RECOMMENDER OF RELEVANT STORIES

IÑIGO BARAINCA, ÁNGELA HAIRONG JIMÉNEZ, MARTIN GOICOEHCEA

1- INTRODUCTION

2-LITERATURE REVIEW (SOTA)

- Historical context
- Advancements in NLP for Recommendation System
- Personalization Techniques
- Semantic Analysis and Relevance Matching
- Challenges and Considerations
- Future Directions

2-LITERATURE REVIEW (Relevant datasets)

NEWS MIND

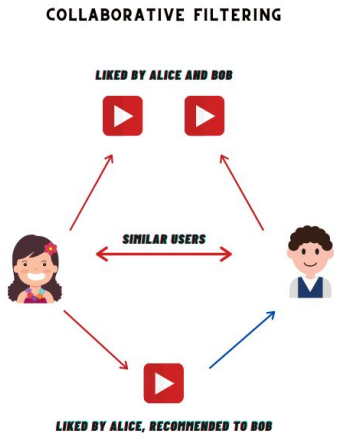
movielens

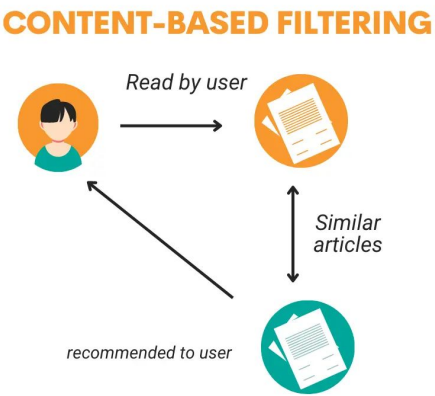
Non-commercial, personalized movie recommendations.

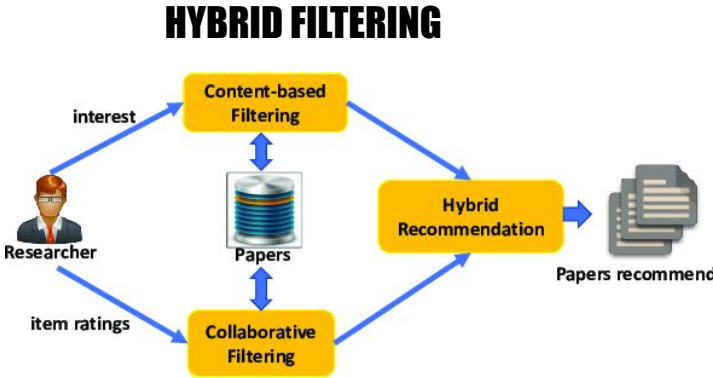
goodreads

3-SOLUTION CONCEPT

How could we make a recommender of relevant stories?

