Building a restaurant recommendation system
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Motivation and About the Project

There are various restaurants of different cuisines, ambience, facilities, etc. The customer always wants to visit a restaurant of their type. Therefore, it needs a simple algorithm that aim to provide the most relevant and accurate restaurants to the user by filtering from a huge pool of information base. We trained our model to recommend restaurants to users based on collaborative filtering..

We extracted the data from yelp .tar file and stored it in a database. Did some data pre processing and EDA and then merged the dataset to get item-item similarity matrix and recommend restaurants.

Data and Labels

Dataset Description -

The Yelp dataset has 5 JSON files containing about 3.7 million reviews from 687,000 users for 86,000 businesses.
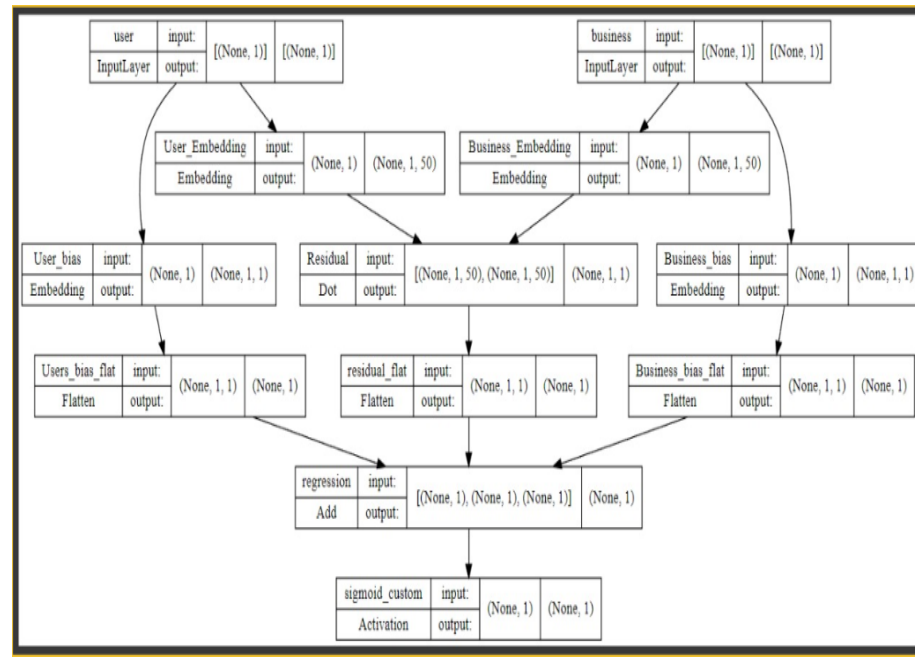

Proportion of Restaurant Ratings

References

Collaborative Filtering – Towards Data Science
Loading large datasets in Pandas. Effectively using Chunking and SQL for… | by Parul Pandey | Towards Data Science

MODEL

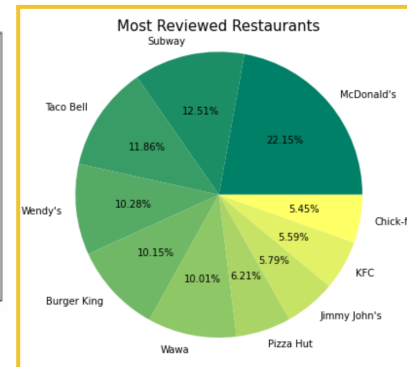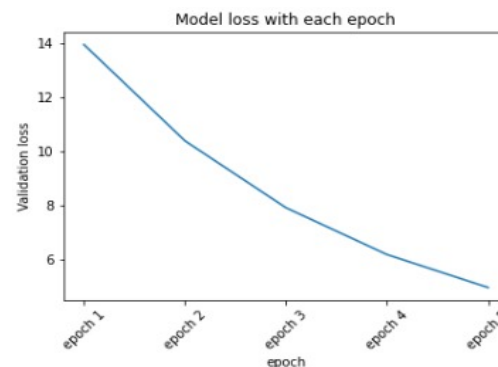

Results

```
[ ] recommend_top5(business_ids[3])

    ['Taco T', 'Luv Fresh', "Frida's Cafe", 'Federal Donuts', 'Michoud Seafood']
```


Model loss with each epoch

Most Reviewed Restaurants

Methodology

- Unpacking the json into columns.
- Keeping businesses having category as restaurant/food.
- Unpacking nested json columns.
- Handling null values.
- Merging the nested dataframes.
- One hot encoding the categorical columns which we get from nested dataframes

Conclusion

We did item based collaborative filtering to recommend restaurants to similar users. To optimize the collaborative filtering we used Stochastic Gradient Descent (SGD) method that has three hyperparameters, the learning rate η, regularization coefficient λ, and L the number of latent features to include.

Future Work

Hybrid model of content based and collaborative filtering to improve our recommendation system.