UNIVERSITAS
GADJAH MADA
The Development and Evaluation of a Personalized Music Recommender System Based on the Solid Framework
Kireina Kalila Putri, Dr. techn. Khabib Mustofa, S.Si., M.Kom.; Dr. techn. Kabul Kurniawan, S.Kom., M.Cs.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

ABSTRACT

Recommender systems have been widely adopted across various platforms to encourage users to engage with content that aligns with their preferences, including music streaming services such as Last.fm and Spotify. While these systems emphasize personalized recommendations, the user data that enables such personalization is typically stored in centralized databases, limiting users' awareness and control over how their personal data is managed. To address this concern, this study developed MuseRec, a music recommender system that adopts the Solid framework to enable decentralized personal data storage.

The developed system integrates Retrieval-Augmented Generation (RAG), allowing a large language model (LLM) to retrieve user-specific information stored within a user's Solid Pod during the recommendation process to improve personalization while reducing the risk of hallucination. MuseRec was evaluated through user testing involving 14 participants using a paired t-test and thematic analysis. The results indicated that incorporating previous recommendation history did not significantly improve recommendation quality, while existing commercial recommendation systems were rated significantly higher in recommendation relevance and continued usage. However, no significant differences were observed in recommendation consistency or input comparison. Despite these findings, participants appreciated MuseRec's privacy-preserving, user-controlled recommendation approach and recognized its potential for music discovery. Overall, this study demonstrates the feasibility of combining Solid-based decentralized storage with RAG-driven recommendation while highlighting opportunities to further improve recommendation accuracy, personalization, and user experience.

Keywords: Music recommender systems, Solid framework, personalization, development, user testing, evaluation