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Project 0 - Simple OpenMP Experiment

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1. This program was run on the school server, flip1

2. Performance Results:

Number of Threads	Mega-Multiplies per Second	Fastest Time (in seconds)
1	166.27	.000601428
4	656.98	.000152211

3. S = .000601428 / .000152211 = 3.95

4. The speedup factor is close to 4 but under it because there is code that cannot be run in parallel. The splitting of the array amongst the 4 cores and multiplication that occurs is probably sped up by a factor of 4, but the code such as the following is not perfectly divisible into 4 cores:

```
double time1 = omp_get_wtime();
double timeElapsed = time1 - time0;
double megaMults = (double)ARRAYSIZE / (time1 - time0) / 1000000.;
if (megaMults > maxMegaMults)
    maxMegaMults = megaMults;
if (timeElapsed < fastestTime)
    fastestTime = timeElapsed;
```

5. Parallel Fraction(Fp) = (4 / 3) * (1 - (1 / S))
   = (4 / 3) * (1 - 1 / 3.95)) = .9957806