# Assignment No 2:Best-First search(BFS) in Graph representation problem solving

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## I. Introduction

Breadth first search is a graph traversal algorithm that starts traversing the graph from root node and explores all the neighbouring nodes. Then, it selects the nearest node and explore all the unexplored nodes. The algorithm follows the same process for each of the nearest node until it finds the goal.

## II. VARIANTS OF BEST FIRST SEARCH

The two variants of Best First Search are Greedy Best First Search and A* Best First Search.

Greedy BFS: Algorithm selects the path which appears to be the best, it can be known as the combination of depth-first search and breadth-first search. Greedy BFS makes use of Heuristic function and search and allows us to take advantages of both algorithms.
A* BFS: Is an informed search algorithm, or a best-first search, meaning that it is formulated in terms of weighted graphs: starting from a specific starting node of a graph, it aims to find a path to the given goal node having the smallest cost (least distance travelled, shortest time, etc.)

## III. ALGORITHM FOR BFS

Let S be the root/starting node of the graph.
Step 1: Start with node S and enqueue it to the queue.
Step 2: Repeat the following steps for all the nodes in the graph.
Step 3: Dequeue S and process it.
Step 4: Enqueue all the adjacent nodes of S and process them. [END OF LOOP]
Step 6: EXIT

## IV. CONCLUSION

The breadth-first

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The BFS algorithm is useful for analyzing the nodes in a graph and constructing the shortest path of traversing through these.

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