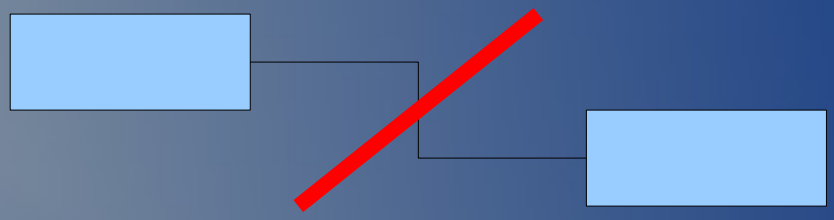
“Virtual List” Technique



Anything is Possible
When You're Not in a Relationship

David Hollander

Combined Fields Consulting

What Is a Virtual List?

- Concept credited to Bruce Robertson
- A technique that uses
  - a utility table
  - global variable(s) to *temporarily* hold information taken from other tables, without needing relationships between them
  - a script to find and gather data from the records of interest, in place of relationships

Situations that call for VL

- Display data from more than one table in the same portal
- Display data from different tables at different times in the same portal
- Display potential records before they're created (or deleted) in their proper table
- Control the number of rows on a report
- Keep the Relationship Graph simple by relying instead on scripting and variables

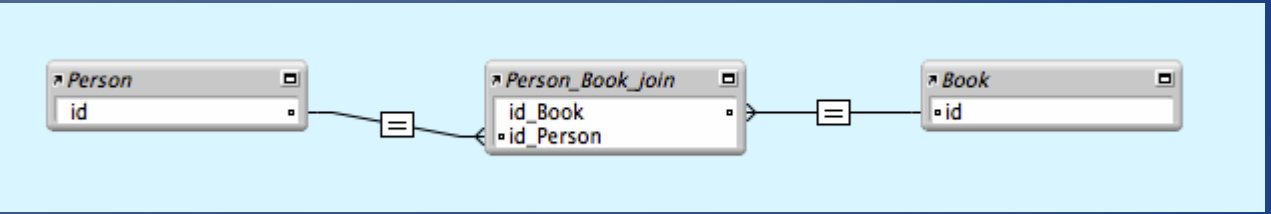
amazon.com = “Virtual” Store

- Advantages over a real store
  - Catalog of items representing many warehouses
  - Easy-to-assemble shopping cart, mixing items
  - 24/7 operation

- Disadvantages of a virtual store
  - Can't drive over to touch or try on actual item
  - Pay for shipping, wait for delivery

“Normal” Table Occurrences

- Use Primary and Foreign keys
- Limit of only one T.O. context per layout
- Limit of only one T.O. relationship per portal



Building a Virtual Table

- Finite number of records (100 should do)
  - No adds, deletes, or direct edits of records
- Very few fields
  - a number field, sequentially numbered
  - one or more unstored calculation fields, which each derive value from lists (arrays) kept in separate global variables

    = GetValue ($$_Results ; RecordNum)
- Script(s) for finding and gathering data from one or more tables into those global variables

Parts of a Virtual Table (cont'd.)

$$_Results

John Doe	123 Main Street	Philadelphia PA
Mickey Mouse	19 Magic Castle	Orlando FL
Jane Smith	1600 Penn Avenue	Washington DC
....		

Unstored calculation field

DisplayText = GetValue ($$_Results ; RecordNum)

RecordNum = 1	John Doe	123 Main ...
RecordNum = 2	Mickey Mouse	19 Magic ...
RecordNum = 3	Jane Smith	1600 Penn …
...		

Script instead of Relationship

- Get user input for what to retrieve
- Build a list of the desired data from those records into a global variable, either by:
  - Find request(s)
    - Go to the right layout (context) for that request
    - Find matching records
    - Sort the found set
    - Loop through each record to build the list
  - or SELECT statement in "ExecuteSQL"

One Relationship to a VL

- Controls the number of rows to display
  - Out of all the 100 records, show this many
- Needs just one global numeric field, either
  - Unstored calculation
    - ValueCount ($$_Results)
  - Set Field
    - Get (FoundCount)

Downsides

- "Go to Related Record" step is out
  - must script navigation to the "real" record
- Effort required to script everything
- Managing the appearance of displayed data
  - spacing between fields / columns
  - formatting number, date, time values

Helpful Links

- SeedCode sample file from DevCon's "Year in Review" 2011
  - http://seedcodenext.wordpress.com/2011/11/05/virtual-list/
- *Taming the Virtual List,* Part I and Part II
  - http://www.mightydata.com/blog/taming-the-virtual-list-part-i/
  - http://www.mightydata.com/blog/taming-the-virtual-list-part-ii/

Acknowledgements

Free Stuff Used in this Demo:

- Brian Dunning: Sample Data for Testing
  - http://www.briandunning.com/sample-data/
- Icons from the Tango Desktop Project
  - http://tango.freedesktop.org/Tango_Icon_Library