

Computer Science I –Exercise

Hash Tables

1) Consider a hash table that uses the linear probing technique with the following hash function $f(x) = (5x+4)\%11$. (The hash table is of size 11.) If we insert the values 3, 9, 2, 1, 14, 6 and 25 into the table, in that order, show where these values would end up in the table?

index	0	1	2	3	4	5	6	7	8	9	10
value											

2) Do the same question as above, but this time use the quadratic probing strategy.

index	0	1	2	3	4	5	6	7	8	9	10
value											

3) Do the question above, but draw a picture of what the hash table would look like if separate chaining hashing was used.

4) Edit the code in `htablelinear.c` so that quadratic probing is the searching strategy used. You will need to modify insert function, then search and then delete. Add the code to your pdf when submitting.

5) **No need to submit, but you can practice:** Try to edit this code so that it uses a dynamically sized array instead of a statically sized one. If you have extra time, use this code to read in a whole dictionary from a file and count how many places have to be checked on average before a word is found or determined to not be in the dictionary.