

CSE 2331 - Problem Set 4

Due beginning of lecture on October 11th

Problem numbers are from the third edition of “Introduction to algorithms”. If unsure about which problem to solve, ask. Collaboration is permitted; looking for solutions from external sources (books, the web, etc.) is prohibited.

1. 6.1-7
2. 6.4-3
3. (a) Suppose that we are storing a set of n keys into a hash table of size m . Show that if the keys are drawn from a universe U with $|U| > mn$, then U has a subset of size n consisting of keys that all hash to the same slot, so that the worst-case searching time for hashing with chaining is $\Omega(n)$.
(b) Suppose we wish to search a linked list of length n , where each element contains a key k along with a hash value $h(k)$. Each key is a long character string. How might we take advantage of the hash values when searching the list for an element with a given key?