Project Report

Description:

The project is a fully functioning phonebook where the user can add, delete or modify contacts. The user can also search using multivariables and sort the contacts with whichever way needed. For example, the user can sort the contacts using their first names or last names alphabetically or by their birthdates in an ascending or descending order. Any data that is taken from the user is validated and wrong formats will not be accepted and the user will be asked to reenter their input. For example, no symbols or numbers are accepted when entering first or last names, also, the month entry cannot be greater than 12 or less than 1, same with the day which cannot be greater than 31. In addition to that, the user will be asked to verify their commands in the save and delete functions in the case of a miss click.

Algorithms Used:

Firstly, the multi-variable search function depends mainly on the first entry from the user which in our program is considered the main search variable. When the user enters his first search criteria, it is compared to every single contact in the file and if there is a match, the number of this contact is taken into a new array. So after the first run there will be an array that contains the numbers of the contacts that contain the entry of the user. (In the case that the user doesn't want to search with a certain criteria then it is left blank and will not be considered in the search.) After having an array with the numbers of the wanted contacts, the same procedure is repeated once again but with the next variable that the user entered and it also returns an array which contains the numbers of contacts that contain the variable needed. The two arrays are compared and the common numbers are taken into another array and if there is not any common numbers then "Contact not found" will be displayed. The same algorithm is repeated then at the end, the program will obtain an array of numbers and these numbers represent the position of the contacts that satisfy all the parameters that was inputted by the user. Then the needed contacts are printed. This is an implementation of the linear search algorithm but on more than one level.

Secondly, we have the sort function. The sort function depends on the swap function we created that swaps the contact's position with the contact after it. The user is given the choice to sort either by first name, last name or date of birth and once the user chooses the sorting criteria, he is given an option of sorting in an ascending or descending order. The way the sorting function works is by comparing each contact by the one below it and swapping them together if needed (Using the

swap function). By the end of every loop we are sure that either the first or last contact in the list is in its correct position according to if the sorting is ascending or descending. We are using a variable "sorted" which acts as an indication if the contact still needs sorting or not. Once the "sorted" equals zero that means that no swaps occurred in this loop which means that the list is sorted correctly. This is an implementation of the bubble sorting algorithm.

Thirdly, the delete function searches for the contact to be deleted by first and last name (using linear search also) then displays all contacts with the first and second names the user wishes to search for. Then asks the user which one of the displayed contacts needs to be deleted. The user chooses whichever contact he wishes to delete. The idea of our delete function is to locate the contact that needs deletion then displace it with the one after it, and the process is repeated until we have all the contacts except the deleted one but we have the last contact repeated twice. To solve this we decrease the count by 1 causing the last contact (which is repeated) to not be loaded.

Sample Runs:

