EECS 268: Spring 2016

Laboratory 2

Due: This lab is due before your next lab begins.

In this lab, you will (i) read a file that contains driver's license information, (ii) store the data in a dynamically allocated array, and (iii) process interactive queries on this data.

Specifics

You should define two classes for this project: `class Executive` and `class DriversLicenseRecord`. All instance variables in all classes *must* be `private`. The constructor for the `Executive` class will take a file name (from `argv[1]`), open the file, and read all records into a dynamically allocated array. Implement a `run` method in `class Executive` that prompts for and reads from the console directives to be applied to this stored data. The main program need only be something like:

```
int main(int argc, char* argv[])
{
    Executive exec(argv[1]);
    exec.run();
    return 0;
}
```

When the `Executive` constructor is called, it will open the file, read the number of records, dynamically allocate an array of `DriversLicenseRecord` of the correct size, and coordinate the reading of the data into the array. (The array itself must be an instance variable of `class Executive` since it will also be accessed by the `run` method.)

When the `run` method is called, it will loop, prompting the user for one of four possible requests:

1. Print all `DriversLicenseRecord` instances for drivers with a given last name. (Prompt for the name after the user indicates they want to use this query.)
2. Print all `DriversLicenseRecord` instances for drivers whose ages are between two given ages. (Prompt for the ages after the user indicates they want to use this query.)
3. Print all `DriversLicenseRecord` instances for drivers who are registered to vote.
4. Quit the program

The input file will be structured as:

first-name last-name age registered? drivers-license-number

For example:

```
4
Chris Jones 19 Y 374122
```

```
Pat Smith 23 N 863901
Kyle Howard 31 Y 673911
Samantha Pratter 27 Y 874309
```

A larger "real" input file is here.

A sample interactive session (input typed at console shown in red) might look something like:

```
1: Query last name
2: Query age range
3: Query registered voters
4: Quit
1
Enter last name: Jones
Record: Chris Jones; age 19; registered to vote; license number: 374122
1: Query last name
2: Query age range
3: Query registered voters
4: Quit
4

Thanks for using our system!
Bye.
```

Grading Criteria

Grades will be assigned according to the following criteria:

- Appropriate class implementations (`Executive` and `DriversLicenseRecord`): 35%
- Correct results from directives (including error detection and recovery): 35%
- Programming Style (header and body comments): 15%
- Modularity: 15%

Submission

Once you have created the tarball with your submission files, email it to your TA. The email subject line must look like "[EECS 268] SubmissionName" as follows:

```
[EECS 268] Lab 02
```

Note that the subject should be exactly like the line above. Do not leave out any of the spaces, or the bracket characters ("[" and "]"). In the body of your email, include your name and student ID.