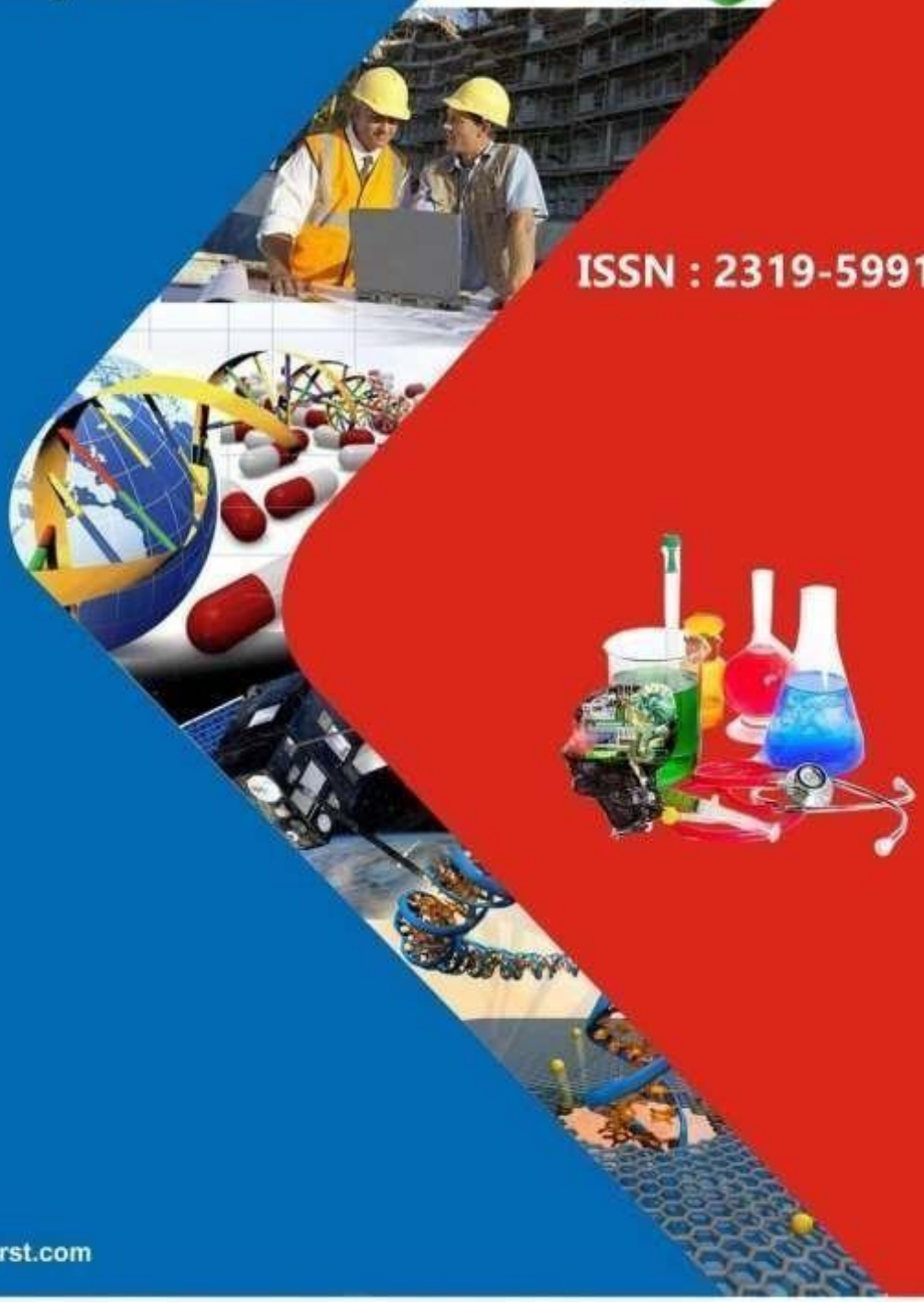
International Journal of Engineering Research and Science & Technology

IJERST

ISSN : 2319-5991



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International Journal of Engineering Research and Science & Technology

