

Using the Access Database

INFO/CSE 100, Autumn 2004
Fluency in Information Technology

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

24-Nov-2004

cse100-21-access © 2004 University of Washington

1

Readings and References

- Reading
 - » *Fluency with Information Technology*
 - Chapter 13, Introduction to Database Concepts
- References
 - » *Access Database: Design and Programming*
 - by Steve Roman, published by O'Reilly

24-Nov-2004

cse100-21-access © 2004 University of Washington

2

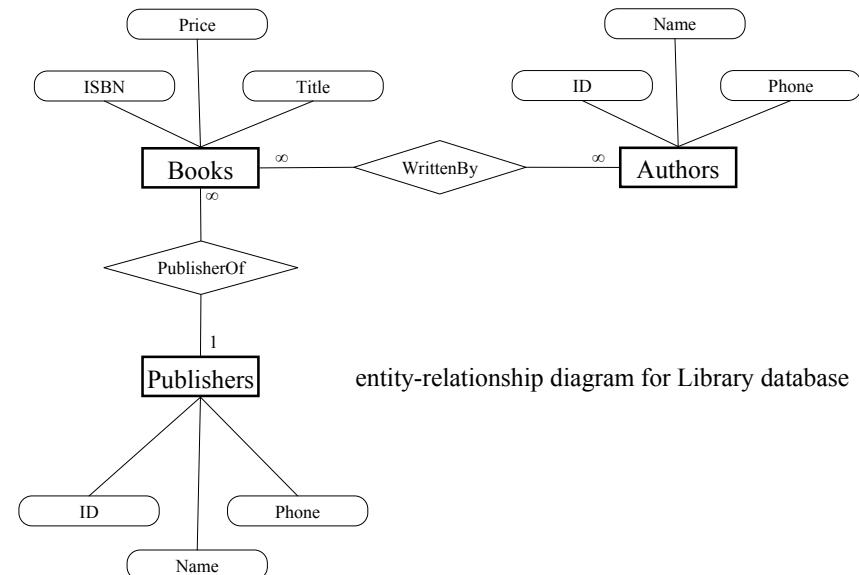
Structure

- A database contains one or more *tables*
 - » Tables include *entities* with *attributes*
 - » There are *relationships* defined between the entities in the various tables
 - » Retrieve information from the tables using *queries*
- First, design the database
 - » What are the entities?
 - » What are the attributes of each entity?
 - » What are the relationships between tables?

