



A Peculiar Review On E-commerce Platform & Recommendation Model

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Abstract: The goal of this thesis is to address design and development issues in the e-commerce platform and its recommendation system. The fact that Recommendation Systems are used as part of more complex applications and affect user experience through a variety of user interfaces adds to their complexity. However, research has almost entirely focused on the ability of recommendation systems to produce accurate item rankings, ignoring the security breaches and privacy invasions that occur as a result of the use of user cache memory from various websites. We propose a new approach that uses only a small portion of the user's cache to recommend something to the user.

Keywords: Machine learning, Recommendation system, E-Commerce, Web Development

I. INTRODUCTION

A. Problem Definition

Nowadays, there exist many ecommerce websites which stores the user data from different platforms like Instagram, Facebook etc. and recommends products according to it which is sometimes irrelevant to the user's choice as well as security threat. So we are designing a recommendation system such that it will only be collecting user's data from the ecommerce website which will help the user to see relevant products according to his/her choice.

B. Background about the project idea

Internet has contacted our lives from such a large number of points. In this virtual time, a relevant online business procedure is the way to long haul sustenance for any business. Today, pretty much each and every errand is done through on the web and shopping is no exemption. Having a web-based business site is no more a way to accomplish upper hand. It is a vital basic for business, while customers are now flourishing on the web. Internet based business is quick making progress as an acknowledged and utilized business worldview. More entrepreneurs executing web based business usefulness and online exchange framework into their sites.

C. Feasibility Study, need and significance

Feasibility study can help you determine whether or not you should proceed with your project. It is essential to evaluate cost and benefit. It is essential to evaluate the cost and benefit of the proposed system

1. Technical feasibility: It includes finding out technologies for the project, both hardware and software. For an e-commerce platform, the user must have a stable internet connection .These are very cheap nowadays and everyone generally possesses them.

2.Operational feasibility: It is the ease and simplicity of operation of the proposed system. System does not require any special skill set for users to operate it. In fact, it is designed to be used by almost everyone.

3. Economical feasibility: Here, we find the total cost and benefit of the proposed system over the current system. For this project, the main cost is documentation cost. Users also would have to pay for a internet connection and a system to run it.

D. Objectives of proposed system

In this project, we create a an online platform, V-buy(an ecommerce platform) which helps users to buy products by sitting at their homes and also implemented a recommendation system which is secure and recommends relevant items to the users taking hint from there cookies and helping them find best product which is fit for there use.

E. Technical Specifications

The software is designed to be light-weighted so that it doesn't be a burden on the machine running it. This system is being built keeping in mind the generally available hardware and software compatibility. Here are the minimum hardware and software requirements.



II. LITERATURE REVIEW

S. No	Title of the paper	Author's	Review
1	Grounded Word Embeddings for E-Commerce	<u>Federico Bianchi, Jacopo Tagliabue, Bingqing Yu</u>	In this paper, Author tells how a Model can grounds lexical representations for product search in product embeddings, meaning is a mapping between words and a latent space of products in a digital shop.
2	Reinforcement Learning to Optimize Lifetime Value in Cold-Start Recommendation	Luo Ji, Qi Qin, Bingqing Han, Hongxia Yang	In this paper, the author's explains how they build a model that provides recommendation to the new users coming to the website.
3	SIGIR 2021 E-Commerce Workshop Data Challenge	<u>Jacopo Tagliabue, Ciro Greco, Jean-Francois Roy, Bingqing Yu, Patrick John Chia, Federico Bianchi, and Giovanni Cassani</u>	In this paper, the author's explains how they organized a dataset that focused on mid-sized ecommerce shops.
4	Towards Unified Metrics for Accuracy and Diversity for Recommender Systems	<u>Javier Parapar and Filip Radlinski</u>	This paper has further explored the problem of finding a unified metric for item relevance and aspect redundancy.
5	Building and Developing E-commerce Website	<u>Elham Mohammad Thabit A Alsaadi</u>	This research paper suggested to build and develop up full reliable website with IT solutions, online retail computer products (hardware and software) based on the theories and using the current technology.
6	TeRec: A Temporal Recommender System Over Tweet Stream	<u>Chen Chen Hongzhi Yin Junjie Yao Bin Cui</u>	In this paper, Author extends the online ranking technique and propose a temporal recommender system - TeRec. In TeRec, when posting tweets, users can get recommendations of topics (hashtags) according to their real-time interests, they can also generate fast feedbacks according to the recommendations.
7	Mining E-Commerce Query Relations Using Customer Interaction Networks	<u>Bijaya Adhikari, Parikshit Sondhi, Wenke Zhang, Mohit Sharma, and B. Aditya Prakash</u>	In this paper, Author's tells about various structural properties of CINs constructed from customer interaction with E-Commerce search engine. Our results show that these networks are significantly distinct from other real world networks.
8	Joint Map: Joint Query Intent Understanding For Modeling Intent Hierarchies in E-commerce Search	Ali Ahmadvand, Surya Kallumadi, Faizan Javed, and Eugene Agichtein	In this paper, Author's introduced Joint Map, a deep learning model designed for jointly learning two high-level intent tasks on e-commerce search data. JointMap utilized word and label representations and



