Maps & Sets

Part – 1

Raghav Garg

Introduction to Sets

Data Structure

T.C.

→ insert → O(1)

→ search → O(1)

→ delete → O(1)

```
S.insert(1);
S.insert(5);
S.insert(11)
```

Introduction to Sets → unique elements ko store karta hai

```
unordered_set<int> s;
s.insert(1);
s.insert(2);
s.insert(3);
s.insert(4);
s.insert(5);
```

random order

↓

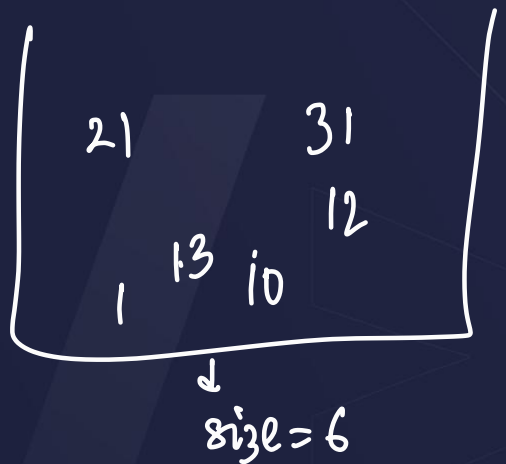
print? display?

STL and important methods in sets

- insert()
- size()
- find()
- begin()
- end()
- erase()

Ques: Count Number of Distinct Integers After Reverse Operations [Leetcode - 2442]

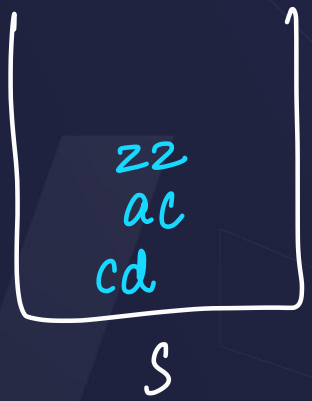
{1, 13, 10, 12, 31, 1, 31, 1, 21, 13}



Ques: Find Maximum Number of String Pairs [Leetcode - 2744]

v = {cd, ac, dc, ca, zz}

count = 0 1 2



Ques: Find Maximum Number of String Pairs [Leetcode - 2744]

{ab, ba, cc}

{aa, ab}

Introduction to Maps

→ insertion, searching, deletion → O(1)

↓

Hashmaps

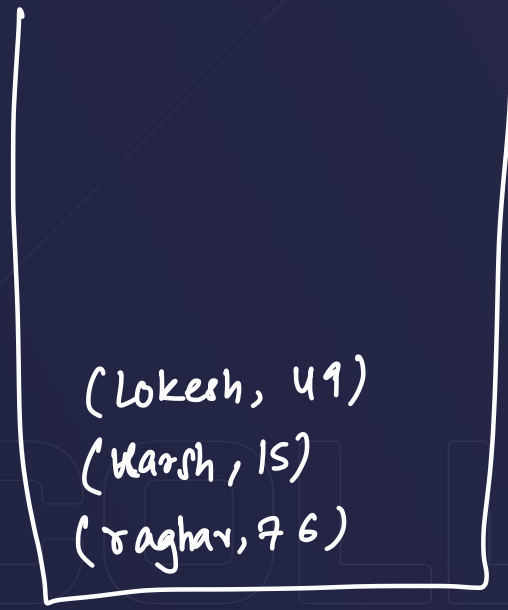
↓

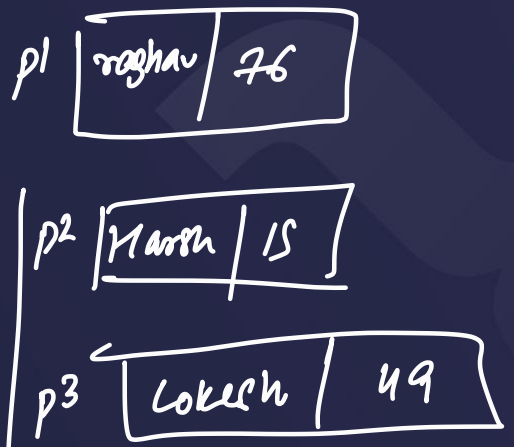
1) Freq. array/set

2) Key, (value/index)

