

**Development Of A Web-Based Tourist Attraction Recommendation System In Blitar Regency
Using The Waterfall Method**

***Pengembangan Sistem Rekomendasi Objek Wisata Berbasis Web Di Kabupaten Blitar
Menggunakan Metode Air Terjun***

Cahyo Saputra¹, Daviq Cahyo Lukmanto², Putri Perwitasari³, Indyah Hartami Santi⁴

^{1, 2, 3, 4} Informatics Engineering Study Program, Universitas Islam Balitar Blitar
Email: ¹cahyosaputra9e@gmail.com, ²daviqc45@gmail.com, ³putriperwitasari17@gmail.com,
⁴indyahhartamisanti@gmail.com

Abstract

Tourism plays an important role in improving the regional economy, but the tourism potential in Blitar Regency has not been utilized optimally due to the lack of integrated and accurate information access. Tourists still face difficulties in obtaining information regarding locations, facilities, ticket prices, and access to tourist destinations because the information is scattered across various platforms. This study aims to design and develop a web-based tourist attraction recommendation system capable of providing information in a structured, easily accessible manner that aligns with user preferences. The importance of this study lies in its effort to support digital transformation in the tourism sector and to enhance user experience in selecting tourist destinations. The method used is the Waterfall method, which includes the stages of requirements analysis, system design, implementation, testing, and maintenance. Data collection was carried out through observation, interviews, and documentation. The system was developed using web technologies with a MySQL database and is equipped with recommendation features based on categories, ratings, and user reviews. The results show that the developed web-based tourism recommendation system has an easy-to-understand interface and functional website features that meet user needs. System testing was conducted with 21 respondents across 7 assessment aspects, with sample results indicating that the interface design aspect achieved an approval rate of 80.95%, while the system feasibility aspect achieved an approval rate of 85.71%. These results indicate that the system is considered effective, easy to use, and feasible to be implemented as a digital tourism information medium in Blitar Regency.

Keywords: system, tourism, website, waterfall.

Abstrak

Pariwisata memainkan peran penting dalam meningkatkan perekonomian daerah, namun potensi pariwisata di Kabupaten Blitar belum dimanfaatkan secara optimal karena kurangnya akses informasi yang terintegrasi dan akurat. Wisatawan masih menghadapi kesulitan dalam memperoleh informasi mengenai lokasi, fasilitas, harga tiket, dan akses ke destinasi wisata karena informasi tersebut tersebar di berbagai platform. Studi ini bertujuan untuk merancang dan mengembangkan sistem rekomendasi objek wisata berbasis web yang mampu memberikan informasi secara terstruktur, mudah diakses, dan sesuai dengan preferensi pengguna. Pentingnya studi ini terletak pada upayanya untuk mendukung transformasi digital di sektor pariwisata dan meningkatkan pengalaman pengguna dalam memilih destinasi wisata. Metode yang digunakan adalah metode Waterfall, yang meliputi tahapan analisis kebutuhan, desain sistem, implementasi, pengujian, dan pemeliharaan. Pengumpulan data dilakukan melalui observasi, wawancara, dan dokumentasi. Sistem dikembangkan menggunakan teknologi web dengan basis data MySQL dan dilengkapi dengan fitur rekomendasi berdasarkan kategori, peringkat, dan ulasan pengguna. Hasil menunjukkan bahwa sistem rekomendasi wisata berbasis web yang dikembangkan memiliki antarmuka yang mudah dipahami dan fitur website fungsional yang memenuhi kebutuhan pengguna. Pengujian sistem dilakukan dengan 21 responden di 7 aspek penilaian, dengan hasil sampel menunjukkan bahwa aspek desain antarmuka mencapai tingkat persetujuan 80,95%, sedangkan aspek kelayakan sistem mencapai tingkat persetujuan 85,71%. Hasil ini menunjukkan bahwa sistem dianggap efektif, mudah digunakan, dan layak untuk diimplementasikan sebagai media informasi pariwisata digital di Kabupaten Blitar.

Kata kunci: sistem, pariwisata, situs web, air terjun.

