Programming I - Assignment 4

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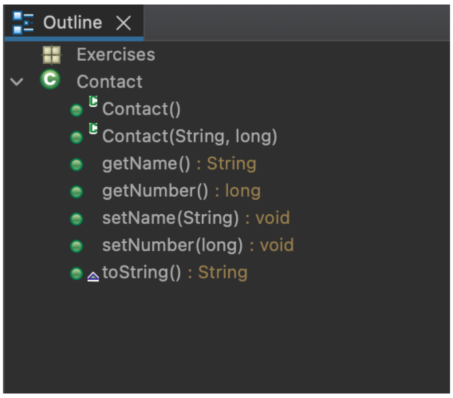
Question
1. You are required to implement the class shown in the UML diagram above.
2. You are also required to create a driver class which implements the following:

    ◦ Create an ArrayList and populate it with 4 Contact objects.
    ◦ Use a ListIterator to traverse the list in both directions displaying its contents.
    ◦ Display the size of the list.
    ◦ Request the user to input the name of a contact in the list.
    ◦ Use an enhanced for loop to search the list for the contact name given by the user and return the index of it location.
    ◦ Remove the contact.
    ◦ Use an enhanced for loop to display the contents of the list**.**

Code 1:

```
package Exercises;

public class Contact {

//instance variables
        private String name;
        private long number;

//Constructor with no arguments
        public Contact() {

        }

// Overloaded constructor with 2 arguments
        public Contact(String name, long number) {
                this.name = name;
                this.number = number;

        }

// Public Getters & Setters for each private variable
        public String getName() {
                return name;
        }

        public void setName(String name) {
                this.name = name;
        }

        public long getNumber() {
                return number;
        }

        public void setNumber(long number) {
                this.number = number;
```

```
    }

    // Override toString()
    public String toString() {
        return "Contact [name= " + name + ", number= " + number + "]";

    }// end of main method

}// end of class
```



Outline

Exercises

Contact

Contact()

Contact(String, long)

getName() : String

getNumber() : long

setName(String) : void

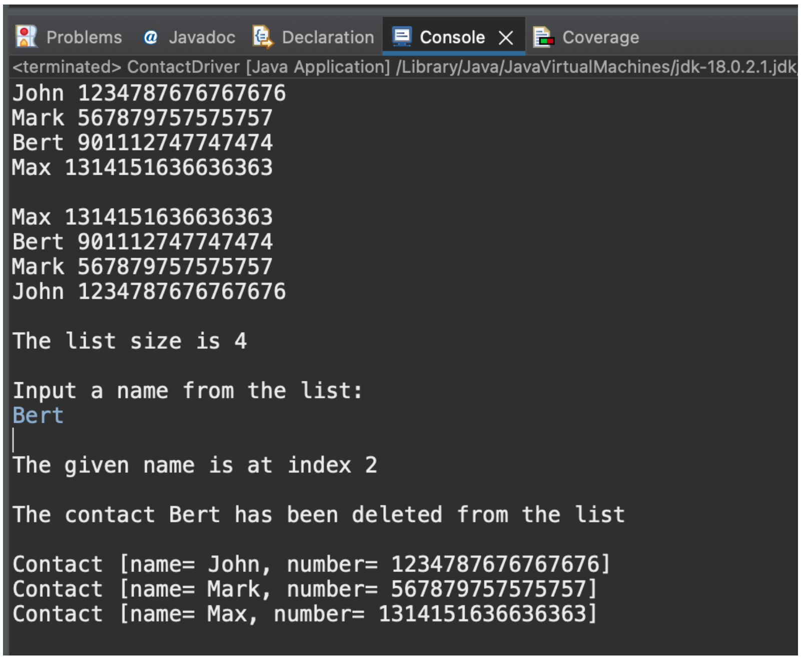
setNumber(long) : void

toString() : String

Code 2:

```
package Exercises;

import java.util.*;

public class ContactDriver {

    public static void main(String[] args) {

        // Declaring, creating and assigning
        Contact contact;
        List<Contact> myList = new ArrayList<>();

        // Creating the ArrayList with 4 contacts
        myList.add(contact = new Contact("John", 1234787676767676l));
        myList.add(contact = new Contact("Mark", 567879757575757l));
        myList.add(contact = new Contact("Bert", 901112747747474l));
        myList.add(contact = new Contact("Max", 1314151636636363l));

        // ListIterator to traverse in both directions
        ListIterator<Contact> itr = myList.listIterator();

        while (itr.hasNext()) {
            contact = itr.next();
            System.out.println(contact.getName() + " " + contact.getNumber());
        }

        System.out.println();

        while (itr.hasPrevious()) {
            contact = itr.previous();
            System.out.println(contact.getName() + " " + contact.getNumber());
        }

        // Display the size of the list
        System.out.println("");
        System.out.println("The list size is " + myList.size());

        // Request the user to add a name of a contact in the list
        Scanner input = new Scanner(System.in);
        System.out.println("");
        System.out.println("Input a name from the list: ");
        String inp = input.next();

        // Enhanced for loop to find the name given in
        for (Contact c : myList) {
            if (c.getName().equals(inp)) {
                int idx = myList.indexOf(c);

                // Return the index of its location
                System.out.println("");
                System.out.println("The given name is at index " + idx);

                // Remove the contact
                myList.remove(idx);
                System.out.println("");
                System.out.println("The contact " + inp + " has been deleted
from the list");
                break;

                // if the name inputed is not the name of c & if the index of c
is the last
                // number of myList (-1 = last index of the list)
            } else if (c.getName() != inp && myList.indexOf(c) == myList.size() -
1) {
                System.out.println(inp + " is not in the list. Try again!");
                break;
            }

        }

        System.out.println("");

        // Enhanced for loop to display the updated list
        for (Contact c : myList) {
            System.out.println(c.toString()); // Overridden toString()
        }

        // close input to avoid possible leak
        input.close();

    }// end of main method

}// end of class
```

Console Output:



```
<terminated> ContactDriver [Java Application] /Library/Java/JavaVirtualMachines/jdk-18.0.2.1.jdk
John 1234787676767676
Mark 567879757575757
Bert 901112747747474
Max 1314151636636363

Max 1314151636636363
Bert 901112747747474
Mark 567879757575757
John 1234787676767676

The list size is 4

Input a name from the list:
Bert

The given name is at index 2

The contact Bert has been deleted from the list

Contact [name= John, number= 1234787676767676]
Contact [name= Mark, number= 567879757575757]
Contact [name= Max, number= 1314151636636363]
```