Homework 07: Rehashing

Due Tuesday, December 19th, 2017

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

The size of the hash table is not determinate at the very beginning. If the total size of keys is too large (e.g. $\alpha = 90\%$), we should double the size of the hash table using table doubling method and rehash every keys using double hashing of open addressing if occurred collisions.

Given the first line is the initial table size and the second line contain serial number, return the hash table inserting the serial number. Write a program that print the result of hash table after insert the input array.

The hash function is:

$h_1(k) = k \mod m$

$h_2(k) = 1 + ((k/m) \mod (m-1))$

Sample input

10
2 3 4 5 6 7 8
6
67 50 33 16 71

Sample output

None None 2 3 4 5 6 7 8 None
None 67 50 33 16 71