



EC
EasyChoice

INTRODUCTION

OUR COMPANY

INNOVATIVE STARTUP
WITH PASSION FOR
TECHNOLOGIES

OUR PRODUCTS

INTELLIGENT SYSTEMS &
RECOMMENDATIONS



OUTLINE

- TEAM PRESENTATION
- METHODOLOGY
- SYSTEMS PROPOSED
 - USER BASED
 - ORDER BASED



TEAM PRESENTATION



ANNA NIKIFOROVSKAJA

Recommender system expert

CINDY PEREIRA

Recommender system expert

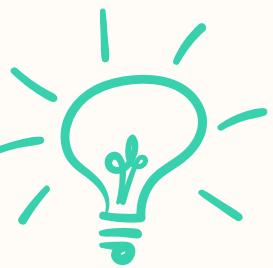
JUSTINE DILIBERTO

Marketing manager

RASUL DENT

Data engineer

??? WHY YOU NEED A RECOMMENDER SYSTEM



- Increase loyalty
- Reduce churn
- Increase sales
- Increase user satisfaction!

???

WHY YOU NEED OUR SYSTEM



- Two compatible systems
- Suggest items at any time
 - During browsing
 - While purchasing
- Increase loyalty



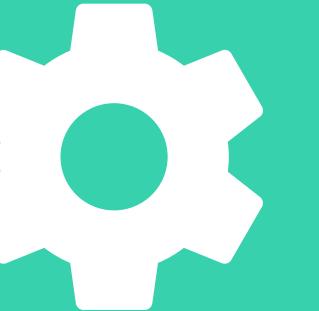
OUR METHODOLOGY



Research



Choice of system



Implementation



Evaluation



PROPOSED SYSTEMS

USER BASED

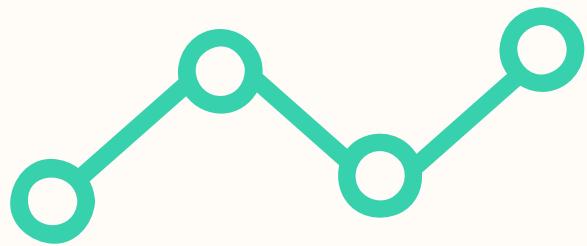
suggest items
during browsing

01

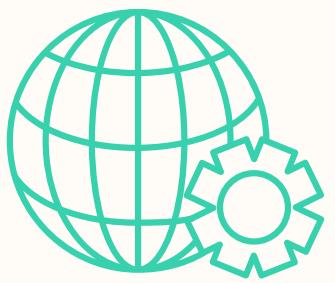
ORDER BASED

suggest items
during purchase

02

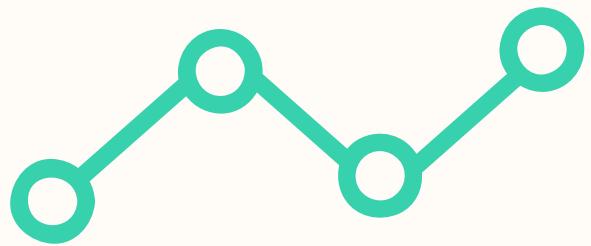


DATA

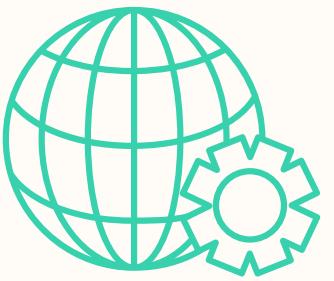


Consumers

- Purchases, views, queries, clicks
- Dates, session duration, basket
- No explicit ratings

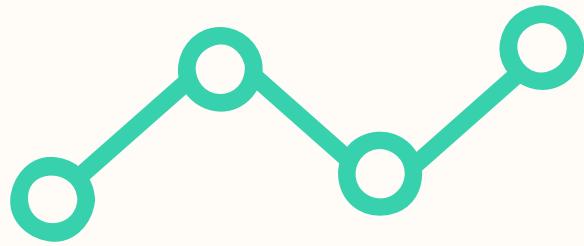


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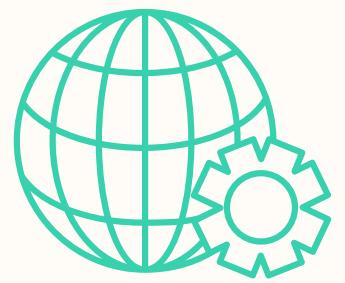


