Assignment 7: Hash Tables for Birthdays

In this assignment you will create a hash table that stores names of people born on various dates of 2010.

Date and Hash Table

Write a Date class that stores the date, month and year, all as numbers.

Write a hash table that is keyed on a Date object. Each entry of the hash table stores several names, all of which are born on that date. The hash table should have functions to insert a new (Date, name) entry and another function that returns a vector of all names born on a date passed to it as a Data object parameter. Your hash table must have the following properties:

1. All collision resolutions are to be done by quadratic probing.
2. All table sizes must be prime. The initial table must have size 11. Using a load factor of 0.45 (i.e. resizing if the load factor exceeds 0.45), you must rehash the table. You can use the prime numbers from the file provided here: http://www.mathsisfun.com/numbers/prime-number-lists.html.

Finally, write a main method that reads in the csv file provided to you as a command line parameter. The file contains several (name, date) pair separated by commas. Each date is specified in the format "day/month/year". The main method should add all the entries into the hash table. The "getline" function may be useful in reading this input (http://www.cplusplus.com/reference/string/getline/).

After the file is read and the hash table is prepared, the program should ask the user for a date and then print out all the names of people born on that date. The program should end if the user entered '0' for date, month and year.

Solution

A Java program has been provided to you as a solution. You can verify the output of your program with the output of this program.

What to submit

Submit all your source code files (*.cpp,*.h) and the csv file , along with a Makefile in a single zipped file on Reggienet.