READ THESE INSTRUCTIONS VERY CAREFULLY

I AM HAPPY FOR YOU TO DO THIS PROJECT INDIVIDUALLY BUT I WOULD PREFER YOU DO THIS IN PAIRS. PAIRING UP GIVES YOU THE GREAT BENEFIT OF DISCUSSING THE WORK AND BRAINSTORMING TOGETHER, AND THIS MAY HELP MANY OF YOU. NOTE THAT IF YOU DO PAIR UP, I WILL ASK EACH STUDENT INDIVIDUALLY TO EXPLAIN THE WORK TO ME DURING AN ORAL MEETING AND YOU WILL GET THE SAME GRADE IF I AM CONFIDENT THAT YOU HAVE WORKED AS A TEAM.

Overview

You are going to develop a Java application to store names, telephone numbers, addresses and other useful information about your buddies and contacts. Your application is to provide all the kinds of functionality you would expect from something like a cell phone address book that enables you to store and find information. It could be used to provide a short cut for dialing numbers and also to look-up names using caller-ID on incoming calls. Think of this as a simple address book or contact list (whatever you prefer to name it).

NOTE: this is an open-ended question and there is no single right answer. Points will be awarded for clarity, completeness and correctness. The better and more thoroughly you model contact information and the more comprehensive the functions you offer, the better your grade will be.

You will learn later in your studies that there is actually a Java Software Development Kit for mobile devices. “Java Platform, Micro Edition (Java ME) provides a robust, flexible environment for applications running on mobile and other embedded devices—mobile phones, personal digital assistants (PDAs), TV set-top boxes, and printers.” Cool! You could implement this for real on your phone…maybe later.

IMPORTANT – THIS IS AN OPEN-ENDED PROJECT AND I EXPECT YOU TO TAKE IT TO WHERE YOU ARE ABLE! NO TWO PROJECTS SHOULD BE THE SAME FOR THIS VERY REASON!!!
This project is a test of your analytical and design skills, as much as your Java skills, so think carefully about designing “good” abstractions for the things you are modeling. High quality object-oriented design is what is important here, so remember the important principles. Document and describe your classes, instance variables and associated methods using UML class diagrams and/or CRC cards. Check that instances of your classes will be able to work together to provide the functionality that you require. You should run through some scenarios to help you check for this. Only attempt to write your code when you are happy that your design will work; I would prefer you to design and implement a small and functioning OO application rather than rushing in and writing spaghetti code.

**Instructions**

**PART A** - Create a class that models a ContactEntry

You should consider all the “meta” data associated with an entry in a cell phone and use this data to determine the instance variables. “Meta” data is the fields you want to represent, so: name, address, company, job title, phone number, mobile number, email, photo, URL, IM address (for instance).

Also consider the sort of operations a ContactEntry object may need to be able to carry out, and use this knowledge to determine suitable methods. Think about all the features you might end up wanting in a cell phone application and therefore model the data and methods you think you will need. For example: you may need getters and setters to give the instance variables values, to update and change them, and to retrieve them. Think also about a toString method to return all the details of the contact. Use the images I provided to guide you, but I would prefer you use your own imagination.

**PART B** - Create a class that models a ContactList

Consider using an array or an ArrayList to store the collection of ContactEntry. What instance variables and methods would be useful for managing such a collection? Do you know how many entries are in there? Determine, design and implement as many useful services that you can think of as methods. This is up to you, but I would expect some basic functionality like add, delete, lookup by name, lookup by number, iterate through the collection, etc.

**PART C** - Create a driver class for this application. Call this MyContactListDemo – it has the main method

This should clearly demonstrate the all the workings of the above classes. It will make an empty ContactList and start making new ContactEntry (and the user will need to input the required values of course). It should be menu driven with a loop to allow the user to explore all the capabilities of your application. You may like to use Serialization to store a copy of the ContactList to disk so that the contact list is not lost between runs of the program.
Deliverables

You are expected to hand in a working program on CD with source code, documentation and instructions on how to run the program. Marks will be lost if any of these elements are missing!

Documentation should include (at a minimum) a UML class diagram explaining the design and proof of testing of the program, showing all its functionality in action. You should also describe what you would do to improve your program if you were to design and develop a second (i.e., new improved) version. In addition to a CD, you need to submit a hard copy print out of all the source code (which should be well commented) and the other documentation. Make sure you have a cover page that clearly gives the course details and your name. Remember, I am your customer and presentation is important! I will be keeping this work for my record, so make two copies so you have one to keep.

Please submit a completed self-assessment form with your project. Read the criteria BEFORE you start the project so you can see what is expected and how marks are allocated.

On the due date you are expected to have made an appointment with me to give a working demonstration of your application and to give a detailed presentation on your design and workings of the code. You will need to bring a powerpoint print out or other document to guide your presentation (which should take no longer than 10 minutes). This is mandatory and a grade will not be issued without this viva meeting.

Marking

Students are encouraged to help each other if they wish, but do not share code or documentation. If you are working as a pair, you obviously share things, but you need to make sure you both contribute and understand. If you have sought additional assistance, you must indicate this in your documentation. If you have had help with parts of your code, you must indicate this with comments in your program at applicable places. You will not be penalized for seeking help – this is how you learn (myself and the CSIS tutors are here to help you). Please make sure to remind yourself of the CSIS policy on plagiarism (included with the course syllabus). This policy will be upheld, so you will be expected to explain your code to me!

Marks will be allocated as follows:

- Fully functioning application (commented) 50%
- Quality of design material and class structure 15%
- Good use of methods (and naming of methods and variables) 10%
- Evidence of testing and error handling in code (hint – run scenarios) 10%
- Quality of documentation and overall deliverables 10%
- Thoughtfulness of suggestions for improving your project 5%

Testing Questions/Scenarios

Think of and list out all the scenarios of use you could try out to test your software, recording what is expected (what you want to happen) and then what actually happens. Write these questions BEFORE coding, and try them out with your design first (just like we did with the coffee machine). This is the start of TEST-FIRST. Try it! Include the scenarios in your deliverable. Consider abuse and misuse scenarios too… things you don’t want to happen, so things that you mitigate against in your design, and all the annoying things you expect a tricky user to do and you catch!!!

Reminder

I have office hours after class on Tuesday and Thursday each week, so if you want to run things past me or need some advice/help, please arrange to come and see me. Don’t just send me emails with your code – this does not help you for me to debug and do your work. You MUST see me in person so I can work through things with you. I am available on Monday too… and the CSIS tutors are available when I am not.

WARNING!

Do not leave this project until the last minute, it is worth 10% of your overall grade – I will not spend my time helping students who start on this late, so start working on this NOW!