DYNAMIC MASS MARKETING PROCESSOR

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by

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DISCLAIMER

This thesis is submitted as partial and final fulfillment of the cooperative work experience requirements of Kettering University needed to obtain a Bachelor of Science in Computer Science Degree.

The conclusions and opinions expressed in this thesis are those of the writer and do not necessarily represent the position of Kettering University or Roseville Chrysler Jeep, or any of its directors, officers, agents, or employees with respect to the matters discussed.

PREFACE

This thesis represents the capstone of my five years combined academic work at Kettering University and job experience at Roseville Chrysler Jeep. Academic experience in Computer Science proved to be a valuable asset while I developed this thesis and addressed the problem it concerns.

Although this thesis represents the compilation of my own efforts, I would like to acknowledge and extend my sincere gratitude to the following persons for their valuable time and assistance, without whom the completion of this thesis would not have been possible:

1. Wayne Andrei
2. Gil Hale
3. David Johnston
4. Jim Huggins

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I. INTRODUCTION

The Dynamic Mass Marketing Processor is an application developed for Roseville Chrysler Jeep. The application is completely dependent on the Dealer Customer Management System (DCMS), developed by Gil Hale. The Dynamic Mass Marketing Processor has been titled RosePro. RosePro is a tool to generate mass marketing lists from the current customer database.

Problem Topic

At Roseville Chrysler Jeep, like all dealerships, keeping in contact with its customers is a big key to success. Over the years the dealership has build a very large and extensive database of customers. Roseville Chrysler Jeep has never been able to use this customer database for a marketing strategy. The dealership wants to be able to build unique customer lists for specific marketing, but has no tool simple enough to use.

Background

A simple software system was proposed. The software was titled RosePro and would be a simple, easy-to-use program allowing anyone in the dealership to create mark able customer lists. Currently, within Gil's DCMS, there is a feature that generates lists specific to criteria, but each option is hard coded into DCMS and there are no options to modify the selection of data. RosePro puts the creation of generating marketing data in the user’s hands. Previous methods to creating marketing material involved many hours writing unique scripts to pull information from the database and then creating documents into which to merge the data. Roseville Chrysler Jeep wanted to simplify this process and make it as "user-friendly" as possible. Development of the project was guided by Wayne Andrei

Criteria and Parameter Restrictions

There were very specific development criteria. Since it is very easy to get carried away with software development features, each criterion was chosen carefully. To limit the budget, no new software development tools were purchased. The project was developed within Microsoft Access 2002, which Roseville Chrysler Jeep currently owns. This still gave the flexibility of Visual Basic without the need for a new Visual Basic license. Obviously, the new system must operate within the data constraints provided by the DCMS FoxPro database.

Methodology

To make this project possible an Open Database Connectivity (ODBC) connection to the DCMS FoxPro database was established. Once the connection was made, the database tables were linked into Microsoft Access. This allowed the software to be designed specifically for the data tables now present in Microsoft Access. Before laying out any of the graphical user interface (GUI), a list of fields that would be most commonly used as criteria in specifying customer details (i.e.- name, address, vehicle make, vehicle model) was created. Small scripts were written in order to test the integrity of the database. After a few days of testing a generic formula that would be used in selecting a list of customers from the database. Using this formula a program was created that would input all of the variables. Finally a GUI that was simple and easy to use was created to communicate with the rest of the program. The software was tested for a few weeks before users were asked to test software. Errors were recorded and later fixed. One final test was done with successful results. The project was completed.

Primary Purpose

RosePro, a dynamic mass marketing processor, successfully generates data highly sufficient for creating marketing campaigns for Roseville Chrysler Jeep and merges them into documents formatted for direct market use.

Overview

The following chapters describe the research, implementation, execution, and testing of RosePro, a dynamic mass marketing processor. Considerable time was spent researching and learning the details and system structures of both Gil's DCMS database and the possibilities of final output. This lead to a plan of attack on implementation and testing. Upon completing the project was put through many tests, by the developer and other testers. Reports came back and changes were made to fix the flaws. A second set of tests were made and the project proved very successful.

II. CONCLUSIONS AND RECOMMENDATIONS

Developing marketing lists was made much easier with the creation of RosePro. The program will continue to be used at the dealership in many different marketing campaigns Roseville Chrysler Jeep will undertake. Now, almost anyone can create marketing documents and unique customer lists in a few minutes, as opposed to multiple hours. In the future, possible upgrades will allow the user to create not only the customer lists, but also the formatted documents used for merging within RosePro. Other fields could be added to broaden the possible choices for delimiting what criteria to use when making customer selection.

During the development and implementation of my software, further unanticipated problems were encountered. The different individual conclusions and key findings are listed below. They are listed in chronological order, starting with the research regarding possible recommendations for the future.

1. The first major problem was trying to connect to the database. A direct database connection was not possible. This lead to the creation of an ODBC connection and then linking the tables within the database.

2. Once into the database tables trying to decipher the meaning behind the names of the fields became very confusing. After multiple phone conversations with Gil Hale a list of database table fields and a description of each field was created.

3. At a technical level, creating queries to pull the data became very tedious. The sample results did not match with manual results. The initial formula for creating a query to be run on the database needed to be restructured. Joining the tables in different orders yielded lists that were accurate.

4. A couple of early tests revealed that creating customer lists based on a date range had an effect on the frequency with which these lists were built. Assuming a user built a 0 to 7 day list today and two days later did the same build, there is potential overlap of five days. To correct this potential problem the ability to do a progressive build was added. When progressive build is enabled the system will look at the last time the document was created and base its criteria on this date, which will eliminate any overlap. This feature became optional, since the situation will not always occur.

5. When the initial formula was created a few of the date fields chosen for comparison were based off of the same model Gil Hale had used in his DCMS. Initial results matched well with DCMS, but after further examination we were able to see that actually these values were wrong. Instead a new formula that was a combination of date formulas was required. In the end we were able to fix a problem that was previously undetected.

6. An issue that came up during the testing phase was determining exactly what the created document in RosePro will do, after creation. So a new feature was added that allows the user to preview what that document will do.

7. While error testing RosePro it became apparent that required fields must be filled out in order for a minimal list to be built. To alleviate any potential human error, a new document in RosePro cannot be saved without the required fields properly filled out.

8. Since RosePro is dependent on being connected to the database remotely, it is possible for the computer in which RosePro is installed on to become disconnected. If, the computer became disconnected during a user's build, they would never know this and it would appear that RosePro is continually building, forever. Even though this case is rare a 30 minute time out was established, after which RosePro will notify the user that there is an issue with the connection to the database and a simple computer reboot should re-establish the connection.

III. PREVIOUS SOLUTIONS

Prior to the creation of RosePro, previous systems did exist. There were essentially two other methods for obtaining mass marketing material for Roseville Chrysler Jeep. In this chapter these two methods will be described followed by the drawbacks to the systems. One of the methods required interaction with a third party that was not only costly and limited, but took a substantial amount of time, (three to five days). The other method, quicker, but similar to the first method, was limited in its use. Both methods limited the creativity and extensibility of the dealership's marketing techniques.

Third Party Marketing Tools

Before any in-house software solutions were provided, Roseville Chrysler relied on a third-party marketing company to develop unique customer lists. The third-party company provided choices the dealership could make on marketing strategies (e.g. customers with three purchases, new weekly customers). The third-party company had access to the dealership customer database and within a few days would mail the marketing lists and/or documents to Roseville Chrysler Jeep.

The third-party company did offer a wide variety of marketing choices, but the choices were still limited. This method was successful, but it also was costly, depending how often the dealership needed to create new marketing documents and how urgently they needed them. Roseville Chrysler Jeep relied on this method heavily, up until about three years ago, when a better method was created.

<u>Dealership Customer Management System Market Tool</u>

Within Gil Hale's DCMS is a feature that allowed its users to build mailing lists. In this feature one could not create a new type of mailing list, but only use pre-existing ones. Once a build has been completed in DCMS data is outputted to a CSV file, which could be used for any purpose.

Given this CSV file, a manual process was created to make the CSV data more appealing. These steps include the following:

1. The file was opened using Microsoft Excel and a set of fields that are irrelevant to the rest of the process was removed. Also, while the document is open in Excel, all records that were missing required fields for mailing were removed. The file was resaved.
2. Second, a Microsoft Word document was opened, and the details of the marketable document were created. Next, using Word's mail merge, the previously edited CSV file were linked to the document. Using the mail merge toolbar, fields from the CSV file were entered into the document. This Word document was then saved, for potential re-use.
3. Finally the Word document was merged, typically to the printer. This complete process is repeated for each unique marketing list and document.

Prior to the use of RosePro, this was the primary method for achieving custom marketing documents. If there was a case where a new type of marketing list was needed, outside of the choices available in DCMS, Gil Hale was contacted and he would have to hard code a new type of marketing list. This process could take a few days. There was a lot of room for human error during the manipulation and creation of the new documents. The process was relatively tedious and could take up to an hour to complete.

Previous Solutions Concluding Thoughts

While both systems were effective, the biggest drawbacks to their use were time and limited functionality. The goal of RosePro is to expand on infinite possibilities of marketing, in a timely manner. Wayne Andrei had once mentioned the fact that there are thousands of records in the DCMS database and the data is barely being used.   This is where RosePro is put to the test.

IV. DEALERSHIP CUSTOMER MANAGEMENT SYSTEM (DCMS)

Dealership Customer Management System or DCMS, for short, was developed by Gil Hale. Gil Hale is an independent database programmer who has spent over five years developing DCMS. Roseville Chrysler Jeep is one of his “guinea pig” clients. Currently there are two main database systems that nearly all vehicle dealerships use: ADP and Reynolds & Reynolds. DCMS is a Microsoft Windows application that synchronizes the database from either ADP or Reynolds & Reynolds. The purpose of DCMS is to provide a user-friendly solution to viewing and modifying customer data in the database.

DCMS was developed in Microsoft Visual FoxPro. Within DCMS there are many tools including the ability to search customer records and view information in great detail. A tool within DCMS allows one to select a list of customer builds, tentatively called Builds. These builds, as previously stated in chapter III, output unique customer lists to files. Examples of builds include all customers who have purchased a vehicle in the past 30 days or all sales customers.

The functionality of DCMS is extensible and rather easy to use. Tools for mass marketing beyond the “Builds” feature have not yet been developed. It is currently limited to the array of lists within DCMS. At the time of this writing, DCMS remains under development. A larger number of dealerships have begun to use DCMS.

