A Method for Determining the usefulness of online Reviews Based on SO-ILES TODIM

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ABSTRACT

Customers nowadays often consult user evaluations before making a purchase. However, information redundancy has evolved as a major problem as a result of this persistent buildup of evaluations. Promoting just useful evaluations to customers has therefore become a critical issue. Very few studies have really tried to determine whether or not reviews are helpful, instead focusing on the elements that could affect them. As a case study, we looked into _lm reviews and suggested a TODIM analysis methodology (based on the intuitive language evaluation set of emotional and ontological factors) called SO-ILES. This approach takes into account both emotional and ontological considerations, and it is domain-agnostic to boot. We started by using statistical methods to gather a series of questions with an emotional and ontological foundation to utilise as a foundation for a set of intuitive language assessment criteria. To do away with the subjectivity of the hand-coded assignment process, a quantitative calculation technique was devised employing an index weight value derived from the logistic regression model. Last but not least, a scoring system and an exact function were developed to rate the effectiveness of reviews in relation to the degree of divergence among group members. We demonstrate how this approach may give more weight to reviews that provide direct ratings of the product using a simulated case study. The consistency and precision of the SO-ILES TODIM method were shown via a series of comparisons and a sensitivity analysis of the input parameters. This paper contributes to the review literature by refining the study of review helpfulness and offering advice to businesses and ancillary platforms on how to handle online customer feedback.

Keywords: Ranking, helpfulness, online reviews, TODIM.

1. INTRODUCTION

Revenue from internet shopping in China increased by 16.5% between 2018 and 2019. Online retail sales rose to 20.7%, a 2.3-point gain over the previous year. As the number of people who choose to buy online grows, more and more online stores are providing customer feedback to help those who are considering making a purchase online. Consumers may benefit from both positive and negative evaluations, but terrible ones aren't worth their time. In order to assist users save time, reviews may be filtered by relevancy, with the most valuable information highlighted. In order to get insight into this real-world problem, we explore the ranking difficulty of review usefulness.Efforts to assess important factors and create

prediction models dominate studies of review value. Less study has been devoted to experience goods than to search items. Research on search goods may not be transferable to experience studies [1] due to the fact that consumers' decision-making processes differ between things. The testimonies of actual clients are analysed in this DVD.The review helpfulness ranking problem entails a rating of online reviews based on how helpful users find them to be. The key focuses of the research are (1) a system for rating reviews based on their helpfulness and (2) a technique for filtering reviews based on their helpfulness index. The following chart depicts the current state of these two fields of study.Reviews on the internet often provide in-depth analysis and the reviewer's comments on the product. The way a person feels about a product shows in their review of it. Consumer requirements drive ontological decisions. The ontology subjects under evaluation are assessed. Reviews may be most effective in conveying their semantic information via their emotive and ontological aspects. Several researchers have investigated the impact of consumers' feelings on their level of satisfaction: Bi et al. [2], Bi et al. [3], Kauffmann et al. [4], Liu et al. [5,6], and Liu [7] employed emotion analysis technology to evaluate alternatives, while Kumar and Abirami relied on ontological considerations. Both Huang and Jiang [8] and Saumyaet al. [9] rated possible solutions based on their ontological qualities. Academics evaluate the value of reviews with the use of statistical indicators and semantic data. Using information entropy and the distribution of scores, Singh and Shaalane built review rating models [11, 12]. As a result of these studies, a statistical and semantic review usefulness index was generated for each.Too many extras may dilute an item's core value. Using multi-criteria decision-making (MCDM), you may do things like anticipate visitors [13], manage hotels [15], analyse Internet of Things (IoT) systems [16], and put into practise Importance Performance Analysis [17]. Review rating is another MCDM problem where it's vital to account for uncertainty in the data, variation in quality, and people's sensitivity to losing money. To some extent, the loss attenuation coefficient, attribute value, and attribute weight may be used to mitigate loss aversion, review data ambiguity, and indicator conflict. The primary goals of MCDM research are rating scale creation and factor importance assessment. To increase the flexibility

