

Recommendation Systems

Seminar: Information Systems

- Data explosion in past years
- Paradox of choice



- Not choose anything at all
- OR*
- Choose multiple things - get FOMO

Enter... Recommendation systems!

NETFLIX



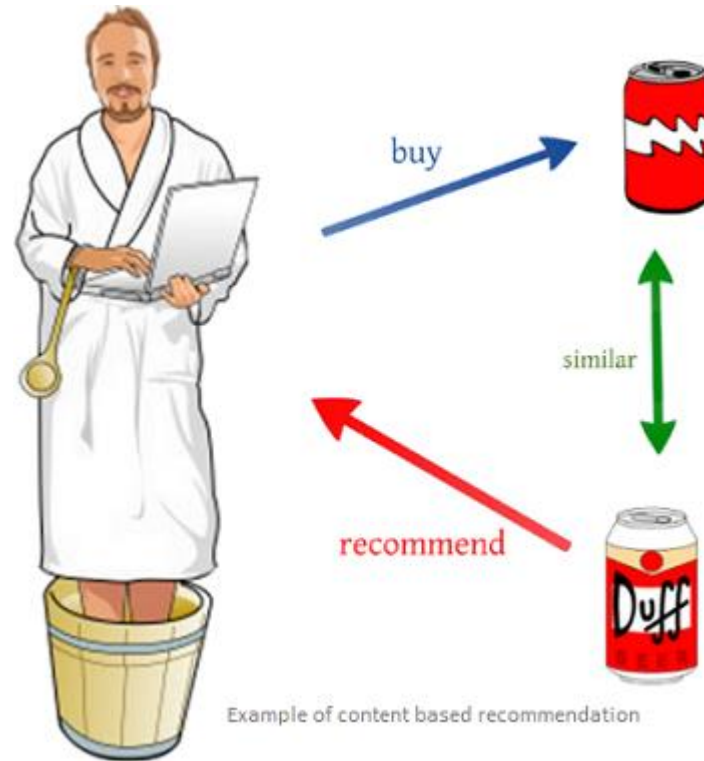
amazon



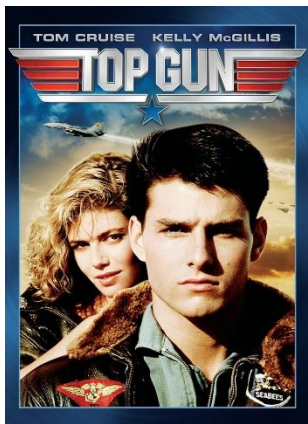
Google

Evolution

- Content based systems



Collaborative
filtering

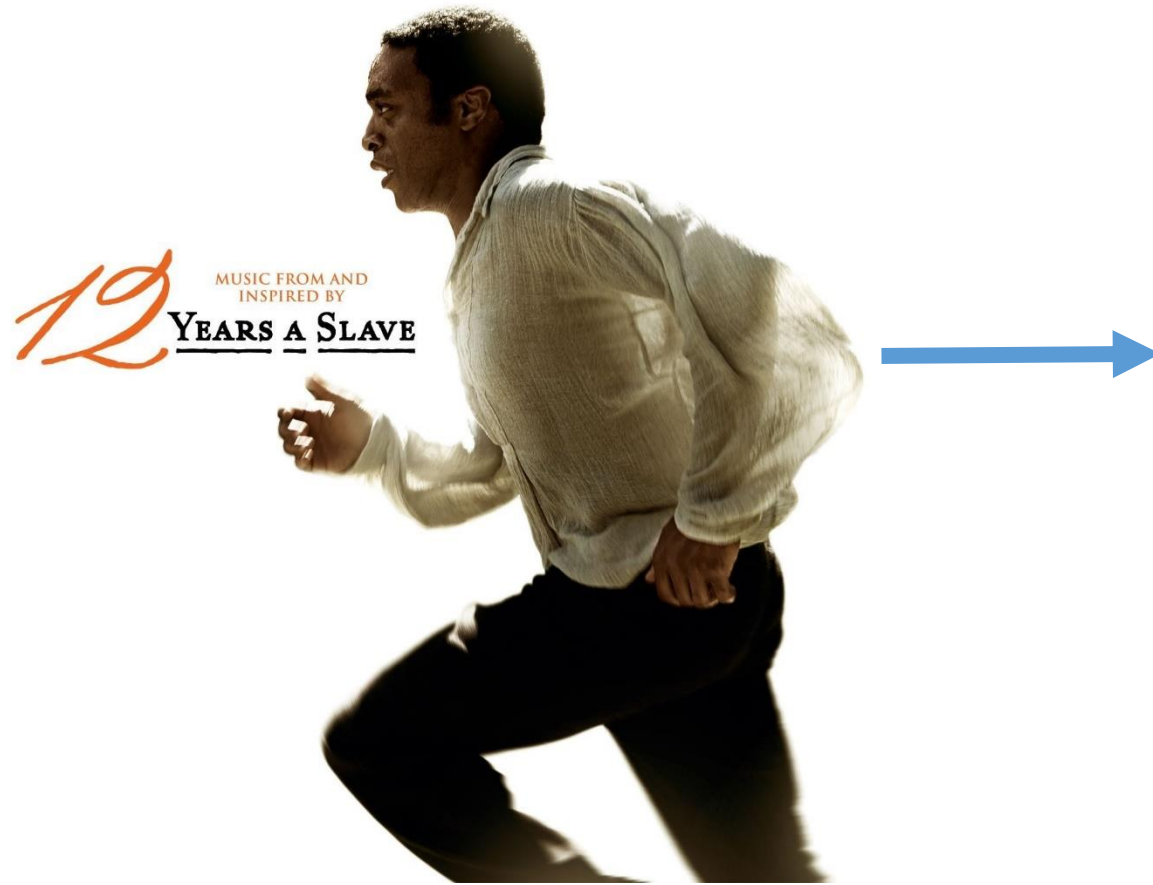


Sabi					
Jorjito					
Seba					
AMac					
Meera					
Mei					
Kiri					
Khali					
Xubaobao					

- What problems does a Recommendation system solve and what do we gain from it?
- What is required to build a recommendation system?
- What is needed to maintain such a system?



Recommend: space exploration movies



Result: confused algorithm

Product recommendations

- Tricky data - IDs
- ID-52 and ID-53 vs ID-52 and ID-62
- What if the IDs mean something?

Enter...

- Prod2vec – similar to word2vec
- Embedding of users and products
- Products that appear closer on a plot will be similar

- Problem?
- User query: Curry
- Recommended item?

- With linear regression models -> correct item corresponding to the query
- Problem?
- Same item recommended every time

- Enter...
- Deep learning -> generalize recommendations, diversity
- Problem?
- Too much generalization

- Let's combine both linear models and deep learning
- Enter...
- Wide + Deep learning

Wide + Deep learning

- Memorization and generalization
- Memorization: *“can be loosely defined as learning the frequent co-occurrence of items or features and exploiting the correlation available in the historical data.”*
- Generalization: *“is based on transitivity of correlation and explores new feature combinations that have never or rarely occurred in the past.”*