EMBUN PAGI SWIMMING POOL ONLINE E-TICKET BOOKING INFORMATION SYSTEM

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ABSTRACT

System design can be one example of the use of the internet for information processing. The design of a web-based information system media about an object can be used to introduce the object to the public or simply to make work easier. One of its uses is in the field of online e-ticket ordering because of the development of technology that can be applied to the tourism sector. Embun Pagi Swimming Pool is a private business located in Karanganyar Regency. The swimming pool is managed very manually without a system so that errors often occur in recapitulating data. In addition, the swimming pool is also not widely known by the surrounding community due to the lack of promotion and publication from the swimming pool manager. Online e-ticket ordering aims to provide convenience for swimming pool visitors in ordering tickets, besides also making it easier for managers to make sales reports and visitor reports. So it can be concluded that visitors can order tickets through the website and can find out information about the museum and make it easier to make ticket sales reports and visitor reports for managers. In this problem, the author came up with the idea of a web-based system innovation as a publication media for an object and making it easier to do work, so the author suggests the title of the Embun Pagi Swimming Pool Online E-Ticket Ordering Information System with the Waterfall method.

Keywords : *information system, website, ticket, waterfall*

1. INTRODUCTION

Technology as a tool to facilitate human work is closely related to advances and sophisticated innovations in information processing through internet media. In today's era, many things and aspects in the world are related to the internet, ranging from the use of applications, information systems, to websites [1].

One of the sectors that is experiencing development is the buying and selling of products or services, especially in the field of online tourism ticket sales [2].

This field also plays a role in distributing information related to the objects in it to the ticket transaction processes in the tour. The number of tourist attractions that have high potential for beauty and comfort, will be very unfortunate if it is not balanced with an optimal work process support system in it. Therefore, the design of a work support information system on a tourist attraction is felt to be very necessary for future progress [3].

Dew Morning Swimming Pool is a tourist attraction located in Beluk Kidul, Sroyo, Jaten District, Karanganyar Regency, Central Java 57731. The swimming pool was built in 2020 before the outbreak of the Covid-19 pandemic. At first, the swimming pool only had 2 pools, but as time went by, more and more visitors came, and it was considered that there was no space for many people to swim, so a new swimming pool was made for adults with a pool height of 150 to 170 cm. Many residents of Beluk Kidul visit the swimming pool every day because of the comfortable place and very affordable food prices.

However, the Morning Dew Swimming Pool is not widely known by the public because the place is not strategic, therefore the author has an idea to create a website-based system as a publication medium for the swimming pool, besides that visitors can also buy tickets online through the website. In this case, the author proposed a study entitled "Dew Morning Swimming Online E-Ticket Booking Information System" using the Waterfall method.

2. LITERATURE REVIEW

The online ticket booking information system is a website that allows users to book tour tickets online. Karanganyar Regency, is one of the tourist destination cities in Indonesia, in this case the creation of an online ticket booking information system is efficient and makes it easier for managers to recap sales data [4].

2.1. System

A collection of interconnected elements that form a single unit for Integrate data, process and store and distribute information [1].

2.2. Information

Information is a series of data that is temporary in accordance with a specified time. According to other experts, information is also an operation or unit activity that is carried out that focuses on the governance of the information system used by the [5].

2.3. Website

All websites or sites can be defined as a collection of pages used to display textual information,

still or moving images, animations, sounds or a combination of all of them, whether static or dynamic in nature that form a series of interconnected buildings, each of which is connected by a network of halamas [6].

2.4. Database

A database is a structured set of data that is interconnected, stored on computer storage media, and managed by perangkat special software to ensure efficient, secure, and structured access to information [7].

2.5. MySQL

It is a relational database management system (RDBMS) that allows a single server MySQL to manage multiple databases simultaneously, thus allowing the management of a variety of different databases on a single server [7].

2.6. XAMPP

XAMPP is a PHP web server and MySQL database package that is most popular among web developers using PHP and MySQL as its database [8].

