ECE368 Fall 2016 Homework 9

IMPORTANT:

● Do NOT leave your name or Purdue ID on this homework.

● Write your homework security number at the TOP of EACH page.

Read and sign the ***Academic Honesty Statement*** that follows:

"In signing this statement, I hereby certify that the work on this exercise is my own and that I have not copied the work of any other student while completing it. I understand that, if I fail to honor this agreement, I will receive a score of zero for this exercise and will be subject to further disciplinary action."

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Please acknowledge any people who have helped you with this homework.

Question	Credits
1	
2	
3	

1. (30 points) Demonstrate the insertion of keys 5, 28, 19, 15, 20, 33, 12, 17, 10 into a hash table with collisions resolved by chaining. Let the hash table have 7 slots, and let the hash function be h(k) = k mod 7. Draw the hash table after each insertion.

2. (50 points) Consider inserting the keys 10, 22, 31, 4, 15, 28, 17, 88, 59 into a hash table of length m = 11 using open addressing with the primary hash function h'(k) = k mod m.
Illustrate the result of inserting these keys using the following probing methods; draw the hash table after each insertion.

1) Linear probing with α = 1. (10 points)

2) Quadratic probing with α = 3 and β = 1. (20 points)

3) Double hashing with $h_2(k) = 1 + (k \bmod (m - 1))$. (20 points)

3. (20 points) 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?