Products

- Serial, category, price, keywords
- Dates, basket

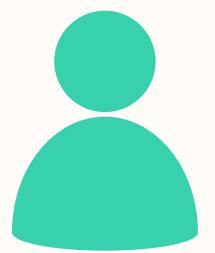


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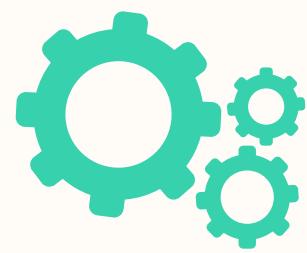


Observations

- Distributed usage frequencies
- Wide variation in item popularity



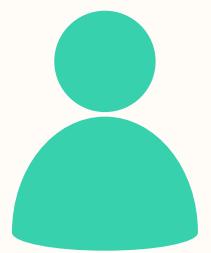
USER BASED SYSTEM



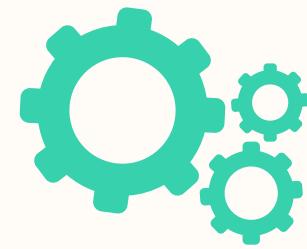
Principle

- Collect each action
 - Clicks, views, purchases
- Suggest appropriate items
 - At any time



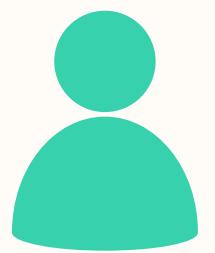


USER BASED SYSTEM

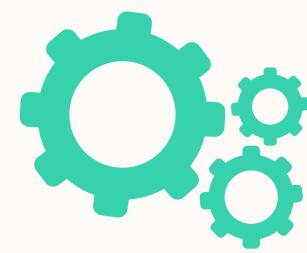


Implementation

- Treat purchases, views, clicks as ratings
- Compute similarity between items
- Understand what they need!

