The ProSeniors Access for Information Retrieval System: PAIRS

By

Karen Coleman

Submitted to
the Faculty of the Information Engineering Technology Program
in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Science
in Information Engineering Technology

University of Cincinnati
College of Applied Science

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_____	_____
Karen Coleman	Date
_____	_____
Professor Russell McMahon, Faculty Advisor	Date
_____	_____
James F. Sullivan, Department Head	Date

Acknowledgements

I give thanks to my family for supporting me through this tedious, and oftentimes distressing endeavor. I would also like to give special thanks to Dr. Maria Krepple for directing me to the ProSeniors Agency. I would also like to thank Mr. Thomas Bedall, Managing Attorney for ProSeniors, and Ms. Mary Day, Ombudsman for ProSeniors for unlimited access to their database, providing me with answers to all my various questions regarding the data fields and links needed within each table to provide them with the information they needed to accomplish their reporting needs, and for answering my numerous e-mails in a timely manner.

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Abstract

ProSeniors Access for Information Retrieval System (PAIRS) was developed to fill a void in the reporting capabilities for the local Hamilton County ProSeniors office. There was a need to have region specific queries that were not available using the statewide database inquiry system. The PAIRS database was developed using Access 2000 and SQL Server 2000. The queries were written in Access and Visual Basic Applications languages. These queries allow the local office to obtain critical data in a seemingly effortless manner. This system increases productivity and reduces the amount of time the users have to spend trying to manipulate data.

1. Statement of the Problem

The senior citizen population is ever increasing rapidly. According to the Ohio Department of Aging there are currently over 2 million Ohioans age 60 and over (1). More individuals are living into their seventies, eighties and nineties. Ohio is feeling the impact of this trend through the increased numbers of disabled seniors and the fact that more elderly are living alone, which increases demand for services for the elderly.

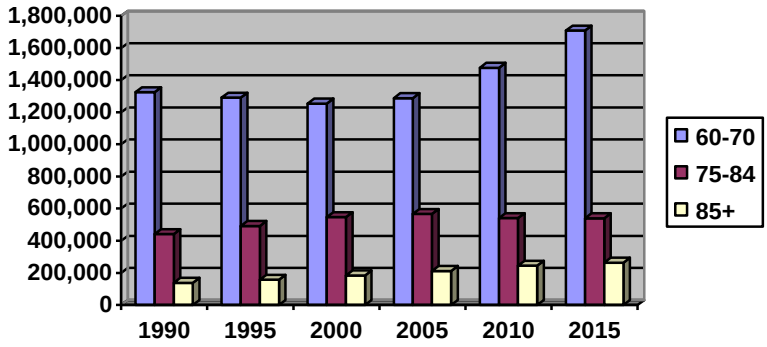


Figure 1. Composition of Senior Citizen Population

With this increase comes the need for more government help to meet the needs and answer the questions seniors have. Social service agencies are overwhelmed with the amount of information to be reported to the various government and state agencies funding these programs.

ProSeniors is a non-profit organization that provides free legal and long-term care to help older adults. ProSeniors offers Ohio residents over the age of 60 the advice and information needed to solve legal, nursing home, adult care facility and home health care problems. (2). In conversations and e-mail communications with Thomas Bedall, Managing Attorney for ProSeniors (3) and Mary Day, Ombudsman for ProSeniors (4), I

became aware of the scope of ProSeniors need for a tailor-made computerized inquiry system.

Mr. Bedall and Ms. Day both agreed that the current system, ODIS (Ombudsman Data Information System), where information is downloaded from a database in Columbus, does not suit the inquiry needs for the counties their local office has reporting responsibilties. The ODIS system is a generic database inquiry program, which is accessed by all agencies for senior citizens within the State of Ohio. With each region having different reporting requirements, it is difficult to create queries specifically for the Tri-State region. For example, the United Way requires ProSeniors to submit a report with a breakdown of clients by age, race and gender. This information is not easily obtainable using the current inquiries available within the ODIS system.

2. Description of the Solution

PAIRS is an application that contains a database stored in SQL Server 2000 with a front-end user interface stored in Access 2000. The programming has been accomplished using Access queries, SQL and Visual Basic Applications (VBA). This application facilitates the funding reporting capabilities of the ProSeniors agency. PAIRS enables ProSeniors to easily obtain the data needed for various reports to government agencies such as United Way. Staff members download the current database from the central location in Columbus into their existing ODIS system. The data can then be accessed by the PAIRS system. Reports can then be generated using existing PAIRS queries.

2.1 User Profiles

There are two primary users for PAIRS, Thomas Bedall and Mary Day. Both individuals are novice computer users who are able to use the functionality of the current system, which allows them to simply click an option control, but don't have the availability of the complex queries that are needed to gather the data needed for some of their reports. They have enough computer knowledge to use easily identified navigation buttons to obtain the data needed for their reports. They handle the download from Columbus by simply clicking an option control. It is for this reason PAIRS has been designed as an easily navigated and intuitive tool. Everything needed to produce the required reports is accessed from the opening screen. There is no need for the users to input too much data or try to formulate complex queries.

2.2 Design Protocols

The user interfaces have been designed in Access 2000 based upon the availability and familiarity the users have with the software. Access 2000 allows for customized views and uses built-in Microsoft SQL Server integration. Therefore, Access 2000 was the obvious choice for me to formulate the complex queries needed to allow the users easy access to the data without requiring the users to have any extensive programming knowledge. The database tables with the appropriate relationships and diagrams are stored on the SQL 2000 Server. The fast transaction turnaround time and reliability of SQL Server 2000 made this the optimum choice. There is also programming in VBA. Based upon the fact that Access 2000 automatically includes VBA version 6.0 this was also an obvious choice.

