More Forms

INFO/CSE 100, Spring 2005

Fluency in Information Technology

http://www.cs.washington.edu/100

Readings and References

- Reading
  - » *Fluency with Information Technology*
    - Chapter 15, Case Study in Database Design
- References
  - » MS Access Help files
    - keyword “form”

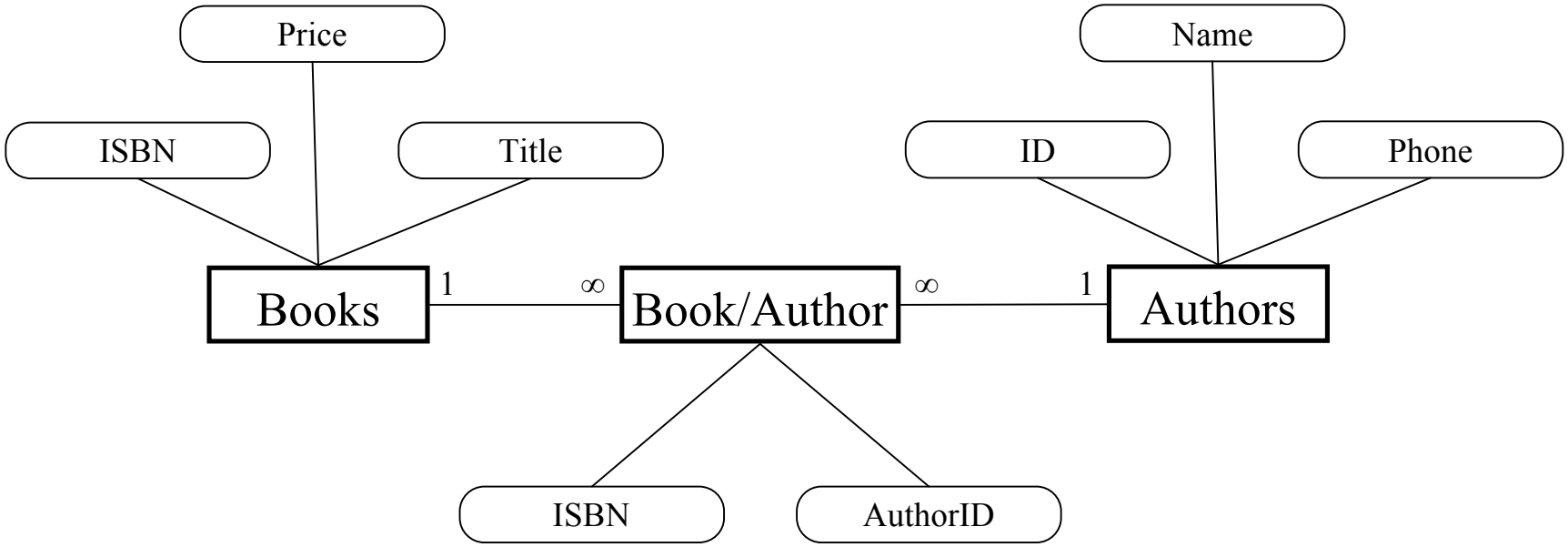
Link one book with many authors?

- We DO want:
  - » to link each book to one or more authors
- We DON'T want
  - » to specify extra fields (author1, author2, author3,…)
    - this is wasteful and limits the max number of authors
  - » to specify each book entry several times, naming a different author in each row
    - this duplicates all the other information about the book

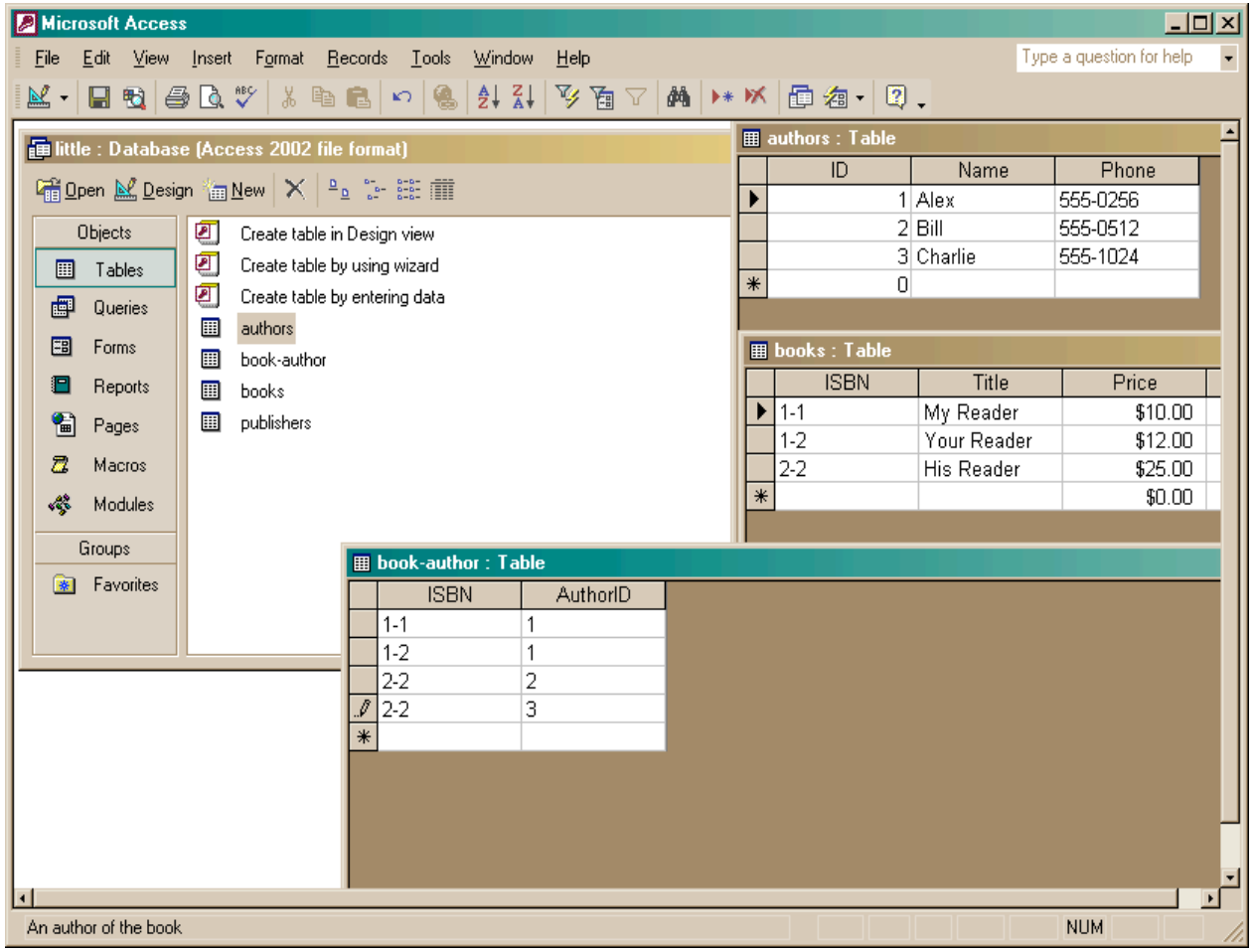
Add a cross-reference table!

