Implementing Collaborative Filtering Models for Network Analysis

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Module Overview

Introduce and understand collaborative filtering and recommendation systems

Implementation of a collaborative filtering recommendation system

Discuss additional learning tools and next steps for further learning

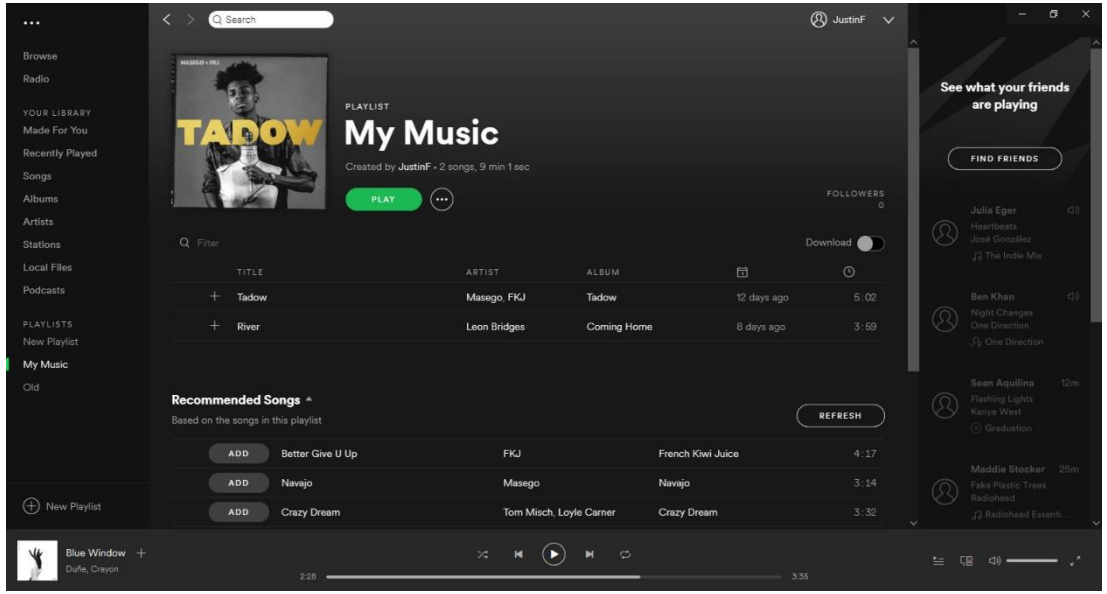
Understanding Recommendation Systems and Collaborative Filtering

Recommendation System

Information filtering system used to predict the rating or preference a user would give to an item. Giving the ability to recommend items.

