FASHION RECOMMENDATION SYSTEM AND ANALYSIS USING DATA MINING TECHNIQUES

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Abstract

In the fashion world, big data is increasingly playing a part in trend forecasting, analysing consumer behaviour, preference and emotions. It also gives a broad classification of the types of fashion data and briefly defines them. Also, the methodology and working of a system that will use this data is briefly described. We have collected the user's data from a fashion company dealing with customized made-to-measure garments. Proposed architecture for recommendation system is based on different data mining techniques like clustering, classification and association mining.

Keywords: Electronic Commerce, Item-Based Collaborative Filtering, DEMOGRAPHIC ANALYSIS, Collaborative Filtering, Clustering, association, mining

1. *Introduction*

The industries are experiencing evolution since ages. The first industrial revolution embarked the use of steam and water to mechanize production. The second used electrification to introduce the world to mass production and division of labour. The third saw the rise of computers and digital technology, which automated the production processes. The third revolution has evolved into the fourth which encompasses the 'Internet of Things', and at its core lies the combination of big data, analytics and physical technologies.

Big data has gained significant importance in the fashion world in the last decade. It is increasingly being used in trend forecasting, supply chain management, analysing customer behaviour, preferences and emotions. The demands of the customer, nowadays, are constantly changing. They want dresses with a personalized style, fit and pattern/colour/print.

India has an internet user base of about of 500 million as of June 2018. It has also been predicted that around 6 million users are increasing every month in our country'. In India, cash on delivery is the one of the highly preferred payment method, covering over 75% of all the e-tail activities. The largest e-commerce companies in India at present are Flip kart, Amazon and Myntra. Snap deal one of the largest Indian e-commerce portal couldn't make it to the list due to investment problems between soft banks, this online portal was close to merge with flip kart but pulled back and the online portal has come out again with new look.

2. *Literature Survey*

Publication/Year	Title	Overview	Positive Aspect	Limitations
Bournemouth University 2020	The Impact of Big Data Analytics on	paper provides outlook on Personalisation, Optimized pricing,	Big Data analytics provide value to e-commerce firms by combining the	Risks associated with protecting personal data and

	the E-commerce Industry	Recommender Systems, The Concept of trust in e-commerce, etc.	dynamics of people, processes, and technology to transform data-related solutions for different business problems	preventing security breaches.
CIKM 2021	Seasonal relevance in e-commerce search	In this paper, a detailed study on seasonality as a dimension of relevance for e-commerce search engines is presented and approaches to identify seasonality in queries and products, and define features that capture it.	Sales in fashion categories follow both seasonal and holiday patterns, reflecting the change in customer preference for product types and fashion styles throughout the year. predictive approach of learning seasonal relevance from query text and product titles.	
JPCS 2021	Recommendation Systems for E-commerce Systems an Overview	-This paper gives an brief overview of the recommendation system used for e-commerce - Touched upon different types of recommender systems (collaborative, content based, knowledge based, community based, hybrid, other) -Various algorithms (memory-based algorithms, user-based algorithms, item-based neighbourhood, Collaborative filtering)	The paper gives a great understanding of different types of recommendation systems and their aspects. It summarised other literature which had in-depth information on a particular type of system.	
IJARCCE 2017	Recommendation Systems for E-Commerce: A Review	-This paper gives an brief overview of the recommendation system used for e-commerce - Touched upon different types of recommender systems (collaborative, content based, knowledge based, community based, hybrid, other) similar to the paper above (JPCS 2021)	Includes comparison between algorithms and recommenders	
IJCSC 2017	An Effective Product Recommendati	-In-depth information about hybrid recommendation system	-The proposed system is a custom hybrid recommendation system -	

	on System for E-Commerce Website Using Hybrid Recommendation system	- Includes a proposed system based on 2 recommendation systems (collaborative and demographic analysis)	Paper includes basic implementation of the proposed system	
AAAI Technical Report WS-99-01	Recommender Systems for E-Commerce: Challenges and Opportunities	This paper shows the applications of recommender system in e-commerce with challenges and their solutions It talks about direct recommendation, gift centres and cross sell recommendation It talks about using of RFM (recency, frequency, monetary) and its use in recommendation system	Recommender systems are the demonstrating the practical importance of AI techniques, machine learning, in E-commerce The recommender system in most cases makes decision making on buying products easy It helps customer to get more 'compatible' products	Hybrid data: How can recommender systems make use of all of the data available about a customer in making the best possible product recommendation Scalability. How can recommender systems provide recommendations in hundredths of a second on databases that involve millions of customers and millions of products Predictable quality. How can recommender systems tell in advance how accurate their recommendations are likely to be?
Atharva College of Engineering (Malad) Mumbai University	Study of Recommendation Engines for E-Commerce Websites	This paper talks about different algorithms for recommender system: Collaborative filtering, . Content based filtering, Cluster analysis, Feedback, Explicit feedback, Implicit feedback It tells about the recommendation system used in Amazon.com		
l 2017 IOP Conf. Ser.: Mater. Sci. Eng. 254 152005	Big data in fashion industry	The purpose of this paper is to introduce the term fashion data and why it can be considered as big data. It also gives a broad classification of the	proposed a fashion recommender system that considers perception of both the fashion experts and the consumers. Their system integrates fashion	

		types of fashion data and briefly defines them. Also, the methodology and working of a system that will use this data is briefly described.	themes and human perception on personalized body shape and fashion designer's knowledge. Overcome cold start problem.	
01-11-2019 DOI:10.5121/csit.2019.91329	Customized Garment Fashion Recommendation System using Data Mining Techniques November 2019	Proposed architecture for recommendation system is based on different data mining techniques like clustering, classification and association mining. KEYWORDS Recommendation System, BIRCH, Adaptive Random Forest, Incremental learning, data mining, Association mining	Hybrid filtering (HF) is a combination of various recommendation techniques to overcome the shortcomings of previously introduced Content-based and collaborative filtering.	