Day-30

Python DSA

Leetcode 540 Single Element in a Sorted Array

https://leetcode.com/problems/single-element-in-a-sorted-array/

```python
class Solution:
    def singleNonDuplicate(self, nums):
        low, high = 0, len(nums) - 1
        while low < high:
            mid = (low + high) // 2
            # Ensure mid is even for easy pair comparison
            if mid % 2 == 1:
                mid -= 1
            # If pair is correct, move right
            if nums[mid] == nums[mid + 1]:
                low = mid + 2
            else:
                high = mid
        return nums[low]
```

TC- O(log n)

SC- O(1)

Leetcode 162 Find Peak Element

https://leetcode.com/problems/find-peak-element/submissions/1799735148/

```python
class Solution:
    def findPeakElement(self, nums: List[int]) -> int:
        low, high =0, len(nums)-1
        while low< high:
            mid= (low + high)//2
            if nums[mid] > nums[mid+1]:
                high= mid
```

```
        else:
            low=mid+1
    return low
```

TC- O(log n)

SC- O(1)