V. USER FUNCTIONALITY

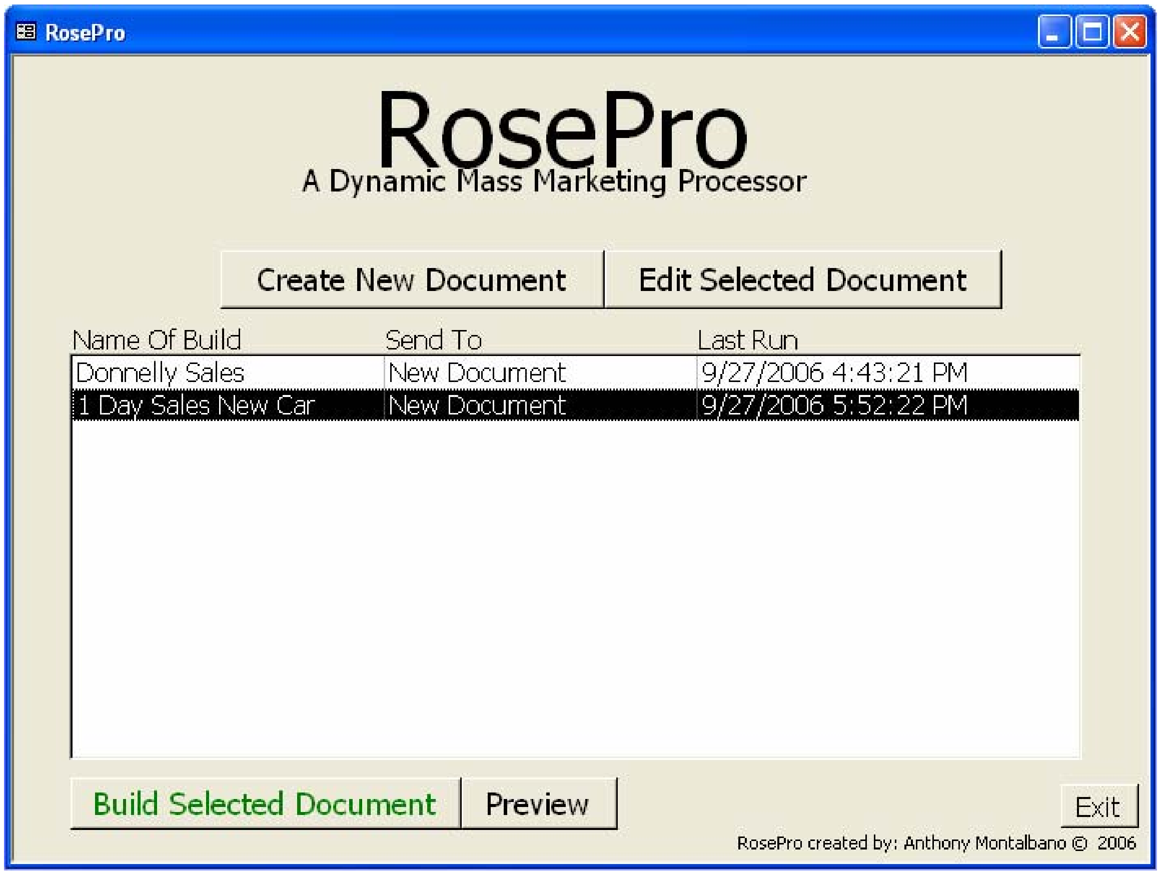
The following chapter will explain the user functionality of RosePro. There are four main windows for user interaction. Each window will be explained describing its purpose and usage. Further the process of using RosePro and its efficiency will be explained.

Before using RosePro for its first time, a few things are required. Microsoft Access is required to run it and an ODBC database connection must be established. To do so, the location of DCMS's FoxPro database is needed. In Microsoft Windows XP the user can create a data source connection, also known as an ODBC. Here the user will create a data source of type Microsoft Visual FoxPro Driver, give it a name and select the path of the DCMS database. Upon completion, RosePro is ready to be used.

Main

The main window is the first window seen when starting RosePro. The main window shows all of the current build documents that exist. On this window the user can also create, edit, preview, or build a document. Figure 1, on the following page, is an example of RosePro's main window.

On the main window there are five buttons that do the following:



Name Of Build	Send To	Last Run
Donnelly Sales	New Document	9/27/2006 4:43:21 PM
1 Day Sales New Car	New Document	9/27/2006 5:52:22 PM

Figure 1. Main window example.

1. Create New Document – This will open a new window that will allow the user create a new document.

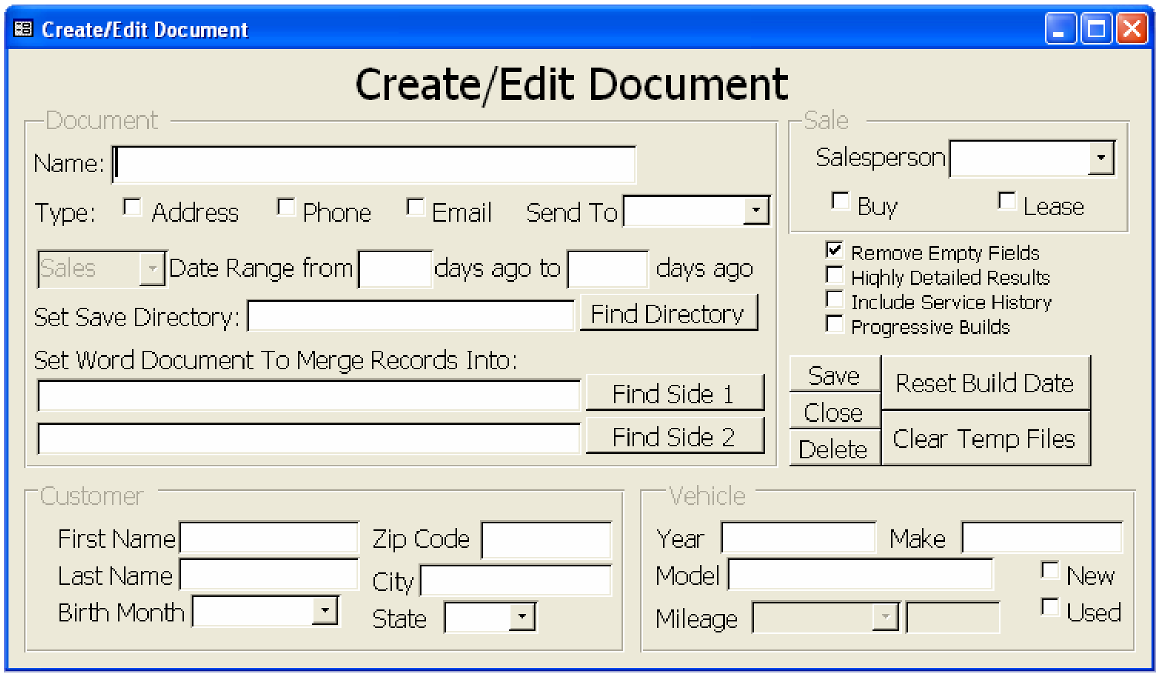
2. Edit Selected Document – This will open a new window to edit the document highlighted in the list of existing builds. The user may also double click on an existing document and it will open up the same window.

3. Build Selected Document – This will open a new window that allows the user to build data for the selected document. The user can also merge the data to a Word document.
4. Preview – This will open a new window that will display exactly what the selected document will filter out when built.
5. Exit – This will simply exit out of the RosePro application and return to Microsoft Windows.

The main window has an interactive list of currently existing documents in the middle. The document name, where the document will be sent to upon its merge, and the last time the document was run are displayed here. Clicking on a document highlights it. Double clicking on it opens up a new window to edit the details of the document.

Create/Edit Document

This window includes the heart of the document. In this window the user is given all of the fields necessary to customizing the type of document to be built and merged. This window is broken down into four essential sections. Each section includes fields related to the name of each section. There are also a few other options that are not categorized in any section. These options are very important to the use of RosePro. Figure 2 is an example of the Create/Edit Document window, prior to any data entry.



[✓ Remove Empty Fields]

Figure 2. Create/edit document window example.

1. The Document section of the Create/Edit Document window includes fields specific to the creation of the document. The first objective would be to give the document a name. Next would be to choose what criteria should be outputted to file. The user can create documents for mailing, documents that have lists of phone numbers of customers to be called, or documents that can be emailed. The user can choose any combination of the three types of lists: address, phone, or email. Depending on the user's choice the final Microsoft Word document can be merged to either a new Word Document, directly to a printer, or to Microsoft Outlook, in the form of an email.

The user will next see a disabled drop down box, defaulting to Sales. (Further detail about this drop down box can be found later in the chapter.) There is a sentence with two fields that can be filled in by the user. The sentence reads "Date Range from ___ days ago to ___ days ago". By filling in the fields with numerical values the user can have the document select a list of sales customers from a specified date range. If both values are left blank, no date range will be applied. If the first field is left blank, the program will select all customers up until the date generated by the second field. If the second field is left blank, the program will select all customers starting with the date generated from the first field.

The next field down can be automatically filled in by clicking the button labeled Find Directory. This will allow the user to select the directory into which to save all archived builds for this document. Next the user will select the Microsoft Word document into which to merge the data. Clicking Find Side 1 will allow the user to browse the computer for the Word document. If the user opts to merge data to the opposite side of the document there is a field and a correlating button that will act similarly to finding the first Word document.

The new RosePro document cannot be saved without completing a few required fields. These fields include Name, Send To, Set Save Directory, and Set Side 1.

If the user tries to save the document with any of these fields blank, the program will alert the user of the missing fields and highlight the fields in red.

2. The next section for the user to consider relates to specific information regarding the customer. The section is simply labeled Customer. All fields in the Customer section are optional. Here the user can select all customers with the same first or last name, or city. If, for example, the user chooses to select more than one zip code, the user can input a list of zip codes separated by a comma. The same technique can be used for first name, last name, and city. Furthermore the user can select, from a drop down box, the birth month of a customer. This can be very beneficial if Roseville Chrysler Jeep would like to send out a promotion to all customers that have a birthday within a particular month. There is also a drop down box to select the state in which the customer lives.

3. The next section, labeled Sale, concentrates on what type of sale was completed and who completed the sale. Here a drop down box lists all of the current salespersons at Roseville Chrysler Jeep. By selecting a salesperson, only customers who purchased and/or leased from the selected salesperson will be chosen. There are two check boxes which allow the users to select all sales of vehicles that were bought or vehicles that were leased (or both).

4. The fourth section, labeled Vehicle, relates to different details regarding the customer's vehicle. The user can input the vehicle year, make, and/or model. All three of these fields allow for multiple inputs, similar to the zip code entry previously mentioned. If the user opts more than one year, then each year should be separated by a comma. The same technique can be applied to make and model.

   The user will also see two check boxes which allows for any combination of new or used vehicles. Finally, disabled, there is a drop down box and an input field labeled with Mileage. This part will be explained later within this chapter.

As previously mentioned, the four sections have detailed options regarding the RosePro document, relating to the title of each section. There are also check boxes and buttons that are not in any section. The details and functionality of each of these options are a vital part of RosePro. The user will see four check boxes that do not belong to any section. Each of these check boxes will be explained further.

The check box labeled "Remove Empty Fields" is selected by default. This option, if selected, will remove all records that do not have the necessary fields to send out marketing material. If a record is missing any of the following fields, it will be removed: first name, last name, address, city, state, and zip code. This feature is optional.

The check box labeled “Highly Detailed Results” is not selected by default. This option, if selected, will output the build file with over 100 different fields. This option is here if the user would like to use the build data for other reasons beyond marketing.

The check box labeled “Include Service History” is not selected by default. This option, if selected, will not only search sales history, but also service history. The user will notice, upon making this selection, the Sales drop down box in the Customer section will become enabled. Also the drop down box and field labeled Mileage under the Vehicle section will become enabled. Now the user has the ability to search service history and repair order date by a date range. In the Vehicle section the user can select all vehicles based on its current mileage at the last time the vehicle was serviced. The drop down box allows the users to select mileage greater than, equal, or less than the specified miles in the next field. This option is optional, whether or not service history is included.

The check box labeled “Progressive Builds” is not selected by default. This option, if selected, will only apply if the document is based on a date range. Given that a date range has been applied two different scenarios could occur, depending on the frequency of the document’s build. Given that the user set the date range from 0 to 7 days ago the two scenarios would act out like this. In the first scenario the user would build the document today and again tomorrow. If the progressive builds option is selected then the program will look at the last time the document was built. If the date of the last build is within 7 days, then the program will use the last build day as the limit for the date range. So the second time building the document only customers from 0 to 1 day would be selected. This can be very beneficial if the builds are frequent and the user does not want to select customers twice. The second scenario would follow similarly to the first scenario, but instead the second build would occur 8 days later. In this case progressive builds would have no effect on the date range and it would still select 0 to 7 days ago. Without progressive building the frequency of the builds has no effect on the date range selected and there could be potential duplicates between the first and second builds.

The next thing the user will see under these four check boxes is a collection of five buttons. Each button has a different action and its details are listed below.

1. Save – This button will save the new document or save changes to an existing document. It will only successfully save if all required fields are completed. Upon saving the document the window will automatically close, returning the user back to the main RosePro window.
2. Close – This will close the window and return back to the main RosePro window. Any changes made to the document will not be saved.
3. Delete – This will delete the current RosePro document. It will not delete any Microsoft Word documents associated with the RosePro document. Upon deletion the window will close and return back to the main RosePro window.
4. Reset Build Date – This will reset the date of the last build for the current document. This could be beneficial if the user plans on using progressive building and wants to restart the last build date.

5. Clear Temp Files – Occasionally during builds, temporary Microsoft Word files will be left in the document save directory during its mail merging. These temporary files can cause conflict with further builds. To relieve any possibility of error, this button will remove any temporary files in this directory.

