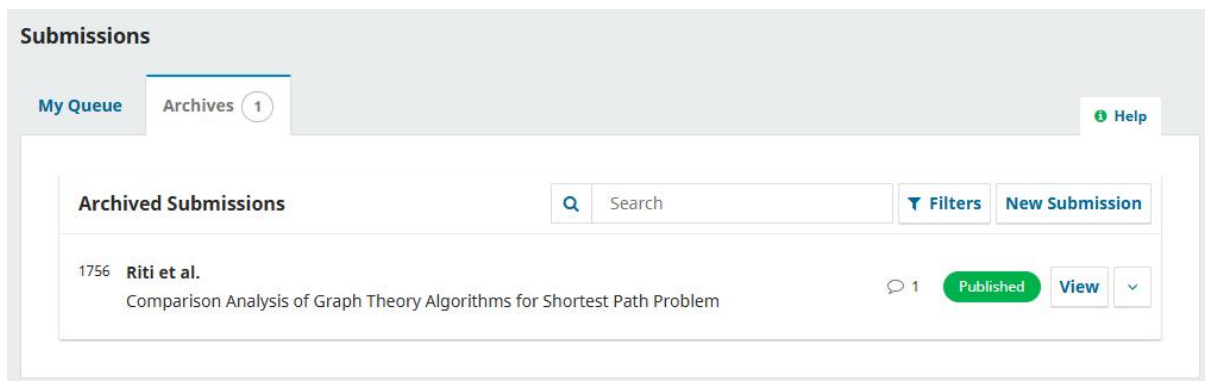
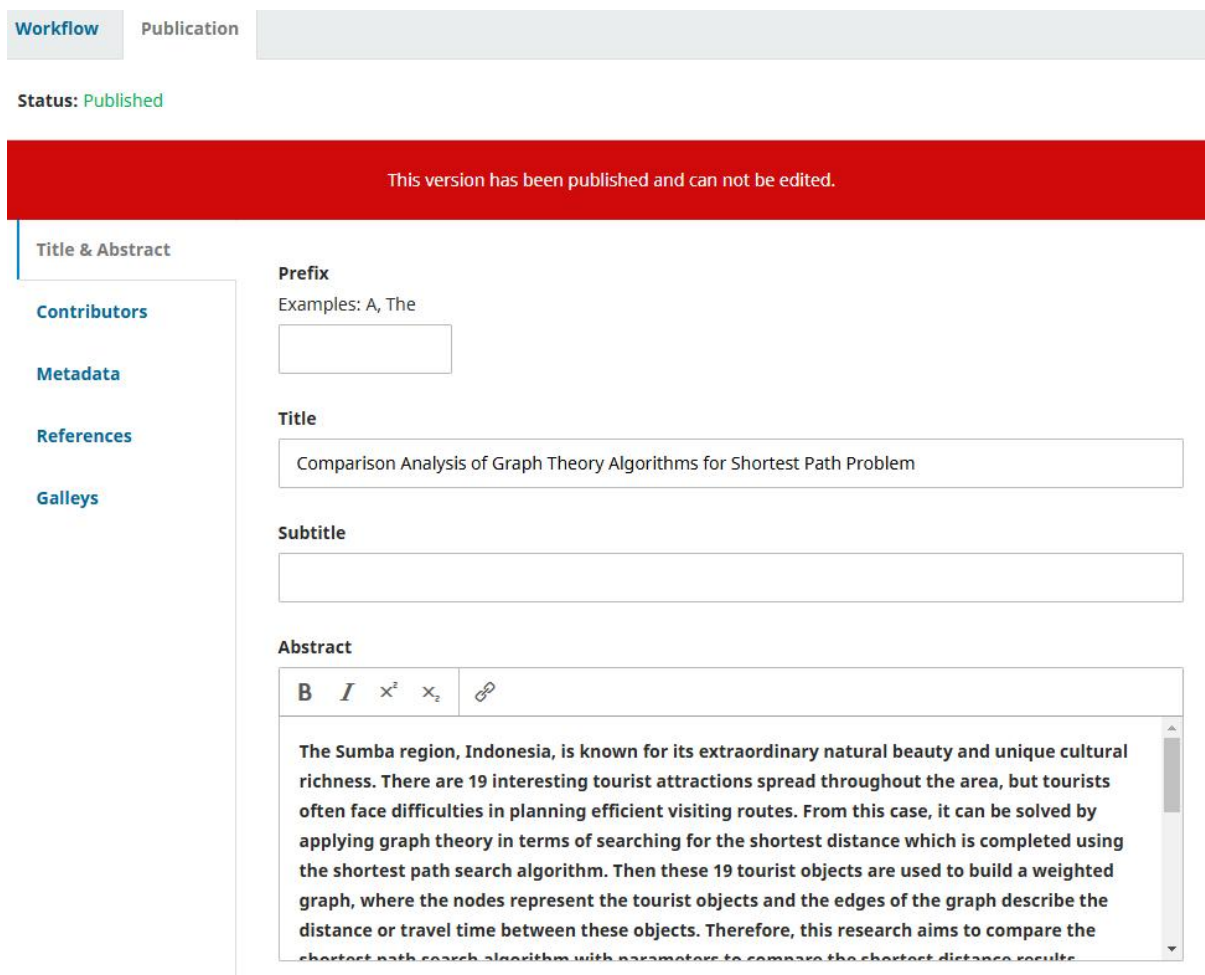


