Abstract

Graphs can be used to model various problems and relations in diverse domains eg. Computer Science, Biological, Chemical and many other. There exist various hard problems in communication networks, which are practically hard but can be shaped in the form of graphs. A Hamiltonian Path is a spanning trail in a network graph i.e. a path through every network node and a spanning cycle in a network graph is a Hamiltonian cycle. A network graph containing a Hamiltonian Cycle in it, is said to be Hamiltonian. The problem of finding whether a graph G is Hamiltonian is proved to be NPComplete. It can't be solved in a polynomial time. In this paper, state-of-the-art for existing degree related conditions for graphs to possess Hamiltonian cycle is presented. Later, various practical applications of Graph Theory in computer science are summarized. Future research directions in this perspective are also given at the end of this paper.


7. O. Ore, Note on Hamiltonian Circuits.


Index Terms

Computer Science Networks
Keywords

Graphs, Communication networks, Hamiltonian cycles, Spanning cycle, Hamiltonian path.