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CPSC 4780
Part 4 of HW 1

This is a screenshot of the results my answers are based off.

```
[adgarne@node0045 4780]$ ./dotProduct
CPU computation: 0.00309 sec
Memory allocation on GPU: 0.16583 sec
Memory transfer to GPU: 0.00291 sec
Kernel execution: 0.05496 sec
Memory transfer to CPU: 0.00002 sec
Total GPU computation: 0.22408 sec
CPU result: 262114.593750
GPU result: 262160.031250
Difference: 45.437500
Speedup (CPU time / GPU time): 0.01379
[adgarne@node0045 4780]$
```

4. Analyze the performance results in a few sentences.

- Which one runs faster?
- What's the reason for that? Problem size, overhead, etc.

Answer:

The CPU runs faster than the GPU in this dot product operation. The overhead from memory management and data transfer dominates the GPU computation time, making the CPU the faster option for this operation. For the GPU to outperform the CPU, the problem size would need to be larger, and memory allocation should be managed more efficiently.