ABSTRACT

Recommendation systems are important tools in e-commerce to help users find products that match their preferences. In the shoe category, the main challenges are the wide variety of attributes such as size, material, brand, and function, while conventional recommendation systems still rely on historical data and deep learning, which require large datasets and high computational power. This research aims to design and implement a shoe product recommendation system based on ontology and Semantic Web Rule Language (SWRL) as a more efficient and explainable alternative. Ontology is used to represent knowledge about the attributes and relationships of shoe products, while SWRL rules define recommendation logic based on user preferences, for example, if a user enjoys sports activities, sports shoes are recommended. The system was developed iteratively thru the stages of ontology modelling, rule creation, integration into the website using Flask and Owlready2, and evaluation of the recommendation results. The test results show that the system is able to provide accurate and relevant recommendations without requiring a large amount of historical data. Thus, the developed system can be a more computationally efficient, transparent, and easily expandable alternative for product recommendations on e-commerce platforms.

***Keywords**: Recommendation System, Ontology, SWRL, Shoes, E-commerce*