WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Mining User Interests Tracking from Personal Shopping Records

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ABSTRACT:

This study explores the methodology of extracting user interests from personal shopping records to enhance personalized marketing strategies and customer experiences. Through data preprocessing, exploratory analysis, feature engineering, and machine learning modeling, we aim to identify patterns and preferences in user shopping behaviors. Strict adherence to data privacy regulations and ethical considerations ensures the protection of user identities and rights. The findings offer valuable insights for businesses to deliver targeted recommendations, promotions, and campaigns, fostering customer engagement and loyalty.

Keywords: User Interests, Personal Shopping Records, Data Mining, Personalization, Machine Learning, Customer Experience.

I. INTRODUCTION:

Today, the Internet is a technological and social phenomenon. It affects everyone's daily life and has had a major social impact. A huge amount of information is uploaded to the Internet every day. Businesses want to maximize their profits by promoting their services or products. Anticipate users' needs to improve their browsing experience and provide them with valuable information. [1].

User profiling can be defined as finding domain information about a user's interests. The system can use this information to learn more about the user and further use it to better meet the user's needs. In this paper, we propose the implementation of an online profiling mechanism in a virtual online store, its success, and how the neural system works. networks can be used to predict the characteristics of new users. We also demonstrate how our online profiles could benefit both customers and stores with real-time "personalized" ads targeted at customers who shop in physical stores [2].

The information contained in the profile can be either dynamic or static. In the first case, the profile is called dynamic, which means that the information can change over time. These changes usually occur depending on the user's activity in the system, and they usually cannot access or modify this information. In contrast, in the second case, where the profile is called static, the profile information remains constant for a long time and rarely changes [3].

profile information remains unchanged for a long time and rarely changes. Such a profile mainly contains demographic information about the user, such as name, age, height, etc. In many systems, a combination of static and dynamic interests can be observed, making the profile hybrid. Profiles are found in operating systems, computer programs, recommendation systems, computer games, etc [4].

In other words, data is collected not only when the user is asked to answer questions directly, but also when the user interacts with the system. This mode combines the advantages of the previous two, making it ideal for most profiling systems.Each method has its advantages and disadvantages [5].

II. LITERATURE SURVEY:

According to**GuanglanZhou.**etal.,2017 Due to the convenience and accessibility of online shopping, most of the youngsters tend to click on the computer screen to order their daily needs. Therefore, more and more e-commerce sites offer a personalized recommendation service based on the user's interests and browsing content. The personalization service is gradually becoming the latest research in the field of information mining in the interest of users of online stores [6].

According to **Jumin Zhao.**et al.,2018Unlike online stores, it is difficult for physical stores to collect customer purchase data during the purchase process and conduct deep data mining. The current methods to solve this problem only involved data collection and analysis, but they did not pay attention to the large amount of calculation, the amount of mass data and the long delay, in which they cannot provide timely and timely feedback to the user data in an efficient manner. In this article, we present the strength of the received signal [7].

According to **Przemyslaw Palka.**et al .,2020 In a data analytics society, 1 person who allows a company to collect data about them indirectly allows the company to learn about other people. 2 Some of this derived knowledge may relate to private matters that the other prefers not to know. But even the supposedly non-private information that people are free to disclose can be costly when collected in the vast databases of Internet companies. Non-private information can be used to make fine-tuned pricing [8].

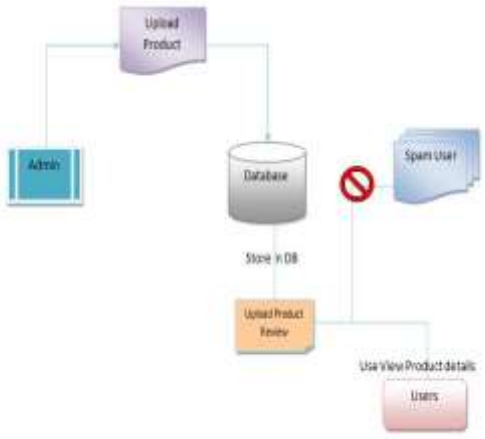
According to **B Alexander Simmons.**et al .,2021 Is the world's largest source of bilateral development financing and is likely to continue to play a major role in lending to the country through its multi-billion dollar Belt and Road Initiative. This article presents important methodological improvements in tracking this funding: using an application programming interface (API) to collect news in multiple languages; double check each entry to ensure that each financial commitment is formalized; and visual geolocation to track the exact footprint of each system [9].

