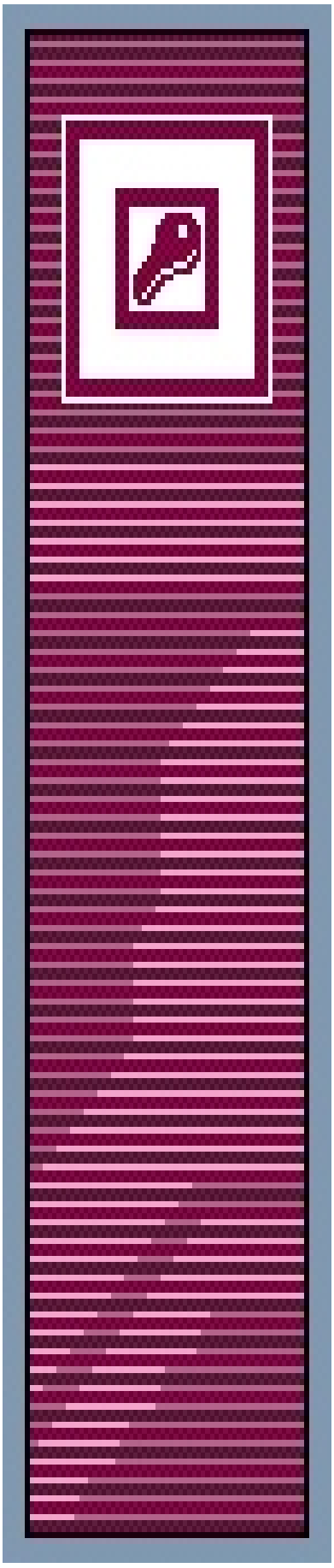

Databases and Microsoft Access II

Northern New York Library Network Workshop

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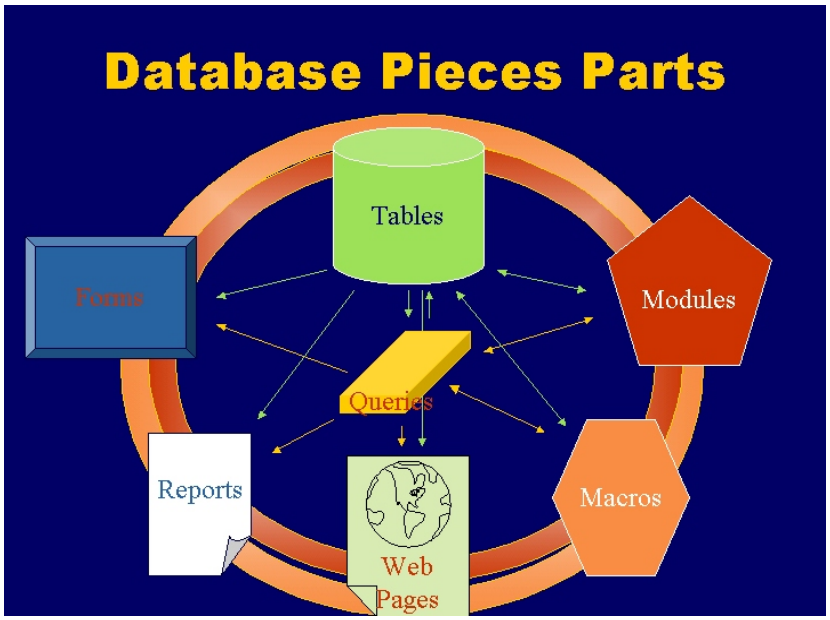
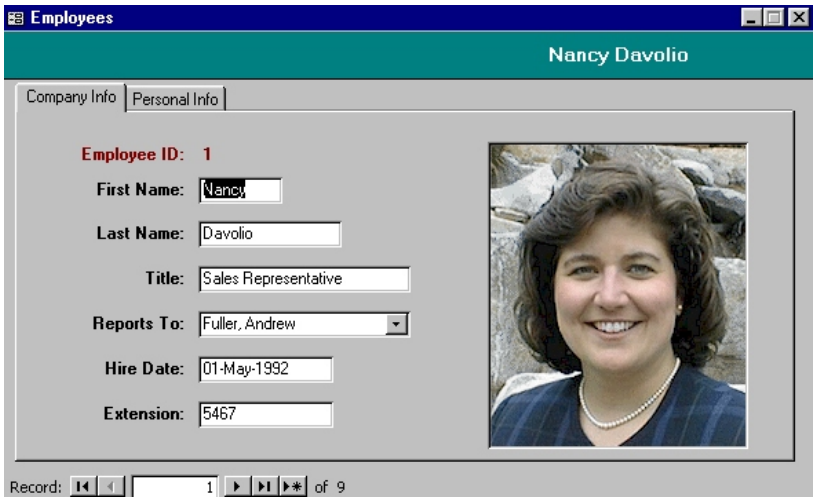
1. Course objectives.
   a. To provide the class with an exploration of database uses, design and normalization.
   b. To assist class development of databases using Microsoft Access 2000 and 2002 (Xp) .
   c. To develop computer and database literacy.
   d. To address the class' questions.

