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Summer 2020

Contacts

Assignment 2

Assignment 2 uses assignment Local Sources as a "Contact Management System". This assignment introduces the concepts of manipulating data, compartmentalizing data into a group of functions, and using the Function Pointers in Table. The underlying software remains unchanged from the previous portions of the application.

Deadlines

This assignment is broken into two (2) parts:

Milestone	Due Date
1.2	Fri, July 17 by 11:59 PM (EST)
2.0	Fri, July 31 by 11:59 PM (EST)

Milestone 1 (10%)

(See with your milestone 1 submission)

Download a Code Skeleton Project (Mac/Linux/Windows) from GitHub/IPC-Project

Open the project file **a2Mac** and look inside (expect "Header Files" and "Source Files" folders – see figure 1.1.1). You will find two modules:

Module	Header File	Source File
contacts	contacts.h	contacts.c
contactHelper	contactHelper.h	contactHelper.c

Contacts Header File (.h)

Structures

- Open the **contacts.h** file and copy the structures (Name, Address, Number, and Contact) from the **contacts.h** Assignment 1. Be careful not to paste over the helpful comments in the provided **contacts.h** file!

Function Prototypes

- Copy the function prototypes: **getName, getAddress, or getNumber** from the file **contacts.h** Assignment 1 Milestone 1A. Again, be careful not to paste over the helpful comments in the provided **contacts.h** file!
- Declare an additional function prototype:
  - void **getContact**(Contact *contact, ****);
  - The details on how the function should work is described in Milestone 1.

Contacts Source File (.c)

Open the **contacts.c** source code file.

Libraries

- In order to define the functions that were declared as prototypes in the **contacts.h** file, the **contacts.c** source code needs to include the **contacts.h** header file (including the required header libraries). Include the **contacts.h** header file in your source code.

Function Definitions

1. Copy the function definitions **getName, getAddress, or getNumber** from the file **contacts.c** Assignment 1 Milestone 1A.
2. Add a simple definition for the new function **getContact** (see the prototype declared in the **contacts.h** file – refer to the function prototype for the parameters). For this milestone you don't need to do anything in the function, just return a dummy value (0 or 0.0 or NULL – specifically as simple code block:

```
getContact(Function header goes here,
    ...
    ) {
    // no to-name and close curly brace with a close line
}
```

Contact Helper Header File (.h)

The contactHelper module contains a group of common functions for use in other source code modules in the application. Other modules will call the various function prototypes (without having to recode them) to include this functionality.

Function Prototypes

- Open the **contactHelper.h** file. Timely you get started, you will notice the prototype for the **checkUpdate** function is already done for you.
- void **clearKeyboard**(void);
  - **clearKeyboard** does not return a value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.
- Add the following additional helper function prototypes:
- void **pause**(void);
  - **pause** does not return a value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.
- int **getInt**(void);
  - **getInt** returns an integer value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.
- int **getInteger**(int **min**, int **max**);
  - **getInteger** returns an integer value and receives two (2) integer parameters.
  - The detailed on how the function should work is described in Milestone 1.
- int **yes**(void);
  - **yes** returns an integer value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.
- int **menu**(void);
  - **menu** returns an integer value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.
- void **contactManagerSystem**(void);
  - **contactManagerSystem** does not return a value and has no parameters.
  - The detailed on how the function should work is described in Milestone 1.

Contact Helper Source File (.c)

Open the **contactHelper.c** source code file.

Libraries

- Just as the **contacts** source code file included the **contacts.h** header file, the **contactHelper.c** source code needs to include the **contactHelper.h** header file (including the required header libraries). Include the **contactHelper.h** header file in your source code.

Function Definitions

- Add a simple definition for each function prototyped in the **contactHelper.h**. You will notice the **checkUpdate** function has been done for you. Follow this example for the remaining functions (refer to the course code examples).
- Complete the full function definition for each function using the descriptions below.

Milestone 1 Submission

Milestone 1 does not need to be submitted mid-term. It will be graded along with Milestone 2 when it is submitted.

