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**Assignment: hw05**

**BFS Implementation:**

BFS is one of the graph traversing algorithms where we should start traversing from a source node and traverse the graph level wise thus exploring the neighbor nodes (nodes which are directly connected to source node). We must then move towards the next-level neighbor nodes.

For implementation we use a queue data structure to store the node and mark it as 'visited' until all its neighbors (vertices that are directly connected to it) are marked. The queue follows the First in First Out (FIFO) queuing method, and therefore, the neighbors of the node will be visited in the order in which they were inserted in the node i.e. the node that was inserted first will be visited first, and so on.

![Diagram

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**DFS Implementation:**

The DFS algorithm is a recursive algorithm that uses the idea of backtracking for traversing or searching tree or graph data structure. It involves exhaustive searches of all the nodes by going ahead, if possible, else by backtracking.

For implementation, we use:

1. A recursive function that takes the index of node and a visited array.
2. Mark the current node as visited and print the node.
3. Traverse all the adjacent and unmarked nodes and call the recursive function with index of adjacent node.

**![Diagram

Description automatically generated]()**

Answer 1(a)

Diagram, letter

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Answer 1(b)

Diagram

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Answer 1(c)

Diagram

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Answer 1(d)Diagram

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