With the Create/Edit Document window the user has full control of infinite possibilities regarding what can be created. All fields on this window are optional except for the four fields mentioned in the Document section.

Build Document

The Build Document window will only be visible upon clicking the Build Selected Document on the main RosePro window. This window processes all of the data selected during the Create/Edit Document window. In this window the user can build new data which will be archived to the directory previously set. If the user opts not to build new data the user can select a previous build from the archives and use that data file to merge. The user will also use this window to merge the data files to the Microsoft Word document(s) set for the current document. There are three main buttons on this window that will perform these functions. Figure 3 is an example of what the Build Document window looks like.

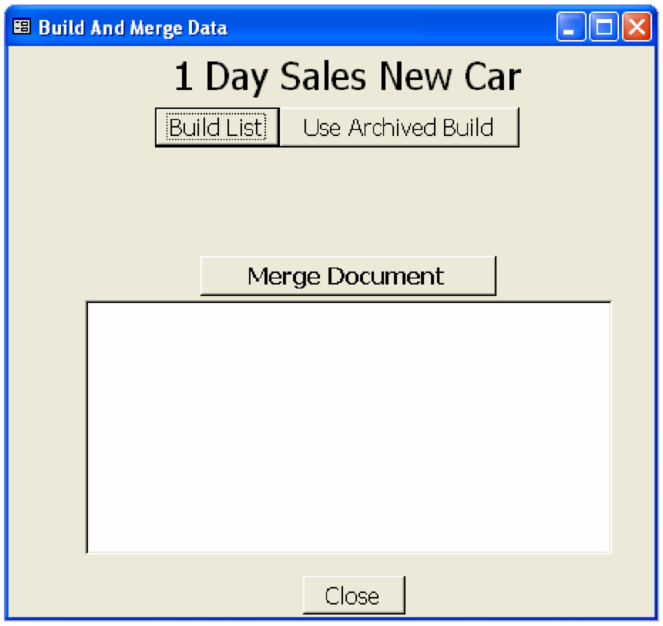
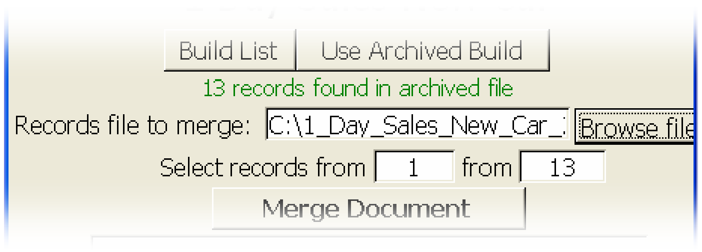


Figure 3. Build document window example.

In the middle of this window is a white status window which is updated with the status of the build and the progress of the mail merge. The first step, before merging the document, is to obtain the data to be merged. There are two different ways to obtain this data. The first option is to click the Build List button, which creates a new list of customers. When the build is finished, RosePro will archive the customer list to the directory previously set. The second option is to select an archived build. To do this the user clicks on Use Archived Build. This brings up a dialog window to browse for the location of the archived build file. When the data file is loaded into RosePro, more options appear between the set of buttons on the top. Figure 4 shows what the screen looks like once the data file is loaded.



13 records found in archived file

Records file to merge: C:\1_Day_Sales_New_Car_

Select records from 1 from 13

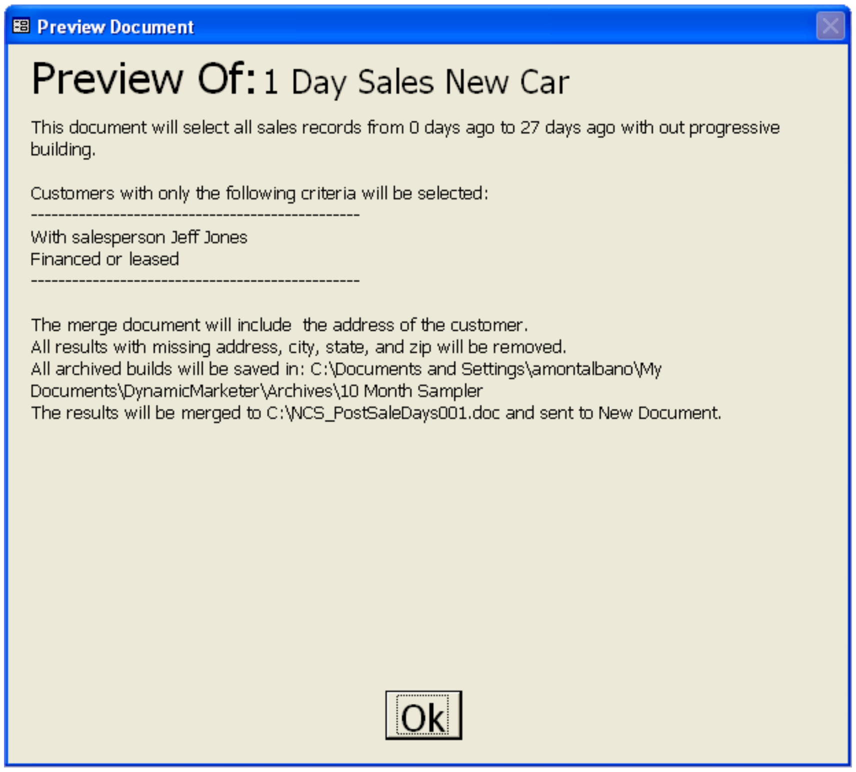
Figure 4. Details of loaded data file.

Now the program will show the location of the file to be merged. By default, upon building a new list, the most recent build file will be selected. Also, by default, all records will be selected as shown in the range. If the user would like to change the range of records to merge to file, the user would simply type in the requested range. When the user is satisfied with the data selection, clicking on the Merge Document button will merge the data file to the Microsoft Word document associated with the current RosePro document. When the merge is completed the Microsoft Word document will open up on the screen for the user to see the final result. From here the user can save this Word document or discard it.

Back on the Build Document window the status window will update the progress of the build and merge. Upon a successful completion of the full process the time is outputted here in the status window. Clicking on the Close button at the bottom of the screen will close this window and return back to the main RosePro screen.

<u>Preview Document</u>

This window shows the user exactly what the selected RosePro document will process. Figure 5 is an example of what the Preview Document window looks like.



Preview Of: 1 Day Sales New Car

This document will select all sales records from 0 days ago to 27 days ago with out progressive building.

Customers with only the following criteria will be selected:
```
----------------------------------------------
With salesperson Jeff Jones
Financed or leased
----------------------------------------------
```

The merge document will include the address of the customer.
All results with missing address, city, state, and zip will be removed.
All archived builds will be saved in: C:\Documents and Settings\amontalbano\My Documents\DynamicMarketer\Archives\10 Month Sampler
The results will be merged to C:\NCS_PostSaleDays001.doc and sent to New Document.

<u>Figure 5.</u> Preview document window example.

The first sentence on this window describes the possible date range selected and whether or not it is progressively built. The next section of the window shows what criteria have been selected based on a customer stand point. All customer criteria are separated between the two horizontal lines. Finally the last section of this window explains the details of the merge and the location of the files and directory for archiving. The button on the bottom of this window will close the window returning to the main RosePro window. This window is strictly for information purposes. It gives the user a simpler way to view exactly what the selected RosePro document will select when built.

The functionality of RosePro was designed for simplicity and ease of use for the users. A copy of the user's manual can be found in Appendix B. Many aspects of the functionality have been designed with human error in mind. Unnecessary fields cannot be changed or are invisible unless possible. Required fields are alerted before any saving. Overall, RosePro is simple and easy to use. Only three main windows are needed to use nearly all of the features created in RosePro.

VI. TECHNICAL UNDERSTANDING

This chapter will provide an in-depth look at the technical background behind RosePro's design and functionality. Functionality can be seen as the combination of four processes: initializing RosePro, creating/editing a RosePro document, building the document, and merging the document.

Due to constraints at Roseville Chrysler Jeep, RosePro was developed using Microsoft Access and it's built in Visual Basic for Applications. All of RosePro's document data is stored within a Microsoft Access database. All forms were created within Microsoft Access. All tables used for marketing data are linked to the ODBC-established DCMS Microsoft FoxPro database located remotely.

Initializing RosePro

The first step to creating a database application requires a database. Extensive hours were spent on the phone with Gil Hale learning about his DCMS system and the structure of the database. Since the DCMS database was handled in Visual FoxPro, it is very easy to link the database to an Access database. In order to do this the computer that would run the RosePro application must have an open database connection, an ODBC for short. Within Microsoft Windows XP creating an ODBC is fairly simple. Within Window's Control Panel there is a collection of Administrative Tools. Here the user will find Data Sources (ODBC). To make an active ODBC connection a new source is created and the database file is selected. In this case the DCMS Visual FoxPro database is selected, on a remote computer across the network at Roseville Chrysler. After the connection has been established, within Microsoft Access the user has the ability to find active ODBC connections and selected one recently created. This will allow the user to import tables from the remote database into Microsoft Access. Since the Microsoft Access settings are already established within the RosePro file, an initial installation would only require the creation of a new data source (an ODBC). Otherwise RosePro is ready to start running actions on the database.

<u>**Creating/Editing a RosePro Document**</u>

A RosePro document is nothing more than a record within an internal Microsoft Access database. This database has many fields corresponding to the characteristics of a RosePro document. All of the values saved into this database are used during the processing and building of data from the remote DCMS database.   On the main window of RosePro, when the user clicks on the button to create a new RosePro document, the user is, in reality, creating a new record in the internal RosePro database. After the new record is created it opens up a new form that allows the user to input all the necessary fields associated with that record. By creating a form, such as the window seen in figure 2, data entry is easy to understand and aesthetically pleasing to the user. Entering data manually into a spreadsheet-like view can be very confusing. The form design to create/edit a RosePro document was done using Microsoft Access. Very little actual

Visual Basic coding was necessary. In Microsoft Access it was possible to set the data selection of each field to a field relating to a field in the RosePro database. This makes it very easy to keep data synchronized with the Create/Edit Document window and the RosePro database. Design constraints on the form limit the user to how and when data can be entered. The purpose is clearly to keep a standardized structure relevant to how RosePro will use the data for processing. When the user has finished entering all of the data in the form, or RosePro window, the Save button will save the record to the RosePro database. This button will also close the window, bringing the user back to the main window.

Building the Document

When the user has finished creating a new RosePro document, the next step is to process the document so that it outputs the results for further use. To do so the user would then click on the Build Selected Document button on the main RosePro window. This will open up a new window which actually handles two separate large processes. Both of these processes were automated using Visual Basic for Applications, a programming language environment. The first of the two will be explained in this section. The first thing the user does is to get some actual data from the DCMS database. The amount of data is dependent upon the characteristics set for the selected RosePro document, or technically, record. By clicking on the Build List button RosePro extracts the necessary data from the DCMS database. To make this happen RosePro creates a highly elaborate query statement. Like many databases a structured query language, or SQL, is used. Based on all of the variables in the RosePro database record RosePro creates a SQL statement and applies it to the DCMS database. In return a set of records returns that match the query given. This set of records is then outputted to a text file in the directory set for the RosePro document. A query can take as little as a few seconds or as long as minutes to complete. Typically large record sets take longer. Upon the completion of the query RosePro will then analyze the newly created text document and output to the user the number of records found. On the same Build and Merge Data window the user can also select a previous build text document, instead of creating a new one. To do so the user simply clicks on the Use Archived Build button and proceeds to browse and select the previously build he/she would like to process. When browsing the computer for an archived file, RosePro uses a Microsoft Windows common dialog box. To achieve this, a new class was created within Visual Basic relating to Microsoft Windows and the built in application programming interface, or API. The same technique is used on the Create/Edit Document window, when setting the directory for archiving and selecting the Word documents to merge. Similar to creating a new build, RosePro will then analyze the archived build and output the number of records found. Once the data set has been selected and loaded into RosePro, the next step for the user is to merge that dataset into a Microsoft Word document.

