

笔记 22-9-15

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1 Merge Sort

时间复杂度: $O(n * \log(n))$

[博客详解](#)

```
1 import typing
2
3
4 def merge_sort(l: int, r: int, arr: typing.List[int]):
5     if l == r:
6         return
7
8     mid = (l + r) >> 1
9     merge_sort(l, mid, arr)
10    merge_sort(mid + 1, r, arr)
11
12    i = l
13    j = mid + 1
14    tmp_list = []
15    while i <= mid and j <= r:
16        if arr[i] <= arr[j]:
17            tmp_list.append(arr[i])
18            i += 1
19        else:
20            tmp_list.append(arr[j])
21            j += 1
22
23    while i <= mid:
```

```
24         tmp_list.append(arr[i])
25         i += 1
26     while j <= r:
27         tmp_list.append(arr[j])
28         j += 1
29
30     index = 0
31     for k in range(l, r + 1):
32         arr[k] = tmp_list[index]
33         index += 1
34
35
36 if __name__ == '__main__':
37     arr = [5, 4, 3, 2, 1]
38     merge_sort(0, len(arr) - 1, arr)
39     print(arr)
```