- Refine the design so that it includes another table that is a book-author cross reference
  - » Each entity in the table is a single cross reference
    - Attribute: ISBN
    - Attribute: Author ID
  - » No primary key
- Now we can break the many-to-many relationship into two 1-to-many relationships that we already know how to implement

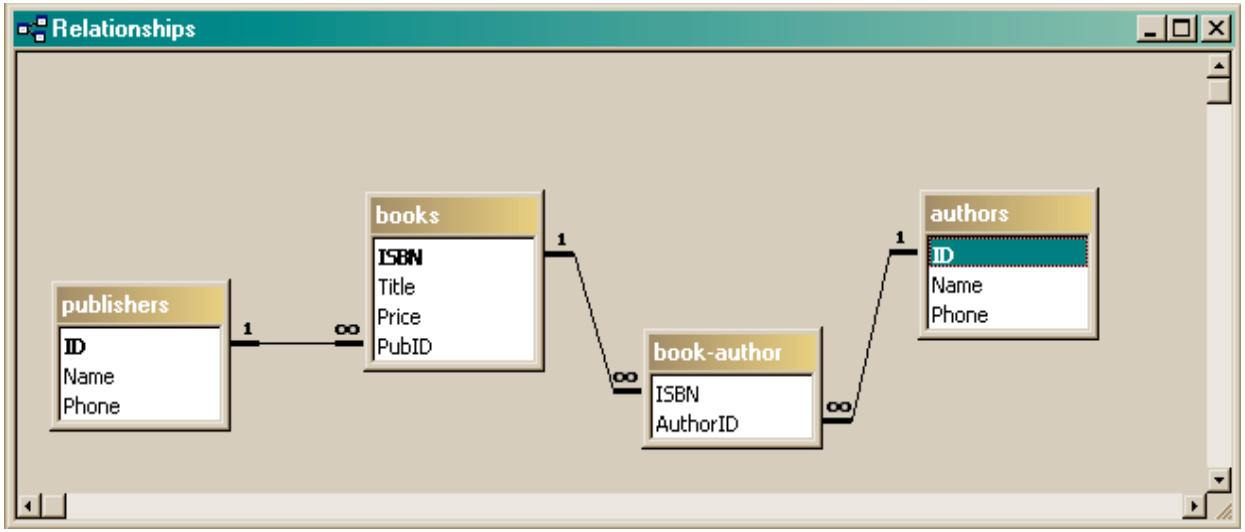
Define new cross-reference entities



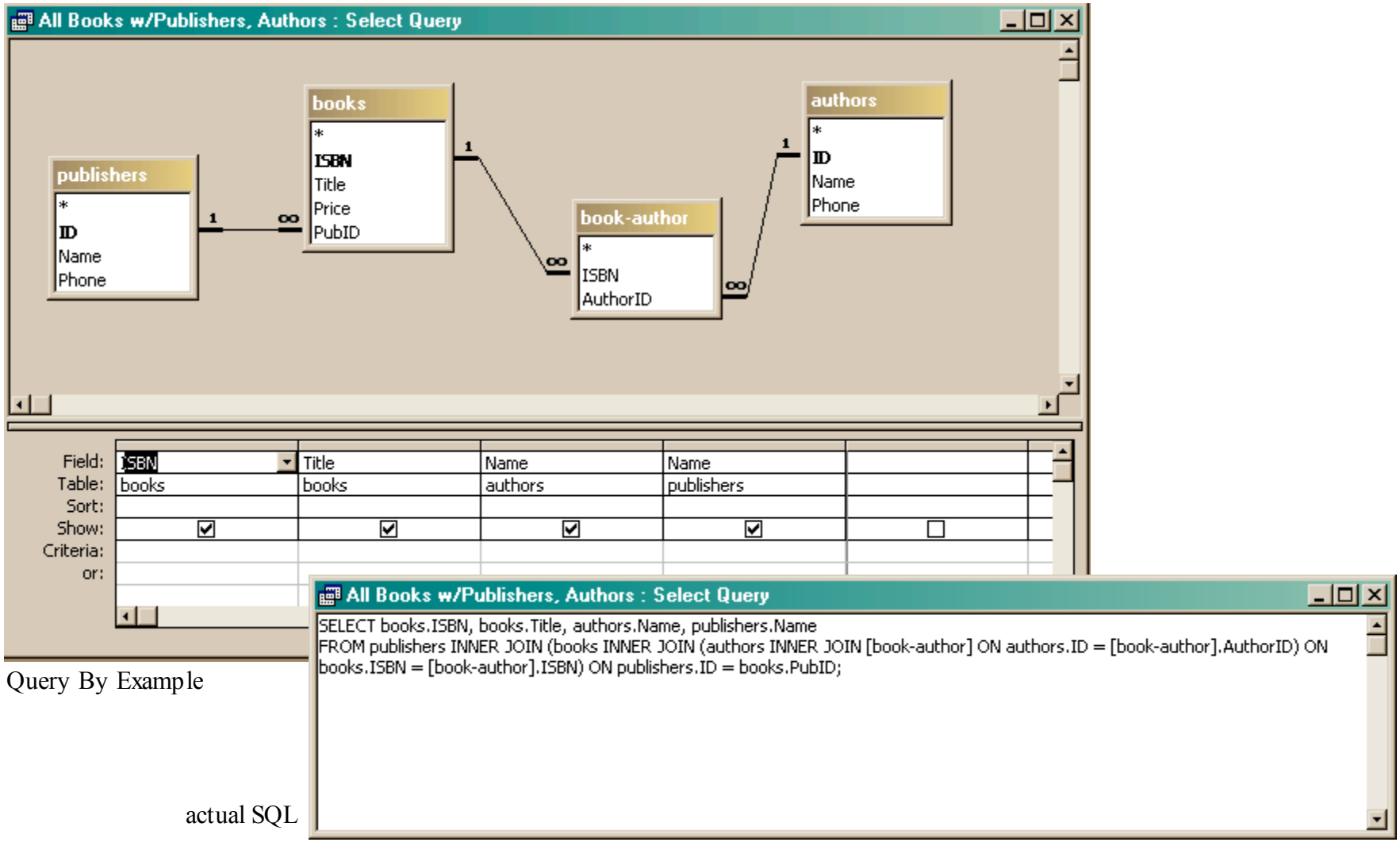
book-author table



Define the new relationships



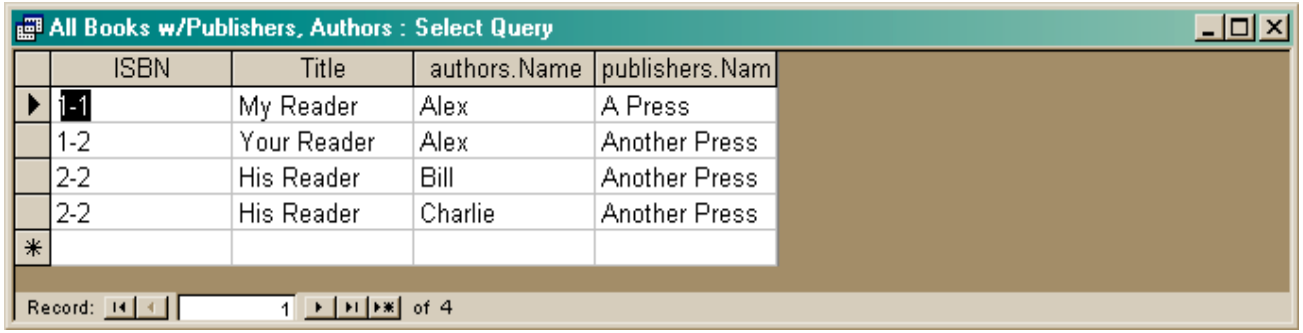
Define a query that uses the relationship



