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SENTIMENT ANALYSIS FOR ON ECOMMERCE WOMEN'S CLOTHING RECOMMENDATION

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ABSTRACT-Understandingcustomer sentiments is of paramount importance in marketing strategies today. Not only will it give companies an insight as to how customers perceive their products and/or services, but it will also give them an idea on how to improve their offers. This paper attempts to understand the correlation of different variables in customer reviews on a women clothing e-commerce, and to classify each review whether it recommends the reviewed product or not and whether it consists of positive, negative, or neutral sentiment. To achieve these goals, we employed univariate and multivariate analyses on dataset features except for review titles and review texts, and we implemented a bidirectional recurrent neural network with long-short term memory unit for recommendation and sentiment classification. Results have shown that a recommendation is a strong indicator of a positive sentiment score, and vice-versa. On the other hand, ratings in product reviews are fuzzy indicators of sentiment scores.

Key words-Data Science, Data Analysis,Classification,Data Visualization,E-Commerce,Sentiment Analysis,Natural Language Processing

1.INTRODUCTION

In this era of internet business are opting online methods to increase their reach to the customers and in this process reviews on a product become a key for the businesses to understand their customers and to make their product reach the mark of customer's requirement. Review analysis comes in handy to serve the purpose. One of the most important problems in this area is text classification. By classifying the reviews we can perform what is the most required task for today i.e, Sentiment Analysis (computational method using statistics and natural language processing to categorize the opinions given in the text) which can further help the businesses to improve their product or services and hence, they can provide better user experience to their customers. In this paper, we'll be making an attempt to understand the sentiments of the customers on the basis of their reviews on e-commerce websites so that companies can develop a strong, robust

recommendation system for their customers to improve their business.

Companies are starting to turn to social media listening as a tool for understanding their customers, in order to further improve their products and/or services. As a part of this movement, text analysis has become an active field of research in

computational linguistics and natural language processing.

One of the most popular problems in the mentioned field is text classification, a task which attempts to categorize documents to one or more classes that may be done manually or computationally. Towards this direction, recent years have shown top interest in classifying sentiments of statements found in social media, review sites, and discussion groups. This task is known as sentiment analysis, a computational process that uses statistics and natural language processing techniques to identify and categorize opinions expressed in a text, particularly, to determine the polarity of attitude (positive, negative, or neutral) of the writer towards a topic or a product. The said task is now widely used by companies for understanding their clients through their customer support in social media, or through their review boards online.

In this project, we attempt to analyze the customer reviews on women clothing e-commerce by employing statistical analysis and sentiment classification. We first analyze the non-text review features (e.g. age, class of dress purchased, etc.) found in the dataset, as an attempt to unravel any connection between them and customer recommendation on the product. Then, we implement a bidirectional recurrent neural network with long-short term memory for classifying whether a review text recommends the purchased product or not, and for classifying the user review sentiment towards the product.

2.OVERVIEW OF THE PROJECT

2.1.MODULE

- Framework construction
- Reviews collection
- Sentiment analysis
- Recommendation system

2.1.1 Framework Construction

E-commerce framework is used to buy the products in online to easy retrieval the products. This module is used to create page for recommending best product in specific area. System is the responsibility for maintaining the all details in dataset can be design in page. Then view the products with specified filter.

2.1.2 Reviews Collection

Collect reviews and have various types of reviews. Reviews may be rating reviews, text reviews and smiles reviews. All reviews are stored in dataset for future evaluation. Ratings, reviews and emoticons are stored in dataset. Rating, Reviews and Emoticons are the evaluation or assessment of something, in terms of quality (as

with a critic rating a novel), quantity or some combination of both.

2.1.3 Sentiment Analysis

Sentiment analysis refers to the use of natural language processing, text analysis, computational linguistics to systematically identify, extract, quantify, and study affective states and subjective information. Sentiment analysis is widely applied to voice of the customer materials such as reviews and ratings for applications that range from marketing to customer service to buy the products efficiently. System can analyze whether the product is positive or negative. In star rating, we can calculate star count values. In text reviews, extract keywords and matched with database. Then smiles reviews are calculated based positive and negative symbols.

