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SoleMate: A Smart Online Footwear Shopping Application

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Abstract:

The rapid growth of e-commerce and mobile technology has transformed the way consumers shop for fashion products, including footwear. Traditional online footwear shopping faces challenges such as incorrect size selection, lack of personalization, and limited customer confidence. This paper presents 'SoleMate', a smart online footwear shopping application designed to enhance user experience through category-based browsing, question-based foot shape analysis, and personalized footwear recommendations. The application is developed using Flutter for cross-platform compatibility and Firebase for backend services such as authentication, database management, and cloud storage. The proposed system aims to provide a user-friendly interface, secure login via OTP authentication, efficient product management, and intelligent recommendations to reduce return rates and improve customer satisfaction.

Keywords — **E-commerce, Footwear Recommendation System, Flutter, Firebase, Mobile Application.**

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INTRODUCTION

Online shopping has become an integral part of modern consumer behavior. Footwear shopping, however, presents unique challenges due to variations in size, foot shape, and personal comfort preferences. Many users hesitate to purchase footwear online because of uncertainty regarding fit and style. The SoleMate application addresses these challenges by combining modern mobile application development techniques with a smart recommendation system.

PROBLEM STATEMENT

Existing online footwear platforms often lack personalized guidance for users. Customers must manually select sizes and styles without proper assistance, leading to dissatisfaction and product returns. There is a need for a smart system that understands user requirements and suggests suitable footwear based on individual preferences and foot characteristics.

OBJECTIVES OF THE SOFTWARE

The primary objectives of the SoleMate application are:

- To develop a user-friendly online footwear shopping platform.
- To provide category-based browsing for men and women.
- To implement OTP-based secure authentication. To introduce a question-based foot shape analysis system.
- To offer personalized footwear recommendations.
- To reduce product return rates and increase customer satisfaction.

METHODOLOGY

The development process includes requirement analysis, UI/UX design, backend setup, and implementation of recommendation logic. User inputs such as foot type, usage purpose, and comfort preference are analyzed to suggest appropriate footwear. The system ensures data

security and scalability. The recommendation process is based on a question-based foot shape analysis system. User inputs such as foot type, usage purpose, and comfort preference are collected through a questionnaire. These inputs are processed using predefined logic to suggest suitable footwear products.Finally, the application was tested for functionality, performance, and security.

CONCLUSION

The SoleMate online footwear shopping application successfully addresses key challenges in online footwear purchase by introducing personalized recommendations and user-centric design. The system demonstrates how technology can enhance customer satisfaction and efficiency in e-commerce platforms.

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