Abstract

This paper implements a tool, referred to as the Automated Group Decomposition Program (AGDP), which divides a class of students into groups, using the k-means algorithm, for the purpose of collaborative learning, and then heterogenizes the groups based on a factor called the degree of heterogeneity (DOH). The tool takes as input two sets of scores and the students’ roll numbers and outputs the required groups. The first score set scored students on communication skills, fluency in using computers and group work attitude. This score set was used to generate the homogeneous groups. The second score set scored students on their knowledge of the subject and was used to generate the heterogeneous groups. The tool can be used to generate homogeneous clusters, heterogeneous clusters and a mixture of both. This tool can not only be used by teachers but also by instructors with minimal computer experience wishing to form groups to maximize learning.


**Index Terms**

Computer Science  
Databases
Keywords

collaborative learning, k-means, constraint satisfaction, degree of homogeneity, group learning, homogeneous groups, heterogeneous groups.