Assignment 1: Report

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The table shows the results for the serial and parallel version of KNN.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | # of threads | Serial | 1 | 2 | 4 | 8 | 2048 |
| Virtual Machine | Small | 36 | 35 (1.02) | 26 (1.38) | 20 (1.8) | 30 (1.2) | 556 (0.06) |
| Medium | 12810 | 13342 (0.96) | 6273 (2.04) | 4212 (3.04) | 4798 (2.67) |  |
| Maple Server | Small | 61 | 64 (0.95) | 37 (1.64) | 20 (3.05) | 11 (5.5) | 128 (0.47) |
| Medium | 9395 | 9589 (0.98) | 4863 (1.93) | 2529 (3.71) | 1378 (6.96) | 1995 (4.70) |

On the CUDA platform, the result was:

* 226 ms for the small dataset. (speedup = 0.26)
* 215 ms for the medium dataset (speedup = 44).

The results shows that the delay is mostly the overhead of communication with GPU and actual computation for the two dataset doesn’t have significant difference. Which probably means that the higher speedups can be achieved with databases of larger size.