EXERCISE-86 Median of medians

PROGRAM

```
def median_of_medians(arr):
    if len(arr) <= 5:
        return sorted(arr)[len(arr) // 2]
    sublists = [arr[i:i+5] for i in range(0, len(arr), 5)]
    medians = [sorted(sublist)[len(sublist) // 2] for sublist in sublists]
    pivot = median_of_medians(medians)
    less = [x for x in arr if x < pivot]
    equal = [x for x in arr if x == pivot]
    greater = [x for x in arr if x > pivot]
    if len(less) > len(arr) // 2:
        return median_of_medians(less)
    elif len(less) + len(equal) > len(arr) // 2:
        return pivot
    else:
        return median_of_medians(greater)
arr = [3, 6, 8, 1, 5, 2, 7, 4]
print(median_of_medians(arr))
```

OUTPUT

```
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5
```

TIME COMPLEXITY $O(n)$