1) Sorting first name ascendingly:

```
Search
 .Sort
.Modify
 Print
.Exit
 .Lastname
.Date of Birth
.Back To Main Menu
 noose Sort Type
.Ascending
.Descending
.Back To Main Menu
              Firstname
                                                                                                  Date of Birth
                                                                                                                                                                                                                               Email
                                                          Lastname
                                                                                                                                            Address
               Abdo
Ahmed
                                                         Shawky
Fathy
Hassan
                                                                                                                                                                                                                               shaukyyy2000@gmail.com 01289997712
aboelfotoo32@yahoo.com 01285550078
elsakr100@gmail.com 01222748556
                                                                                                                                             22 El Horreya street
                                                                                                   05/03/1984
                                                                                                                                             48 Hassan Maomoon street
                                                                                                                                           48 Hassan Madmoon street
22 El Sakr street
76 El Nozha street
2 Saad El Soghayar street
89 Ismail harb street
5 Zaki Sharaf street
4 Mohamed Mazhar street
                Ahmed
Ali
Amel
Amir
                                                                                                                                                                                                                             elsakr100@gmail.com
lolol00@gmail.com
amoula2010@gmail.com
mirooo@gmail.com
ayashraf@gmail.com
bisoo43@gmail.com
geosamy@yahoo.com
hanoon58@gmail.com
aboaly90@gmail.com
hayaaamah@gmail.com
heshamsaad68@gmail.com
hossamakraam@yahoo.com
hossamakraam@jmail.com
                                                          Mahmoud
Mohamed
Mohamed
                                                                                                   04/02/2000
                                                                                                                                                                                                                                                                                            01275641238
                                                                                                  21/06/1999
13/07/2002
                                                                                                                                                                                                                                                                                            035820011
                                                          Ashraf
Kamel
                Ayman
Basel
                                                                                                                                                                                                                                                                                              01284449926
                                                                                                   05/01/1999
                                                                                                                                                                                                                                                                                            01281279954
                                                          Samy
Emad
                                                                                                  31/12/1999
06/06/2000
                                                                                                                                             56 Mostafa Abo Haif street
3 Ahmed Abdel Aziz street
                                                                                                                                                                                                                                                                                            01222568975
01212225556
                George
Hana
                                                                                                                                            78 Abd El Salam Aref street
1 Alexander The Great street
78 Abd El Salam Aref street
56 Fawzy Moaz street
                                                          Hesham
Mahmoud
                                                                                                   08/07/1990
12/01/2000
                                                                                                                                                                                                                                                                                            035820011
01279456555
                 Hassan
               Haya
Hesham
Hossam
                                                          Saad
Akram
                                                                                                  03/08/1968
03/10/2001
                                                                                                                                                                                                                                                                                            035820011
01225656743
                                                                                                                                                                                                                              nossamakradmeyando.com
hossamhassan@gmail.com
shahatinho@gmail.com
bimahassan@gmail.com
gygy200@gmail.com
Toda200@gmail.com
loukaa02@gmail.com
                                                                                                                                            89 El Suez street
74 Makram Abeid street
                                                          Hassan
Shahat
                                                                                                   29/07/1975
26/11/1996
                 Hossam
                                                                                                                                                                                                                                                                                            01286669812
                                                                                                                                           74 Makram Abeid street
89 El Suez street
4 Saad Zaghlool street
17 Khalil El Masry street
45 Ali Amin street
78 Abd El Salam Aref street
18 Liverpool street
5 El Gondy El Maghool street
41 Sharaf El Hadidi street
43 Hassan Maomoon street
98 Ismail El Agamy street
2 Talaat Harb street
3 El Gaweya street
12 Victor Emmanuel street
37 El Waha street
               Ibrahim
Ingy
Karam
Malak
                                                          Hassan
Emam
                                                                                                   29/07/1975
18/09/2000
                                                                                                                                                                                                                                                                                            01285656452
01285554446
                                                          Mahmoud
Osama
                                                                                                  13/09/2000
