

# CHARACTERIZING AND PREDICTING EARLY REVIEWERS FOR EFFECTIVE PRODUCT MARKETING FROM E-COMMERCE WEBSITES

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## ABSTRACT

Before making a purchase, consumers might acquire useful information from online reviews. Early design reviews have a massive effect on a product's saleability. In this study, we investigate the features of early reviewers depending on their reviews on Amazon and eBay, two of the most prominent e-commerce sites. We split product lifetime into 3 categories: early, majority, and laggards. A user who has posted a review early in the process is called as an early reviewer. We quantitatively define early reviewers based on their rating behaviours, the helpfulness scores received from others, and the link among their evaluations and product popularity. We discovered that (1) early reviewers make greater insightful comments and (2) early reviewers give a greater overall rating score. According to our analysis of product reviews, early reviewers' rating and acquired usefulness score are likely to affect product popularity. Our proposed technique outperforms a range of alternative baselines in numerous tests on 2 autonomous e-commerce datasets.

## KEYWORDS:

*C4.5 Decision tree, MRMR Feature Selection Algorithm*

## 1. INTRODUCTION

Users can now publish or share their purchase experiences by writing product reviews, which frequently include useful opinions, comments, and feedback about a product, thanks to the rise of e-commerce platforms. As a result, the vast majority of shoppers will examine online reviews before making a purchase. As according statistics, 71% of international online shoppers read online before buying a purchase. Product reviews, especially early ones, have a significant impact on future product sales. The users who submitted the early reviews are referred to as early reviewers. Although early reviewers only contribute a tiny portion of reviews, their opinions can influence if new products and services win or lose. Early reviewers are important for firms to identify since their feedback can help firms adjust marketing strategies and improve brand designs, eventually leading to the success of their new items. As a response, early reviewers now become focus to watch and recruit during a company's early promotion stage. The development of early reviews in influencing consumer purchase intentions has received much interest from retailers

## 2. EXISTING SYSTEM

Prior studies has focused on issues of individuals having heavily influenced by the choices of others, which is explained by group behavior. The effect of early reviews on future purchases is a special case of the herd effect. Early reviews contain key product evaluations from early adopters, which act as good reference materials in the future purchase decisions. Behavior happens in the online shopping process when consumers use the product evaluations of others to estimate product quality, as shown in. Like previous studies on herding, we use large-scale real-world datasets to objectively evaluate overall features of early reviewers. We also formalise the early reviewer prediction model as a competition problem and offer a novel embedding-based ranking approach to this problem. Early reviewer prediction has received little attention in the academic literature, to our knowledge. These would be the highlights of our contributions:

We present the results of a pilot study that was using two large real-world datasets to characterise early reviews on an e-commerce platform. We examine the qualities of early reviewers and also how those impact product popularity. Our empirical evidence back up a number of theoretical conclusions drawn from psychology and economics. We view the reviews meet the required as a virtual competitive game and build an embedding-based ranking model for early reviewer prediction. To include product side information, our model can tackle the cold-start issue. Lab tests on two real-world large datasets, Amazon and Review sites, have shown the efficiency of our approach in evaluate the needs reviewers.

### 2.1 LIMITATIONS OF THE EXISTING SYSTEM

- Early prediction models are ineffective.
- Existing studies relies on extracting ideas from user reviews or finding view goals.
- The most of these studies are quantitative theoretical studies, but numerical studies absent.

### 3. PROPOSED SYSTEM

We propose a novel technique to predict early reviewers by viewing the review sets clear as a virtual competitive game. Those most competitive users can be first to review a product. Several comparisons between two players might be divided further in the competitive process. The winner of a two-player game will win the loser with the earlier timestamp. We propose to use a percentage imbed model inspired by new advancements in distributed representation learning by first mapping both users and products into the same subspace, and then determining the order of a pair of users given an item based on particular distance to the product representation.

#### Advantages

- Early reviews with a higher overall rating are much more likely to indicate product popularity.
- Early reviews with a high information gain score are now more likely to increase or reduce product popularity.