Merging the Document

To merge the dataset to the previously set Microsoft Word document the user simply clicks on the Merge Document button. RosePro now creates an instance of Microsoft Word and opens the Word document selected when the RosePro document was created. When RosePro creates a new instance of Word it also hides it in the background as it does the work. It then uses a build-in function in Word, called Mail Merge, which merges the dataset into the Word document and outputs the final result to one of three possible choices: new document, printer, or email. This choice is previously set by the user when he/she creates the RosePro document. When RosePro has finished merging all of the data to the Word document it will make the Word document visible with the dataset merged. Here the user can either save the Word document or discard it. The merge process is complete.

Concluding Technical Thoughts

The progress of the build and merge process is displayed in the large status window on the lower half of the Build and Merge Data window. Most of the work that RosePro does occurs during the Build and Merge processes. The Create/Edit window simply sets up all the variables necessary to complete the Build and Merge process. In the end the complete process from creating the RosePro document to merging the data to a Word document can be accomplished in about five minutes on average. The previous method would take over an hour. RosePro automates many of the steps that human interaction can slow down. At the same time it also eliminates human error.

REFERENCES

Litwin, P., Getz, K., Gunderloy, M. (2001) Access 2002 Desktop Developer’s Handbook, Alameda, CA: Sybex.

Litwin, P., Getz, K., Gunderloy, M. (2001) Access 2002 Enterprise Developer’s Handbook, Alameda, CA: Sybex.

GLOSSARY

Application Programming Interface (API): An API is the interface that a computer system, library or application provides in order to allow requests for services to be made of it by other computer programs, and/or to allow data to be exchanged between them.

Automated Data Processing (ADP): ADP is the largest payroll and tax filing processor in the world. ADP is used by Roseville Chrysler Jeep as its primary database for not only customer information, but also for employee information. The initial source for the data being used by RosePro is indirectly related to the data found in the Roseville Chrysler Jeep ADP database.

Comma Separate Values (CSV): The CSV common file format is a delimited data format that has fields separated by the comma character and records separated by newlines. Essentially RosePro archives all data builds to a CSV format.

Database: A database is a collection of records. Examples of databases include those found in Microsoft Access and Microsoft Visual FoxPro.

Dealership Customer Management System (DCMS): DCMS is a software application designed by Gil Hale directed towards car dealerships. The DCMS system was developed on Microsoft Visual FoxPro and is based on a database.

Fields: A field is an identifier within a database that helps organize different pieces of information. Each record in a database contains a collection of data which are each identified within a field.

Graphical User Interface (GUI): A GUI is typically a user interface making it simpler for the user to interact with the computer. In RosePro each window that the user interacts with is all a part of the system's GUI.

Mail Merge: Mail Merge is a feature found in Microsoft Word that allows the user to select a dataset of records. Mail merge then allows the user to customize a Word document as a template to merge the record field values. Essentially this will produce a unique Word document specific to the dataset.

Microsoft Access: Microsoft Access is a database application tool developed by Microsoft. RosePro was developed completely in Microsoft Access.

Microsoft Excel: Microsoft Excel is a spreadsheet application developed by Microsoft.

Microsoft Office: Microsoft Office is a collection of common applications used in productivity. Common Office applications include Word, Excel, and PowerPoint.

Microsoft Visual Basic (VB): VB is an event driven programming language and associated development platform produced by Microsoft.

Microsoft Visual Basic for Applications (VBA): VBA is a scaled down version of VB which is built into most of Microsoft Office applications.

Microsoft Visual FoxPro: Visual FoxPro is a data-centric object-oriented and procedural programming language produced by Microsoft. DCMS was developed in Visual FoxPro.

Microsoft Windows XP: Microsoft Windows XP is the current operating system (at the time of this writing) produced by Microsoft. All applications upon which RosePro is dependent run on Windows XP.

Microsoft Word: Microsoft Word is a word processing application developed by Microsoft. RosePro uses Word to merge data to user-created templates.

Open Database Connection (ODBC): An ODBC is a specification that offers a procedural API for using SQL queries to access data. RosePro is dependent on an ODBC that connects the DCMS database to RosePro.

Query: A query is a form of questioning. To run a query on a database is to ask the database to return a set of data specific to its questioning. The build process of RosePro relies on this method.

Record: A record is a single entry of data in a table. A database is a collection of tables. Each table has a collection of records. Each record has a collection of data separated into fields.

Reynolds & Reynolds: Reynolds & Reynolds helps automobile dealers sell cars and service customers through use of its dealer management systems.

Structure Query Language (SQL): SQL is the most popular computer language used to create, modify, retrieve and manipulate data from relational database

	management systems. When RosePro builds data it does so by creating a SQL statement to be processed on the database.
Table:	A table is a collection of records. Typically a collection of tables is found in a database.

APPENDICES

APPENDIX A

SOURCE CODE

```
Option Compare Database
Private Sub BuildDoc_Click()
On Error GoTo Err_EditDoc_Click

   Dim stDocName As String
   Dim stLinkCriteria As String

   stDocName = "BuildDocument"
   stLinkCriteria = "[Doc_ID]=" & Me.DocList.Value
   DoCmd.OpenForm stDocName, , , stLinkCriteria

Exit_EditDoc_Click:
   Exit Sub

Err_EditDoc_Click:
   MsgBox Err.Description
   Resume Exit_EditDoc_Click
End Sub
Private Sub DocList_Click()
   Me.Repaint
   If Me.DocList.Value <> "" Then
      BuildDoc.Enabled = True
      ViewPreview.Enabled = True
   End If
End Sub
Private Sub DocList_DblClick(Cancel As Integer)
On Error GoTo Err_DocList_DblClick

   Dim stDocName As String
   Dim stLinkCriteria As String
```

```
    stDocName = "NewDocument"
    stLinkCriteria = "[Doc_ID]=" & Me.DocList.Value
    DoCmd.OpenForm stDocName, , , stLinkCriteria

Exit_DocList_DblClick:
    Exit Sub

Err_DocList_DblClick:
    MsgBox Err.Description
    Resume Exit_DocList_DblClick
End Sub
Private Sub DocList_GotFocus()
    Me.Refresh
End Sub
Private Sub EditDoc_Click()
On Error GoTo Err_EditDoc_Click

    Dim stDocName As String
    Dim stLinkCriteria As String

    stDocName = "NewDocument"
    stLinkCriteria = "[Doc_ID]=" & Me.DocList.Value
    DoCmd.OpenForm stDocName, , , stLinkCriteria

Exit_EditDoc_Click:
    Exit Sub

Err_EditDoc_Click:
    MsgBox Err.Description
    Resume Exit_EditDoc_Click
```

```
End Sub
Private Sub Form_Load()
   BuildDoc.Enabled = False
   ViewPreview.Enabled = False
End Sub
Private Sub NewDoc_Click()
On Error GoTo Err_NewDoc_Click

   Dim stDocName As String
   Dim stLinkCriteria As String

   stDocName = "NewDocument"
   DoCmd.OpenForm stDocName, , , stLinkCriteria
   DoCmd.GoToRecord , , acNewRec

Exit_NewDoc_Click:
   Exit Sub

Err_NewDoc_Click:
   MsgBox Err.Description
   Resume Exit_NewDoc_Click

End Sub
Private Sub ExitRosePro_Click()
On Error GoTo Err_ExitRosePro_Click


   DoCmd.Quit

Exit_ExitRosePro_Click:
   Exit Sub

Err_ExitRosePro_Click:
   MsgBox Err.Description
   Resume Exit_ExitRosePro_Click

End Sub
Private Sub ViewPreview_Click()
On Error GoTo Err_ViewPreview_Click

   Dim stDocName As String
   Dim stLinkCriteria As String

   stDocName = "Preview"
   stLinkCriteria = "[Doc_ID]=" & Me.DocList.Value
   DoCmd.OpenForm stDocName, , , stLinkCriteria

Exit_ViewPreview_Click:
   Exit Sub

Err_ViewPreview_Click:
   MsgBox Err.Description
   Resume Exit_ViewPreview_Click
End Sub
```

Form_NewDocument

```
Option Compare Database
Private Type BROWSEINFO
    hOwner As Long
    pidlRoot As Long
    pszDisplayName As String
```

```
   lpszTitle As String
   ulFlags As Long
   lpfn As Long
   lParam As Long
   iImage As Long
End Type

Private Declare Function SHGetPathFromIDList Lib "shell32.dll" Alias _
   "SHGetPathFromIDListA" (ByVal pidl As Long, _
   ByVal pszPath As String) As Long

Private Declare Function SHBrowseForFolder Lib "shell32.dll" Alias _
   "SHBrowseForFolderA" (lpBrowseInfo As BROWSEINFO) _
   As Long

Private Const BIF_RETURNONLYFSDIRS = &H1
Private Sub FindSide1_Click()
Dim cdlg As New CommonDialogAPI
Dim lFormHwnd As Long
Dim lAppInstance As Long
Dim sInitDir As String
Dim sFileFilter As String
Dim lResult As Long
Dim sLogFile As String

lFormHwnd = Me.Hwnd
lAppInstance = Application.hWndAccessApp
sInitDir = "C:\"

sFileFilter = "Word Files (*.doc)" & Chr(0) & "*.doc*" & Chr(0)
```

```
lResult = cdlg.OpenFileDialog(lFormHwnd, lAppInstance, sInitDir,
sFileFilter)

If cdlg.GetStatus = True Then
   sLogFile = cdlg.GetName
End If

DocSide1.Locked = False
DocSide1.Value = sLogFile
DocSide1.Locked = True
If cdlg.GetStatus = True Then
   MsgBox "You selected file: " & _
      cdlg.GetName
Else
   MsgBox "No file selected."
End If
End Sub
Private Sub FindSide2_Click()
Dim cdlg As New CommonDialogAPI
Dim lFormHwnd As Long
Dim lAppInstance As Long
Dim sInitDir As String
Dim sFileFilter As String
Dim lResult As Long
Dim sLogFile As String

lFormHwnd = Me.Hwnd
lAppInstance = Application.hWndAccessApp
sInitDir = "C:\"

sFileFilter = "Word Files (*.doc)" & Chr(0) & "*.doc*" & Chr(0)
```

```
lResult = cdlg.OpenFileDialog(lFormHwnd, lAppInstance, sInitDir,
sFileFilter)

If cdlg.GetStatus = True Then
   sLogFile = cdlg.GetName
End If

DocSide2.Locked = False
DocSide2.Value = sLogFile
DocSide2.Locked = True
If cdlg.GetStatus = True Then
   MsgBox "You selected file: " & _
      cdlg.GetName
Else
   MsgBox "No file selected."
End If
End Sub
Private Sub ClearTmp_Click()
   deleteTmpFiles (TheDir.Value)
End Sub
Private Sub deleteTmpFiles(path As String)
   Dim fso As FileSystemObject
   Dim letfolder As Folder
   Dim recentFile As File
   Dim beginFile As String
   Dim delCount As Integer
   delCount = 0
   Set fso = New FileSystemObject
   Set letfolder = fso.GetFolder(path)
   For Each recentFile In letfolder.Files
```

```
    beginFile = Left(recentFile.Name, 2)
    If beginFile = "~$" Then
    recentFile.Delete
    delCount = delCount + 1
    End If
    Next recentFile
    MsgBox (CStr(delCount) + " temp files deleted.")
End Sub
Private Sub ResetBD_Click()
    [Doc_Last_Run] = ""
    MsgBox "Build Date Reset!"
End Sub
Private Sub CloseDoc_Click()
On Error GoTo Err_Handler
DoCmd.Close
Exit_Handler:
Exit Sub

Err_Handler:
MsgBox Err.Description, vbExclamation, "Error No: " & Err.Number
Resume Exit_Handler
DoCmd.Close
End Sub
Private Sub DelDoc_Click()
On Error GoTo Err_DelDoc_Click

    'Confirms with user to delete the current document
    confirming = MsgBox("Are You Sure You Want To Delete This?",
vbYesNo, "Confirm Delete")
    'If user selects yes the following will delete the document
    If confirming = vbYes Then
```

```
        DoCmd.DoMenuItem acFormBar, acEditMenu, 8, , acMenuVer70
        DoCmd.DoMenuItem acFormBar, acEditMenu, 6, , acMenuVer70
        DoCmd.Close
        Dim db As DAO.Database
        Set db = CurrentDb()
        db.QueryDefs.Delete (DFName.Value)
    Else
    End If

Exit_DelDoc_Click:
    Exit Sub

Err_DelDoc_Click:
    MsgBox Err.Description
    Resume Exit_DelDoc_Click

End Sub
Private Sub DFService_Click()
    If DFService.Value = -1 Then
        DFSaleServ.Enabled = True
        DFMileType.Enabled = True
        DFMileage.Enabled = True
    Else
        DFSaleServ.Enabled = False
        DFSaleServ.Value = "Sales"
        DFMileType.Enabled = False
        DFMileType.Value = ""
        DFMileage.Enabled = False
        DFMileage.Value = ""
    End If
End Sub
```

```
Private Sub FindDir_Click()
   Dim sLogFile As String

   sLogFile = BrowseFolder("Browse for folder")

   TheDir.Value = sLogFile
   If sLogFile <> "" Then
      MsgBox "You selected directory: " & _
         sLogFile
   Else
      MsgBox "No directory selected."
   End If
End Sub
Private Sub Form_Load()
   If [Doc_IncService] = -1 Then
      DFSaleServ.Enabled = True
      DFMileType.Enabled = True
      DFMileage.Enabled = True
   End If
End Sub
Private Sub SaveDoc_Click()
On Error GoTo Err_SaveDoc_Click
   Dim Missing As String

   Missing = "The following fields are required:" & vbCrLf & vbCrLf
   If DFName.Value = "" Then
      Missing = Missing & "Document Name" & vbCrLf
      DFName.BackColor = "8421631"
   End If
   If DFType.ListIndex = -1 Then
      Missing = Missing & "Send To" & vbCrLf
```

```
        DFType.BackColor = "8421631"
    End If
    If TheDir.Value = "" Then
        Missing = Missing & "Save Directory" & vbCrLf
        TheDir.BackColor = "8421631"
    End If
    If DocSide1.Value = "" Then
        Missing = Missing & "Merge Side 1"
        DocSide1.BackColor = "8421631"
    End If
    If Missing = "The following fields are required:" & vbCrLf & vbCrLf Then
    DoCmd.DoMenuItem acFormBar, acRecordsMenu, acSaveRecord, ,
acMenuVer70
    [Doc_Created] = Now()

    'Closes The Edit Document Form
    DoCmd.Close
    Else
        MsgBox Missing, vbExclamation, "Missing Fields"
    End If

Exit_SaveDoc_Click:
    Exit Sub

Err_SaveDoc_Click:
    MsgBox Err.Description
    Resume Exit_SaveDoc_Click

End Sub
Public Function BrowseFolder(szDialogTitle As String) As String
    Dim X As Long, bi As BROWSEINFO, dwIList As Long
    Dim szPath As String, wPos As Integer

    With bi
        .hOwner = hWndAccessApp
        .lpszTitle = szDialogTitle
        .ulFlags = BIF_RETURNONLYFSDIRS
    End With

    dwIList = SHBrowseForFolder(bi)
    szPath = Space$(512)
    X = SHGetPathFromIDList(ByVal dwIList, ByVal szPath)

    If X Then
        wPos = InStr(szPath, Chr(0))
        BrowseFolder = Left$(szPath, wPos - 1)
    Else
        BrowseFolder = vbNullString
    End If
End Function
```

