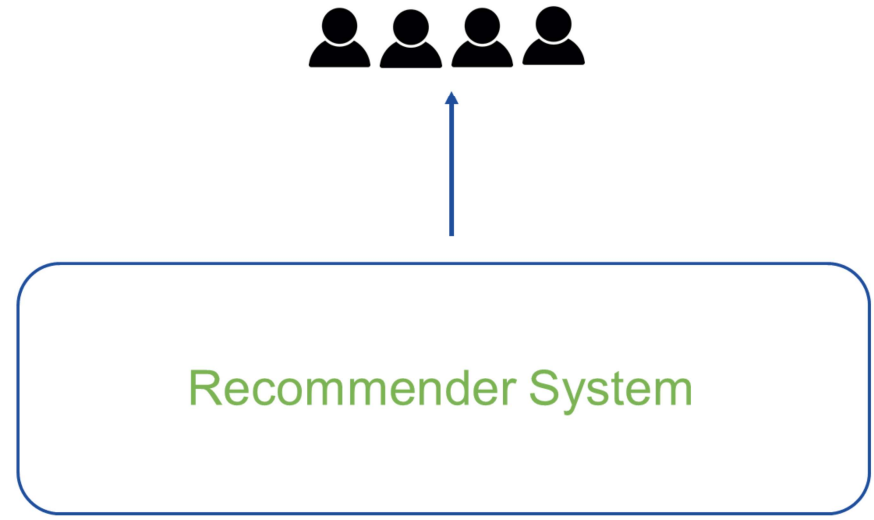
Introduction to Recommender Systems

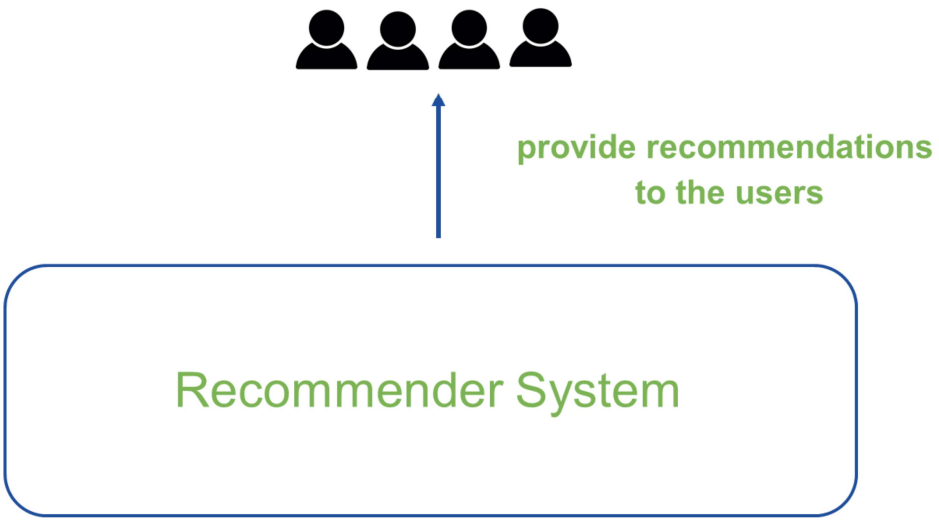
In this section, we will introduce what a recommender system is, its goals and its data inputs.

Recommender Systems



A recommender system is a system that filters and analyses input data.

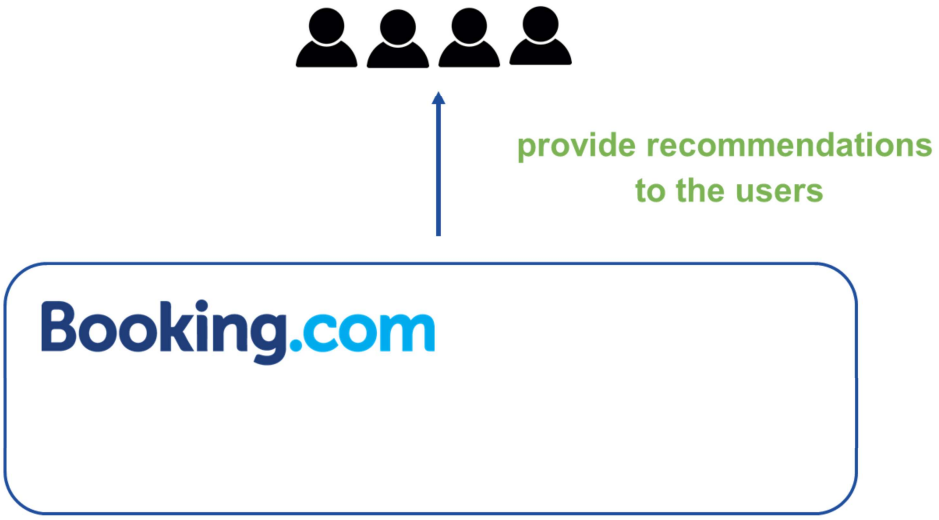
Recommender Systems



Its goal is to provide users with hints and suggestions about items that can meet their interest.

