C{}DE-A-TH{}N - 2022

Assignment 4

Q. 1 A. Write a C/C++ or Python program to perform Sparse matrix-vector

   multiplication

   B. Deploy the above code on GPU using CUDA C++/ CUDA Python

- Randomly generate the sparse matrix size sufficiently large eg. 4096 X 4096 of type double.
- Measure the performance of of sequential version and optimized parallel version
- Calculate the speedup observed
- You may execute sequential programs on your local machine
- However all parallel codes must be executed on server
- Parallel versions considered for evaluations only if both sequential and parallel codes gives same and correct output

Sparse matrix vector multiplication

- There are different sparse matrix storage formats you can pick whichever you feel more suitable for parallelization on GPU.
- Final output of sequential and parallel code must be validated

Submission

- Explain in brief your parallelization strategy like data splitting, thread/block creation, and allocation etc.

Ans:

Submission

- Insert your findings into the below table

Ans:

	Sequential Time	Parallel version 1 time	Parallel version 2 time	Speedup wrt parallel version 1	Speedup wrt parallel version 1
Matrix matrix addition					

Note:- In case if needed you can add more columns if you have implemented multiple parallel versions

Submission

- Comment on your observations such as limitations of proposed solution, etc.

Ans:

Submission

- Rename the file as <TEAM_NAME>_Assignment1
- Send the presentation file with source code to coordinator's mail