Form_BuildDocument

```
Option Compare Database
Dim recTotal As Integer
Dim startTime, endTime As Date
Private Sub ArchiveBuild_Click()
    startTime = Now()
    RecLabel.visible = True
    TxtFileLoc.visible = True
    TxtFileLoc.Value = ""
    FindTextLoc.visible = True
    SelLbl1.visible = True
```

```
   SelLbl2.visible = True
   RecMin.visible = True
   RecMax.visible = True
End Sub
Private Sub MergeDoc_Click()
   On Error GoTo MergeErr

Dim totMin, totSec As Integer
If TxtFileLoc.Value = "" Then
   MsgBox "Please provide a record source!"
Else
   StatusWin.AddItem ("Merge Document Initialized...")
   If recTotal = 0 Then
      StatusWin.AddItem ("No record seletion has been made!")
   Else
      StatusWin.AddItem ("Found " & recTotal & " records to be merged")
      StatusWin.AddItem ("(Merging records from " & RecMin.Value & " to "
& RecMax.Value & ")")
      Dim newWord As wordMerge
      Set newWord = New wordMerge
      If [Doc_Merge_Side1] <> "" Then
         printSide1 = MsgBox("Do you want to print side 1 of " &
[Doc_Name], vbYesNo)
         If printSide1 = vbYes Then
            newWord.hide
            newWord.openDocument ([Doc_Merge_Side1])
            newWord.openDataSource (TxtFileLoc.Value)
            newWord.printSelect RecMin, RecMax, [Doc_Type]
            newWord.visible
            StatusWin.AddItem ("Side 1 merged successfully")
         End If
```

```
        End If
        If [Doc_Merge_Side2] <> "" Then
            printSide2 = MsgBox("Do you want to print side 2 of " &
[Doc_Name], vbYesNo)
            If printSide2 = vbYes Then
                newWord.hide
                newWord.openDocument ([Doc_Merge_Side2])
                newWord.openDataSource ([Doc_Directory])
                newWord.printSelect RecMin, RecMax, [Doc_SendTo]
                newWord.closeDocument
                StatusWin.AddItem ("Side 2 merged successfully")
            End If
        End If
        endTime = Now()
        StatusWin.AddItem ("All merging has been successful")
        totSec = DateDiff("s", startTime, endTime)
        secPart = totSec Mod 60
        minPart = (totSec - (totSec Mod 60)) / 60
        If minPart < 1 Then
            StatusWin.AddItem ("Total process took " & secPart & " seconds.")
        Else
            StatusWin.AddItem ("Total process took " & minPart & " minutes
and " & secPart & " seconds.")
        End If
    End If
End If

MergeErr:
    MsgBox Err.Description
    End Sub
End Sub
Private Sub FindTextLoc_Click()

    Dim cdlg As New CommonDialogAPI
    Dim lFormHwnd As Long
    Dim lAppInstance As Long
    Dim sInitDir As String
    Dim sFileFilter As String
    Dim lResult As Long
    Dim sLogFile As String

    lFormHwnd = Me.Hwnd
    lAppInstance = Application.hWndAccessApp
    sInitDir = "C:\"

    sFileFilter = "Text Files (*.txt)" & Chr(0) & "*.txt*" & Chr(0)

    lResult = cdlg.OpenFileDialog(lFormHwnd, lAppInstance, sInitDir,
sFileFilter)

    If cdlg.GetStatus = True Then
        sLogFile = cdlg.GetName
    End If
    Dim fso As New FileSystemObject
    Dim ts As TextStream
    Dim getRecordTotal As Integer
    Set ts = fso.OpenTextFile(cdlg.GetName, ForReading, False,
TristateUseDefault)
    Do Until ts.AtEndOfStream
    If ts.ReadLine <> "" Then
    getRecordTotal = getRecordTotal + 1
```

```
    End If
    Loop
    getRecordTotal = getRecordTotal - 1
    Set fso = Nothing
    Set ts = Nothing
    BlComplete.Value = getRecordTotal & " records found in archived file"
    RecMin.Value = 1
    RecMax.Value = getRecordTotal
    recTotal = getRecordTotal

    TxtFileLoc.Value = sLogFile
    If cdlg.GetStatus = True Then
        MsgBox "You selected file: " & _
            cdlg.GetName
    Else
        MsgBox "No file selected."
    End If

End Sub
Private Sub Form_Load()
    RecLabel.visible = False
    TxtFileLoc.visible = False
    FindTextLoc.visible = False
    SelLbl1.visible = False
    SelLbl2.visible = False
    RecMin.visible = False
    RecMin.Value = ""
    RecMax.visible = False
    RecMax.Value = ""
    BlComplete.Value = ""
    StatusWin.Locked = True
```

```
   recTotal = 0
End Sub
Private Sub QueryRun_Click()
   On Error GoTo HandleErr

startTime = Now()
StatusWin.AddItem ("Build data records initialized...")
BlComplete.Value = ""
Dim useDir As String
Dim curDate As String
Update_Query
StatusWin.AddItem ("Query design complete")
curDate = Format(Now(), "yyyy-mm-dd_hh-mm-ss")
useDir = [Doc_Name] & "_" & curDate & ".txt"
useDir = Replace(useDir, " ", "_")
useDir = [Doc_Directory] & useDir
DoCmd.TransferText acExportDelim, , [Doc_Name], useDir, 1
StatusWin.AddItem ("Record archiving complete")
Dim fso As New FileSystemObject
Dim ts As TextStream
Dim getRecordTotal As Integer
Set ts = fso.OpenTextFile(useDir, ForReading, False, TristateUseDefault)
Do Until ts.AtEndOfStream
If ts.ReadLine <> "" Then
getRecordTotal = getRecordTotal + 1
End If
Loop
getRecordTotal = getRecordTotal - 1
Set fso = Nothing
Set ts = Nothing
```

```
recTotal = getRecordTotal
BlComplete.Value = getRecordTotal & " records completed"
RecLabel.visible = True
TxtFileLoc.visible = True
TxtFileLoc.Value = useDir
FindTextLoc.visible = True
SelLbl1.visible = True
SelLbl2.visible = True
RecMin.visible = True
RecMin.Value = 1
RecMax.visible = True
RecMax.Value = getRecordTotal
If getRecordTotal = 0 Then
   RecMin.Value = 0
End If
[Doc_Last_Run] = Now()

HandleErr:
   If Err.Number = 3151 Then
      MsgBox "Connection to DCMS Database failed!" & vbCrLf & "Please
close RosePro and restart your PC to re-establish connection" & vbCrLf &
vbCrLf & "Detailed error description:" & vbCrLf & Err.Description,
vbCritical, "Database Connection Error"
   End If
   StatusWin.AddItem ("Build canceled - no connection to database")
   StatusWin.AddItem ("Please close RosePro and restart your PC")
   Exit Sub

End Sub
Private Sub CloseBuild_Click()
On Error GoTo Err_CloseBuild_Click
```

```
    DoCmd.Close

Exit_CloseBuild_Click:
    Exit Sub

Err_CloseBuild_Click:
    MsgBox Err.Description
    Resume Exit_CloseBuild_Click

End Sub
Private Sub Update_Query()
    On Error GoTo ErrQuery
    Dim db As DAO.Database
    Dim qdf As DAO.QueryDef
    Dim SQLstring As String
    Dim plusOne As String
    Dim BackDate As Integer

    '*******************************************
    '* This section checks either creates or
    '* updates the query to be built
    '*******************************************
    Set db = CurrentDb()
    If QueryExists([Doc_Name]) Then
        db.QueryDefs.Delete ([Doc_Name])
    End If
    Set qdf = db.CreateQueryDef([Doc_Name])

    '*******************************************
```

```
'* This section is based on whether or not
'* the detailed results was selected
'* (Defines the SQL SELECT clause)
'******************************************
If [Doc_Detailed] = -1 Then
    SQLstring = "SELECT DISTINCT customer.*, employee.*, vehicle.*"
Else
    SQLstring = "SELECT DISTINCT TRIM(fiwip.adp2) AS
status,TRIM(fiwip.adp4) AS contractdate, TRIM(fiwip.adpfin_lse) AS
buylease, TRIM(fiwip.adp52) AS newused, TRIM(fiwip.cficustnum) AS
custnum, TRIM(customer.csalutn) AS salut, TRIM(customer.ctitle) AS title,
TRIM(customer.cfirstname) AS cfirstname, TRIM(customer.clastname) AS
clastname, TRIM(customer.dbirthdate) AS cbirthdate,
TRIM(employee.cfirstname)" & Chr$(38) & Chr$(34) & " " & Chr$(34) &
Chr$(38) & "TRIM(employee.clastname) AS salesperson,
TRIM(employee.cempphone) AS salesphone, TRIM(employee.cemailemp)
AS salesemail, TRIM(vehicle.cyear) AS vyear, TRIM(vehicle.cmake) AS
vmake, TRIM(vehicle.cmodel) AS vmodel, TRIM(vehicle.cvehid) AS vin"
    If [Doc_IncService] = -1 Then
        SQLstring = SQLstring & ", TRIM(svcgnhist.dclosedate) AS
servicedate, TRIM(svcgnhist.nmileage) AS mileage"
    End If
    If [Doc_Address] = -1 Then
        SQLstring = SQLstring & ", TRIM(customer.caddrline1) AS
caddress, TRIM(customer.czipcode) AS czipcode, TRIM(customer.ccity) AS
ccity, TRIM(customer.cstate) AS cstate"
    End If
    If [Doc_Phone] = -1 Then
        SQLstring = SQLstring & ", TRIM(customer.cadpphone) AS cphone"
    End If
    If [Doc_Email] = -1 Then
```

```
        SQLstring = SQLstring & ", TRIM(customer.cemail1) AS cemail"
      End If
   End If

   '*******************************************
   '* This section joins the multiple tables
   '* together to extract data from
   '* (Defines the SQL FROM clause)
   '*******************************************
   If [Doc_IncService] = -1 Then
      'SQLstring = SQLstring & " FROM (((customer LEFT JOIN fiwip ON
customer.ccustnum = fiwip.cficustnum) LEFT JOIN employee ON
customer.cassign=employee.cassign) LEFT JOIN svcgnhist ON
right(fiwip.adp41,8)=svcgnhist.cvehid) LEFT JOIN vehicle ON
svcgnhist.cvehid=vehicle.cvehid"
      SQLstring = SQLstring & " FROM (((customer LEFT JOIN vehicle ON
customer.ccustnum = vehicle.ccustnum) LEFT JOIN fiwip ON
right(fiwip.adp41,8)=vehicle.cvehid) LEFT JOIN employee ON
customer.cassign=employee.cassign) LEFT JOIN svcgnhist ON
svcgnhist.cvehid=vehicle.cvehid"
   Else
      'SQLstring = SQLstring & " FROM ((customer LEFT JOIN fiwip ON
customer.ccustnum = fiwip.cficustnum) LEFT JOIN employee ON
customer.cassign=employee.cassign) LEFT JOIN vehicle ON
right(fiwip.adp41,8)=vehicle.cvehid"
      SQLstring = SQLstring & " FROM ((customer LEFT JOIN vehicle ON
customer.ccustnum = vehicle.ccustnum) LEFT JOIN fiwip ON
right(fiwip.adp41,8)=vehicle.cvehid) LEFT JOIN employee ON
customer.cassign=employee.cassign"
   End If
```

```
    '*****************************************
    '* This section builds the criteria
    '* to be filtered within the document
    '* (Defines the SQL WHERE clause)
    '*****************************************
    SQLstring = SQLstring & " WHERE (vehicle.laltercust=0) AND
(customer.lnomail=0) AND (customer.lnoemail=0) AND
(customer.lnocall=0) AND ((fiwip.adp2 = " & Chr$(34) & "I" & Chr$(34) &
") OR (fiwip.adp2 = " & Chr$(34) & "F" & Chr$(34) & ") OR (fiwip.adp2 = "
& Chr$(34) & "B" & Chr$(34) & "))"
    If [Doc_Clean] = -1 Then
        SQLstring = SQLstring & " AND (customer.cfirstname>' ') And
(customer.clastname>' ') And (customer.caddrline1>' ') And
(customer.czipcode>' ') And (customer.ccity>' ') And (customer.cstate>'
')"
    End If
    If [Doc_SaleService] = "Sales" Then
        If [Doc_Range_Start] <> "" Then
            NewDate = DateAdd("d", -([Doc_Range_Start]), Now())
            SQLstring = SQLstring & " AND (fiwip.adp4<=CDate(" & Chr$(39)
& NewDate & Chr$(39) & "))"
        End If
        If [Doc_Range_End] <> "" Then
            If ([Doc_Last_Run] > "") And ([Doc_Progress] = -1) Then
                BackDate = CInt(DateDiff("d", [Doc_Last_Run], Now()))
                NewDate = DateAdd("d", -(BackDate), Now())
            Else
                NewDate = DateAdd("d", -([Doc_Range_End]), Now())
            End If
            SQLstring = SQLstring & " AND (fiwip.adp4>=CDate(" & Chr$(39)
& NewDate & Chr$(39) & "))"
```

```
        End If
    Else
        If [Doc_Range_Start] <> "" Then
            NewDate = DateAdd("d", -([Doc_Range_Start]), Now())
            SQLstring = SQLstring & " AND (svcgnhist.dclosedate<=CDate(" &
Chr$(39) & NewDate & Chr$(39) & "))"
        End If
        If [Doc_Range_End] <> "" Then
            If ([Doc_Last_Run] > "") And ([Doc_Progress] = -1) Then
                BackDate = CInt(DateDiff("d", [Doc_Last_Run], Now()))
                NewDate = DateAdd("d", -(BackDate), Now())
            Else
                NewDate = DateAdd("d", -([Doc_Range_End]), Now())
            End If
            SQLstring = SQLstring & " AND (svcgnhist.dclosedate>=CDate(" &
Chr$(39) & NewDate & Chr$(39) & "))"
        End If
    End If
    If [Doc_Salesperson] <> "" Then
        SQLstring = SQLstring & " AND ((TRIM(employee.cfirstname)" &
Chr$(38) & Chr$(34) & " " & Chr$(34) & Chr$(38) &
"TRIM(employee.clastname))=" & Chr$(34) & [Doc_Salesperson] &
Chr$(34) & ")"
    End If
    If [Doc_Buy] = -1 And [Doc_Lease] = -1 Then
        SQLstring = SQLstring & " AND ((fiwip.adpfin_lse = 0) OR
(fiwip.adpfin_lse = 1))"
    Else
        If [Doc_Buy] = -1 Then
            SQLstring = SQLstring & " AND (fiwip.adpfin_lse = 0)"
        End If
        If [Doc_Lease] = -1 Then
            SQLstring = SQLstring & " AND (fiwip.adpfin_lse = 1)"
        End If
    End If
    If [Doc_First_Name] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_First_Name], ",")) To
UBound(Split([Doc_First_Name], ","))
            SQLstring = SQLstring & plusOne & "(customer.cfirstname=" &
Chr$(34) & Split([Doc_First_Name], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
    End If
    If [Doc_Last_Name] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_Last_Name], ",")) To
UBound(Split([Doc_Last_Name], ","))
            SQLstring = SQLstring & plusOne & "(customer.clastname=" &
Chr$(34) & Split([Doc_Last_Name], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
    End If
    If [Doc_City] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_City], ",")) To UBound(Split([Doc_City], ","))
```

```
            SQLstring = SQLstring & plusOne & "(customer.ccity=" & Chr$(34)
& Split([Doc_City], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
    End If
    If [Doc_State] <> "" Then
        SQLstring = SQLstring & " AND (customer.cstate=" & Chr$(34) &
[Doc_State] & Chr$(34) & ")"
    End If
    If [Doc_Month] <> "" Then
        'Determine numerical value of month
        Dim vbMonth As Integer
        Select Case [Doc_Month]
            Case "January": vbMonth = 1
            Case "February": vbMonth = 2
            Case "March": vbMonth = 3
            Case "April": vbMonth = 4
            Case "May": vbMonth = 5
            Case "June": vbMonth = 6
            Case "July": vbMonth = 7
            Case "August": vbMonth = 8
            Case "September": vbMonth = 9
            Case "October": vbMonth = 10
            Case "November": vbMonth = 11
            Case "December": vbMonth = 12
        End Select
        SQLstring = SQLstring & " AND " & Chr$(40) & "DatePart(" & Chr$(34)
& "m" & Chr$(34) & ", customer.dbirthdate)=" & Chr$(34) & vbMonth &
Chr$(34) & ")"
    End If
    If [Doc_Year] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_Year], ",")) To UBound(Split([Doc_Year], ","))
            SQLstring = SQLstring & plusOne & "(vehicle.cyear=" & Chr$(34) &
Split([Doc_Year], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
    End If
    If [Doc_Make] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_Make], ",")) To UBound(Split([Doc_Make],
","))
            SQLstring = SQLstring & plusOne & "(vehicle.cmake=" & Chr$(34)
& Split([Doc_Make], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
    End If
    If [Doc_Model] <> "" Then
        plusOne = ""
        SQLstring = SQLstring & " AND ("
        For i = LBound(Split([Doc_Model], ",")) To UBound(Split([Doc_Model],
","))
            SQLstring = SQLstring & plusOne & "(vehicle.cmodel=" & Chr$(34)
& Split([Doc_Model], ",")(i) & Chr$(34) & ")"
            plusOne = " OR "
        Next i
        SQLstring = SQLstring & ")"
```

```
   End If
   If [Doc_New] = -1 And [Doc_Used] = -1 Then
      SQLstring = SQLstring & " AND ((fiwip.adp52 =" & Chr$(34) & "NEW"
& Chr$(34) & ") OR (fiwip.adp52 =" & Chr$(34) & "USED" & Chr$(34) & "))"
   Else
      If [Doc_New] = -1 Then
         SQLstring = SQLstring & " AND (fiwip.adp52 =" & Chr$(34) &
"NEW" & Chr$(34) & ")"
      End If
      If [Doc_Used] = -1 Then
         SQLstring = SQLstring & " AND (fiwip.adp52 =" & Chr$(34) &
"USED" & Chr$(34) & ")"
      End If
   End If
   If [Doc_Zipcode] <> "" Then
      plusOne = ""
      SQLstring = SQLstring & " AND ("
      For i = LBound(Split([Doc_Zipcode], ",")) To
UBound(Split([Doc_Zipcode], ","))
         SQLstring = SQLstring & plusOne & "(customer.czipcode=" &
Chr$(34) & Split([Doc_Zipcode], ",")(i) & Chr$(34) & ")"
         plusOne = " OR "
      Next i
      SQLstring = SQLstring & ")"
   End If
   If [Doc_IncService] = -1 And [Doc_Mileage] <> "" And [Doc_MileType]
<> "" Then
      Select Case [Doc_MileType]
      Case "Greater Than"
         SQLstring = SQLstring & " AND (svcgnhist.nmileage >=" &
[Doc_Mileage] & ")"
```

```
        Case "Equal To"
           SQLstring = SQLstring & " AND (svcgnhist.nmileage =" &
[Doc_Mileage] & ")"
        Case "Less Than":
           SQLstring = SQLstring & " AND (svcgnhist.nmileage <=" &
[Doc_Mileage] & ")"
        End Select
    End If

    '*******************************************
    '* Save the SQL statement in a table and
    '* the appropriate query
    '*******************************************
    [Doc_SQL] = SQLstring
    qdf.Sql = SQLstring

ErrQuery:
        MsgBox Err.Description
        End Sub

End Sub
Function QueryExists(MyQueryName)

       Dim i
       Dim db2 As Database
       Set db2 = CurrentDb()
       QueryExists = False

            For i = 0 To db2.QueryDefs.Count - 1

                    If db2.QueryDefs(i).Name = MyQueryName Then
```

```
                        QueryExists = True
                        Exit Function
                    End If

            Next i

End Function
Public Function BrowseFolder(szDialogTitle As String) As String
    Dim X As Long, bi As BROWSEINFO, dwIList As Long
    Dim szPath As String, wPos As Integer

    With bi
        .hOwner = hWndAccessApp
        .lpszTitle = szDialogTitle
        .ulFlags = BIF_RETURNONLYFSDIRS
    End With

    dwIList = SHBrowseForFolder(bi)
    szPath = Space$(512)
    X = SHGetPathFromIDList(ByVal dwIList, ByVal szPath)

    If X Then
        wPos = InStr(szPath, Chr(0))
        BrowseFolder = Left$(szPath, wPos - 1)
    Else
        BrowseFolder = vbNullString
    End If
End Function
```