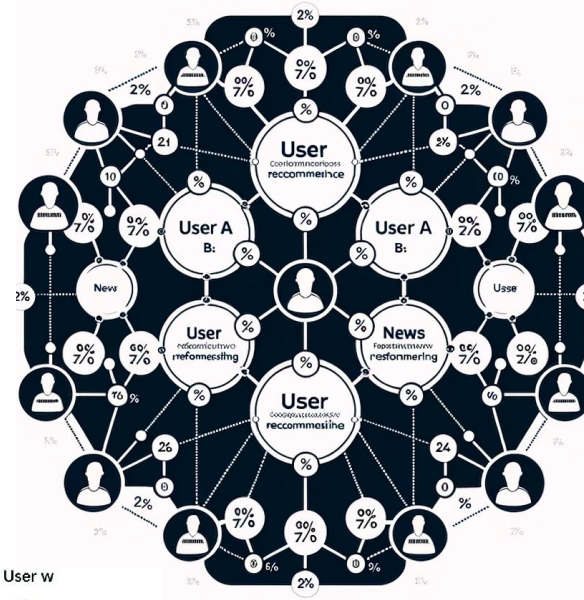


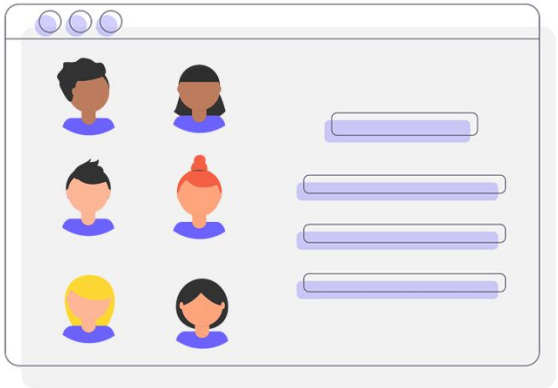


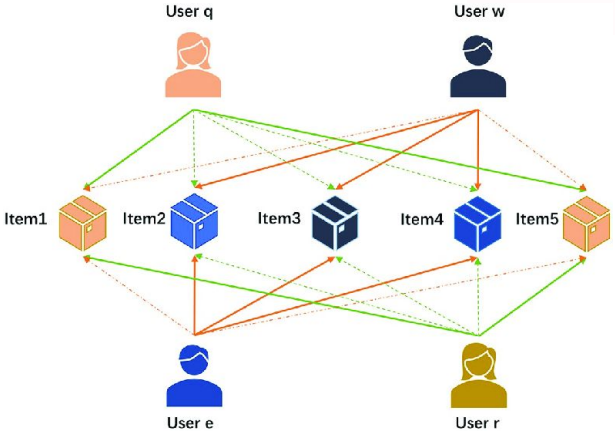


3.1- CONTENT BASED FILTERING

- Content of items and aligning it with user preference
- Create profiles for users and items







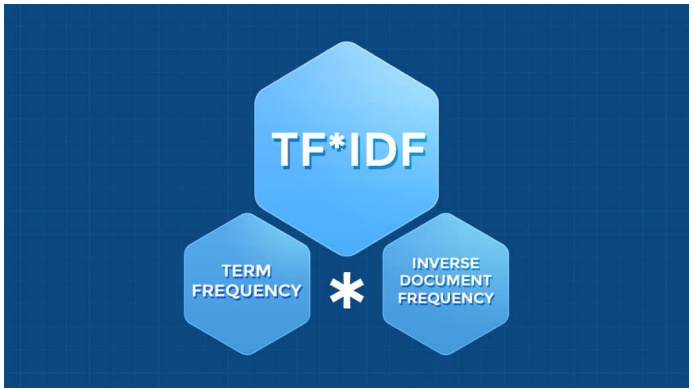
3.1- CONTENT BASED FILTERING

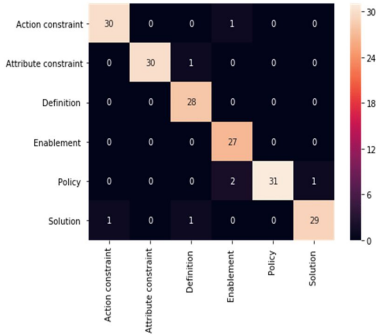
$$TF_{i,j} = \frac{n_{i,j}}{\Sigma_k n_{i,j}}$$

Used concepts:

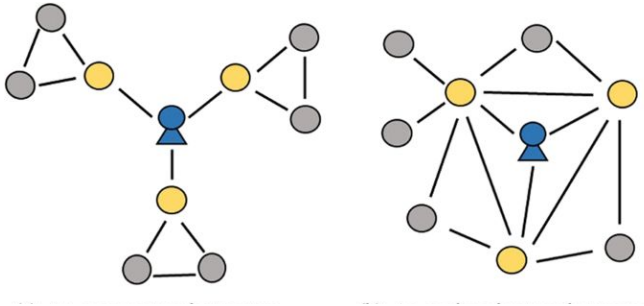
1. Term Frequency (TF):
2. Inverse Document Frequency
3. TF-IDF Weight