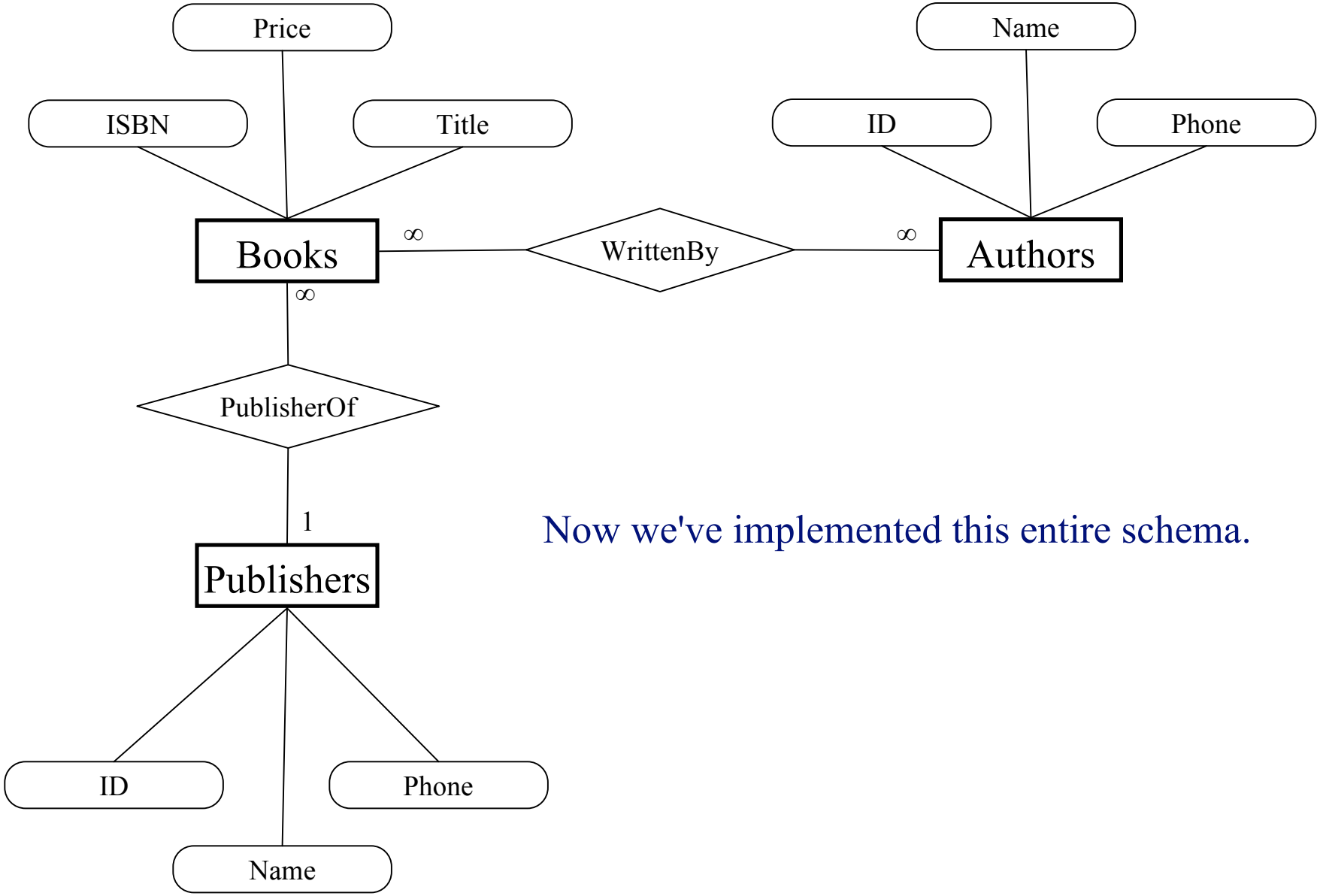
Query By Example

actual SQL

Get the new view of the data



- Notice that this view has redundant data
  - » That's okay, because we are not storing it this way, just presenting it
  - » The redundant items (Alex, Another Press) came from a single entry in a table – they are guaranteed to be identical



Now we've implemented this entire schema.

View: All Books from “Another Press”

All Books from Another Press : Select Query

ISBN	Title	Price	Name
1-2	Your Reader	$12.00	Another Press
2-2	His Reader	$25.00	Another Press

Record: 3 of 3

All Books from Another Press : Select Query

books
*
ISBN
Title
Price
PubID

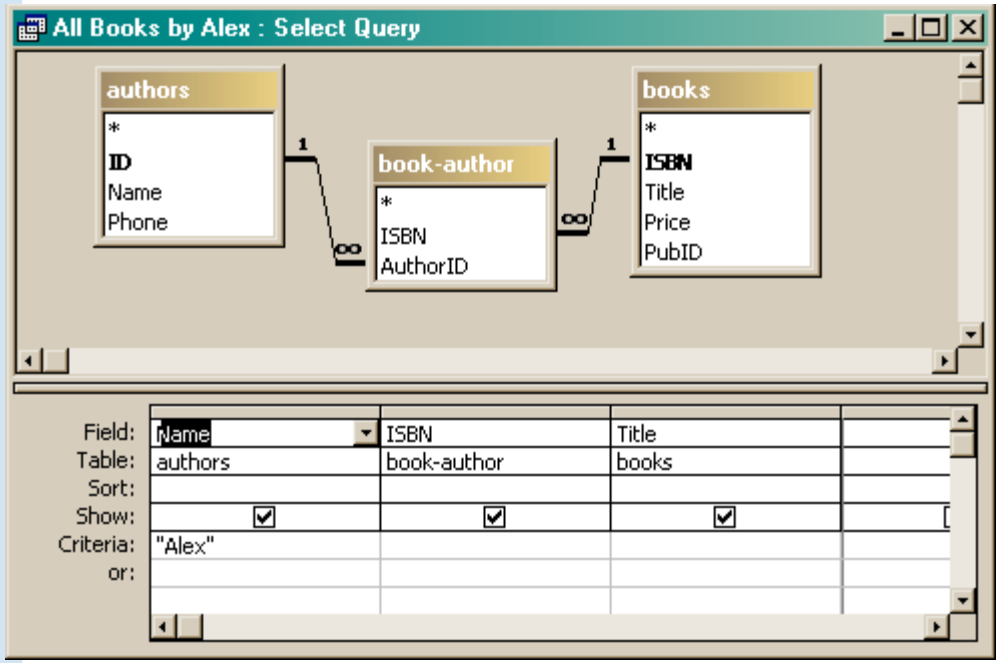
publishers
*
ID
Name
Phone

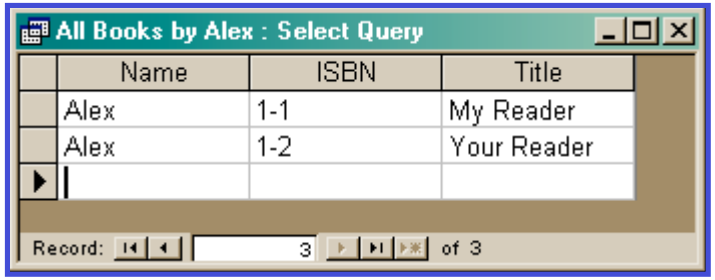
Field:	ISBN	Title	Price	Name
Table:	books	books	books	publishers
Sort:				
Show:	☑	☑	☑	☑
Criteria:				"Another Press"
or:				

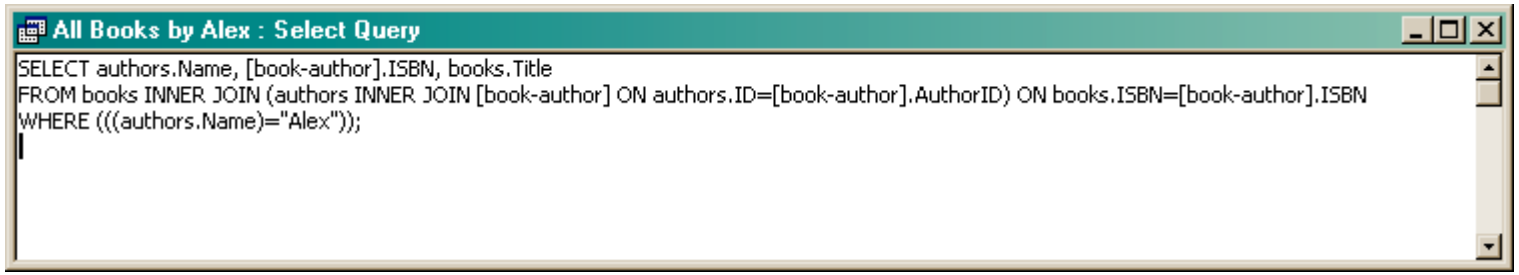
All Books from Another Press : Select Query

```
SELECT books.ISBN, books.Title, books.Price, publishers.Name
FROM publishers INNER JOIN books ON publishers.ID=books.PubID
WHERE (((publishers.Name)="Another Press"));
```

