

Extend Search in Your Solutions

DEV024

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Business

- Database developer since 1983
- MSN Media, Inc. 1989
- FBA Platinum
 - Certified in 7–12
 - FileMaker Excellence Award 2005, Sales
 - FileMaker Evangelist of the Year 2011
- Oregon Public Health

Pleasure

- Portland FMPug chapter coordinator
- Filemaker Talk Podcast - with Matt Petrowsky
- Musician, photographer, collector, traveler, cyclist













Demo

- Where are we going with this?
- fmSR version 4 Beta

10 Ideas

- 1.Study user search patterns
- 2.Recently viewed records
- 3.Single-field search
- 4.Result History / Linked
- 5.Relevance ranking
- 6.Preprocess
- 7.Iterate
- 8.Search multiple tables
- 9.Display Results
- 10.Candy

1: Study Users



User Search Patterns

- Observe Users in their natural habitat
- Observe, ask questions
- Shut up and watch
- Make no assumptions

User Search Patterns

- Log user searches
- Analyze patterns
 - Is there an 80/20 rule?
 - 90/10 rule?
 - Which tables are searched and which aren't?
 - Discover new use cases?
- Facilitate common searches

2. Recently Viewed Records



Recently Viewed Records

- More like Web History than a 'Back' solution
- Integrate by adding a single table
- Track record views for all records / primary tables
 - Trigger script onRecordLoad
- Viewing a record should not modify that record
- Show sorted list of record views on Dashboard

Recently Viewed Records

- **Field list:**
- UUID of record viewed
- Text description of record viewed
- Table Name of record viewed
- Count of views
- Timestamp Last Viewed

- Demo of 'Reuse'

3. Single Field Search



Single Field Search

- Follow The Leaders
 - Yahoo, Excite, Lycos, Bing, InfoSeek, WebCrawler, Ask Jeeves, Alta Vista, etc.
- All users are trained on search from a single field
- Take advantage of the training provided by others
- Mimic basic features
 - Consolidate results from everywhere
 - Avoid 'no records found'

Single Field Search

- Search Widget on all layouts, in same place
- Or use Quick Find widget
- Triggered
 - One line high

4. Build Result History

Link to search terms



Link Query to Click

- Concept: user search session
- Concept: Short-click vs. long-click
- Store association of search term with record viewed
- **Learns Over over time**

Link Query to Click – Scenario

- Record exists for Barbara Jones, who recently changed last name
- User searches for ‘Barbara Peters’ and nothing is found
- User searches again for ‘Barbara’ and gets 20 results
- User sees list and recognizes, recalls new name
- Clicks on ‘Barbara Jones’ record

Link Query to Click

- **Add 1 table for Relevance. Fields:**
- Field for search term user types
- Text description of record clicked
- Table name of record clicked
- UUID of record clicked
- Vote Counter

Link Query to Click

- When User does a search, and quickly clicks a record
 - Store a record for the initial search term (high quality)
 - Store a record for last search term (lower quality)
- Search against the Relevance table
- Increment counter to score frequently used records

- Demo of Relevance

5. Relevance Ranking



Relevance Ranking

- Concept: Relevance by inherent quality of record
- Concept: Relevance by similarity of search term
- Show only high quality results .. or ..
- Show all results, sort by relevance

Relevance Ranking - Example

- Person names are among the most common search
- Relatively unique in any given system
- Very commonly miss spelled
 - Haha, recursive humor
- Soundex
 - Cast a wide net
- Levenshtein Edit Distance
 - Function to measure similarity

- Demo of Soundex & Levenshtein

6. Preprocess



Preprocess

- Before running search, determine type of data
- Examples:
 - Integer, Dollar, Phone, Email, SSN
 - Date, Date Range, Invoice ID, Customer ID, etc.
- Look only where that data lives
 - Yields much faster result
 - More accurate result

