2-2: Preferences and Ratings

UNIVERSITY OF MINNESOTA

Introduction to Recommender Systems

Introduction

- To recommend, we need to data (what users like, what goes together, etc.)
- Data comes from users, is collected somehow
- This lecture's topic: what data we collect, how, and what it means

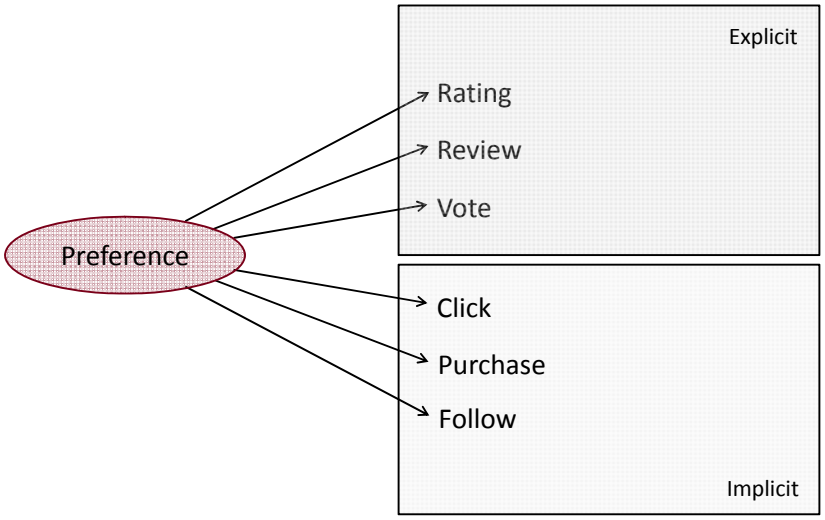
Learning Objectives

- Understand what data recommenders can use to learn what users like
- Identify types of data collected from users
- Understand when different data types are possible and appropriate
- Be able to identify types of preference data likely used in a system

Preference and Ratings

- We want to know: what do users like?
  - Or: what goes together?
- We can observe
  - What users tell us (ratings)
  - What users do (actions)
- These are *noisy measurements* of preference

Preference Model

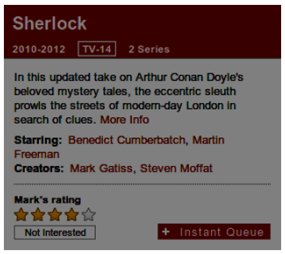


Explicit Ratings

Just ask the users what they think!

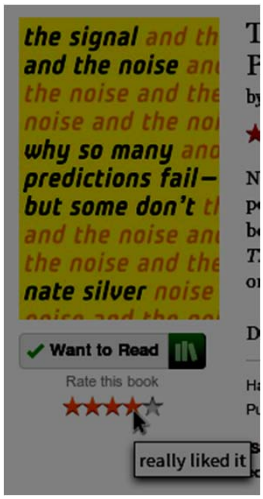
Star Ratings

- Widely-used interface
- Several design decisions
  - 5? 7? 10?
  - Half-stars?
  - Provide meaning/calibration?
  - More not necessarily better
- 5, with or without ½, very common

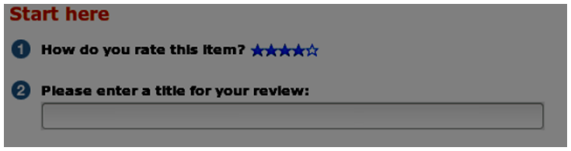


NetFlix

More Star Examples



GoodReads



Amazon.com

MovieLens

Thumbs and Likes

- Vote up/down
- Or just 'Like'/'+1'
- Common with ephemeral items
  - News aggregation (Reddit, Digg)
  - Q&A (StackOverflow)
  - YouTube
- Very low cost to rate