1. INTRODUCTION

Tourism is a strategic sector that contributes to regional economic growth, community welfare, cultural preservation, and social development. Tourism activities allow individuals to enjoy various natural and man-made destinations that provide physical and psychological benefits (Mu'jijah, 2022). Furthermore, the concept of sustainable tourism emphasizes the balance between economic, social, and environmental aspects to support long-term development (Isdarmanto, 2016). In the development of tourist destinations, tourist experience also becomes an important factor because positive experiences can shape destination image and increase tourists' intention to revisit. Zakiah and Mardiyana (2025) explain that tourist experience has a significant influence on destination image in sustainable tourism, so the quality of information and services becomes an aspect that needs attention in tourism sector development.

Blitar Regency in East Java has great tourism potential, including natural, historical, and cultural attractions. However, although the number of tourist visits reaches approximately 2.8 million per year, its growth remains relatively stagnant. This indicates that the existing potential has not been utilized optimally. One of the main obstacles is the lack of integrated, structured, and easily accessible tourism information. Tourists often experience difficulties in obtaining accurate information regarding locations, ticket prices, facilities, and transportation routes. Available information is still scattered across social media and personal blogs, which tend to be inconsistent and less reliable. This condition aligns with the finding that promotion through social media alone is insufficient without an integrated information system (Andiwi Meifilina, 2021). Additionally, Dewi (2023) states that tourist experience is part of the overall tourism product, so providing clear, complete, and easily accessible information becomes one of the important factors in creating a quality tourism experience.

In the digital era, web-based systems become an effective solution for providing fast, accurate, and structured information. Websites are able to integrate various types of information and improve accessibility (Sari et al., 2019; Arisantoso, 2024). The development of tourism information systems is also aligned with the concept of modern tourism, which focuses not only on destination attractiveness but also on service quality and ease of information access for tourists. UGM Press (2021) explains that tourist experience serves as an important foundation for formulating quality tourist destination management strategies. The utilization of digital-based information technology is also considered capable of increasing the competitiveness of tourist destinations by providing faster and more efficient information access. Digital technology enables tourists to obtain destination information more easily, thereby improving the quality of the tourism experience (Atmaja, J. P., 2023). In addition to being a promotional medium, digital-based tourism information systems also function as a means of integrating tourist destination data, ranging from locations and facilities to transportation access. The presence of an integrated information system can help tourists obtain more accurate information and support more effective tourist destination management (Junaid, I., 2017). Therefore, this study aims to design a web-based tourism recommendation system in Blitar Regency using the systematic Waterfall method (Hasanah & Untari, 2020; Sumirat et al., 2023). This system is expected to improve information access, assist tourists in decision-making, and support the digital transformation of the tourism sector.

2. RESEARCH METHODS

This research uses the Waterfall model as the system development method to design and develop a web-based tourist attraction recommendation system in Blitar Regency. The Waterfall method workflow is illustrated in Figure 1 below:

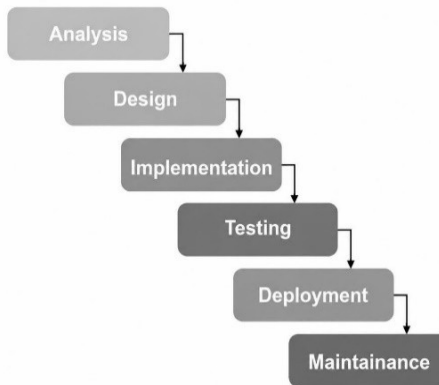


Figure 1. Waterfall Method

The Waterfall method illustrated in Figure 1 shows the design flow of the Wisata Blitar website. The Waterfall model was chosen because it has systematic, structured, and sequential stages that facilitate the system development process from the analysis stage to implementation (Hasanah & Untari, 2020; Sumirat et al., 2023).

The problem in this study is the unavailability of an integrated tourism information system capable of providing personalized tourism recommendations to users. Tourism information is still scattered across various media, making it difficult for tourists to obtain accurate, complete, and easily accessible information. Based on the results of observations and interviews, a web-based system capable of managing tourism data centrally and providing recommendation features according to user preferences is needed.