2.7. Waterfall Methods

The Waterfall method is a method that takes a systematic and sequential approach starting from the system requirements level then moving on to the analysis, design, coding, testing/verification, and maintenance stages. It is called waterfall because each stage that is passed must wait for the completion of the previous stage and run sequentially. The development model can be logically like going through stairs, where each stage is worked on sequentially from top to bottom. These stages are in the form of system requirements planning, system and software modeling, implementation and coding, the last is the testing stage [9].

3. RESEARCH METHODS

The system development method is how to understand a system in a structured and systematic way so that it can meet the needs of the existing system. One of the development methods that follows the steps linearly is the waterfall method. The waterfall method or commonly known as a waterfall consists of needs analysis, system design, implementation, testing, and maintenance [10].

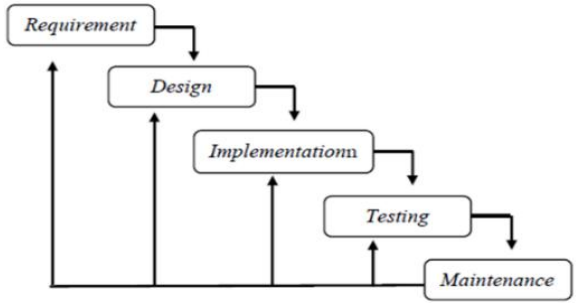

Figure 1. Waterfall Method

3.1. Requirement Analysis

At this stage, an analysis is carried out to understand the needs of users in website development. Information is collected through interviews and discussions with the owners of the Dew Morning Pool to identify the features needed in the website, such as facilities, ticket prices, contacts, and other information.

3.2. System Design

Based on the needs analysis, this stage includes the creation of a website design that involves the use of DFD diagrams to support the mapping of the system's structure and workflow. This design aims to visualize the appropriate structure, layout, and navigation of the website. ERD diagrams will help illustrate user interactions with the system, ensuring accessibility and ease for customers to find the necessary information.

3.3. Implementasi *(Implementation)*

Once the design is approved, the implementation stage is carried out by building the website using the appropriate programming language and platform. The development will involve the creation of ticket booking pages, information pages, as well as interactive features such as contact forms and locations. At this stage, the website is developed according to the specifications that have been determined at the design stage.

3.4. Testing

Testing is carried out to ensure that each website function runs properly and as needed. Testing includes testing functionality, access speed, and compatibility on various devices. The goal is to ensure that the website is bug-free, accessible, and provides an optimal user experience.

3.5. *Maintenance*

After the website is launched, the maintenance stage is carried out to maintain performance and overcome problems that may arise. This maintenance also includes content updates, feature improvements, and security monitoring to keep the website relevant and safe for customers to use.

4. RESULTS AND DISCUSSION

Analysis of the running system is very necessary in the creation of a new system, especially to find various weaknesses, and problems that the previous system had and play an important role in the development of the next system.

4.1. Needs Analysis

4.1.1. System Requirements

System Needs are needs that contain functional and non-functional needs data on the admin page on the company's website requires a process that is able to facilitate and speed up finding the desired information on the web used. The system needs are determined so

that the system can match the data in the previous system.

a. Functional Needs
   Determining functional needs makes it easier for authors to determine how many forms to be created and which are used as a reference for output, following an analysis of input and output needs:
   1. Input Needs Analysis
      Admin
      The input requirements for this system are:
      - Article input
      - Facility input
      - User profile input
      - Gallery input

      User
      a. Input ticket booking data
   2. Output Needs Analysis
      Customer
      The output requirements of this system are:
      - Facility information
      - Gallery
      - FAQ
      - Admin contact information

b. Non-Functional Needs
   Non-functional needs analysis is carried out to determine the specification of requirements for the system which involves analysis of hardware/hardware requirements, software/software analysis, and analysis of user/user needs.
   1. Hardware Analysis
      Hardware needs are physical components that have certain criteria so that the system can run properly. The system needs needed to make this system are:
      - Laptop : Lenovo Thinkpad X260
      - Processor : Intel Core i5-6300U
      - RAM : 8 GB
   2. Software
      The software specifications required for the creation of this system are as follows:
      - Operating system : Windows 10
      - Programming language : PHP 8.2.4
      - Basis data : MySQL
      - Programming application : Visual Studio Code
      - Executor application : Google Chrome
   3. Brainware
      Brainware is an actor in managing and running the system. In this system there are 2 actors, namely:
      - Admin
      - Customer