#### 3.1 PROPOSED ARCHITECTURE

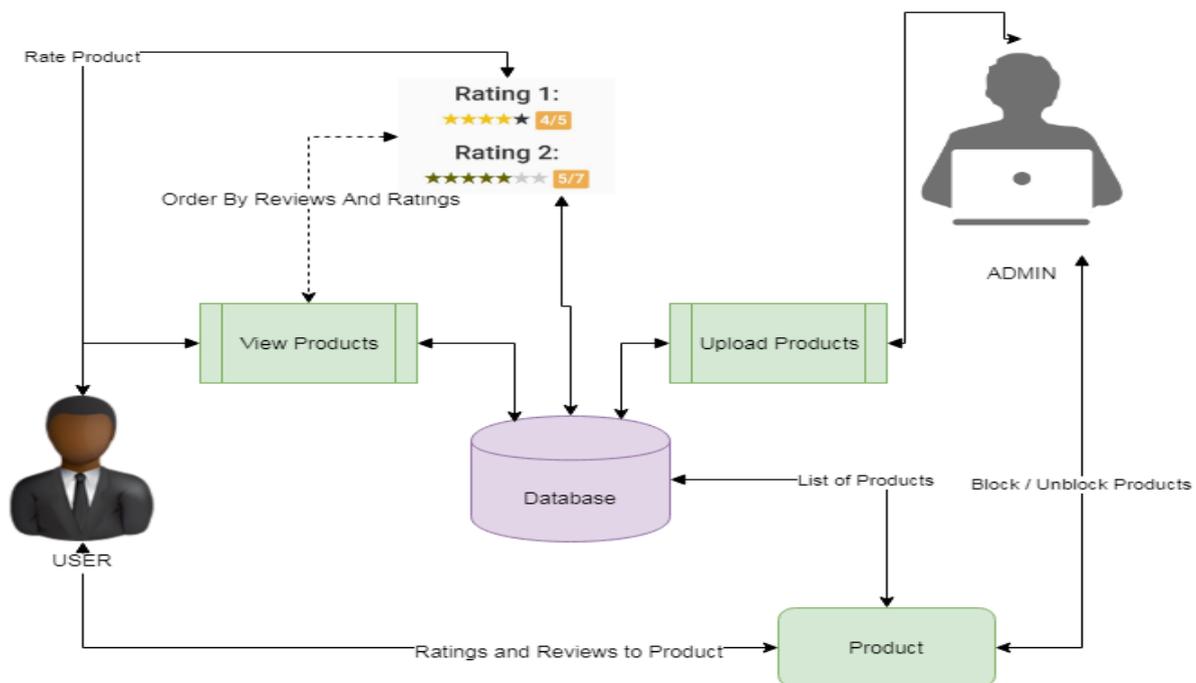


Fig: System Architecture

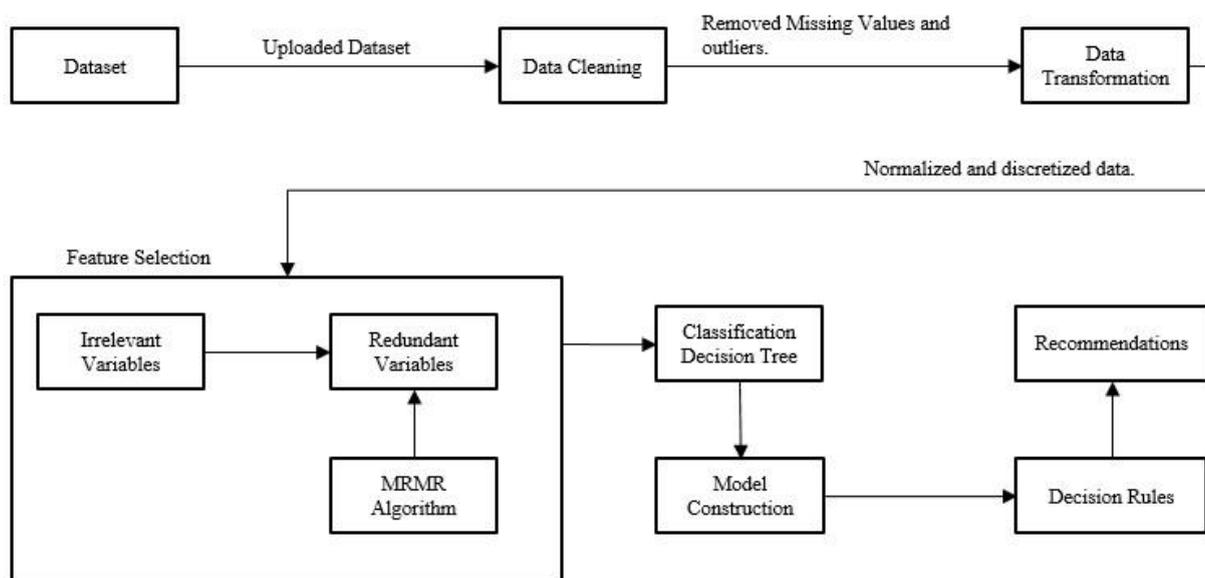


Fig: Flow Diagram

#### 4. IMPLEMENTATION

For this project, there are three components that may be separated as follows:

- Product Submits
- Product Evaluation Order
- Ratings and Review
- Market Research

The application is done using the three segments indicated earlier. A significant number of discriminating phrases are created.

##### MODULES DESCRIPTION:

- Product Submits

**Admin is in control of product uploading. An approved person enters new arrivals into in the system, that are then done to show users. The product's attributes, such as name, price, and warranty claim, can be uploaded. Users can block or unblock products that were submitted.**

- Product Evaluation Order

The user's view of products is proposed which is based on the user's review and rating of a specific item. In this project, the Nave Bayes algorithm is used to determine if a given review is positive or negative. Users are made suggestions based on the output of the algorithm. The algorithm is being used to list products on the user's side based on positive and negative reviews.

- Ratings and Review

The project's main concept is to find effective product marketing via ratings and reviews. The project's main task is to gather user feedback depending on how people bought or if they purchased in anyway. When they provide the ratings and how effective it is, the project's major finding is. This will be helpful to users who are interested in buying the same product.

- Market Research

The most essential part of the project is evaluating the user's ratings and reviews. The products can be evaluated to use the numbers user - provided. The data can be evaluated by the user to use a chart format. Pie charts, bar charts, or other charts are forms of charts.

