Android-Based Tourism and Culture Information System in Bantul Regency

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Abstract

Information systems are a combination of information technology and human activities that use technology to support operations and management. Tourism is a travel activity carried out by a person or group of people to an interesting place. One of the famous tourist and cultural attractions in Indonesia is Yogyakarta, especially Bantul Regency, which has very rich and diverse tourism and cultural potential. Limited access to information is a major obstacle for tourists and local people who want to explore Bantul Regency. To overcome this problem, a Tourism and Cultural Information System is needed that can facilitate visitors and the public in accessing information easily, accurately, and up to date. The benefits of the system are that the information presented in the application helps in efforts to preserve and promote local tourism and culture. and tourists can plan their trips well, including travel routes to tourist attractions and culture. Data collection methods by conducting observations, interviews, literature studies and research methods using the Waterfall method. The results of the system testing run well and the expected appearance and results are as expected.

Keywords : *Information, Tourism, Culture, Android Based.*

1. INTRODUCTION

Tourism is an activity of traveling or visiting by individuals or groups of individuals to interesting places, whether for recreation, business , vacation, education, or meeting purposes [1] . Culture is a system of values, norms, beliefs, traditions, and practices. practices that were owned and inherited by our ancestors in the past that are always carried out. This includes all aspects of community life, including language, religion, art, music, architecture, clothing, value systems, and ways of life [2] .

One of the famous tourist and cultural destinations in Indonesia is Yogyakarta. The Special Region of Yogyakarta has many things to see, such as historical relics, cultural diversity, culinary, and other tourist options. [3] . Bantul Regency has 17 sub-districts and very rich and diverse tourism and cultural potential [4] . Known for its stunning natural beauty, such as beautiful beaches on the south coast, mountains, and various tourist villages, Bantul also holds a wealth of cultural riches that reflect local traditions and wisdom.

Limited access to information is one of the main obstacles for tourists and local people who want to explore and learn about the natural beauty and local wisdom of Bantul Regency. Information about tourist locations, available facilities, ticket prices, and tourist visitors is often difficult to find completely and reliably. Therefore, to solve this problem and maximize the tourism and cultural potential of Bantul Regency, a Tourism and Cultural Information System is needed that can facilitate visitors and the community in accessing information easily, accurately, and up to date .

2. LITERATURE REVIEW

In this literature review, the author will present several previous studies as a reference in the analysis of this research which will be taken into consideration and strengthen the thinking in the research.

Research [5] entitled "Design and Construction of Geographic Information System Application for Tourist Attractions and Culinary in Kudus Regency Based on Android Smartphones". The purpose of this research is to make it easier for visitors to get explanations about the location of tourist and culinary destinations in Kudus Regency and to provide recommendations as a media that helps in navigation to tourist and culinary attractions in the area.

Research from [6] entitled "Design of Central Sulawesi Tourism Information Application Based on Android". Tourism is an industry that has a major impact on the socio-economic conditions of the community and government revenue. With the many tourism potentials in the Province of Central Sulawesi, practical technology is needed to assist the government in providing information services regarding tourist locations.

Research from [7] entitled "Android-Based Tourism Information System for Morotai Island Regency ". This journal discusses the development of an Android-based tourism information system for Morotai Island Regency using the waterfall method.

2.1 Android

Android is a mobile operating system developed by the Open Handset Alliance, a consortium led by Google. The Android platform has several systems to work on creating the best applications so that they can be used by all devices including the Linux Operating System, GUI (Graphic User Interface), Web Browser and End-User applications [8] .

2.2 Global Positioning System (GPS)

GPS is a satellite signal that is used as a navigation system to provide accurate time and location information by calculating several pieces of information such as speed, direction, route, destination, distance to destination, sunrise, sunset and others. [9] .

2.3 Location Based Service (LBS)

It is a location-based service that uses geographic information from a user's device to provide services or information relevant to that location, with applications or internet services to provide a personalized experience based on the user's location [10] .

2.4 Open Street Map (OSM)

OSM is an open and collaborative world mapping project where anyone can contribute to creating, updating, and maintaining map data with the goal of providing map data that is available and usable by anyone for a variety of purposes, without the copyright restrictions that are common with commercial map data [11] .