$$idf_j = log\left[\frac{n}{df_j}\right]$$

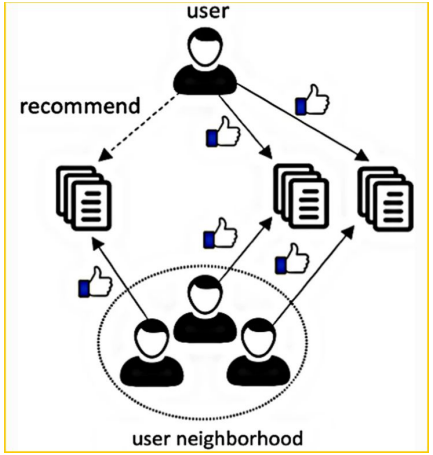


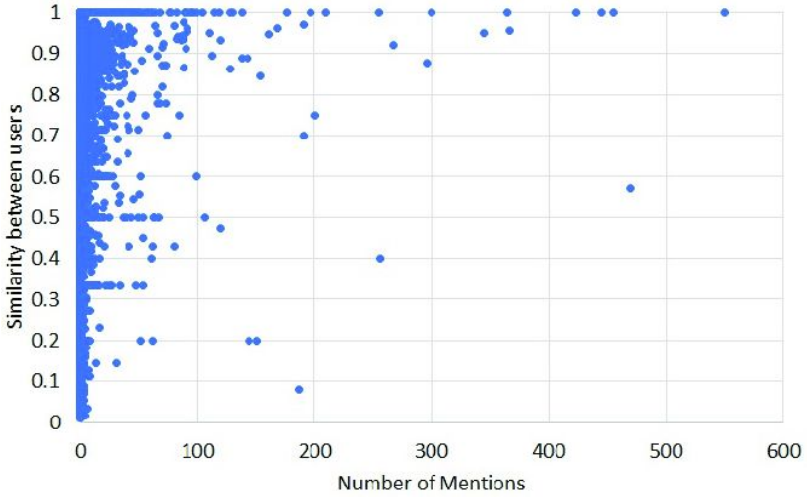


3.2-COLLABORATIVE FILTERING



- Similarity between users

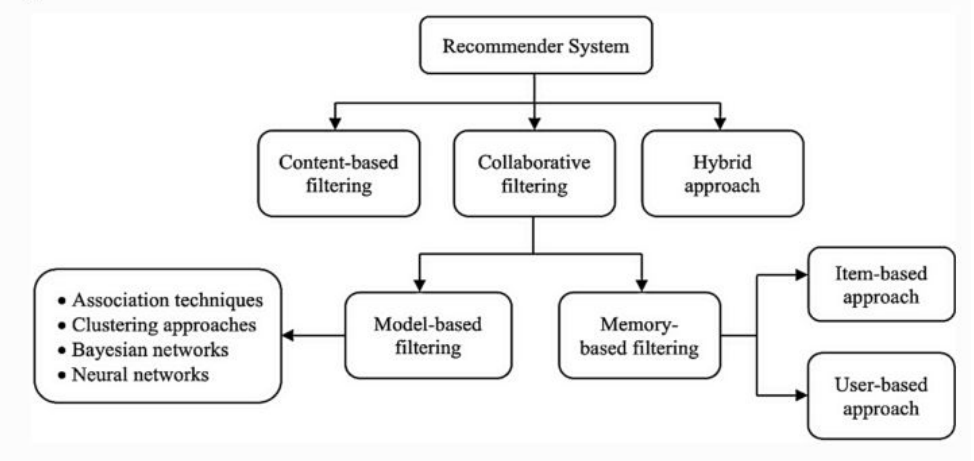




- Neighborhood X and user A

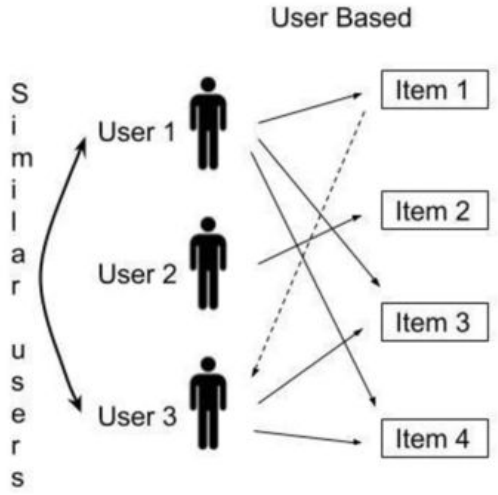
3.2- COLLABORATIVE FILTERING

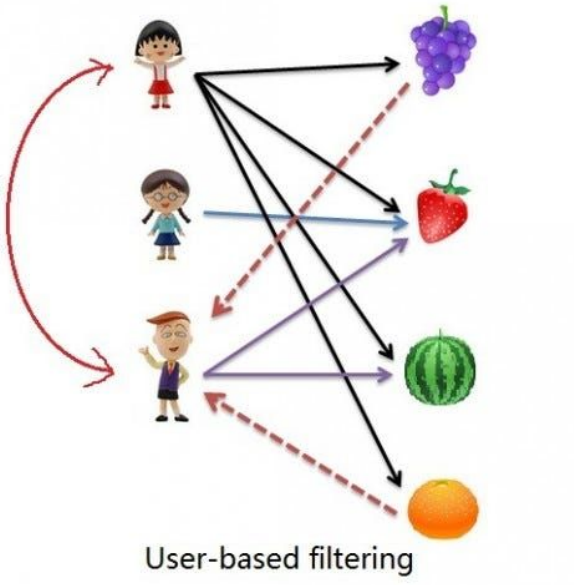
- The recommendations are made based on a function that takes the model and user profile as input
- There are two types of collaborative filtering types:



