CSE 110 - Lab 12

This program is for practicing File IO. You need to develop People Class and PhoneBook Class to construct a simple system that can manage the functions of PhoneBook.

Assignments Documentation:

At the beginning of each programming assignment you must have a comment block with the following information:

```
/*-------------------------------------------------------------------------
// AUTHOR:      (Put your name here)
// FILENAME:    Lab12.java
// SPECIFICATION:       This program is for practicing File I/O.
// LAB LETTER:          (Put your Lab Letter here)
//-------------------------------------------------------------------------*/
```

Important Instruction:

Part1:

In this Lab, you should first use your program to complete following tasks on your own computer:

- Add one record, name: Jack, number: 1234567890
- Add one record, name: Anna, number: 2345678901
- Save your current records

Part2:

Submit your three source code files and the saved records file in Part1.

Getting Started:

People Class

```
public class People {

    private String name;
    private String number;

    public People(String _name, String _number){
        ...
    }

    public String getName() {
        ...
    }

    public String getNumber() {
        ...
    }

    public String toString() {
        return name + "\t" + number;
    }
}
```

PhoneBook Class

Here is the template of PhoneBook Class:

```java
import java.io.File;
import java.io.FileWriter;
import java.io.IOException;
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;


public class PhoneBook {

    private String filePath = "";
    private List<People> infoList = new ArrayList<People>();

    public PhoneBook(String path){
        ...
    }

    public void add(String name, String number) {
        ...
    }

    public void delete(String name) {
        ...
    }

    public void save() {
        try {
            FileWriter writer = new FileWriter(filePath);
            ...
            writer.close();

        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public void read() {
        try {
            File file = new File(filePath);
            Scanner in = new Scanner(file);
            ...
        } catch (Exception e) {
            e.printStackTrace();
        }
    }

    public void show() {
        ...
    }
}
```

Here is the Coding guideline:

```
//declare the PhoneBook class
//declare a private filePath:String in it
//declare a People arraylist called infoList
//declare constructor: it takes one arguments, path:String
//assign path to [filePath]

//declare a public method add(String name, String number)
//initialize a new People instance, and add to [infoList]

//declare a public method delete(String name)
//use for-loop to iterate [infoList]
//when a People's name equals [name], remove this instance and break for loop

//declare a public method save()
//declare try-catch statement
//In try, create a FileWriter instance [writer]
//use for-loop to iterate [infoList]
//in each loop, write out the information of current People instance
//close the [writer]

//declare a public method read()
//declare try-catch statement
//In try, declare a File Scanner [in] as the template shows
//while [in] has next
//read one line, and split this line by "\t", the first would be name, the second would be number
//initialize an People instance use the above information
//add the instance to [infoList]

//declare a public method show()
//System.out.println("name" + "\t" + "number");
//iterate the [infoList] and in each loop output the information of current People instance
```

Command Program: Lab12

Here is the template of Lab12 Class:

```
import java.util.Scanner;
public class Lab12 {

    public static void main(String[] args) {
        ...
        while (!EXIT) {
            ...
            switch (choice) {
                case 1:
                    ...
                    break;

                case 2:
                    ...
                    break;

                case 3:
                    ...
                    break;

                case 4:
                    ...
                    break;

                case 5:
                    ...
                    break;

                default:
                    ...
            }
        }
    }
}
```

Here is the Coding guideline:

```
//import Scanner first
//declare class Lab12
//declare main method
//initialize the Scanner instance
//create three variables: choice:int, name:String, number:String
//create a String variable: String path = [a file location in your own computer]
//create an instance of PhoneBook

//create a while or do-while loop
//System.out.println("Select the action that you want to perform:");
//System.out.println("   1.  Add a record.");
//System.out.println("   2.  Delete a record.");
//System.out.println("   3.  Read records from file");
//System.out.println("   4.  Save your records.");
//System.out.println("   5.  Exit.");
//System.out.println("Enter action number (1-5):");
//take an action and assign the value to [choice]

//create a switch-case statement
//Case1:
//prompt user to input a name and a number
//call add method of PhoneBook instance to add this record
//call show method of PhoneBook instance to show current records
//Case2:
//prompt user to input the name of the record to be deteleted
//call delete method of PhoneBook instance to delete this record
//call show method of PhoneBook instance to show current records
//Case3:
//call read method of PhoneBook instance to read records from a file
//call show method of PhoneBook instance to show current records
//Case4:
//call save method of PhoneBook instance to save records into a file
//Case5:
//exit the loop
```

Sample output1:

```
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
1
Input the name of the record:
Jack
Input the phone number of the record:
1234567890
name   number
Jack   1234567890
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
Input the name of the record:
Anna
Input the phone number of the record:
2345678901
name   number
```

```
Jack   1234567890
Anna   2345678901
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
4
Save Successfully!
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
5
Exiting the Program...
```

Sample output2:

```
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
3
name   number
Jack   1234567890
Anna   2345678901
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
2
Input the name of the record you want to delete:
Jack
name   number
Anna   2345678901
Select the action that you want to perform:
1.  Add a record.
2.  Delete a record.
3.  Read records from file.
4.  Save your records.
5.  Exit.
Enter action number (1-5):
5
Exiting the Program...
```