Hashing

1. Write a program that inserts 10,000 random non-negative integers less than 100,000 into a table of size 11,003 using linear probing. Plot the number of probes used for each 1,000 consecutive insertions.

2. Repeat problem 1, but increasing the hash table size to 20,011.

3. Repeat problem 1, but using random hashing. For the second hash function, use \((\text{item} \ mod \ 97) + 1\).