# 1. Comparison Analysis of Graph Theory Algorithms for Shortest Path Problem



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**Keywords** ⓘ

Dijkstra Algorithm ✕ Bellman-Ford Algorithm ✕ Floyd-Warshall Algorithm ✕ Johnson Algorithm ✕

Ant Colony Algorithm ✕

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B. S. N Assistant professor GFGC, "A Study on Graph Coloring," Int J Sci Eng Res, vol. 8, no. 5, 2017, [Online]. Available: <http://www.ijser.org>

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M. Iqbal, K. Zhang, S. Iqbal, and I. Tariq, "A Fast and Reliable Dijkstra Algorithm for Online Shortest Path," International Journal of Computer Science and Engineering, vol. 5, no. 12, pp. 24-27, Dec. 2018, doi: 10.14445/23488387/IJCSE-V5I12P106.

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## Gambar 6. Tampilan Review

▶ Author Yang Terhormat, Artikel Anda telah direview oleh beberapa Reviewer yang kompeten di Jurnal Sisfokom. Berikut ini masukan dari Reviewer terlampir di bawah. Selain itu, masukkan atau revisi dari Reviewer juga dilampirkan pada file Word. Mengingat banyaknya artikel yang masuk dengan kualitas yang baik, mohon Anda dapat memperbaiki semua masukan dari Reviewer sehingga meningkatkan peluang kemungkinan penerbitan artikel Anda di Jurnal Sisfokom. Untuk jadi perhatian bahwa "Artikel yang tidak direvisi dengan baik atau tidak sesuai dengan semua komentar Reviewer akan otomatis di-reject". KOMENTAR REVIEWER A Judul \* Tambahkan kata "Analysis" setelah kata Comparison. Abstrak \* 1. Buang kalimat basa-basi, langsung ke poin saja 2 Gramatical Error dalam tata bahasa Inggris 3. Gunakan bahasa Inggris saja untuk abstrak. Sistematika Penulisan \* Sudah OK, namun tambahkan sub bagian Pembahasan (Discussion) pada bagian Results and Discussion. Pendahuluan \* Saya tidak melihat masalah yang ingin diselesaikan dengan jelas Tulis GAP agar terlihat Tulis juga kenapa penelitian ini penting dengan menyebutkan domain spesifik permasalahan agar pembaca tidak berasumsi bahwa penelitian tidak berguna karena masalah bisa diatasi dengan Google Maps. Teknik pengutipan tidak enak untuk dilihat misal: [14][15][16][17][18][19][20][21], cukup tulis [14-21]. edit manual setelah naskah selesai direvisi Metodologi \* Sebaiknya jumlah tempat (node) ditambah Gambar 1, 3, dan 4 tulis dalam satu kolom agar terbaca dengan jelas Kepustakaan \* Cukup. Hasil dan Pembahasan \* Tabel/Gambar yang tampilkan harus diberi penjelasan yang lengkap, atau tidak hanya ditampilkan saja. ini diperlukan agar pembaca mengerti dengan jelas dari ISI tabel/gambar Saya tidak menemukan pembahasan dari temuan penelitian (hasil). Tambahkan Pembahasan (Discussion) terkait hal tersebut agar pembaca dapat memahami Algoritma mana yang cocok untuk mengatasi masalah (seperti yang disebutkan dalam pendahuluan) dalam penulisan pembahasan, penulis sebaiknya membahas juga kelebihan dan kekurangan dari masing-masing algoritma dalam memberikan rekomendasi jarak terpendek. namun juga jarak terpendek belum tentu jalur terbaik. kondisi ini perlu untuk dianalisis pada bagian pembahasan (Discussion). Penutup \* Kesimpulan telah baik, namun kaitkan kesimpulan dengan masalah spesifik dari pendahuluan. KOMENTAR REVIEWER B Judul \* Baik Abstrak \* Baik Sistematika Penulisan \* Baik. Pendahuluan \* Baik Metodologi \* Alasan pemilihan object data tempat wisata di Sumba Barat Daya dan Sumba Barat. Belum ada tahapan metodologi penelitian mulai dari pengumpulan data sampai pengujian. Kepustakaan \* Baik Hasil dan Pembahasan \* Baik Penutup \* Baik Silakan diperbaiki berdasarkan semua saran reviewer dan dikirim kembali sebelum tanggal 26 September 2023. Hormat Kami Editor Sisfokom