2. Schedule
   a. 9:30 Registration
   b. 10:00 Morning session
   c. 12:00 Lunch
   d. 1:00 Afternoon session
   e. 3:30 Departure



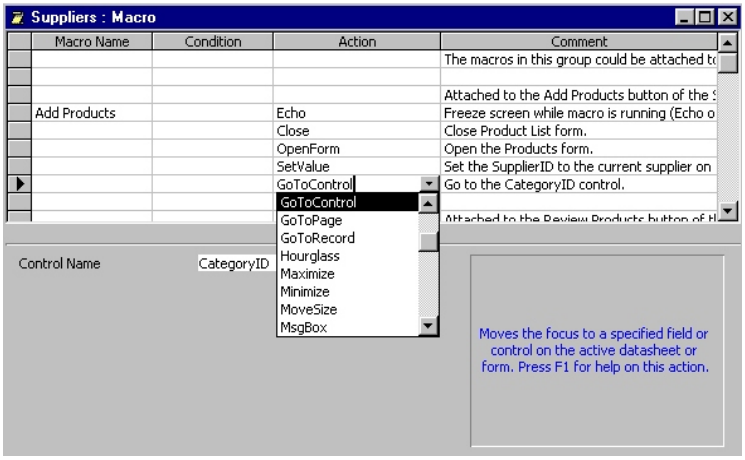
1. Pieces Parts and Definitions
   a. table: A single store of related information. A table consists of records, and each record is made up of a number of fields. You can think of the phone book as a table: It contains a record for each telephone subscriber, and each subscriber's details are contained in three fields – name, address and telephone.
   b. query: A view of your data showing information from one or more tables. For instance, you could query a Students database asking "Show me the first and last names of the students who take both history and geography and have Alice Hernandez as their advisor" Such a query displays information from the Students table (firstname, lastname), Courses table (course description) and Advisor table (advisor name), using the keys (student ID, course ID, advisor ID) to find matching information.
   c. form: designed to display information on screen, generally used for data entry, switchboard to launch other pieces of the database, or to create



a custom dialog box. Forms can show and use data, graphics, descriptive text, calculations and controls.

d. report: a form designed primarily print information from a database including traditional listings, labels and charts. Reports can usually be previewed on screen. Reports can use all elements as forms, but generally do not use controls.

e. page or data access page: A data access page is a special type of Web page designed for viewing and working with data from an Internet or intranet — data that is stored in a Microsoft Access database or a Microsoft SQL Server database. The data access page may also include data from other sources, such as Microsoft Excel.



f. macro: A macro is a set of one or more actions that each perform a particular operation, such as opening a form or printing a report. Macros can help you to automate common tasks. For example, you can run a macro that prints a report when a user clicks a command button.

g. module: A module is a collection of Visual Basic for Applications declarations and procedures that are stored together as a unit.