Preprocess

- Look for commands, multiple types of data, etc.
 - Quit, Menu, Recent Invoices
 - Smith 1/17/83
 - Technology+Portland -Maine

```

Let ([
  string = $$sr Search String ;
  integer = Int (string) ;
  date = GetAsDate (string) ;
  filter date = Filter (string ; "0123456789/.*") ;
  filter date comma = Filter (string ; "0123456789/.*, ") ;
  filter phone = Filter (string ; "0123456789.+-(/ ) " ) ;      // for US or International phone. Remove characters that don't exist in your data.
  filter integer = Filter (string ; "0123456789" ) ;
  filter integer comma = Filter (string ; "0123456789, " ) ;
  filter decimal = Filter (string ; "0123456789.-$" ) ;          // This is also true for Phone, so phone test is done first
  filter decimal comma = Filter (string ; "0123456789, .-" ) ;
  filter operator = Filter (string ; "+-/*>=<=") ;
  size = Length (string) ;
  range = PatternCount (string ; "..") ;
  commacount = PatternCount (string ; ",") ;
  slashcount = PatternCount (string ; "/" )
] ;

Case (
  filter date = string and slashcount = 2 and range = 1 ; "date range" ;
  filter date = string and slashcount = 4 and range = 1 ; "date range" ;
  filter date = string and slashcount = 1 and size ≤ 5 ; "date" ;      // date in current year, such as 7/23
  filter date = string and slashcount = 2 and size ≤ 10 ; "date" ;    // date with year, such as 7/23/09

  filter integer = string and GetAsNumber (string) < 99999 ; "integer" ;    // could be a 5 digit zip code, though Zip is usually text to allow 98765-1234
  filter integer = string and GetAsNumber (string) > 99999 ; "large integer" ;
  filter decimal = string and range = 1 and PatternCount(string ; ".") < 3 ; "integer range" ;
  filter integer comma = string and commacount ≥ 1 ; "integer list" ;

  filter phone = string and Length ( filter integer ) = 10 ; "phone" ;    // US Phone, and some international numbers

```

7. Iterate



Iterate

- If at first you don't succeed...
 - ...then skydiving is not for you
- **Never display 'No Records Found'**
- Start with ideal search
- Gradually broaden until results are found
 - Truncate search term (Stanislavsky to Stani)
 - Change AND searches to OR searches
 - Search in additional fields, such as Notes

Iterate

- Use Soundex function for names
- Use Quick Find to search all fields on a layout
- Use table you learned about in section 4
 - Search on search terms that have previously been successful
- Fix common date errors
 - 1/17/84 becomes 1/*/84 and 4/5/13 becomes 5/4/13

Iterate

- Email trick
 - FileMaker can't search for matt@msnmedia.com unless it's in quotes
- Phone formatting
 - User may enter 8806288, use method to show 503-880-6288
- Ranges, Extend and Constrain

- Demo fmSR

8. Search Multiple Tables



Search Multiple Tables

- Iterate within each table, then iterate across tables
- Trick is displaying records
- Use repeating global fields, virtual list, or HTML
- Track IDs from each table
- Display results in consolidated 'search' table

9. Display Results



Display Results

- List View
 - Only one table
- Portal
 - One table = easy
 - Multiple tables = virtual list, etc.
- Repeating Global Field
 - Pure FileMaker, but tricky to setup
- WebViewer
 - Use fmp:// to link to record (hosted)

10. Candy



Candy

- Large static data tables
- Tax Lots
- Famous People
- All of Wikipedia
- SSNs

Candy

- Wait, SSNs?
- Aren't those private?
- Really REALLY private?

Candy

- 85 Million SSNs
- Free file from ssdmf.info
- Contains Full Name, DOB & SSN
- Public record
- Caveat...

Candy

- Demo

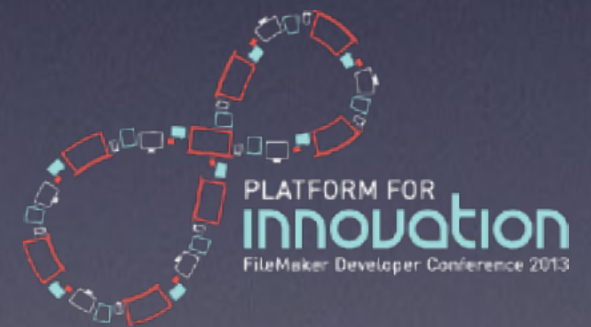
Summery



Summery Someary



~~Summery~~ ~~Someary~~ Summary



Summary

- Observe Users, without prejudice
- Think about what Google search does, and how
- Adapt your solution, not your users
- Test ideas to address search problems
- Break search down to multiple phases
 - Preprocess, Iterate, Display
- Web History

