DANTZIG'S SHORTEST PATH ALGORITHM

Abstract of Presentation

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In 1959, Dantzig presented his version of algorithm for finding shortest route from a given origin to all other nodes in the network, or to one particular destination point. As the author states in the original paper, this problem has already been solved the same way by many authors. But unlike previous algorithms, Dantzig's refined version not only finds length of shortest paths to all nodes, but also shortest paths itselves, without doing any backtracking to find them.

The algorithm starts at origin node and continues to one new node at each algorithm step. This node is chosen from the set of not-yet examined nodes as the one having the smallest distance from all already examined nodes. After each step, all other paths to this node are deleted and the process continues with next node until there are no more unexamined nodes in network.

As an example, one simple network is chosen to demonstrate algorithm principles step-by-step and to show its advantages with respect to previous methods.

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