ISSN 2319-5991 www.ijerst.com

Vol. 20, Issue 2, 2024

IMPROVING SHOPPING MALL REVENUE BY REAL TIME CUSTOMIZED DIGITAL COUPON ISSUANCE

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ABSTRACT

With the development of big data and deep learning technology, big data and deep learning technology have also been applied to the marketing field, which was a part of business administration. Customer churn management is one of the most important areas of marketing. In this paper, we proposed a method to prevent customer churn and increase purchase conversion rate by issuing customized discount coupons to customers with high churn rate based on big data in real time. After segmenting customer segments with two-dimensional segment analysis, a real-time churn rate estimation model based on clickstream data was generated for each segment. After that, we issued customized coupons to our customers. Finally, we tested the conversion rate and sales growth. A two-dimensional cluster analysis-based churn rate estimation combined with a recommendation system was found to be significantly more useful than the respective simple models. Using this proposed model, it is possible to increase sales by automatically estimating the customer's churn probability and shopping propensity without the burden of marketing costs in the online shopping mall.

I.INTRODUCTION

With the development of big data and deep learning technology, big data and deep learning technology have also been applied to the marketing field, which was a part of business administration.

Customer churn management is one of the most important areas of marketing. In this paper, we proposed a method to prevent customer churn and increase purchase conversion rate by issuing customized discount coupons to customers with high churn rate based on

International Journal of Engineering Research and Science & Technology

ISSN 2319-5991 www.ijerst.com

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big data in real time. After segmenting customer segments with two-dimensional segment analysis, a real-time churn rate estimation model based on clickstream data was generated for each segment. After that, we issued customized coupons to our customers. Finally, we tested the conversion rate and sales growth. A two-dimensional cluster analysis-based churn rate estimation combined with a recommendation system was found to be significantly more useful than the respective simple models. Using this proposed model, it is possible to increase sales by automatically estimating the customer's churn probability and shopping propensity without the burden of marketing costs in the online shopping mall.

II. EXISTING SYSTEM:

Traditional Coupon Distribution in Shopping Malls

The existing system typically relies on traditional coupon distribution methods, such as paper-based coupons handed out at entrances or included in printed mall promotions. This system lacks personalization and real-time adaptability, resulting in a generic distribution of coupons to all visitors. Shoppers receive the same set of promotions, irrespective of their individual preferences, purchase history, or real-time behavior. This approach limits the effectiveness of promotions and may lead to lower customer engagement.

Disadvantages

1. Traditional coupon distribution methods lack the ability to tailor promotions to individual shopper preferences and behaviors.
2. Resources are spent on printing and distributing generic coupons that may not resonate with a significant portion of the mall's visitors.
3. The existing system cannot respond to changing circumstances or shopper behavior in real-time, missing opportunities for timely promotions.
4. Generic promotions may not capture the attention of shoppers, resulting in reduced engagement and lower conversion rates.

III. PROPOSED SYSTEM AND ADVANTAGES:

Real-Time Customized Digital Coupon Issuance System

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ISSN 2319-5991 www.ijerst.com

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The proposed system aims to address the limitations of the existing system by introducing a dynamic and personalized approach to coupon issuance. Leveraging advanced data analytics, the system will analyze individual shopper data, including preferences, purchase history, and real-time location, to generate customized digital coupons on the fly. These coupons will be delivered to shoppers through mobile applications or other digital channels, providing a personalized and context-aware shopping experience.

1. The system will issue digital coupons tailored to individual shopper preferences, increasing the likelihood of coupon redemption.
2. Utilizing real-time data analytics, the system can adapt to changing shopper behavior instantly, ensuring timely and relevant coupon issuance.
3. Personalized and context-aware coupons will significantly improve customer engagement, fostering a stronger connection between shoppers and the shopping mall.
4. By targeting specific shoppers with relevant promotions, the system optimizes the use of resources, reducing the printing and distribution of generic coupons that may go unused.