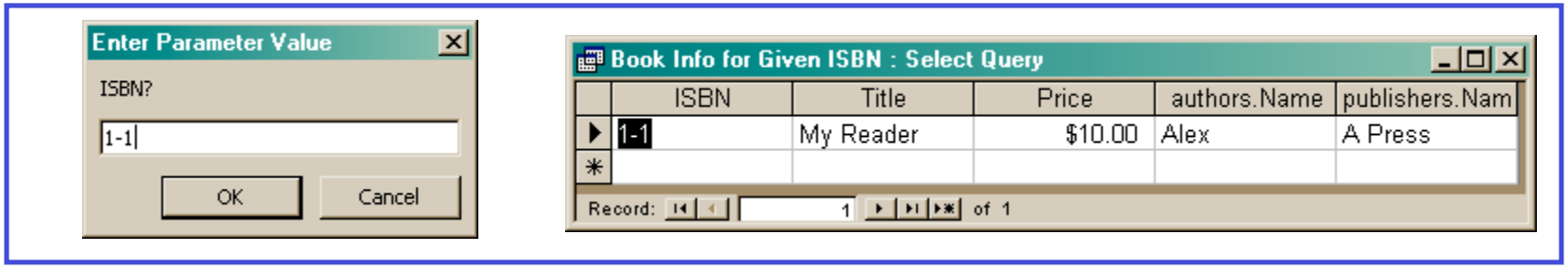
View: All Books by Alex

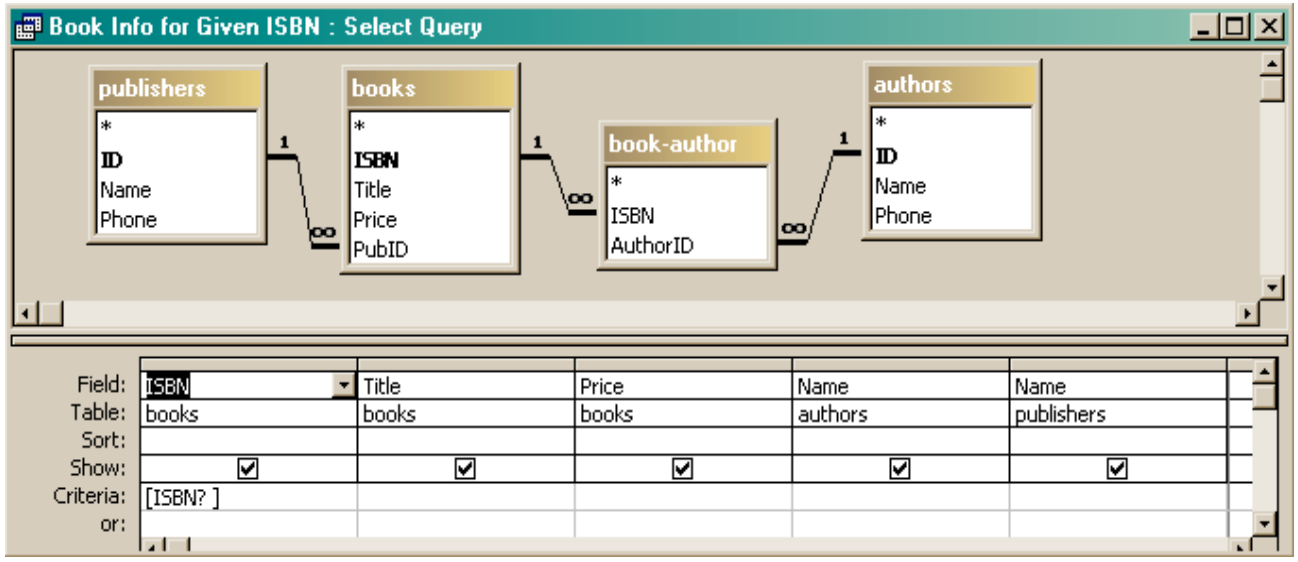


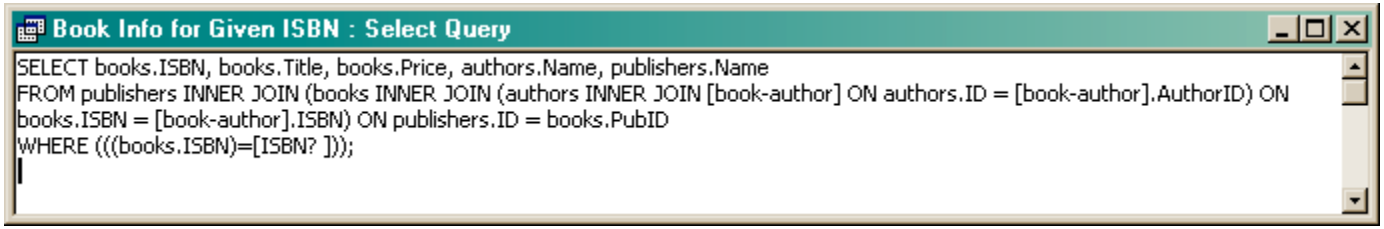




View: All info about a given ISBN

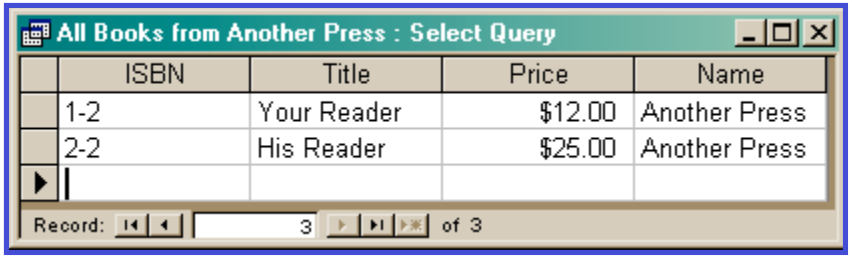


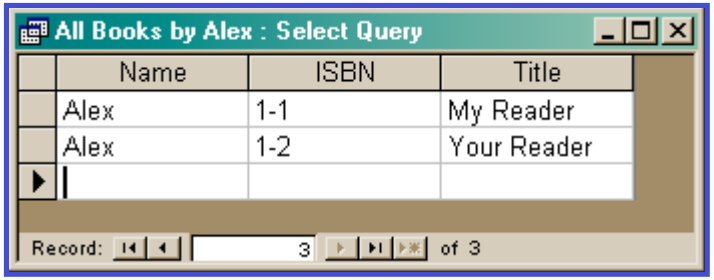


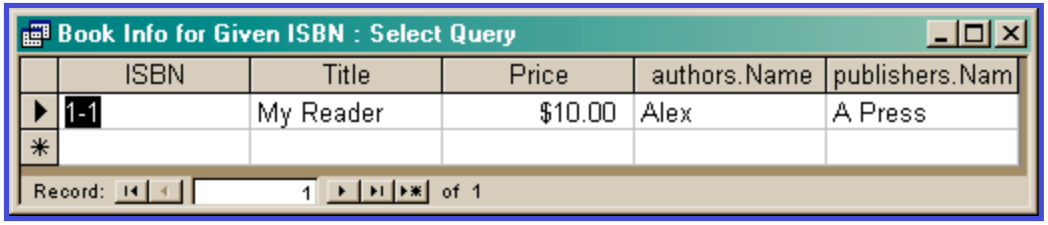


Views as Tables

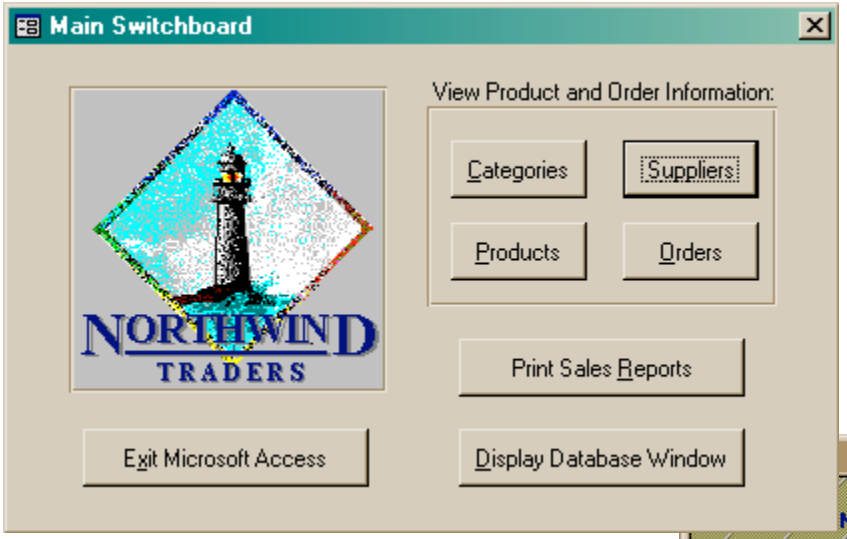
- Recall that the result of a query is a table
- We have been presenting the table to the user in simple tabular form

