Data Structures (Fall 2020)

Lab Exercise 10 (Hash Table)

Task 1: (4 Points)

Download lab10.cpp and zipcodes.txt from NYU classes and complete following functions of the HashTable class. Use Open **Addressing Linear Probing** to resolve collisions.

1. Long **hashCode**(const string key)
   A function that generates and returns a Hashcode for the string key

2. void **insert**(const string key, const string value)
   A function that inserts the key and value in Hash Map using Open Addressing Linear Probing.

3. string **search**(const string key)
   A function that searches for a key in the HashMap and return its value

Task 2: (4 Points)

Modify the program written in Task 1 and instead of Linear Probing use **Quadratic Probing**. Print the average number of probes/collisions.

Task 3: (2 Points)

Instead of using data from the given file, generate dummy data of size 1 million and then 10 million and print the difference between Linear Probing and Quadratic Probing in terms of number of avg. collisions per entry.
