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**Lab for ITSC 3181, Introduction to Computer Architecture, Spring 2023**

**Lab #13 and #14: Memory and Cache Access, Stride Access and Loop Ordering with Matrix Multiplication**

**Grade:**



**Task 1 and 2 (remove the following two figures, paste yours that have the solutions.)**







Task 3:

1. Which ordering(s) perform best for these 1000-by-1000 matrices? **Why?**
   * **The ordering of jki runs the best with 1.451 Gflop/s, this is because it most utilize the advantage of locality.**
2. Which ordering(s) perform the worst? **Why?**
   * **The ordering of ikj runs the worst with 0.478 Gflop/s, this is because it is worst at utilizing the advantage of locality. The CPU had to reload each data in every iteration.**
3. How does the way we stride through the matrices with respect to the innermost loop affect performance?
   * **The stride of the innermost loop is 1, which is always faster.**