

## Assignment 6: Hash Tables for Birthdays

Out: 23<sup>rd</sup> April 2015

Due: 30<sup>th</sup> April 2015 at 11:55pm

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>.
3. You may NOT initialize the hash table size to a large enough number so that it does not have to be rehashed (you can do so initially to ease your programming, but the submitted version should not do this).

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 (in the order day, month, year) 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 OR 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.