2.5 Android Studio

Android Android Studio is the official integrated development environment (IDE) used by developers to create Android-based applications. Developed by Google, Android Studio has various tools and features that support the application development cycle from the beginning of user interface design to testing and implementation. Android Studio helps developers create Android applications efficiently and effectively [12] .

2.6 Java

Java is a programming language that is widely used to create many types of software, including desktop applications , game creation, mobile software development and web-based software [13] .

3. RESEARCH METHODS

In this study, the system design method used is the waterfall method. According to Sommerville (2003), Waterfall mode is an example of a planning process where all activity processes must first be planned and scheduled before being carried out [14] . The Waterfall method is a classic model that has a systematic and sequential nature to build software, this model has stages from preparation to maintenance that have one direction [15] . The Waterfall method is one of the application development models whose phases are sequential and systematic [16] . In the waterfall method, like water falling from one level to the next, before entering the next phase, each phase must be completely completed. The stages of the waterfall method are as follows.
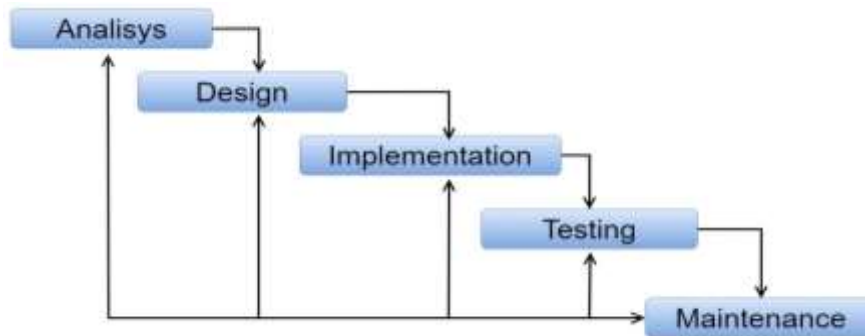

Figure 1 Waterfall **Method**

The first stage is Requirements Analysis is a process of gathering strict requirements to find out what software is needed to meet user needs . The second stage of software design is a process consisting of several stages that mostly concentrate on aspects of software program design, including data structures, software architectures, and interface representations , the design of the program maker in question is the design of the application display design, software is research tools such as android studio, data structures such as class diagrams and software architectures such as use cases and flowcharts. Next is the implementation stage This stage includes the actual coding or implementation process of the program based on the previous design. In this study, the development team used the Java programming language and the Android Studio development tool to create a program that meets the design requirements. To ensure that the system runs according to the previously specified requirements, the program testing stage will be carried out after the implementation is complete. This stage will be tested using a black box. Test functionality, errors, integration, and performance . And the last stage is maintenance, this stage runs the application as a whole. Errors that have not been identified in the previous step are fixed during maintenance , optimizing system services and as new needs.

cultural attractions . Interviews are conducted by meeting directly with several tourists and staff at Kapanewon Kretek Bantul and literature studies study research (journals), articles, theses, literature and books that discuss the design of Android-Based Tourism and Cultural Information Systems.

4. SYSTEM DESIGN

System design is a general description to facilitate the process of a system being built or implemented. System design is built including system requirements analysis, system design, system testing.

