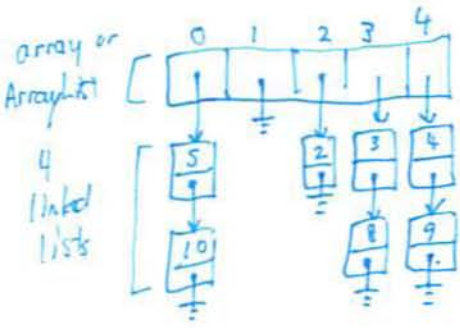
Name Answers

CS-2852 – Dr. Durant – Quiz 7
Spring 2014, Week 9

1. (5 points) The Integers 4, 3, 9, 8, 5, 2, 10 are added to a hash table with 5 buckets (using chaining) where the assigned bucket is equal to the Math.abs(i % numberOfBuckets). Draw the resulting data structure.



2. (2 points) What is the load factor of this hash table?

$\frac{\#elements}{\#buckets} = \frac{7}{5} = 1.4$

3. (1 point) Under what condition will a hash table (using chaining) have its best case (O(1)) insert/remove/find performance?

there are few collisions ⇔ most buckets contain fewer than 2 items
∴ technically valid for any constant ≥ 2

4. (1 point) What is the worst case insert/remove/find performance in big-O notation when the condition is not met?

O(N)

5. (1 point) Why?

many or all of the items are in long linked lists which have length increasing proportional to N == #elements