Data collection was carried out through observation, interviews, and literature studies. Observations were conducted by directly observing tourist attractions in Blitar Regency, while interviews were conducted with tourism managers to identify system requirements. Literature studies were conducted by examining books, journals, and relevant previous research. The data used consisted of primary data obtained directly from the field and secondary data obtained from related documents and references (Sugiyono, 2016; Moleong, 2014).

System development was carried out using the Waterfall model, which includes the stages of requirements analysis, system design, implementation, testing, and maintenance (Sukamto, Rosa A., & Shalahuddin, M., 2016). In the requirements analysis stage, system requirements such as tourism information, categories, search, ratings, and user reviews were identified. The system design stage was carried out by creating flowcharts, use case diagrams, and Entity Relationship Diagrams (ERD) as the basis for system development. The implementation stage was carried out by building a web-based system using appropriate technologies such as HTML, CSS, and MySQL. Furthermore, the testing stage was conducted using the user testing method administered to 21 student respondents. This testing aimed to ensure that each system function operates according to user needs. The test results are presented in tabular form (numerical data) and visualized in percentage graph form to facilitate analysis.

The system flowchart of the Wisata Blitar website is illustrated in Figure 2 below:

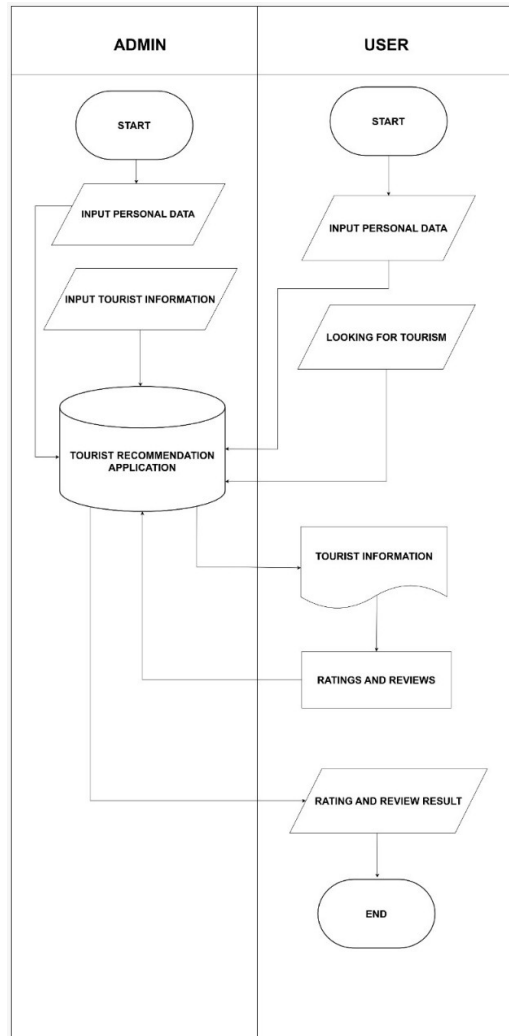


Figure 1. Flowchart System

The system flowchart shown in Figure 2 depicts the workflow of the tourism recommendation system, in which the admin manages tourist attraction data, while users search for information, give ratings and reviews, resulting in output consisting of assessment results and reviews.

The Data Flow Diagram (DFD) of Wisata Blitar is illustrated in Figure 3 below :