Milestone 2 (20%)

(Due July 31 by 11:59 PM EST)

Open the project file **a2Mac** and look inside (expect "Header Files" and "Source Files" folders – see figure 2.1.1). You will notice an additional source code file called **tab** (no modifs this time). The **tab** module exists since your functions to determine if they exists in the milestone1 specification.

Figure 2.1.1 – Visual Studio Project Contents

Header Files

contacts.h and contactHelper.h

- Copy the function prototypes required in these files for the milestones. Consult the comments provided in the header files or the course notes and copy the appropriate prototypes extracted from Milestone1.

Contact Helper Source File (.c)

1. Open the **contactHelper.c** source code file.

   Reminder: Be sure to include the contactHelper.h header file!

   To help you get started, notice that the **checkUpdate** function is done for you.

2. For the remaining functions, copy the function definitions from the **contactHelper.h** file. Be careful not to paste over the helpful comments in the provided **contactHelper.h** file! Notice the **checkUpdate** function that is already prototyped for you.
3. Complete the full function definition for each function using the descriptions below.

void **clearKeyboard**(void);

- **clearKeyboard** does not return a value and has no parameters.
- This function makes sure the keyboard buffer is clear of any residual characters by continuously getchar() until the buffer is empty. Refer to the course notes for more information.
- This function is provided for you – please consult the IPC course notes and/or contact your instructor if you have questions about the provided target versus library getchar() function.

void **pause**(void);

- **pause** does not return a value and has no parameters.
- This function pauses the application until the user presses the enter/return key, displaying a message and waiting for the user to press the ENTER key.
- Display the following text on the NEWLINE include a newline character:

```
Press <ENTER> to continue...
```

- After displaying the above message, call the **clearKeyboard** function.

   Note: The clearKeyboard function is used for a helpful! ENTER keys only.

int **getInt**(void);

- **getInt** returns an integer value and has no parameters.
- This function prompts for an integer value and then inputs the value entered by the user (assume) and returns the integer value. Short processed user input (proceed value) processed.
- If the integer encountered is within the solid range, the following error message should display:

```
Error! Value must be an integer but got something else: (enter an integer value)
```

   Note: Substitute the "Sample" of and "Sample of" with the function parameter values.

- The function should continue to prompt the user for a valid integer.
- This function must be flushed! and guarantee an integer value is entered and stored.

   Note: We are a solid helpful integer and a character(.TXT) – to see what the case when if the second when is a smaller character. If the second character is a newline (the result of an ENTER keystroke), a null/flushed first value concatenates as a integer.

   If the second character (character) is not a newline, the value entered was not an integer or followed by other characters. In this case, the remaining input buffer should be flushed! (the Clear Keyboard function). Followed by displaying the error message: "Error! Value must be an integer but got something else: (enter an integer value)" followed by the following Reactivel that describes the process:

Figure 2.1.2 – Reactivel Process

int **getInteger**(int **min**, int **max**);

- **getInteger** returns an integer value and receives two (2) integer parameters.
- This function prompts for an integer value and then inputs the value entered by the user (assume) and returns the integer value. Short processed user input (proceed value) processed.
- If the integer encountered is within the solid range, the following error message should display:

```
Error! Value must be between min and max (inclusive): (enter an integer value)
```

   Note: Substitute the "Sample" of and "Sample of" with the function parameter values.

- The function should continue to prompt the user for a valid integer.
- This function must be flushed! and guarantee an integer value is entered and stored.

   Note: We are a solid helpful integer and a character(.TXT) – to see what the case when if the second when is a smaller character. If the second character is a newline (the result of an ENTER keystroke), a null/flushed first value concatenates as a integer.

