USING MODIFICATION OF PRIM'S ALGORITHM AND GNU OCTAVE AND TO SOLVE THE MULTIPERIODS INSTALLATION PROBLEM

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Abstract

The Minimum Spanning Tree (MST) is one of the famous problems that is used mostly as the backbone in many network design problems. Given a graph G(V,E), where V is the set of vertices and E is the set of edges connecting vertices in V, and for every edge e(ij) there is an associated weight c(ij)>= 0. The Multi Period Degree Constrained Minimum Spanning Tree (MPDCMST) is a problem of finding an MST while also considering the degree constrained on every vertex, and satisfying vertices installation requirement on every period. Two algorithms (WWM1 and WWM2) are proposed for solving this problem. GNU OCTAVE is used for coding and visualization. GNU is a recursive acronym for "GNU's Not Unix!" and that name is chosen because it is like Unix but differs from Unix because it is free and contains no Unix code. Those algorithms were implemented using 300 randomly generated problems. Moreover, we compare WWM1 and WWM2 algorithms using existing data from the literature and the results show that WWM2 is the best.

Keywords

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