4.1 Usecase Diagram Design

Use Case is a modeling or situation of a software system user that describes how the system interacts with users or other entities [17] . The following is a series of application designs that will be built on the tourism and culture information system in Bantul Regency.
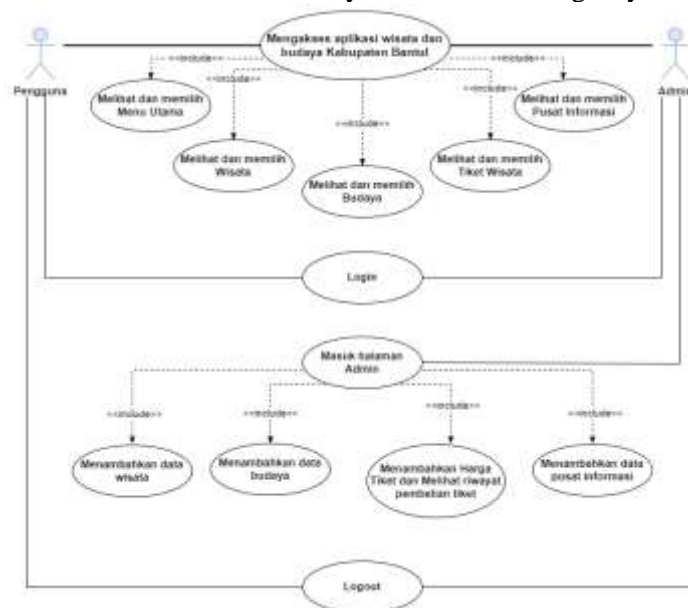

Figure 2 Use Case Diagram

4.2 Activity Diagram Design

This diagram will show the steps or activities carried out, the order in which they occur, and the flow of control from one activity to another [8] .

4.2.1 Login activity diagram

Used to show the system flow when the user first runs the application. To access the application, the user enters a username and password to log in. If the user does not have a username and password, they will be asked to register.

Figure 3 Login Activity Diagram

4.2.2 Activity Diagram Choosing a Tour

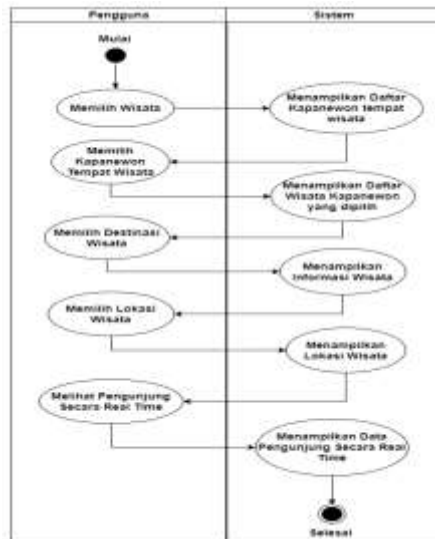The activity diagram for selecting a tour is used to describe the system flow when the user selects a tour.

Figure 4 Tourism Activity Diagram

4.2.3   Activity Diagram Choosing a Culture
The culture selection activity diagram is used to describe the system flow when the user selects a culture.
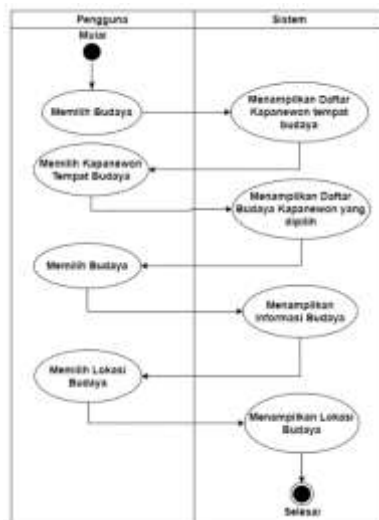

Figure 5. Culture Activity Diagram

4.2.4   Activity Diagram Choosing Tour Tickets
It is a purchase of tourist tickets to illustrate the system flow in a tourist ticket purchase transaction. Users select the tourist destination they want to visit then fill in the data and check the data.
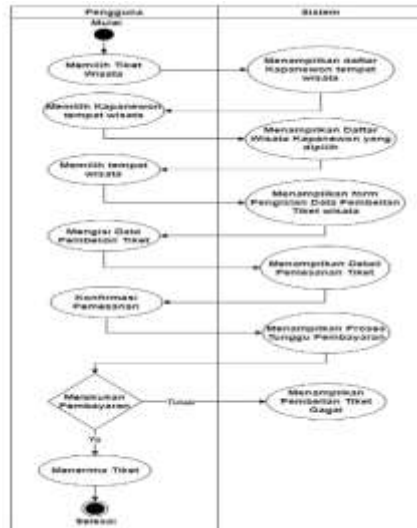
Figure 6. Activity Diagram Tourist Ticket