3.2.1- User-based collaborative filtering

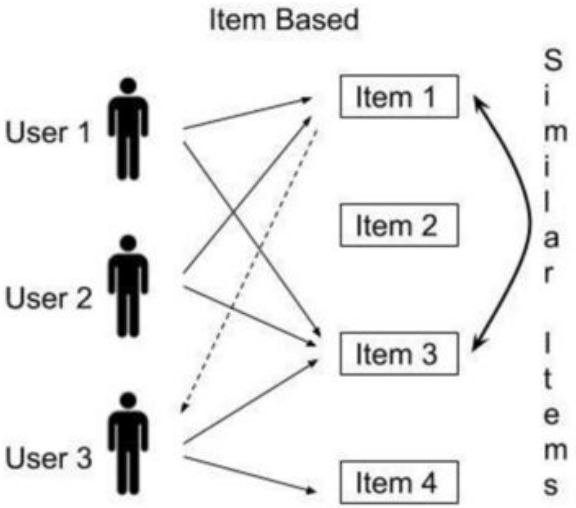
- Neighbourhood users is needed

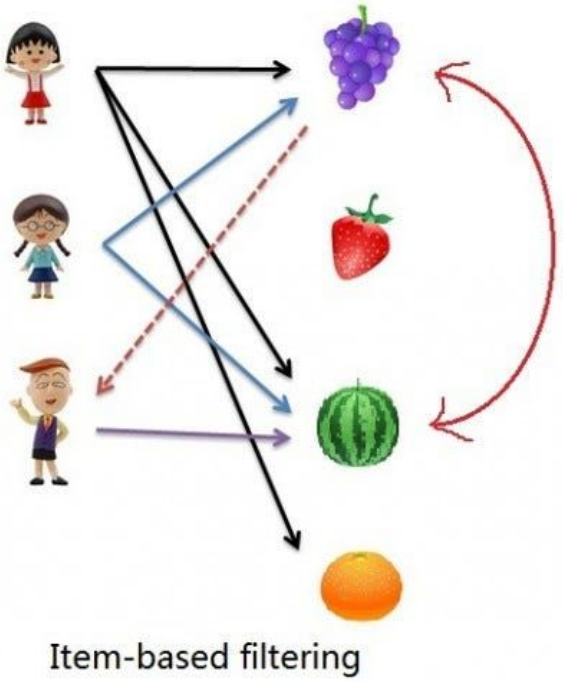




3.2.2- Item-based collaborative filtering

- A new item is predicted

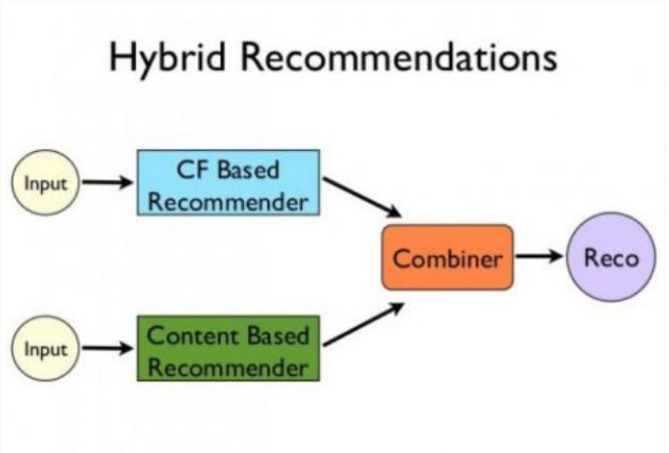




3.3 HYBRID FILTERING

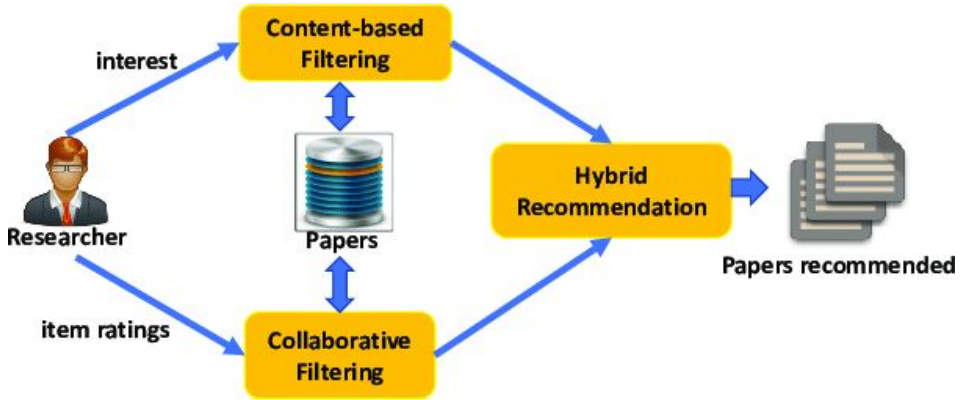
- Employed for addressing the limitations