Pandora

StackOverflow

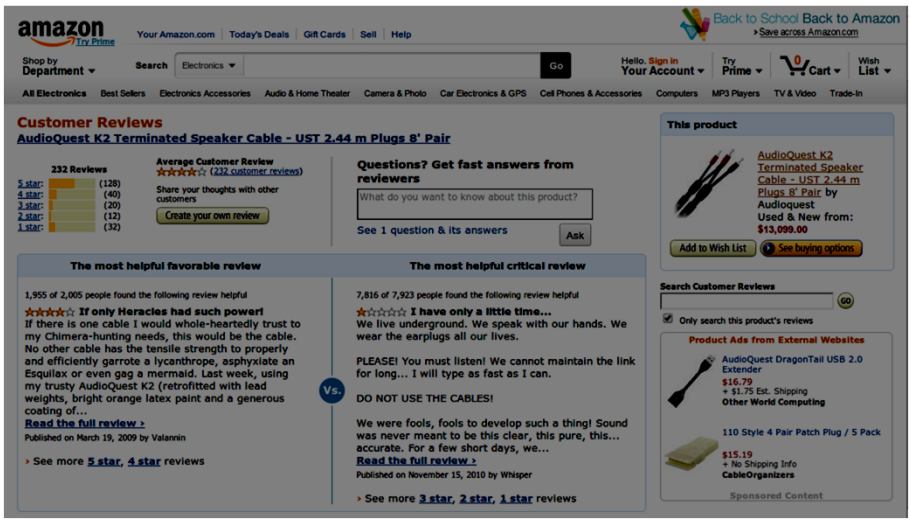
Other Interfaces

- Continuous scales
- Pairwise preference
- Hybrid (e.g. 1-100 + never again)
- Temporary (e.g. Pandora 30-day suspend)

When are ratings provided?

- *Consumption* — during or immediately after experiencing the item
- *Memory* — some time after experience
- *Expectation* — the item has not been experienced

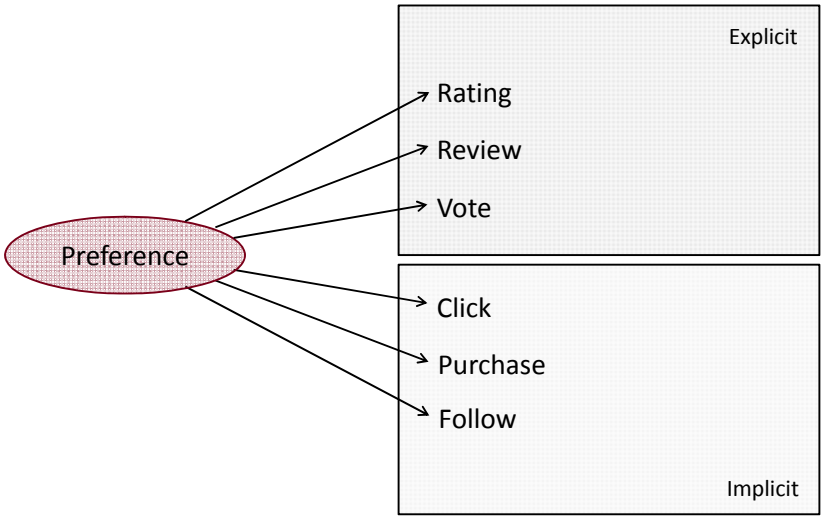
Joke ratings



Difficulties with Ratings

- Are ratings reliable and accurate?
- Do user preferences change?
- What does a rating mean?

Preference Model



Implicit Data

- Data collected from user actions
- Key difference: user action is for some other purpose, not expressing preference
- Their actions say a lot!

Reading Time

- Early implicit data: how long did user read?
- Listening and watching
  - IMMS
  - Video services

Binary actions

- Click on link (ad, result, cross-reference)
- Don't click on link
- Purchase
- Follow/Friend

Subtleties and Difficulties

- What does the action mean?
  - Purchase: they might still hate it
  - Don't click: expect bad, or didn't see
- How to scale/represent actions?
- Lots of opportunity to be creepy
  - Education may help
  - So can respecting privacy

Conclusion

- Recommenders mine what users *say* and what they *do* to learn preferences
- Ratings provide explicit expressions of preference
- Implicit data benefits from greater volume

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