4.2. Developed Systems

The website is designed using the PHP programming language and manages the database using MySQL. Users can log in according to the user's status (admin and customer). The user flow of the website profile system is as follows:

4.2.1. User Admin

User Admins can input, edit, delete and manage data on articles, facilities, galleries, users on the website and admins can also view ticket booking data ordered by users on the website.

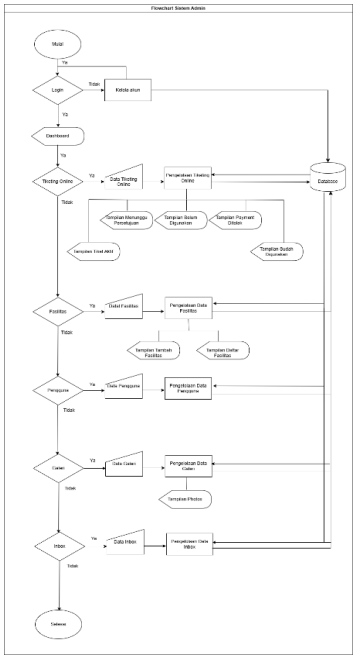

Figure 2. Admin System Flow

4.2.2. User Pengguna

Customer users can place ticket orders and can access the dashboard

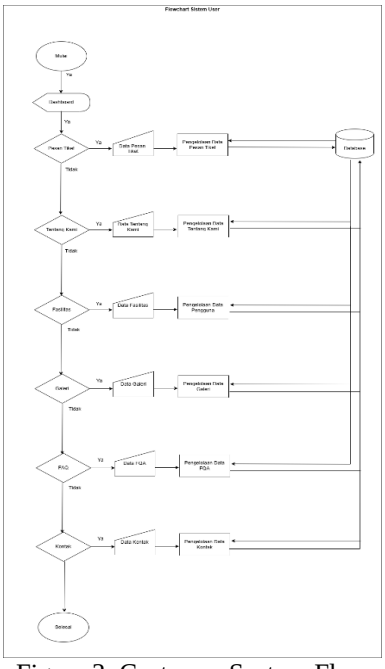

Figure 3. Customer System Flow

4.3. System Design

System design is the design of a unit consisting of components or elements that are connected together

to facilitate the flow of information and materials to achieve a goal. The author used a web browser application draw.io to design the design of this system.

4.3.1. Context Diagram

The Context Diagram is the highest level of DFD that depicts all inputs to the system and outputs from the system. The following is an overview of the context diagram of the online e-ticket web system:

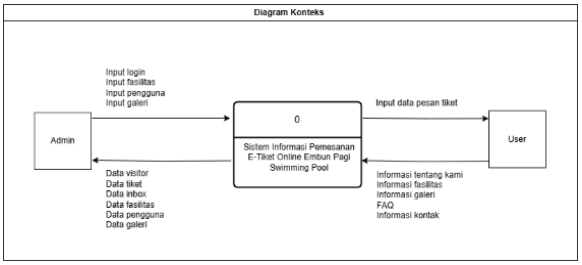

Figure 4. Context Diagram

4.3.2. DFD Level 0

DFD Level 0 provides a more detailed description of the system by breaking down one process in the context diagram into several main processes and describing the data flow between those processes. The following is a description of the DFD Level 0 of the system:

