Cs300 Hw3 Hashtable Report

For the hashtable implementation i produced three functions for delete, find, and insert operations. These functions return 1 if the transaction is succesfull or 0 if not. Besides these three functions i also added an isFull function(returns if the table is full or not), a hashFunction function(returns the index value checked), and a probesConducted function(returns the probes conducted). I kept a private data member for the probes conducted. I determined the table size for this hashtable to 104729 at first but after starting my program i observed that its taking too long to finish and excel having a hard time to process this amount of data so i changed the tablesize to 10067. For every transaction type and outcome i have created a total of 18 output files(for example: successfull insertions where i=6,d=1,f=1).

For all the graphics below: xAxis = load factor, yAxis = number of probes conducted

I didnt show any graphics for the unsucessfull insertions because since the program exits when the table is full, there werent any unsecessfull insertions.

Conclusion:

After observing these graphics we can say that linear probing for hashtables is not a good implementation for large number of data. We observe that with large number of data primary clusters starts to emerge. When the table gets near to full the number of probes conducted in delete and fins operations can get as large as the table size which is not prefered when we are inserting and finding numbers. Also we can observe from the graphs that after a while the transactions show an exponential behaviour which is absoulutely unacceptable when dealing with search operations.