of fuzzy-related problems, Wu et al. [18] suggested hesitant pythagorean fuzzy sets (HPFS); Lin et al. [19] devised an entropy measurement method for gauging the uncertainty of probabilistic language term sets; Wu et al. [20] supplemented VIKOR methods with interval type-2 fuzzy best-worst; Liu and Teng [21], Zhang et al. In conclusion, the work shown above enables ongoing optimisation of the MCDM algorithm.Theoretically, evaluating alternatives allows one to ascertain a review's value. These results are flawed in two ways. Since different research objects have different features, indexes must consider ontology features, the evaluation index is not based on a priori knowledge of the object; weights are calculated using the subjective expert assignment method, which necessitates the design of a quantitative calculation method. We adapted TODIM, suggested SO-ILES TODIM, and fixed the two problems with the aforementioned studies based on the state of the art in the field at the time. We came up with our unique method to analyse and assess motion pictures.Both our theoretical and applied efforts are given equal weight. Our proposed SO-ILES TODIM technique is grounded on the intuitive language assessment set of emotional and ontological aspects. Instead of relying on ad hoc manual assignment, this technique takes into consideration affective aspects and ontological traits, broadens the applicability of the assessment set, and quantifies the index weight using a regression coefficient. Our method may place greater emphasis on reviews that provide direct product feedback, reducing readers' time spent on reviews and so speeding up the purchase process.

2. LITERATURE REVIEW

The work of Lin et al. [19] and Wu et al. [20], who devised an entropy measurement method for assessing the uncertainty of probabilistic language term sets using the interval type2 fuzzy best-worst, provides support for the idea that the MCDM algorithm can be optimised by constructing attributes and attribute values, which are reflected by the MCDM.Theoretically, it helps to evaluate and contrast evaluations of distinct goods using rankings. There are two major problems that have hindered these investigations. For indexes to be useful, ontology must be included into the calculation process on a quantitative level since research objects have variable qualities and weights are given subjectively by professionals. To address these two limitations, we

developed SO-ILES TODIM, an enhanced version of TODIM. The efficiency of the research was measured via video recordings. We contributed both conceptually and practically. This study introduces the SO-ILES TODIM method as a replacement for the subjective manual assignment procedure by accounting for affective factors and ontological features, broadening the assessment set's applicability, and providing a numerical value for the index weight via the regression coefficient method. Since our method may highlight reviews that directly evaluate products, consumers may spend less time reading reviews and more time making purchases based on recommendations.

3. PROPOSED METHOD

Based on the current status of the research, we developed SO-ILES TODIM to enhance the TODIM method and address the two shortcomings of the earlier study. Our investigation informed the development of a system for evaluating the credibility of critical reviews of films. The theoretical and practical value of our contributions are equal. Based on the intuitive language assessment set of emotional and ontological factors, our theoretical contribution is the SO-ILES TODIM approach. By eliminating the subjectivity of the manual assignment technique and taking into account emotional elements and ontological traits, this strategy may employ the regression coefficient method to quantify the index weight, making the assessment set more broadly applicable. Because our technique has the ability to emphasise reviews that give direct product assessments, it has real-world applications because it allows consumers to spend less time reading reviews and more time making a choice.
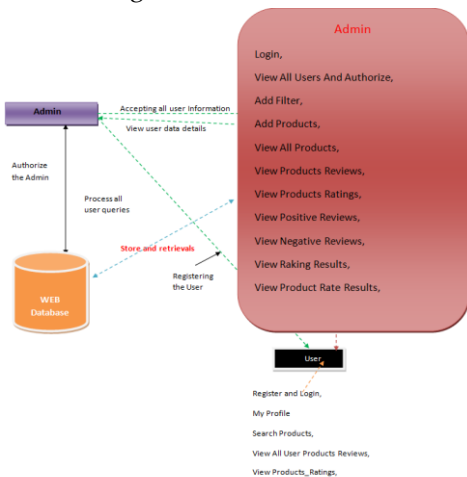