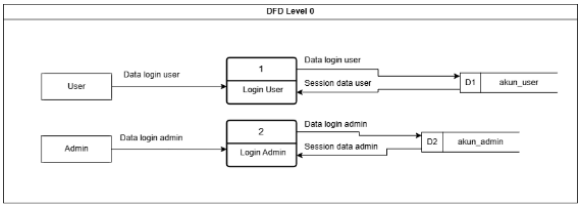

Figure 5. DFD Level 0

4.3.3. DFD Level 1 Admin

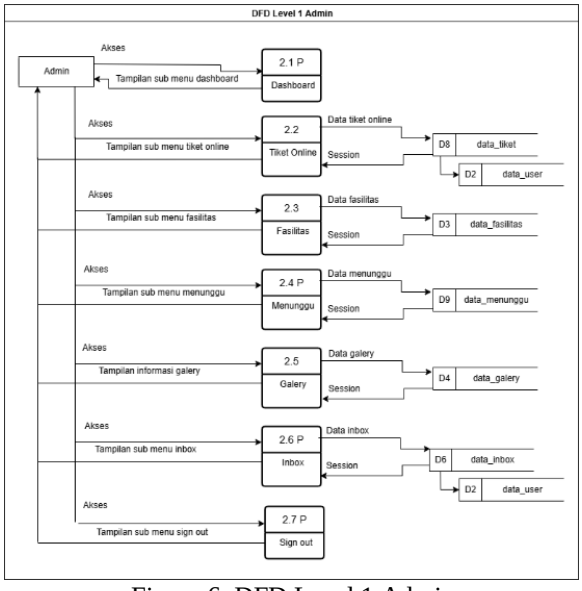

Figure 6. DFD Level 1 Admin

DFD Level 1 Admin aims to provide a deeper view of the entire system. The existing main processes will be broken down into sub-processes. The following is a description of the DFD Level 1 Admin of the system:

4.3.4. DFD Level 1 User

DFD Level 1 User aims to provide a deeper view of the entire system. The existing main processes will be broken down into sub-processes. The following is a description of the DFD Level 1 User of the system:

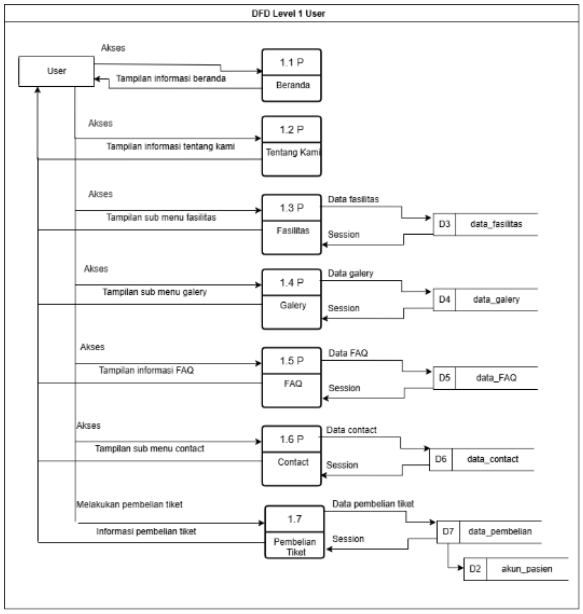

Figure 7. DFD Level 1 User

4.3.5. Database Design

Table 1. Ticket Table Structure

Nama Field	Type	Key
id	Int (11)	Primary Key
id_tiket	Varchar (50)	
no_ktp	Varchar (30)	
name	Varchar (100)	
jenis_kelamin	Varchar (20)	
email	Varchar (100)	
address	Varchar (300)	
No_telpon	Varchar (15)	
Date	Date	
jam	time	
sum	Int (9)	
Total	Bigint (12)	

Source : Author

Table 2. Gallery Table Structure

Nama Field	Type	Key
galeri_id	Int (11)	Primary Key
galeri_judul	Varchar (60)	
galeri_tanggal	Time stamp	
galeri_gambar	Varchar (40)	
galeri_album_id	Int (11)	Foreign Key
galeri_pengguna_id	Int (11)	Foreign Key
galeri_author	Varchar (60)	