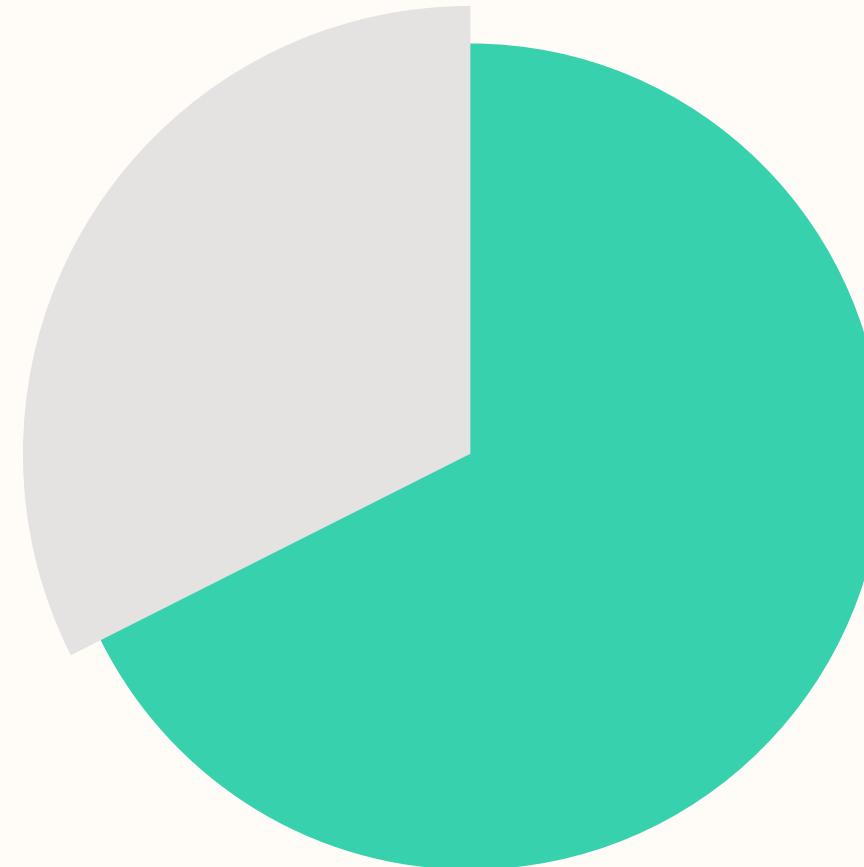


USER BASED SYSTEM



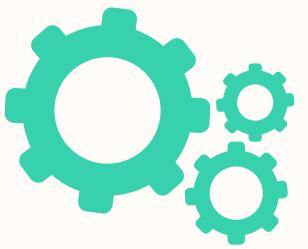
Results

- Mean Reciprocal Rank
 - Close to 1: good!
- Ours: 0.75!





ORDER BASED SYSTEM



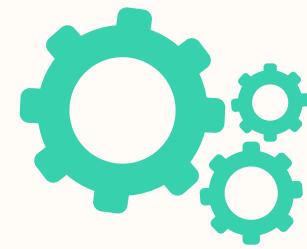
Principle

- Recommend items to add to shopping cart
- Graph-based algorithm
 - order-items bipartite graph