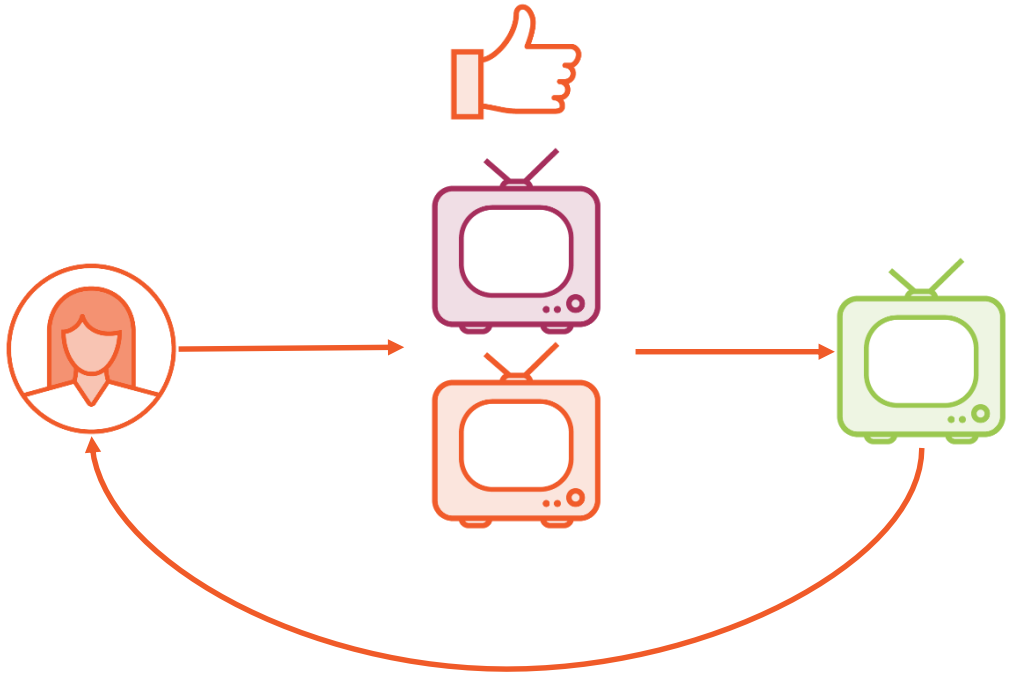
Recommendation Systems

Netflix: Movie Recommendations

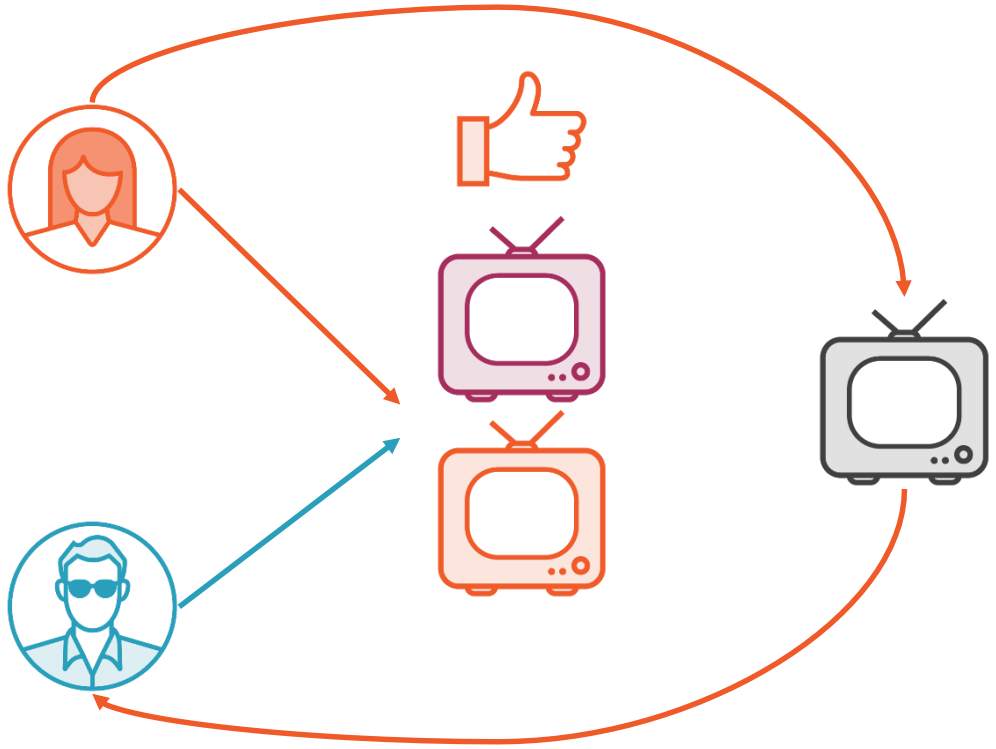


Spotify: Music Recommendations

Content-based vs. Collaborative



Content-based filtering



Collaborative filtering

Content-based vs. Collaborative

Content-based filtering

Based on known users preferences

Looks at item content

Recommendations inferred from similarities to known items

Collaborative filtering

Based on similarities to other users

Does not look at item content

Recommendations inferred from the preferences of similar users

Implementing Collaborative Filtering

Further Learning and Next Steps

Further Learning

NetworkX website (networkx.github.io)

- Tutorials, examples, documentation

Pluralsight courses

- Network Analysis in Python: Getting Started

Summary

- Introduced and learned the fundamentals of network analysis and NetworkX
- Introduced network data visualization methods
- Learned to identify key network features
- Implemented link prediction methods
- Implemented collaborative filtering methods
- Discussed additional learning tools and next steps for further learning