Dacal Victor-Stefan

4.

m = 9

h(54) = 0
h(62) = 8
h(21) = 3
h(12) = 3
h(4) = 4
h(33) = 6
h(26) = 8

The elements 62, 4 could have been inserted last in the Hash Table, because the rest of them are in their normal positions, resulted from the hash function.

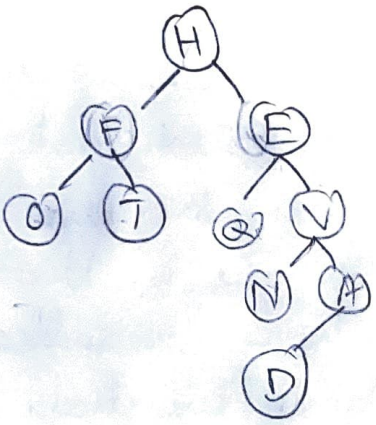
In the case of 12, we cannot say that it was added last in the hash table, because 4 is after it and they both have the same hash function.

3. The best representation for a Priority Queue is a Binary Heap. The top runs in $\Theta(1)$, because the top is the root of the tree. Pop and Push operations are $O(\log_2 N)$, because they are using the bubble-up and bubble-down algorithms, in order to restore the heap properly, which take $i/2$ nodes, respectively $i*2$ / ~~nodes~~ $i*2+1$ nodes.

2. The complexity can be $\Theta(\log_2 N)$ if we use a binary search for finding the position in which we have to add the element in the row.

Jacob Vidan-Stefan

1.



Depth : 4