Introduction to Maps

```
unordered_map<string,int> m;
pair<string,int> p1;
p1.first = "raghav";
p1.second = 76;
pair<string,int> p2;
p1.first = "harsh";
p1.second = 15;
pair<string,int> p3;
p1.first = "lokesh";
p1.second = 49;
m.insert(p1);
m.insert(p2);
m.insert(p3);
```





STL and important methods in maps

- insert() ✓ → m[ ] = 0 ✓
- size() ✓
- find() → set
- erase() ✓
- count()

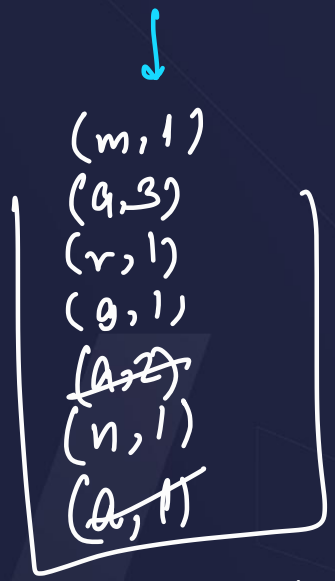
map < key, value > m;

m.find(key) != m.end()

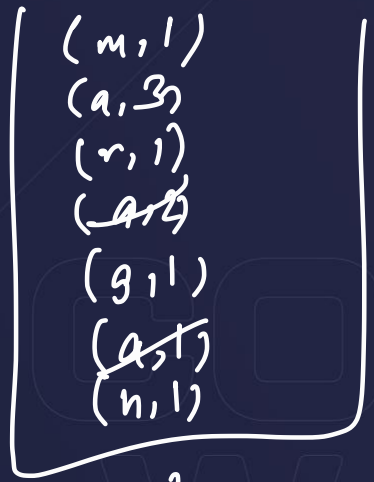
Ques: Valid Anagram [Leetcode – 242]

s = anagram t = nagaram

O(n) T.C.



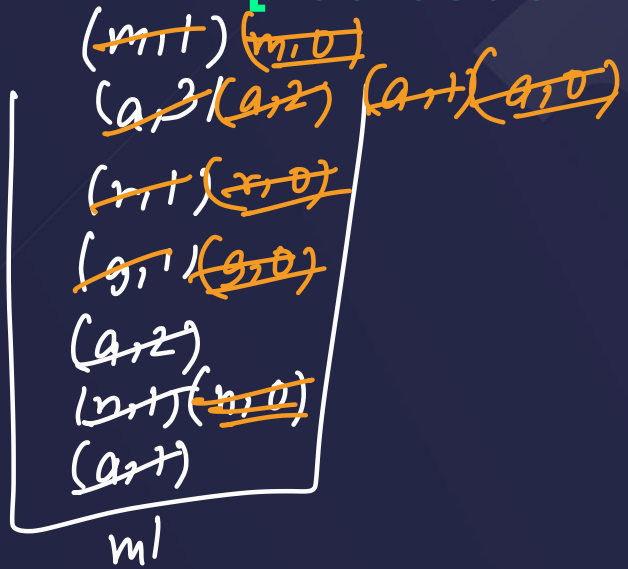
m1 <char, int>
↓
freq



m2

Ques: Valid Anagram → key, freq [Leetcode – 242]

```
unordered_map<char,int> map1; // for s
unordered_map<char,int> map2; // for t
for(int i=0;i<s.length();i++){
    map1[s[i]]++;
}
for(int i=0;i<t.length();i++){
    map2[t[i]]++;
}
```

