EECS 560: Homework 2
Due: Monday, February 17, 2020 (at 10am)

Note: You must show all of your work to obtain credit for a problem. Partial credit will be given when meaningful answers were given.

Questions:

1. (15 points; 5 points each) Given input 137, 62, 69, 269, 90, 22, 63, 143, 125, 100, and 179, and a has function given by $h(x) = x \mod m$, where $m = 11$, show the hash tables of the following types:
   
   (a) open hasing with separate chaining
   
   (b) closed chaining using linear probing
   
   (c) closed chaining using quadratic probing.

2. (15 points; 5 points each) Consider the three hash tables in Problem 1 above. Perform rehashing up to once on each of them, i.e., when first dictated by the recommended value for the load factor, $\lambda$.

3. (10 points) Take $m = 11, R = 5$. Insert 23, 47, 28, 56, 50, 36, and 15 using double hashing with hash functions $h(x) = x \mod m, h^*(x) = R - (x \mod R)$, and $f_i = ih^*$, into an initially empty hash table.

4. (10 points) Explain how hashing can be used to compare the contents of two files without opening them.