

3.quick sort.

Code:

```
def quick_sort(arr):  
    if len(arr)<=1:  
        return arr  
    else:  
        pivot=arr[len(arr) // 2]  
        left=[x for x in arr if x < pivot]  
        middle=[x for x in arr if x==pivot]  
        right=[x for x in arr if x > pivot]  
        return quick_sort(left) + middle + quick_sort(right)  
  
arr = [10,7,8,9,1,5]  
sorted_arr=quick_sort(arr)  
print(f"Sorted array is: {sorted_arr}")
```

output:

```
PS C:\Users\karth>  
PS C:\Users\karth> & C:/Users/karth/AppData/Local/Programs/Python/Python312/python.exe c:/Users/karth/OneDrive/Desktop/daa.py  
Sorted array is: [1, 5, 7, 8, 9, 10]  
PS C:\Users\karth>
```

Time complexity:

$F(n)=O(n\log n)$