Source : Author

Table 3. Visitor Table Structure

Nama Field	Type	Key
pengunjung_id	Int (11)	Primary Key
pengunjung_tanggal	Timestamp	
Nama Field	Type	Key
pengunjung_ip	Varchar (40)	
pengunjung_perangkat	Varchar (100)	

Source : Author

Table 4. User Table Structure

Nama Field	Type	Key
id	Int (11)	Primary Key
name	Varchar (100)	
email	Varchar (100)	
password	Varchar (100)	
No_telpon	Varchar (15)	
Tgl_daftar	date	
Photograph	Varchar (200)	
Id_role	Int (2)	

Source : Author

Table 5. Category Table Structure

Nama Field	Type	Key
Kategori_id	Int (11)	Primary Key
kategori_nama	Varchar (30)	
kategori_tanggal	timestamp	

Source : Author

4.3.6. Interface Design

The interface design stage is a stage of turning a need that is still a concept into a real system. Here is what the website design looks like.

a. Login Page Design

The login page design is used for user admins to access the web profile system.

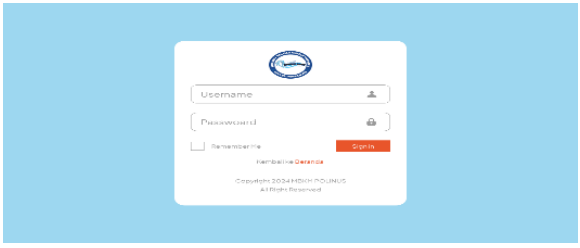

Figure 8. Login Page Design

b. Dashboard Page Design

The following is the design of the admin dashboard page on the Embun Pagi Swimming Poll e-ticket web profile:

Figure 9. Dashboard Page Design

4.3.7. Program Code Writing

Program code writing is the process of writing lines of code in a programming language to provide instructions to a computer. The programming languages used are PHP, HTML and Javascript and database management uses MySQL databases.

4.3.8. Program Testing

Tabel 6. *Black Box*

It	*Interface*	Testing	Result
1	Form *Login* admin	Enter the admin username and password	Successful
2	Online Ticketing Menu	View ticket flow from active tickets, pending approval, unpaid, payment declined, and tickets already used	Successful
3	Facilities Menu	Add, update, delete facility data	Successful
4	User Menu	Add, update, delete user data	Successful
5	Gallery Menu	Add, update, delete gallery data	Successful
6	Menu Inbox	View and delete incoming inboxes	Successful

Source : Author

4.3.9. Admin Page View

a. Login Page

The login page uses your username and password to enter the Dew Pagi Swimming Poll Online E-Ticket Booking Information System.

Figure 10. Login Page

b. Dashboard Page

Here's what the dashboard page looks like:

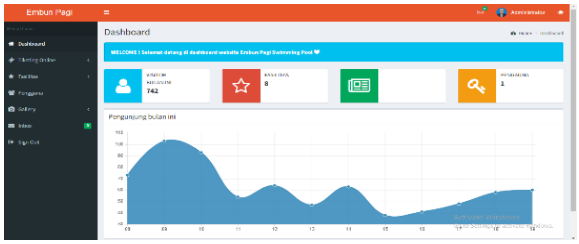

Figure 11. Dashboard Page

c. Online Ticketing Page

The following is what the online ticketing page looks like:

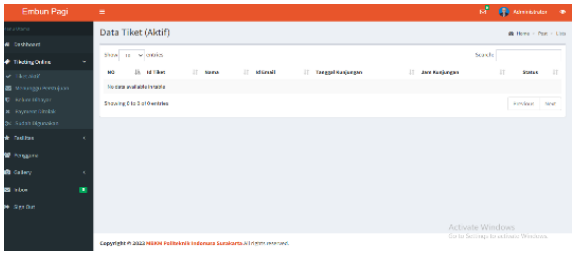

Figure 12. Online Ticketing Page

d. Facilities Page
Here's what the facility page looks like:

