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Abstract

A reward program (also known as a loyalty program) is a marketing technique often adopted by some companies to appreciate customers who frequently make purchases with such companies. Normally, this kind of program leads to giving a loyal customer gifts in forms of customer free merchandise, coupons, rewards and advance released products. In most situations, reward programs in these companies are often biased due to the mechanism employed in determining a loyal customer. Hence, this article introduces a method that uses two efficient artificial intelligent techniques namely; fuzzy logic and expert system (fuzzy expert system) to tackle the challenge of biasness in loyal customer selection. These Hybrid system worked efficiently when executed on Jane and Juliet (J&J) Shopping Mall's data and sales manager (domain expert) 's rule. It was able to fuzzify the different linguistic variables and also aggregated the firing rules (from the expert rule-base) to generate a crisp loyalty output after applying a fuzzy inference model. Object Oriented and Design (OOAD) Methodology was used in the design of the system and JAVA was used to implement it. Matlab's Simulink was also used in the simulation of the results.

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Index Terms

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Keywords

Customer reward, loyalty, customer relationship management, hybrid intelligence, fuzzy expert system, artificial intelligence, systems integration, rule-base, fuzzification, defuzzification, crisp output, rule-firing, loyalty analysis.

