Student : Hussin Almoustafa

Studentnummer : 1776495

Hieronder is de runtime van de code :

- 10K:

```
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum> ./main 10k.txt
Elasped time = 0.00200009
The sum of the values in the input file '10k.txt' is 5.04436e+09
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum>
```

- 100K:

```
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum> g++ -o main -fopenmp arraySum.cpp
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum> ./main 100k.txt
Elasped time = 0.000999928
The sum of the values in the input file '100k.txt' is 4.99372e+10
```

- 1M:

```
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum> ./main 1m.txt
Elasped time = 0.00199986
The sum of the values in the input file '1m.txt' is 4.99958e+11
```

- 10M:

```
PS C:\Users\hasso\desktop\hu\jaar2\hpp\High-Performance-Programming\Array Sum> ./main 10m.txt
Elasped time = 0.00699997
The sum of the values in the input file '10m.txt' is 5.00052e+12
```

```python
import pandas as pd
import numpy as np

data = pd.read_csv('sum.csv',sep=';')

data
```

```
   10000  100000  1000000  10000000
0  0.002   0.001    0.002     0.007
```

```python
data.astype(float, copy=True, errors='raise')
```

```
   10000  100000  1000000  10000000
0  0.002   0.001    0.002     0.007
```

```python
data.boxplot(grid=False, rot=45, fontsize=15)
```

```
<AxesSubplot:>
```