

RECOMMENDATION SYSTEMS

PART 3-4



What Are Recommender Systems?

Recommender systems are so commonplace now that many of us use them without even knowing it. Because we can't possibly look through all the products or content on a website, a recommendation system plays an important role in helping us have a better user experience, while also exposing us to more inventory we might not discover otherwise.

Some examples of recommender systems in action include product recommendations on Amazon, Netflix suggestions for movies and TV shows in your feed, recommended videos on YouTube, music on Spotify, the Facebook newsfeed and Google Ads.

HOW DO RECOMMENDER SYSTEMS WORK?

- **User-Product Relationship**

The user-product relationship occurs when some users have an affinity or preference towards specific products that they need. For example, a cricket player might have a preference for cricket-related items, thus the e-commerce website will build a user-product relation of player->cricket.

- **Product-Product Relationship**

Product-product relationships occur when items are similar in nature, either by appearance or description. Some examples include books or music of the same genre, dishes from the same cuisine, or news articles from a particular event.

HOW DO RECOMMENDER SYSTEMS WORK?

- **User-User Relationship**

User-user relationships occur when some customers have similar taste with respect to a particular product or service. Examples include mutual friends, similar backgrounds, similar age, etc.

DATA & RECOMMENDER SYSTEMS

IN ADDITION TO RELATIONSHIPS, RECOMMENDER SYSTEMS UTILIZE THE FOLLOWING KINDS OF DATA:

- **User Behavior Data**

User behavior data is useful information about the engagement of the user on the product. It can be collected from ratings, clicks and purchase history.

- **User Demographic Data**

User demographic information is related to the user's personal information such as age, education, income and location.

- **Product Attribute Data**

Product attribute data is information related to the product itself such as genre in case of books, cast in case of movies, cuisine in case of food.



HOW DO WE PROVIDE DATA FOR RECOMMENDER SYSTEMS?

Data can be provided in a variety of ways. There are two particularly important methods, explicit and implicit rating.

1. **Explicit Ratings**

Explicit ratings are provided by the user. They infer the user's preference. Examples include star ratings, reviews, feedback, likes and following. Since users don't always rate products, explicit ratings can be hard to get.



HOW DO WE PROVIDE DATA FOR RECOMMENDER SYSTEMS?

2. Implicit Ratings

Implicit ratings are provided when users interact with the item. They infer a user's behavior and are easy to get as users are subconsciously clicking. Examples include clicks, views and purchases. (Note: Views and purchases can be a better entity to recommend as users will have spent time and money on what is most crucial for them.)

3. Product Similarity (Item-Item Filtering)

Product similarity is the most useful system for suggesting products based on how much the user would like the product. If the user is browsing or searching for a particular product, they can be shown similar products. Users often expect to find products they want quickly and move on if they have a hard time finding the relevant product. When the user clicks on one product we can show another similar product, or if the user buys the product we can email the user advertisements or coupons based on a similar product. Product similarity is particularly useful when we don't know much about the user yet, but we do know what products they're viewing.

TO BE CONTINUE...
SEE U DAN THANKS