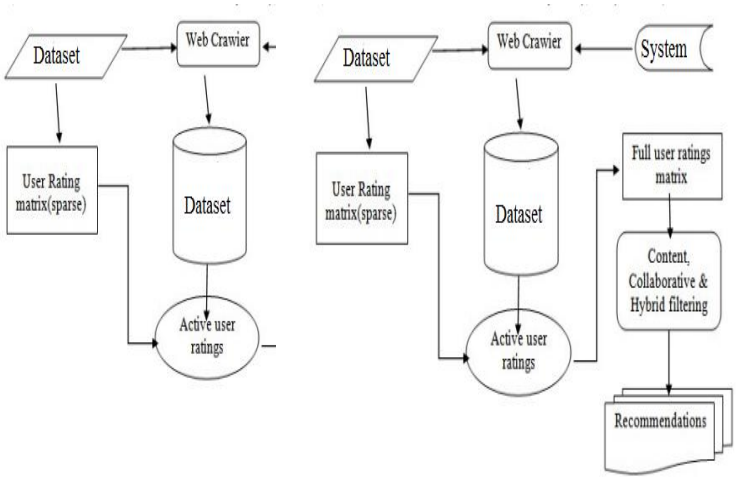
2.1.4 Recommendation System

Recommender systems are a subclass of information filtering system that seek to predict the "rating" or "preference" that a user would give to an item. User can search the product in search bar and view the list of products based on price and review details. Implement the stochastic learning algorithm to classify the products such as positive or negative. Positive products are display in recommendation panel based on ratings and reviews. If the product has negative review means, automatically the positive products in recommendation panel.

2.2.DATA FLOW DIAGRAM

The database may be defined as an organized collection of related information. The organized information serves as a base from which further recognizing can be retrieved desired information or processing the data. The most important aspect of building an application system is the design of tables. The data flow diagram is used for classifying system requirements to major transformation that will become programs in system design. This is starting point of the design phase that functionally decomposes the required specifications down to the lower level of details. It consists of a series of bubbles joined together by lines.

LEVEL 0



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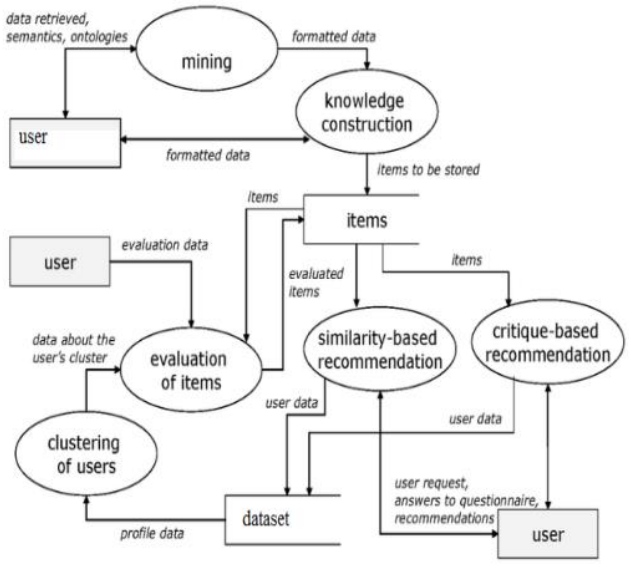

3. CONCLUSION

Many product using internet have made online shopping very easy. Online shopping has become more and more popular because of its variety of types, lowest price and fast logistic systems. Now a days many people use online shopping to purchase the product through the Internet. The user comments become the most important information to judge the quality of the product. In order to improve the quality of the products the product manufacturers can obtain the comment about the product from the users. It is not easy to analyzing and concluding the large volume of data in the websites. So how to extract useful information and build objective products‟ quality test system automatically to deal with the massive textual information is emerging in the related research field. Opinion Mining is technology based on text mining and natural language processing. It provides the approach to manage with the problem. Today generating summary of the products has been attracting many researchers. Emotional orientation of each review is focused with Document-level sentiment analysis. It recognizes the opinion of the contents which authors express, mainly discusses the sentence-level opinion mining and treats the statements of the product‟ features for each viewpoint as analysis objects, then we can find authors‟ opinion inclinations. Therefore sentence-level sentiment analysis is the main task on opinion mining. The method can find the specific details of the comments and has a high confidential degree, but the operation is very complex. For example, if we take a type of laptop into consideration, we can divide the laptop ‟s features into performance, price, appearance, endurance time, brand and so on. We consider each feature or attribute which each author expresses for each comment respectively, then do a comprehensive evaluation in order to avoid the overgeneralization.

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