07/01/2002
                                                                                                                                                                                                                                                                                            01222789789
                                                                                                                                                                                                                                                                                            01243698524
01285550042
                                                                                                   23/01/1995
05/10/1992
14/03/1999
                 Mohamed
                                                          Hesham
                                                                                                                                                                                                                               mohhesham@gmail.com
abomakah11@gmail.com
                                                                                                                                                                                                                              mirosaleh@yahoo.com
osamahos@gmail.com
ramadona14@gmail.com
ramyramy@gmail.com
mahrez26@gmail.com
saleh74gomaa@yahoo.com
                                                          Saleh
                                                                                                                                                                                                                                                                                            01264178629
                Omar
                                                          Hosny
Sobhi
                                                                                                  18/10/1978
04/06/1997
                                                                                                                                                                                                                                                                                            01285556645
01284442288
                 Ramadan
                Ramy
Riyad
Saleh
Salma
                                                          Ahmed
Mahrez
                                                                                                  12/12/2003
07/09/1993
                                                                                                                                                                                                                                                                                            01287779994
                                                          Gomaa
Khaled
                                                                                                   30/01/1998
17/05/2001
                                                                                                                                                                                                                                                                                            01222555000
012224448951
                                                                                                                                                                                                                               skhaled@yahoo.com
                                                                                                                                            12 Victor Emmanuel
37 El Waha street
54 Shampillion street
37 Mostafa Abo Haif street
56 Ahmed Abd El Hamid street
                                                                                                                                                                                                                              sknaledgyanol.com
soso99@gmail.com
saadsamir3@gmail.com
sarakar@gmail.com
mohamedtarek@gmail.com
                 Salma
Samir
                                                          Ismail
Saad
                                                                                                  06/09/1999
09/10/1992
                                                                                                                                                                                                                                                                                            01287474523
01289997775
                                                          Karim
                                                                                                   02/09/2000
11/04/1999
                                                                                                                                                                                                                                                                                            01227854123
035820011
                  Tarek
                                                          Mohamed
                                                                                                                                           38 El Nasr street
6 Ali El Gendy street
67 Safeya Zaghlol street
78 Abd El Salam Aref street
34 Ahmed El Abass street
46 El Sultan Hussein street
                 Wael
                                                          Gomaa
Soliman
                                                                                                  05/09/1981
18/12/1987
                                                                                                                                                                                                                               elsa5ra@gmail.com
wsoliman11@gmail.com
                                                                                                                                                                                                                                                                                            01274561238
01222455645
                 Walid
                                                                                                                                                                                                                              wsoinmaniugmaii.com
hamada12@gmail.com
zeyadhesham@gmail.com
zoza12345@gmail.com
zozzaaa@yahoo.com
ztawfik90@gmail.com
                                                          Ahmed
Hesham
                                                                                                   29/07/1999
01/10/2000
                                                                                                                                                                                                                                                                                            01287676394
                 Zeyad
Zeyad
Zeyad
                                                          Hesham
Ashraf
Tawfik
                                                                                                   14/03/1989
19/08/1999
                                                                                                                                                                                                                                                                                            01222487952
                                                                                                   13/04/1990
                                                                                                                                             32 Mostafa Kamel street
                                                                                                                                                                                                                                                                                            01287779997
```