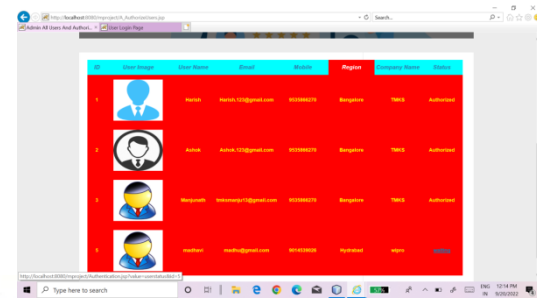**Fig1: System Architecture**

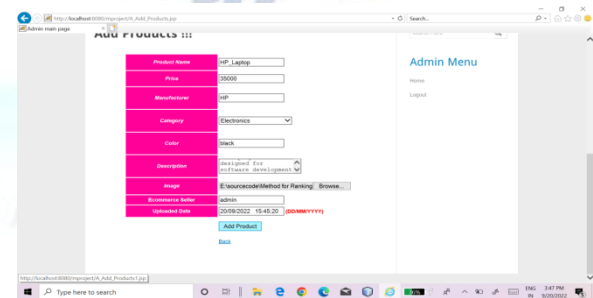## 4. EXPERIMENTAL RESULTS

Fig4.1:User Details and Authorization

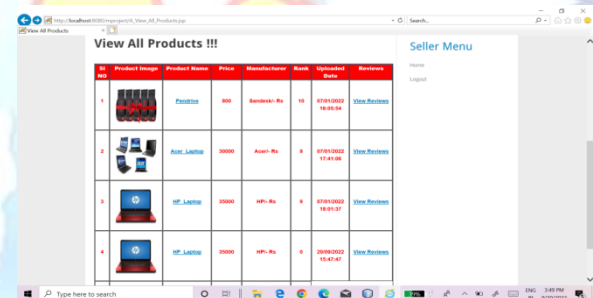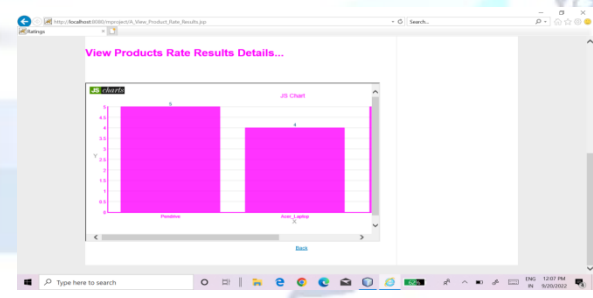Fig4.2:Add Products

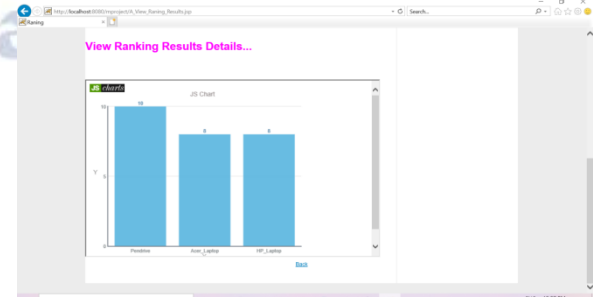Fig4.3:All Products

Fig4.4:View Products Rate

Fig4.5:Ranking Results

5. CONCLUSION

Feedback from clients is crucial for online stores. In this study, we highlight the importance of reviews as a tool for enhancing the effectiveness of consumers' financial investments. This research sheds light on the importance of reviews, the best practises for assessing review quality, and the responsibilities of companies in responding to online consumer reviews and comments. It is advised that you use SO-ILES TODIM to evaluate the assertions made by film reviewers. Through the development of an intuitive language evaluation set (SO ILES) based on emotional and ontological traits, this strategy aims to enhance the extraction of study item features during evaluations. The algorithm for calculating index attribute values is supplied, and the logit regression model is used to establish index weights. Together, these two pieces eliminate subjectivity in attribution and make possible numerical computations of attribute value and weight.

According to the findings of this case study, the SO-ILES TODIM technique may place more emphasis on subjective evaluations of films. Recommendations hardly correlate with other indicators of affective acuity. Consider the organization's current situation while establishing an appropriate emotional grading system. Sensitivity analysis proves the SO-ILES TODIM method is grounded in science because the loss attenuation coefficient guarantees that the parameters reject the decision maker's loss avoidance psychology and the relative stability of the review ordering remains constant within a certain range regardless of the values chosen for the parameters.It doesn't stack up, not with the statistics. The problem of ranking equivalence arises since there are now no established review standards and hence evaluation index data may be empty. We need to fix this problem and do better in our next round of studies. Reading habits necessitated that a small selection of reviews be included in the report. More accessible reviews may strengthen the validity of the results.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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