

CSE 332: Data Structures and Parallelism

Exercises (Hashing)

Directions: *Submit your solutions on Canvas. You must submit a pdf file.*

EX09. Hshg (20 points)

In this problem, you will think about how lazy deletion is handled in open addressing hash tables.

(a) [10 Points] Consider the following situation:

- We have an open addressing hash table with a cell X marked as “deleted”.
- The next successful find hits and moves past this cell and finds a key in cell Y .
- Then, we move the found key to cell X , mark cell X as “no longer deleted”, and mark cell Y as “open” (e.g., as if it had never had a value in it).

If we used this policy for every find, would the resulting hash table work better or worse than if we had just not modified the table? Explain your answer.

(b) [10 Points] Suppose that instead of marking cell Y as “open” in the previous exercise, you mark it as “deleted” (it contains no value, but we treat it as a collision), and then we use this new policy for every find. Would the resulting hash table work better or worse than if we had not modified the table? Explain your answer.