CS 121 **Lab Assignment #11**
Bruce Bolden 10 points
April 15, 2015 **Due:** April 23, 2015

1 Objective

Examine/explore the effect of the loading factor (λ) on a hash table.

2 Background

The loading factor (items in the table/table size) has considerable impact on the usefulness of hash tables.

3 Activities

1. Examine/Study the sample code for the hash table (on the class web site, on the *Sample Programs* page).
2. Download two of the dictionary files (`dict8.txt` and `dict4.txt`) stored in one of the CS 112 directories:
   http://www.cs.uidaho.edu/~bruceb/cs112/Prog/Dicts/index.html
3. Modify the code as necessary to store the contents of a dictionary in the hash table.
4. Instrument/Modify the code to display how many words are stored in each *bucket* (linked list associated with a hash table location).
5. Instrument/Modify the code to display the minimum and maximum number of values stored in the buckets.
6. Instrument/Modify the code to search for at least ten words in the hash table.
7. Examine effects of the size of the hash table (6057, 10011, 50031).
   - Repeat steps 4–6.
   - How many (if any) empty buckets are there.
8. Document any issues/problems as you find them.

4 Deliverables

1. Annotate a `script` session to demonstrate that your code works properly.
2. Your modified source code
3. Documentation of any issues/problems as you find them (Programming Log).

5 References

The C Programming Language, Second edition, Brian Kernighan and Dennis Ritchie, Prentice-Hall, 1988

Sample Hash Table code:
http://www.cs.uidaho.edu/~bruceb/cs121/Code/index.html