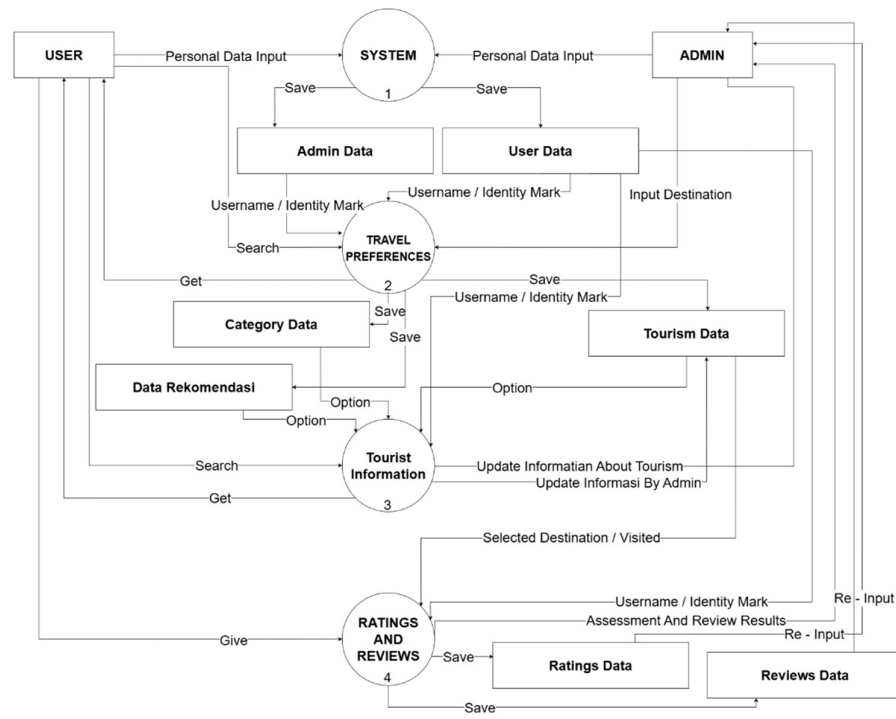


Figure 2. DFD

The Data Flow Diagram (DFD) in Figure 3 illustrates the workflow of the tourism recommendation system, which involves users and the admin in managing user data, tourist attraction data, and preferences, resulting in tourism information along with ratings and reviews as system outputs. The Entity Relationship (ER) diagram of the Wisata Blitar website database is illustrated in Figure 4 below:

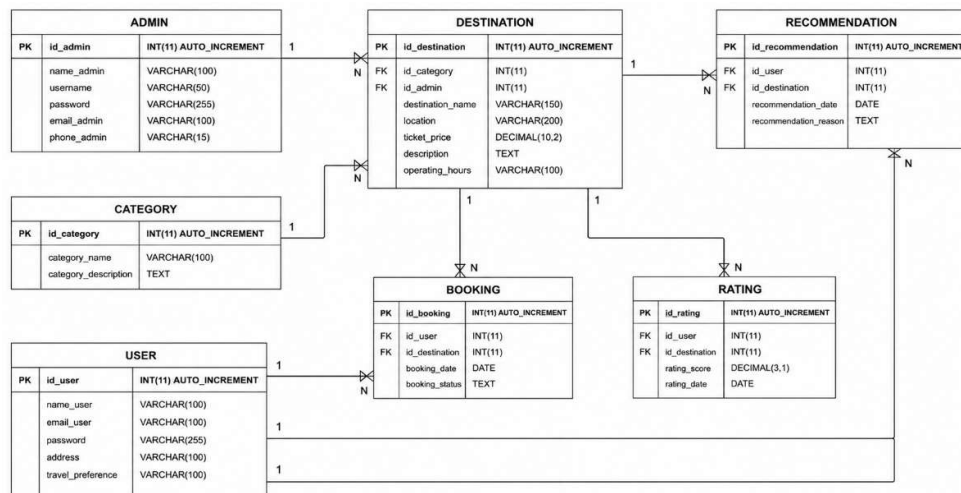


Figure 3. ER Table

The Entity Relationship (ER) diagram shown in Figure 4 depicts the database structure of the tourism recommendation system, comprising admin, user, category, destination, recommendation, rating, and review tables that are interconnected to manage data and generate tourism information.