2) Sorting by Date of birth ascendingly

```
hoose Action
.Add Contact
  .Delete
  .Save
.Exit
5
5ort by
1.Firstname
2.Lastname
 .Date of Birth
.Back To Main Menu
 hoose Sort Type
 .Descending
  .Back To Main Menu
  ntry Firstname
                                                    Lastname
                                                                                        Date of Birth
                                                                                                                         Address

        Email
        Number

        Meshamsaad68@gmail.com
        01286669812

        hossamhassan@gmail.com
        01288565452

        osamahos@gmail.com
        0128556645

        elsakr100@gmail.com
        01222748556

        elsabra@gmail.com
        012274561238

        aboelfotoo32@yaho.com
        01285550078

        elsabra@gmail.com
        01274561238

        aboelfotoo32@yaho.com
        01285550078

                                                                                                                            78 Abd El Salam Aref street
89 El Suez street
                Hesham
Hossam
                                                   Saad
Hassan
                                                                                        03/08/1968
29/07/1975
                                                                                        29/07/1975
18/10/1978
                                                                                                                            89 El Suez street
41 Sharaf El Hadidi street
                Osama
                                                    Hosny
                                                                                       08/11/1980
05/09/1981
05/03/1984
18/12/1987
14/03/1989
                Ahmed
                                                    Hassan
                                                                                                                             22 El Sakr street
38 El Nasr street
                Wael
                                                    Gomaa
                                                                                                                            6 Ali El Gendy street
34 Ahmed El Abass street
32 Mostafa Kamel street
                                                                                                                                                                                                      wsoliman11@gmail.com
zoza12345@gmail.com
                                                                                                                                                                                                                                                           01222455645
                Walid
                                                    Soliman
                                                    Hesham
                Zeyad
                                                                                                                                                                                                    ztawfik90@gmail.com
aboaly90@gmail.com
abomakah11@gmail.com
saadsamir3@gmail.com
                                                                                        13/04/1990
08/07/1990
                                                    Tawfik
                                                                                                                                                                                                                                                            01287779997
                                                                                                                             78 Abd El Salam Aref street
                                                    Hesham
                Hassan
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09/10/1992
07/09/1993
23/01/1995
                Mohamed
Samir
                                                   Salah
Saad
                                                                                                                            18 Liverpool street
54 Shampillion street
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01289997775
                                                                                                                                                                                                   78 Abd El Salam Aref street
5 Zaki Sharaf street
74 Makram Abeid street
                                                   Mahrez
Hesham
                Mohamed
                                                                                        23/01/1995
05/11/1995
26/11/1996
04/06/1997
30/01/1998
05/01/1999
14/03/1999
11/04/1999
                Ayman
Hussein
                                                    Ashraf
Shahat
                                                                                                                           74 Maxram Abeld Street
43 Hassan Maomoon street
5 El Gaweya street
4 Mohamed Mazhar street
5 El Gondy El Maghool street
56 Ahmed Abd El Hamid street
                Saleh
                                                    Gomaa
                                                    Kamel
Saleh
                Omar
                                                                                                                           2 Saad El Soghayar street
67 Safeya Zaghlol street
46 El Sultan Hussein street
37 El Waha street
                                                                                        21/06/1999
29/07/1999
                Amel
                                                    Mohamed
                Yassine
                Zeyad
Salma
                                                   Ashraf
Ismail
                                                                                        19/08/1999
06/09/1999
                                                                                                                             56 Mostafa Abo Haif street
1 Alexander The Great street
                George
                                                    Samy
Mahmoud
                                                                                        31/12/1999
12/01/2000
                                                                                       12/01/2000
04/02/2000
02/04/2000
06/06/2000
02/09/2000
13/09/2000
18/09/2000
01/10/2000
17/05/2001
                                                   Mahmoud
Shawky
                                                                                                                           76 El Nozha street
22 El Horreya street
3 Ahmed Abdel Aziz street
37 Mostafa Abo Haif street
                Abdo
                Sara
Karam
                                                    Karim
                                                                                                                            17 Khalil El Masry street
4 Saad Zaghlool street
78 Abd El Salam Aref street
12 Victor Emmanuel street
                Ingy
Zeyad
Salma
                                                   Emam
Hesham
                                                    Khaled
                                                                                                                                                                                                      skhaled@yahoo.com
                                                                                                                                                                                                                                                            01222444895
                                                    Akram
                                                                                                                             56 Fawzy Moaz street
                Malak
Amir
                                                   Osama
Mohamed
                                                                                        07/01/2002
13/07/2002
                                                                                                                            45 Ali Amin street
89 Ismail harb street
                                                                                                                                                                                                     loukaa02@gmail.com
mirooo@gmail.com
                                                                                                                                                                                                                                                            01243698524
                                                                                                                                                                                                                                                            035820011
                                                    Ahmed
                                                                                                                             98 Ismail El Agamy street
                                                                                                                                                                                                     ramyramy@gmail.com
                                                                                                                                                                                                                                                            01267894562
```

