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**Section:** 3A

**Subject:** ARTIFICIAL INTELLIGENCE(LAB)

**Task No:** Lab-Task 7

**Task-7**

**A\* Algorithm**

**1. Introduction:**

This report provides an analysis of the implementation of the A-Star (A\*) algorithm in Python. The A\* algorithm is a pathfinding and graph traversal algorithm that finds the shortest path from a given start node to a goal node using a heuristic function.

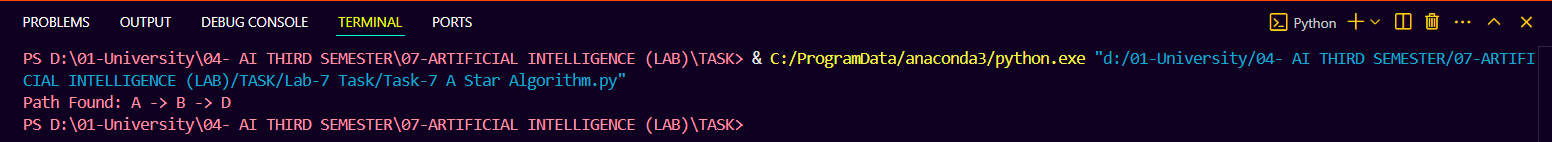
**2. Implementation Details:**

The program defines a directed weighted graph and uses the A\* algorithm to compute the optimal path from a start node to a goal node based on cost and heuristic values.

**3. User Interaction:**

* The implementation correctly follows the A\* algorithm principles.
* Using a priority queue significantly improves performance for larger graphs.
* The heuristic function is simplistic, for more complex scenario’s domain-specific heuristic could be used.

**4. Output:**



**5. Conclusion:**

The A\* algorithm successfully finds the shortest path using cost and heuristic values. By incorporating a priority queue, the efficiency of the algorithm is enhanced, making it more suitable for larger and more complex graphs.