Assignment 4 OS Lab

Group 7

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1 Optimization Algorithm

Every time new nodes are added and some of them are taken as source nodes for a process, we divide them into newSourceNodes and newNonSourceNodes. Then,

1. Perform a multi source dijkstra's algorithm on the whole graph taking the newSourceNodes as the source nodes. This will create a competetion between the old and new source nodes for the shortest path to each node.
2. Using this, update the shortest path distances and parents of each node in the graph.
3. Now for every newNonSourceNode, perform a simple dijkstra algorithm on the graph with this node as source.
4. Compare (distance[X][V] + multiSrcDijDist[X]) with multiSrcDijDist[V] and update distances and parents accordingly.

This is better than performing the multi source dijkstra algorithm taking both old source nodes and new source nodes together because the number of new nodes in total is less than 10 per process compared to the 500+ in the generic approach.