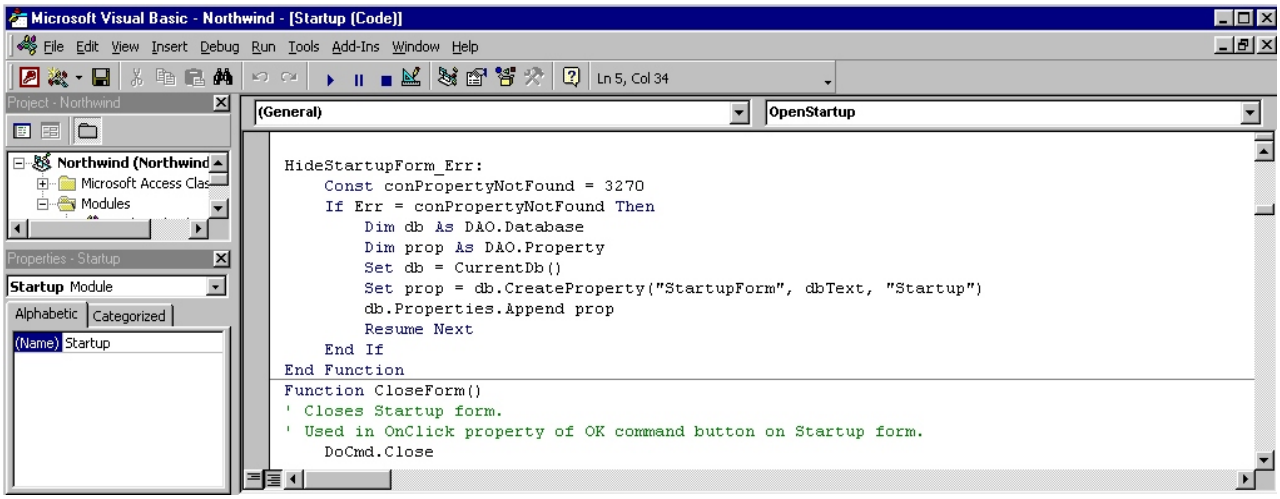


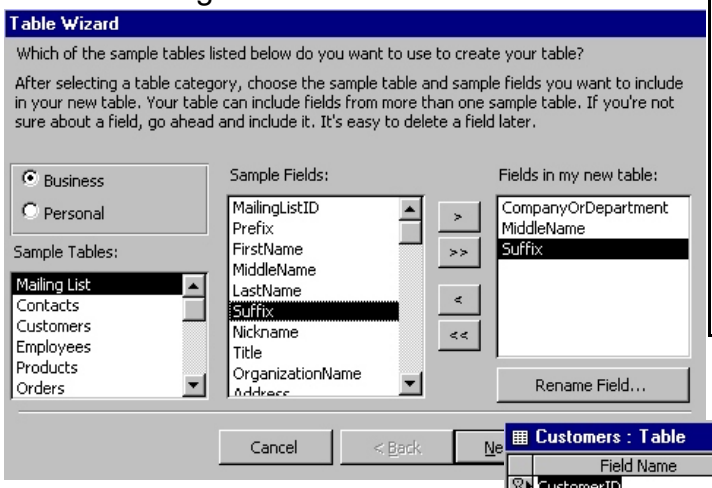
table: A single store of related information. A table consists of records, and each record is made up of a number of fields. You can think of the phone book as a table: It contains a record for each telephone subscriber, and each subscriber's details are contained in three fields – name, address and telephone.

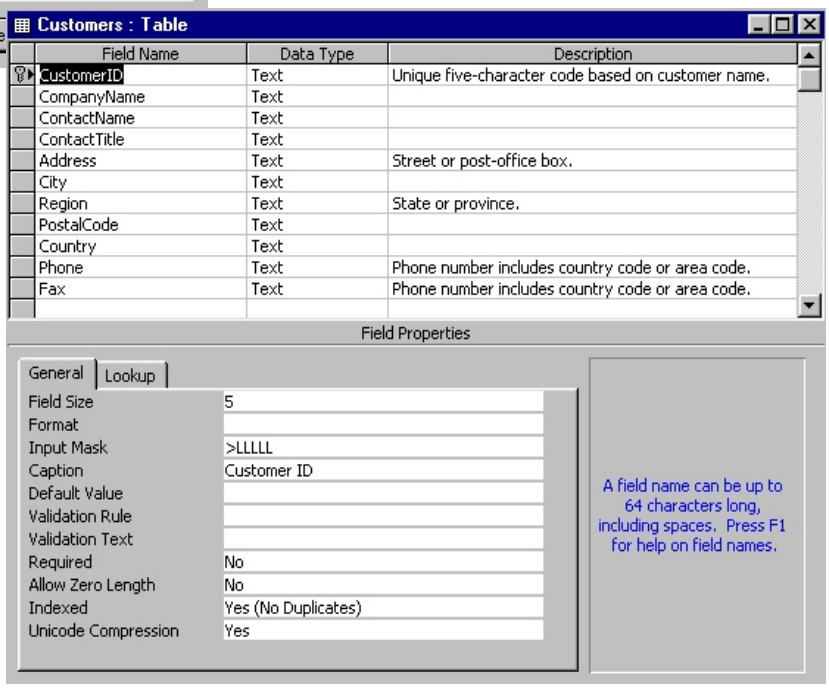
record: A record contains all the information about a single 'member' of a table. In a students table, each student's details (name, date of birth, contact details, and so on) will be contained in its own record.	field: Fields describe a single aspect of each member of a table. A student record, for instance, might contain a last name field, a first name field, a date of birth field and so on. All records have exactly the same structure, so they contain the same fields. The values in each field vary from record to record, of course.

2. Create new database
   a. Wizard
   b. Blank

   GET USER INPUT!!!

3. Creating tables via wizards





4. Create a new table with New button, Design view
   a. Waste of time? NO! If your tables are not structured properly, you database has no chance of serving properly. It is the basis for the rest of your database.
   b. Table is defined by the fields it contains. You must provide:
      i. Field Name: defines how you refer to a field
      ii. Data Type: what does the field store?

Field naming tips:
- 64 characters including letters, numbers, spaces and characters except ! ' [ ] "
- You may want to avoid spaces or you will end up putting [ ] around it.
- Long enough to understand.
- Short enough that it doesn't take a English Lit degree to read.
- Free form comments?
- Extra characters for names? IE A. Charles Gierke

** show Gmsplus \ DCS Collection **

iii. Description: six months from now, you will be happy you filled this in.

Field type	Description	Size
Text -	Text or combinations of text and numbers, as well as numbers that don't require calculations, such as phone numbers.	255
Memo	Lengthy text or combinations of text and numbers.	65,535 or hard drive size
Number	Numeric data used in mathematical calculations. For more information on how to set the specific Number type, see the FieldSize property topic.	Up to 16 bytes
Date/Time	Date and time values for the years 100 through 9999.	8 bytes
Currency	Currency values and numeric data used in mathematical calculations involving data with one to four decimal places. Accurate to 15 digits on the left side of the decimal separator and to 4 digits on the right side.	8 bytes
Auto number	A unique sequential (incremented by 1) number or random number assigned by Microsoft Access whenever a new record is added to a table. AutoNumber fields can't be updated. For more information, see the NewValues property topic.	4 bytes, 16 bytes if replication ID
Yes/No	Yes and No values and fields that contain only one of two values (Yes/No, True/False, or On/Off).	1 byte
OLE Object	An object (such as a Microsoft Excel spreadsheet, a Microsoft Word document, graphics, sounds, or other binary data) linked to or embedded in a Microsoft Access table.	Up to 1Gb.
Hyperlink	Text or combinations of text and numbers stored as text and used as a hyperlink address.	
Lookup Wizard...	Creates a field that allows you to choose a value from another table or from a list of values by using a list box or combo box. Clicking this option starts the Lookup Wizard, which creates a Lookup field. After you complete the wizard, Microsoft Access sets the data type based on the values selected in the wizard.	The same size as the primary key field used to perform the lookup, typically 4 bytes.

