

## **The Analyzer: Clustering Based System for Improving Business Productivity by Analyzing User Profiles to Enhance Human Computer Interaction**

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**Abstract :** E-commerce platforms have revolutionized the shopping experience, offering convenient ways for consumers to make purchases. To improve interactions with customers and optimize marketing strategies, it is essential for businesses to understand user behavior, preferences, and needs on these platforms. This paper focuses on recommending businesses to customize interactions with users based on their behavioral patterns, leveraging data-driven analysis and machine learning techniques. Businesses can improve engagement and boost the adoption of e-commerce platforms by aligning behavioral patterns with user goals of usability and satisfaction. We propose TheAnalyzer, a clustering-based system designed to enhance business productivity by analyzing user-profiles and improving human-computer interaction. The Analyzer seamlessly integrates with business applications, collecting relevant data points based on users' natural interactions without additional burdens such as questionnaires or surveys. It defines five key user analytics as features for its dataset, which are easily captured through users' interactions with e-commerce platforms. This research presents a study demonstrating the successful distinction of users into specific groups based on the five key analytics considered by TheAnalyzer. With the assistance of domain experts, customized business rules can be attached to each group, enabling The Analyzer to influence business applications and provide an enhanced personalized user experience. The outcomes are evaluated quantitatively and qualitatively, demonstrating that utilizing TheAnalyzer's capabilities can optimize business outcomes, enhance customer satisfaction, and drive sustainable growth. The findings of this research contribute to the advancement of personalized interactions in e-commerce platforms. By leveraging user behavioral patterns and analyzing both new and existing users, businesses can effectively tailor their interactions to improve customer satisfaction, loyalty and ultimately drive sales.

**Keywords :** data clustering, data standardization, dimensionality reduction, human computer interaction, user profiling

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