

18.03 Assignment Instructions

Instructions: For this assignment, you are going to use your search algorithms.

1. Create a folder called **18.03 Assignment** in your Module 18 assignments folder.
2. Create a class called **Contact**.
 - a. Contact will need instance variables **name**, **relation**, **bday**, **phone** and **email** (all of type **String**).
 - b. Contact will need appropriate methods and constructors. Make sure to have a **toString()** method and have it output a line similar to this:

John Carter brother Mar 3 (342) 555-7069 jcarter@carter.com

Note that you may have to adjust this method later after seeing the expected program output at the bottom of this document.

- c. Save this file as **Contact.java**.
3. You are to create a class called **TestContact** and save it as **TestContact.java**.
 - a. Make sure that you create an array called **myContacts**. Add the following contacts.

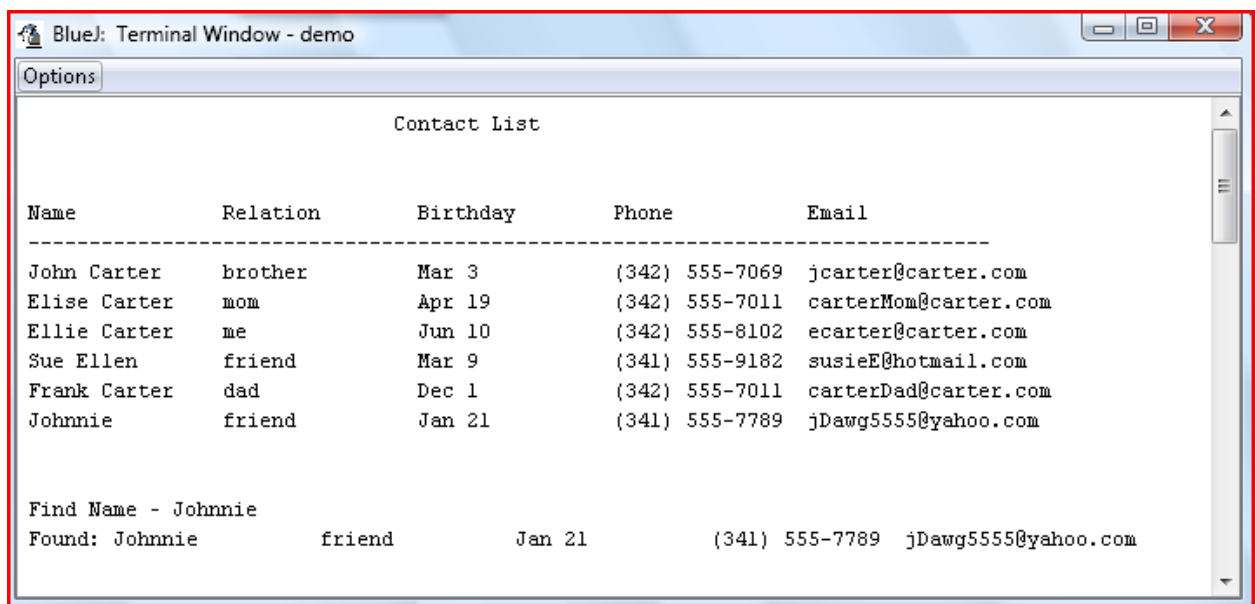
John Carter	brother	Mar 3	(342) 555-7069	jcarter@carter.com
Elise Carter	mom	Apr 19	(342) 555-7011	carterMom@carter.com
Ellie Carter	me	Jun 10	(342) 555-8102	ecarter@carter.com
Sue Ellen	friend	Mar 9	(341) 555-9182	susieE@hotmail.com
Frank Carter	dad	Dec 1	(342) 555-7011	carterDad@carter.com
Johnnie	friend	Jan 21	(341) 555-7789	jDawg5555@yahoo.com

- b. Create a method call **printContacts()** that traverses through the array and prints out each element.
 - c. Create a method called **findByName()** that uses a binary search to see if a particular person is in the contact list. You will need an appropriate sorting algorithm.
 - d. Create a method called **findByRelation()** that uses a sequential search to list all contacts that have a particular relation identify such as “friend”.
 - e. Create a method called **findByBMonth()** that uses a sequential search to list all the birthdays for a particular month (**hint**: you will have to look for substrings).
 - f. Create a method called **findByPhone()** that uses a sequential search to list all contacts that have a particular phone number.
 - g. Create a method called **findByEmail()** that uses a binary search to see if a particular email address is in the contact list. You will need an appropriate sorting algorithm.

- h. Test your method by completing the following searches. Remember that for birthday searches you are actually searching for month (i.e. Mar, May, Apr, etc.).

Name – Johnnie
Name - Sam Parker
Relation – friend
Relation – Aunt
Phone – (333) 555-8989
Phone – (342) 555-7011
Bday – May
Bday – Mar
Email – rgoodman@hotmail.com
Email – susieE@hotmail.com

Your output should be similar to below:



The screenshot shows a terminal window with a title bar 'BlueJ: Terminal Window - demo'. Inside, there's a tab labeled 'Options'. The main content is a 'Contact List' table with columns: Name, Relation, Birthday, Phone, and Email. Below the table, a search is performed for 'Johnnie', and the results are displayed.

Name	Relation	Birthday	Phone	Email
John Carter	brother	Mar 3	(342) 555-7069	jcarter@carter.com
Elise Carter	mom	Apr 19	(342) 555-7011	carterMom@carter.com
Ellie Carter	me	Jun 10	(342) 555-8102	ecarter@carter.com
Sue Ellen	friend	Mar 9	(341) 555-9182	susieE@hotmail.com
Frank Carter	dad	Dec 1	(342) 555-7011	carterDad@carter.com
Johnnie	friend	Jan 21	(341) 555-7789	jDawg5555@yahoo.com

Find Name - Johnnie
Found: Johnnie friend Jan 21 (341) 555-7789 jDawg5555@yahoo.com

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BlueJ: Terminal Window - demo

Options

Find Name - Sam Parker
Not found.

Find Relation - friend
Find results:
Johnnie      friend      Jan 21      (341) 555-7789  jDawg5555@yahoo.com
Sue Ellen    friend      Mar 9      (341) 555-9182  susieE@hotmail.com
There were 2 listings for friend

Find Relation - aunt
Find results:
There are no listings for aunt
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```
BlueJ: Terminal Window - demo

Options

Find Phone - (333) 555-8989
Find results:
There are no listings for (333) 555-8989

Find Phone - (342) 555-7011
Find results:
Elise Carter  mom      Apr 19      (342) 555-7011  carterMom@carter.com
Frank Carter  dad      Dec 1       (342) 555-7011  carterDad@carter.com
There were 2 listings for (342) 555-7011

Find Bday - May
Find results:
There are no listings for May
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```
BlueJ: Terminal Window - demo
Options

Find Bday - Mar
Find results:
John Carter    brother    Mar 3      (342) 555-7069  jcarter@carter.com
Sue Ellen     friend     Mar 9      (341) 555-9182  susieE@hotmail.com
There were 2 listings for Mar

Find Email - rgoodman@hotmail.com
Not found.

Find Email - susieE@hotmail.com
Found: Sue Ellen    friend    Mar 9      (341) 555-9182  susieE@hotmail.com
```