5. General field options

Data type	Description	Text	Memo	Number / Currency	Date / Time	Auto number	Yes/No	OLE Object	Hyperlink

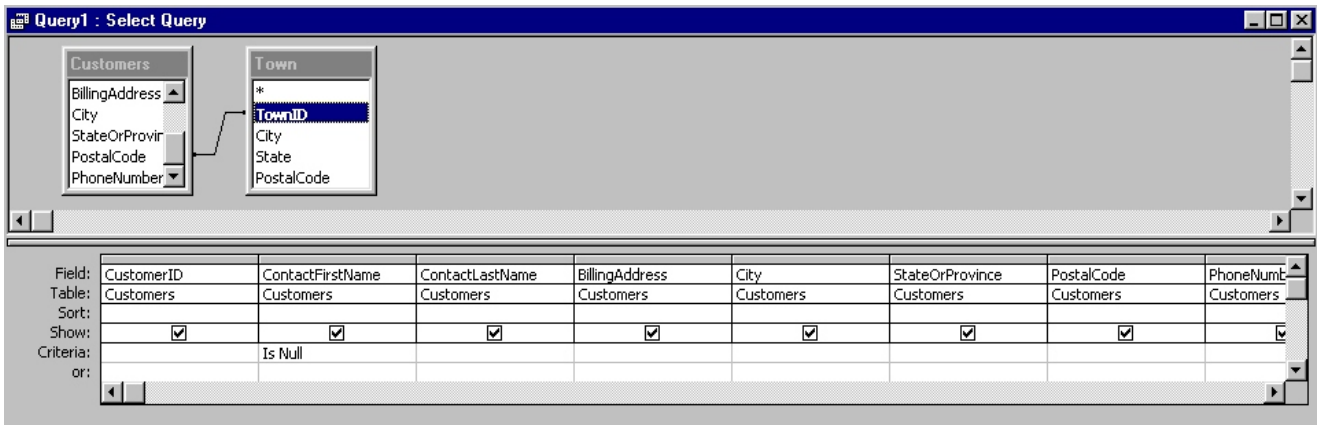
a. Field size	big enough to handle the data but not waste space.	x		x		x			
b. Format	appearance when displayed	x	x	x	x	x	x		x
c. Decimal places	how many decimals to display, calculations carried to 15 places			x					
d. New values	increment or random					x			
e. Input mask	pattern for input	x		x	x			x	
f. Caption	label used on forms and reports	x	x	x	x	x	x		x
g. Default value	entry for new record	x	x	x	x		x		x
h. Validation rule	insures a particular range of values	x	x	x	x		x		x
i. Validation text	error message when validation rule is violated	x	x	x	x		x		x
j. Required	is it required?	x	x	x	x		x	x	x
k. Allow zero length		x	x						x
l. Indexed	speeds searches and sorting, but slows updates, can also eliminate duplicates	x		x	x	x	x		
m. Unicode compression	can save space	x	x						x

6. Primary keys
    a. Should be generated automatically as much as possible to insure they are unique.
        i. If you use a unique identifier and it has to change, major problems result. IE. Social Security Numbers are unique identifiers, but what if someone refuses to have one, give one or gets entered incorrectly? Altering it becomes a major hassle.
    b. Should not be user editable.
    c. Be wary of using “descriptive” keys. IE. “Ogdenbsurg” or Can an ISBN be changed?

7. Creating queries via wizards
    a. Select table or query and fields to display
    b. Name the query and open it

8. Query - creating a new query via design view
    a. Add tables
        i. Removing tables
    b. Add fields
        i. * indicates all

ii. shift & ctrl+click



c. Sort - via ascending or descending in the sort row
d. Show - you can have a field as part of the query, but not display
e. Calculated fields
   i. Naming
   ii. Expression / formula
f. Criteria
   i. Examples
      (1) "Ogdensburg"
      (2) "Ogdensburg" Or "Potsdam"
      (3) Between #1/1/2000# And #12/31/2000#
      (4) Not "Ogdensburg"
      (5) Like "Og*"
      (6) >="O"
      (7) Is Null, Is Not Null
      (8) Using formulas (much like Excel) to select
         (a) Left([Zipcode},3)="136"
         (b) Len([Zipcode])<5
   ii. Use multiple lines for OR, stay on the same line for AND

Carol B - is this the solution to "multiple category queries?"

9. Normalize - eliminate the redundancy of data in a database by insuring all fields in a table are atomic.
   a. Guaranteeing accuracy
   b. Simplify entry
   c. Example of non-use- Voter registration tables.
   d. Don't over-normalize. There are times when too much doesn't allow users to add information for unusual circumstances or makes the database more complex. K.I.S.S.

10. Lookups
    a. Edit records.
    b. What is actually stored???
       i. Notice your towns are not in

Use Mayberry Library to simplify town storage, relating town and state by zipcode.

