CS-146 Homework-6 Due: July-12 at 11:59 PM

1. Given input {4371, 1323, 6173, 4199, 4344, 9679, 1989} and a hash function h(x) = x mod 10, show the resulting:

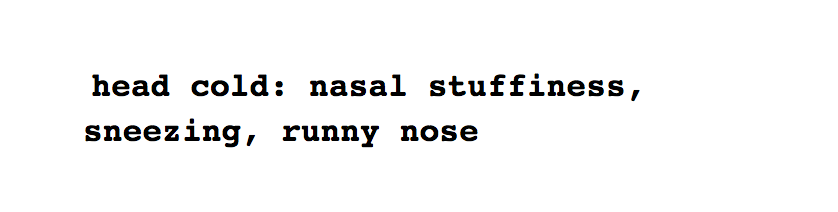
Separate chaining hash table.

Hash table using linear probing.

Hash table using quadratic probing.

Hash table with second hash function h2(x) = 7 – (x mod 7).

1. Show the result of rehashing the hash tables in Exercise-1.
2. Suppose that we want to help physicians to diagnose illnesses. A physician observes a patient’s symptoms and considers the illnesses that could be associated with those symptoms. Design and implement a class PhysiciansHelper that provides a list of those illnesses. PhysiciansHelper should contain a dictionary of illnesses and symptoms. A method should read a text file of illnesses with their symptoms into the dictionary. Each line in the file will contain the name of an illness followed by a colon and a comma-separated list of symptoms. For example, one line could be



PhysiciansHelper should maintain a list of symptoms for the current patient. A method should add a symptom to this list and return a list of illnesses that are associated with those symptoms. Another method should remove a given symptom from the list, and a method should clear the patient symptom list.

1. Implement the ADT dictionary by using hashing and separate chaining. Use a chain of linked nodes as each bucket. The dictionary’s entries should have distinct search keys.

The ADT dictionary and part of the code is given on Canvas.