

ABSTRACT

APPLICATION OF DIJKSTRA'S ALGORITHM FOR INTEGRATED TOURISM DESTINATION AND MSME SEARCH SYSTEM

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Limited access to structured information and promotional media remains a challenge for several tourism destinations and Micro, Small, and Medium Enterprises (MSMEs) in Kemiling District. This research addressed that issue by designing an Android-based application functioning as a centralized information platform and a travel-planning support system. The requirement data were collected through observation, interview, and documentation. The system, with the Rapid Application Development (RAD) methodology, identified two categories of users through the phases of requirement planning, construction, and cutover. The core feature of this research included the implementation of Dijkstra's algorithm on a weighted graph representing the road network, where the edge weights were derived from a coordinate-based distance matrix to ensure recommendations reflecting actual travel distances. Testing result showed that the recommendation system successfully generated an ordered list of the nearest tourism destinations and MSME products based on the user's location, together with additional features included a destination and product catalog and content management functionalities. System validation was conducted using black-box testing for major modules and API testing with Postman. The findings indicated that the system was ready for demonstration and replication in similar regions, providing a foundation for future development by expanding data coverage and integrating a payment gateway for secure efficient automated transactions.

Keywords: *Android, Dijkstra's Algorithm, Rapid Application Development, MSMEs, Tourism.*

