MEAM620 Programming Assignment - II

Due: March 16, 2007
Programming Assignment - II

• Implement the Dijkstra’s algorithm on an undirected 2D graph
• Inputs:
  – An undirected graph (might involve loops and be disconnected) in a 2D plane. Each vertex of the graph is a 2D point.
  – The cost of each edge in the graph will be the length of the line segment connecting the two end states.
  – A vertex of the graph as the initial state
• Outputs:
  – Show the optimal cost moving from the given initial state to each vertex in the graph
• Note:
  – Undirected graph means that each edge corresponds to two actions that can change between two end states of the edge
  – No existing Dijkstra’s algorithm should be used.
An Example of the Problem

The initial state

(-3.5, -2)
The Expected Result

The initial state

(-3.5,-2)

C(-1,-2)=2.5

C(2,-0.5)=\text{inf}

C(0,-1.5)=\text{infinity}

C(0,-3)=3.64

Showing the cost of optimal path from the initial state to each vertex in the graph