   If the second character (character) is not a newline, the value entered was not an integer or followed by other characters. In this case, the remaining input buffer should be flushed! (the Clear Keyboard function). Followed by displaying the error message: "Error! Value must be an integer but got something else: (enter an integer value)" followed by the following Reactivel that describes the process:

Figure 2.1.3 – Reactivel Process

int **yes**(void);

- **yes** returns an integer value and has no parameters.
- This function prompts for a character value and then inputs the value entered by the user.
- The character entered is only valid if it is 'Y', 'y', 'N', or 'n'. Any other value entered (including input that was characters) is an error and should display the following error message:

```
Error! Value must be either Y|y (true) or N|n (false): (enter a character)
```

- The function is very similar to the getInt function only this function looks for a character and for true/false. If the user enters a valid character (Y|y or N|n) the clearKeyboard function is called to flush the input buffer and the function returns the value (1 for true or 0 for false). Consider a case of a Char for (all valid characters. If (Char) of the valid Char (if (Char) Return 1 else if (Char) Return 0.
- The function should continue to prompt the user for an entry until one of the four (4) valid characters is entered.
- When a valid value is entered, the function should return an integer value of 1 when the value is 'Y' or 'y'. Otherwise it should return 0.

int **menu**(void);

- **menu** returns an integer value and has no parameters.
- The function should display the following menu:

```
Contacts Manager
    1. Display contacts
    2. Add a contact
    3. Update a contact
    4. Delete a contact
    5. Search by name
    6. Search by address
    7. Search by phone number
    8. Search by birthday
    9. Sort contacts by name
    10. Sort contacts by birthday
    0. Exit

Select an option:>
```

- Prompt for user entry an integer value between the values 0-9 inclusive.
- If the user enters an invalid value, the following error message should be given:
- The function should continue to prompt for an integer value within the 0-9 range until a valid value is entered.
- When a valid integer value is entered, the value is returned.

   Note: Keep it simple!

   Use a single function – perhaps there's already a function that can help you get an integer value within a specified range.

void **contactManagerSystem**(void);

- **contactManagerSystem** does not return a value and has no parameters.
- This function is the heart of the application and will call the whole program.
- The function should begin by displaying the menu for the user and process the user's selection.
- If the user selects 1, 0 displays:
- If the user selects 2, 0 displays: (Enter(s) key (s)) (Contacts)
- If the user selects 3, 0 displays:
- If the user selects 4, 0 displays: (Enter(s) key (s)) (Contacts)
- If the user selects 5, 0 displays:
- If the user selects 6, 0 displays: (Enter(s) key (s)) (Contacts)
- If the user selects 7, 0 displays:
- If the user selects 8, 0 displays: (Enter(s) key (s)) (Contacts)
- If the user selects 9, 0 displays:
- If the user selects 10, 0 displays:
- If the user selects 0, 0 displays: (Enter(s) key (s)) (Contacts)
- The function should continue to process the user's selection until the user selects 0 to exit the application.
- When the user selects 0, the application should **pause** and then return to displaying the menu.
- If the user selects 0, prompt to exit the application. Display the following:

```
Are you sure? (y|n):>
```

- If the user selects y, the application should **pause** and then return to displaying the menu.
- If the user selects n, prompt to exit the application. Display the following:

```
Are you sure? (y|n):>
```

- If the user selects y, prompt to exit the application. Display the following:

```
Are you sure? (y|n):>
```

- If the user selects n, the application should **pause** and then return to displaying the menu.

Contacts Source File (.c)

Open the **contacts.c** source code file.

- Open the **contacts.c** source code file.

   Reminder: Be sure to include the contacts.h header file!

   The contact helper module contains additional functions that can be used to streamline the contacts prototypes created for getting the Name, Address, and Number (**getInt** and **getInteger**). Consider using these functions in your **getName**, **getAddress**, and **getNumber** functions (see the course code comments for alternatives).

1. Copy the functions from the **contacts.c** file in Milestone 1 (see the course code comments for placement – be careful not to replace any additional helpful comments!).