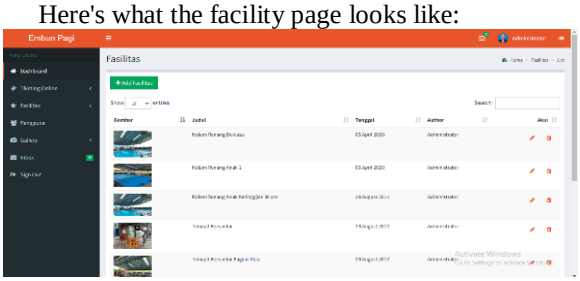

Figure 13. Facilities Page

e. User Page
Here's what the user page looks like:

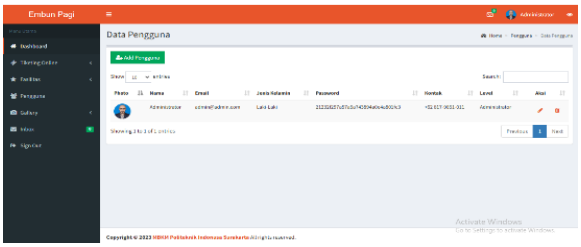

Figure 14. User Page

f. Gallery Page
Here's what the gallery page looks like:

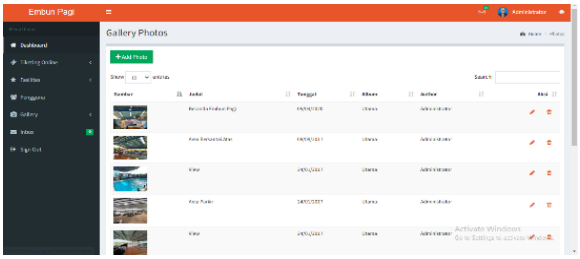

Figure 15. Image Page

g. Inbox Page
Here's what the inbox page looks like:

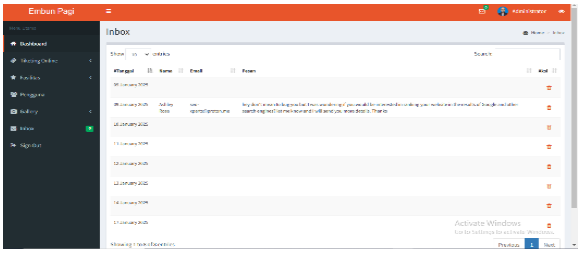

Figure 16. Inbox Page

4.3.10. Customer Page Views

a. Dashboard Page
The following is what the dashboard page looks like:

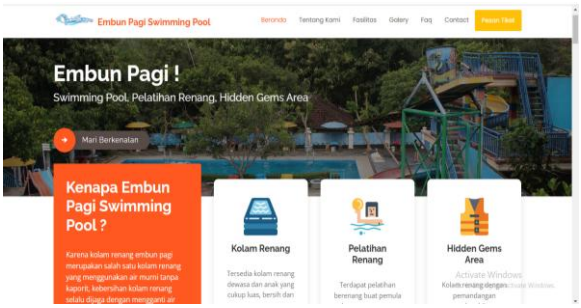

Figure 17. Customer Dashboard Page

b. Profile Page
Here's what the profile page looks like:

Figure 18. Profile Page

c. Facilities Page
Here is what the facilities page looks like:

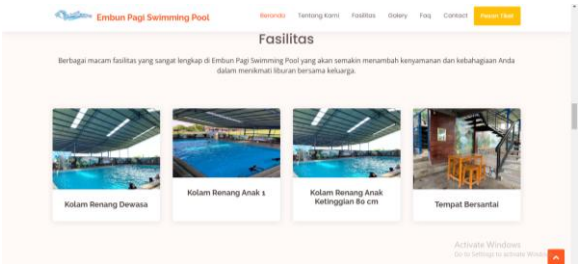

Figure 19. Facilities Page

d. Gallery Page
Here's what the gallery page looks like:

