iRecommend

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Introduction

Recommendation Systems are Information filtering softwares which generate suggestions to users and help make decisions on a wide variety of products most preferred by them. The products in question can span music, movies, books to read, bars of soap to use, where to eat and even where to sleep. Recommendation Systems has been established in lots of markets including but not limited to E-Commerce and E-Businesses. In the E-Commerce domain RS helps customers and consumers decide on what item or product to buy and it also helps the owner of the business know what users prefer. Traditional Recommender systems try to match users with for example similar products that they might have bought previously or rated highly. Although researchers are working towards the improvement in the accuracy of recommender systems using the overall user-item single-criterion ratings (one criteria to make a rating) , multi-criteria recommender system (MCRS) allows to represent the preferences of users on several aspects of the items an example of a MCRS is found below.

User ID	Acting (r_1)	Story (r_2)	Direction (r_3)	Visual (r_4)	Overall (r_o)	Movie ID
1	6	6	8	12	8	1
	9	11	10	9	10	2
	13	6	5	8	5	47
2	13	13	13	13	13	3
	8	12	11	9	13	4
	5	6	13	13	13	5
3	12	10	12	10	10	6
	9	9	10	10	10	4
	9	10	9	10	10	3

In the above table of a movie rating a user rates each movie on five different criterias whereas in a single criterion recommender system only one of the criterion will be used.

Problem Description:

Most Businesses that use recommender system mostly use the single criterion based recommender system which can be achieved either by using collaborative-filtering or content based filtering, which albeit effective and good leaves a lot more to be desired our use case which is going to be an E-commerce system might be using only one of the above

mentioned methods to recommend products to a user. We are looking to make that system better by taking a multi-criteria approach.

Goals

1. Develop a fast and efficient Multi-Criteria based Recommender System
2. Test it against a Single criteria based system and measure the efficiency
3. Deploy it as an easily accessible API endpoint that can be consumed either by Mobile Apps or Web Applications.

Specifications

1) Source for Data with multiple criteria
2) Clean the Data
3) Visualize the Data
4) Develop the models (Single Criteria and the proposed MCRS)
5) Development of the API
6) Development of the FrontEnd both Mobile and WebApp
7) Testing

Project Role Assignment

I. Data-Sourcing (Entire team)

II. Data cleaning - Lase Tawak

III. Model Development - Adebisin Adedayo (Single criterion)

IV. Model Development II - Musa Muawiyya Modibbo (Multi Criteria)

V. Model testing - Joshua Mathew

VI. Api Development - Musa Muawiyya Modibbo and Lase Tawak

VII. Front-End Development - Joshua Mathew (Mobile)

VIII. Front-End Development - Adebisin Adedayo (Web Application)

IX. Testing Entire Team

Conclusion

At the end of this project we want to be able to successfully recommend products to users based on more than one criteria. Which can be extended to various domains of life and hopefully even financial stocks and cryptocurrency to invest in.