2. Update the functions **getName, getAddress, and getNumber** to use any of the new functions included in the contactHelper.h library (whichever applicable). See course code comments for some suggestions.
3. Update function getContact to call the cell phone number versus **numberone** (don't call if the user wants to enter the value).
4. Define the new function **getContact** (Milestone 2 **getContact**) using the following **getContact** prototype:

   void **getContact**(Contact *contact, Function **);

   - The function does not return a value but has two parameters that contains a pointer to a Contact and a pointer to a function.
   - The purpose of the function is to call the values for a Contact using the pointer parameter provided and the Function pointer.
   - Use the pointer parameter received to the function to supply the appropriate Contact values to the **getName**, **getAddress**, **getNumber**, and **getNumber** (based the values for the Contact).

Sample Output

Below is some output. Your output values are identical to **tab**'s. Your output should match exactly:

```
Testing: Tab1

Please enter '0' to
Please enter '1' to
Please enter '2' to
Please enter '3' to

Testing: getContactInt(int, int)

Enter value: 5 [MIN, MAX] = [MIN, MAX] : [5,5]
*** ERROR INPUT ***[Please enter an integer]: 5
Enter value: 5 [MIN, MAX] = [MIN, MAX] : [5,5]
*** ERROR INPUT ***[Value is number between 100 and 100]: 100
Enter value: 100 [MIN, MAX] = [MIN, MAX] : [100,100]

Enter char: 100
Enter char: 100 [MIN, MAX] = [MIN, MAX] : [100,100]

Testing: getContactInteger(int, int)

Please enter the contact's first name: Tom Tom Tom
Please enter the contact's last name: Jerry Jerry Jerry
Please enter the contact's phone number: 1 1 1 1 1 1 1 1 1 1
*** ERROR INPUT ***[Please enter an integer]: 1
Enter value: 1 [MIN, MAX] = [MIN, MAX] : [1,1
```

```
Please enter the contact's surname(max 20): SMITH
Please enter the contact's given name(max 20): JOHN
Please enter the contact's postal code: 90210 Enter
Please enter the contact's street address: 123 Main Drive
Please enter the contact's city: Beverly Hills
Please enter the contact's state: CA
Please enter the contact's cell phone number: 9091234567
Please enter the contact's home phone number: 9091234567
??? ORDER BY DEPT ORDER BY Enter Enter or Enter an ordinal
Please enter the contact's email address: JOHN.SMITH@ (y or n): n

Values Entered:
Name: Sam Smith Sam Smith Sam Smith
Address: 123 Main Drive 123 Main Drive 123 Main Dr
Address: 90012CA90012

Testing: setValueOfPosition()

Contact Management System

1. Display contents
2. Add a contact

Enter choice: 2

Contact Management System

1. Display contents
2. Add a contact
3. Delete a contact
4. Search contacts by cell phone number
5. Search contacts by postal code
6. Quit

Select an option: 6

>> Feature 6 is unavailable <<

Press Enter to continue: 6Enter
```

- **updateContact** does not return a value and receives a Contact array and an integer representing the number of contacts in the array.
- This function should prompt the user for the phone number of the contact to be updated.
- Search the contact array to find a contact with the cell phone number previously entered. Use the findContactByCellPhone function.
- If the contact is found, display the contact information and then prompt for the new information.
- Use the getNewContactInfo function to obtain the new information.
- Then display the details for the contact. Use the displayContact function followed by a newline (\n).
- Ask the user if the contact is correct. If the user answers "y" or "Y" then call the updateContactInfo function.
- If the user responds with "n" or "N" then display the following message:
  - Do you want to update the contact (y/n) n
  - Contact not updated
- If the user responds with "y" or "Y" then display the following message:
  - Do you want to update the contact (y/n) y
  - Enter the new information for the contact:
- If the user responds with "n" or "N" then display the following message:
  - Do you want to update the contact (y/n) n
  - Contact not updated
- If the user responds with "y" or "Y" then display the following message:
  - Do you want to update the contact (y/n) y
  - Enter the new information for the contact:
- Then display the details for the contact. Use the displayContact function followed by a newline ("\n").
- Ask the user if the updated contact is correct. If the user answers "y" or "Y" then call the updateContactInfo function.
- If the user responds with "n" or "N" then display the following message:
  - Do you want to update the contact (y/n) n
  - Contact not updated
- If the user responds with "y" or "Y" then display the following message:
  - Do you want to update the contact (y/n) y
  - Contact updated.

```
void updateContact(Contact contacts[], int size);
```

