

# **A TABU SEARCH APPROACH TO THE CLUSTERING PROBLEM**

**ALSULTAN, KS**

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King Fahd University of Petroleum & Minerals

**<http://www.kfupm.edu.sa>**

## **Summary**

In this paper we consider the problem of clustering  $m$  objects into  $c$  clusters. The objects are represented by points in an  $n$ -dimensional Euclidean space, and the objective is to classify these  $m$  points into  $c$  clusters such that the distance between points within a cluster and its center (which is to be found) is minimized. The problem is a nonconvex program that has many local minima. It has been studied by many researchers and the most well-known algorithm for solving it is the  $k$ -means algorithm. In this paper, we develop a new algorithm for solving this problem based on a tabu search technique. Preliminary computational experience on the developed algorithm are encouraging and compare favorably with both the  $k$ -means and the simulated annealing algorithms.

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