ABSTRACT
Argumentation is an important and critical process in a collaborative decision making environment. Several argumentation frameworks and systems have been proposed for collaborative decision making earlier. However, limited decision support is provided to stakeholders. In an argumentation process, stakeholders tend to form groups, called faction groups based on their opinions and exchange of arguments. Each faction group is usually led by a faction leader in the group. Identification of faction groups and leaders in argumentation becomes an important challenge which has not been addressed adequately in the past. The faction assessment in argumentation provides the decision maker with more information about faction groups and their opinions towards the given issue and it helps the decision maker with logical and analytical competency to assess and analyze post-decision effects on each faction group and faction leaders, and make rational decisions. In this paper, we present a framework for identifying faction groups and faction leaders in an argumentation process using the K-means clustering algorithm. It is evaluated using a data set: an argumentation tree developed by a group of 24 stakeholders in an argumentation process using our web-based intelligent argumentation system for collaborative decision support. The experimental results show that the framework works effectively for faction assessment.