# Assignment 2

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# Quicksort

- Parallelization with OpenMP
- In the main:

```
int num_threads = 60;

omp_set_num_threads(num_threads);

#pragma omp parallel single

quicksort(data, length);
```

# Quicksort

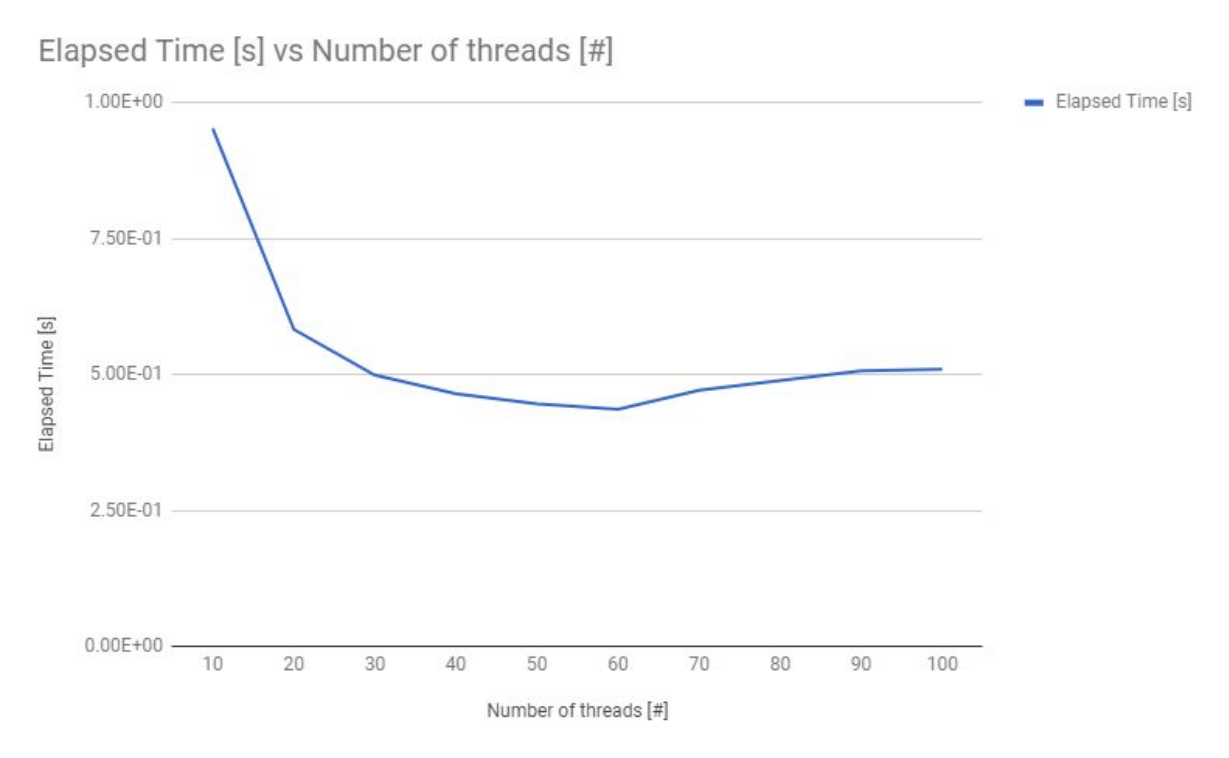
- In the recursion:

```
int limit = 300;

#pragma omp task final (right<limit)

quicksort(data, right);

#pragma omp task final (length-left<limit)

quicksort(&(data[left]), length - left);
```

# Quicksort

| Number of threads | Elapsed Time [s] |
|---|---|
| 1 | 7.546245e+00 |
| 10 | 9.523574e-01 |
| 20 | 5.828795e-01 |
| 30 | 4.987238e-01 |
| 40 | 4.645855e-01 |
| 50 | 4.457861e-01 |
| 60 | 4.363345e-01 |
| 70 | 4.712760e-01 |
| 80 | 4.893235e-01 |
| 90 | 5.068484e-01 |
| 100 | 5.100333e-01 |

# Quicksort


Elapsed Time [s] vs Number of threads [#]
1.00E+00
7.50E-01
5.00E-01
2.50E-01
0.00E+00
Elapsed Time [s]
10
20
30
40
50
60
70
80
90
100
Number of threads [#]
Elapsed Time [s]