			leveraged focal loss to tackle class imbalance problem in catalog categories.
9	Challenges and Research Opportunities in eCommerce Search and Recommendations	<u>Manos Tsagkias, Tracy Holloway King, Surya Kallumadi, Vanessa Murdock, Maarten de Rijke</u>	This paper help us understand how the system will learn from customer behavior to transform the experience around the needs and style of each customer.
10	Improving Outfit Recommendation with Co-Supervision of Fashion Generation	<u>Yujie Lin, Pengjie Ren, Zhumin Chen, Zhaochun Ren, Jun Ma, and Maarten de Rijke</u>	In this paper, Author's propose a co-supervision learning framework, namely FARM. For visual understanding, FARM captures aesthetic characteristics with the supervision of generation learning.
11	Python Libraries and Packages for Web Development	S.L. Kavya	In this paper, Author portray the assorted python frameworks to develop a strong emphasis on readability and efficiency and building a better recommendation system using various libraries.
12	Machine Learning Algorithms for Recommender System	Satya Prakash Sahu, Anand Nautiyal, Mahendra Prasad	In this paper, Author's talk about all the different algorithms one can use while creating a recommender system such as content-based filtering ,K-means clustering and many more.
13	E-commerce Website Design Based on User Experience	Lulu Cai, Xiangzhen He, Yugang Dai, Kejian Zhu	In this paper, the author focuses on an issue that needs attention in website design: how to help consumers quickly find the target products and complete the shopping process quickly and clearly with bare minimum clicks.

III. IMPLEMENTATION

A web application is created and it is integrated with an recommender system/model which allows the user to see products which are relevant to their search as this model accepts the input data from the cookies which are present in the online-shopping platform only leaving behind the third party platforms thus reducing the security breach and privacy invasion.

A. Collections of Database

1. User Schema

Property	Type	Required
Name	String	True
Email	String	True
Password	String	True
isAdmin	Boolean	True
Timestamp	Date	True



2. Product Schema

Property	Type	Required
User	ObjectId	True
Name	String	True
Image	String	True
Brand	String	True
Description	String	True
CountInStock	Number	True
Category	String	True
Price	Number	True

3. Order Schema

Property	Type	Required
User	ObjectID	True
OrderItems	String	True
ShippingAddress	String	True
PaymentResult	String	True
TotalPrice	Number	True
isPaid	Boolean	True
DeliveredAt	Date	True
TaxPrice	Number	True

4. Review Schema

Property	Type	Required
Name	String	True
Rating	Number	True
Comment	String	True
User	ObjectID	True

B. Modules Used**i. NodeJS Module**

The NodeJS module contains all the web application frameworks that provides broad features for building web and mobile applications.

ii. MongoDB Module

This module is responsible for creating different data models which further contains schema definitions.

iii. User Interface Module

This user interface module is the point of human-computer interaction and communication.

iv. Recommendation system

A recommendation system module is a system that suggests products, services, information to users based on analysis of data.

IV. CONCLUSION

In this paper, We introduced a recommendation system/model to improve state of the art algorithm for E-Commerce product search while maintaining security and preventing privacy invasion by using cookies as a dataset with taking data only for registered sites and no other third party application such as social media.

Most of the effective organizations, web based business are dependably there on the rundown. The explanation for this is clear: we are living in a virtual era, where pretty much each and every single task is being performed on the web. Web based business has turned into a trendy expression in digital marketing.



The brilliant side of the web based business industry is that a huge number of entrepreneurs are lifting it up as a profession. Then again, numerous entrepreneurs neglect the significance of web based business site planning and optimization. The optimization of a web based business site is not the same as that of a standard website. Web based business having turned into a tremendous and exceedingly aggressive industry, front line learning is required to remain focused. In this way, it is vital that online business site is appropriately upgraded.

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