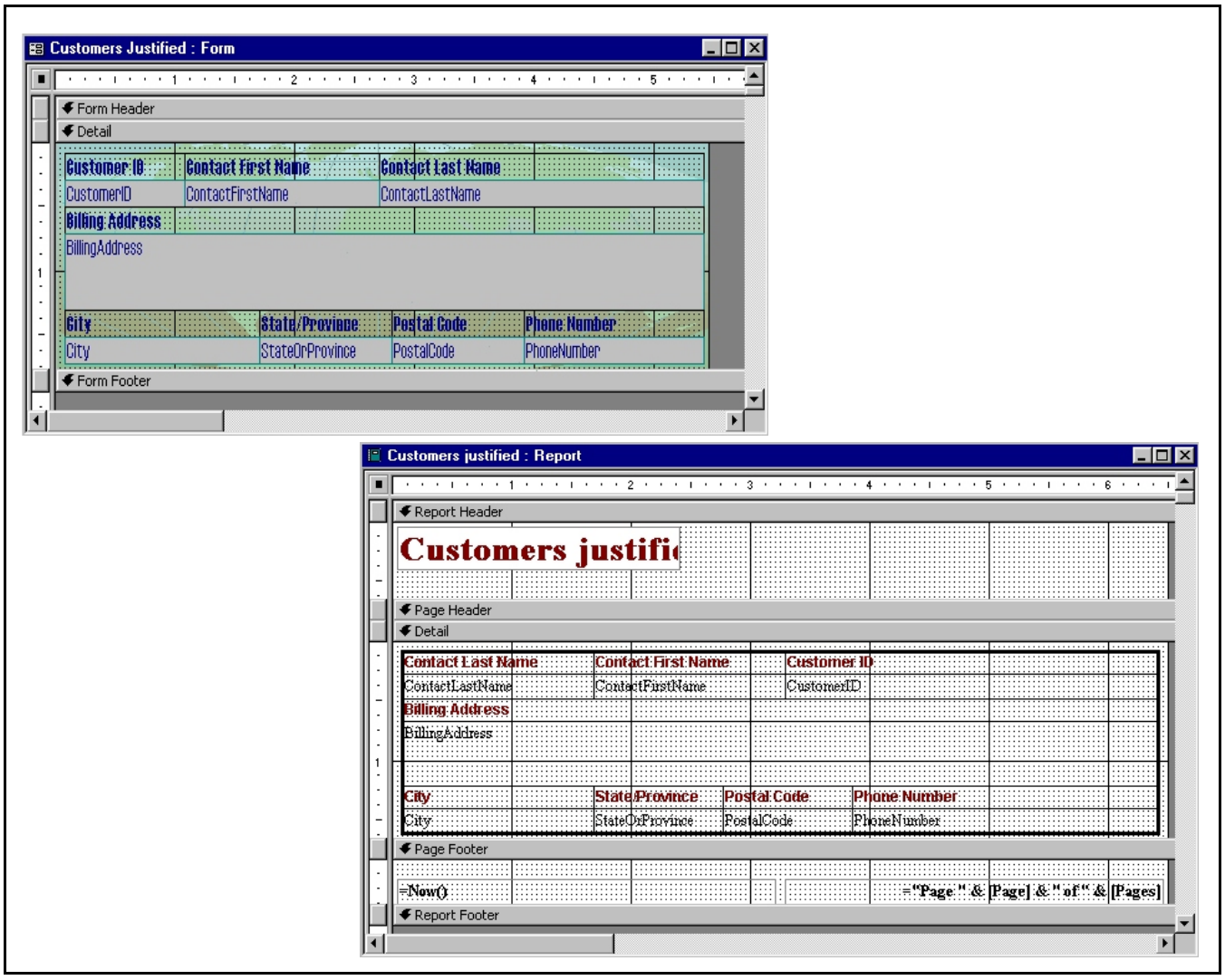
alpha order on your pull down list! You probably want to create a Town Alphabetic Order query and use the lookup wizard to connect through that!!!

11. Altering data in forms
    a. Calculated fields
        i. Concatenation - adding two text strings together via &
        [Last name] & ", " & [First name]
    b. If X say A, I want Y to say B...
        i. Macros vs. Modules
        ii. Example
        iii. View Relationships
            (1) Notice links
            (2) Can be ENFORCED
            (3) Handy as your table list grows!

In Mayberry Library, perhaps an "assembled" Ogdensburg, NY 13669 field will make life easier?

See C3 inventory

12. Forms and reports
    a. Wizards are often a great way to start creating forms and reports, it simplifies the setup and then you can edit to your heart's content.



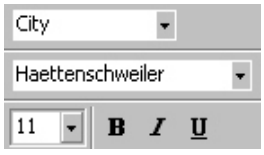
b. Switching between Design and View and Datasheet views