3. Deliverables

1. An Access 2000 front-end user interface to produce required reports.

2. An SQL Server 2000 back-end storage of data tables.

3. Navigation buttons on the main page to access the following queries:
   United Way Demographic Report
   Queries of totals by sex
   Query by Ombudsman with dropdown list for open cases and totals for selected Ombudsman
   Query of AGI Details table by date range for the Cincinnati office

4. VBA and Access programming to accomplish the required queries.

4. Proof of Design

4.1 Database Design

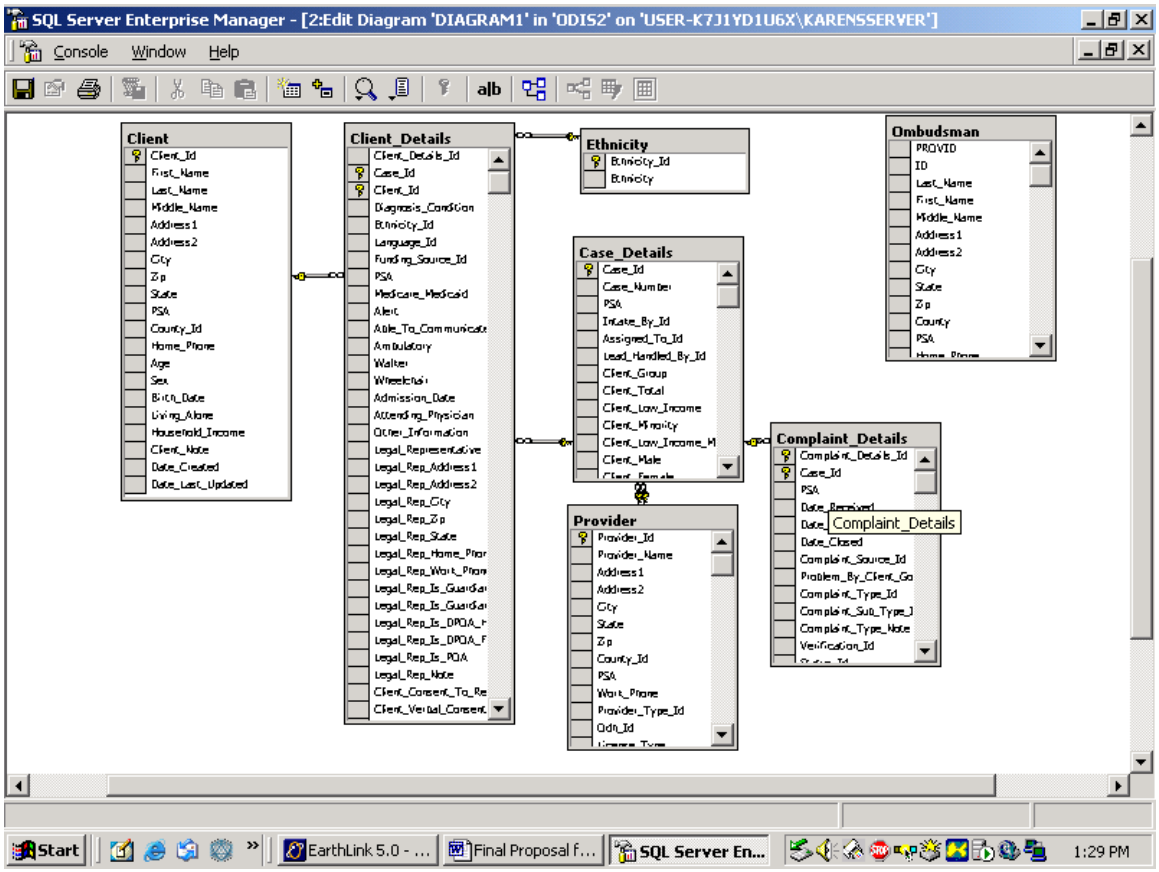
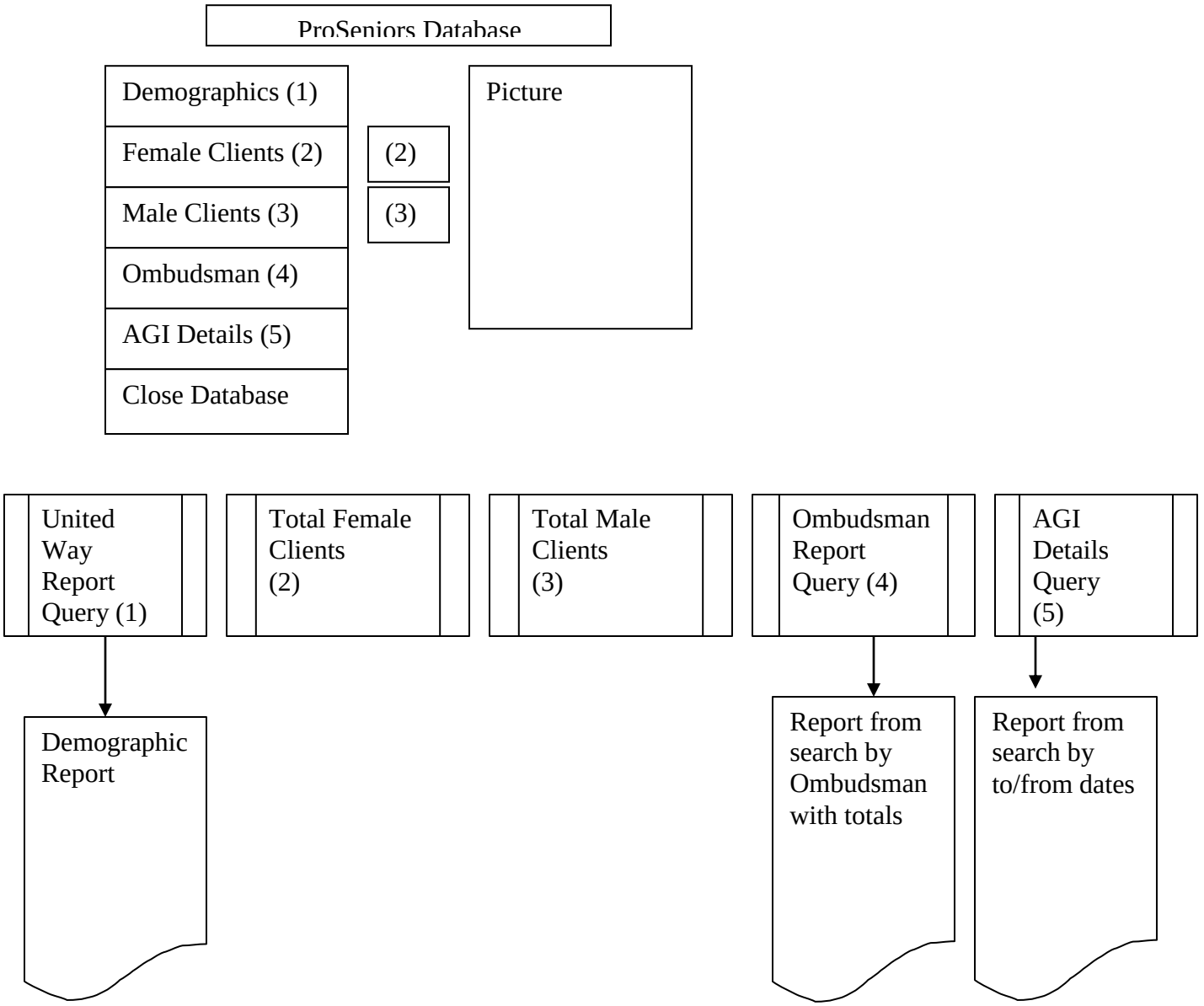


Figure 2. SQL Server 2000 Database Diagram

Though there are thirty-nine (39) tables in the database, shown above are the

current tables relationally linked that are included in this project.

