Natural Language Processing Project

Title: Restaurant Review Classification based on location using Natural Language Processing

Team Members

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Goals and Objectives:

Motivation:

Restaurant reviews are a valuable source of information for potential customers as they can help people decide where to eat, what to order, and whether a restaurant is worth visiting. However, it can be time-consuming to read all the reviews for a particular restaurant. The idea of this project is to help people choose a restaurant with respect to reviews by creating a Natural Language Processing model that classifies restaurant reviews as positive, negative, and neutral. This model could be used to create a website or app that allows users to find information quickly and easily they need to make informed decisions about where to eat.

Significance:

This project uses Natural Language Processing, this project could significantly impact the restaurant industry based on specific locations like Denton or Dallas. Making it easier for people to find and understand restaurant reviews, could help restaurants to attract new customers and improve their reputations. Additionally, the project could help consumers save time and money by making it easier for them to find restaurants that they are likely to enjoy.

Objectives: The specific objectives of this project are to:

- Develop an NLP model to classify restaurant reviews as positive, negative, or neutral.
- Google Maps Platform Places APIs (Free location-specific review of1000/day)

- Evaluate the performance of the model on a held-out test set.
- Deploy the model to production so that it can be used by others to classify restaurant reviews based on specific locations of city or state using Google.

Features:

- Utilizing web scrapping to gather data tailored to a specific geographical area.
- The NLP model will be trained on a dataset of restaurant reviews based on labeled as generic labels like positive, negative, or neutral.
- The model will learn to identify the features of restaurant reviews associated with each sentiment category.

References:

- Yelp, Inc. (2022, March 17). *Yelp dataset*. Kaggle. https://www.kaggle.com/datasets/yelp-dataset/yelp-dataset?select=yelp_academic_dataset_review.json
- Wiener-Bronner, D. (2022, November 15). *Restaurant sales are going up. but dining out is on the decline | CNN business*. CNN. https://www.cnn.com/2022/11/15/business/restaurant-sales-traffic/index.html
- Google. (n.d.). Google. https://developers.google.com/maps/documentation/places/web-service/overview
- Kim, Y. (n.d.). *Convolutional neural networks for sentence classification*. ACL Anthology. https://aclanthology.org/D14-1181/
- *Natural language processing with python by Steven L. Bird, Edward Loper, and Ewan Klein (2009)*. NLTK Book. (n.d.-a). https://www.nltk.org/book/
- 6 funny restaurant reviews that prove people are serious about food. RSS. (n.d.). https://get.popmenu.com/post/funny-restaurant-reviews?utm_source=google&utm_medium=search&utm_campaign=prsp_pmax_menu&utm_term=&gclid=CjwKCAjwsKqoBhBPEiwALrrqiLxRp8uQJpkts5nrwv0894hGc3yaIbOFc7Q4hlPGmnJZUvRk1uhk4xoCU5AQAvD_BwE
- 8 hilariously bad restaurant reviews to read (and learn from). (n.d.-a). https://pos.toasttab.com/blog/on-the-line/bad-restaurant-reviews

Github link:

https://github.com/yuvi1323/Restaurant-Review-Classification-based-on-location-using-Natural-Language-Processing