- **deleteContact** does not return a value and receives a Contact array and an integer representing the number of contacts in the array.
- This function should prompt the user for the phone number of the contact to be deleted.
- Search the contact array to find a contact with the cell phone number previously entered. Use the findContactByCellPhone function.
- If the contact is found, display the contact information and then prompt for the deletion.
- Ask the user if the contact is correct. If the user answers "y" or "Y" then call the deleteContactInfo function.
- If the user responds with "n" or "N" then display the following message:
  - Do you want to delete the contact (y/n) n
  - Contact not deleted
- If the user responds with "y" or "Y" then display the following message:
  - Do you want to delete the contact (y/n) y
  - Contact deleted.

```
void deleteContact(Contact contacts[], int size);
```

- **displayContacts** does not return a value and receives a Contact array and an integer representing the number of contacts in the array.
- This function prompts the user to press the enter key before moving forward.
- After clearing the screen, the contacts are displayed, displaying the following message:
  - Contacts displayed.
- Then the contacts are displayed, displaying the following message:
  - Total contacts: 5
- After displaying the contacts, the program pauses, displaying the following message:
  - Press Enter to continue:
- Then the program clears the screen and displays the contacts on "Sorting".

5. Create **displayContacts** function and **displayContact** function.

- Create a Contact array and pass it to displayContacts() and provide it a meaningful name.
- Create a function to display the contacts array.
  - Contact Management System
  - 1. Display contacts
  - 2. Add a contact
  - 3. Update a contact
  - 4. Delete a contact
  - 5. Search contacts by cell phone number
  - 6. Sort contacts by cell phone number
  - 0. Exit

  Select an option:

  displayContacts
  displayContact
  addContact
  updateContact
  deleteContact
  findContactByCellPhone
  sortContacts

```
Sample Output (02 Sorting Option)
```

Sample Output (02 Sorting Option)

Refer to sample output. Use bubble sort as the sort algorithm. **NOTE:** You output should match exactly to the sample output.

```
Sorting Total 44 Milliseconds ...

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0
Enter an option (1-7)? enter a number between 0 and 6: 6

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Please enter the contact's first name: T-Dogg
Do you want to add the contact (y/n) y
** ERROR ERROR ** Only Jiles or Jiles are acceptable: jiles

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:2

*** ERROR: The contact list is full! ***
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010
Do you want to delete the contact (y/n) y
** Contact NOT FOUND **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 4444444444

Contact Found:

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 6

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 4444444444

Contact Found:

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 4444444444

Contact Found:

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Maggie R. Greene
    T: Farm, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 4444444444

Contact Found:

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 4444444444

Contact Found:

Rick Grimes
    T: Trailer Park, Ohio, US
    C: 4444444444 - M: 4444444444 - W: 4444444444
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Carol Peletier
    T: Highfive Manor, Atlanta, GA, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

Contact Management System

1. Display contacts
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number
0. Exit

Select an option:0

                                   Contacts Listing

Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
    T: Cottage Lane, Peterborough, CT, MQ
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
    C: 9090101010 - M: 9090101010 - W: 9090101010

Total contacts: 5

Press Enter to continue:  enter

Contact Management System

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0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to update the contact (y/n) y
Enter the new information for the contact:
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter an apartment number (y/n) y or n: n
Please enter the contact's first name: Carol
Please enter the contact's last name: Peletier
Please enter the contact's cell phone number: 9090101010
Please enter the contact's home phone number: 9090101010
Please enter the contact's work phone number: 9090101010
Please enter the contact's business phone number: 9090101010
Do you want to add a business phone number? (y or n): n
** New contact added **
Press Enter to continue:  enter

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Select an option:0

                                   Contacts Listing

Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
T-Dogg Jiles
    T: Cottage Lane, Peterborough, CT, MQ
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Total contacts: 5

Press Enter to continue:  enter

Contact Management System

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6. Sort contacts by cell phone number
0. Exit

Select an option:0

Enter the cell number for the contact: 9090101010

Contact Found:

Daryl Dixon
    T: Atlanta, Georgia, US
    C: 9090101010 - M: 9090101010 - W: 9090101010
Do you want to delete the contact (y/n) y
** Contact DELETED **
Do you want to enter a middle initial(y/n) y or n: n
Do you want to enter the address(y/n) y or n: n
```

```
>>> Feature to sort is unavailable <<<

[Press Enter to continue]  [Enter]

Contact Management System

1. Display contents
2. Add a contact
3. Update a contact
4. Delete a contact
5. Search contacts by cell phone number
6. Sort contacts by cell phone number

0. Exit

Select an option :-0

Exit the program? (Yes/Ok)  Ok

*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!
*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!

Contact Management System

1. Display contents
2. Add a contact
3. Update a contact
4. Delete a contact
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6. Sort contacts by cell phone number

0. Exit

Select an option :-0

Exit the program? (Yes/Ok)  Ok

Contact Management System terminated
```

