

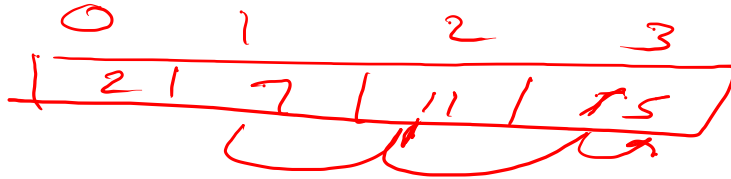
Sample Input 0

geekugeek

0 1 2 3 4 5 6
g e e k g e e k
~~g~~ ~~e~~ ~~e~~ ~~k~~ ~~g~~ e e k

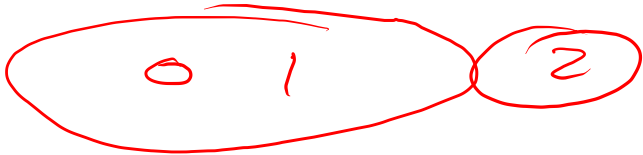
4 9

2 7 11 15



target = 9

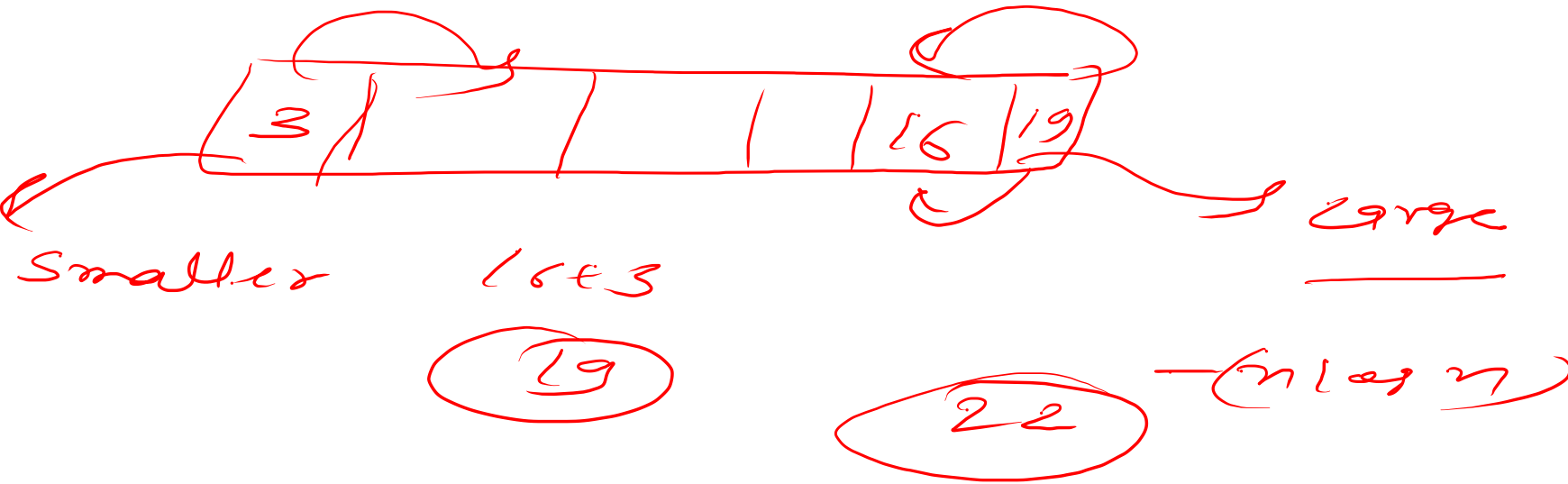
$$2 + 7 = 9$$



for () { $O(n)^2$

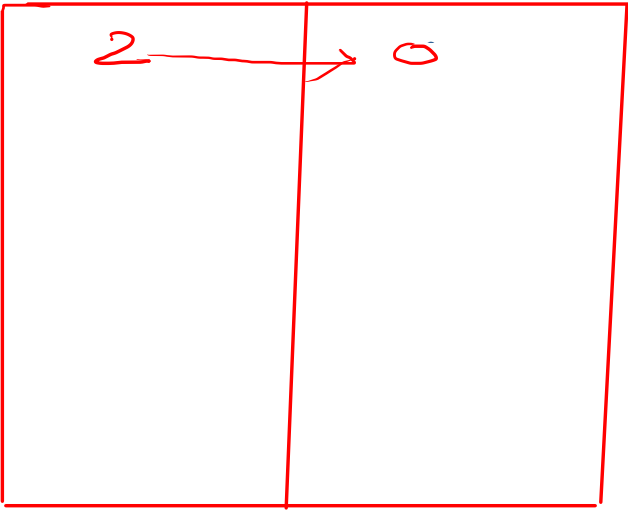
for () { $2 \times 7 = 9$ } $O(n)^2$

target = 20



4 9
2 7 11 15

$$3 + 7 = 10$$
$$7 + 3 = 10$$



0	1	2	3
2	7	11	15

9-2
2

for (int i = 0; i < n; i++) {
 int val = tar - arr[i];
 if (hm.containsKey(val)) {