Form_Preview

```
Option Compare Database
```

```
Private Sub Close_Click()
On Error GoTo Err_Close_Click


    DoCmd.Close

Exit_Close_Click:
    Exit Sub

Err_Close_Click:
    MsgBox Err.Description
    Resume Exit_Close_Click

End Sub
Private Sub Form_Load()
    Dim TheString As String
    If [Doc_SaleService] = "Sales" Then
        TheString = "This document will select all sales records from " &
[Doc_Range_Start] & " days ago to " & [Doc_Range_End] & " days ago"
    Else
        TheString = "This document will select all service records from " &
[Doc_Range_Start] & " days ago to " & [Doc_Range_End] & " days ago"
    End If
    If [Doc_Progress] = -1 Then
        TheString = TheString & " with progressive building." & vbCrLf &
vbCrLf
    Else
        TheString = TheString & " with out progressive building." & vbCrLf &
vbCrLf
    End If
```

```
   TheString = TheString & "Customers with only the following criteria
will be selected:" & vbCrLf & "--------------------------------------
-----------" & vbCrLf
   If [Doc_Zipcode] <> "" Then
      TheString = TheString & "Live in the following zipcode(s) " &
[Doc_Zipcode] & vbCrLf
   End If
   If [Doc_City] <> "" Then
      TheString = TheString & "Live in the following city(s) " & [Doc_City] &
vbCrLf
   End If
   If [Doc_State] <> "" Then
      TheString = TheString & "Live in " & [Doc_State] & vbCrLf
   End If
   If [Doc_First_Name] <> "" Then
      TheString = TheString & "With first name " & [Doc_First_Name] &
vbCrLf
   End If
   If [Doc_Last_Name] <> "" Then
      TheString = TheString & "With last name " & [Doc_Last_Name] &
vbCrLf
   End If
   If [Doc_Month] <> "" Then
      TheString = TheString & "Born in " & [Doc_Month] & vbCrLf
   End If
   If [Doc_Salesperson] <> "" Then
      TheString = TheString & "With salesperson " & [Doc_Salesperson] &
vbCrLf
   End If
   If [Doc_Lease] = -1 And [Doc_Buy] = -1 Then
      TheString = TheString & "Financed or leased" & vbCrLf
```

```
    Else
        If [Doc_Lease] = -1 Then
            TheString = TheString & "Leased" & vbCrLf
        End If
        If [Doc_Buy] = -1 Then
            TheString = TheString & "Financed" & vbCrLf
        End If
    End If
    If [Doc_New] = -1 And [Doc_Used] = -1 Then
        TheString = TheString & "New Or Used" & vbCrLf
    Else
        If [Doc_New] = -1 Then
            TheString = TheString & "New" & vbCrLf
        End If
        If [Doc_Used] = -1 Then
            TheString = TheString & "Used" & vbCrLf
        End If
    End If
    If [Doc_Year] <> "" Then
        TheString = TheString & "With vehicle year in any of the following: "
& [Doc_Year] & vbCrLf
    End If
    If [Doc_Make] <> "" Then
        TheString = TheString & "With vehicle make in any of the following: "
& [Doc_Make] & vbCrLf
    End If
    If [Doc_Model] <> "" Then
        TheString = TheString & "With vehicle model in any of the following:
" & [Doc_Model] & vbCrLf
    End If
```

```
   If [Doc_IncService] = -1 And [Doc_Mileage] <> "" And [Doc_MileType]
<> "" Then
      Select Case [Doc_MileType]
      Case "Greater Than"
         TheString = TheString & "With vehicle mileage greater than " &
[Doc_Mileage] & vbCrLf
      Case "Equal To"
         TheString = TheString & "With vehicle mileage equal to " &
[Doc_Mileage] & vbCrLf
      Case "Less Than":
         TheString = TheString & "With vehicle mileage less than " &
[Doc_Mileage] & vbCrLf
      End Select
   End If
   TheString = TheString & "-------------------------------------
----------" & vbCrLf & vbCrLf
   TheString = TheString & "The merge document will include "
   Dim plus As String
   If [Doc_Address] = -1 Then
      TheString = TheString & " the address"
      plus = ", "
   End If
   If [Doc_Phone] = -1 Then
      TheString = TheString & plus & "phone number"
   End If
   If [Doc_Email] = -1 Then
      TheString = TheString & plus & "email address"
   End If
   TheString = TheString & " of the customer." & vbCrLf
   If [Doc_Detailed] = -1 Then
```

```
        TheString = TheString & "The results will be highly detailed." &
vbCrLf
    End If
    If [Doc_Clean] = -1 Then
        TheString = TheString & "All results with missing address, city,
state, and zip will be removed." & vbCrLf
    End If
    If [Doc_IncService] = -1 Then
        TheString = TheString & "All service customers will be included." &
vbCrLf
    End If
    TheString = TheString & "All archived builds will be saved in: " &
[Doc_Directory] & vbCrLf
    TheString = TheString & "The results will be merged to " &
[Doc_Merge_Side1]
    If [Doc_Merge_Side2] <> "" Then
        TheString = TheString & " and " & [Doc_Merge_Side2]
    End If
    TheString = TheString & " and sent to " & [Doc_Type] & "."

    PreTxt.Value = TheString
End Sub
```

