**Assignment** 12

Agorithm findWinner(S) // using Dictionary

1 P 🡨 S.first()

1 D 🡨 new Dictionary // running time depend on Dictionary type HT or BST

1 D.inserItem(p.element(), 1)

n While S.isLast(p) do

n P 🡨 S.after(p)

n(1|log k) Count 🡨 D.findElememtn(p.element()) // n(1|log k)if HT it is 1. If BST it is log K

n If conunt = NO\_SUCH\_ELEM then

k(1| logk) D.insertIterm(p.element(), 1)

Else

n(1|log k) D.insertItem(p.element(), count +1)

k Iterator 🡨 D.items()

1 maxCnt

k While iterator.hasNext() do

// (id, conunt) 🡨 iterator.nextObject()

k Obj 🡨 iter.nextObject()

k Id 🡨 obj.key()

k Count 🡨 obj.element()

k If count > maxCnt 🡨 count

k maxCnt 🡨 count

k currWinner 🡨

1 return (maxent, currWinner)

T(n) is O(n) if Dictionary is Hash Table

T(n) is O(n log K) if Dictionary is Binary surch tree