4.2 Flowchart of Data



4.3 Opening Screen

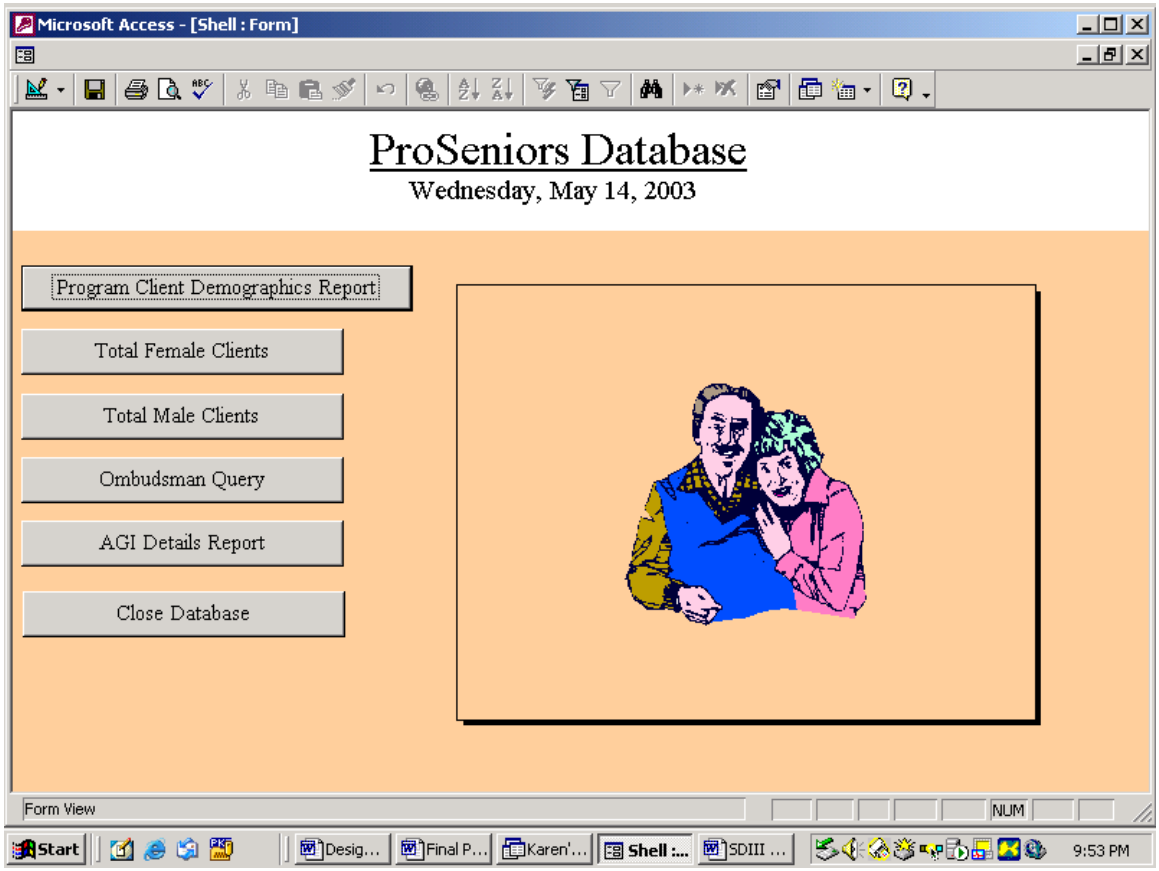


Figure 3. Opening Screen

This is the main screen that opens when the database icon is clicked on from the desktop. From this screen all report options are available.

4.4 Client Demographics Report

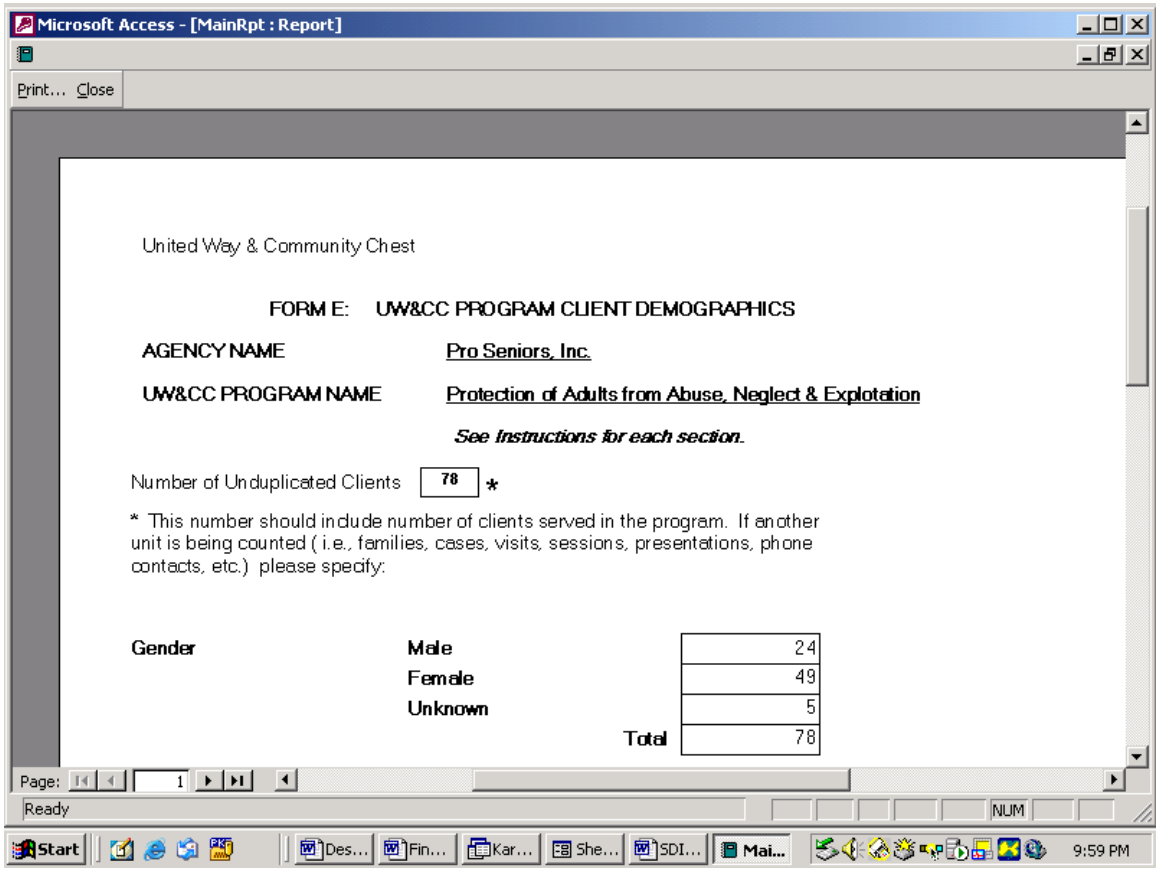


Figure 4. United Way Demographics Report

The Program Client Demographics Report button automatically produces this report.

