# Notes for Recommender Systems

The oldest type of recommendations is **Editorial and hand curated** such as list of favorites and lists of “essential” items

Simple aggregates - top 10 most populat

Tailored to individual users Amazon, Netflix, Pandora

Utility functipon C=set of Customers X S=set of items -> R= set of ratings

R is a totally ordered set eg. 0-5 stars

**Content-Based Approach** – up to the user. No need for data from others

Cons:

* Finding the appropriate features is hard eg images, movies, music etc.
* Over specialization - never recommends items outside users content profile – unable to exploit quality judgements of other users
* Cold-Start problem for new users – How to build a user profile?

**Collaborative Filtering - User -user -** find set N of other whose ratings are similar to X’s ratings. Estimat X’s ratings based on ratings of users in N

A diagram of a diagram

Description automatically generated

Item-Item – Find similar items

**Implementing Collaborative Filtering**

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**Pros:**

* Works for any type of item – No feature selection needed

Cons:

* Cold start – need enough users in the system to find a match
* Sparsity: The ser/ratings matrix is sparse. Hard to find users that have rated the same items
* First rater – Cannot recommend an unrated item. New Items, Esoteric items
* Popularity bias – Tends to recommend popular items

Hybrid methos – add content based methods to collaborative filtering. Item profiles for new item problem. Demographics to deal with new user problem

Evaluatuing recmmender systems