4.2.5   Activity Diagram Information Center

It is an information center for users to search for other information, have problems using the application or ask about purchasing tourist and cultural tickets.
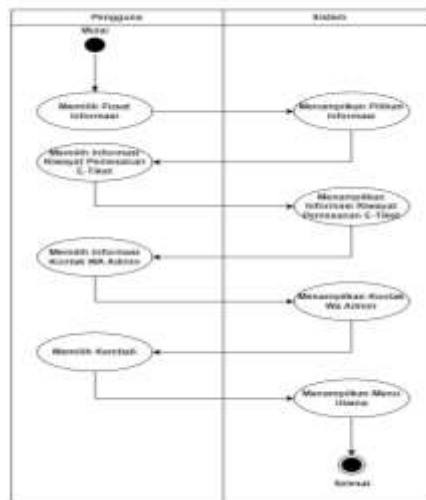

Figure 7 Activity Diagram of Information Center

5. RESULTS AND DISCUSSION

At this stage, we will describe the use of the system that has been designed and built .
5.1 Application Initial View

User login is the initial page used by users to access the Bantul district tourism and culture application. On this page and before going to the main menu, users are required to fill in the email and password that has been created.

Figure 8 Initial Application View

5.2 Main App View

On this page displays 4 menus, namely tourism, culture and events, tickets, and information center. The tourism menu will display a list of tours, the culture menu will display a list of culture and events, the ticket menu will display a list of tourist tickets and the information center menu will display ticket purchase history, related contacts and logout.

Figure 9 Main Menu Display

5.3 Tour Detail View

This page will display detailed information about the tour. The system displays detailed information about the selected tour and will display the name of the tour, tour photos, tour facilities, tour descriptions, videos, location tourism via google maps, and tourist visit statistics .

Image 10. Tour Detail View

CONCLUSION AND SUGGESTIONS

The research has produced information about the location, facilities, ticket prices, operating hours of tourism and culture in Bantul district. In addition, the application can already buy tickets through the application and the application can run well according to the design and output that has been made. And suggestions for further research are expected on the tourist list page to display the route map of tourist attractions and use paid maps on the application, the application can add an online ticket payment feature and it is expected that the application can display CCTV in the area of each tourist attraction

REFERENCE

[1]   A. Dwihastadi, A. Mulyanto, and M. G. Wonoseto, "Prototipe Aplikasi Mobile Pendukung Keputusan Pemilihan Destinasi Wisata di Yogyakarta," *J. Disprotek*, vol. 11, no. 2, pp. 59–66, 2020, doi: 10.34001/jdpt.v11i2.1258.

[2]   D. Herlambang, I. Himawan, and A. Fitriansyah, "Sistem Informasi Ragam Kebudayaan di Provinsi Indonesia Berbasis Android," *J. Ris. dan Apl. Mhs. Inform.*, vol. 3, no. 01, pp. 25–32, 2022, doi: 10.30998/jrami.v3i01.1674.

[3]   Kusworo Anindito, Eddy Julianto, and Y. Sigit Purnomo W.P., "Pengembangan Aplikasi Layanan Informasi Wisata Budaya Yogyakarta Berbasis Mobile Web dan Location-Based ServiceSecara Kolaboratif," *J. Buana Inform.*, vol. 6, pp. 63–72, 2015.

[4]   A. Adyantari, "Kajian Potensi Desa sebagai Pembangunan Sentra Wisata Desa Donotirto Kapanewon Kretek Kabupaten Bantul," *J. Atma Inovasia*, vol. 2, no. 6, pp. 644–651, 2022, doi: 10.24002/jai.v2i6.5230.

[5]   A. Nurhindarto, D. R. Santoso, and E. Y. Hidayat, "Rancang Bangun Aplikasi Sistem Informasi Geografis Objek Wisata dan Kuliner di Kabupaten Kudus Berbasis Smartphone Android," *JOINS (Journal Inf. Syst.*, vol. 5, no. 2, pp. 288–299, 2020, doi: 10.33633/joins.v5i2.4297.