4.5 Total Female/Male Clients

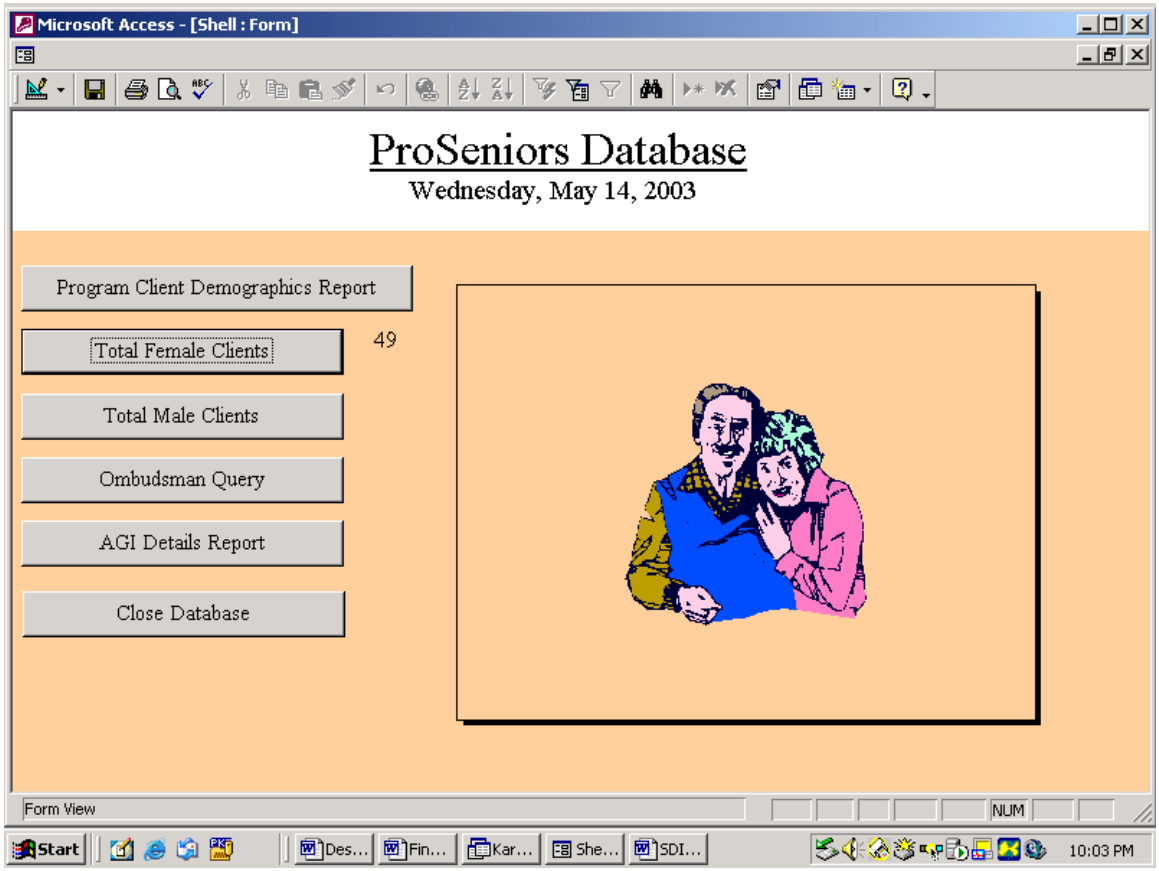


Figure 5. Results of Total Female Clients

Clicking the Total Female Clients button will calculate the total of all female clients in the database.

