Analysis Model for the Relationship of Users, Products, and Stores on Online Marketplace Based on Distributed Representation

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Abstract : Recently, online marketplaces in the e-commerce industry, such as Rakuten and Alibaba, have become some of the most popular online marketplaces in Asia. In these shopping websites, consumers can select purchase products from a large number of stores. Additionally, consumers of the e-commerce site have to register their name, age, gender, and other information in advance, to access their registered account. Therefore, establishing a method for analyzing consumer preferences from both the store and the product side is required. This study uses the Doc2Vec method, which has been studied in the field of natural language processing. Doc2Vec has been used in many cases to analyze the extraction of semantic relationships between documents (represented as consumers) and words (represented as products) in the field of document classification. This concept is applicable to represent the relationship between users and items; however, the problem is that one more factor (i.e., shops) needs to be considered in Doc2Vec. More precisely, a method for analyzing the relationship between consumers, stores, and products is required. The purpose of our study is to combine the analysis of the Doc2vec model for users and shops, and for users and items in the same feature space. This method enables the calculation of similar shops and items for each user. In this study, we derive the real data analysis accumulated in the online marketplace and demonstrate the efficiency of the proposal.

Keywords : Doc2Vec, online marketplace, marketing, recommendation systems

Conference Title : ICBEMM 2021 : International Conference on Business, Economics, Marketing and Management

Conference Location : Sydney, Australia

Conference Dates : March 29-30, 2021