

Day-24

Python DSA

Leetcode 704 Binary Search

<https://leetcode.com/problems/binary-search/submissions/1792540860/>

```
class Solution:
    def search(self, nums: List[int], target: int) -> int:
        left, right = 0, len(nums)-1

        while left <= right:
            mid = (left + right)//2
            if nums[mid]== target:
                return mid
            elif nums[mid] < target:
                left = mid+1
            else:
                right = mid-1
        return -1
```

Time Complexity: $O(\log n)$ — each step halves the search space.

Space Complexity: $O(1)$ — no extra memory used.

Geekforgeeks – Floor in a Sorted Array

<https://www.geeksforgeeks.org/problems/floor-in-a-sorted-array-1587115620/1>

class Solution:

def findFloor(self, arr, x):

n= len(arr)

low, high= 0, n-1

ans=-1

while low<= high:

mid= (low + high)//2

```
if arr[mid] <=x:  
    ans= mid  
    low= mid +1  
else:  
    high= mid-1  
return ans
```

Time Complexity: $O(\log n)$

Space Complexity: $O(1)$