B K Mohanty, J Comput Sci Syst Biol 2015, 8:3
http://dx.doi.org/10.4172/0974-7230.S1.011

OMICS International
conferenceseries.com

International Conference on
Big Data Analysis and Data Mining

May 04-05, 2015 Kentucky, USA

Linguistic approach to internet business

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This presentation introduces a new methodology to the consumers in internet business. This is based on the Multiple Attribute Decision Making (MADM) model that takes into account the consumers' attribute wise desires of a product before making a final product choice. The product attributes in general are conflicting, non-commensurable and fuzzy in nature. Consumers' expectations in multiple numbers of attributes, that too when they are fuzzily defined becomes a complex task in traditional business. It is next to impossible in the Internet business. Our paper handles this issue using the concept of fuzzy numbers. It is difficult to do business when the consumers express their requirements linguistically. These vaguely defined consumer expressions are nearly impracticable to make an input in the Internet business. Our paper solves the problem by defining a linguistic scale that incorporates thebuyers' linguistically defined product attributes. For example, in a CAR purchase problem, the multiple attributes might be: Price, maintenance cost, mileage, resale value etc. Taking the data of buyers' interfaces through data mining approach, our paper pre-supposes the buyers' linguistic views in the Internet and accounts how far a product alternative is important for a particular attribute as per the buyers' perception. This is determined using the concept of fuzzy numbers. For instance, how a car is suitable for the attribute "price" and in what way it is good (not good) for other attributes especially when the buyers' readings are fuzzy. A buyer may opine that a particular car is "very good as far as price is concerned" and "less comfortable for mileage". The importance level of an alternative in the Internet with respect to each attribute of the product is derived in the paper by ordering the product alternatives (for example cars) using fuzzy concepts in rank ordering objects. The product of fuzzy importance attached to an alternative with respect to an attributes and the buyers' fuzzy attribute value help us to determine the weighted value of the attribute as per the customers' mind. The difficulty here is to obtain the product of attribute value and the alternative importance, especially when they are linguistically observed from buyers' interfaces in the Internet business. Our paper uses the operation of fuzzy number multiplication to arrive at the product (AI). The combination of the weighted attributes for an alternative help us to obtain how far an alternative best suits the buyers' desire. Our paper uses the concept of Linguistic Order Weighted Average (LOWA) aggregation operator to aggregate an alternative's attribute wise satisfactions to obtain the suitability of that alternative for all the attributes. After obtaining the suitability of an alternative, our paper uses linguistic pair wise comparison method to find linguistically how an alternative is better/worse than other alternative. The linguistic decision process applied in the paper helps us to rank the available alternatives in the Internet as per the customers' choice in linguistic/numeric terms.

Biography

B K Mohanty is a Professor at Indian Institute of Management, Lucknow. He completed his PhD from IIT, Kharagpur on Operations Research in 1987. He has worked with Tata Research Development & Design Center, Xavier Institute of Management and CFTRI. His research areas of interest are multi criteria decisions making, fuzzy data mining, software risk management, and fuzzy sets in e-commerce.

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