Discussion 4

Lab 2 - MPI - Part A

- Scattering the Image and Adjacency Matrix.
- Also, if needed, send/recv other variables.
- Generate histogram for each scattered image chunk.
- Collect Histogram using Tarry's Algorithm (it is okay to assume that node 2 is "root" node from now on)
- Process, left over chunk, if any. (depends on implementation)

Lab 2 - MPI - Part A

- Part A: Tarry's Algorithm (A solution, not THE solution)
    - Start at Node 2. (no penalty for assuming process id as either as 1 or 2)
        - Send Histogram to one of the neighbor. (with id)
        - Flag this neighbor as 'visited'.
        - Recv from ANY_SOURCE
        - Repeat till all neighbors are 'visited'.
            - Once done, Node 2 has the final histogram.
- For other nodes:
    - Recv Histogram from ANY_SOURCE
    - Check if parent is initialized:
        - YES: Skip adding Histogram
        - NO: Add/Merge histogram, initialize sender as Parent.
    - Send Histogram to a neighbor. (with id)
    - Flag this neighbor as 'visited'.
    - Repeat till all neighbors are 'visited' (except Parent).
        - Once done, send histogram to Parent.

Lab 2 - MPI - Part B

- Scattering the "*lines*" array.
- Also, if needed, send/recv other variables.
- CountFrequency of the word in scattered *lines* chunk.
- For Reduce: simply call MPI_Reduce
- For Ring:
    - Start at Root (send first to 1, then recv from N-1)
    - Other nodes (i) recv first from i-1, add up their results, then send to i+1.

Any Questions?