4.6 Ombudsman Query Report

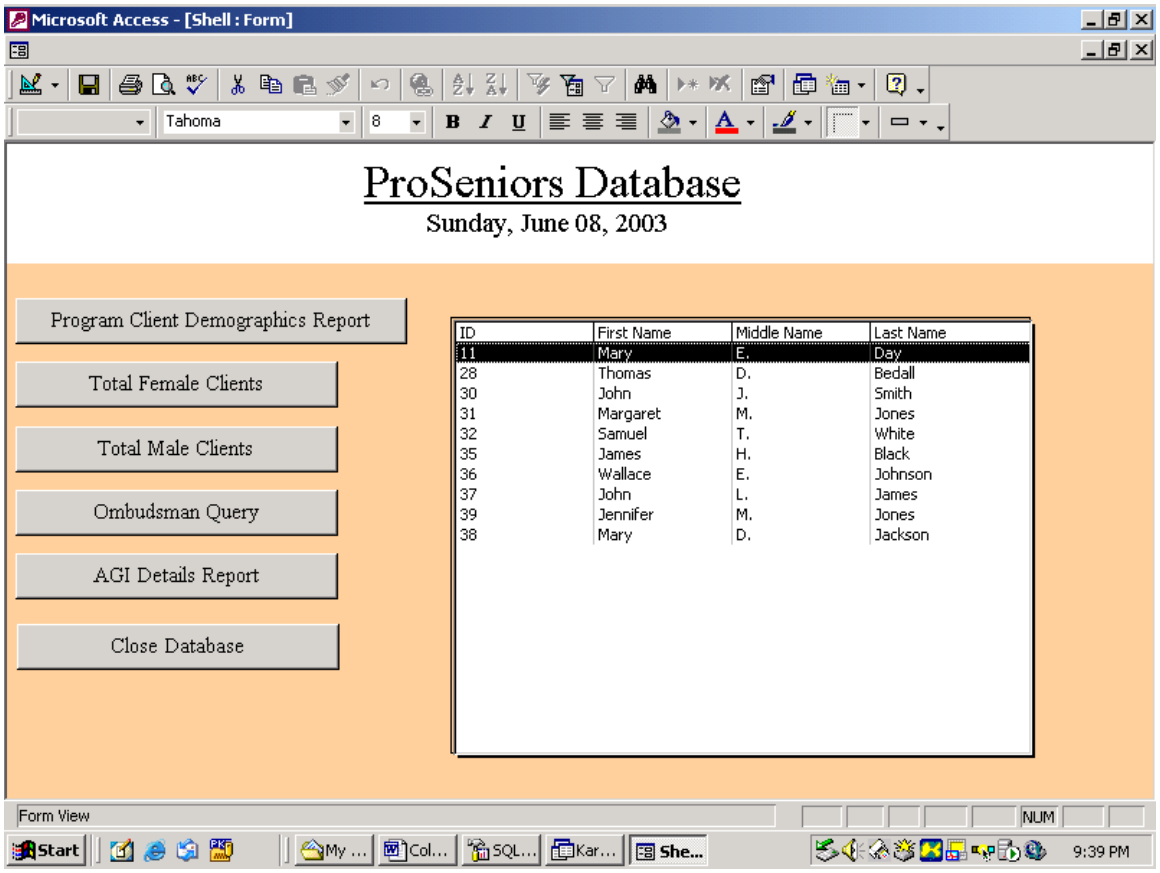


Figure 6. Ombudsman Query Selection

Selecting the Ombudsman Query button brings up a dropdown list from which the user can select the specific Ombudsman activity report they would like to view.

4.7 Results of Ombudsman Query

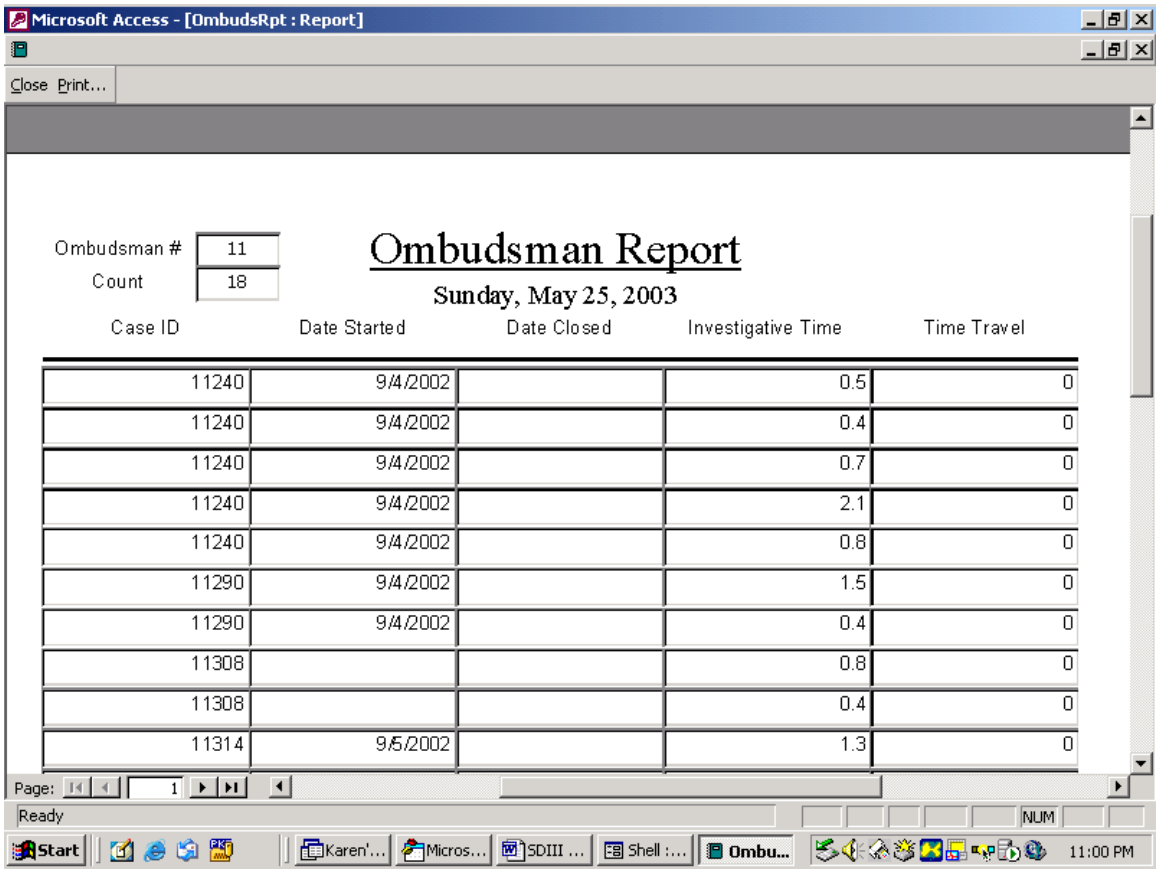


Figure 7. Results of Ombudsman Query

After selecting the Ombudsman you wish, the report returns all open cases with the appropriate information including the ID and total number of open cases.