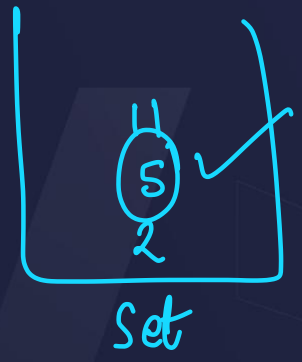


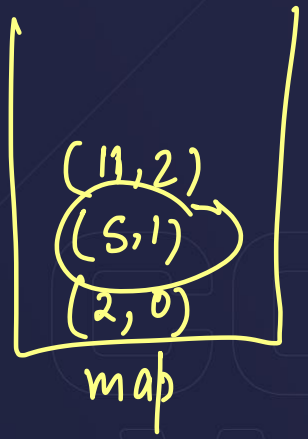
s = anagram , t = nagaram

Ques: Two Sum → (key, index) [Leetcode - 1]

0	1	2	3
2	5	11	4
7	4	-2	5

target = 9



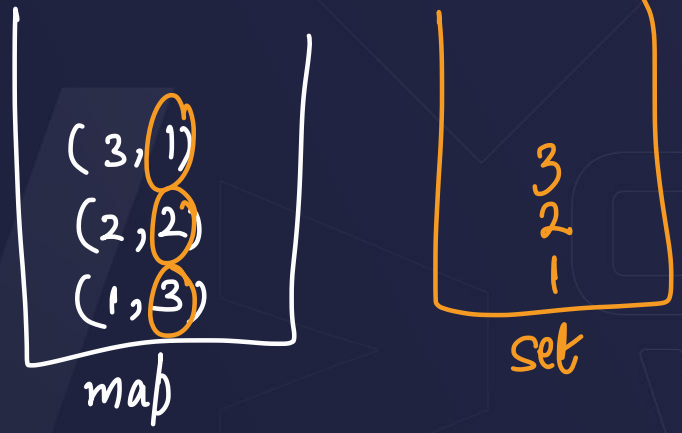


∝ ∝ → kyoki mujhe indices chahiye

Ques: Unique Number of Occurrences [Leetcode - 1207]

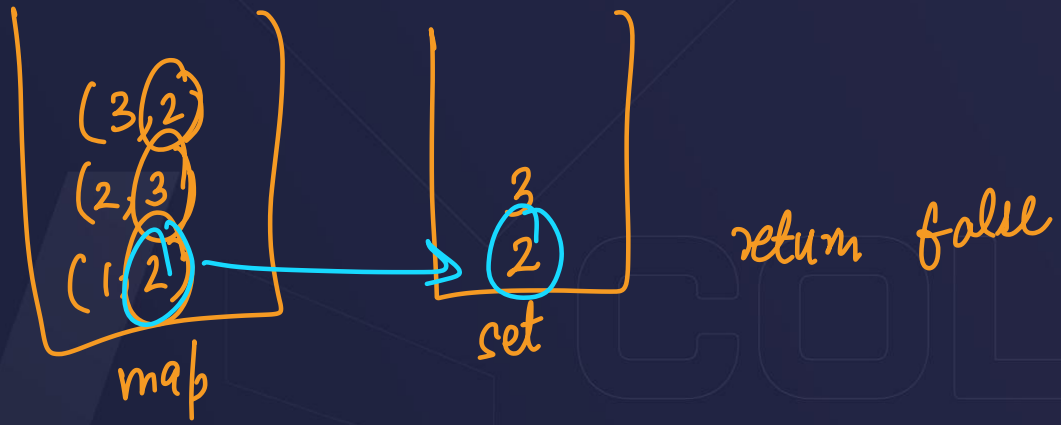
map, set

arr = {1, 2, 2, 1, 1, 3}



Ques: Unique Number of Occurrences [Leetcode - 1207]

arr = { 1, 1, 2, 2, 2, 3, 3 }



THANK YOU!