A Study of Applying Sequential Pattern Mining to the College Entrance Examination Databases

Student: Yu-Huei Yen   Advisor: Dr. Chieh-Yuan Tsai

Institute of Industrial Engineering and Management

Yuan-Ze University

ABSTRACT

To survive in the severe competition environment, universities and departments should comprehend who are their main competitors and how to set up management strategy for them. Although there are many researches apply survey and questionnaire to explore the competition among universities and departments, the result is hard to reflect the practical enrollment situation. Therefore, this research provides a systematic process to analyze examinee's enrollment intention series using sequential pattern mining technique. The main competitors of a target department can be found after conducting AprioriAll algorithm with the most appropriate support value to reduce number of sequential patterns. After finding out the main competitors of the target department, a 2-sequence scatter plot, in which the support value is sketched in x-axis and average distance value is sketched in y-axis, is constructed. The competitors in different quadrant of the 2-sequence scatter plot reveal different meaning to the target department. Lastly, multi-dimension sequential pattern mining technique is applied to analyze the relationship among gender, location and sequence pattern. To validate the proposed analysis process, we use practical examinee databases of year 2003 to discuss the main competitors of a target department

"YZUIE." With the proposed analysis process, the target department can clearly set up different management strategies to different competitors.