

RECOMMENDATION SYSTEM FOR E-COMMERCE WEBSITES

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INTRODUCTION

In our day to day lives we get suggestions in every aspect of our lives. Ideally, suggested items are as relevant to the us as, so that the user can engage with those items: YouTube videos, news articles, online products, and so on. A recommendation system is a computer program that helps a user discover products and content by predicting the user's rating of each item and showing them the items that they would rate highly. Behind the scenes, these systems are powered by a recommender function. A recommender function takes in information about the user and predicts the rating the user would give the product. That means you can show the user only the things they would like the best and not waste their time with products they won't care about.

TYPES OF RECOMMENDATIONS

- Collaborative Filtering recommendation systems:

Collaborative filtering systems make recommendations only based on how users rated products in the past, not based on anything about the products themselves. In collaborative filtering, the recommendation system has no knowledge of the actual product it is recommending. It only knows how other users rated the product.

- Content based recommendation systems:

Content-based recommendation systems are recommendation systems that use their knowledge of each product to recommend new products.

Let's say that you tell a friend that you just watched the movie Iron Man starring Robert Downey, Jr. and that you really liked it. Your friend might recommend that you watch the movie Avengers next. Both movies are Science fiction film and both movies feature the same movie star. It could be a good recommendation because the movies have a lot of attributes in common. This is the idea behind content-based recommendation systems. They try to recommend products that have similar attributes to a product that the user already liked.

- Hybrid recommendation systems

Recent research has demonstrated that a hybrid approach, combining collaborative filtering and content-based filtering could be more effective in some cases. Hybrid approaches can be implemented in several ways, by making content-based and collaborative-based predictions separately and then combining them, by adding

content-based capabilities to a collaborative-based approach (and vice versa), or by unifying the approaches into one model. Netflix is a good example of a hybrid system. They make recommendations by comparing the watching and searching habits of similar users (i.e. collaborative filtering) as well as by offering movies that share characteristics with films that a user has rated highly (content-based filtering).

LITERATURE SURVEY

Sr No.	Year	Name of Paper	Author	Content
1	2019	Parameter based survey of Recommendation systems	Janani Balasubramanian, Soumya Koppaka, Chinmay Rane, and Nataasha Raul	Performance of various parameters
2	2019	A Study on E-commerce Recommender System Based on Big Data	Xuesong Zhao	Recommendation Systems in Big Data
3	2016	E-commerce Product Recommendation Method based on Collaborative Filtering Technology	JunBo Xia	E-commerce product recommendation
4	2003	PCFinder: An Intelligent Product Recommendation Agent for E-commerce	Bin Xiao, Esma Aimeur and Jose Manuel Fernandez	Works on Order Based Similarity Measure
5	2017	Recommendation system in E-commerce websites: A Graph Based Approach	Ms. Shakila Shaikh and Dr. Sheetal Rathi	Use of Graph based approach to improve semantics in e-commerce website
6	2009	A Neural Networks-based Clustering Collaborative Filtering Algorithm in E-commerce Recommendation System	Jianying Mai, Yongjian Fan and Yanguang Shen	BP Neural Networks based clustering

7	2018	A Content-Based Recommendation System Using Neuro-Fuzzy Approach	Tomasz Rutkowski, Jakub Romanowski, Piotr Woldan, Pawel Staszewski, Radoslaw Nielek, and Leszek Rutkowski	Neuro fuzzy and deep learning methods.
8	2018	DeepHCF: A Deep Learning Based Hybrid Collaborative Filtering Approach for Recommendation Systems	Meshal Alfarhood and Jianlin Cheng	Matrix trained on Multi layer perceptron and CNN
9	2017	A Recommendation System by Collaborative Filtering Including Information and Characteristics on Users and Items	M. Kawasaki and T. Hasuike.	Recommendation system that recommends new items based on Matrix

GAPS IDENTIFIED

- It was observed that lack of importance was given to the selection of variables while making recommendations.
- Lack of semantic factor in recommendation systems.

OBJECTIVES

1. To study the basics of recommendation systems and how they can be used in e-commerce.
2. To make useful insights from customer reviews.

CONCLUSION

A detailed study about the recommendation systems and types of it was conducted. How it can be used by using various linear, clustering and classification algorithms. Finally they were evaluated based on performance metric

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