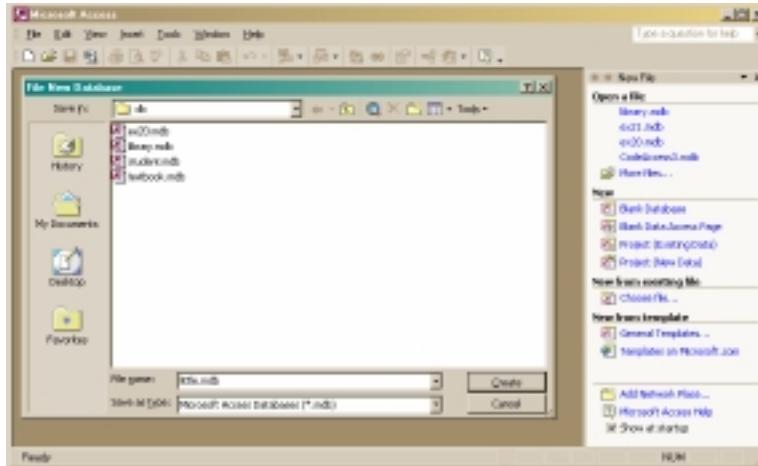
24-Nov-2004

cse100-21-access © 2004 University of Washington

3



Create a new database

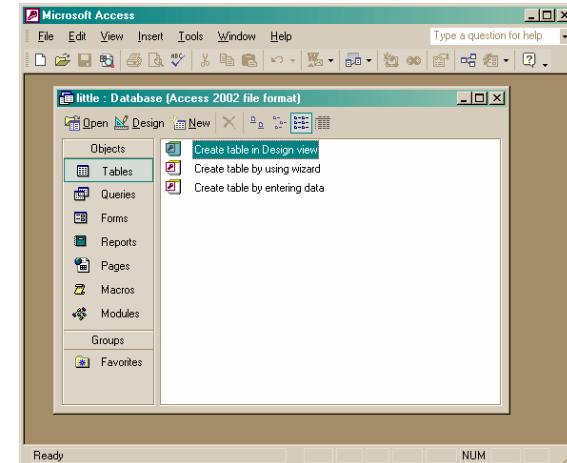


24-Nov-2004

cse100-21-access © 2004 University of Washington

5

Create a new table in the database

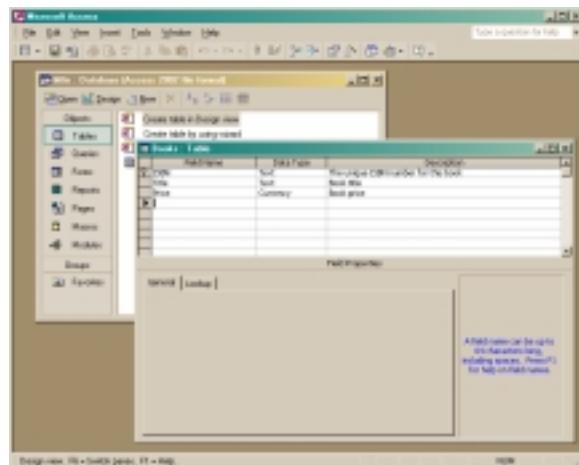


24-Nov-2004

cse100-21-access © 2004 University of Washington

6

Creating a table in Design view

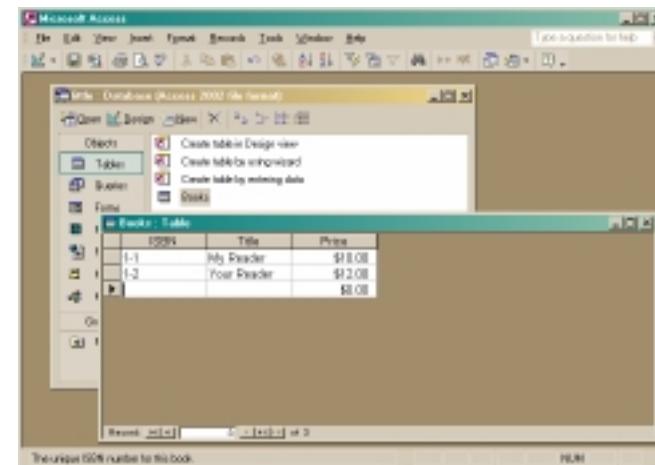


24-Nov-2004

cse100-21-access © 2004 University of Washington

7

Entering Table Data

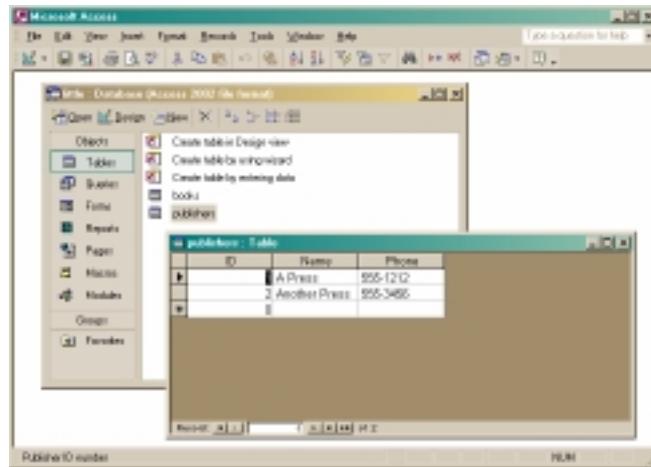


24-Nov-2004

cse100-21-access © 2004 University of Washington

8

Build another table

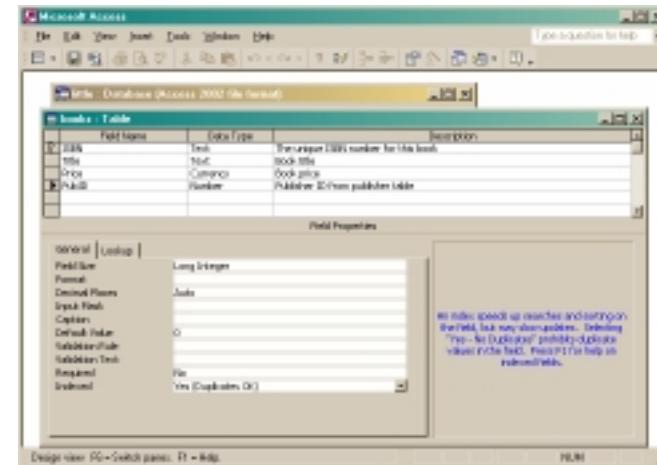


24-Nov-2004

cse100-21-access © 2004 University of Washington

9

Add publisher ID to books

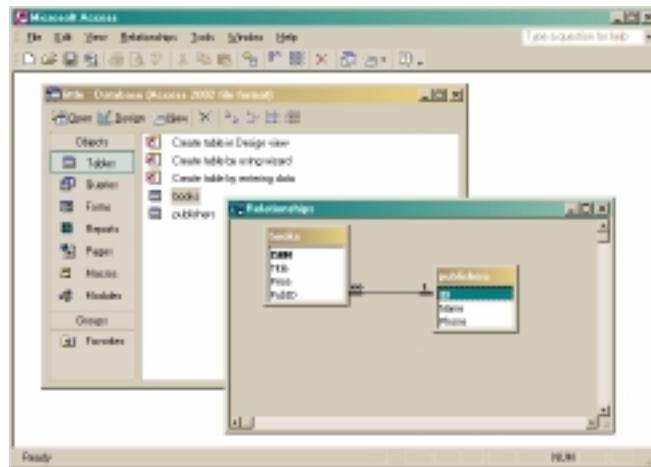


24-Nov-2004

cse100-21-access © 2004 University of Washington

10

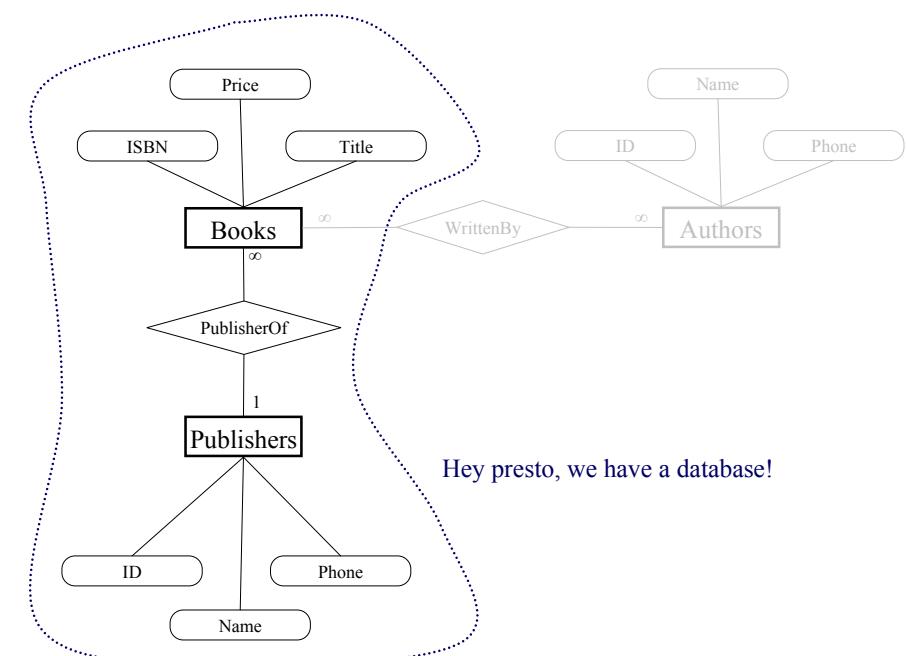
Create the link between the tables



24-Nov-2004

cse100-21-access © 2004 University of Washington

11



Two tables with a relationship

The screenshot shows the Microsoft Access interface. At the top is the menu bar. Below it is a toolbar with various icons. In the center-left is a table named 'Books' with columns ISBN, Title, Price, and PubID. It contains three rows of data: 'My Reader' (\$10.00), 'Your Reader' (\$2.00), and 'His Reader' (\$25.00). To the right of the table is a 'Relationships' window showing a one-to-many relationship between 'Books' and 'publishers'. Below the table is another table named 'publishers' with columns ID, Name, and Phone. It contains two rows: 'A Press' (555-1232) and 'Another Press' (555-3456). A status bar at the bottom left says 'The unique ISBN number for this book.'

