

# CS23021 Computer Science I

## Project #5

Due by 11:59pm on Tuesday, April 29, 2008

You will create a phonebook application program that will store name/number pairs, allow lookup by name or number, and provide persistent storage of data (i.e., the data will be stored in files) between application uses. Although the program is called "Phonebook", it simply stores paired information, comprised of a single name (a single string) and a number (an integer). It could be expanded to store a first name, a last name, and other information. Your program must be developed so that the main is in a `phonebook_driver.cpp` file and the functions are in a `phonebook.hpp` file.

Your program must operate as a menu driven application that supports the following options:

1. Output all name/number pairs
2. Lookup by name
3. Lookup by number
4. Add a new name/number pair
5. Exit program

Your program must use the following structure definitions:

```
struct PB_Entry{
    std::string _name;
    int         _number;
};

struct Phonebook{
    std::string      _file_name;
    std::vector<PB_Entry> _entries;
};
```

Your program must be designed to be functionally modular, which can easily be accomplished if you design your program so that each of the menu options are supported by a function and also develop a function to read-in the name/number pairs from the permanent file that will provide persistent data storage. For example the following functions would provide a suitable decomposition of the problem:

```
void input(Phonebook&);
void outputAll(const Phonebook&)
int lookupName(const Phonebook&, const std::string&)
int lookupNumber(const Phonebook&, int)
void addToLists(Phonebook&, const std::string&, int)
void save(const Phonebook&)
```

Your program will obtain the name of the data file as a command line argument. The data file must contain name number pairs on separate lines, and on each line the name and number must be separated by white space. For example:

```
Rick 23
Denny 931
nameC 3526
nameD 222
```

Your program must contain adequate comments through-out the source code file and you must create a make file to allow your project to be easily compiled and linked.