

# 二分查找最接近值

Python |

```
1 def find_closest_value(arr, target):
2     left, right = 0, len(arr) - 1
3     closest = arr[0]
4     while left <= right:
5         mid = (left + right) // 2
6         if arr[mid] == target:
7             return arr[mid]
8         elif arr[mid] < target:
9             left = mid + 1
10            closest = arr[mid]
11        else:
12            right = mid - 1
13    return closest
14
15 # 示例
16 arr = [1, 3, 5, 7, 9]
17 target = 4
18 print(f"The closest value to {target} is {find_closest_value(arr, target)}")
```

上面那个代码只能随机返回某一个最接近值，当需要返回左右两个接近的值时，用这个：

```
1 def binary_search_closest(arr, target):
2     closest = arr[0]
3     second_closest = arr[1]
4     low = 0
5     high = len(arr) - 1
6
7     while low <= high:
8         mid = (low + high) // 2
9
10        if abs(arr[mid] - target) < abs(closest - target):
11            second_closest = closest
12            closest = arr[mid]
13        elif abs(arr[mid] - target) < abs(second_closest - target):
14            second_closest = arr[mid]
15
16        if arr[mid] == target:
17            return arr[mid]
18
19        if arr[mid] < target:
20            low = mid + 1
21        else:
22            high = mid - 1
23
24    return [closest, second_closest]
25
26 # 示例用法
27 arr = [1, 3, 5, 7, 9, 11]
28 target = 6
29 result = binary_search_closest(arr, target)
30 print(result)
```