

CS2050 Fall 2017

Homework 6

Due: Friday, November 3, 2017

Do It Yourself Hashtables

Requirement:

Put your name and assignment number at the top of each program in comments

If you're using an IDE that creates a boilerplate (e.g. NetBeans) make sure your name and assignment is included at the top

Part 1 - Open Chaining

You already know how to

1. create an array
2. create a linked list
3. get only the unique words in the file

Time to put them all together into a hashtable *without* using the Java Hashtable class.

- Use Open Chaining - the index is in an array, and collisions go into a linked list pointed to by the array index.
- Because you know how many unique words are in the file, choose a load factor and determine how large your index array should be.
- Process the entire file
- Write the index and the contents of the linked lists for the index values 0 to 5 to a plain text file named `HW7.out`

Part 2 - Hashtables

In the same program, same requirement but use the Hashtable class. Which means you don't need the index array or a linked list. Let the software do all the work for you.

Write out the keys and values for the first 5 keys in the Hashtable to a plain text file named `HW7.hash`

Notes:

- Create the class files with stubs. Compile and verify at each step the program works. Design and build incrementally. Once you have something working, go on to the next method. Don't try to do everything at once.
- The only user involvement is in `HW7.java` class. The program must ask the user for the input file name, get the file name from the user, and process that file.
- Do not hard-code.
- Remember try/catch blocks any time a file is used.
- Avoid duplication of code. If the same code is used twice or more, make it a function.
- Remember, only **HW7.java** will contain the **main()** method.
- Make sure this program will compile and run without depending on the IDE you use. I test all code at the command line using Java 8.

To Turn In:

Upload to your github account the following:

All files for this program:

- A brief description (plain text file) explaining how you determined the size of the index array in Part 1, and what you chose for the initial size and fillratio for Part 2
- `HW7.java`
- `HW7.out`
- `HW7.hash`