AM-250

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Problem 2

Solution. In using $N = 100$ to create $N \times N$ matrices A, B and C, we have that the run time for both methods with 4 threads is

```
Do Loop Performance:          1.5204474329948425E-002  sec
OMP Do Performance:           5.1853619515895844E-003  sec

MATMUL Performance:           9.4597414135932922E-004  sec
OMP WORKSHARE Performance:    1.1627189815044403E-003  sec
```

where `Do Loop` and `MATMUL` are simply non Open MP versions of the same process. However, if we were to increase the number of threads to 32, we have

```
Do Loop Performance:          1.5982424840331078E-002  sec
OMP Do Performance:           2.7158297598361969E-003  sec

MATMUL Performance:           9.6349418163299561E-004  sec
OMP WORKSHARE Performance:    2.4501252919435501E-003  sec
```

Thus, we may conclude that for lower thread counts, Open MP workshare is the fastest out of the two versions, but if we were to increase the thread count, then Open MP Do is the fastest. Therefore, for large matrices, Open MP workshare works best with lower thread counts, and Open MP Do works best with higher thread counts. ■