24-Nov-2004

cse100-21-access © 2004 University of Washington

13

Create a query

The screenshot shows the Microsoft Access interface. The top window is titled 'Mile : Database [Access 2002 File Format]' and has 'Create query in Design view' selected. Below it is a 'Query1 : Select Query' window. On the left is a 'Tables' list with 'Books' and 'publishers'. The main area shows a query design grid with fields from both tables: ISBN, Title, and Name. The status bar at the bottom left says 'Ready'.

24-Nov-2004

cse100-21-access © 2004 University of Washington

14

The query produces a new (virtual) table

The screenshot shows the Microsoft Access interface. The top window is titled 'Mile : Database [Access 2002 File Format]' and has 'All Books w/ all fields' selected. Below it is a 'Title & Publisher : Select Query' window showing the results of the query. The results table has columns ISBN, Title, and Name, and contains the same three rows as the original 'Books' table. The status bar at the bottom left says 'The unique ISBN number for this book.'

24-Nov-2004

cse100-21-access © 2004 University of Washington

15

Project (select particular columns)

The screenshot shows the Microsoft Access interface. The top window is titled 'Mile : Database [Access 2002 File Format]' and has 'Title & Publisher : Select Query' selected. Below it is a 'Title & Publisher : Select Query' window showing the results of the query. The results table has columns ISBN, Title, and Name, and contains the same three rows as the original 'Books' table. The status bar at the bottom left says 'Record: 1 of 3'.