APPENDIX B

USER’S MANUAL

RosePro Manual

Version 1.0

By: Anthony Montalbano

TABLE OF CONTENTS

Introduction

RosePro was creating with the intent to create quick and fast marketing documents for Roseville Chrysler Jeep. This program is strongly dependent on the DCMS database developed by Gil Hale. With RosePro you are given the ability to create Microsoft Word documents with mail merge capabilities associated with the dealership database found in DCMS. The following pages will help you install and run the application smoothly. If for some reason any errors or problems come up please contact me with the information provided below:

Anthony Montalbano
Cell Phone: (586) 242-4157
Email: italianst4@gmail.com

Installing RosePro

The following instructions are necessary for RosePro to properly work.

1. Click [Start]
2. Goto “Control Panel”
3. Goto “Adminstrative Tool”
4. Goto “Data Sources (ODBC)”
5. Click [Add]
6. Choose “Microsoft Visual FoxPro Driver” then click [Finish]
7. Type in “DCMS Database” for Data Source Name
8. Type in “V:\cdb\App\DBC\translationengine.dbc” for Path
9. Click [Ok] to close the window, then [Ok] to close the other window
10. Finish!

Upon successfully completing the following steps RosePro should be setup to use. Please see further instruction on how to use RosePro.

Creating a RosePro document without existing Word document

The following directions will guide you through the proper way to create a Word mail merge document specific to RosePro in Microsoft Word 2002. These directions will only need to be completed this way for the initial build of a new document with a new Word document.

1. Open Microsoft Word
2. Save your blank Word document to a location where it will not be moved.
3. Minimize Microsoft Word
4. Open RosePro
5. Click [Create New Document]
6. Choose the criteria specific to this document, make sure to include a name, where to send the document, the save directory, and the Word document you just created.
7. Save your newly created document
8. On the main RosePro screen click on your new document and click [Build Selected Document]
9. Click [Build List]
10. Upon completion of build switch back to Microsoft Word
11. Click ***Tools*** on the top menu bar
12. Choose ***Letters and Mailing,*** then ***Mail Merge Wizard…***
13. On the right of your screen you should see the Mail Merge side bar
14. Click "Next: Starting document" at the bottom of the screen
15. Click "Next: Select recipients" at the bottom of the screen
16. Click "Browse…" and navigate to the directory that you chose when you created the new RosePro document and click on the file that begins with the name of your RosePro document.
17. Click [Ok]
18. Click "Next: Write your letter" at the bottom of the screen
19. Click "More items…" and here you will find the fields that you can use in the creation of Word document.
20. When you are done creating your Word document, save and close Microsoft Word
21. Switch back to RosePro
22. Click on [Merge Document]
23. Finish!

Note: If you have a 2nd side to your document you will need to do steps 1-3 to create the document, then steps 11-20 to merge the data to your document

Creating a RosePro document with existing Word document

If you have already created a mail merge Word document and would like to use it in a new RosePro document, then follow the instructions below:

1. Open RosePro
2. Click [Create New Document]
3. Choose the criteria specific to this document, make sure to include a name, where to send the document, the save directory, and the Word document you just created.
4. Save your newly created document
5. On the main RosePro screen click on your new document and click [Build Selected Document]
6. Click [Build List] or [Use Archived Build] (if you would like to merge an archived)
7. Click on [Merge Document]
8. Finish!

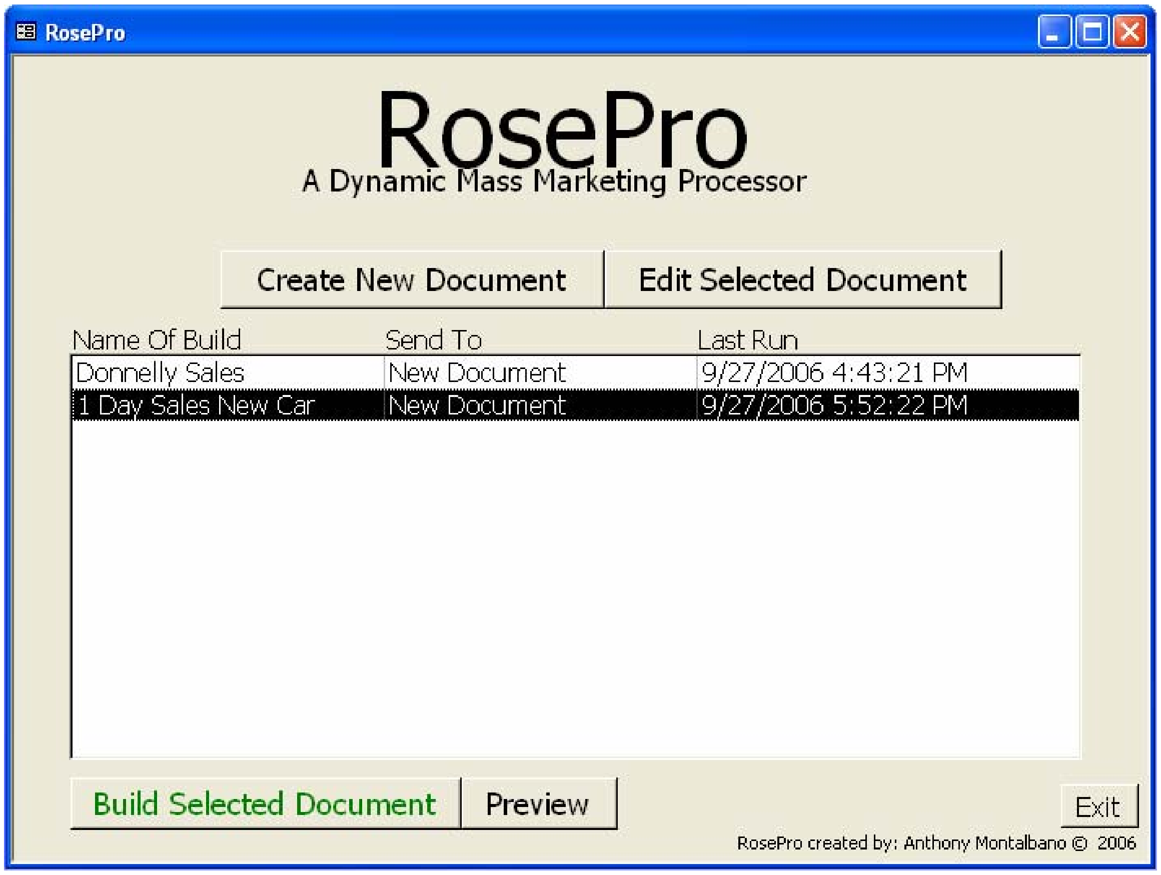
Edit a RosePro document

You can edit an existing RosePro document by highlighting it on the main RosePro screen and click [Edit Selected Document] or double clicking it. This will open a familiar screen as seen when you created the document. Make any necessary changes and save it.

Understanding each screen

There are 4 main screen associated with RosePro. The following screens will be explained in detail, so that you can familiarize yourself with using the RosePro application.