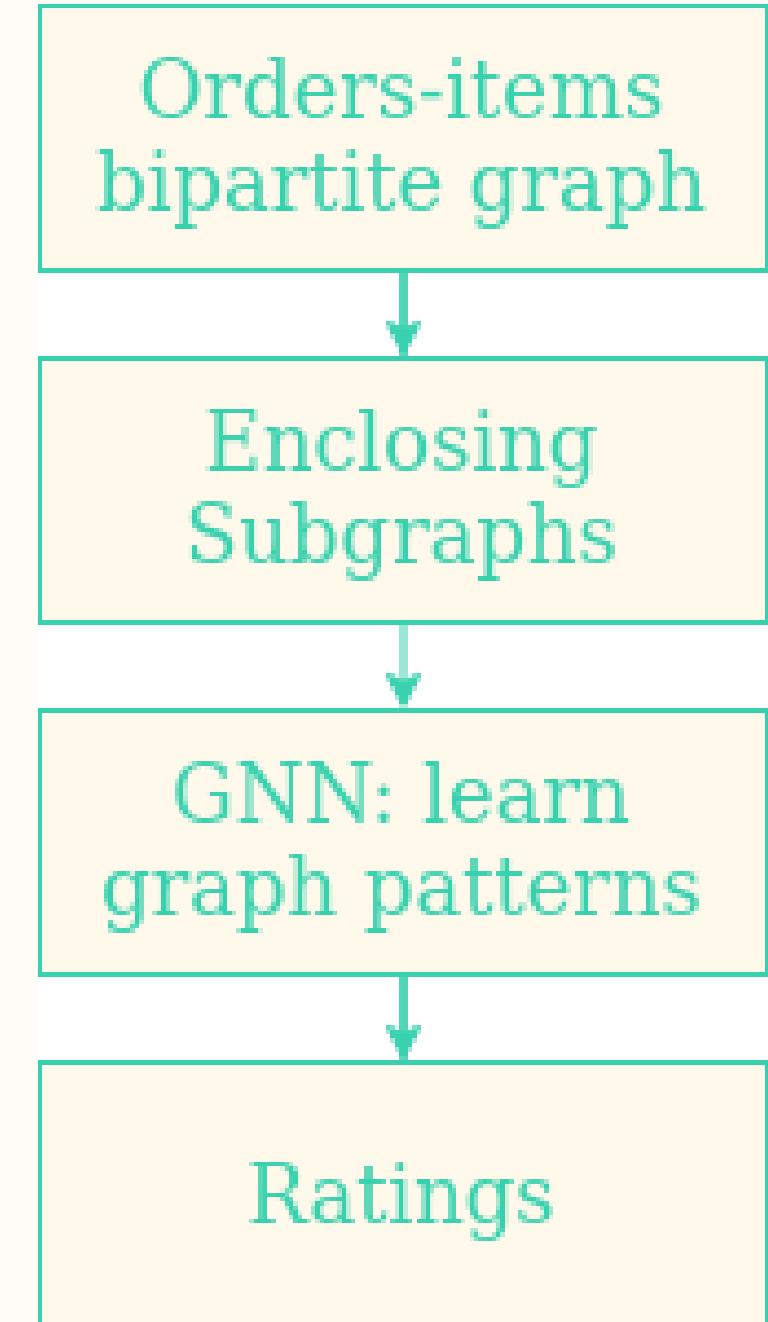


ORDER BASED SYSTEM



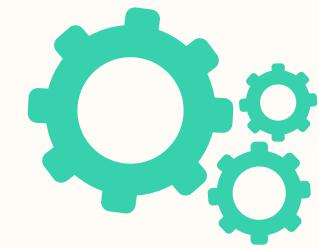
Implementation

- Rating system
 - Based on purchases and clicks
- Inductive Graph-based matrix completion





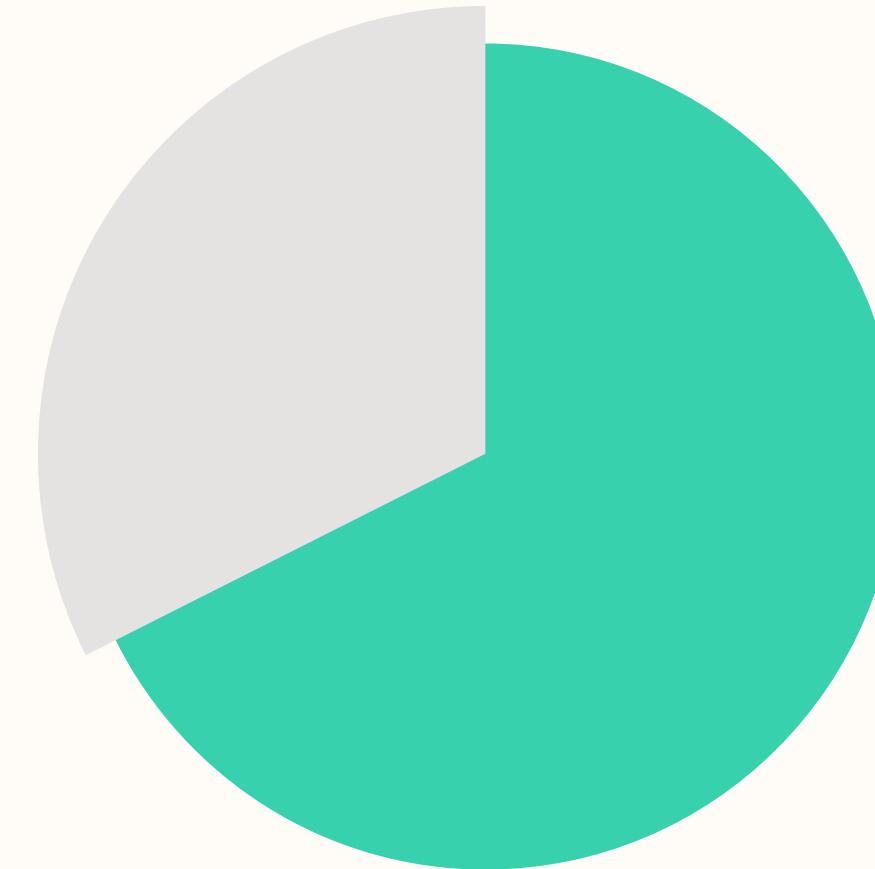
ORDER BASED SYSTEM



Results

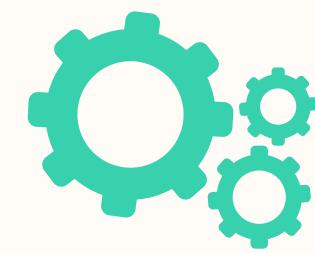
$$RMSE = \sqrt{\frac{\sum_{t=1}^T (y_t - \hat{y}_t)^2}{T}}$$

