

THE EFFECT OF PARAMETER SETTING ON CLASSIFICATION OF DOMESTIC WATER CONSUMPTION USING SIMPLIFIED FUZZYQSBA

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Abstract:

Water is essential in human daily life and it is renewable. However, the resources of water are reducing due to climate and other factors. Hence many researches were conducted to predict the water consumption and applying many different approaches to solve this problem. Therefore the aim of this research is to enhance an existing method for producing a better and reliable technique with more accurate results. The proposed method is FuzzyQSBA and the parameter settings of the membership function are manipulated to investigate its effect on the accuracy of the method. Here, simplified FuzzyQSBA is used for the classification of domestic water. There are four different parameter settings, the performances of each setting are compared and it shows that parameter setting does effects the final results. Next, the result of the best parameter setting is then compared with other existence fuzzy method using a software name WEKA. Results claimed that the proposed method is compatible with other method in terms of it accuracy.

Key Words: Domestic water consumption, Simplified FuzzyQSBA

Introduction

We are considering the simplified FuzzyQSBA method for classification of domestic water consumption. This method only been used for classification of medical data set by Garibaldi et al. [1] and not yet applied in other field. There are also many investigation related to classification of domestic water consumption such as Altunkaynak et al. [2], Corona-Nakamura et al. [3] and Nezhad et al. [4], All of these researchers used fuzzy and non-fuzzy approach but none of them are applying quantifier-based algorithm.

In this paper, we proposed the simplified FuzzyQSBA method for classification of the domestic water consumption. Simplified FuzzyQSBA is a compressed version of FuzzyQSBA which is more simple and easy to be used. In addition the parameter of membership function is set for four different setting to investigate the best parameter to obtain higher classification accuracy. Since this quantifier-based algorithm is new for classification of water consumption, hence its performance will be compared with other methods.

The structure of this paper is defined as follows. The second section presents the domestic water consumption data set and brief detail about the data set used in this research. Section 3 contains the method of this study, the steps for simplified FuzzyQSBA and Section