Computer Science 3A - CSC3A10

Hash tables with collision handling

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Hash Table Examples

A hash table is an array where the operations are defined by a hash function and a collision handling strategy, which can either be:

1. Separate chaining
2. Linear Probing
3. Quadratic Probing
4. Cubic Probing
5. Double Hashing

Example 1

Given a hash function $h(x) = x mod 17$ for a hash table that uses **linear probing**, redraw the hash table below and **insert** the keys 58, 89, 9, 81, 38, 59, 2, 92 in this order.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Example 2

Given a hash function $h(x) = x mod 17$ for a hash table that uses **quadratic probing**, redraw the hash table below and **insert** the keys 58, 89, 9, 81, 38, 59, 2, 92 in this order.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Example 3

Given a hash function $h(x) = x mod 17$ for a hash table that uses **double hashing**, where $d(k) = 7 - k mod 7$, redraw the hash table below and **insert** the keys 58, 89, 9, 81, 38, 59, 2, 92 in this order.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17