Comp625: Homework 2 due September 30sh, 2022

Synopsis:

For your second homework you will implement a simple phonebook similar to the way a cell phone does. This assignment will help you work with file I/O and recursion.

Task:

Your program can assume proper input and will not need to worry about any error handling. Your program should store two things per person when reading from a file: a name identifying the person and a phone number. Both items should be strings (i.e. do not store phone numbers as integers).

Whenever you search your phonebook for a name, you will read your phonebook file and try and match up a name. The phonebook file contains pairs of name and phone numbers separated by a space and each pair on its own line. Each name and number will not contain spaces, using hyphens (-) instead. The first line will be a single number telling you how many entries there are. If the name is `PHONEBOOK-FILE`, this tells you a second phonebook is to be read in (see below) and that file will exist.

When the program starts, first prompt the user for a phonebook and then offer the user a prompt to enter the name of the person to search. You should be able to enter the full name or do a partial prefix search of the person, upon which the program should read the phonebook file one line at a time and try to match (fully or partial prefix) the persons name. If the name is `PHONEBOOK-FILE` this tells you that you are to open a second file and loop through its content to read (you must use recursion to do so and keep track of the level of recursion and ignore the `PHONEBOOK-FILE` entry if more than 3 levels have been hit to avoid infinite loops). If found, your program should return the full name of the person followed by the phone number, otherwise it should display an error message as shown in the run of the program below. After which, your program should again prompt to enter the name of the person to search. To terminate the program, enter a period "." by itself.

Here's a run of your program. This should give you a precise idea of how the program should operate.

```
C:\> .\Homework2.exe
Name of phonebook file to read in: myBook.txt
Phonebook successfully read in!
Please enter person to search for: M
Mihaela-Sabin 603-641-4144
Please enter person to search for: mi
Mihaela-Sabin 603-641-4144
Please enter person to search for: MiK
Mike-Jonas 603-641-4352
Please enter person to search for: Mikk
***No Entry found.***
Please enter person to search for: Donald
Donald-Plante 603-641-4149
Please enter person to search for: .
Thank you for using this program!
```

An example of file `myBook.txt` looks as follows:

```
5
Karen-Jin 603-641-4398
Mihaela-Sabin 603-641-4144
Mike-Jonas 603-641-4352
PHONEBOOK-FILE anotherBook.txt
Tim-Chadwick 603-641-4340
```

Example of file `anotherBook.txt` looks as follows:

```
3
Sean-Tavares 603-641-4322
Chris-LeBlanc 603-641-4323
PHONEBOOK-FILE yetAnotherBook.txt
```

Example of file `yetAnotherBook.txt` looks as follows:

```
1
Donald-Plante 603-641-4149
```

Homework2.cpp looks like this:

```
// This is the main code. Do not modify.
#include "Phonebook.h"

int main()
{
    Phonebook *book = new Phonebook();
    book->run();
    delete book;
}
```

Notes:

Your searches should **not be case sensitive**. Possible functions from <string.h> that may assist in the match are: substr(), strcmp(), strncmp(), srtcasecmp(), strncasecmp(), . (Hint: determine length of search string and pick off each key string in **file** (don't use an array) and grab substring of same length to compare to it and don't forget about case sensitivity)..

You will need to create at least one other class with several methods in them. You will be graded not only on correctness but also on how well your class is designed, so think about the problem a bit. Having one huge function that does everything is not good.

Please follow specification. The user interface should be **exactly** as it appears above.

Submission:

You will turn in the source and header files for all classes you wrote to me by midnight on the due date. I do not want the *Homework2.cpp* file so don't include it. You should have the files in a folder called *First.Last.Homework2*, where *First* is your first name and *Last* is your last name. Please **Zip** it and email it to me with subject: **COMP625 Homework2**