Array sum

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https://github.com/LucasVanWijk/HPP_Herkansing

1 Results

[ ]:
```
baseline = {
    "10k": [5.00305e+09, 0.00331638, "serial"],
    "100k": [5.01051e+10, 0.018546, "serial"],
    "1m": [4.99652e+11, 0.137988, "serial"],
    "10m": [4.99993e+12, 1.27488, "serial"],
}
parallel = {
    "10k": [5.00305e+09, 0.00192857,"parallel"],
    "100k": [5.01051e+10, 0.0239629, "parallel"],
    "1m": [4.99652e+11, 0.149532, "parallel"],
    "10m": [4.99993e+12, 1.27095, "parallel"],
}

import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
import seaborn as sns

df_baseline = pd.DataFrame.from_dict(baseline, orient='index', columns=["sum",␣
 ↪"time", "type"])
df_parallel = pd.DataFrame.from_dict(parallel, orient='index', columns=["sum",␣
 ↪"time", "type"])
time_diff = df_baseline["time"] - df_parallel["time"]
speedup = df_baseline["time"] / df_parallel["time"]
```

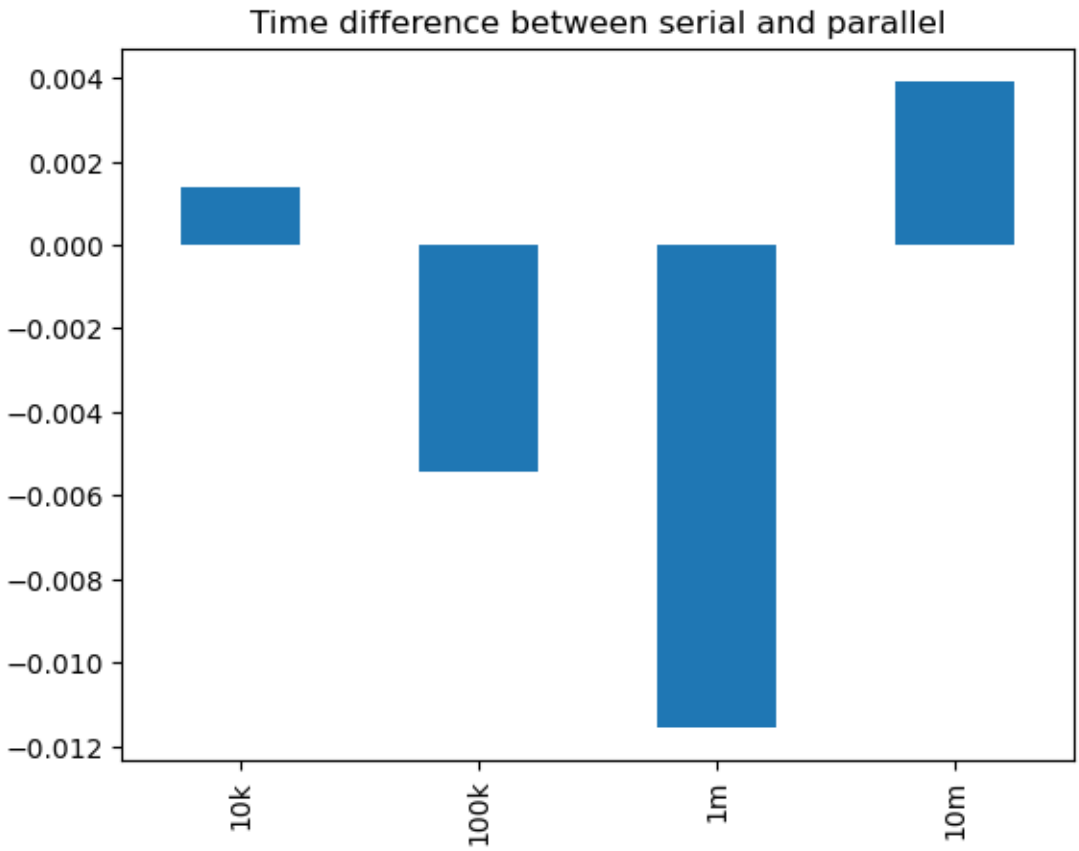
[4]:
```
df_baseline.head()
```

[4]:

	sum	time	type
10k	5.003050e+09	0.003316	serial
100k	5.010510e+10	0.018546	serial
1m	4.996520e+11	0.137988	serial
10m	4.999930e+12	1.274880	serial

[ ]:
```
time_diff.plot(kind="bar", title="Time difference between serial and parallel")
```

[ ]:
```
<Axes: title={'center': 'Time difference between serial and parallel'}>
```



1.1 Code

[ ]:
```
double sumArray(double *a, int numValues, int numThreads)
{
    int i;
    double result = 0.0;
    omp_set_num_threads(numThreads);
    #pragma omp parallel for reduction(+:result)
    for (i = 0; i < numValues; i++)
    {
        result += a[i];
    }

    return result;
}
```