

### **303. A MODULAR APPROACH FOR ANALYZING THE FREQUENT PATTERN SETS USING FINITE-RP**

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Frequent pattern mining often produces an enormous number of frequent patterns, which imposes a great challenge on visualizing, understanding and further analysis of the generated patterns. This calls for finding a small number of representative patterns to best approximate all other patterns. Min RPset is used to find a minimum representative pattern set with error guarantee. Min RPset produces the smallest solution and it takes a reasonable amount of time to finish when the number of frequent closed patterns is below one million. Min RPset is space-consuming and time-consuming on some dense datasets when the number of frequent closed patterns is large. Many efficient algorithms have been developed for mining frequent patterns. It has been observed that the complete set of frequent patterns often contains a lot of redundancy. Many frequent patterns have similar items and supporting transactions. It is desirable to group similar patterns together and represent them using one single pattern. To solve this problem, a new algorithm called Finite-RP is proposed which provides one extra parameter K that allows the users to make a trade-off between the result size and efficiency. An incremental approach is adopted that let the users to make the trade-off conveniently. It is expected to have good experiment results using Finite-RPset because it produces fewer representative patterns than Min RPset.

Index Terms—Representative patterns, frequent pattern summarization.