Some of the most common applications are e commerce and streaming services.

Recommender Systems



For instance, Booking.com suggests you where to go next, based on your previous trip and other people's ratings.

Recommender Systems

Amazon keeps track of the items you look at, to give you tailor made suggestions about other similar items, that might interest you.

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Spotify analyses genres, authors, other use's playlists, and more, to give you suggestions.

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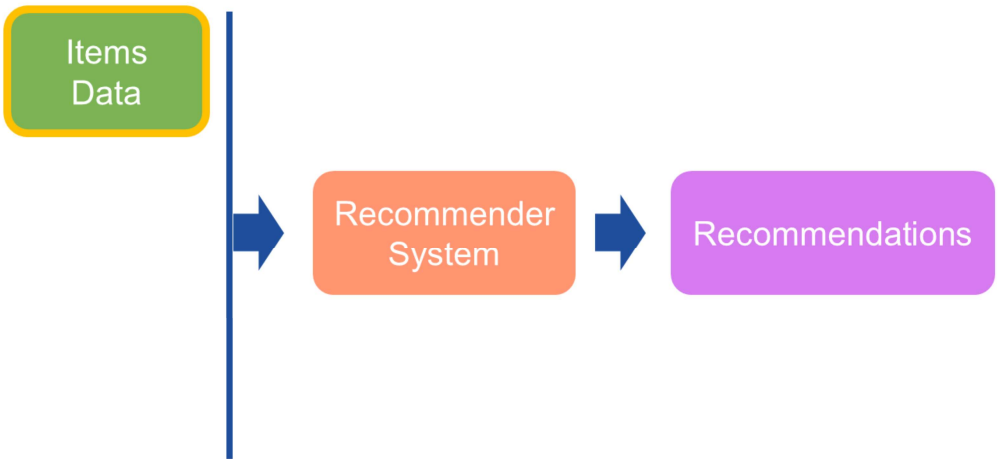
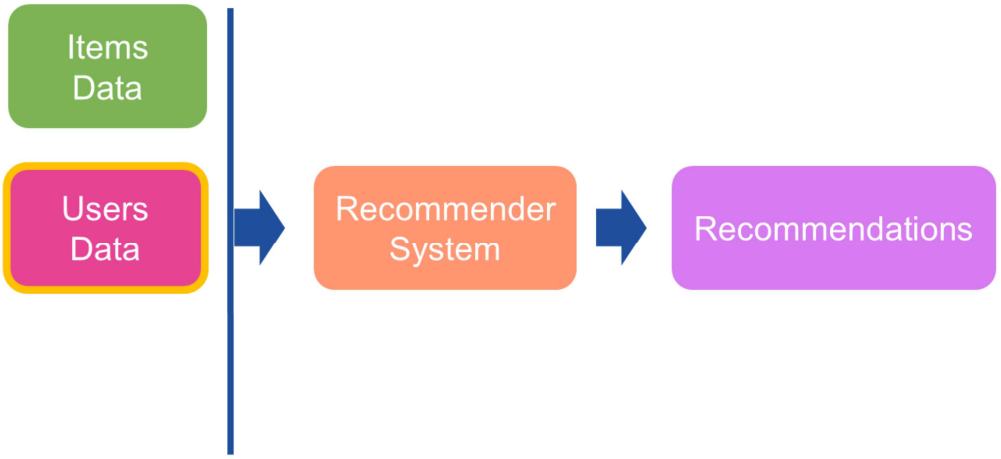
In the same way, Netflix suggests you what to watch next.