5 8
2 3 4 5 7

i = 3

~~1 3 2~~

```
public static int[] twoSum(int[] arr, int n, int target){
    HashMap<Integer,Integer> hm = new HashMap<>();
    for(int i=0; i<n; i++){
        int diff = target-arr[i];
        if(hm.containsKey(diff)){
            return new int[]{hm.get(diff), i};
        }else{
            hm.put(arr[i], i);
        }
    }
    return new int[]{};
}
```

key	value
2	0
3	1
4	2

diff = 8 - 5

= 3

hm.get(3), i

{ 1, 3 }

set { 1, 2 }

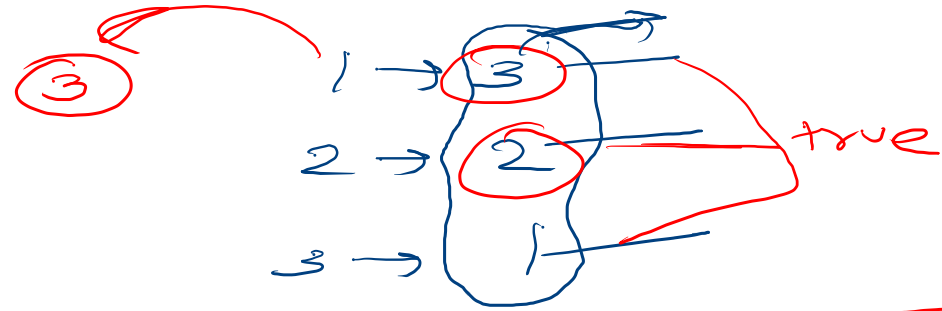
5 + 2 = 7

3 + 5 = 8

Two Sum 14

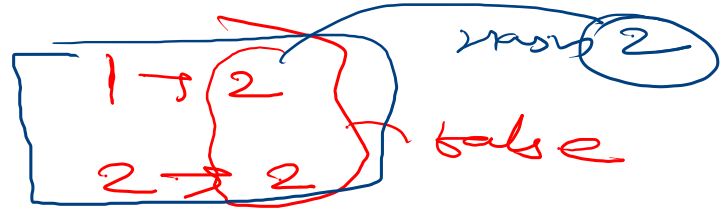
```
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. You
11         Scanner sc = new Scanner(System.in);
12         int n = sc.nextInt();
13         int target = sc.nextInt();
14         int[] arr = new int[n];
15         for(int i=0;i<n;i++){
16             arr[i]=sc.nextInt();
17         }
18         int[] ans = twoSum(arr,n,target);
19         for(int i=0;i<ans.length;i++){
20             System.out.print(ans[i]+" ");
21         }
22     }
23     public static int[] twoSum(int[] arr,int n,int target){
24         HashMap<Integer,Integer> hm = new HashMap<>();
25         for(int i=0;i<n;i++){
26             int diff = target-arr[i];
27             if(hm.containsKey(diff)){
28                 return new int[]{hm.get(diff),i};
29             }else{
30                 hm.put(arr[i],i);
31             }
32         }
33         return new int[]{};
34     }
35 }
```

6
1 2 2 1 1 3



3
Hashset → 3 2 1

4
1 2 1 2



2 2
false

Unique Number of Occurrences

```
public class Solution {
3
4     public static void main(String[] args) {
5         /* Enter your code here. Read input from STDIN. Print output to STDOUT */
6         Scanner sc = new Scanner(System.in);
7         int n = sc.nextInt();
8         int[] arr = new int[n];
9         for(int i=0;i<n;i++){
10             arr[i]=sc.nextInt();
11         }
12         System.out.println(uniqueOccurance(arr,n));
13     }
14     public static boolean uniqueOccurance(int[] arr,int n){
15         HashMap<Integer,Integer> hm = new HashMap<>();
16         for(int i=0;i<n;i++){
17             if(hm.containsKey(arr[i])){
18                 hm.put(arr[i],hm.get(arr[i])+1);
19             }else{
20                 hm.put(arr[i],1);
21             }
22         }
23         // we are going to use the hashset
24         HashSet<Integer> hs = new HashSet<>(hm.values());
25         if(hm.size()==hs.size()){
26             return true;
27         }
28         return false;
29     }
30 }
```


abcabcbb

0 1 2 3 4 5 6 7
a b c a b c b b
~~a~~ ~~b~~ ~~c~~
s e

max = ~~0~~ + ~~2~~ 3

e - s + 1

2 - 0 + 1

2 + 1 ③