Hashing Exercise

Given a hash table with size m = 13 buckets and the hash function h(string) = the number of characters times two. For example:

$$h(\text{“hat”}) = 3 \times 2 = 6.$$

With i equals to the number of collisions, perform hashing with ***linear*** probing for the key x with the probing, namely,

$$(h(x) + i) \bmod m,$$

with **open addressing**.

Update the hash table on the right according to the commands on the left :

Commands:

```
insert(“apple”)
insert(“orange”)
insert(“durian”)
insert(“mango”)
insert(“salt”)
insert(“milk”)
insert(“cake”);
delete(“orange”)
insert(“tart”)
delete(“durian”)
insert(“pineapple”)
delete(“tart”)
delete(“milk”)
```

Index	Hash Table Contents					
0	Null					
1	Null					
2	Null					
3	Null					
4	Null					
5	Null					
6	Null					
7	Null					
8	Null					
9	Null					
10	Null					
11	Null					
12	Null					

Note that it is not chaining. The space on the “right” of “Null” is just for your “replacement”/keeping track of the contents. You just need to cross out a word if it’s deleted.

After all the above operations, if we search for “rice”, what is the ***index*** of the ***last*** hash table entry that the searching visited before telling us that “item not found”?

The index of the last hash table entry = _____.