3. RESULT

The login interface page of the Wisata Blitar website is illustrated in Figure 5 below:

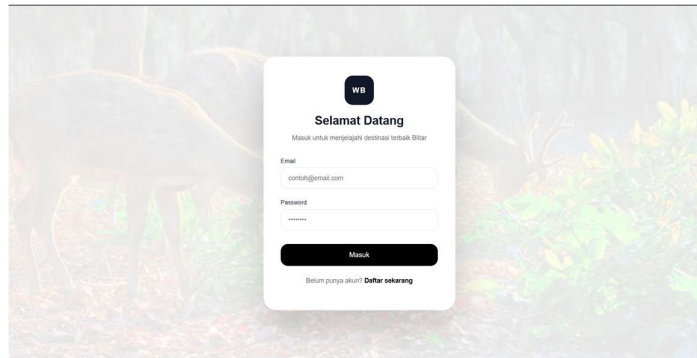


Figure 5. Interface Login Page

The login interface page of the Wisata Blitar website presented in Figure 5 displays the login form that users use to access the system by entering their email and password. An option to register is also available for those who do not yet have an account.

The homepage interface page of the Wisata Blitar website is illustrated in Figure 6 below:

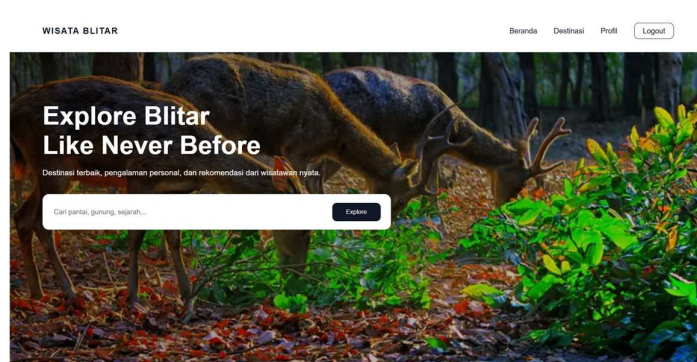


Figure 6. Homepage user interface

The homepage interface page of the Wisata Blitar website shown in Figure 6 presents the navigation menu, a main banner featuring a call to explore, as well as a search feature for tourist destinations.

The destination interface page of the Wisata Blitar website is illustrated in Figure 7 below:

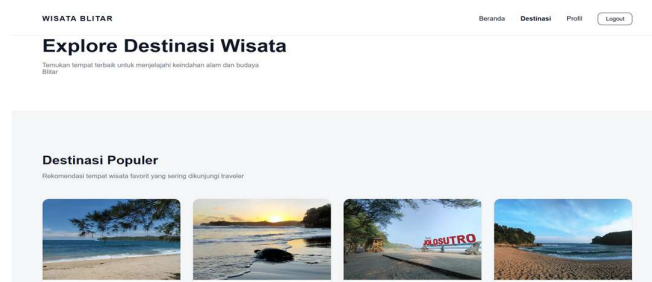


Figure 7. Destination interface page

The destination interface page of the Wisata Blitar website shown in Figure 7 features the main navigation and a list of popular destinations along with images, serving as tourist attraction recommendations.

The search interface page of the Wisata Blitar website is illustrated in Figure 8 below:

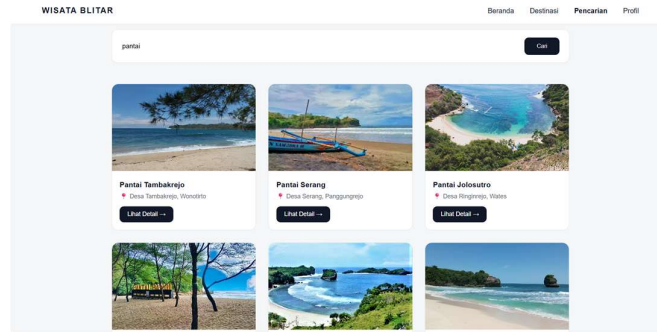


Figure 8. Search interface page

The search interface page of the website in Figure 8 displays the tourist destination search feature (beach) with results showing a complete list of places along with images, locations, and a detail button. The tourist attraction detail interface page of the Wisata Blitar website is illustrated in Figure 9 below:

