Faculty of Engineering
Cairo University

Parallel Computing

#CMP4011

Proposal

Submitted to:

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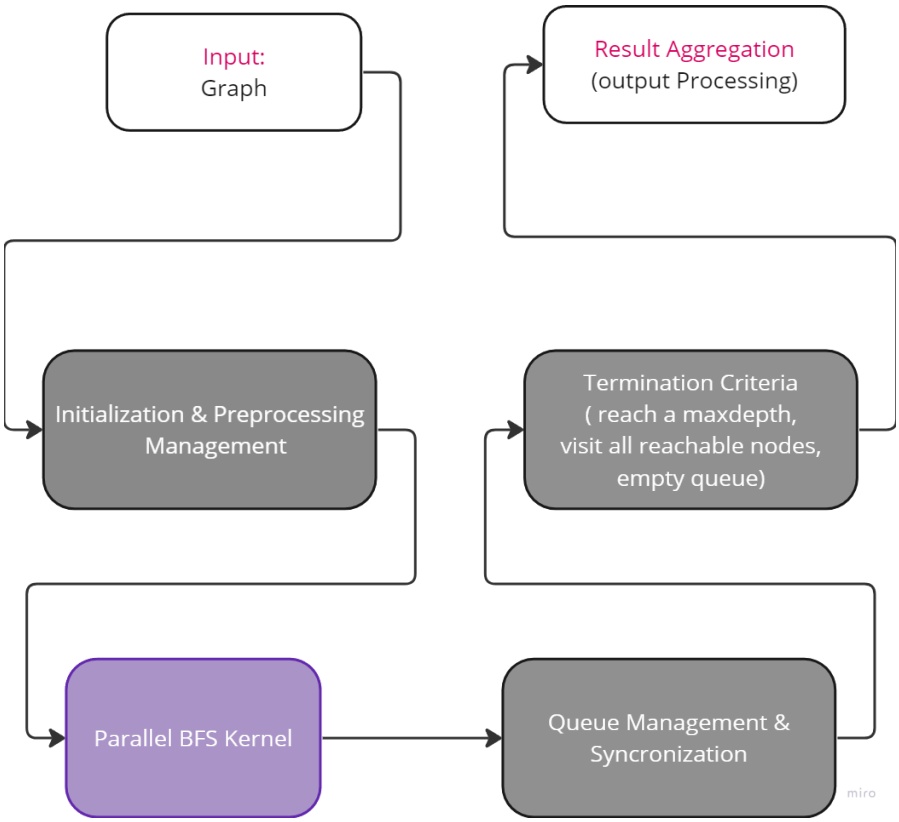
Idea Description

• A graph data structure represents the relations between entities. Which can and is used in many fields and applications.
We will enhance the performance of Breadth-First Search (BFS) graph traversal algorithms by implementing parallelization techniques. BFS is a one of the fundamental algorithms used for exploring nodes in a graph, starting from a given source node and moving level by level. While BFS is effective for many applications, its sequential nature can become a bottleneck when dealing with large-scale graphs, such as social networks, web graphs, or road networks.

Block Diagram



Workload Division

- We will apply 2 approaches:
  - An Edge-centric BFS kernel
  - A Vertex-centric BFS kernel.