



Experiment Number: 3

Aim:

WAP for BFS algorithm using uninformed search method.

Theory:

Breadth-first search is a simple strategy in which the root node is expanded first, then all the successors of the root node are expanded next, then their successors, and so on. Breadth-first search can be implemented by calling TREE-SEARCH with an empty fringe that is a first-in-first-out (FIFO) queue, assuring that the nodes that are visited first will be expanded first. It uses two queues for its implementation: open, close Queue. Children are added from backend of queue.

Performance Comparison:

- Completeness: yes, it gives shallowest goal
- Optimality: yes, provided path cost is non- decreasing
- Time complexity: $O(b^{d+1})$
- Space complexity: $O(b^{d+1})$

Algorithm:

1. Create single member queue comprising of root node.
2. If 1st Member of Queue is GOAL then goto Step 5.



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3. If first member of queue is not GOAL then remove it and add to CLOSE or Visited Queue. Consider its Children/ successor, if any add them from BACK/REAR [FIFO]
4. If queue is not empty then goto Step 2, If queue is empty then goto Step 6
5. Print “SUCCESS” and stop.
6. Print “FALIURE” and stop

*** Solve One example based on BFS**

Conclusion: Thus, the program of Breadth first search has been executed successfully.

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