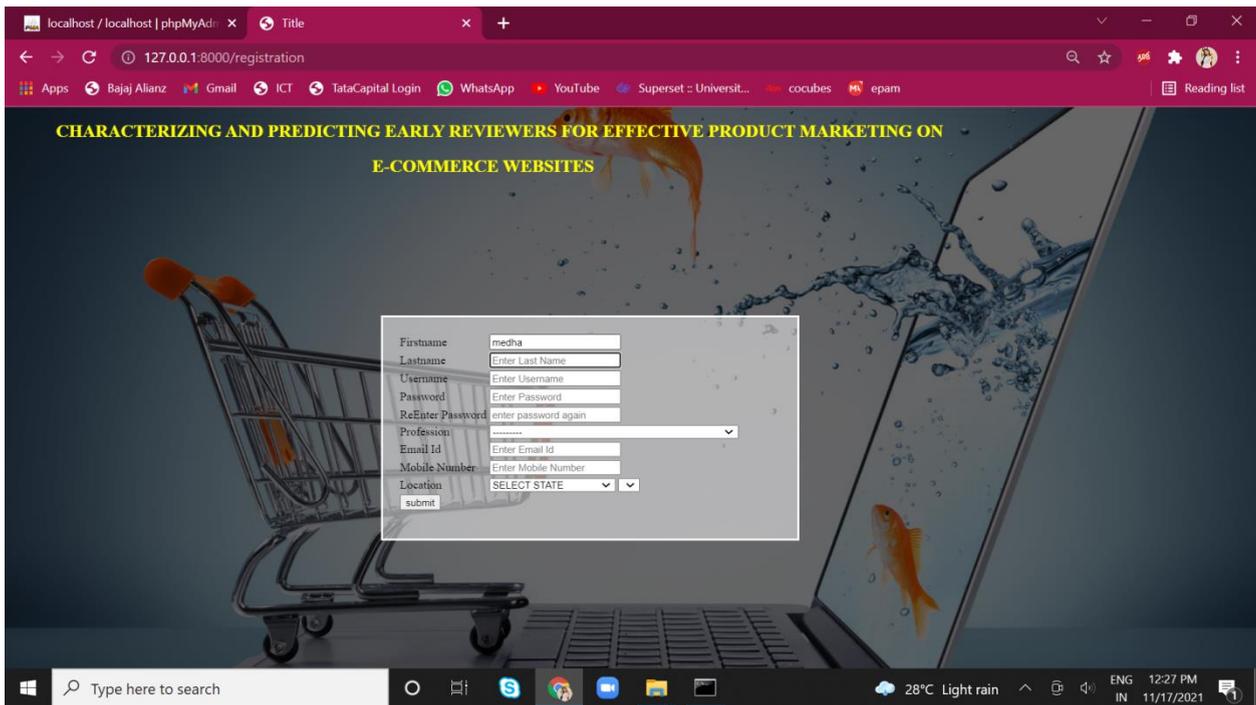


Figure : Screen when we run the program

## 5. RESULTS

Login a

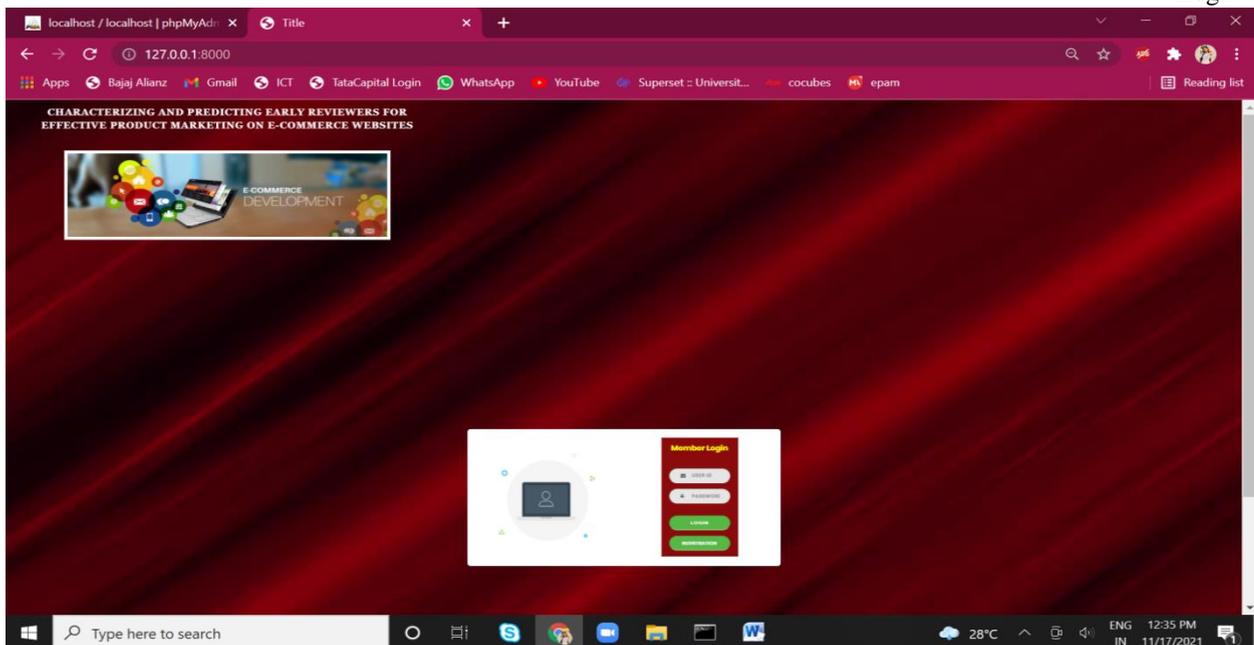
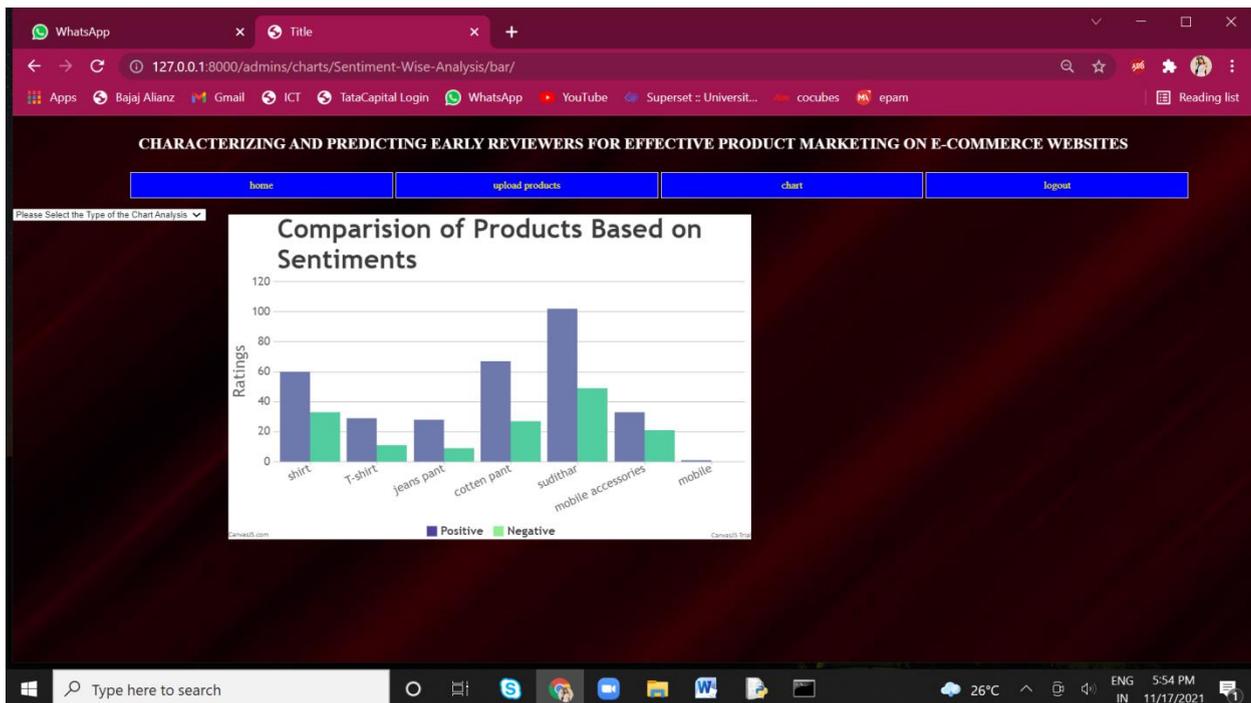


Figure : Screen to “admin login”



**Figure :** Screen where the "Comparison of products based on sentiments"

## 6. CONCLUSION

- We used 2 different consumer reviews databases to study the task of early reviewer characterization and forecasting in this project.
- We found that early reviewers are much more like to give a significantly higher rating score and to write more helpful reviews.
- Our results also reveal that early reviewers' ratings and willingness to help scores are likely to have an effect on product popularity further on.

## 7. FUTURE SCOPE

- The review content is not taken into account in our current project. We'll look into easier methods that include review content into the early reviewer prediction model in the future. Also, due to the difficulty in obtaining critical info from our user reviews, we have not studied the line of communication and social media site topology in the spread of innovations. We are currently focused on early reviewer diagnosis and modeling, but there is still an important problem to address, such as how to improve product marketing with the discovered early reviewers.
- In the future, we shall explore this task with real-world e-commerce cases in collaboration with e-commerce firms.

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