

ABSTRACT

PERFORMANCE ANALYSIS OF THE FLOYD-WARSHALL AND BELLMAN-FORD ALGORITHM IN DETERMINING THE SHORTEST ROUTE FROM PURWOKERTO STATION TO LOCAL TOURISM

Oleh

Yumna Rifalena Setiaji (21102008)

Efficient transportation is essential to support the tourism sector in Purwokerto City, especially in providing access from Purwokerto Station to various tourist destinations. Currently, navigation to these destinations is not optimal due to factors such as road conditions, traffic, and transportation networks. This research develops a shortest route recommendation system based on a weighted directed graph, with input in the form of tourism location coordinates and output as the optimal route. This topic is important because tourism is a key contributor to the regional economy. Inefficient navigation can hinder tourism potential, and currently, there is no system that effectively optimizes travel routes from the station to tourist attractions, thus a smarter and more efficient solution is needed. This study compares two shortest path algorithms: Floyd-Warshall and Bellman-Ford. Coordinate data are obtained from Google Maps, represented in a graph, and implemented using Python. Evaluation is based on distance, travel time, memory usage, execution time, and algorithmic complexity. The results show that the Floyd-Warshall algorithm is faster in processing and more memory-efficient than Bellman-Ford. The developed system provides the best route recommendations for tourists and contributes to the development of local tourism navigation systems.

Keywords: Shortest Route, Floyd-Warshall, Bellman-Ford, Purwokerto Tourism, Directed Graph