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## Gambar 7. Tampilan Perbaikan/Revisi Isi Paper Penelitian

Home / Archives / Vol. 12 No. 3 (2023); NOVEMBER / Articles

### Comparison Analysis of Graph Theory Algorithms for Shortest Path Problem

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DOI: <https://doi.org/10.32736/sisfokom.v12i3.1756>

**Keywords:** Dijkstra Algorithm, Bellman-Ford Algorithm, Floyd-Warshall Algorithm, Johnson Algorithm, Ant Colony Algorithm

**Abstract**

The Sumba region, Indonesia, is known for its extraordinary natural beauty and unique cultural richness. There are 19 interesting tourist attractions spread throughout the area, but tourists often face difficulties in planning efficient visiting routes. From this case, it can be solved by applying graph theory in terms of searching for the shortest distance which is completed



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Gambar 8. Tampilan Publish Jurnal

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# Comparison Analysis of Graph Theory Algorithms for Shortest Path Problem

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**Abstract**— The Sumba region, Indonesia, is known for its extraordinary natural beauty and unique cultural richness. There are 19 interesting tourist attractions spread throughout the area, but tourists often face difficulties in planning efficient visiting routes. From this case, it can be solved by applying graph theory in terms of searching for the shortest distance which is completed using the shortest path search algorithm. Then these 19 tourist objects are used to build a weighted graph, where the nodes represent the tourist objects and the edges of the graph describe the distance or travel time between these objects. Therefore, this research aims to compare the shortest path search algorithm with parameters to compare the shortest distance results, algorithm complexity and execution time for tourism in the Sumba area. The results of this research involve a comparison of several shortest path search algorithms, with the aim of finding the shortest distance results, algorithm complexity, and execution time for tourism in the Sumba area. Based on the test results of the five algorithms with the parameters that have been prepared, and the findings show that each algorithm has its own characteristics, the results are as follows: Dijkstra's algorithm can be used to calculate the shortest route for single-source and single-destination types. This resembles the Bellman-Ford algorithm, only the Bellman-Ford algorithm can be used simultaneously on graphs that have negative weight values. Meanwhile, the Floyd-Warshall algorithm is suitable for use on the all-pairs type. Then, the Johnson Algorithm can be used to determine the shortest path from all pairs of paths where the destination node is located in

optimization scheduling [6-8], communication network modeling [9], and other issues [9]. Searching for the shortest path is the process of finding a path between two vertices, namely from the source node to the destination node in a graph by minimizing the number of weights so that the path with the smallest weight is obtained.

The Sumba region is a tourist destination rich in attractive natural and cultural tourist attractions, and 19 attractive tourist attractions are distributed throughout the region. However, for many tourists, the challenge often faced is to plan efficient visits to these various tourist attractions on a single trip. This is becoming increasingly important as their time and resources are limited. To address this problem, this study applied the implementation of graph theory in terms of the shortest distance search between tourist attractions in Sumba area through testing of several algorithms that have often been used to solve related problems. With this effort, it is also possible for each algorithm to perform efficiently on what kind of graph and path models, as well as what the advantages and disadvantages of each algorithm are. The hope can also be a recommendation for readers to know the most efficient algorithms for researching or solving the same problem.

Gambar 9. Tampilan Isi Jurnal