

CMPE-CMSE416 Lab3

Due 16.08.22 (Tuesday)

Note: You should prepare a report and submit it to your assistant on due date. During the lab hour you should be ready for the questions that will be asked by the assistant related with this assignment.

In this problem, your task is to design and implement Java code to create, edit, and maintain a phone book. You should design and implement several classes to represent the following:

- (i) **Phone book entries:** Design a class called `PhoneBookEntry` that represents a phone book entry containing information about one person.
- The class should have the following constructors for creating a phone book entry, possibly with partial information (i.e. you know the person's name and office phone but not the home phone). The constructors should fill unknown fields with the default information.

- i. `public PhoneBookEntry(String name)`
 - ii. `public PhoneBookEntry(String name, String homePhone)`
 - iii. `public PhoneBookEntry(String name, String homePhone, String officePhone)`

- The entry should have one String field for the person's full name, one String field each for the person's home, and office phone numbers.
- The constructors should make sure that
 - i. the name field is not empty, and
 - ii. phone number fields are either null strings or consist of 10 characters.
- The class should provide the following methods for retrieving and modifying its fields.
 - i. `public void setName(String name)`
 - ii. `public String getName()`
 - iii. `public void setHomePhone(String homePhone)`
 - iv. `public String getHomePhone()`
 - v. `public void setOfficePhone(String officePhone)`
 - vi. `public String getOfficePhone()`
- It should not let other classes modify any of its fields directly.

Each entry in the phone book should be an instantiation of this class, i.e., an object whose type is this class.

- (ii) **Phone books:** Design another class called `PhoneBook` that represents a phone book.

- The phone book should have a constructor to create a book with no entries.
- The phone book should handle many phone book entries.
- It should have a field representing the number of phone book entries in it, and it should have a method

```
public int getNumEntries()
```

for reporting this information. Should this method and field be static or not?

- This class should have an `ArrayList` structure with type `PhoneBookEntry` for holding the phone book entries
- This class should provide methods for adding, removing, and searching (by exact full name) for phone book entries with the following signatures

- i. `public void addEntry(PhoneBookEntry pBE)`
 - ii. `public boolean removeEntry(String personsName)`
(returns "true" iff there was a person with the name `personsName` and was successfully removed)
 - iii. `public PhoneBookEntry searchEntry(String personsName)`

- It should not let other classes modify any of its fields directly.
- If you like you can use `DialogBoxes` for messages.