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Title:	Minimum 1-regular bipartite graph deletion set problem
Authors:	Gupta, Surender Naman
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Abstract:	This thesis presents an algorithmic solution to a certain NP-hard problem called ND(1) wherein the solution is determined through two different orthogonal approaches : (I) Combinatorial Optimization and (II) Graph Theoretic Optimization. The author has considered ND(1) in two different settings, solved it with two different approaches, and obtained matching (tight) bounds in both cases - hinting at the equivalence of the two approaches taken. In approach (I), the author begins by explaining some basic concepts of NP-hardness and Approximation Algorithms in reference to ND(1), followed by a brief look at the Primal-Dual Algorithm. The next two chapters in part (I) go on to formally detail ND(1) and its proposed 2 1), optimal solution respectively. A largely similar sequence is followed in part (II), wherein the author additionally explains some graph (and hypergraph) terminology, followed by reformulating ND(1) in different terms. The final chapter then proposes approximation algorithm for the same. Keywords : Approximation Algorithms, NP-hardness, Node-Deletion Problem, Matroids, Primal-Dual Algorithm, Graph, Hypergraph, Greedy Algorithm.
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