CS516: Parallelization of Programs
Hands on Session - 4

Date: 15-Feb-2024

Notes:

1. The goal of this session is to make you familiar with GPU coalesced memory accesses. Please try to submit the solutions during the lecture hour itself.

Task-1:

Consider a Matrix M of size m*m and a Vector V of size 1*m. Write a CUDA program to perform Matrix-Vector multiplication Z=V*M under the following scenarios discussed in the class.

(a) Without coalesced memory accesses
(b) With coalesced memory accesses.

Try to understand the performance difference between them by running for large values of m.

Note: Make sure the output of the programs is the same.

Task-2:

Write a program using AOS and SOA as discussed in the class. Try to understand the performance difference by running on large arrays.