Overview

- recommandation based on user interactions with items in a system
- interactions such as
  - user ratings
  - clicks
  - purchases

Core Assumptions

- two type of entities
  - users
  - items
- interaction between users and items via online system
- all user-item-interactions are tracked
  - matrix entry

Example

- A database of users and items
- Example:
  - We are interested in Alice, and want to predict how she would like Item5.
  - Given: We know Alice's ratings for Item1, Item2, Item3, Item4; and ratings from User1, User2, User3, User4 for all items

	Item1	Item2	Item3	Item4	Item5
Alice	5	3	4	4	?
User1	3	1	2	3	3
User2	4	3	4	3	5
User3	3	3	1	5	4
User4	1	5	5	2	1

Example from Jannach et al. – Recommender Systems An Introduction, see last slide

:

- Which vector describes Alice? Which User1, User2, User3, User4?
- Which vector describes Item5? Which Item1, Item2, Item3, Item4?
-
  - Note: Alice and Item5 have missing values at index 5 / index 1 respectively!

CF Techniques

- [[User Based CF]]
  - assuming users A and B are similar
    - similarity score needs to be above threshhold
  - recommend items which A liked to B
- [[Item Based CF]]
  - asssuming items x and y are similar
  - if A liked x also recommend y