Installation Document

We used quite large datasets for running this program since we can't submit all of them you can download the folder original from here:

After downloading the tar file, untar it and place in data/ and mpi_distributed/

Now run the script.sh in both the places and you will obtain with 'modified/' folder in both locations. Use these datasets to test the code.

This is done for preprocessing the data in a format that if <n1> <n2> is present <n2> <n1> will not be present and node indexes start from 0.

Instructions To Compile and Run:

Running the makefile generates all the executable files for the serial , MPI and cuda versions.

Run the following commands to run each file:

Sequential Files:

nodeIterator.cpp : ./nodeIterator.cpp < path_to_inputfile

nodeIterator_core.cpp : ./nodeIteratorCore < path_to_inputfile

edgeIterator_forward.cpp : ./edgeIteratorV1 < path_to_inputfile

edgeIterator_compactforward.cpp : ./edgeIteratorV2 < path_to_inputfile

edgeIteratorForwardArrays.cpp : ./edgeIteratorV3 < path_to_inputfile

sqrtDecompn.cpp : ./sqrtDecompn < path_to_inputfile
mpi_edgeIteratorForwardArray.cpp : mpiexec -np <p> ./mpiEdgeIteratorForwardArray path_to_inputfile

CUDA Files:

./edgeIteratorCuda < path to inputfile

Note: The number of blocks and threads in CUDA is hardcoded. Change them manually if you wish to.

For mpi_distibuted, change the file name in constants.h and use compile_and_run.sh to run the code. Make any changes required(like number of processors) in compile_and_run.sh

The vertices,edges and number of triangles in each dataset is mentioned in data/readme.txt

The format of the input file is:

<number of nodes> <number of edges>
<node1> <node2>
<node1> <node2>
.
.
.
.
<node1> <node2>

Nodes are 0-indexed ie from 0 to n-1.

For all programs except mpi_distributed, edges can be in any order. But, it should be in ascending order for mpi_distributed.