After training on 10 epochs,
RMSE = 1.49

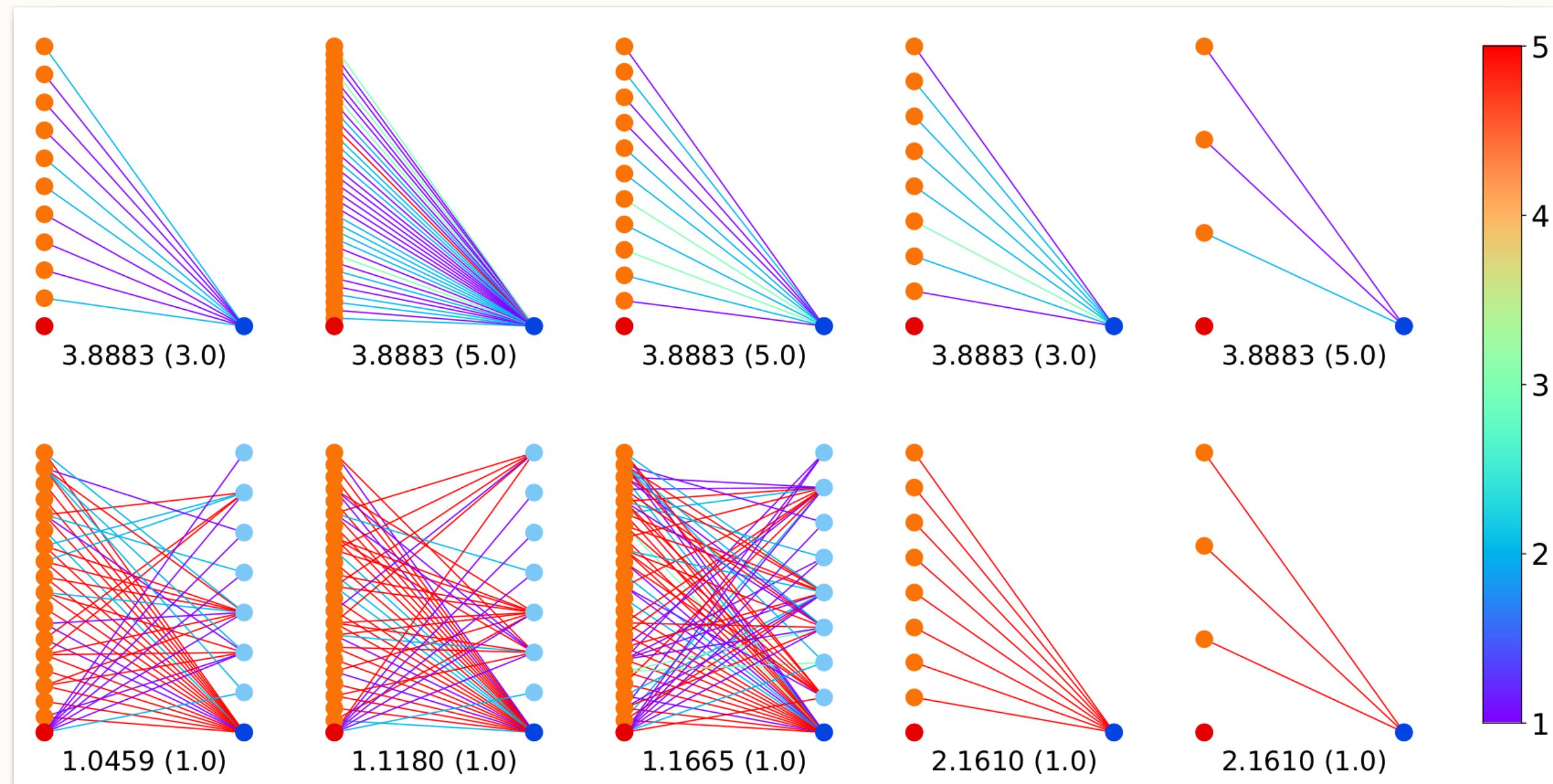




ORDER BASED SYSTEM

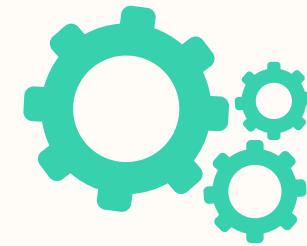


Results





AND EVEN MORE!



Possible features:

- Use time session in the first model
- Use item description in the second model
- Take product prices into consideration



NOT YET PERSUADED?



Choosing us will promise you

- More purchases of your products
- Two compatible recommendation systems
- Increase user satisfaction!

THANK YOU FOR YOUR ATTENTION



LET'S WORK TOGETHER



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