

DAA Project

Title: Visualizing Dijkstra's Algorithm: Finding the Shortest Path

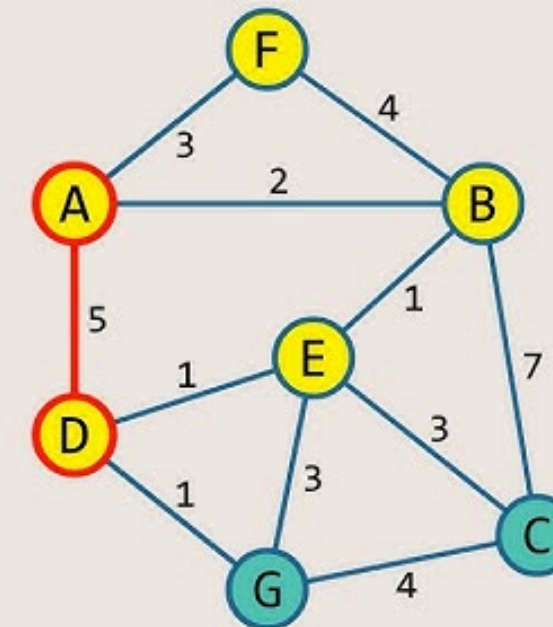
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🌐 Live Demo: dijkstra-solver.netlify.app

Code Link : [Github](#)

Dijkstra's Algorithm



Node	Cost	Previous
A	0	
B	2	A
C	6	E
D	4	E
E	3	B
F	3	A
G	6	E



Project Overview & Goal

This project is an interactive web-based tool to visualize how Dijkstra's Algorithm works for finding the shortest path in a graph.

- This project is an interactive web-based tool to visualize how Dijkstra's Algorithm works for finding the shortest path in a graph.

✨ Key Features:

- Create Nodes: Click to drop nodes (vertices) and build the network structure. 📍
- Connect with Edges: Link nodes with weighted edges to define the distance or cost between them. 🔗
- Run Algorithm: Execute Dijkstra's Algorithm from a chosen source node. ▶️
- Visual Animation: See the shortest paths highlighted visually in real-time, step-by-step. 🛣️

💻 Technology Stack:

- HTML: Structure and layout. 📄
- CSS: Styling and responsive design. 🎨
- JavaScript: Algorithm logic and DOM manipulation for the interactive visualization and animation. ⚙️



The Shortest Path Problem

1

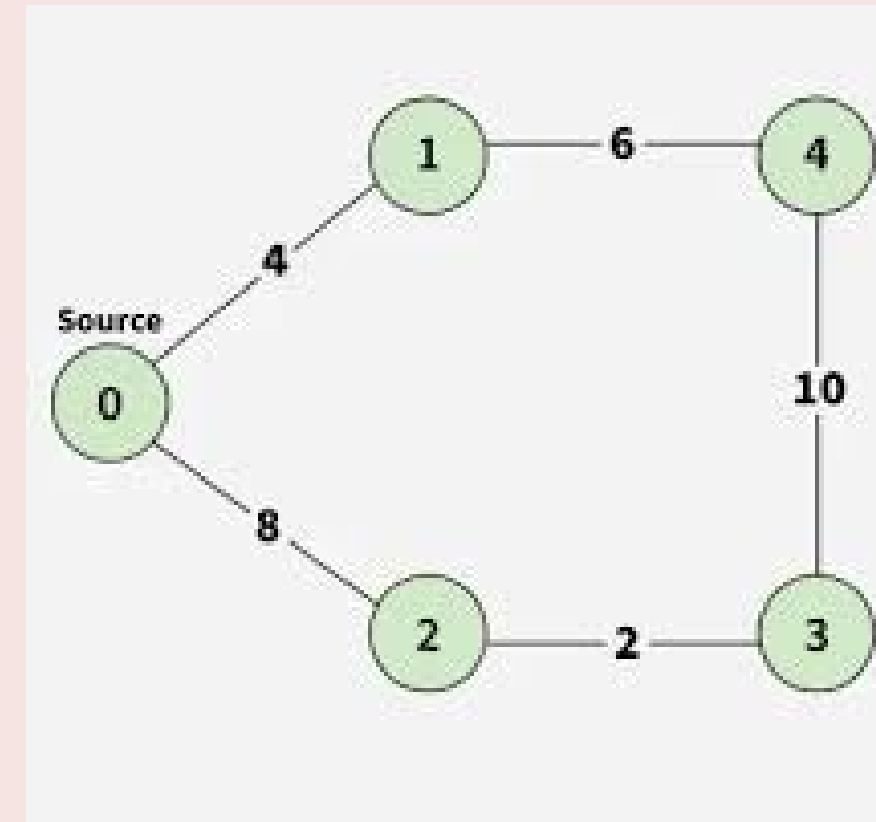
Goal: Find the shortest route from a single starting point (source node) to all other reachable points (nodes) in a graph.

