**Lab 12**

In this exercise you are required to write a set of classes to store contact details in an address book.

The address book class contains an inner class called Contact. The requirements for each of the classes you need to create are documented below.

**AddressBook class**

The AddressBook class has 3 member variables to represent the owner (String) of the address book, the total number of contacts (int) and a list of contacts (ArrayList).

Create a suitable constructor to intialise the owner using the parameter list. The list of contacts should be initialised by a call to a method fillList().

Create a fillList() method that creates contacts and adds them to the list. The number of contacts in the address book should be generated randomly (see sample program on Moodle TestRandom.java to recap on the use of Math.Random()). The contact details are entered at the keyboard inside this method.

Create a suitable print method to iterate through the arraylist and display the list of contacts (you will ned to call the printContact method here)

Create a suitable method to calculate and return the number of male contacts in the address book.

Create a suitable static method to return the total number of contacts in all the address books. This can be calculated elsewhere.

**Contact class**

The Contact class has three member variables name (String), gender (Char) and mobile (String)

Create a suitable constructor to intialise the member variables using the parameter list.

Create a printContact method to display the member data

**Test Class**

Create a collection of AddressBook objects (3 will be appropriate) using an arraylist

For each address book

* Ask the user to enter the name of the owner of the address book
* Write appropriate code to create the address book object and add it to the arraylist
* Display the contents of each address book
* Display the number of male contacts in each address book

Display the total number of contacts in all address books

**Sample Output:**

**Because you are randomly generating the number of contacts your output will not always match the sample output shown below.**

Enter the owner of address book1

John

Enter name for contact1Pat

Enter gender for contact1m

Enter mobile for contact18888

Enter the owner of address book2

Mary

Enter name for contact1Jim

Enter gender for contact1m

Enter mobile for contact17777

Enter the owner of address book3

Kate

Enter name for contact1Molly

Enter gender for contact1f

Enter mobile for contact15555

Enter name for contact2Josh

Enter gender for contact2m

Enter mobile for contact24444

Enter name for contact3Kev

Enter gender for contact3m

Enter mobile for contact32222

Address Book belongs to:John

Pat,m,8888

Number of male friends are:1

Address Book belongs to:Mary

Jim,m,7777

Number of male friends are:1

Address Book belongs to:Kate

Molly,f,5555

Josh,m,4444

Kev,m,2222

Number of male friends are:2

Total Contacts:5