



Non-personalised

 Course	RecSys
 Files	Lecture1.1-4.Introduction.to.Recsys.pdf
 Link	https://canvas.maastrichtuniversity.nl/courses/7954/pages/lecture-1-introduction-and-non-personalized-recommender-systems?module_item_id=197460
 Status	Done
 Type	Lecture

Model vs Memory Based

Apriori Algorithm

Stereotype Based Recommendations

Model vs Memory Based

- **Memory** recommendations are made using data log in real time
- **Model** recommendations are prepared using collected data beforehand to make it more responsive
- Memory does not scale well because servers are overwhelmed in real time

Apriori Algorithm

- Part of a more general family of algorithms that use association rules
- **Association rules** is a data mining technique, "**if-then**" **statements**, that help to show the probability of relationships between data items

- So essentially we look at a set of transactions that have already taken place, and we try to figure patterns for which items are frequently interacted with together (could be music, products, movies, anything)
- Three important metrics are used ([source](#))
 1. **Support** refers to the default popularity of an item and can be calculated by finding the number of transactions containing a particular item divided by the total number of transactions.
(In the lecture they calculated support as the number of times a pair of items occurs together)
 2. **Confidence** refers to the likelihood that an item B is also bought if item A is bought. It can be calculated by finding the number of transactions where A and B are bought together, divided by the total number of transactions where A is bought.
 3. **Lift** refers to the increase in the ratio of sale of a product B when another product A is sold. $\text{Lift}(A \rightarrow B)$ can be calculated by dividing $\text{Confidence}(A \rightarrow B)$ by $\text{Support}(B)$.
(Not covered in lecture but seems interesting so I included it)
- **Apriori** starts with each item on its own, calculates support/confidence/lift, discards which items don't satisfy preset minimum parameters, adds another item to the set, does the same with sets of items, so on until there are no more items to add
- **What do we discard/prune?** If a set or item does not satisfy the minimum levels there is no need to explore adding an item to the set because it can not get better, as a new item will either decrease the support/confidence/lift or keep it the same
- **Advantages:**
 - Highly interpretable/Explainable - because of these rules it is easy to explain how the recommendation came to be
 - Can work on (very) large datasets
- **Disadvantages:**
 - Slow

Stereotype Based Recommendations