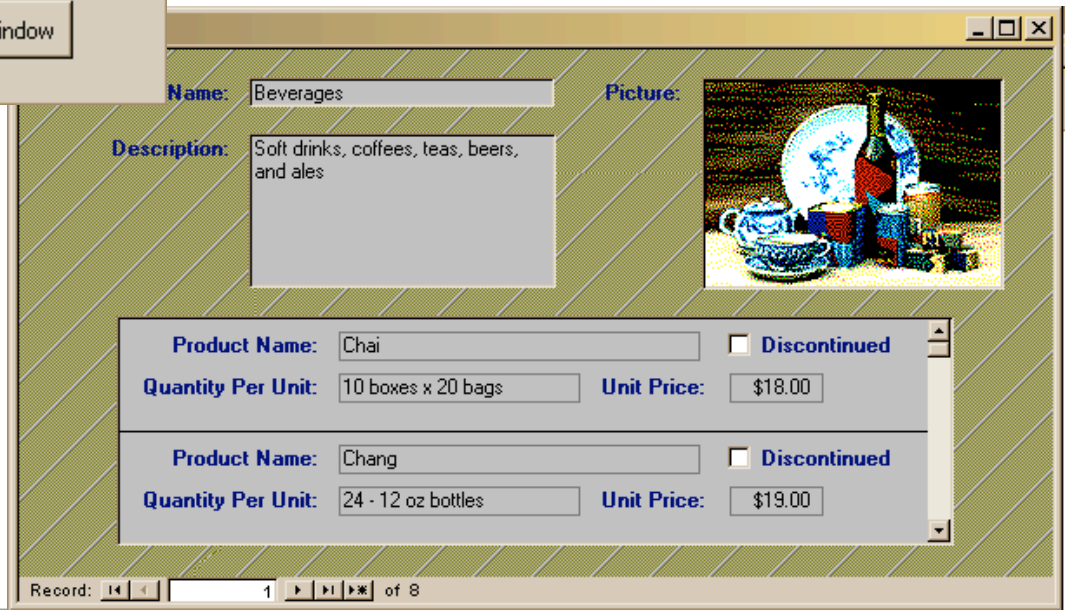






But tables are not pretty …





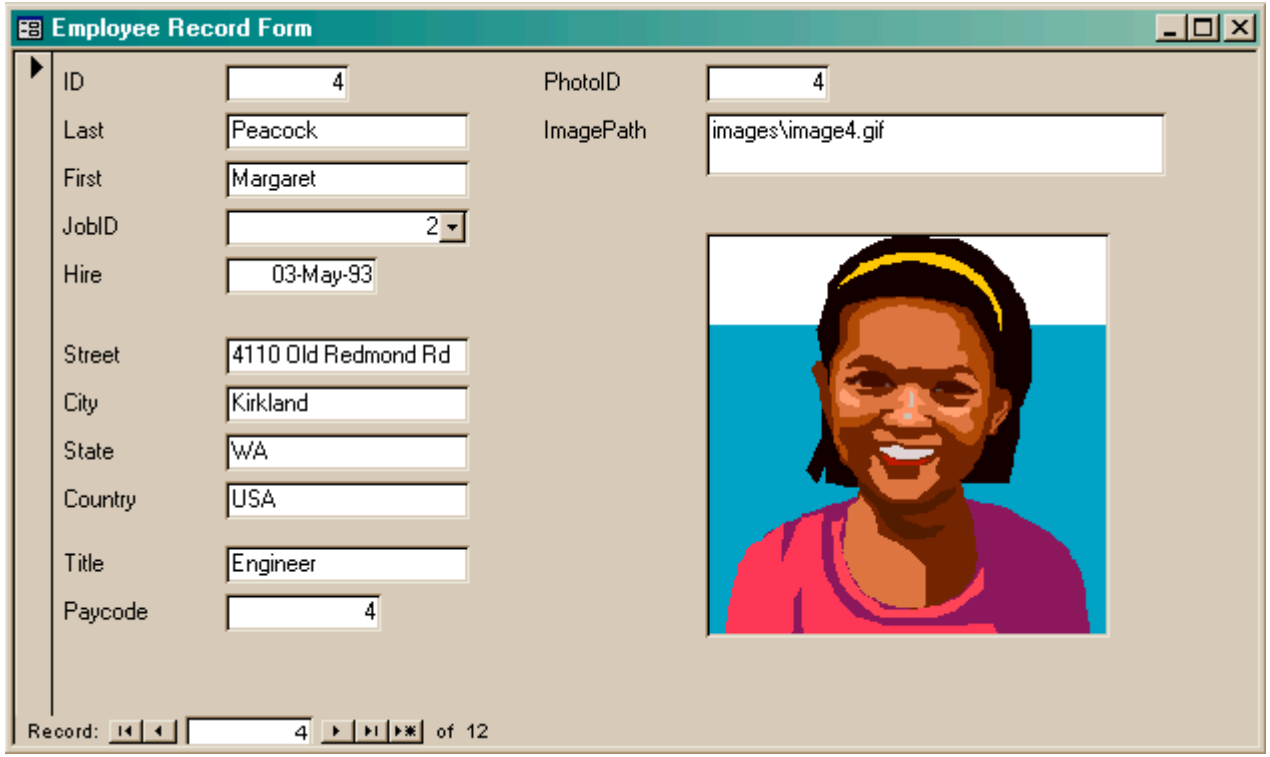
Users need help understanding what they are looking at and what they can do with it

Front end and Back end

- Front end
  - » We present the data to the user with some sort of Graphical User Interface
    - Simple tabular display as we have been doing
    - MS Access provides *Forms* and *Reports* for GUIs
    - Web pages
- Back end
  - » The database stores the data in tables
  - » We use queries to construct new "virtual" tables

Forms

A form is primarily used to enter or display data in a database

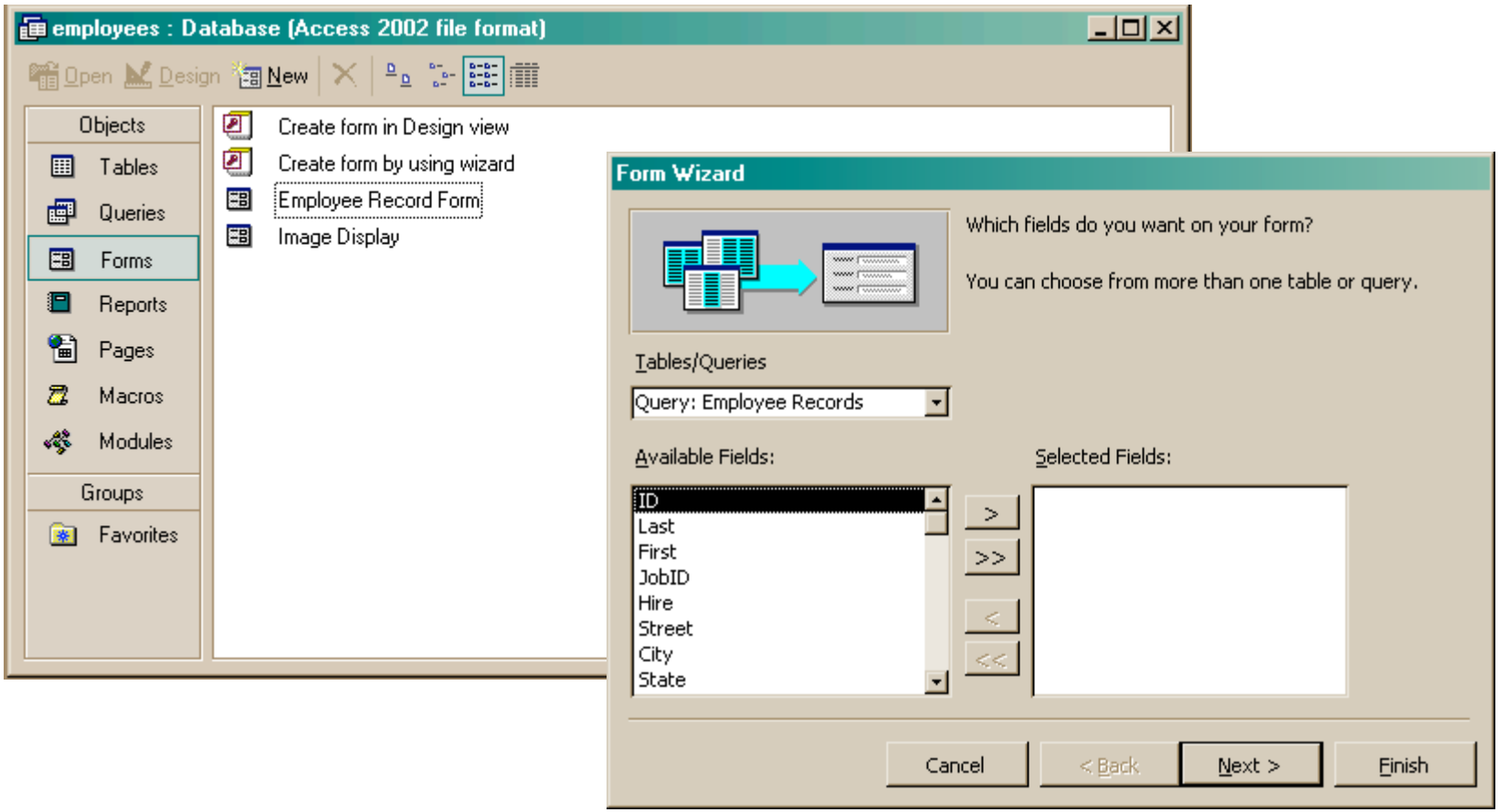


The designer controls what it looks like and how it works, so it can be tailored to specific needs

