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PROJECT PROPOSAL - ANALYSING RECOMMENDER SYSTEM METHODS

OVERVIEW

In this Project, we aim to understand and compare various recommender system methods such as Low Rank Matrix Factorization, Alternating Least Squares, Tensor Factorization methods.

We especially choose Movie Lens dataset because the dataset is clean and scalable from 100K ratings to 20M ratings. Therefore, we can also prefer Apache Spark (MLLib) and Tensorflow (TensorRec) implementation of these methods for transforming our methods as big data application.

GOALS

- Implement Matrix Factorization and Alternating Least Squares Methods
- Implement Tensor Factorization Methods
- Compare results and performances of methods

SPECIFICATIONS

In this project, we will have chance to apply methods that we cover in class such as alternating least squares, matrix calculus, matrix factorization.

We will also have chance to apply try different machine learning libraries and platforms.

We will research Tensor Factorization and try to apply these methods in our dataset.

References

1. B. Ermis, E. Acar, and A. T. Cemgil. Link prediction in heterogeneous data via generalized coupled tensor factorization. Data Min. Knowl. Discov., 29(1):203–236, 2013.

2. Frolov, E., & Oseledets, I. (2016). Tensor Methods and Recommender Systems. arXiv preprint arXiv:1603.06038.

3. MovieLens Data Set, https://grouplens.org/datasets/movielens/