

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 multi-variables 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 re-enter 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:

```
Choose Action:
1.Add Contact
2.Search
3.Sort
4.Modify
5.Delete
6.Print
7.Save
8.Exit
3
Sort by
1.Firstname
2.Lastname
3.Date of Birth
4.Back To Main Menu
1
Choose Sort Type
1.Ascending
2.Descending
3.Back To Main Menu
1
Entry  Firstname  Lastname  Date of Birth  Address  Email  Number
1  Abdo  Shawky  02/04/2000  22 El Horreya street  shawkyyyy2000@gmail.com  01289997712
2  Ahmed  Fathy  05/03/1984  48 Hassan Maomoon street  aboelfotoo32@yahoo.com  01285550078
3  Ahmed  Hassan  08/11/1980  22 El Sakr street  elsakr100@gmail.com  01222748556
4  Ali  Mahmoud  04/02/2000  76 El Nozha street  lololo00@gmail.com  01275641238
5  Amel  Mohamed  21/06/1999  2 Saad El Soghayan street  amoula2010@gmail.com  01222333344
6  Amir  Mohamed  13/07/2002  89 Ismail harb street  miroo0@gmail.com  035820011
7  Ayman  Ashraf  05/11/1995  5 Zaki Sharaf street  ayashraf@gmail.com  01284449926
8  Basel  Kamel  05/01/1999  4 Mohamed Mazhar street  bisoo43@gmail.com  01281279954
9  George  Samy  31/12/1999  56 Mostafa Abo Haif street  geosamy@yahoo.com  01222568975
10  Hana  Emad  06/06/2000  3 Ahmed Abdel Aziz street  hanoon58@gmail.com  01212225556
11  Hassan  Hesham  08/07/1990  78 Abd El Salam Aref street  aboaly90@gmail.com  035820011
12  Haya  Mahmoud  12/01/2000  1 Alexander The Great street  hayaaaaamah@gmail.com  01279456555
13  Hesham  Saad  03/08/1968  78 Abd El Salam Aref street  heshamsaad68@gmail.com  035820011
14  Hossam  Akram  03/10/2001  56 Fawzy Moaz street  hossamakraam@yahoo.com  01225656743
15  Hossam  Hassan  29/07/1975  89 El Suez street  hossamhassan@gmail.com  01286669812
16  Hussein  Shahat  26/11/1996  74 Makram Abeid street  shahatinfo@gmail.com  01285550045
17  Ibrahim  Hassan  29/07/1975  89 El Suez street  himahassan@gmail.com  01285656452
18  Ingy  Emam  18/09/2000  4 Saad Zaghloul street  gygy2000@gmail.com  01285554446
19  Karam  Mahmoud  13/09/2000  17 Khalil El Masry street  7oda2000@gmail.com  01222789789
20  Malak  Osama  07/01/2002  45 Ali Amin street  loukaa02@gmail.com  01243698524
21  Mohamed  Hesham  23/01/1995  78 Abd El Salam Aref street  mohhesham@gmail.com  01285550042
22  Mohamed  Salah  05/10/1992  18 Liverpool street  abomakah11@gmail.com  01264441118
23  Omar  Saleh  14/03/1999  5 El Gondy El Maghool street  mirosaleh@yahoo.com  01264178629
24  Osama  Hosny  18/10/1978  41 Sharaf El Hadidi street  osamahos@gmail.com  01285556645
25  Ramadan  Sobhi  04/06/1997  43 Hassan Maomoon street  ramadonai4@gmail.com  01284442288
26  Ramy  Ahmed  12/12/2003  98 Ismail El Agamy street  ramyramy@gmail.com  01267894562
27  Riyadh  Mahrez  07/09/1993  2 Talaat Harb street  mahrez26@gmail.com  01287779994
28  Saleh  Gomaa  30/01/1998  3 El Gaweya street  saleh74gomaa@yahoo.com  01222555000
29  Salma  Khaled  17/05/2001  12 Victor Emmanuel street  skhaled@yahoo.com  012224448951
