Homework 07: Double Hashing

Due May. 23, 2019

Instruction

Submit your answer to this question via PC^2 under your account by the posted due time. No late submissions will be accepted. Note that homework is opened-book, but no outside assistance is permitted.

Problem

Double hashing greatly reduces clustering and is one of the best methods for hashing in open-addressed schemes. It uses two auxiliary pre-hashing functions $h_1(k)$ and $h_2(k)$, such that the hashing function $h(k,i)$ is of the form:

$$h(k,i) = [h_1(k) + i \cdot h_2(k)] \bmod m$$

The initial probe goes to the position of $h_1(k)$ and all subsequent probes go to integer multiples of $h_2(k)$ positions further. Write a program that returns message when a collision has been detected during insertion. Note that the size of hash table is fixed as 13 in this problem.

Sample input

12,26,31,17,90,28,88,40,77

Sample output

Collision has occurred for element 90 at position 12 finding new Position at position 6
Collision has occurred for element 77 at position 12 finding new Position at position 11
Done