FAST-National University of Computer and Emerging Sciences

Sentiment Analysis on Cell Phone Reviews Using BERT

ABSTRACT

Recently, Ecommerce has Witnessed Rapid Development. As A Result, Online Purchasing has grown, and that has led to Growth in Online Customer Reviews of Products. The Implied Opinions in Customer Reviews Have a Massive Influence on Customer's Decision Purchasing, Since the Customer's Opinion About the Product is Influenced by Other Consumers' Recommendations or Complaints. First, the Reviews were Transformed into Vector Representation using different Techniques. Then, we Trained Various Machine Learning Algorithm - Bert. After That, We Evaluated the Models using Accuracy, F1-Score, Precision, Recall, and Cross-Entropy Loss Function.

INTRODUCTION

Nowadays, the world is becoming digitalized. eCommerce is taking ascendancy in this digitalized world through the availability of products within reach of customers. Furthermore, the eCommerce website allows the people to convey what they think and feel. Our opinion and purchasing decision-making are affected by the experience of others and their feedback about products. We always ask others about their opinion to get the benefit from their experience; hence, the importance of reviews has grown.

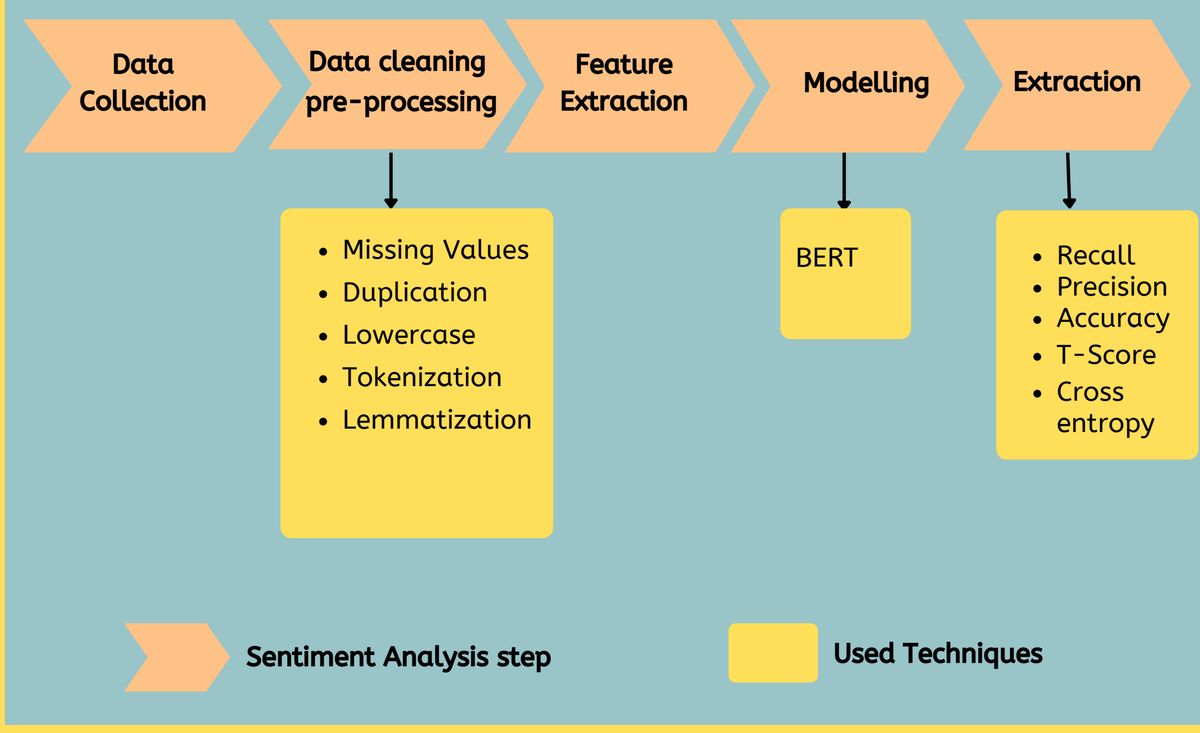
OBJECTIVES

Objectives of the project include to determine

- Overall sentiment of each mobile phone brand
- Change in sentiment over time
- Relationship between ratings and review length, price and review length