3) Adding a contact

```
.Add Contact
 .Search
 .Sort
 .Modify
 .Delete
 .Exit
 nter Firstname: Ahmed
nter Lastname: Yassine
 nter Date of Birth:
nter Month: 3
inter Year: 2001
Enter Address: 45 Kamal Abdelnasser street
nter Email: yasssoooo@gmail.com
nter Number: 012855544499
                                              Date of Birth
       Firstname
                                                                                                       Email
                           Lastname
                                                                 Address
                                                                                                                                    Number
                                                                                                       heshamsaad68@gmail.com
hossamhassan@gmail.com
himahassan@gmail.com
osamahos@gmail.com
                                              03/08/1968
                                                                  78 Abd El Salam Aref street
                                                                                                                                   035820011
        Hesham
                            Saad
         Hossam
                                                                  89 El Suez street
                           Hassan
                                                                                                                                   01286669812
                                                                  89 El Suez street
         Ibrahim
                           Hassan
                                                                                                                                   01285656452
        Osama
                            Hosny
                                              18/10/1978
                                                                  41 Sharaf El Hadidi street
                                                                                                                                    01285556645
                                                                                                       elsakr100@gmail.com
elsa5ra@gmail.com
         Ahmed
                            Hassan
                                              08/11/1980
                                                                  22 El Sakr street
                                                                                                                                    01222748556
                                              05/09/1981
                                                                  38 El Nasr street
                                                                                                                                    01274561238
         Wael
                            Gomaa
                                                                  48 Hassan Maomoon street
                                                                                                       aboelfotoo32@yahoo.com
                                                                                                                                   01285550078
         Walid
                            Soliman
                                              18/12/1987
                                                                  6 Ali El Gendy street
                                                                                                       wsoliman11@gmail.com
                                                                                                                                   01222455645
                                                                  34 Ahmed El Abass street
                                                                                                       zoza12345@gmail.com
ztawfik90@gmail.com
aboaly90@gmail.com
         Zeyad
                           Hesham
                                                                                                                                   01222487952
         Zeyad
                            Tawfik
                                              13/04/1990
                                                                  32 Mostafa Kamel street
        Hassan
                           Hesham
                                              08/07/1990
                                                                  78 Abd El Salam Aref street
                                                                                                                                    035820011
                                                                 18 Liverpool street
54 Shampillion street
                                                                                                       abomakah11@gmail.com
                                                                                                                                   01264441118
        Mohamed
                           Salah
                                              05/10/1992
                                                                                                                                   01289997775
         Samir
                            Saad
                                              09/10/1992
                                                                                                       saadsamir3@gmail.com
                                                                  2 Talaat Harb street
        Riyad
                                              07/09/1993
                                                                                                       mahrez26@gmail.com
                            Mahrez
                                                                                                                                    01287779994
                                                                                                       mohhesham@gmail.com
ayashraf@gmail.com
shahatinho@gmail.com
ramadona14@gmail.com
                                                                  78 Abd El Salam Aref street
                                                                                                                                   01285550042
        Mohamed
                           Hesham
                                              23/01/1995
                                                                                                                                   01284449926
        Avman
                           Ashraf
                                              05/11/1995
                                                                  5 Zaki Sharaf street
                            Shahat
                                                                  74 Makram Abeid street
                                                                                                                                   01285550045
        Hussein
                                              26/11/1996
                                              04/06/1997
         Ramadan
                            Sobhi
                                                                  43 Hassan Maomoon street
                                                                                                                                   01284442288
                                                                  3 El Gaweya street
4 Mohamed Mazhar street
         Saleh
                            Gomaa
                                               30/01/1998
                                                                                                       saleh74gomaa@yahoo.com
                                                                                                                                   01222555000
         Basel
                            Kamel
                                               05/01/1999
                                                                                                       bisoo43@gmail.com
                                                                                                                                    01281279954
                                                                  5 El Gondy El Maghool street
56 Ahmed Abd El Hamid street
         Omar
                            Saleh
                                               14/03/1999
                                                                                                       mirosaleh@yahoo.com
                                                                                                                                    01264178629
                                              11/04/1999
                                                                                                       mohamedtarek@gmail.com
