**LAB-7**

The program implements the *A (A-Star) search algorithm*\* for finding the shortest path in a weighted graph. The Node class represents graph nodes, storing their name, cost (g), heuristic (h), and total estimated cost (f). The AStarGraph class manages the graph structure, allowing nodes (add\_node()) and weighted edges (add\_edge()). The a\_star\_search() method explores paths using heuristics and path cost, prioritizing nodes with the lowest f value. If a path to the goal is found, reconstruct\_path() traces it back. The program defines a heuristic-based graph and finds the shortest path from "A" to "G" using A\*.

