Shizuku2.0: Community Oriented Reading Support System

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1.　Introduction

The relationship between the library and the community has a great influence on the design of the library automation system. The recent movement toward *Learning Commons* and *Library 2.0* has increased the importance of the community in the library. It is necessary that library engineers consider the community of library users when they develop a new library automation system. In this study, we propose cooperative reading, which is a reading support technique that allows library users to help each other. We also developed a system named *Shizuku2.0: Community Oriented Reading Support System*. To achieve cooperative reading, it is necessary for a user to discover others with similar interests. Therefore, we develop and evaluate a recommendation function that recommends similar users using Nippon Decimal Classification (NDC) Tree Profiling.

2.　Research Question

The following two research questions were addressed: Is the user recommendation using NDC Tree Profiling effective in finding similar users? Which parameter of NDC Tree Profiling method is the most effective expression of users' interests?

3.　Method

3.1　Shizuku2.0

We developed the Shizuku2.0 system (Figure 1) to support the creation of a library user community in which users help each other efficiently and mutually. The system has following three functions.

Reading Stream – a function that semi automatically records users' reading history and distributes it to other users

User Recommendation – a function that recommends similar readers to users, in order to facilitate formation of the reader community

Watch List - a function that allows one to gather other readers' reading streams on Shizuku2.0 by registering recommended users

3.2　NDC Tree Profiling

We also designed and developed NDC Tree Profiling, which enables the creation of library user profiles, for the purposes of the user recommendation mechanism.

Concretely, NDC Tree Profiling extracts NDC codes included in the reading stream of each user and constructs a hierarchical structure based on the data, constituting a user profile. For instance, when a user has three NDC codes: 410.02, 421, 913.02 and 914, NDC tree is shown as Figure 2. Shizuku2.0 recommends similar users by calculating the similarity of these hierarchical structures.

To verify the effect of the user recommendation mechanism, we performed an experiment with 37 student users to calculate recall and precision.
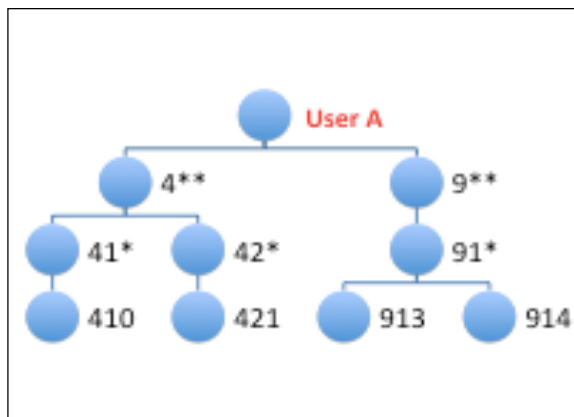
Figure 1 : Shizuku2.0

Figure 2: An Example of NDC Tree

we found the second level of the NDC code could be the most effective expression of users' interests. In the discussion of the optimization of parameters, parameters, we propose a new way of implementing the NDC Tree, based on the second division of NDC, which is expected to improve creation of user profiles.

4. Findings

We found that the recommendation using NDC Tree Profiling is more effective than a random recommendation. However, we also recognized that there is room for improvement relative to a past information recommendation technique. Moreover,