**Project0**

**Simple OpenMP Experiment**

**Name**: Sahana Nagnedra Hosamani
**Email**: nagendrs@oregonstate.edu

1. **Tell what machine you ran this on**

   I ran this on my MacBook Air using Homebrew-installed GCC that supports OpenMP.

2. **What performance results did you get?**
   - For 1 thread:
     Peak Performance = 236.40 MegaMults/Sec
   - For 4 threads:
     Peak Performance = 709.81 MegaMults/Sec

3. **What was your 1-thread-to-4-thread speedup?**

   S= (Performance with 4 threads) / (Performance with 1 threads)

   S= 709.81 / 236.40 = 3

4. **Your 1-thread-to-4-thread speedup should be less than 4.0. Why do you think it is this way?**

   Some time is spent creating and managing threads, which adds overhead. Also, the threads may slow each other down when they try to access memory at the same time. Parts of the program, like setting up the arrays, are not parallel, so they still run on one thread. And as we add more threads, we don't always get the same boost in speed because of these extra costs.

5. **What was your Parallel Fraction, Fp? (Hint: it should be less than 1.0, but not much less.)**

   Fp = (4/3)* ( 1- 1/S)

   Fp = (4/3) (1-⅓) = 0.889

   Parallel Fraction, Fp = 0.89