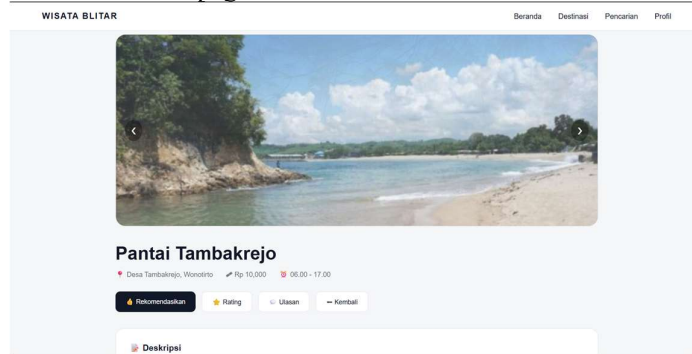


Figure 9. Tourist attraction detail interface page

The tourist attraction detail interface page shown in Figure 9 presents the details of the Tambakrejo Beach destination, which contains images, location, ticket prices, operating hours, along with recommendation options, ratings, and reviews.

4. DISCUSSION

At this stage, testing of the web-based tourism recommendation application system in Blitar Regency was conducted. The testing was carried out using the user testing method, which focused on user experience in using the system, such as ease of use, interface design, feature functionality, and clarity of information. This testing involved 21 student respondents. The test results indicate that the system functions well, is easy to use, and is able to provide tourism recommendations that meet user needs. The following is the table of testing results of the "Wisata Blitar" recommendation system from the respondents.

The diagram presenting the test results as percentages is illustrated in Figure 10 below:

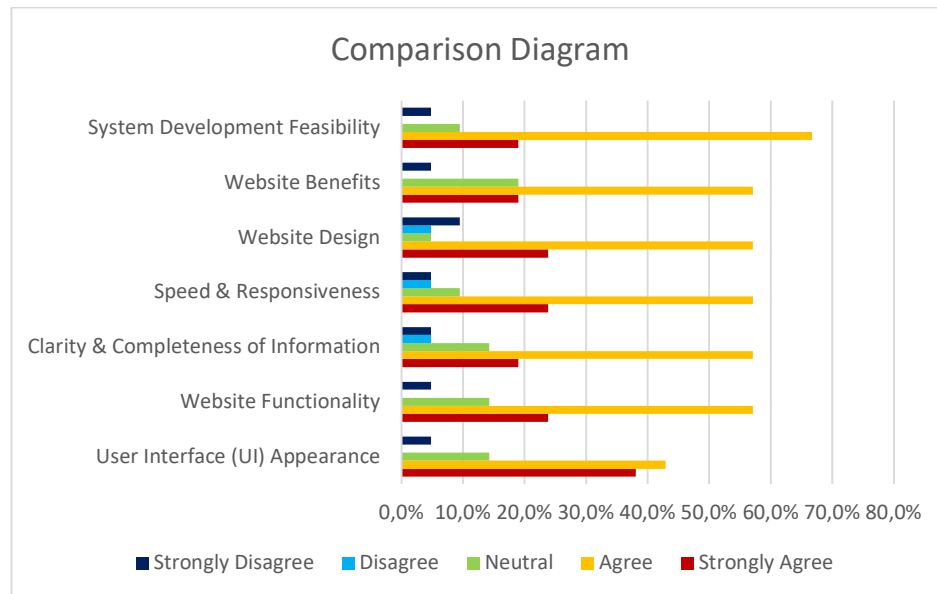


Figure 10. Percentage diagram of test result

The diagram presented in Figure 10 indicates that most respondents provided an "Agree" rating across all aspects (around 50–70%), with "Strongly Agree" being the second most frequent rating. Meanwhile, negative ratings (Disagree and Strongly Disagree) were very minimal. Thus, it can be concluded that the website is regarded as good and appropriate for user adoption.

The diagram presenting the test results as numerical data is shown in Table 1 below:

Table 1. Test result in numerical form

No	Assessment Aspects	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Description
1.	User Interface (UI)	8	9	3	-	1	The interface is easy to understand and clear enough
2.	Website Feature Functions	5	12	3	-	1	The features function according to the application's purpose
3.	Clarity & Completeness of Information	4	12	3	1	1	The information is clear and complete enough
4.	Speed & Responsiveness	5	12	2	1	1	The website is fast and responsive
5.	Website Design	5	12	1	1	2	The design is attractive and comfortable to use
6.	Website Benefits	4	12	4	-	1	Helps users determine tourist destinations

7.	System Development Feasibility	4	14	2	-	1	The system is feasible to use
----	--------------------------------	---	----	---	---	---	-------------------------------

Table 1, showing the test results in numerical data, aligns with the previous diagram. In both, the majority of respondents rated all aspects as Agree or Strongly Agree, with the only difference being the presentation format (raw numbers versus percentages). Therefore, both indicate that the website is regarded as good, its features perform optimally, and it is suitable for use and continued development.

