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Map ADT and Hash Tables

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Exercise 1: separate chaining

- Insert keys 18, 41, 22, 44, 59, 32, 31, 73 in this order, for map with separate chaining, given $h(x) = x \bmod 13$

Exercise 2: linear probing

- Insert keys 18, 41, 22, 44, 59, 32, 31, 73 in this order, for map with linear probing, given $h(x) = x \bmod 17$.

Exercise 3: double hashing

- Insert keys 18, 41, 22, 44, 59, 32, 31, 73 in this order, for map with double hashing,
 - $N = 17$
 - $h(x) = (3x+5) \bmod 17.$
 - $d(x) = 11 - (x \bmod 11)$

Exercise 4

Draw the 11-entry hash table that results from using the hash function, $h(i) = (3i + 5) \bmod 11$, to hash the keys 12, 44, 13, 88, 23, 94, 11, 39, 20, 16, and 5, assuming collisions are handled by chaining.

Exercise 5

Draw the 11-entry hash table that results from using the hash function, $h(i) = (3i + 5) \bmod 11$, to hash the keys 12, 44, 13, 88, 23, 94, 11, 39, 20, 16, and 5, assuming collisions are handled by linear probing.

Exercise 6

Draw the 11-entry hash table that results from using the hash function, $h(i) = (3i + 5) \bmod 11$, to hash the keys 12, 44, 13, 88, 23, 94, 11, 39, 20, 16, and 5, when collisions are handled by double hashing using the secondary hash function $h'(k) = 7 - (k \bmod 7)$.