A Form is just a Face for a table

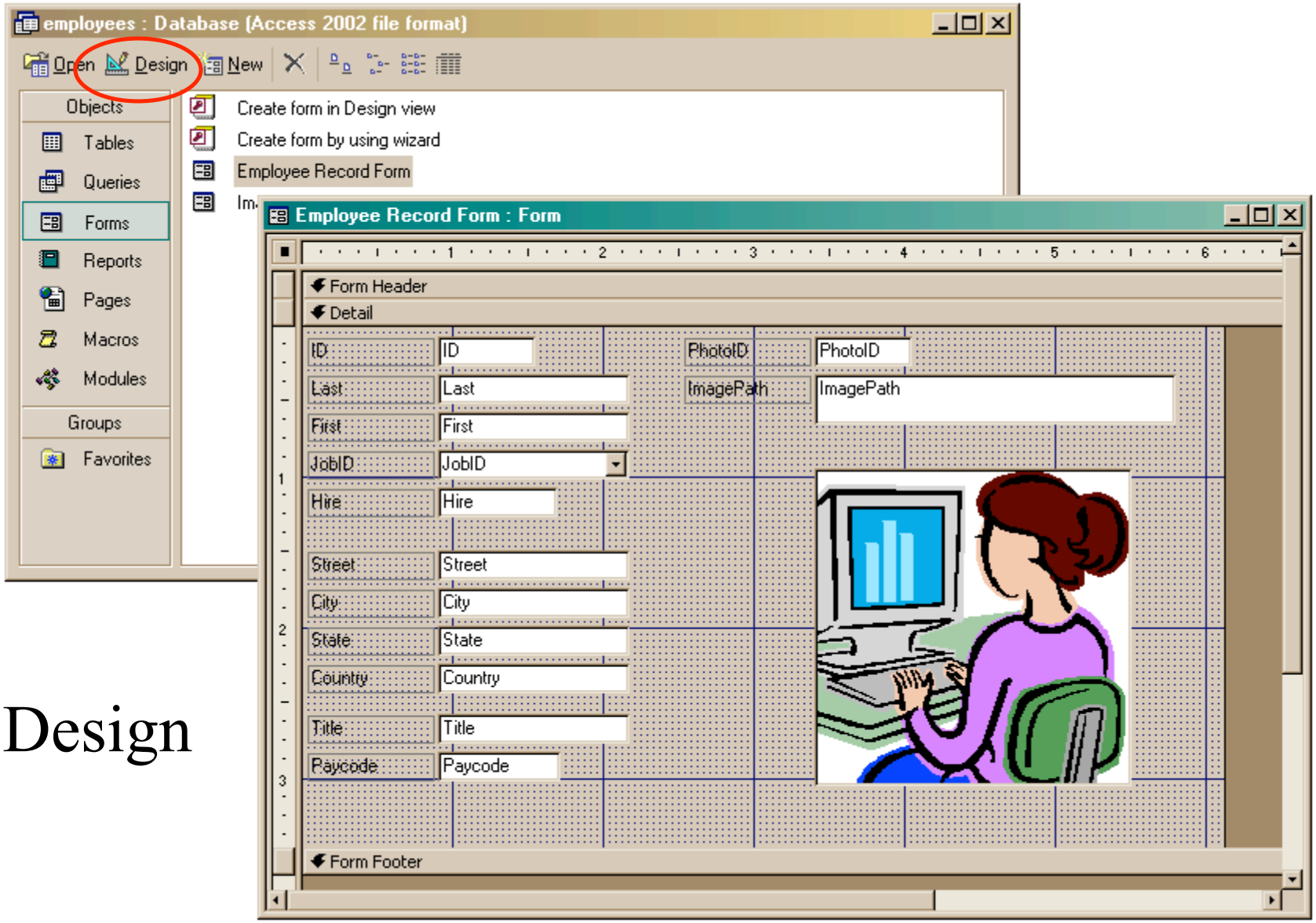
- The form lets the designer arrange the data, label it, provide some control over events, etc
  - » the **presentation**
  - » multiple presentations are possible depending on the specific needs of each user
- Underlying data comes from a table or a query
  - » the **content**
  - » single source of data ensures consistency

How does a form get built?



The Form wizard can help get you started.

But you probably want to tweak it …



Design

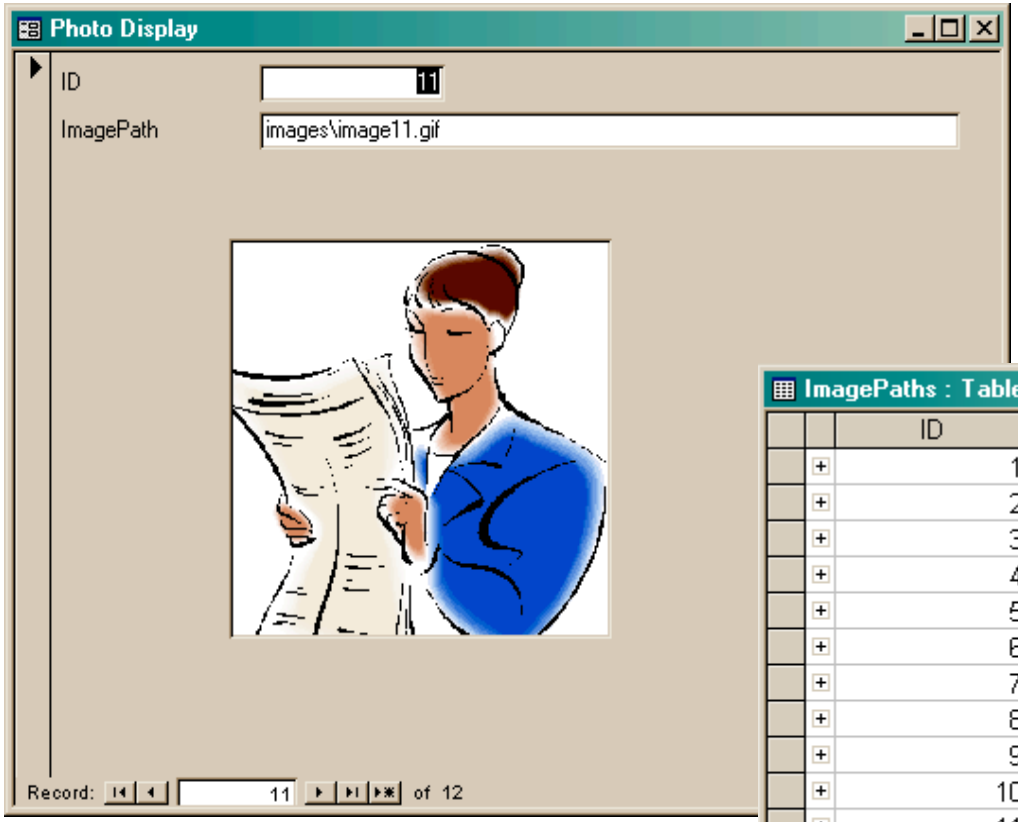
Explore the Design capabilities

- Properties of the various controls can be set
- Controls and labels can be moved around
- Images and patterns can be applied
- Event handlers can be written just like on HTML pages with onClick, etc
  - » these are written in Basic, not JavaScript