c. Fields

See Patrons Justified form

i. Moving and resizing

ii. General editing

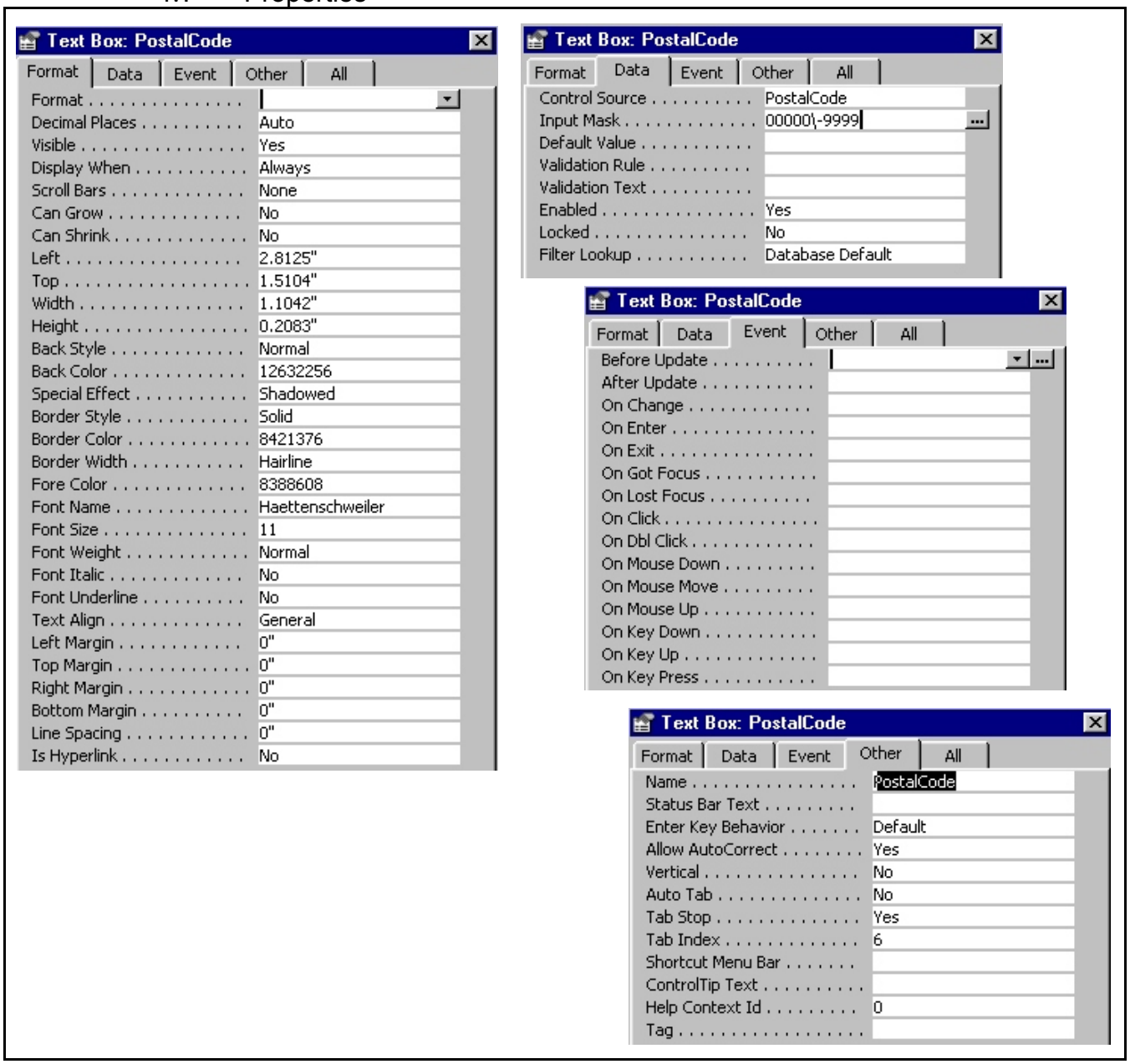


Field		Bold			fill color
Font		Italic			font color
Size		Underline			outline color
		Left			border
		Center			special effects
		Right			

iii. Displaying

(1) field lists - add fields!
(2) toolboxes
(3) Lookups
    (a) Much easier to create with wizard
    (b) Make sure the relationship is real
    (c) Do you really want to display the ID code?

iv. Properties



d. Don't be afraid to leave white space in forms and reports, often can do more for read-ability than any lines and boxes.

e. Toolbar objects

	select		control wizard
	label		text box
	option group		button
	option		check box
	combo box		list box
	command button		image
	unbound object		bound object
	page break		tab
	sub form / report		line
	rectangle		more

f. Sorting and Grouping reports
   i. Don't duplicate information in group headers in the group!

g. Autoformatting

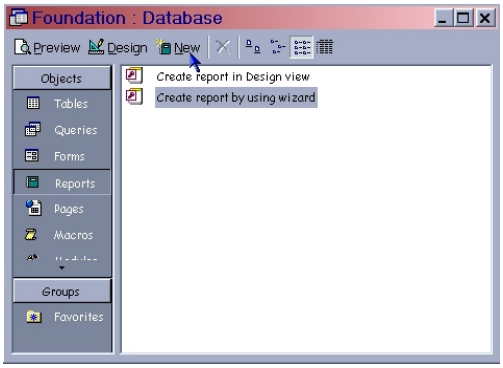
h. Printing

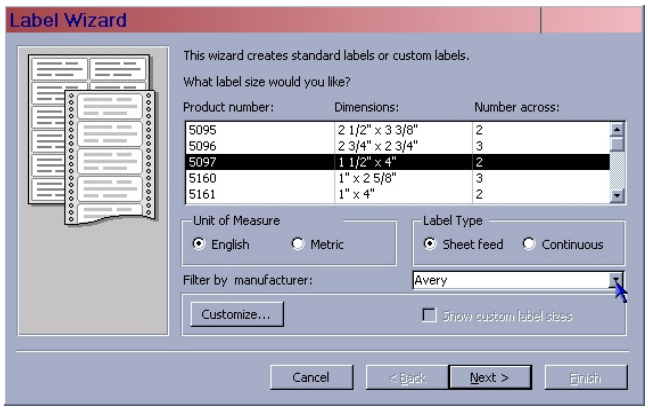
i. Totals and other fancy report functions
   i. Wizard makes life easier!
   ii. Put names on subgroups
   iii. Summary reports
   iv. Totals must be in the area of the report they are summarizing.
      (1) Report totals must be in the Report Footer.
      (2) Group totals must be in the Group Footer.
      (3) All created formulas must be in Text boxes.