4.8 AGI Details Input Screen

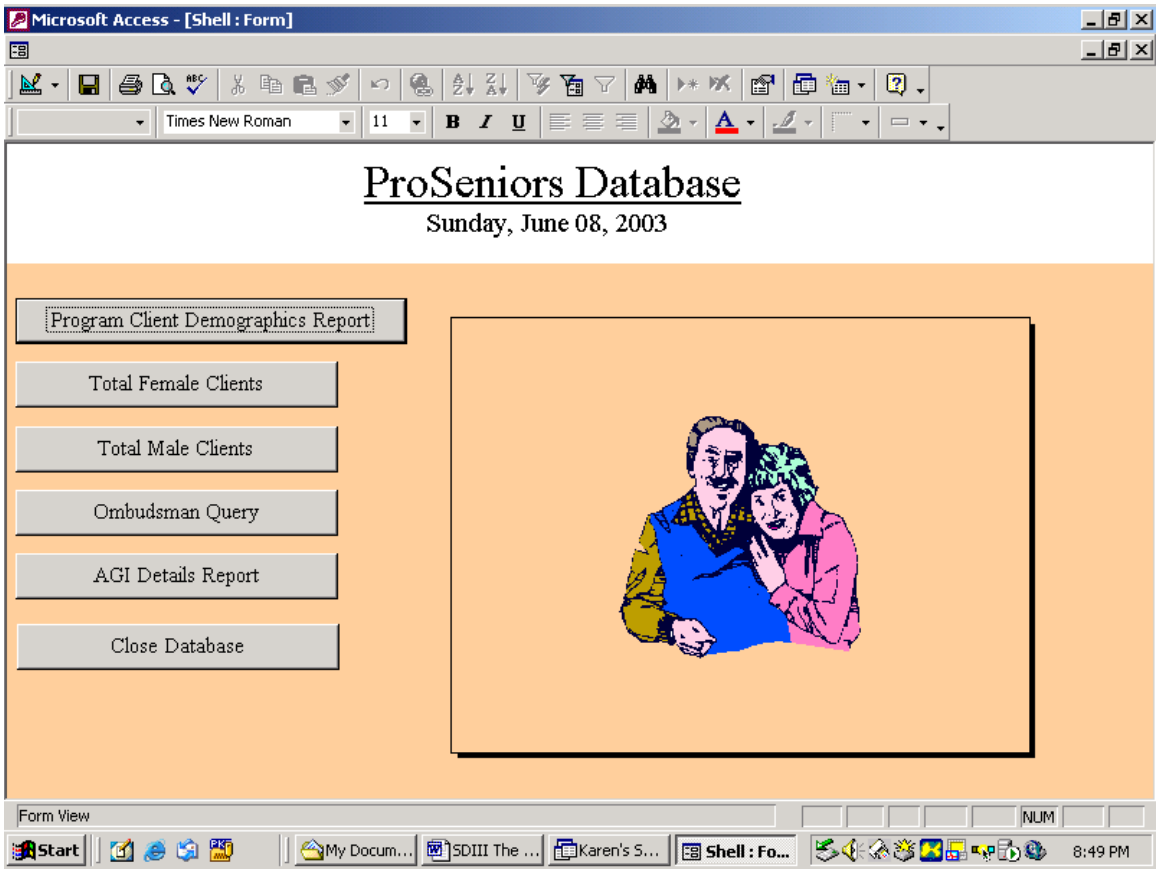


Figure 8. AGI Details Report Input Screen

Selecting the AGI Details Report button automatically produces this screen where the beginning and ending dates can then be selected. Selecting the view report button accesses the query for the range of dates selected.

4.9 AGI Details Input Screen Results

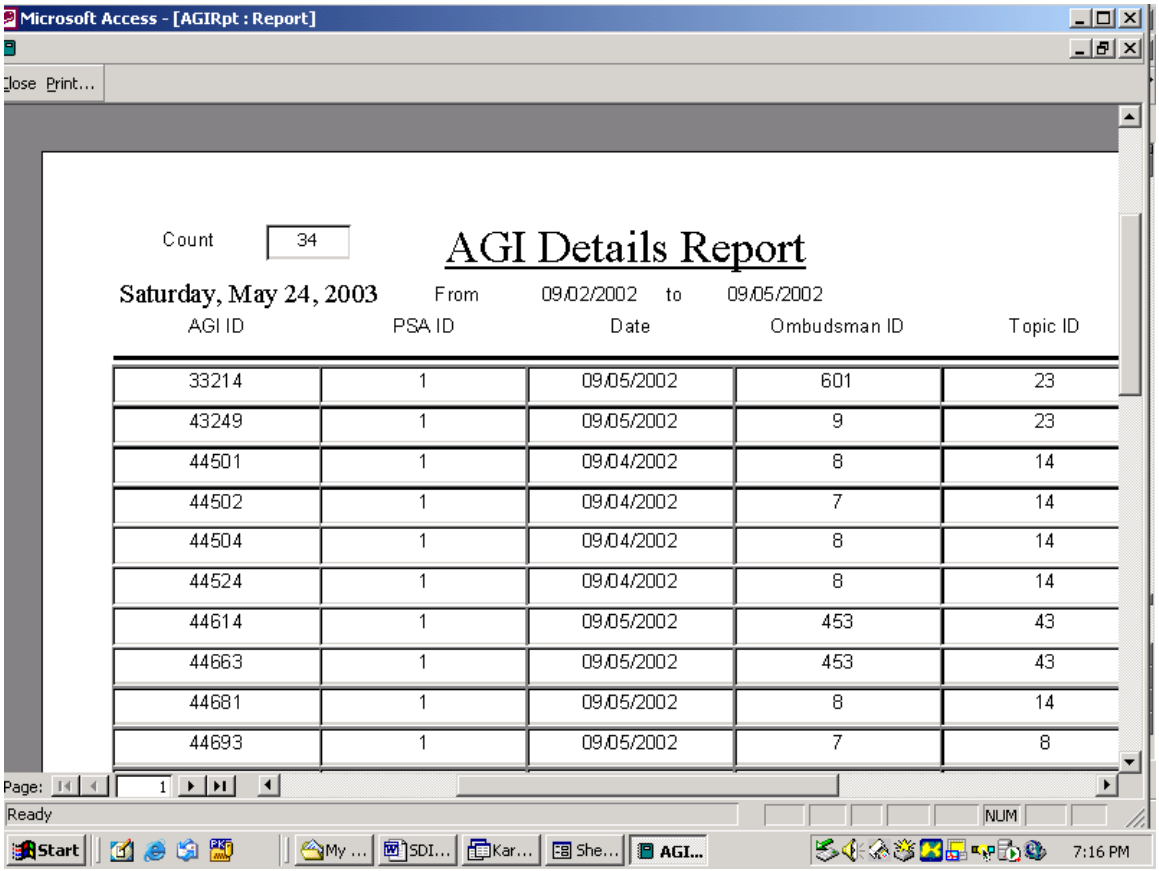


Figure 9. Results of AGI Details Report

After inputting your requested dates the above report is produced.

5. Testing/Evaluation

I have tested each report with known data to insure correct results. This has been done with a combination of the Access front-end queries and SQL queries. Based upon the fact that ProSeniors has opted to only use the Access front-end, no testing was able to be performed onsite. Despite this, I have insured that ProSeniors needs have been met and accurate data results have been produced.

The following is an e-mail that I received from Mr. Thomas Bedall after showing him the final project.

Karen,

Thank you so much for automating the United Way Program Client Demographics Form for our Long-Term Care Ombudsman Program. As you know, the Ombudsman Program puts its data into a server at the Ohio Department of Aging in Columbus via remote access, which severely limits our ability to access the data for local uses, such United Way reporting. We are able to download the raw data in tables, but there are no key fields or relationships established between the tables. You were able to change that.

By creating an Access program to mine and manipulate the raw data, you reduced my reporting time to United Way from hours to minutes. No more importing the data into Excel and totaling columns with formulas to extract the necessary numbers. Your project produced a finished product that will be put to use immediately in the real world. Thanks again for all your hard work.

Tom Bedall
Managing Attorney
Pro Seniors, Inc.