I. Main

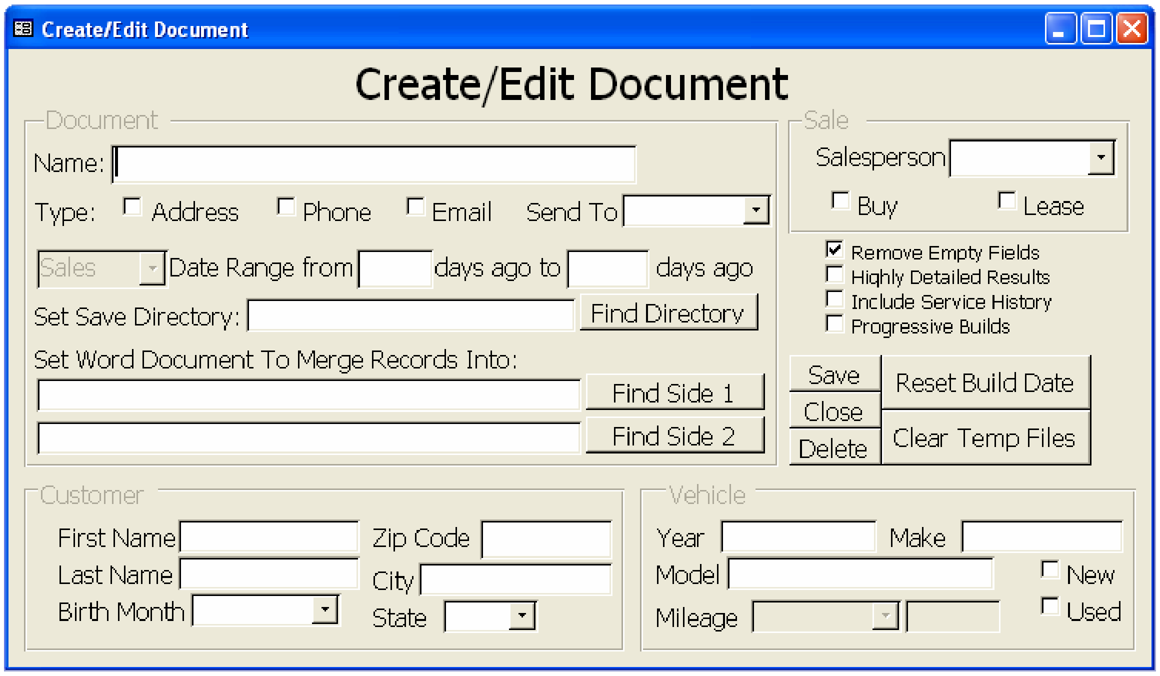


Name Of Build	Send To	Last Run
Donnelly Sales	New Document	9/27/2006 4:43:21 PM
1 Day Sales New Car	New Document	9/27/2006 5:52:22 PM

This is the main RosePro screen. The main screen shows all of the current build documents that exist. There are also five buttons that do the following:

[Create New Document] – Opens a window to create a new document.
[Edit Selected Document] – Opens a window to edit the document highlighted in the list of existing builds.
[Build Selected Document] – Opens a window to build data and merge to Word document.
[Preview] – Opens a window to preview the criteria of the selected document to be built.
[Exit] – Exits RosePro Application.

II. Create/Edit Document



Sales

☑ Remove Empty Fields

This is the screen that does the most work. All of the build information will be determined on this screen. There are four main sections to this screen, and will be explained further below:

(* are required fields)

(+ are fields that accept multiple values separated by a comma)

Document (Everything in this section relates to the document itself)

***Name** – Here you will type in the name of the RosePro document

Type – Choose any combination of address, phone, and email, and this will output the corresponding material in the build, for mail merging

***Send To** – Choose where you want to send your merged Word document to, Printer, New Document, or Email

Date Range – The drop down box to the left of these criteria is only enabled if you include service history. Here you can choose the range of days that will be chosen. By default "Sales" is chosen and will choose the range of days based on the contract date. If you happen to include "Service" you can choose the range of days based on the RO close date.

***Set Save Directory** – By clicking on [Find Directory], this will set the location for all builds to be saved and archived.

***Set Word Document** – By clicking on [Find Side 1], you can find the Word document to merge into. You are also given the option to set a different 2nd side of the document by clicking on [Find Side 2].

Customer (Everything in this section relates to the customer)

+First Name – Type in first name(s) of customers you want to select
+Last Name – Type in last name(s) of customers you want to select
+Zipcode – Type in zipcode(s) of customers you want to select
+City – Type in city(s) of customers you want to select
State – Select a state where customers live

Sale (Everything in this section relates to the sale)

Salesperson – Select the salesperson
Buy and/or Lease – Select any combination of Buy or Lease that you would like to select

Vehicle (Everything in this section relates to the sale)

+Year – Type in the year(s) of the vehicles you want to select
+Make – Type in the make(s) of the vehicles you want to select
+Model – Type in the model(s) of the vehicles you want to select
New and/or Used – Select any combination of New or Lease that you would like to select
Mileage – This is only available if service history is included. You are given the option to selecting the mileage of service customers, greater to, equal, or less than the amount you provide.

There are also four options that you can set. These options are outlined below:

Remove Empty Fields – This will remove any records that do not have the necessary fields to send mailers, such values as customer name, address, city, state, and zipcode.

Highly Detailed Results – This will return a very large number of fields that you could use in merging your Word Document.

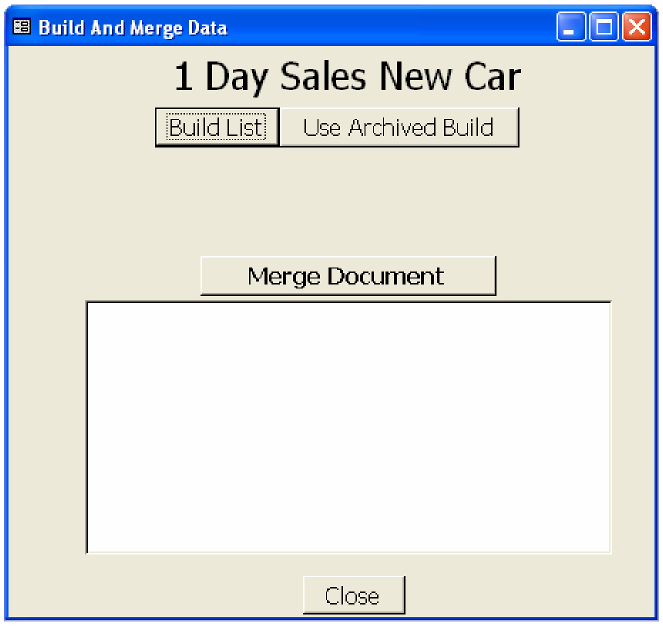
Include Service History – This will also return results from our service history, not necessarily limited to our vehicle sales customers.

Progressive Builds – This will not select any records past the previous build. This option will be used for documents with scheduled builds.

There are five buttons that do the following:

[Save] – Saves the RosePro document
[Close] – Closes the window and does not save the RosePro document
[Delete] – Deletes the RosePro document
[Reset Build Date] – Resets the last build date for the RosePro document
[Clear Temp Files] – Clears any temporary files left from the build

III. Build Document

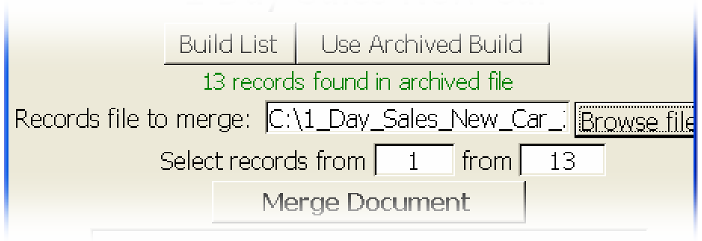


This is the screen that does the actual document building and mail merging. In the middle of the screen is a status window that will be updated with the status of the build and progress of the mail merge. There are four main buttons that will be detailed below:

[Build List] – This will process the RosePro document and build the records needed for merging.

[Use Archived Build] – This will allow you to search for a previous build that you would like to merge.

Note: Upon completion of build or selection of archived build the following will become visible on the screen:



13 records found in archived file

Records file to merge: C:\1_Day_Sales_New_Car_

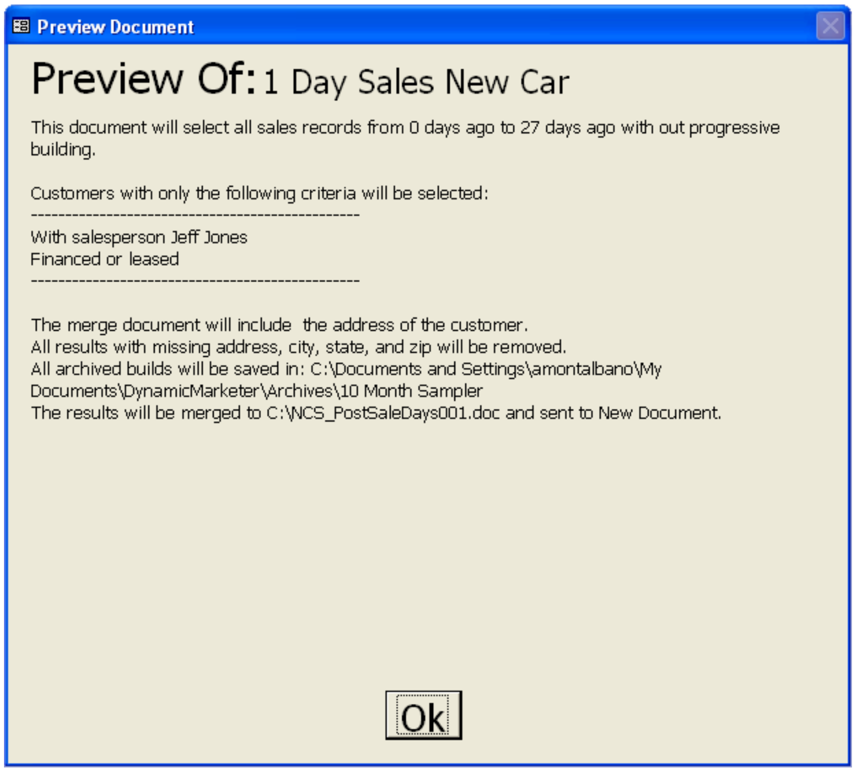
Select records from 1 from 13

This outputs the amount of records found, the location of the file to merge, and the range of records to merge. You can change the range of records, if for some reason you did not want to print all of them.

[Merge Document] – This will merge your RosePro document with the associated Microsoft Word document(s). Again, progress will be displayed in the status window.

[Close] – This will close the current screen.

IV. **Preview Document**



Preview Of: 1 Day Sales New Car

This document will select all sales records from 0 days ago to 27 days ago with out progressive building.

Customers with only the following criteria will be selected:

With salesperson Jeff Jones

Financed or leased

The merge document will include the address of the customer.

All results with missing address, city, state, and zip will be removed.

All archived builds will be saved in: C:\Documents and Settings\amontalbano\My Documents\DynamicMarketer\Archives\10 Month Sampler

The results will be merged to C:\NCS_PostSaleDays001.doc and sent to New Document.

This screen shows you a preview of what your selected RosePro document will do. The criteria in between the two horizontal lines is specific to the criteria that will be selected. Clicking [Ok] closes this window.

APPENDIX C

PROGRAM OUTCOMES

The Computer Science department at Kettering University set forth these four program objectives:

1. Computer Science graduates will have a broad, mathematically rigorous program in the fundamental areas of computer science that will allow them to continue their professional development and sustain a life-long career in computer science either through graduate study or continuing self-directed learning and development activities.

2. Computer Science graduates will have developed a sufficient depth of understanding in computer science, and the skill, confidence, professionalism, and experience necessary for successful careers in computer science and related fields.

3. Computer Science graduates will have the teamwork, communication, and interpersonal skills to enable them to work efficiently with interdisciplinary teams in industry, government, and academia.

4. The Computer Science faculty will provide its degree majors an excellent education experience through the incorporation of current pedagogical techniques, understanding of contemporary trends in research and technology, and hands-on laboratory experiences that enhance the educational experience.