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**AN E-COMMERCE WEBSITE THAT INCLUDE VEHICLE  
RECOMMENDATION ENGINE BASED ON CONSUMERS  
BROWSING HISTORY.**

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## ABSTRACT

An e-commerce website selling vehicles got the challenge of providing customers with personalized recommendations based on their browsing history. Consumers frequently examine numerous automobiles on the website, but selecting the correct vehicle among the many possibilities offered might be difficult. The website intends to address this issue by giving users with relevant and personalized recommendations, therefore enhancing their entire shopping experience and boosting the possibility of completing a purchase.

A vehicle recommendation engine based on customer browsing history can be implemented. The engine analyses customer browsing history information to find patterns of similarity amongst consumers using collaborative filtering, an increasingly common recommendation method. To generate a user-vehicle matrix, which illustrates the interactions between users and auto-mobiles, the browsing history data is organized by user and vehicle. The top k most similar people are found for each user once the cosine similarity between users is determined. The recommendation engine proposes cars that have been liked or viewed by comparable users but not by the target user based on their browsing histories.

Data science metrics such as precision, recall, and F1-score can be used to assess the efficacy of the automobile recommendation engine. Precision is a metric that quantifies the accuracy of recommended automobiles, or the percentage of recommended vehicles that are genuinely relevant to the user. Recall evaluates the recommendation's coverage or the percentage of relevant vehicles that are advised. The F1-score is the harmonic mean of precision and recall, and it provides a balanced assessment of accuracy and coverage. To analyze the impact of the recommendation engine on the overall operation of the e-commerce website, the rate at which conversions occur, average order value, and customer engagement metrics can be examined.

**Keywords:** E-Commerce Website, Vehicle Recommendation Engine, Collaborative Filtering, Personalized Recommendations, Data Science

### Subject Descriptors:

- Recommendation System
- Collaborative Filtering
- Data Science Metrics
- Browsing History
- A/B Testing
- Personalizations