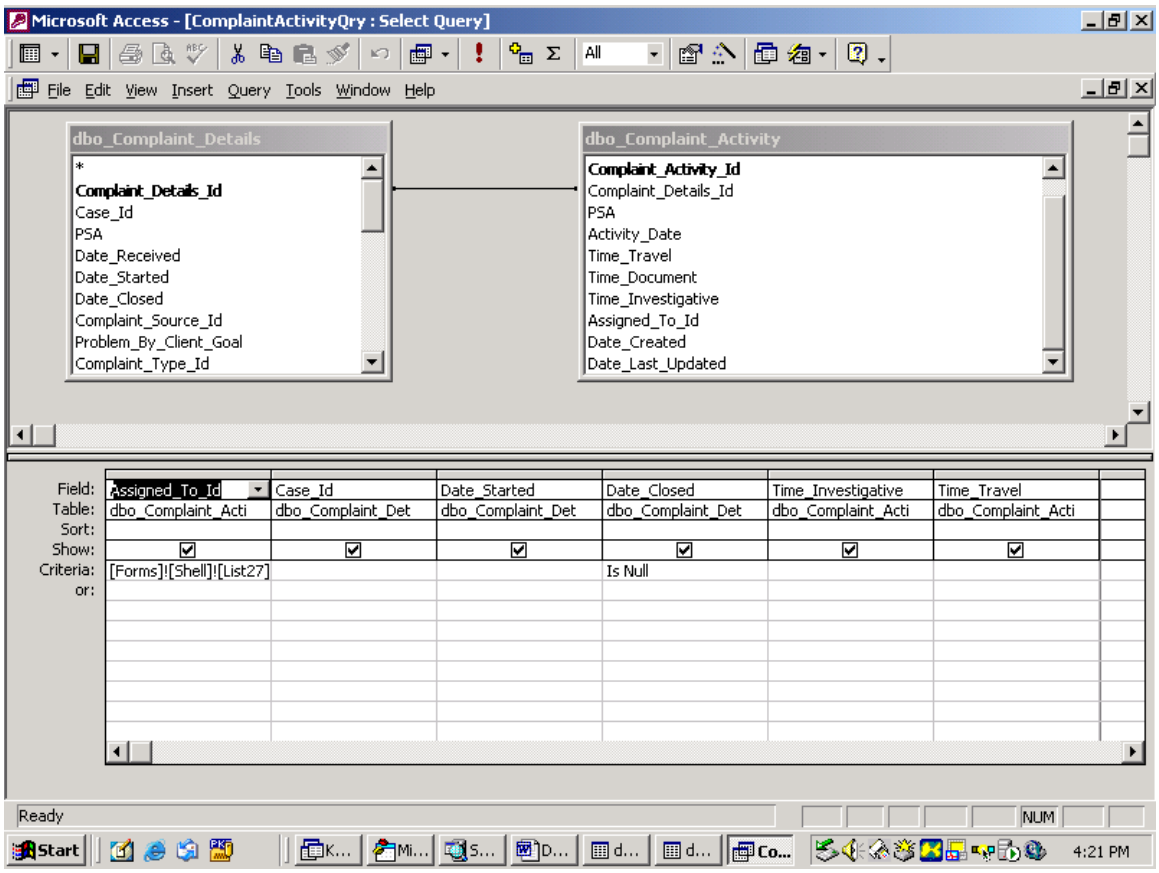


Figure 10. Example of Access Query for Testing Ombudsman Report

This is a snapshot of the query that is stored on the Access 2000 front-end. To validate the output, the following query was used in the SQL Server 2000 on the appropriate tables.

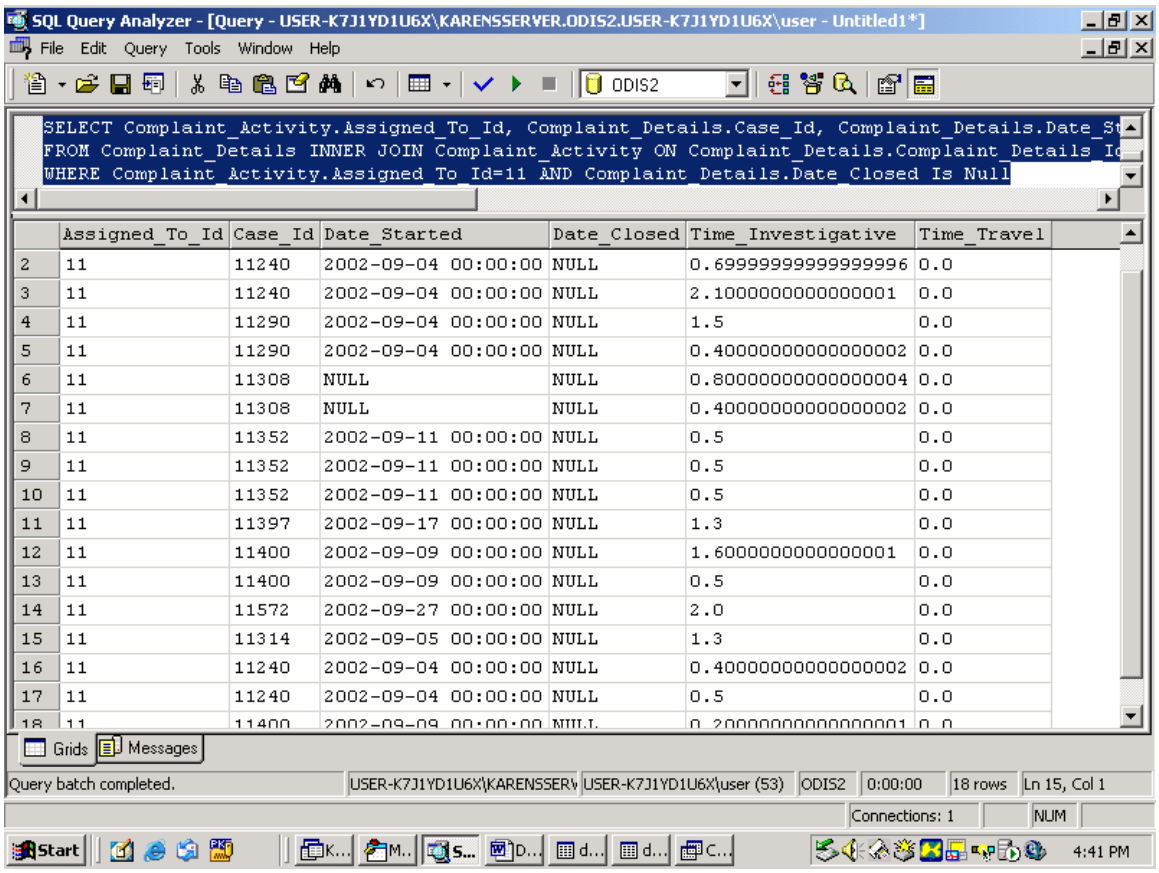


Figure 11. Results of Ombudsman Query Form in SQL Query Analyzer

Testing was conclusive to show the appropriate results were obtained.