2

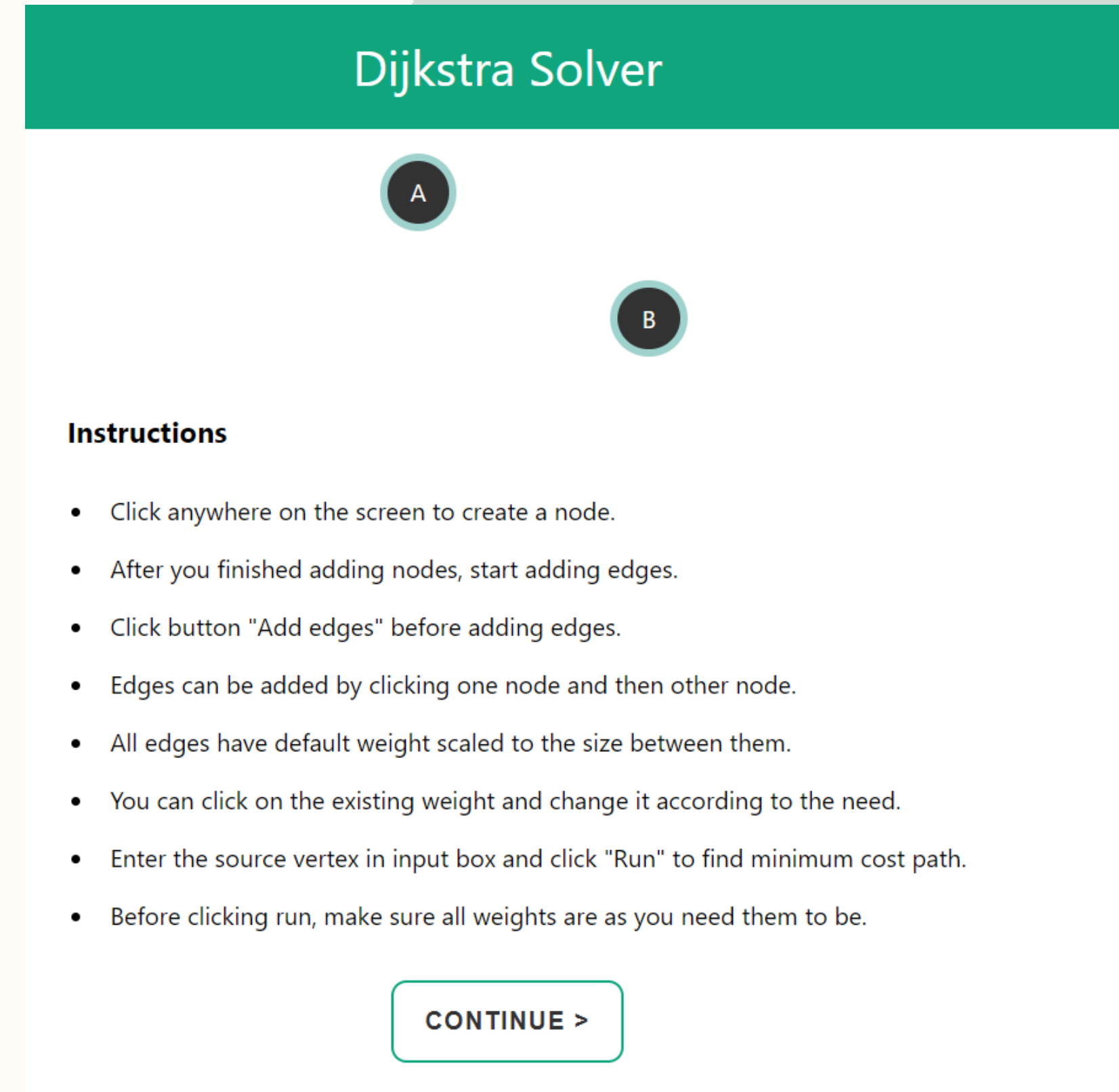
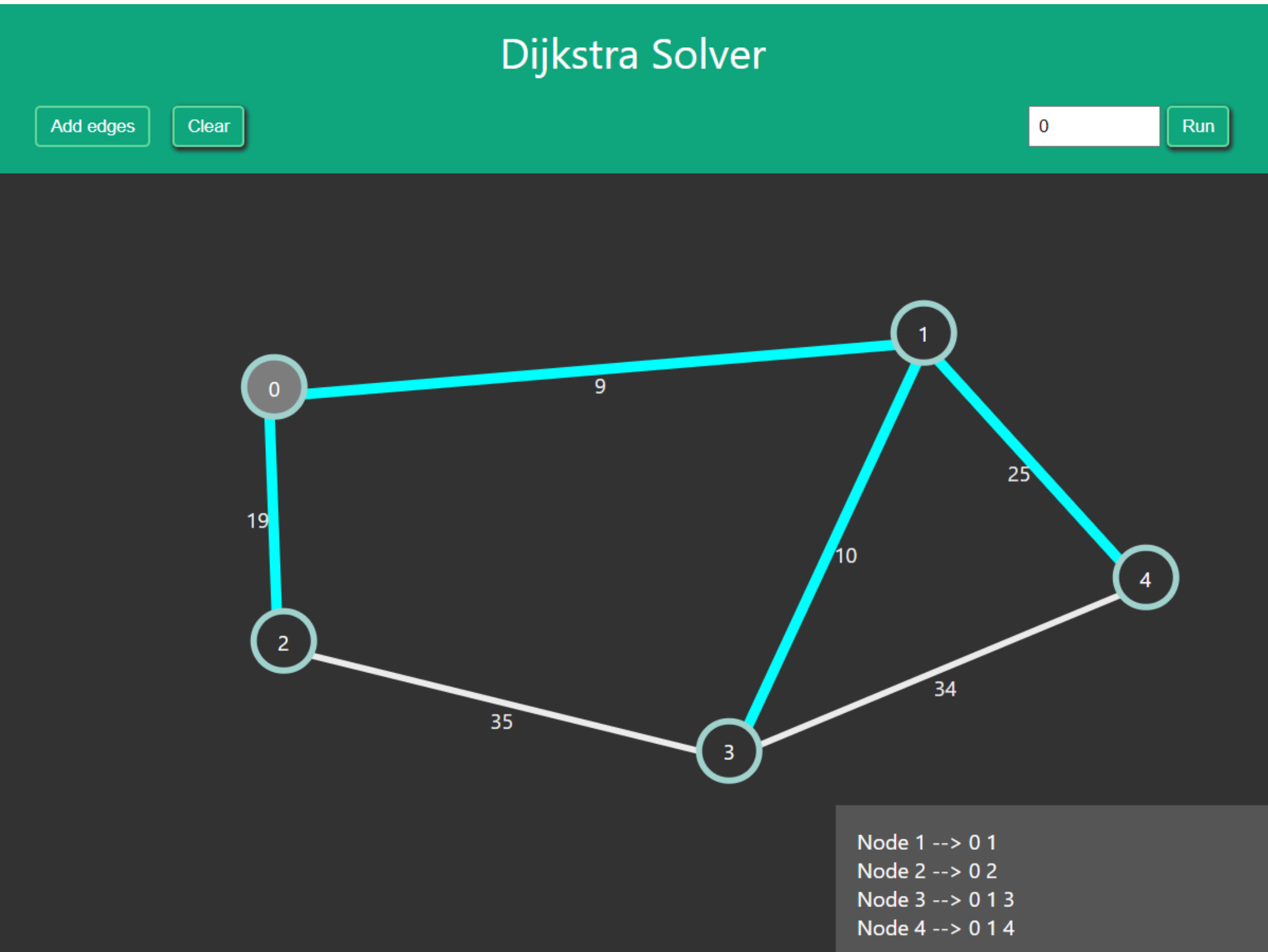
Application: Widely used in GPS navigation, network routing protocols (like OSPF), and finding the cheapest path in logistics.

3

Requirement: The algorithm works on graphs where edge weights (distances) are non-negative.



How Our Website Works: The Dijkstra Solver



Main Functions

appendBlock()

Creates a new node on the screen.

addEdges()

Enables edge creation and initializes adjacency matrix.

drawLine()

Draws an edge between two nodes and stores weight.

findShortestPath()

Runs Dijkstra's algorithm to find shortest paths.

indicatePath()

Highlights the shortest path on the screen.

resetDrawingArea()

Clears all nodes and edges to restart.



Thank you!