[6]   B. A. S. Yabintowe, A. R. Ramli, and S. Z. Moga, "Perancangan Aplikasi Informasi Pariwisata Sulawesi Tengah Berbasis Android," *... Elektron. Sist. Inf. dan ...*, vol. 5, no. 2, 2022, [Online].

Available:
http://jesik.web.id/index.php/jesik/article/view/98%0Ahttps://jesik.web.id/index.php/jesik/article/viewFile/98/73.

[7]   M. Papuangan and A. Kopman, "Sistem Informasi Objek Wisata Kabupaten Pulau Morotai Berbasis Andorid," *JSITIK J. Sist. Inf. dan Teknol. Inf. Komput.*, vol. 1, no. 1, pp. 50–63, 2022, doi: 10.53624/jsitik.v1i1.156.

[8]   T. Arianti, A. Fa'izi, S. Adam, and M. Wulandari, "Perancangan Sistem Informasi Perpustakaan Menggunakan Diagram Uml (Unified Modelling Language)," *J. Ilm. Komput. Tera[an dan Inf.*, vol. 1, no. 1, pp. 19–25, 2022, [Online]. Available: https://journal.polita.ac.id/index.php/politati/article/view/110/88.

[9]   S. Alfeno and R. E. C. Devi, "Implementasi Global Positioning System (GPS) danLocation Based Service (LSB) pada SistemInformasi Kereta Api untuk Wilayah Jabodetabek," *Sisfotek Glob.*, vol. 7, no. 2, pp. 1–7, 2017.

[10]   M. B. Firdaus, U. Hairah, and M. Taruk, "IMPLEMENTASI METODE LOCATION BASED SERVICE PADA APLIKASI," vol. 16, pp. 384–394, 2022.

[11]   D. Yusuf *et al.*, "Volume 16 Nomor 2 , Juli 2022 PENERAPAN SISTEM KEHADIRAN MAHASISWA BERBASIS WEB Abstrak JURNAL NUANSA INFORMATIKA," vol. 16, pp. 147–153, 2022.

[12]   S. K. M. S. M. K. H. S. K. Herlinah, *Pemrograman Aplikasi Android dengan Android Studio, Photoshop, dan Audition*. Elex Media Komputindo, 2019.

[13]   Zain Arif Wildan Sugandi, Yoga Adi Nugraha, Syaiful Nurul Anam, and Irma Darmayanti, "Jurnal IT CIDA Vol. 8, No. 1Juni 2022ISSN: 2477-8133 e-ISSN: 2477-81251Implementasi Konsep Pemrograman Berorientasi Objek Dalam Aplikasi Pembukuan Keuangan Penjual Jus Buah Menggunakan Bahasa Pemrograman Java," *J. IT CIDA*, vol. 8, no. 1, pp. 1–8, 2022.

[14]   W. I. Rahayu, R. R. Fajri, and P. Hambali, *RANCANG BANGUN APLIKASI PENENTUAN DAN SHARE PROMO PRODUK KEPADA PELANGGAN DARI WEBSITE KE MEDIA SOSIAL BERBASIS DESKTOP*. Kreatif, 2019.

[15]   D. D. G. Ananda, M. Hidayatullah, and V. A. Nasution, "Perancangan Aplikasi Pengenalan Pariwisata Danau Toba Berbasis Android Menggunakan Layanan Location Based Service (LBS)," *Juktisi*, vol. 2, no. 02, pp. 315–325, 2023.

[16]   diflah mazidah Al, "Informasi, Multimedia, Interaktif, Purwokerto, Wisata .," vol. 10, no. 1, 2022.

[17]   L. A. Selano and S. Nadjamuddin, "Aplikasi Pencarian Objek Wisata Bandung Raya Berbasis Mobile (Study Kasus : Dinas Kebudayaan Dan Pariwisata Kota Bandung, Kabupaten Bandung, Kabupaten Bandung Barat, Kabupaten Sumedang Dan Kota Cimahi)," *J. Informatics*, vol. VII, no. 1, pp. 30–43, 2021, [Online]. Available: https://ejournal.iwu.ac.id/index.php/Informatics/article/view/59/46.