6. Conclusions and Recommendations

6.1 Conclusions

PAIRS was created to allow ProSeniors an easily navigational and productive means of satisfying their reporting needs. I have created one opening screen from which they can obtain the desired reports. The behind the scenes programming to produce the reports have been built in. Therefore, there is very little input needed from the users which was my initial goal. For the users this is a great tool in assisting them with their day-to-day workload. For my own gratification and learning, this was an extremely challenging and beneficial experience. I entered this project with very little experience in

both applications that I have used. I have gained considerable knowledge in areas I previously had no experience or formal training in. I feel my learning curve basically started as an almost straight line from ground zero, but through trial and error (and considerable mistakes) I have extremely broadened my programming ability. Since the goal of Senior Design is to expand my knowledge (both through experiences in the classroom and on my own), I feel this endeavor has achieved what it was intended to accomplish.

6.2 Recommendations

I experienced many challenges along the way. Not only was I inexperienced in Access, I also had neither knowledge nor experience in VBA programming. I would advise anyone attempting this endeavor, to research the applications they will be using and make sure they have a very good understanding of what can be done using each application. This project involved a huge learning curve for me. Also, since I am using real world data, as opposed to data that I could control, there were been obstacles I did not foresee when starting this project. I was not prepared for missing data, or inaccurate data, such as having no ethnicity codes in a table used to produce a report, which included the ethnicity field in its output. I would recommend that anyone deciding to work with an existing agency (with an existing database) makes sure that they know the limitations to which the database is available, the limitations to which the database can be altered, and the limitations to which the existing software can be accessed.

Appendix A.

Timeline

Task	Start	End
Complete development and testing of United Way Report	3/24/03	3/30/03
Build and test Ombudsman queries	3/24/03	4/01/03
Design Ombudsman Report layout	3/24/03	4/01/03
Build and test AGI queries	4/01/03	4/08/03
Design AGI Report layout	4/01/03	4/08/03
Build Final Project	4/08/03	4/14/03
Test Final Project	4/08/03	4/14/03
Research inaccurate results	4/15/03	4/22/03
Revise and test Final Project	4/22/03	5/13/03
Prepare Final Presentation	5/13/03	5/30/03
Present Final Project	6/5/03	6/5/03

Appendix B.

Budget

Item	Description	Price
Hardware	SQL Server 2000 with 3 Client Access Licenses	$16,995.00(5)
	Personal Computer Pentium 4 with monitor	2,000.00
Software	Access 2000	289.00(5)
Total		$19,284.00

Appendix C.

Samples of Programming Code

C 1. Main Form

```
Option Compare Database

Private Sub AGIBtn_Click()
Me.List27.Visible = False
Me.TotalFemaleLbl.Visible = False
Me.TotalMaleLbl.Visible = False
DoCmd.OpenForm "ReportFrm"


End Sub

Private Sub ClintRptBtn_Click()
Me.TotalFemaleLbl.Visible = False
Me.TotalMaleLbl.Visible = False
DoCmd.OpenReport "MainRpt", acViewPreview

End Sub

Private Sub CloseBtn_Click()

DoCmd.Quit

End Sub

Private Sub FemaleBtn_Click()
Me.List27.Visible = False
Me.TotalFemaleLbl.Value = [SexF]
Me.TotalMaleLbl.Visible = False
Me.TotalFemaleLbl.Visible = True

End Sub

Private Sub List27_Click()
Me.TotalFemaleLbl.Value = ""
Me.TotalMaleLbl.Value = ""
DoCmd.GoToControl "OmbudsBtn"
[Forms]![Shell]![List27].Visible = False
```

```
DoCmd.OpenReport "OmbudsRpt", acViewPreview
Me.OLEUnbound15.Visible = True

End Sub

Private Sub MaleBtn_Click()

Me.List27.Visible = False
Me.TotalMaleLbl.Value = [SexM]
Me.TotalFemaleLbl.Visible = False
Me.TotalMaleLbl.Visible = True

End Sub

Private Sub OmbudsBtn_Click()
Me.TotalFemaleLbl.Value = ""
Me.TotalMaleLbl.Value = ""
Me.List27.Visible = True
DoCmd.GoToControl "list27"

End Sub

Private Sub OpncasesBtn_Click()
DoCmd.OpenQuery "OpnCases", acViewPreview
End Sub
```

C 2. Main Report Query

```
SELECT Count(dbo_Client.Client_Id) AS CountOfClient_Id, Sum(IIf([Sex]="F",1,0))
AS SexF, Sum(IIf([Sex]="M",1,0)) AS SexM, Sum(IIf([Age]>0 And [age]<6,1,0)) AS
Age1, Sum(IIf([Age]>5 And [age]<11,1,0)) AS Age2, Sum(IIf([Age]>10 And
[age]<15,1,0)) AS Age3, Sum(IIf([Age]>14 And [age]<19,1,0)) AS Age4,
Sum(IIf([Age]>18 And [age]<23,1,0)) AS Age5, Sum(IIf([Age]>22 And [age]<35,1,0))
AS Age6, Sum(IIf([Age]>34 And [age]<55,1,0)) AS Age7, Sum(IIf([Age]>54 And
[age]<65,1,0)) AS Age8, Sum(IIf([Age]>64 And [age]<75,1,0)) AS Age9,
Sum(IIf([Age]>74 And [age]<85,1,0)) AS Age10, Sum(IIf([Age]>84,1,0)) AS Age11,
Sum(IIf([Household_Income]>0 And [Household_Income]<9999,1,0)) AS
Household_Income1, Sum(IIf([Household_Income]=0,1,0)) AS Household_IncomeU
FROM dbo_Client;
```

C 3. AGI Report Query

```
SELECT dbo_AGI_Details.AGI_Id, dbo_AGI_Details.PSA,
dbo_AGI_Details.AGI_Activity_Id, dbo_AGI_Details.AGI_Location_Id,
dbo_AGI_Details.AGI_Topic_Id, dbo_AGI_Details.AGI_Date,
dbo_AGI_Details.Ombudsman_Id
FROM dbo_AGI_Details
```

```
WHERE (((dbo_AGI_Details.AGI_Date) Between [Forms]![ReportFrm]![StartDate]
And [Forms]![ReportFrm]![EndDate]));
```

References

1. “Ohio Department of Aging Web Page”. Http:/www.state.oh.us. October 29, 2002.

2. “ProSeniors Web Page”. Http:/www.proseniors.org. 1998

3. Bedall, Thomas G., Managing Attorney, ProSeniors. Personal interviews
E-mail communications.

4. Day, May. Ombudsman, ProSeniors. Personal interview.

5. Http:/www.AtomicPark.com. November 2002.