CPSC 131 Homework 8

Deadline: Monday, December 10 (MoWe sections)

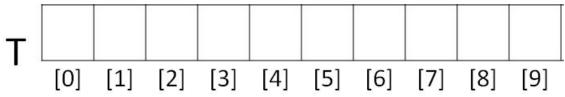
Tuesday, December 11 (TuTh sections)

Turn in your submission as a hard copy in class. Refer to your instructor's syllabus addendum to see their policy on group work. Some instructors allow homework to be completed in groups.

#1 [3 points]

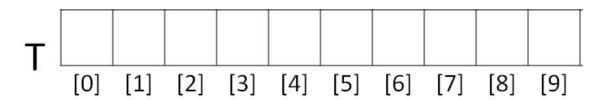
Sketch a hash table of size N=10, where the hash function is hash(key) = key mod N and *chaining* is used to resolve collisions, after the following elements are inserted:

20, 42, 45, 49, 62, 72, 95



#2 [3 points]

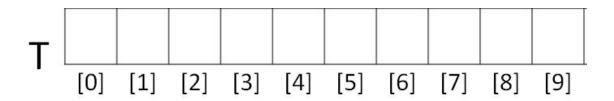
Sketch a hash table of size N=10, where the hash function is hash(key) = key mod N and *linear* probing is used to resolve collisions, after the following elements are inserted: 20, 42, 45, 49, 62, 72, 95



#3 [3 points]

Sketch a hash table of size N=10, where the hash function is hash(key) = key mod N and *quadratic probing* is used to resolve collisions, after the following elements are inserted: 20, 42, 45, 49, 62, 72, 95.

The probes are based on this equation: (H+c1*i+c2*i²)mod(N) and c1=1, c2=1.



#4 [1 point]

If *direct hashing* was used to store the same elements in the previous problems (20, 42, 45, 49, 62, 72, 95), what should be the minimum size of the hash table?