## Section 5: Hashing \& Sorting

## 0. Hash... Browns?

For the following scenarios, insert the following elements in this order: 7, 9, 48, 8, 37, 57. For each table, TableSize $=10$, and you should use the primary hash function $h(k)=k$. If an item cannot be inserted into the table, please indicate this and continue inserting the remaining values.
a) Linear Probing -
Linear Probing -
b) Quadratic Probing

| Insertion |  |
| :--- | :--- |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |

Delete 37, 7, 57


c) Separate chaining hash table - Use a linked list for each bucket. Order elements within buckets in any way you wish.

| 0 |  |
| :--- | :--- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |

## 1. Double Double Toil and Trouble

a) Describe double hashing.
b) List 2 cons of quadratic probing and describe how one of those is fixed by using double hashing.
c) Compare open hashing and separate chaining.