of individual recommender techniques



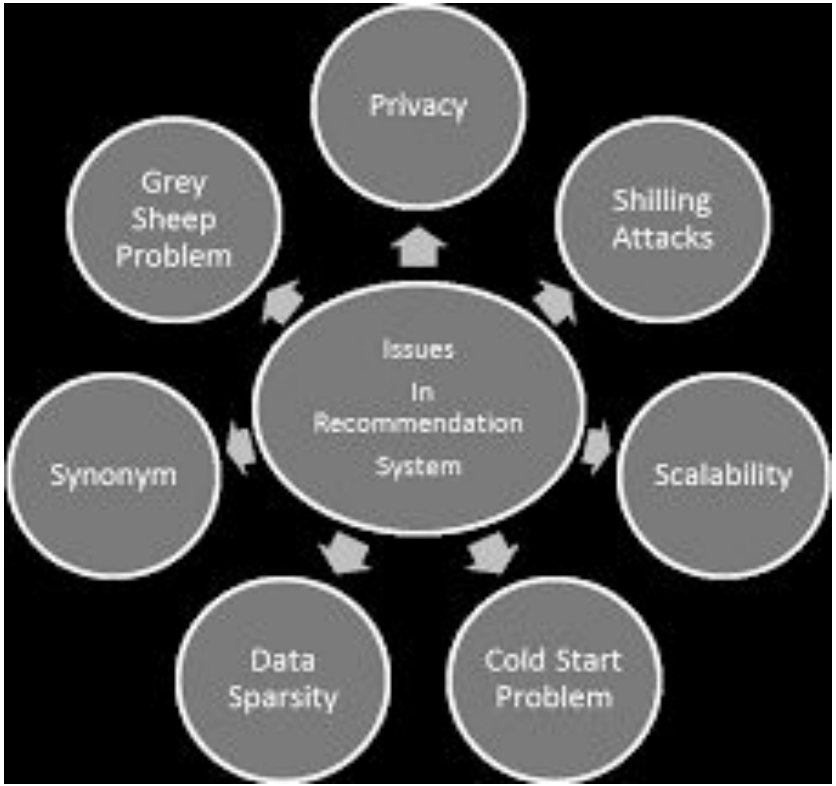
- Incorporate the results

achieved from separate technique

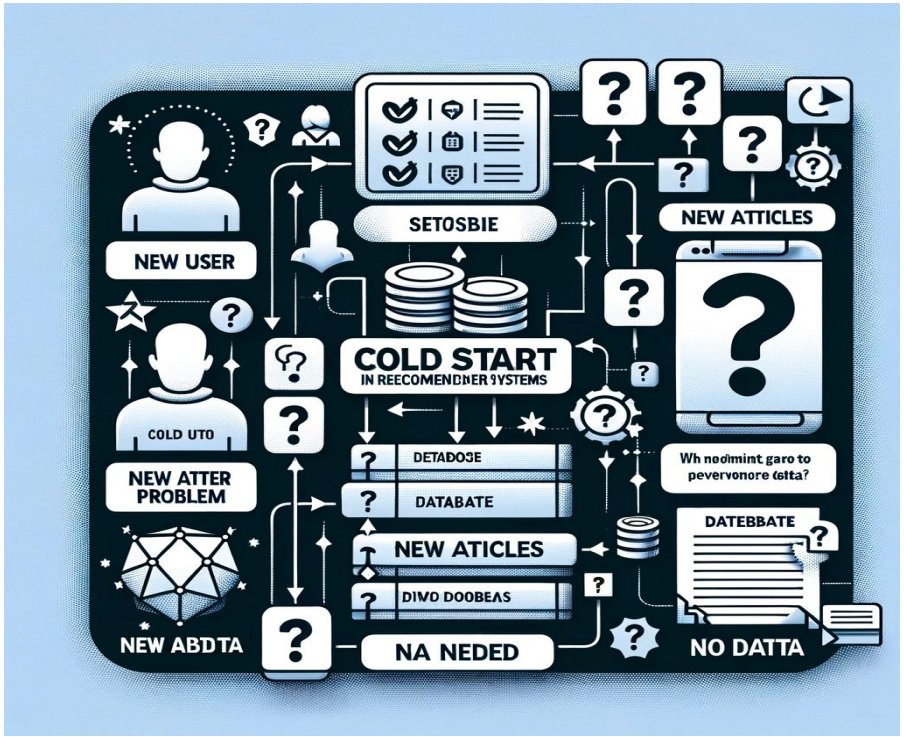


3.3-CHALLENGES

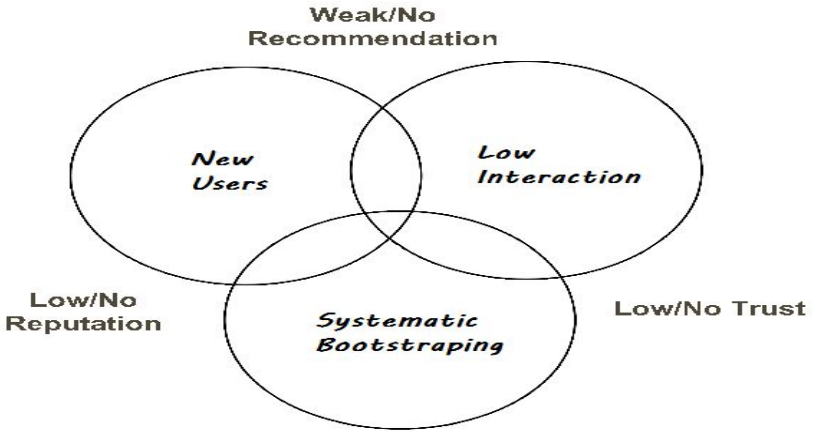
- **COLD START PROBLEM**
- **SPARSITY PROBLEM**
- **SHILLING ATTACK PROBLEM**
- **GREY SHEEP PROBLEM**



