Background

• Toyos Clinic
  – Ophthalmic clinic located on Skyline Drive
  – Specialize in LASIK/cataract surgery
  – Research Department
  – Primary Contacts
    • Peter Andrews, MD
    • Sara Youngerman, MS
Problem

- SOAPWare
  - Electronic Medical Records (EMR) software
  - Paperless office solution
  - Manages patient/visit data
Problem

• Research Department
  – Paper vs. electronic charts
  – Time-saving opportunity

• SOAPWare Chart Searcher
  – Optional add-in
  – No support for Excel Export
Solution

• Write a 3\textsuperscript{rd} Party Application
  – Interface with SOAPWare database
  – Ability to search/filter patient charts
  – Support for export to Excel spreadsheet
Architectural Approach

• SOAPWare Database
  – MSDE database
  – Network server

• VB.NET
  – GUI
  – No previous experience
Development Process

• Understanding the Research Process
  – Participated in manual searching of charts
  – Medical terms/abbreviations
  – Distinguishing important information
Development Process

- Planning Phase
  - Database schema mapping
- SQL Server Enterprise Manager
Development Process

• Planning Phase (cont.)
  – Creation of a visual product map
    • Microsoft Visio 2003
  – Review and suggestions by Toyos Clinic
Development Process

• Planning Phase (cont.)
  – Suggested additions/improvements
    • Ability to save/retrieve queries
    • Inclusion of .ini file for program portability
Development Process

- Coding
  - Microsoft Visual Studio.NET 2003
  - Specific Procedures
    - String concatenation
    - Database connections
    - File Input/Output
    - Microsoft Excel Automation System
  - ~1300 lines of code
Product Demo
Obstacles

• Ophthalmic Industry
  – Terminology

• VB.NET
  – Syntax
  – Event-driven programming
Obstacles

• SOAPWare
  – Poor database design
    • Multiple Databases
    • Not industry standard for relational databases
    • No defined foreign-key relationships
    • Multiple types of data in one field
    • RESULT: In many cases, multiple database queries required to obtain desired results
Future of the Research Assistant

• Continuing Development
  – Future SOAPWare updates/schema changes

• Public Product Offering
  – Other SOAPWare users
Special Thanks

• Industry Perspective
  – Peter Andrews, MD
  – Sara Youngerman, MS

• Visual Basic Reference
  – Willie George