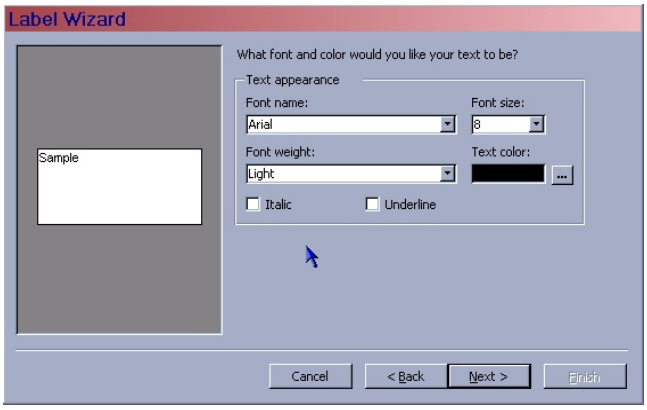
Carol B - See PCs database / report to manually create totals.

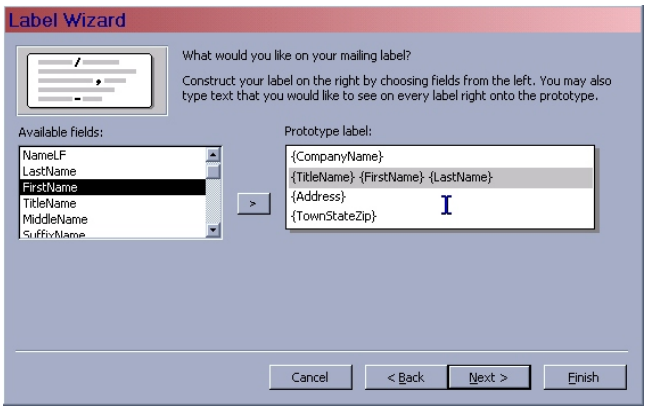
13. Labels

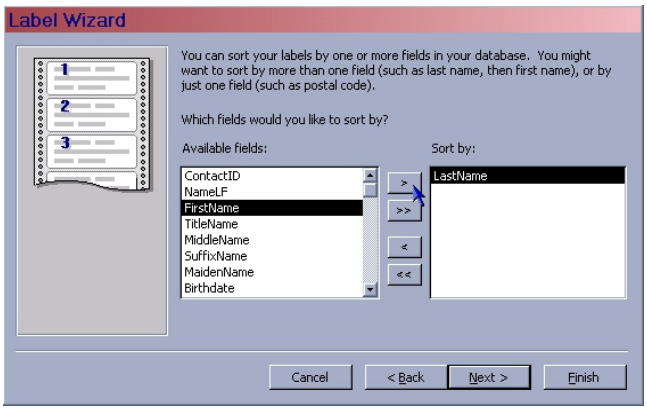
a. Microsoft has chosen to hide the ability to produce labels, like mailing labels. But once you find the wizard...
   i. In the Database window, click Reports .
   ii. Click the New button on the Database window toolbar. See picture!
   iii. In the New Report dialog box, click Label Wizard.