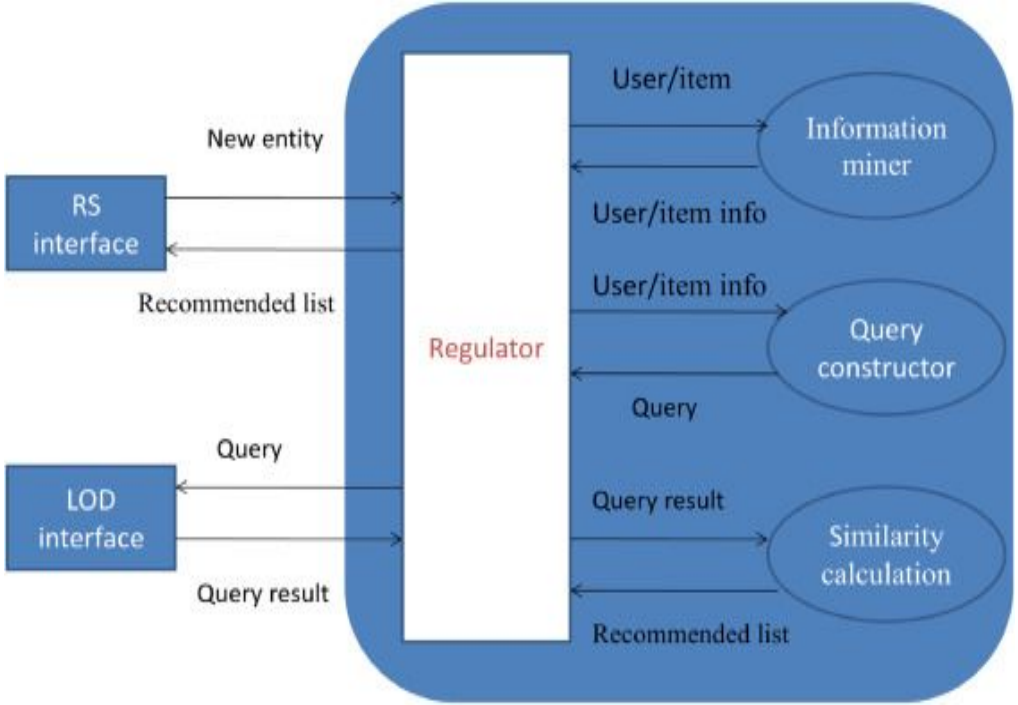
COLD START PROBLEM



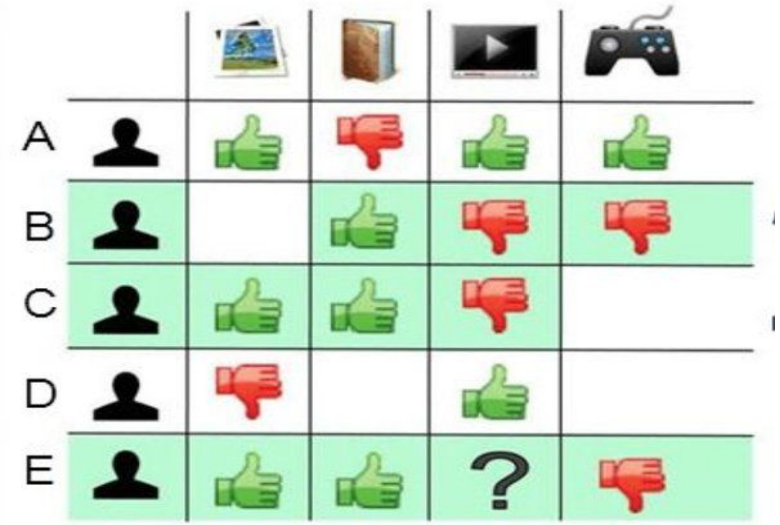
SOLUTION : COLLABORATIVE FILTERING



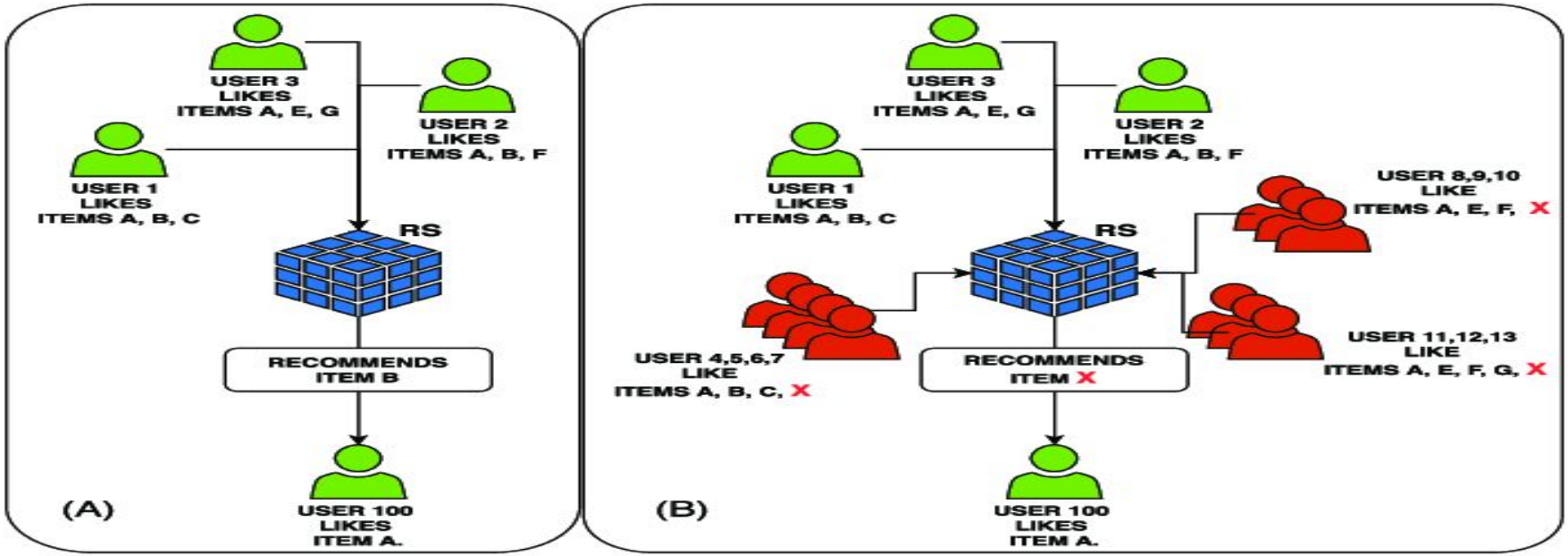
SPARSITY PROBLEM



SOLUTION : NEIGHBORHOOD-BASED METHODS

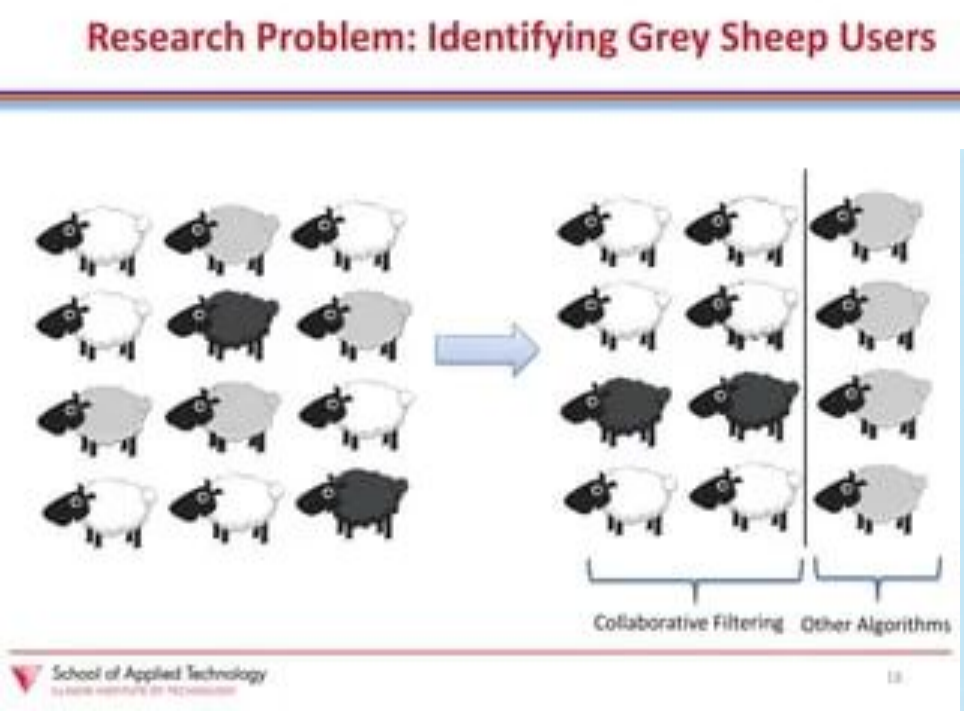


SHILLING ATTACK PROBLEM

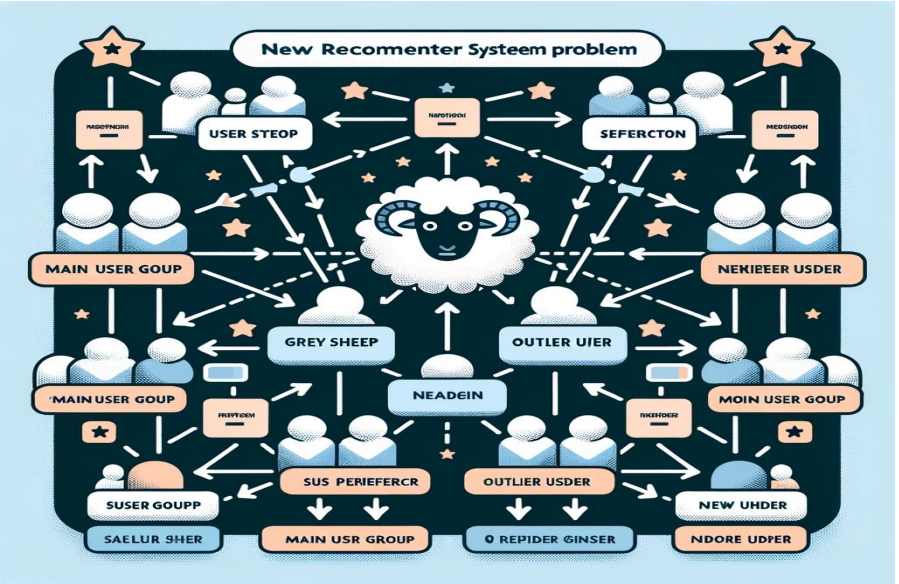


SOLUTION : DATA ANALYSIS AND ANOMALY DETECTION

GREY SHEEP PROBLEM



SOLUTION : ADAPTIVE ALGORITHMS



4-PROJECT PROPOSAL

- **OBJECTIVES**
- **METHODOLOGY**

4.1-OBJECTIVES

- Develop a robust recommendation engine that analyses user preferences and behaviour to suggest relevant stories.

- Build a scalable and efficient system capable of handling a large volume of users and stories.

- Evaluate the performance of the recommender system using appropriate metrics and user feedback.

4.2-METHODOLOGY

1. Data collection
2. Data preprocessing
3. Feature extraction
4. User Modelling
5. Recommendation Algorithms
6. Model Training and Validation
7. Evaluation

4.3-EVALUATION

- **PERFORMANCE METRICS**
- **A/B TESTING**
- **USER FEEDBACK**

THANK YOU

Questions