30  Salma  Ismail  06/09/1990  37 El Waha street  soso99@gmail.com  01287474523
31  Samir  Saad  09/10/1992  54 Shampillion street  saadsamir3@gmail.com  01289997775
32  Sara  Karim  02/09/2000  37 Mostafa Abo Haif street  sarakan@gmail.com  01227854123
33  Tarek  Mohamed  11/04/1999  56 Ahmed Abd El Hamid street  mohamedtarek@gmail.com  035820011
34  Wael  Gomaa  05/09/1981  38 El Nasr street  elsa5ra@gmail.com  01274561238
35  Walid  Soliman  18/12/1987  6 Ali El Gendy street  wsoliman11@gmail.com  01222455645
36  Yassine  Ahmed  29/07/1999  67 Safeya Zaghlol street  hamada12@gmail.com  01287676394
37  Zeyad  Hesham  01/10/2000  78 Abd El Salam Aref street  zeyadhesham@gmail.com  01285550094
38  Zeyad  Hesham  14/03/1989  34 Ahmed El Abass street  zozai2345@gmail.com  01222487952
39  Zeyad  Ashraf  19/08/1999  46 El Sultan Hussein street  zozzaaa@yahoo.com  01285556664
40  Zeyad  Tawfik  13/04/1990  32 Mostafa Kamel street  ztawfik90@gmail.com  01287779997
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2) Sorting by Date of birth ascendingly

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Choose Action:
1.Add Contact
2.Search
3.Sort
4.Modify
5.Delete
6.Print
7.Save
8.Exit
3
Sort by
1.Firstname
2.Lastname
3.Date of Birth
4.Back To Main Menu
3
Choose Sort Type
1.Ascending
2.Descending
3.Back To Main Menu
2
Entry  Firstname  Lastname  Date of Birth  Address  Email  Number
1  Hesham  Saad  03/08/1968  78 Abd El Salam Aref street  heshamsaad68@gmail.com  035820011
2  Hossam  Hassan  29/07/1975  89 El Suez street  hossamhassan@gmail.com  01286660812
3  Ibrahim  Hassan  29/07/1975  89 El Suez street  himahassan@gmail.com  01285656452
4  Osama  Hosny  18/10/1978  41 Sharaf El Hadidi street  osamahos@gmail.com  01285556645
5  Ahmed  Hassan  08/11/1980  22 El Sakr street  elsakr100@gmail.com  01222748556
6  Wael  Gomaa  05/09/1981  38 El Nasr street  elsa5na@gmail.com  01274561238
7  Ahmed  Fathy  05/03/1984  48 Hassan Maomoon street  aboelfotoo32@yahoo.com  01285550078
8  Walid  Soliman  18/12/1987  6 Ali El Gendy street  wsoliman11@gmail.com  01222455645
9  Zeyad  Hesham  14/03/1989  34 Ahmed El Abass street  zozai2345@gmail.com  01222487952
10 Zeyad  Tawfik  13/04/1990  32 Mostafa Kamel street  ztawfik90@gmail.com  01287779997
11 Hassan  Hesham  08/07/1990  78 Abd El Salam Aref street  aboaly90@gmail.com  035820011
12 Mohamed  Salah  05/10/1992  18 Liverpool street  abomakah11@gmail.com  01264441118
13 Samir  Saad  09/10/1992  54 Shampillion street  saadsamir3@gmail.com  01289997775
14 Riyad  Mahrez  07/09/1993  2 Talaat Harb street  mahrez26@gmail.com  01287779994
15 Mohamed  Hesham  23/01/1995  78 Abd El Salam Aref street  mohhesham@gmail.com  01285550042
16 Ayman  Ashraf  05/11/1995  5 Zaki Sharaf street  ayashraf@gmail.com  01284449926
17 Hussein  Shahat  26/11/1996  74 Makram Abeid street  shahatinfo@gmail.com  01285550045
18 Ramadan  Sobhi  04/06/1997  43 Hassan Maomoon street  ramadonai4@gmail.com  01284442288
19 Saleh  Gomaa  30/01/1998  3 El Gaweya street  saleh74gomaa@yahoo.com  01222555000
