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PERFORMANCE ANALYSIS FOR E-COMMERCE COMPANIES BY USING OPINION MINING

1. Project Idea

Recently, the social media platforms have been gained rapid reputation that influencing customers' decision when they want to buy product online. Customers investigate the companies on social media sites to see if there are negative or positive comments about the companies. In the other hand, also companies research on social media platform to learn customers' problem and measure theirs satisfies. Especially, the customers more likely to prefer online shopping since the COVID-19 is outbreak. "ekşisözlük" is one of the famous social media platform in Turkey. The users can create topics in any category to define or comment about something. In this project, our aim is to predict "ekşisözlük" users positive, negative or neutral comments that related to the e-commerce companies by using NLP algorithms. By applying this, we will be creating different charts to measure performances of companies monthly and yearly successes. Thus, the customers or sales professionals can easily investigate and analyze the performance of company. For the first step, we will gather data from the specific topics for the 10 companies. After this step we shall make arrangements on the data to get rid of irrelevant part. The whole data does not only contain useful information to predict positive or negative comments but it also might cover useless hundreds line which can be cause inaccurate prediction and computational resources. The biggest challenge of this project is that we will try to predict positive or negative comments which are in Turkish Language.

2. Relevant Papers

- P. K. Singh, A. Sachdeva, D. Mahajan, N. Pande and A. Sharma, "An approach towards feature specific opinion mining and sentimental analysis across e-commerce websites," *2014 5th International Conference - Confluence The Next Generation Information Technology Summit (Confluence)*, Noida, 2014, pp. 329-335, doi: 10.1109/CONFLUENCE.2014.6949312.
- N. Kumari and S. N. Singh, "Sentiment analysis on E-commerce application by using opinion mining," 2016 6th International Conference - Cloud System and Big Data Engineering (Confluence), Noida, 2016, pp. 320-325, doi: 10.1109/CONFLUENCE.2016.7508136.
- K. L. S. Kumar, J. Desai and J. Majumdar, "Opinion mining and sentiment analysis on online customer review," 2016 IEEE International Conference on Computational Intelligence and Computing Research (ICCIC), Chennai, 2016, pp. 1-4, doi: 10.1109/ICCIC.2016.7919584

3. Approach to Problem & Computational Work

The whole process targets to predict the comments whether are positives, neutrals or negatives. To achieve this aim, we are planning to use various machine learning algorithms like Logistic Regression, Gaussian Naïve Bayes etc. First of all, we need to gather data. The user comments are directly written in Turkish Language. To overcome this problem, we are planning to use "Zemberek Project" which contains custom tools to translate Turkish comments for sentiment analysis. The preprocess steps contain removing irrelevant parts. After that, we will prepare data for training which is aiming to categorize comments by users' opinion. Then, we will create charts and demographics that include opinion of the customers about the companions.

4. Dataset

The whole dataset will be gathered by using our custom web-scrapper code.

We will be using "ekşi sözlük" specific topics which are directly written about e-commerce companies. For example;
https://eksisozluk.com/yemeksepeti-com
https://eksisozluk.com/trendyol