

# **IMPLEMENTING K-NEAREST NEIGHBOR ALGORITHM AND SUPPORT VECTOR MACHINE FOR RECOMMENDING ADULT CLOTHES SIZE SELECTION**

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## **ABSTRACT**

*The emergence of online shopping platforms has transformed the way people purchase clothing. While these platforms offer convenience and accessibility, shopping for clothes online often leads to issues with size mismatches, resulting in discomfort for consumers. To address this challenge, this study developed a clothing size recommendation system that utilizes various attributes, including gender, body shape, height, weight, and chest circumference. The system employs two algorithms, K-Nearest Neighbor (KNN) and Support Vector Machine (SVM), which are evaluated to identify the most effective method for providing size recommendations. The experimental results indicate that the SVM method, utilizing the RBF kernel and the One-vs-Rest approach with an 80:20 data split, achieves the highest accuracy of 76%, precision of 78%, recall of 76%, and an F1 score of 76%. Consequently, this model was selected for implementation on the recommendation website. Implementing functional testing on the website employing the black box testing methodology has yielded findings demonstrating the system's compliance with all stipulated requirements, encompassing registration, login, data input, size recommendations, and logout functionalities. The findings of this study suggest that the SVM algorithm exhibits superior performance compared to KNN in the classification of clothing sizes. This outcome indicates the system's functional reliability in generating suitable user recommendations.*

**Keywords:** K-Nearest Neighbor, Machine Learning, Clothing Size Recommendation, Support Vector Machine, Website