20 Basel  Kamel  05/01/1999  4 Mohamed Mazhar street  bisoo43@gmail.com  01281279954
21 Omar  Saleh  14/03/1999  5 El Gondy El Maghool street  mirosaleh@yahoo.com  01264178629
22 Tarek  Mohamed  11/04/1999  56 Ahmed Abd El Hamid street  mohamedtarek@gmail.com  035820011
23 Amel  Mohamed  21/06/1999  2 Saad El Soghayar street  amoula2010@gmail.com  01222333344
24 Yassine  Ahmed  29/07/1999  67 Safeya Zaghlol street  hamada12@gmail.com  01287676394
25 Zeyad  Ashraf  19/08/1999  46 El Sultan Hussein street  zozzaaa@yahoo.com  01285556664
26 Salma  Ismail  06/09/1999  37 El Waha street  soso99@gmail.com  01287474523
27 George  Samy  31/12/1999  56 Mostafa Abo Haif street  geosamy@yahoo.com  01222568975
28 Haya  Mahmoud  12/01/2000  1 Alexander The Great street  hayaaaaamah@gmail.com  01279456555
29 Ali  Mahmoud  04/02/2000  76 El Nozha street  lololo00@gmail.com  01275641238
30 Abdo  Shawky  02/04/2000  22 El Horreya street  shawkyyyy2000@gmail.com  01289997712
31 Hana  Emad  06/06/2000  3 Ahmed Abdel Aziz street  hanoon50@gmail.com  01212225556
32 Sara  Karim  02/09/2000  37 Mostafa Abo Haif street  sarakar@gmail.com  01227854123
33 Karam  Mahmoud  13/09/2000  17 Khalil El Masry street  7oda2000@gmail.com  01222789789
34 Ingy  Emam  18/09/2000  4 Saad Zaghlool street  gygy2000@gmail.com  01285554446
35 Zeyad  Hesham  01/10/2000  78 Abd El Salam Aref street  zeyadhesam@gmail.com  01285550094
36 Salma  Khaled  17/05/2001  12 Victor Emmanuel street  skhaled@yahoo.com  012224448951
37 Hossam  Akram  03/10/2001  56 Fawzy Moaz street  hossamakraam@yahoo.com  01225656743
38 Malak  Osana  07/01/2002  45 Ali Amin street  loukaa02@gmail.com  01243698524
39 Amir  Mohamed  13/07/2002  89 Ismail harb street  mirooo@gmail.com  035820011
40 Ramy  Ahmed  12/12/2003  98 Ismail El Agamy street  ramyramy@gmail.com  01267894562

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3) Adding a contact

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Choose Action:
1.Add Contact
2.Search
3.Sort
4.Modify
5.Delete
6.Print
7.Save
8.Exit
1
Enter Firstname: Ahmed
Enter Lastname: Yassine
Enter Date of Birth:
Enter Day: 1
Enter Month: 3
Enter Year: 2001
Enter Address: 45 Kamal Abdelnasser street
Enter Email: yasssoooo@gmail.com
Enter Number: 012855544499
Entry  Firstname  Lastname  Date of Birth  Address  Email  Number
1  Hesham  Saad  03/08/1968  78 Abd El Salam Aref street  heshamsaad68@gmail.com  035820011
2  Hossam  Hassan  29/07/1975  89 El Suez street  hossamhassan@gmail.com  01286669812
3  Ibrahim  Hassan  29/07/1975  89 El Suez street  himahassan@gmail.com  01285656452
4  Osama  Hosny  18/10/1978  41 Sharaf El Hadidi street  osamahos@gmail.com  01285556645
5  Ahmed  Hassan  08/11/1980  22 El Sakr street  elsakr100@gmail.com  01222748556
6  Wael  Gomaa  05/09/1981  38 El Nasr street  elsa5ra@gmail.com  01274561238
7  Ahmed  Fathy  05/03/1984  48 Hassan Maomoon street  aboelfotoo32@yahoo.com  01285550078
8  Walid  Soliman  18/12/1987  6 Ali El Gendy street  wsoliman11@gmail.com  01222455645