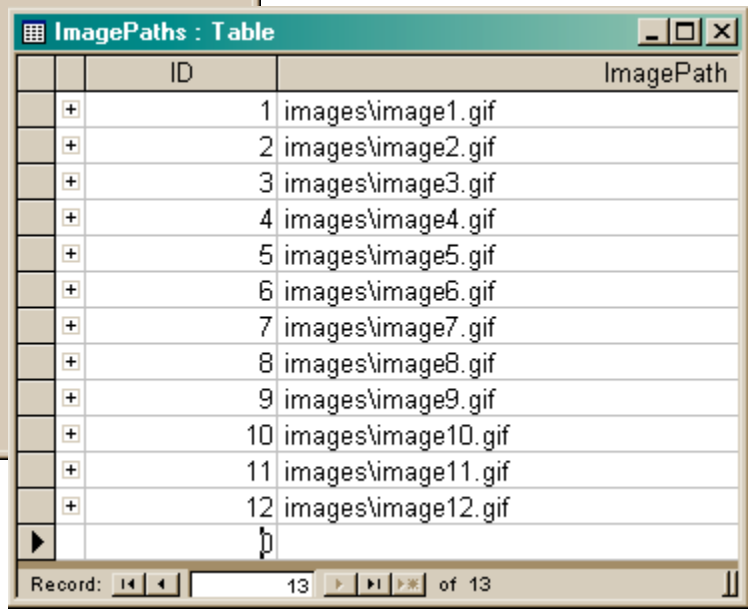
Displaying an image

- In general, images are not stored directly in the database
  - » This would mean copying the image and storing it as part of the database file
    - The resulting database is very big
    - The image files are not available outside of the database program
- But we can easily store a link to the image file
  - » a text field containing the path to the image file
  - » use the path to find, load, and display the image

Simple Display Form



ImagePaths table



To display a linked image

- Create a form based on a table or query that includes the path attribute
  - » include a text field on the form to hold the path
- Create an image control on the form
  - » this is where the image is actually displayed
- Create event handlers to load the image when something changes
  - » associated with the form event OnCurrent
  - » associated with the text field event AfterUpdate

text field that holds the value of the primary key for the ImagePaths table, the ID attribute

text field that holds the value of the attribute ImagePath

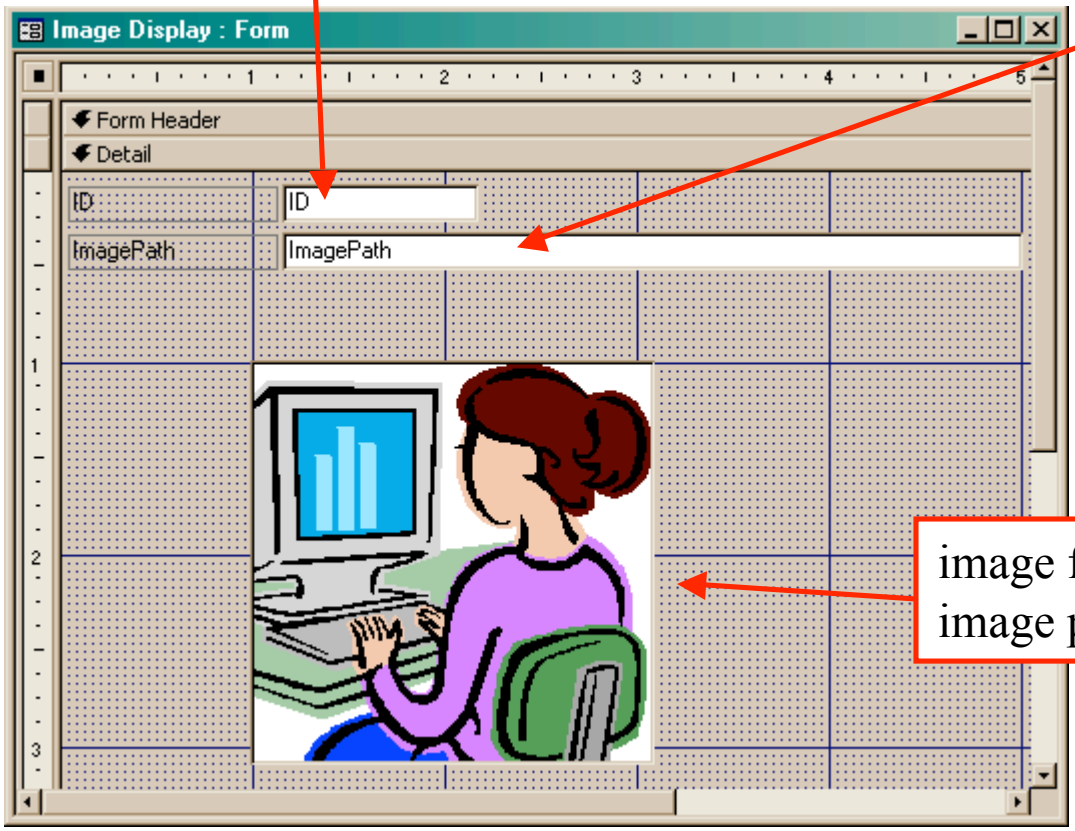
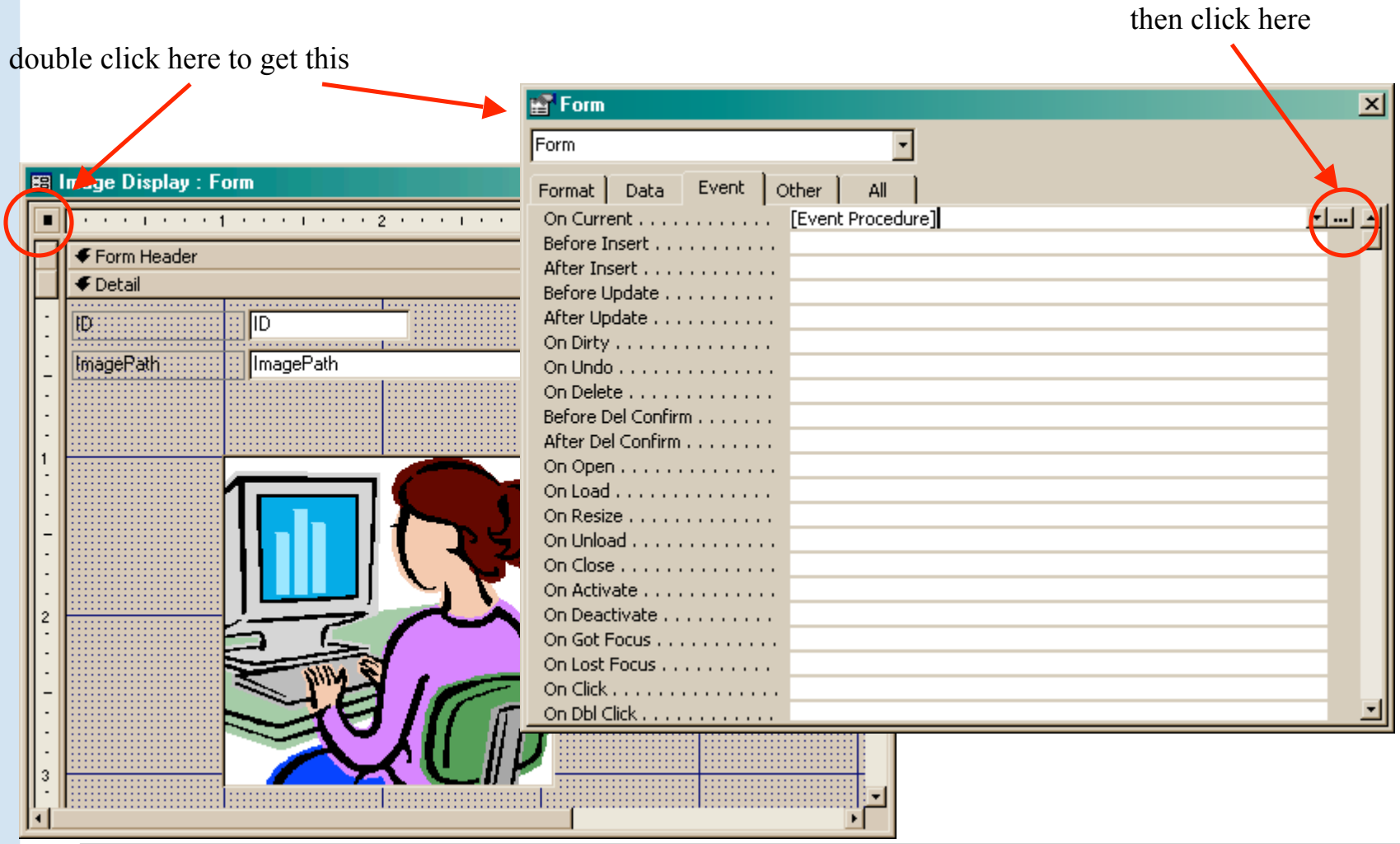
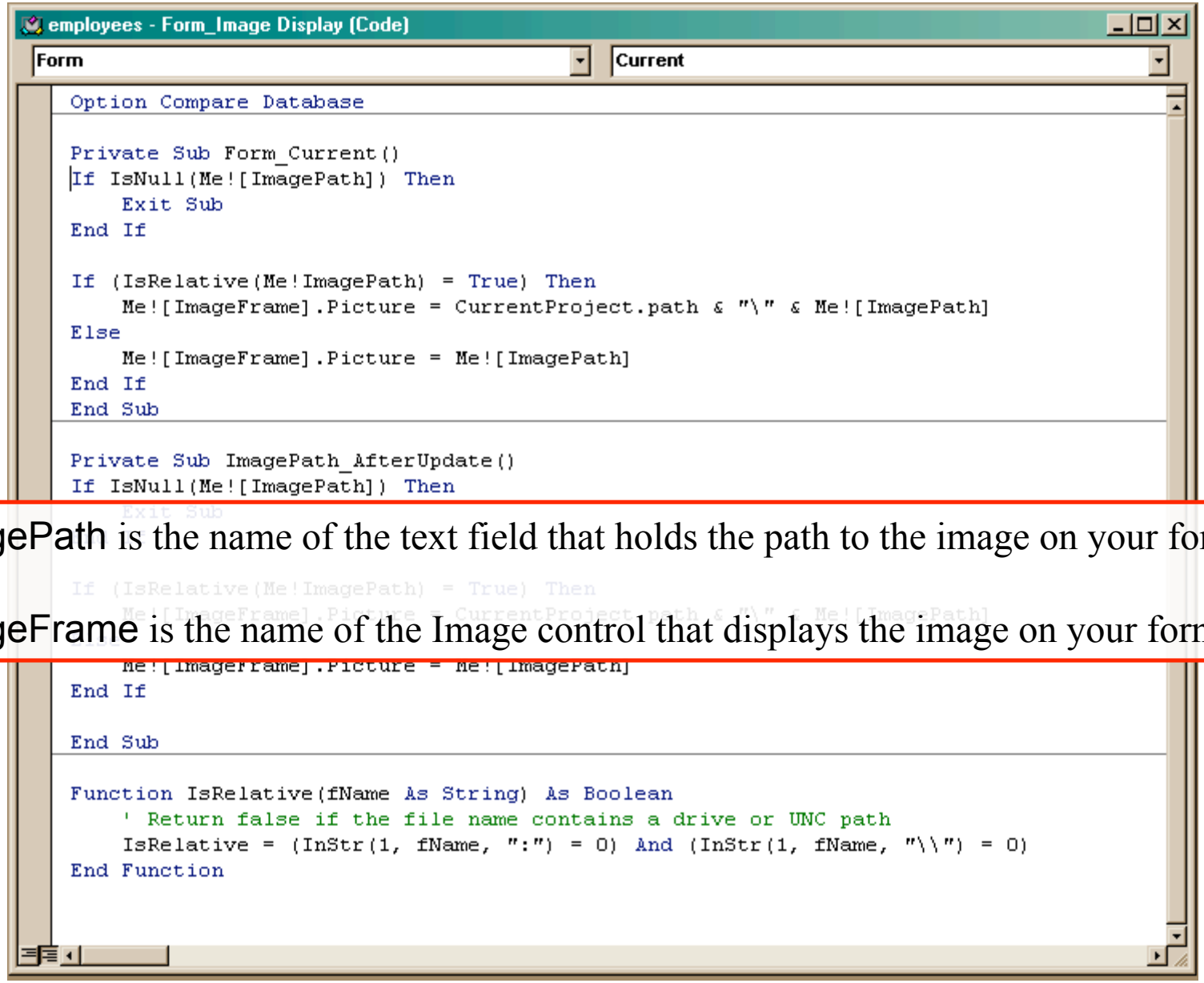


