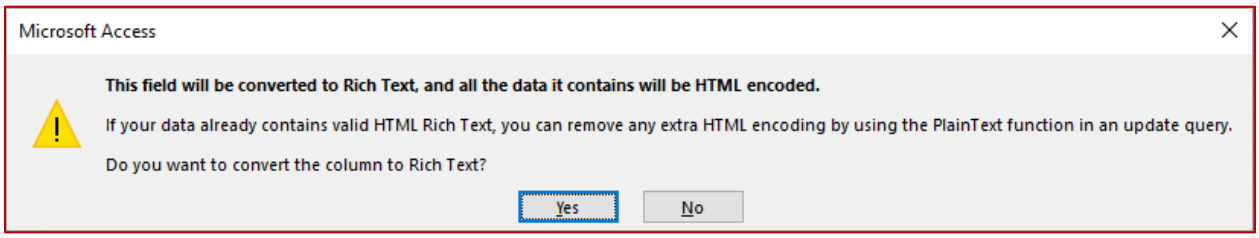
When you change the font formats of any field, it changes all the values in the table. However, you can set Long Text fields to allow for Rich Text. This means you can format the fonts inside that one field. This is awesome if you want to copy the contents of an email address and paste it into a field. Watch for this format on the Reports to create custom HTML messages for your custom Text Boxes. Font and alignment formats are on the Home tab, and include bullets and numbering.

Set the text format

- Comments..... Rich Text



Click **Yes** on the warning message:



j. Date Picker

The little calendar pops up when you are entering data into a Date/Time field. If you are entering a recent date, this calendar is helpful. If you're entering a value like a birthdate, or a time, you might want to lose the calendar

Set the date picker

- Begin Time ..... Never