Data Structures Project: Hashing

You are to write a program to compute the average number of insertions before a collision occurs for each of the tablesizes 7, 11, 13, 17, 19, 23, 29. You should use linear probing. Your program should be in a file named hashstats.cpp, which is the file you should submit.

For each tablesize T, the hash function should be h(k) = k%T and you should do 100 "experiments" to calculate the average number of insertions before collision.

An "experiment" consists of starting with a table initialized with zeros (which indicates an empty slot), then generating random integers between 1 and 100, inserting each into the table until a collision occurs. The number of insertion attempts before a collision is the result of the experiment.

Your output should look like this (with different numbers, of course):

```
Table Size     Avg Inserts Before Collision

     7                      3.8

    11                      4.6

    13                      4.2

    17                      7.5

    19                      6.3

    23                      6.1

    29                      8.2
```