image field that displays the image pointed to by ImagePath

How do we change the image? Event Handlers

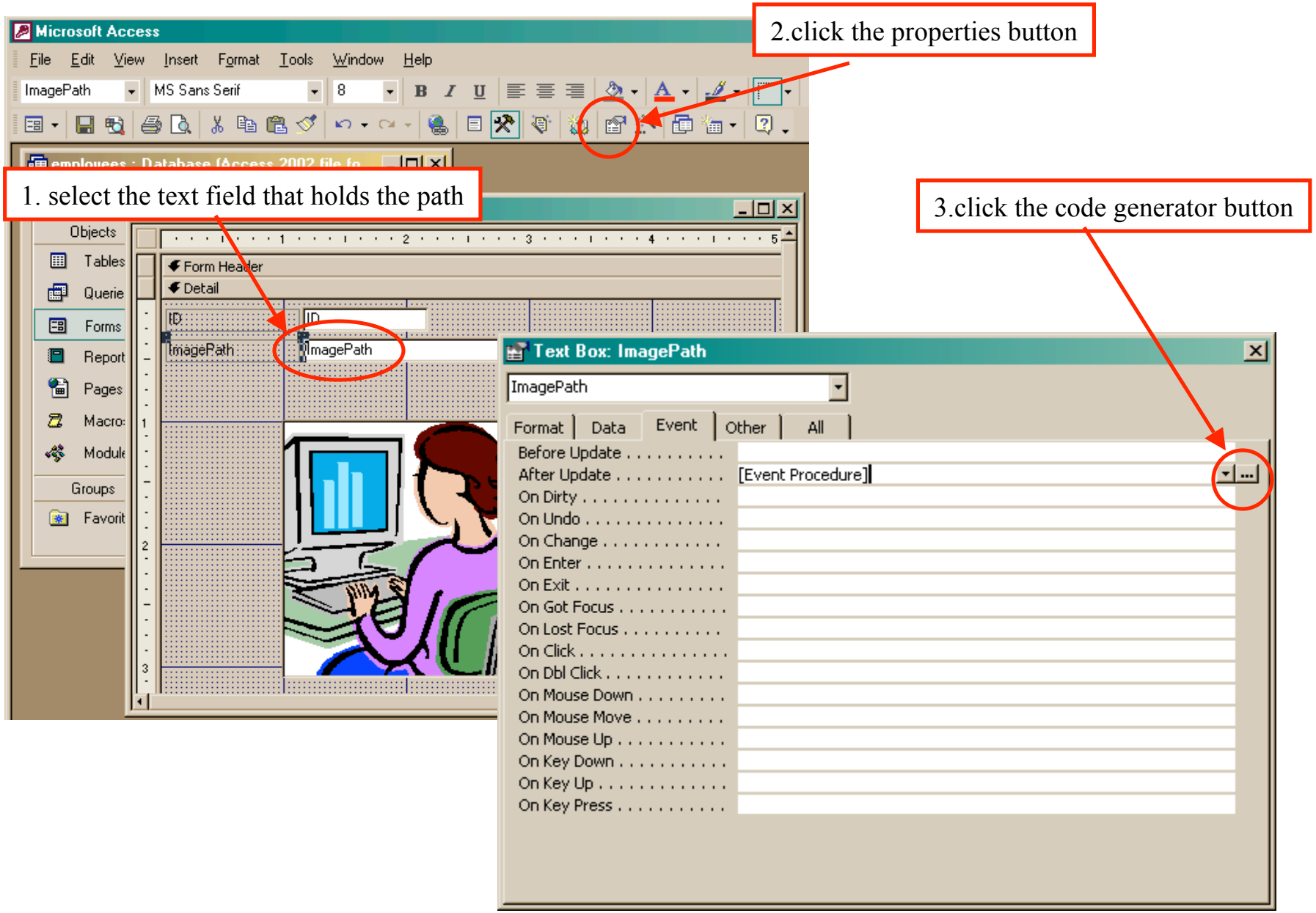


OnCurrent event handler for the form



ImagePath is the name of the text field that holds the path to the image on your form.

ImageFrame is the name of the Image control that displays the image on your form.


2.click the properties button
1. select the text field that holds the path
3.click the code generator button
Microsoft Access
File Edit View Insert Format Tools Window Help
ImagePath
MS Sans Serif
8
Objects
Tables
Queries
Forms
Reports
Pages
Macros
Modules
Groups
Favorites
Form Header
Detail
ID
ImagePath
Text Box: ImagePath
ImagePath
Format Data Event Other All
Before Update
After Update
[Event Procedure]
On Dirty
On Undo
On Change
On Enter
On Exit
On Got Focus
On Lost Focus
On Click
On Dbl Click
On Mouse Down
On Mouse Move
On Mouse Up
On Key Down
On Key Up
On Key Press

AfterUpdate event handler for the field

ImagePath is the name of the text field that holds the path to the image on your form.

ImageFrame is the name of the Image control that displays the image on your form.