5. CONCLUSION

Based on the results of the design and implementation that have been carried out, it can be concluded that the web-based tourist destination/attraction recommendation application system has been successfully developed using the structured Waterfall method, starting from the requirements analysis, design, implementation, and testing stages. The developed system is able to present complete tourism information, provide destination recommendations according to user preferences, and offer rating and review features as considerations for other tourists.

The test results from 21 respondents indicate that the system achieved good approval rates across all testing aspects. The user interface (UI) aspect obtained an approval rate of 80.95%, the website feature functions aspect 80.95%, the clarity and completeness of information aspect 76.19%, the system speed and responsiveness aspect 80.95%, the website design aspect 80.95%, the website benefits aspect 76.19%, and the system development feasibility aspect achieved the highest score of 85.71%.

Based on these results, it can be concluded that the developed system is considered effective, easy to use, responsive, and able to help tourists obtain tourism information more quickly, accurately, and in a structured manner. Furthermore, this system also supports the digital promotion of tourism in Blitar Regency and improves information accessibility and user satisfaction with web-based tourism services.

8. REFERENCES

- [1] Mu'jijah, et al. (2022). *Pengantar Pariwisata*. Probolinggo: Cv.Eureka Media Aksara
- [2] Isdarmanto. (2016). *Dasar-Dasar Kepariwisata dan Pengelolaan Destinasi Pariwisata*. Yogyakarta: Penerbit Gerbang Media Aksara dan StiPrAm
- [3] Zakiah, S., & Mardiyana, E. (2025). *Pengalaman Wisatawan terhadap Citra Destinasi pada Destinasi Pariwisata Berkelanjutan di Desa Wisata Nglanggeran*. Jurnal Ilmiah Hospitality.
- [4] Andiwi Meifilina. (2021). Peran Tourism Information Center (PIC) pada Gangguan Media Sosial Instagram dalam Mempromosikan Pariwisata Kabupaten Blitar. *Communicator Sphere*, 1(1). <https://doi.org/10.55397/cps.v1i1.3>
- [5] Dewi, L. (2023). *Manajemen Pengunjung di Destinasi Wisata*.
- [6] Sari, A. O., Abdilah, A., & Sunarti. (2019). *Web programming*. Yogyakarta: Graha Ilmu
- [7] Arisantoso, et al. (2024). *Buku ajar pemrograman web dasar*. Purbalingga: Eureka Media Aksara.
- [8] UGM Press. (2021). *Pariwisata Indonesia Kontemporer*.
- [9] Atmaja, J. P. (2023). *Peran Teknologi Informasi Dalam Peningkatan Daya Saing Destinasi Pariwisata di Indonesia*. Jurnal Destinasi Pariwisata
- [10] Junaid, I. (2017). *Penguatan Sistem Informasi Pariwisata Berbasis Digital: Studi Kasus di Kabupaten Wakatobi, Sulawesi Tenggara*. Jurnal Kepariwisata.
- [11] Hasanah, F. N., & Untari, R. S. (2020). *Buku ajar rekayasa perangkat lunak*. Sidoarjo: UMSIDA Press.
- [12] Sumirat, L. P., et al. (2023). *Dasar-Dasar Rekayasa Perangkat Lunak*. Edisi pertama. Malang: Madza Media.
- [13] Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- [14] Moleong. (2014). *Metode Penelitian Kualitatif*. Bandung: PT Remaja Rosdakarya.
- [15] Sukanto, Rosa A., & Shalahuddin, M. 2016. *Rekayasa Perangkat Lunak Terstruktur dan Berorientasi Object*. Bandung: Informatika