

IMPLEMENTATION OF A SHORTEST PATH ALGORITHM

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Graph Theory is an old subject with modern applications. It has evolved as an important mathematical tool which provides solutions for a wide variety of problems in many areas of study such as Social Science, Economics, Geography, Architecture, etc.

Graphs with a number assigned to each edge are weighted graphs, which are used to model computer networks, communication costs, transportation networks, etc. The weights in these cases can be the distance between computers, cost between two communication nodes, or the traveling time, cost or distance, etc. One problem in weighted graph theory is to find the shortest path according to the given weights.

Several algorithms exist in the literature for the shortest path problem. One such algorithm is the Dijkstra's Algorithm. Our purpose is to implement the Dijkstra's algorithm in computers using the Visual Basic Language.

In the first step of the programme, a matrix, including all the weights in the given graph, is created graphically. In the second step of the programme, the shortest path is calculated according to the request.

As an application to test the programme, a road map of 26 cities has been used, and the shortest distance between two cities has been calculated. This programme can be used for other purposes as well.