9  Zeyad  Hesham  14/03/1989  34 Ahmed El Abass street  zozai2345@gmail.com  01222487952
10 Zeyad  Tawfik  13/04/1990  32 Mostafa Kamel street  ztawfik90@gmail.com  01287779997
11 Hassan  Hesham  08/07/1990  78 Abd El Salam Aref street  aboaly90@gmail.com  035820011
12 Mohamed  Salah  05/10/1992  18 Liverpool street  abomakah11@gmail.com  01264441118
13 Samir  Saad  09/10/1992  54 Shampillion street  saadsamir3@gmail.com  01289997775
14 Riyad  Mahrez  07/09/1993  2 Talaat Harb street  mahrez26@gmail.com  01287779994
15 Mohamed  Hesham  23/01/1995  78 Abd El Salam Aref street  mohhesham@gmail.com  01285550042
16 Ayman  Ashraf  05/11/1995  5 Zaki Sharaf street  ayashraf@gmail.com  01284449926
17 Hussein  Shahat  26/11/1996  74 Makram Abeid street  shahatinho@gmail.com  01285550045
18 Ramadan  Sobhi  04/06/1997  43 Hassan Maomoon street  ramadona14@gmail.com  01284442288
19 Saleh  Gomaa  30/01/1998  3 El Gaweya street  saleh74gomaa@yahoo.com  01222555000
20 Basel  Kamel  05/01/1999  4 Mohamed Mazhar street  bisoo43@gmail.com  01281279954
21 Omar  Saleh  14/03/1999  5 El Gondy El Maghool street  mirosaleh@yahoo.com  01264178629
22 Tarek  Mohamed  11/04/1999  56 Ahmed Abd El Hamid street  mohamedtarek@gmail.com  035820011
23 Amel  Mohamed  21/06/1999  2 Saad El Soghayar street  amoula2010@gmail.com  01222333344
24 Yassine  Ahmed  29/07/1999  67 Safeya Zaghlol street  hamada12@gmail.com  01287676394
25 Zeyad  Ashraf  19/08/1999  46 El Sultan Hussein street  zozzaaa@yahoo.com  01285556664
26 Salma  Ismail  06/09/1999  37 El Waha street  soso99@gmail.com  01287474523
27 George  Samy  31/12/1999  56 Mostafa Abo Haif street  geosamy@yahoo.com  01222568975
28 Haya  Mahmoud  12/01/2000  1 Alexander The Great street  hayaaaaamah@gmail.com  01279456555
29 Ali  Mahmoud  04/02/2000  76 El Nozha street  lololo00@gmail.com  01275641238
30 Abdo  Shawky  02/04/2000  22 El Horreya street  shawkyyyy2000@gmail.com  01289997712
31 Hana  Emad  06/06/2000  3 Ahmed Abdel Aziz street  hanoon58@gmail.com  01212225556
32 Sara  Karim  02/09/2000  37 Mostafa Abo Haif street  sarakar@gmail.com  01227854123
33 Karam  Mahmoud  13/09/2000  17 Khalil El Masry street  7oda2000@gmail.com  01222789789
34 Ingy  Emam  18/09/2000  4 Saad Zaghloul street  ggy2000@gmail.com  01285554446
35 Zeyad  Hesham  01/10/2000  78 Abd El Salam Aref street  zeyadhesham@gmail.com  01285550094
36 Salma  Khaled  17/05/2001  12 Victor Emmanuel street  skhaled@yahoo.com  012224448951
37 Hossam  Akram  03/10/2001  56 Fawzy Moaz street  hossamakraam@yahoo.com  01225656743
38 Malak  Osama  07/01/2002  45 Ali Amin street  loukaa02@gmail.com  01243698524
39 Amir  Mohamed  13/07/2002  89 Ismail harb street  mirooo@gmail.com  035820011
40 Ramy  Ahmed  12/12/2003  98 Ismail El Agamy street  ramyramy@gmail.com  01267894562
41 Ahmed  Yassine  01/03/2001  45 Kamal Abdelnasser street  yasssoooo@gmail.com  012855544499
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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.