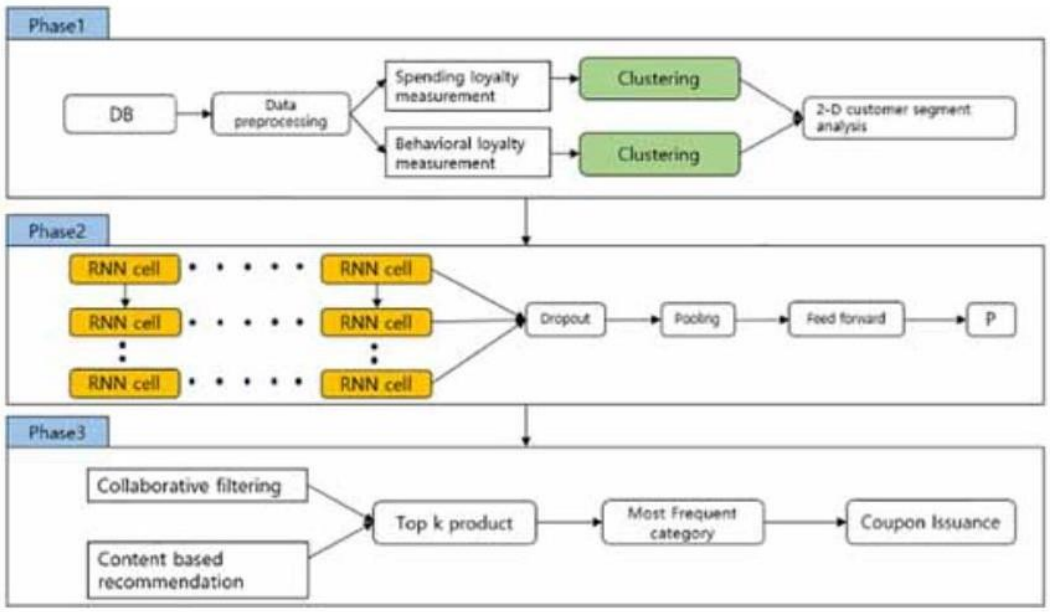


Fig: System design

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ISSN 2319-5991 www.ijerst.com

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IV. MODULES:

Service provider

In this module, the service provider has to login by using valid user name and password.



After login successful he can do some operations such as Login, browse data sets and train & test,



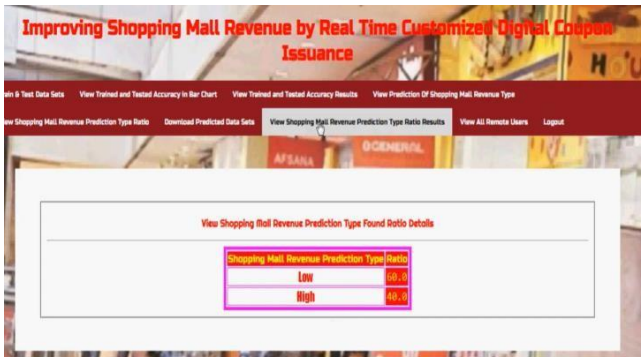
view trained and tested water data sets accuracy in bar chart,



view trained and tested data sets accuracy results,



view predicted water quality detection type, Find detection type ratio,



download predicted data sets, View water quality detection ratio results, view all remote users.

View and authorize users

In this module, the admin can view the list of users who all registered. In this, the admin can view the user's details such as, user name, email, address and admin authorizes the users.

Remote user

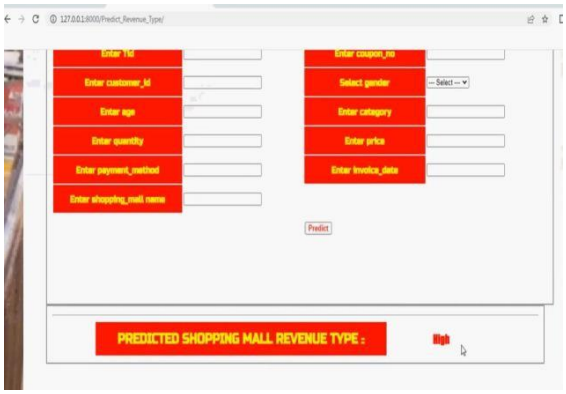
In this module, there are n numbers of users are present. User should register

International Journal of Engineering Research and Science & Technology

ISSN 2319-5991 www.ijerst.com

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before doing any operations. Once user registers, their details will be stored to the database. After registration successful, he has to login by using authorized user name and password. Once login is successful user will do some operations like register and login, predict detection type,



view your profile.

V. CONCLUSION

We identified previous e-commerce marketing approaches to derive user behavior prediction. A deep learning method for real time customer churn prediction showed an appropriate result. We applied our research to online shopping mall to raise conversion rate and sales. To check whether our experiment carry out monetary value, we developed a framework to measure the sales amount when used with segment model and personalized recommended digital coupon. We found that our model (scenario1) shows the best results. We found it is suitable for e-commerce online shopping mall to raise conversion rate and sales. Our study empirically showed that marketing, which was a field of management, could be solved more efficiently and quickly by applying big data and deep learning technology.

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