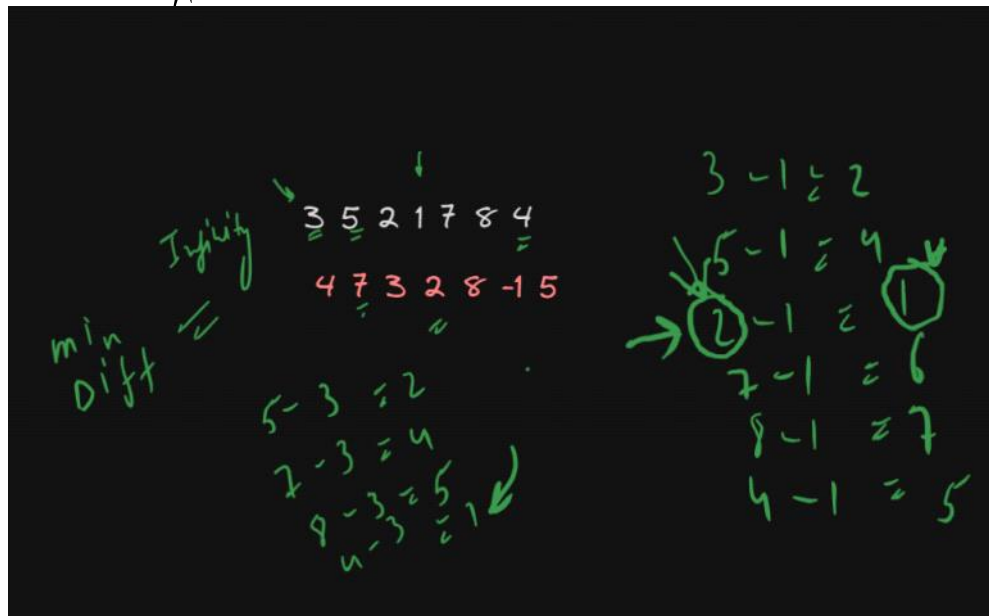


$i = 0$  $curr = 3$  $min = \infty, j = 0$  $next = 3$  $j = 1, next = 2$  $j = 2, next = 5$  $next > curr$  $diff = 5 - 3$  $diff = 2$  $min = 2$  $minValue = 5$  $\rightarrow min = 1$  $minValue = 4$  $\uparrow$ 

```

1 let arr = [3,2,5,4,1]
2 let ans = []
3 for(let i = 0; i < arr.length; i++){
4   const curr = arr[i]
5   let min = Infinity
6   let minValue = -10000000
7   for(let j = 0; j < arr.length; j++){
8     const next = arr[j]
9     if(next > curr){
10      const diff = next - curr
11      if(diff < min){
12        min = diff
13        minValue = next
14      }
15    }
16  }
17  ans.push(minValue)
18 }
19 console.log(ans)

```



For in loop Iterate over Keys  
For of loop Iterate over Values

Object holds key value pairs and does not maintain the order  
Map holds key value pairs and does maintain the order

Step1: Creating object

Step2: looping the arr and mapping every value to its count

$\{\}$   
 $2 \rightarrow \{2: 1\}$   
 $3 \rightarrow \{3: 1\}$   
 $4 \rightarrow \{4: 1\}$   
 $2 \rightarrow \{4: 1, 3: 1\}$   
 $3 \rightarrow \{4: 1, 3: 2\}$

```

main.js
1 let arr = [2,3,4,2,3,1,4,2]
2 let obj = {}
3
4 for(let num of arr){
5   if(!obj[num]){
6     obj[num] = 1
7   }else{
8     obj[num] += 1
9   }
10 }
11
12 let max = -Infinity
13 let maxPos = -1
14 for(let key in obj){
15   const value = obj[key]
16   if(value > max){
17     max = value
18     maxPos = key
19   }
20 }

```

$1 \rightarrow \{2: 2, 3: 2, 4: 1, 1: 1\}$   
 $4 \text{ } 1 \text{ } 2 \rightarrow \{2: 3, 3: 2, 4: 2, 1: 1\}$

For key in Obj

$\rightarrow 2 \text{ } obj[2] \rightarrow 3 \text{ } \{name: 'utkarsh'\}$   
 $\rightarrow$

Bubble sort makes the sorted array from the end by comparing consecutive elements  
Selection sort continuously find smallest element and keep it in the beginning of the array

2,1,4,9,0,5

$i = 1$   
 $picked = 1$   
 $j = 0$   
 $while (true) \rightarrow j \leq 0 \ \&\& \ p < 2$   
 $\rightarrow arr[j+1] = arr[j]$   
 $(2, 2, 4, 9, 0, 5)$   
 $\rightarrow j--$   
 $while - false \rightarrow j \neq 0$   
 $arr[j+1] = picked$   
 $(1, 2, 4, 9, 0, 5)$   
 $i = 2$   
 $j = 1$   
 $p = 4$   
 $while (true) - picked \leftarrow arr[j]$   
 $\rightarrow arr[j+1] = picked$

```

1 let arr = [2,1,4,9,0,5]
2 let n = arr.length;
3
4
5
6 for(let i = 1; i < n; i++){
7   const picked = arr[i]
8   let j = i-1;
9
10  while(j >= 0 && picked < arr[j]){
11    arr[j+1] = arr[j]
12    j--
13  }
14  arr[j+1] = picked
15
16 }
17
18 console.log(arr)

```

$i = \text{false}$  — picked  $< arr[j]$   
 $while (true) - \text{picked} < arr[j]$   
 $arr[j+1] = \text{picked}$

$i = 3$   
 $p = 9$   $\rightarrow 9 \leftarrow$   
 $j = 2$   
 $while (true) p < arr[j]$

$i = 4$   $p = 0$

$j = 3$   $arr[j]$   
 $while (true) j > 0 \ \& \ p < arr[j]$   
 $arr[j+1] = arr[j]$

$j = 4$   
 $[0, 1, 2, 4, 9, 5]$

```

7 }
8
9 console.log(arr)

```