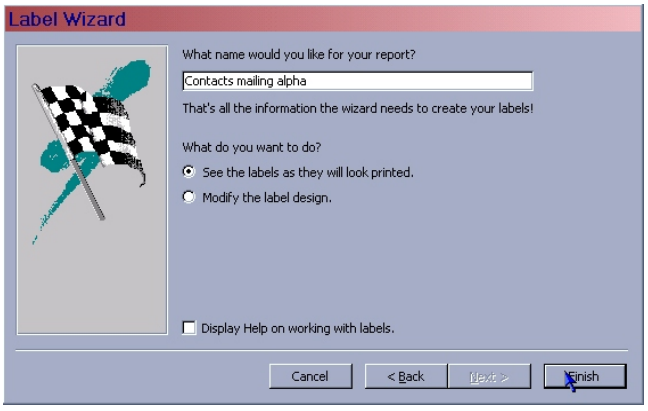


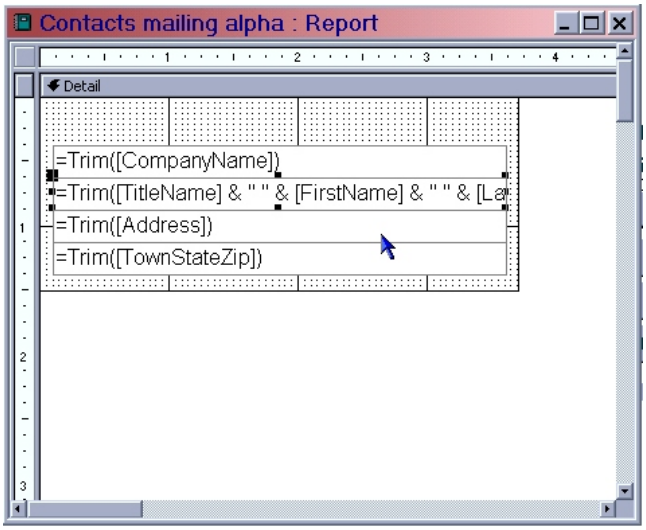

Label Wizard
This wizard creates standard labels or custom labels.
What label size would you like?
Product number:
Dimensions:
Number across:
5095 2 1/2" x 3 3/8" 2
5096 2 3/4" x 2 3/4" 3
5097 1 1/2" x 4" 2
5160 1" x 2 5/8" 3
5161 1" x 4" 2
Unit of Measure
English
Metric
Label Type
Sheet feed
Continuous
Filter by manufacturer:
Avery
Customize...
Show custom label sizes
Cancel
< Back
Next >
Finish


Label Wizard
What font and color would you like your text to be?
Text appearance
Font name:
Arial
Font size:
8
Font weight:
Light
Text color:
Sample
Italic
Underline
Cancel
< Back
Next >
Finish


Label Wizard
What would you like on your mailing label?
Construct your label on the right by choosing fields from the left. You may also type text that you would like to see on every label right onto the prototype.
Available fields:
NameLF
LastName
FirstName
TitleName
MiddleName
Prototype label:
{CompanyName}
{TitleName} {FirstName} {LastName}
{Address}
{TownStateZip}
Cancel
< Back
Next >
Finish


Label Wizard
You can sort your labels by one or more fields in your database. You might want to sort by more than one field (such as last name, then first name), or by just one field (such as postal code).
Which fields would you like to sort by?
Available fields:
Sort by:
ContactID
NameLF
FirstName
TitleName
MiddleName
SuffixName
MaidenName
Birthdate
LastName
Cancel
< Back
Next >
Finish


Label Wizard
What name would you like for your report?
Contacts mailing alpha
That's all the information the wizard needs to create your labels!
What do you want to do?
See the labels as they will look printed.
Modify the label design.
Display Help on working with labels.
Cancel
< Back
Next >
Finish


Contacts mailing alpha : Report
Detail
=Trim([CompanyName])
=Trim([TitleName] & " " & [FirstName] & " " & [La
=Trim([Address])
=Trim([TownStateZip])

14. Custom report paper sizes
    a. Set the paper size in the printer control panel
        i. Start, Settings, Printers
        ii. Select your printer, File, Properties
        iii. Paper, Paper size, Custom
        iv. Fill in User Defined Size
        v. OK your way out.
    b. In Access, On your report (or a blank report)
        i. View, Page Header/Footer, turn it off
        ii. View, Report Header/Footer, turn it off
        iii. Drag window to match size of label
        iv. On the File menu, click Page Setup.
        v. Page tab,
            (1) select Use Specific Printer, select the desired printer.
            (2) Paper, set size to User defined
        vi. Margins tab, set all to 0.0
        vii. Column tab
            (1) Column size, Same As Detail
            (2) Grid settings
                (a) Number of Columns = # of labels across
                (b) Row Spacing =between bottom of label and top of next
                (c) Column Spacing = between right edge of label and left edge of next.
    c. Notes:
        i. You may have to reduce size of label for printer enforced margins
        ii. Field that “Can Grow” may cause problems.
        iii. Setting the paper size in Windows NT / 2000 is found in the Printer Control Panel, File, Server Properties. You must have administrative access to set new papers.
        iv. New printers may require resetting custom paper sizes up!!!

> To determine the width, measure from the left edge of the leftmost label to the right edge of the rightmost label. To determine the length, measure from the top of the first label to the top of the second. For example, if you use two-across labels that measure 3-by-5 inches, with 0.25 inch between them, set **Unit** to **0.01** inch, and set **Width** to **625** and **Length** to **525.**

15. Creating subforms
    a. Must have query or relationship with a one to many relationship

16. Linking to external tables
    a. Monolithic structure
    b. Backup & modification advantages

17. Tools
    a. Utilities
        i. Compact databases

(1) Deleted materials are still there! All changes made during programming are still there!
(2) Condenses files to minimal size

ii. Replication - allows you to take a replica of the database.
(1) Master can be modified in most ways.
(2) Replicas can have data added, modified and removed.
(3) Replicas are then reconciled with the master!

b. Options
i. Do you want “Windows in Taskbar?”
ii. Single or Double click?

Resources

Experts Exchange Inc. www.experts-exchange.com, 2001.

Leonhard, Woody and Deegan, Peter. “Get down the “databasics” of Access. ” www.zdnet.com April 2, 2001.

Microsoft Knowledgebase. search.support.microsoft.com/kb/c.asp?ln=en-us&sd=gn, 2001.

Vines, Rose. “Databasics: A Database Dictionary.” www.geekgirls.com 1999.

Databases	Possibilities
C3 Inventory	Subform / report example
Fingerprinting	Advanced form functions with modules
Mayberry Library	Normalization, relating tables, looksups, calculated fields in queries for lookups
Recipes	Add date field to database and form