CSE 332 Summer 18 Exercise 06

(Less) Lazy Deletion

Due Date: Friday July 27, 11:59 PM Submit as a pdf to gradescope.

In this problem, you will think about various modifications to lazy deletion in open addressing hash tables. Recall that in lazy deletion, we will mark a cell "deleted" but not actually remove the data point on a **delete** call. Then future calls of **find** will continue probing beyond the deleted slots just like filled slots.

Consider two modifications to lazy deletion:

- 1. Modification 1: [10 points]
 - We have an open addressing hash table, where cell X has been marked as deleted.
 - A successful find call probes past X and finds a key in cell Y.
 - We move the found key to cell X, mark X as "not deleted" and mark cell Y as "open" (i.e. the same as if the cell had never had anything inserted into it. This is not the same as marking it as "deleted").

If we use this policy on every find, is the new hash table better or worse than regular lazy deletion. Explain your answer.

2. Modification 2: [10 points] Instead of marking cell Y as "open" mark it as "deleted" (i.e. there is no longer a value there, but probing continues past that location). Is the resulting hash table better or worse than the **original** lazy deletion scheme? Explain your answer (Note you are not comparing to part 1, just to standard lazy deletion).