



FINAL YEAR PROJECT REPORT

**CUSTOMER BEHAVIORAL
RECOMMENDER**

**In fulfillment of the requirement
For degree of
BS (COMPUTER SCIENCES)**

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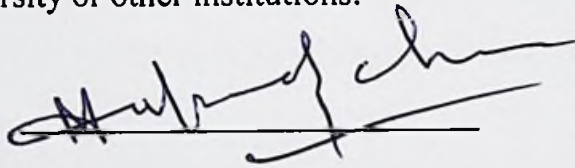
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FALL-2024

DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

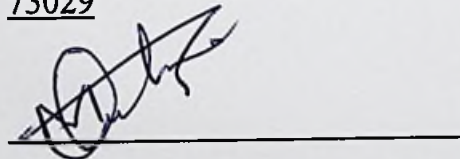
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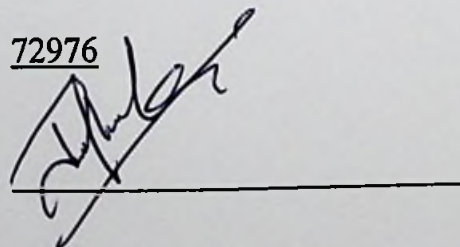
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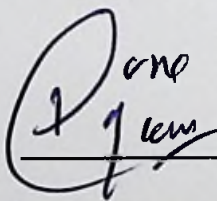
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ABSTRACT

The "**Customer Behavioral Recommender**" project aims at improving e-commerce recommendation systems for the fashion industry. As such, it focuses on developing a personalized recommendation engine that considers user behavior but also the visual aspects of items, such as color and style, along with the aesthetic appeal of products. Using deep learning techniques in conjunction with detailed data analytics, the project aims at providing highly relevant and attractive suggestions to the users. This is achieved through a big Amazon dataset, which is helpful to analyze user interactions and product features. The **Caser** model analyzes images and user interactions to capture sequential patterns in user behavior and combine them with product attributes to generate personalized recommendations. This

approach allows the system to understand user interests more profoundly and present products in a way that is aligned with the preferences of the users. In this regard, the system focuses on sequence-aware recommendations to ensure that suggested items are contextually relevant and appealing, addressing user needs dynamically and aesthetically. A user-friendly web interface is created using HTML and

CSS so that the usability of interaction with the system is much easier for the users. This interface is well designed and seamless so that smooth shopping may be experienced, and besides, it involves continuous learning capabilities. As users come to interact with the site, it learns from their behaviors and, hence, improves on its recommendation.

However, the project comes with quite a number of challenges. These include the complexity in image analysis, data quality assurance, scalability when a user base grows, and the balance between personalization and privacy. In order to address these challenges, the project will aim at establishing a new benchmark for e-commerce recommendation systems, particularly in the fashion sector.

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