Sample Output (Bill Setting)

```
Setting to considerable, that that where as doubtful a  Bill.  True output should match exactly

Testing: Fred Bill McCinnes MM (Cash)

Contact Management System

1. Display contents
2. Add a contact
3. Update a contact
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6. Sort contacts by cell phone number

0. Exit

Select an option :-2

Enter the contact's name : Bill McCinnes
Enter the contact's cell phone number : 9.9999999999
Enter the contact's street name : Bill Street
Enter the contact's city : Bill Ville
Enter the contact's province : Bill Province
Enter the contact's postal code : Bill Code
Enter the contact's country name : Bill Country
Enter a bill-paid phone number : 9.9999999999
Enter the contact's date of birth (YYYY-MM-DD) : 1900-01-01
Enter the contact's gender (M, F, O, or U) : M
*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!
Enter the contact's preferred method of contact (Cell, Home, Work) : Cell
*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!
Enter the contact's bill-paid status (Y or N) : Y
Enter a bill-paid phone number : 9.9999999999
Enter the contact's bill-paid status (Y or N) : N
Enter the contact's bill-paid status (Y or N) : Y
*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!
Enter the contact's bill-paid status (Y or N) : Y
Enter the contact's bill-paid status (Y or N) : Y
Enter a bill-paid phone number : 9.9999999999
Enter the contact's bill-paid status (Y or N) : Y
Enter the contact's bill-paid status (Y or N) : Y
*** ENABLED DEMO *** only Ok(ok) (Yes or Ok) are accepted!!!
```

Reflections will be graded based on the published rubric (https://github.com/Seneca-144100/IPC-Project/tree/master/Reflection%20Rubric.pdf).

Example:
An example reflection answer for Workshop #2 is available demonstrating the minimum criteria:
https://github.com/Seneca-144100/IPC-Project/tree/master/Example%20Reflection-WS_2.pdf

Milestone 4 Submission

If not on matrix already, upload your **contacts.h**, **contacts.c**, **contactHelpers.h**, **contactHelpers.c**, **a2ms2.c**, and **reflect.txt** files to your matrix account. Compile your code as follows:

```
> gcc -Wall -o ms4 contacts.c contactHelpers.c a2ms4.c <ENTER>
```

This command will compile your code and name your executable "**ms4**". Execute **ms4** and make sure everything works properly.

Then run the following script from your account and follow the instructions (replace profname.proflastname with your professors Seneca userid and replace **NAA** with your section):

```
[NO Sorting Option]
~profname.proflastname/submit 144a2ms4/NAA_ms4 <ENTER>
```

<<< OR >>>

```
[WITH Sorting Option]
~profname.proflastname/submit 144a2ms4Sort/NAA_ms4Sort <ENTER>
```

and follow the instructions.

Please Note

- A successful submission does not guarantee full credit for this workshop.
- If the professor is not satisfied with your implementation, your professor may ask you to resubmit. Resubmissions will attract a penalty.

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