Abstract

The tremendous advancement in technology has given rise to an increasing requirement for the storage of data in files, databases and other data repositories. As a result, decision-makers are required to use new and powerful automated tools for the purpose of the analysis and interpretation of the stored data, as well as for the extraction of interesting patterns in data. Since the stored data is not always exact and precise, some means are required to handle this aspect of data and extract the useful information (e.g. hesitation information) arising from such uncertainties. For this purpose vague set theory has been applied for efficiently modeling the uncertainties that occur in datasets. Vague sets are an extension of the classical set theory. They extend the application of set theory to vague and uncertain problems. Vague set theory has emerged as a new tool to deal with the uncertainties of the data and the parameters attached to the data. This theory exhibits a very promising approach to analyzing uncertain data and deriving some interesting results suitable for use in various applications. This paper discusses the notions of vague sets and vague association rules. Also, optimization techniques have been introduced that would be helpful in optimizing the outcomes. When both are
implemented together, a new approach will be created which is expected to generate much improved results. This paper emphasizes on the study of vague sets for a series of applications especially in decision making problems.

References

6. A. Lu, W. Ng, “Vague sets or intuitionistic fuzzy sets for handling vague data: Which one is better,” 2005 Springer.
8. An Lu, Yiping Ke, James Cheng, and Wilfred Ng, “Mining Vague Association Rules,” Department of Computer Science and Engineering, The Hong Kong University of Science and Technology, Hong Kong, China.


**Index Terms**

Computer Science 

Information Sciences

**Keywords**

Fuzzy Sets, Optimization Techniques, Rough Sets, Soft Sets, Vague Sets