Input Data



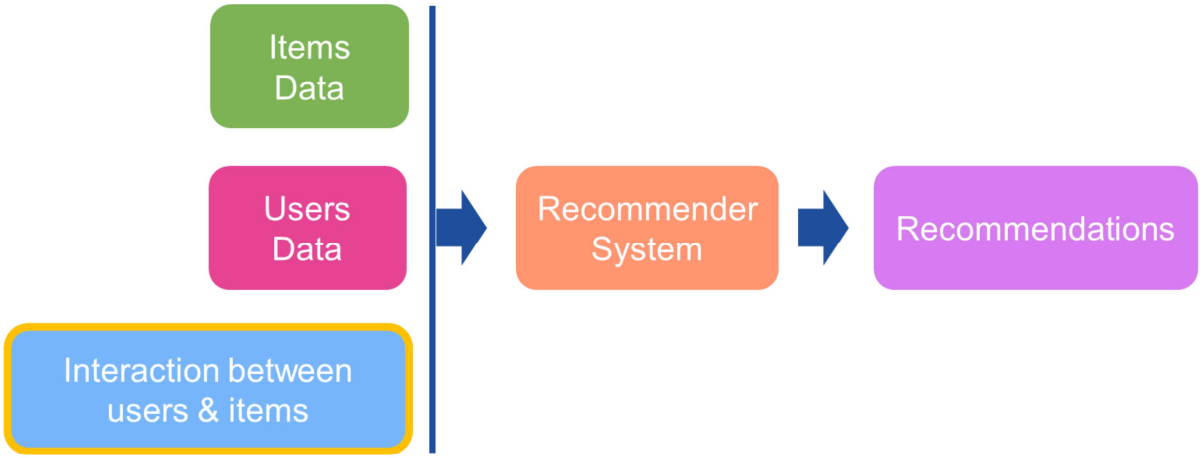
Therefore, a list of available items is the first, main input to any recommender algorithm.
The description of each item can be enriched by a set of attributes.
For instance, if we recommend movies, genre, director, and actors could be a meaningful set of attributes.

Input Data



A recommender system also needs to know something about the users, in order to provide them with recommendations. As a consequence, a second source of information for a recommender are user attributes.
Demographics, such as gender and age, are examples of user attributes.

Input Data



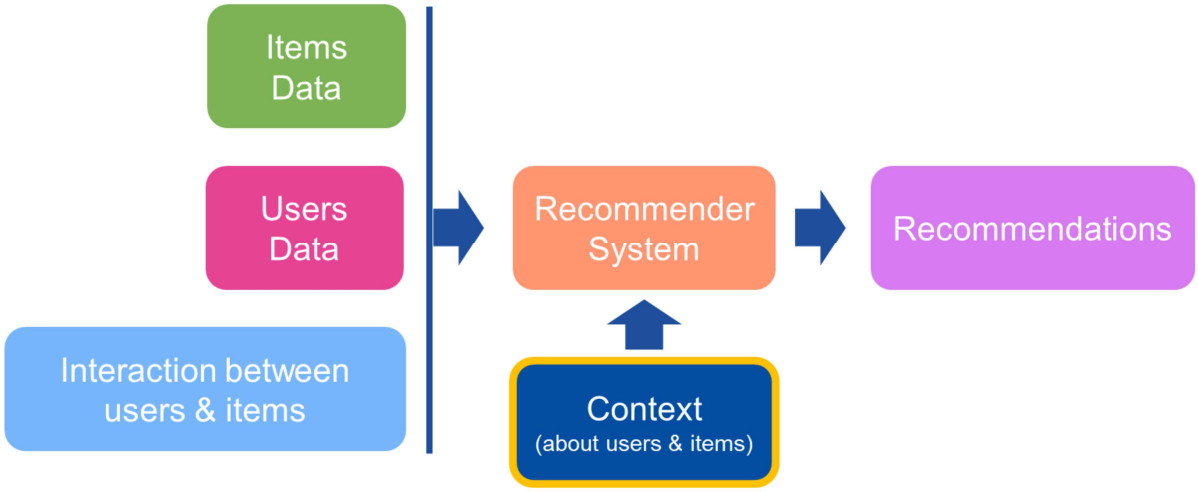
A third, important source of information are interactions between users and items.
Interactions reveal the opinions of users on some of the items.
For instance, a user, may have rated some movies.
In this case, we explicitly know the opinion of the user on these movies.

Alternatively, we may know which books a user has bought in the past, or which movies a user has watched.
In this case, we can implicitly assume that if a user watched a movie, or bought a book, probably, the user likes that movie or that book.

Knowing these interactions, may be useful to recommend other users what to read, or what to watch next, based on what they have already red or watched.

For example, if people who buy running shoes usually buy headbands as well, a recommender system will encourage you to buy both of the items.

Input Data



Interactions have attributes as well. These attributes are called the context. Examples of contextual attributes are geographical location, day of the week, hour of the day, mood of the user, and so on…

The same user may have different opinions on the same item, based on the context. For instance, a restaurant could be perfect for a business lunch, but not for a romantic dinner. Business lunch and romantic dinner are example of context when recommending restaurants.

Similarly, if the weather is sunny, the user might prefer a restaurant with an outdoor garden, while if the weather is rainy, the user might prefer a restaurant with a fireplace. Sun and rain are two other examples of context.