DAY 35

INTERVIEW BIT PROBLEMS :

1. Max Distance

Given an array A of integers, **find the maximum of j - i subjected to the constraint of A[i] <= A[j].**
If there is no solution possible, return -1.
Example :
A : [3 5 4 2]
Output : 2
for the pair (3, 4)

CODE :

PYTHON

```
class Solution:
    # @param A : tuple of integers
    # @return an integer
    def maximumGap(self, A):
        maxi_diff=-1
        n=len(A)
        if n==1:
            return 0
        for i in range(n):
            j=n-1
            while j>=i:
                if (A[j]>=A[i]) and (maxi_diff<(j-i)):
                    maxi_diff=j-i
                j-=1
        return maxi_diff
```

Time Complexity : O(n^2)

(OR)

```
class Solution:
    # @param A : tuple of integers
    # @return an integer
    def maximumGap(self, A):
        maxi_gap=-1
        n=len(A)
        l_min=[0]*n
        r_max=[0]*n
        l_min[0]=A[0]
        for a in range(1,n):
            l_min[a]=min(A[a],l_min[a-1])
        r_max[n-1]=A[n-1]
        for b in range(n-2,-1,-1):
```

```
        r_max[b]=max(A[b],r_max[b+1])
    i,j=0,0
    while (i<n and j<n):
        if l_min[i]<=r_max[j]:
            maxi_gap=max(maxi_gap,j-i)
            j+=1
        else:
            i+=1
    return maxi_gap
```

Time Complexity : $O(n)$
Space Complexity : $O(n)$