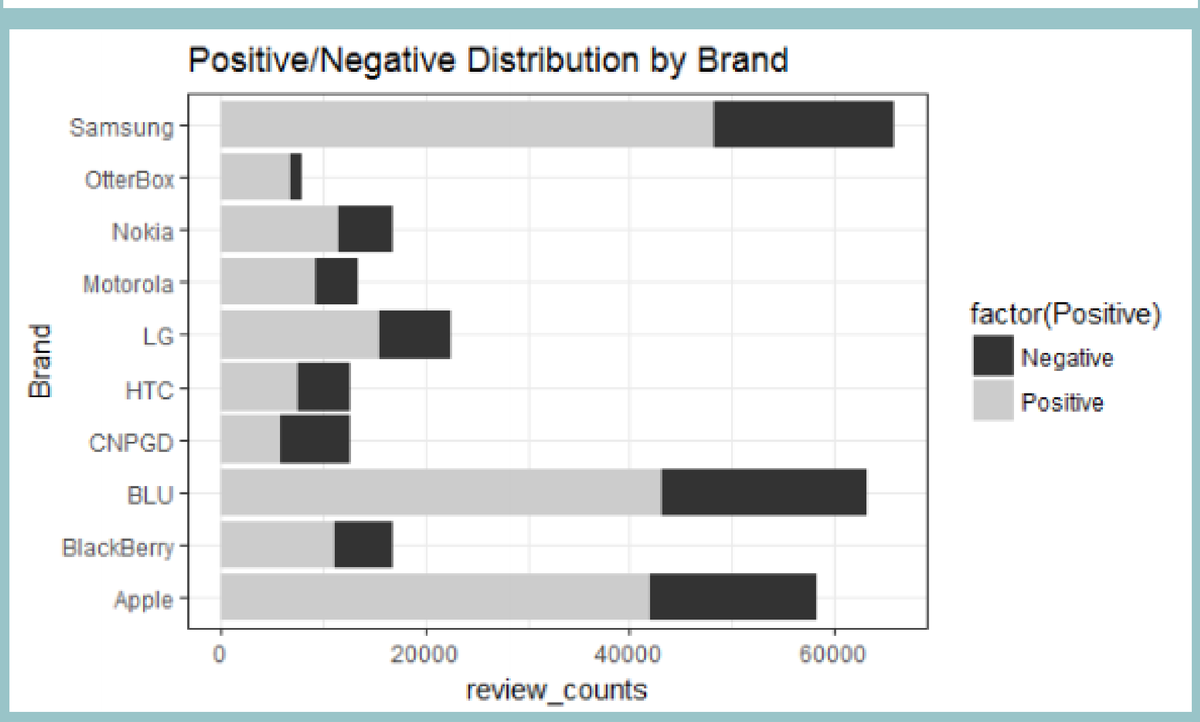
METHADOLGY

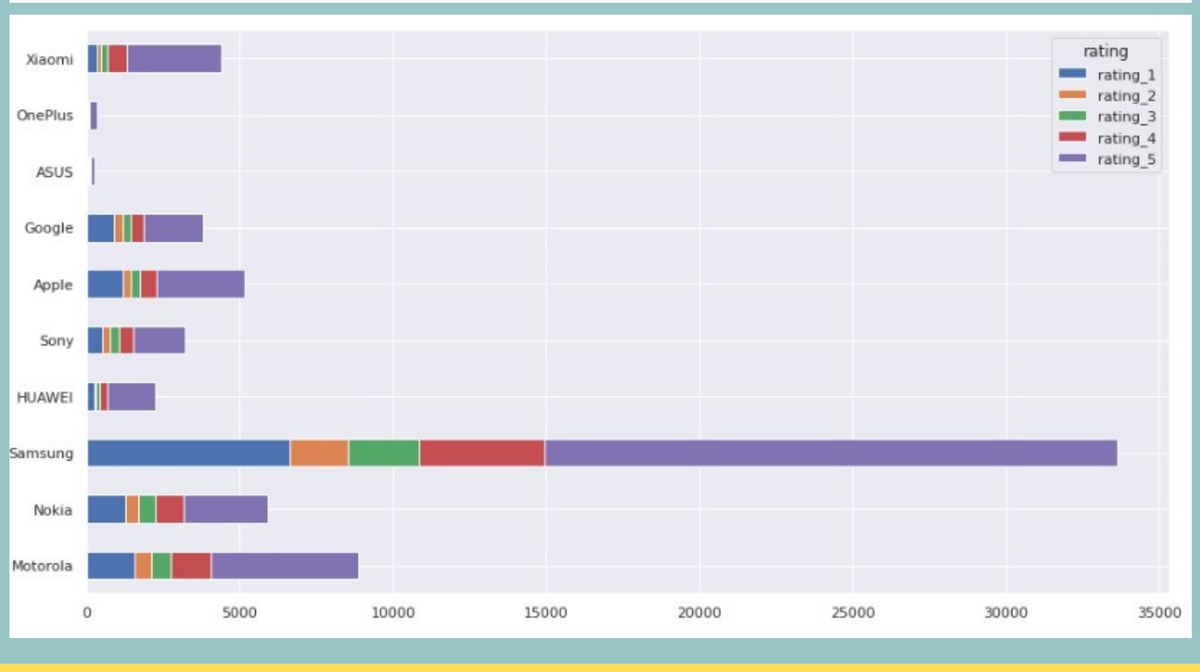
This section provides an overview of the proposed methodology of sentiment analysis for Amazon mobile phone reviews. Figure.1 depicts the phases of the current work starting with the data collection until evaluating each classification mode



RESULT

	Cross Loss	Accuracy	Precision	Recall	F1-score
BERT	0.189	**0.947**	0.946	0.947	0.946





APPLICATIONS

Sentiment analysis represents an essential role in assiting the customers to analyse reviews. With the proposed methodology in our research, sentiment analysis predicts the polarity of mobile phone dataset reviews using supervised machine learning algorithms. Further, it will help companies to improve their products by knowing customers' opinions and needs

CONCLUSION

Sentiment analysis is a necessarily and commonly used approach to extracting knowledge from text data in eCommerce websites. E-commerce portals are generating a massive amount of text data daily in the form of suggestions, feedback, tweets, and comments. Besides, the opinion of the people is implied by reviews, ratings, and emoticons. In this study, multiclass and binary classification for Amazon mobile phone using supervised machine learning algorithm - Bidirectional Encoder Representations from Transformers (BERT) model was also applied. BERT model has achieved an excellent result in multiclass classification and binary classification, with accuracy of 94% and 98%, respectively

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AUTHORS: Saman Khan 19k-0354 Anusha Saad 19k-0281 Hermain Qadir 19k-1517

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Section H