                                                                                                                                   035820011
                            Mohamed
         Amel
                                               21/06/1999
                                                                  2 Saad El Soghayar street
                                                                                                        amoula2010@gmail.com
                                                                                                                                    01222333344
                            Mohamed
         Yassine
                            Ahmed
                                                                  67 Safeya Zaghlol street
                                                                                                       hamada12@gmail.com
                                                                                                                                    01287676394
                                                                                                       zozzaaa@yahoo.com
soso99@gmail.com
                            Ashraf
                                               19/08/1999
                                                                  46 El Sultan Hussein street
                                                                                                                                    01285556664
         Zeyad
         Salma
                            Ismail
                                              06/09/1999
                                                                  37 El Waha street
                                                                                                                                    01287474523
                                                                  56 Mostafa Abo Haif street
        George
                            Samy
                                              31/12/1999
                                                                                                        geosamy@yahoo.com
                                                                                                                                    01222568975
                                                                                                       hayaaaamah@gmail.com
lololo00@gmail.com
                                                                                                                                   01279456555
        Haya
                           Mahmoud
                                              12/01/2000
                                                                  1 Alexander The Great street
                                                                  76 El Nozha street
                           Mahmoud
                                              04/02/2000
                                                                                                                                   01275641238
        Abdo
                            Shawky
                                              02/04/2000
                                                                 22 El Horreya street
3 Ahmed Abdel Aziz street
                                                                                                       shawkyyyy2000@gmail.com 01289997712
                                                                                                       hanoon58@gmail.com
        Hana
                           Emad
                                              06/06/2000
                                                                                                                                   01212225556
                                                                                                       sarakar@gmail.com
7oda2000@gmail.com
gygy2000@gmail.com
zeyadhesham@gmail.com
                                                                  37 Mostafa Abo Haif street
                                              02/09/2000
                                                                                                                                    01227854123
        Sara
                            Karim
                                                                 17 Khalil El Masry street
4 Saad Zaghlool street
78 Abd El Salam Aref street
         Karam
                            Mahmoud
                                              13/09/2000
                                                                                                                                    01222789789
                           Emam
                                              18/09/2000
                                                                                                                                    01285554446
         Ingy
                           Hesham
                                              01/10/2000
                                                                                                                                   01285550094
         Zeyad
         Salma
                            Khaled
                                              17/05/2001
                                                                  12 Victor Emmanuel street
                                                                                                       skhaled@yahoo.com
                                                                                                                                    012224448951
                                              03/10/2001
                                                                                                                                   01225656743
         Hossam
                            Akram
                                                                  56 Fawzy Moaz street
                                                                                                       hossamakraam@yahoo.com
                            Osama
                                              07/01/2002
                                                                  45 Ali Amin street
                                                                                                       loukaa02@gmail.com
                                                                                                                                    01243698524
                            Mohamed
                                              13/07/2002
                                                                  89 Ismail harb street
                                                                                                       mirooo@gmail.com
                                                                                                                                    035820011
                                                                                                       ramyramy@gmail.com
yasssoooo@gmail.com
                            Ahmed
                                               12/12/2003
                                                                  98 Ismail El Agamy street
                                                                                                                                    01267894562
         Ramy
         Ahmed
                            Yassine
                                              01/03/2001
                                                                  45 Kamal Abdelnasser street
                                                                                                                                    012855544499
```

User Manual:

Firstly, to be able to use this program you must input the name of the file which the contacts are saved on. The name is inputted in both the load and count functions or else an error will appear (An error stating that there is a problem in reading the file). The contacts in the file should be written in the following format:

Last name, First name, DD-MM-YYYY, Address, Email, Phone number This format will allow all the contacts to be loaded correctly with no problems.

The next step will be running the program. As soon as the user runs the program a menu will appear asking which command is needed. The user needs to input the number that appears prior to the command needed. In the case that the user needs to add a contact, the correct format needs to be used (For example: No letters while inputting the telephone number or DOB). In the case that the user enters a number that is not displayed an error will appear and the user will be asked to enter a valid number (1-8). The exit command (Number 8) will end the program and it will not end unless told so. The program does not save the user's progress unless told so (by pressing 7), which is why it is important to save everything that is done.