MIDDLE EAST TECHNICAL UNIVERSITY

Department Of Computer Engineering

CENG 300

Summer Practice Report

METU Data Mining Research Group
Start Date: End Date:
Total Working Dates:

September 21, 2020

Student:
Onat ÖZDEMİR

Instructors:
Prof.Dr.Pınar KARAGÖZ

Prof.Dr.İsmail Hakkı TOROSLU

Student's Signature

Organization Approval

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1 Introduction

I have done my summer internship at METU Data Mining Research Group under the supervision of Prof.Dr.Pınar KARAGÖZ and Prof.Dr.İsmail Hakkı TOROSLU. The task I have worked on was implementing a Trust Based Recommender using the collaborative filtering method and testing it on provided dataset. The dataset contains information about customers and the products they have bought. In addition to dataset, I was able to use eigentrust calculation and community detection modules provided by the TACOREC.

2 Project

During the internship, I implemented two different trust based recommenders : Eigentrust Weighted Recommender and Inverse Distance Weighted Recommender. The details of these two recommenders can be found in the section 2.3.

2.1 Analysis Phase

There were two problems I need to solve:
1 - Dataset was very sparse
2 - There was no explicit trust information
In the both implementations I have made, first case handled by filtering the customers and products which purchased and were bought more than filtering threshold times. To gain better understanding on the second problem, I studied implicit trust calculation methods and looked into lots of research papers.

2.2 Design Phase

2.3 Implementation Phase

Since there are two different implementations which contains lots of details. I have divided the details of the recommenders into two subsections: section 2.4 and 2.5. Under this subsection, the libraries and the technologies used in implementations are explained.

2.3.1 Neo4j

Installation

2.3.2 Numpy

```
pip install numpy
```

2.3.3 Scipy

Installation

2.4 Eigentrust Weighted Trust Based Recommender

2.5 Inverse Distance Weighted Trust Based Recommender

2.6 Testing Phase

2.6.1 Surprise

2.6.2 Mathplotlib

2.6.3 Leave-one-out Cross Validation

3 Organization

3.1 METU Data Mining Research Group

4 Conclusion

References