Summary

- How close can we get to Google?
- Is 5% of the way enough?
- Optimize!
 - For FileMaker Pro Clients on LAN & WAN
 - For FileMaker Go / Local and hosted
 - For Web / PHP
 - Future un-announced products

Thank You



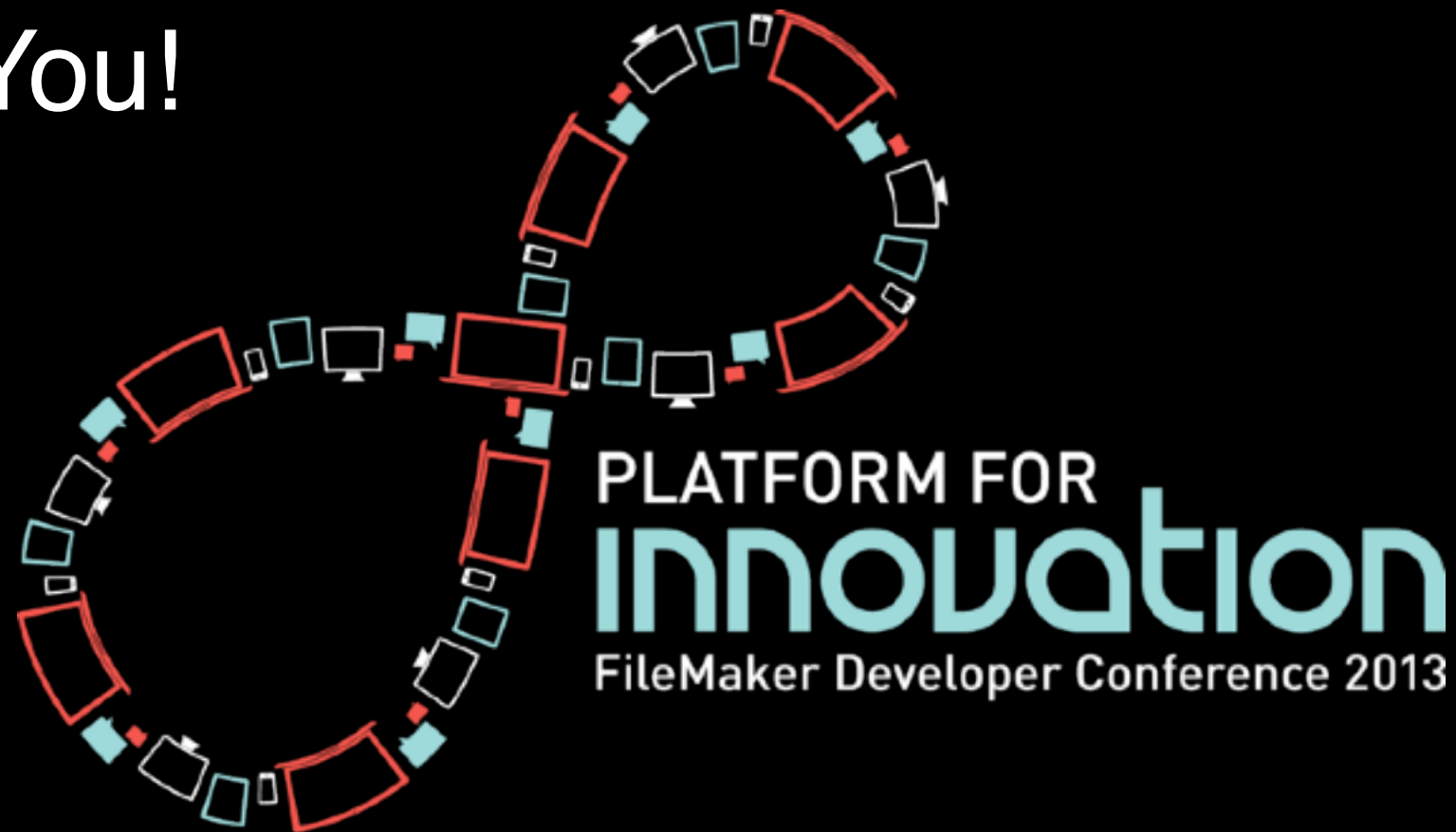
Session Updates

www.filemaker.com/devcon/speaker_updates

This session DID have MAJOR updates.

(This is also listed in your conference guide.)

Thank You!



Please remember to fill out the session evaluation at:
www.filemaker.com/devcon/evaluations