24-Nov-2004

cse100-21-access © 2004 University of Washington

16

Select particular rows

The screenshot shows the Microsoft Access interface. In the top left, the ribbon menu is visible. Below it, the 'Objects' section of the navigation pane is open, with 'Query' selected. A sub-menu under 'Query' shows options like 'Create query in Design View', 'Create query by using wizard', 'All Fields w/ all fields', and 'Copy query'. The main workspace contains two windows: one titled 'Costly books : Select Query' showing a results grid with columns ISBN, Title, Price, and Name, and another window below it showing the query design grid with tables 'books' and 'publishers' joined on their 'ID' fields. The status bar at the bottom indicates 'Ready'.

24-Nov-2004

cse100-21-access © 2004 University of Washington

17

SQL behind the scenes

The screenshot displays three separate windows showing SQL queries:

- All Books w/ all fields : Select Query**:
`SELECT books.* , publishers.*
FROM publishers INNER JOIN books ON publishers.ID=books.PubID;`
- Title & Publisher : Select Query**:
`SELECT books.ISBN, books.Title, publishers.Name
FROM publishers INNER JOIN books ON publishers.ID=books.PubID;`
- Costly books : Select Query**:
`SELECT books.ISBN, books.Title, books.Price, publishers.Name
FROM publishers INNER JOIN books ON publishers.ID=books.PubID
WHERE ((books.Price)>15);`

24-Nov-2004

cse100-21-access © 2004 University of Washington

18