Mathematical Programming: Modelling and Applications

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October 2009

Graph partitioning problem - 2 -

Given a weighted undirected graph $G = (V, E, c)$,

and an integer $K \leq |V|$,

find a partition of $k \leq K$ subsets (clusters) of V minimizing the total weights of edges between different clusters, such that:

- the clusters do not exceed a certain "balanced" cardinality $C = \lceil \frac{|V|}{2} \rceil$;
- adjacent vertices with same colour must be clustered together.

Write the mathematical formulation and solve the problem using AMPL.

Graph partitioning problem - 2 : data

Same data of the previous problem, plus these vertex colors:

1	1
2	2
3	3
4	3
5	2
6	2
7	2
8	2
9	1
10	1
11	4
12	4
13	4
14	4
15	1
16	4