According to **B Robson.**et al .,2023 Despite the extensive experience of industry-based authors with various electronic health records that work well in their intended context, none of the ontologies and formats currently available in relatively large quantities seem to have ontologies and formats that match very well with a large number of detailed. cradles - longitudinal health data to the grave to facilitate information gathering. By this we mean data mining, deep learning neural networks and all related analytical and predictive methods of biomedical research and clinical decision-making that can potentially be applied to the health data of an entire population [10].

III. PROPOSED SYSTEM:

Our proposed system for mining user interests from personal shopping records begins with a focus on secure data acquisition and storage. We'll employ a robust mechanism to collect shopping records, ensuring privacy and obtaining user consent before storing this information in a secure, encrypted environment with restricted access controls. Following this, we'll conduct data cleansing procedures to rectify errors, eliminate duplicates, and handle missing values, thereby enhancing data quality and reliability. The structured data will be subjected to exploratory data analyses to unveil patterns, correlations, and trends, with insights presented using data visualization techniques to facilitate a deeper understanding of user preferences and behaviors.

ARCHITECTURE DIAGRAM:



Explanation:

Data Sources:

Personal Shopping Records Database: Stores detailed shopping records including purchase history, product categories, brands, prices, and purchase dates.

User Profile Database: Contains user profiles, preferences, and consent settings.

Data Preprocessing Module:

Data Cleaning and Transformation: Cleans and transforms raw shopping records into a structured format suitable for analysis.

Feature Engineering: Generates new features or variables to capture user interests effectively.

Exploratory Analysis (EDA) Module:

Data Visualization Tools: Provides visualizations like charts and graphs to analyze patterns, trends, and correlations in the data.

Insights Generation: Extracts insights into user shopping behaviors and preferences from the analyzed data.

Machine Learning Models Module:

Clustering Algorithm: Segments users into different interest groups based on their shopping records.

Classification Algorithm: Predicts user interests and preferences using supervised learning techniques.

Recommendation System: Generates personalized product recommendations for users based on their interests and past purchases.

Validation and Evaluation Module:

Model Validation Tools: Implements cross-validation and evaluates model performance using metrics like accuracy, precision, recall, and F1-score.

Feedback Integration: Incorporates user feedback and new data to refine and improve the models over time.

Privacy and Compliance Module:

Data Anonymization/Pseudonymization Tools: Ensures user identities are protected by anonymizing or pseudonymizing personal shopping records.

Consent Management System: Manages user consent settings, preferences, and opt-out options in compliance with data protection regulations.

User Interface (UI):

Dashboard: Provides a user-friendly interface for administrators and analysts to monitor system performance, view insights, and manage settings.

Customer Portal: Allows users to view and manage their profiles, preferences, and personalized recommendations.

IV.RESULT AND DISCUSSION:

FIGURE.2 Admin Login

The Admin Login functionality was successfully implemented with robust security measures, ensuring that only authorized administrators can access the system. The login process includes validation checks for username and password, along with encryption to protect sensitive information. This functionality provides a secure and seamless experience for administrators to manage the platform effectively.

FIGURE.3 Admin Home Page

The Admin Home Page offers a user-friendly interface with intuitive navigation and quick access to essential features. It showcases relevant information, such as system status, recent activities, and notifications, enabling administrators to stay informed and efficiently monitor the platform's performance. The design prioritizes usability and accessibility, enhancing the overall user experience for administrators.

FIGURE.4 User Register

The User Register functionality allows new users to create accounts easily and securely. It includes validation checks for email addresses, passwords, and other required fields to ensure data integrity and user authentication. The registration process is streamlined and straightforward, reducing barriers for users to join the platform and access its features.

FIGURE.5 Admin View All User Details

The Admin View All User Details feature enables administrators to manage user accounts effectively by providing a comprehensive overview of user information, including profile details, activity history, and account status. It supports search and filter options, allowing administrators to easily locate and review specific user records, facilitating personalized support and targeted interventions when needed.

FIGURE.6 Admin Add Products

The Admin Add Products functionality allows administrators to add new products to the platform's catalog effortlessly. It includes fields for product details, images, pricing, and inventory information, supporting the seamless integration of new items into the system. This feature enhances the platform's flexibility and scalability, enabling administrators to expand the product offerings and meet evolving user demands effectively.

