A Hybrid Approach for Knowledge Recommendation

Wen-Yau Liang[1], Chun-Che Huang[2] and Yu-Ting Pan[1]

[1]National Changhua University of Education and [2]National Chi Nan University

Abstract

Knowledge sharing is critical to knowledge management as it enables employees to share their knowledge. However, knowledge searching is a very time-consuming work. Additionally, in the context of an unsolved puzzle or unknown task, users typically have to determine the knowledge for which they will search. Therefore, knowledge management platforms for enterprises should have knowledge recommendation functionality. Hybrid recommendation systems (RS) have been developed to overcome, or at least to mitigate, the limitations of collaborative filtering. Because Genetic Algorithm (GA) is good at searching, it can cluster data according to similarities. However, the increase in the amount of data and information reduces the performance of a GA, thereby increasing cost of finding a solution. This work applies a novel method for incorporating a GA and rough set theory into clustering. In this paper, this work presents a hybrid knowledge recommendation model, which has a two-phase model for clustering and recommending. Approach implementation is demonstrated, as are its effectiveness and efficiency.

Keywords: Knowledge recommendation, clustering techniques, rough set theory, genetic algorithm.

1. Introduction

In the last decade, the importance of knowledge has been high-lighted by both academics and practitioners [67]. Firms that create knowledge and apply it effectively and efficiently will therefore be successful creating competitive advantage [49]. Organizational growth and survival, increased and more effective performance, sustained competitive advantage, and improved quality of service, are some of the benefits that successful handling of knowledge may bring, while the utilization of knowledge is key to production, power, and advancement [29]. However, knowledge searching is a very time-consuming for users. In many cases, users must know which knowledge they need and whether it is stored in a repository, often rendering them unwilling to spend time and energy searching for it [75]. In recent years, recommendation systems have played an important role in reducing information overload on websites where users can vote on a series of articles or services [7].