Mandatory Exercise: Approximation Algorithms 2

Inge Li Gørtz

1 Placement of distribution centers You are consulting for a transport company that distributes goods from their distribution centers to malls. They are going to start up in a new area, and wants to know where to place their distribution centers. The map of the are is given as a graph $G = (V, E)$ with n nodes and distance function d, which is a metric. The nodes of the graph is partitioned into two sets D and M, where D are the possible placements of the distribution centers, and M are the locations of the malls. They want to build k distribution centers such that the maximum distance from a mall to its closest distribution center is minimized. Give a 3-approximation algorithm for the problem.
Note: You may assume you know the optimum covering radius.