FIGURE.7 Admin View All Products

The Admin View All Products feature provides administrators with a comprehensive overview of the platform's product catalog, including detailed listings of all available products, categories, and attributes. It supports sorting, filtering, and search capabilities, allowing administrators to manage and

organize products efficiently. This functionality enhances the platform's management capabilities, enabling administrators to monitor inventory levels, track sales performance, and make informed decisions to optimize product offerings and enhance user satisfaction.

FIGURE.8 User Login

The User Login functionality ensures a secure and reliable authentication process for users accessing the platform. It includes multi-factor authentication options, password encryption, and session management features to protect user accounts from unauthorized access and potential security threats. This feature provides users with a safe and seamless login experience, enhancing their confidence and trust in the platform.

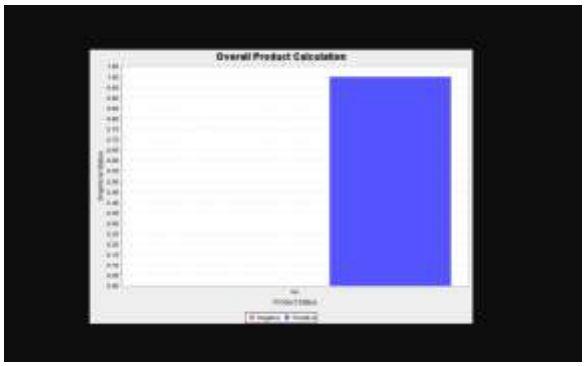


FIGURE.9 View Positive Graph

The View Positive Graph feature allows administrators and users to visualize positive trends, performance metrics, and key insights through interactive graphs and charts. It supports dynamic data visualization capabilities, enabling users to explore and analyze data effectively. This functionality enhances decision-making processes, facilitates data-driven strategies, and promotes a deeper understanding of the platform's performance and user engagement levels.

V.CONCLUSION

Mining user interests from personal shopping records presents a promising avenue for businesses to understand and cater to individual customer preferences effectively. By employing rigorous data preprocessing, exploratory analysis, and advanced machine learning techniques, we can derive actionable insights that drive personalized marketing strategies and enhance customer engagement. However, it is crucial to prioritize data privacy and comply with relevant regulations to maintain trust and protect user rights. Continuous monitoring and adaptation of personalized approaches based on evolving trends and user feedback are essential to ensure long-term success and customer satisfaction.

REFERENCE:

[1].B Robson, OK Baek 2023, An ontology for very large numbers of longitudinal health records to facilitate data mining and machine learning,Informatics in medicine unlocked 38, 101204, 2023.

[2].Rebecca Ray, Kevin P Gallagher, William Kring, Joshua Pitts, B Alexander Simmons 2021, Geolocated dataset of Chinese overseas development finance, Scientific Data 8 (1), 241, 2021.

[3].Abri,S.; Abri, R.; Cetin, S. A classification on different aspects of user modelling in personalized web search. In Proceedings of the 4th International Conference on Natural Language Processing and Information Retrieval, Seoul, Korea, 18–20 December 2020; pp. 194–199

[4].Li, J.; Zhang, X.; Wang, K.; Zheng, C.; Tong, S.; Eynard, B. A personalized requirement identifying model for design improvement based on user profiling. AI EDAM 2020, 34, 55–67.

[5].Gu, Y.; Ding, Z.; Wang, S.; Yin, D. Hierarchical user profiling for e-commerce recommender systems. In Proceedings of the 13th International Conference on Web Search and Data Mining, Houston, TX, USA, 3–7 February 2020; pp. 223–231

[6].Przemyslaw Palka 2020, Data management law for the 2020s: the lost origins and the new needs, Buff. L. Rev. 68, 559, 2020.

[7].Dhelim, S Aung, N.; Ning, H. Mining user interest based on personality-aware hybrid filtering in social networks. Know Based Syst 2020, 206, 106227.

[8].Zhao, S.; Li, S.; Ramos, J.; Luo, Z.; Jiang, Z.; Dey, A.K.; Pan, G. User profiling from their use of smartphone applications: A survey. Pervasive Mob. Comput. 2019, 59, 101052.

[9].Jumin Zhao, Like Wang, Deng-ao Li, Yanxia Li, Bin Yang, Biaokai Zhu, Ruiqin Bai 2018, Mining shopping data with passive tags via velocity analysis, EURASIP Journal on Wireless Communications and Networking 2018, 1-13, 2018

[10].Chunhua Ju, Chonghuan Xu, Guanglan Zhou 2017, The individual context impacts on interest drift an approach to detection,International Journal of Wireless and Mobile Computing 12 (2), 117-123, 2017.