COMP2611 Tutorial #3

1. Consider the following data

Key	Value
76	A
18	B
71	C
1	D
86	E
16	F
45	G
28	H

These keys are integers, and the values are strings. Suppose we want to implement a dictionary using a hashtable with 10 buckets. Show the final state of the hashtable after inserting these values when the following collision resolution techniques are used:

a. Chaining
b. Linear Probing
c. Quadrating Probing
d. Double hashing where $h_2(x) = 7 - (x \bmod 7)$

2. Using the Linear Probing code in the Github Repo as a base, write:
a. A hashtable that implements Quadrating Probing
b. Implements Double hashing, where the secondary hash function is an argument to Hashtable constructor

3. Consider the data provided in synonyms.txt. Each line contains a word pair with two synonyms. Using a hashtable based dictionary, write a programme that reads this file and then allows the user to input a word and acquire all of its synonyms listed in synonyms.txt. If a word that isn't in the hashtable is entered, your programme should inform the user that the word is missing.