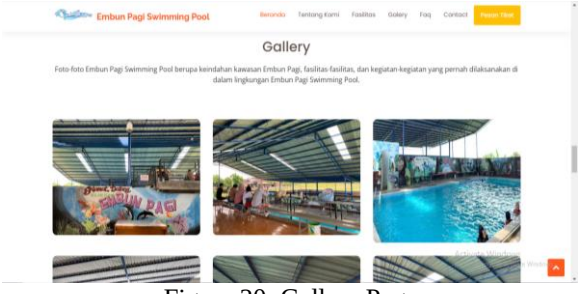

Figure 20. Gallery Page

e. FAQ page
Here's what the FAQ page looks like:

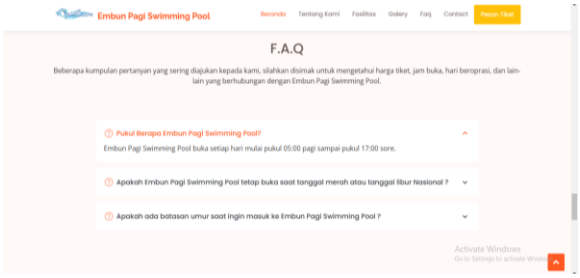

Figure 21. FAQ

f. Contact Page
Here's what the contact page looks like:

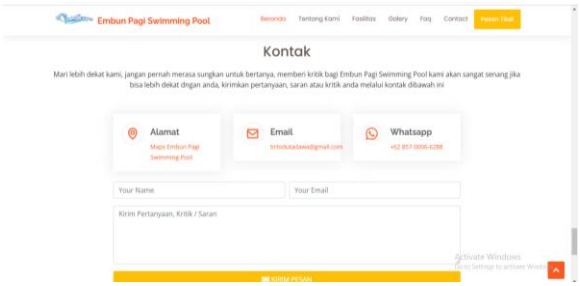

Figure 22. Contact

g. Ticket Booking Page
Here's what the ticket booking page looks like:

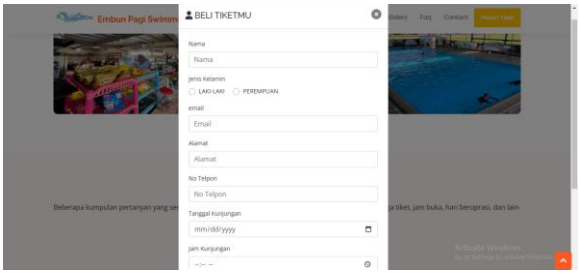

Figure 23. Book Tickets

5. CONCLUSIONS AND SUGGESTIONS

From the results of the implementation and trial of the research that has been conducted by the author, it can be concluded that the Online E-Ticket Booking Information System for Embun Pagi Swimming Pool has been successfully created using the PHP programming language and database processing using MySQL. The online ticket booking information system can help users in booking tickets online. In addition, the information system is useful for managers in terms of promotion to the wider community. In making this Online E-Ticket Booking Information System for Embun Pagi Swimming Pool, there are several shortcomings such as the features that have been provided are not complex enough, therefore further development is needed such as updating the appearance and features on the website so that the website can be used optimally.

REFERENCES

[1] Y. D. Wijaya and M. W. Astuti, "Sistem Informasi Penjualan Tiket Wisata Berbasis Web Menggunakan Metode Waterfall," *Semin. Nas. Teknol. Inf. dan Komun.*, p. 274, 2019.

[2] M. Bahtiar and B. S. Wicaksono, "Perancangan Sistem Informasi Pemesanan Tiket Online Wisata Camping Berbasis Android Dengan Metode Agile," *OKTAL J. Ilmu Komput. dan Sains*, vol. 2, no. 08, pp. 2316–2323, 2023.

[3] Andi Prayetno, Rachman Yulianto, and Rudi Hartono, "Sistem Informasi Pemesanan Tiket Wisata Alam Berbasis Website Di Taman Nasional Baluran Dengan Php & Mysql," *Jikom J. Inform. dan Komput.*, vol. 12, no. 1, pp. 1–9, 2022, doi: 10.55794/jikom.v12i1.59.

[4] I. R. M. Mukhlis and Alya Rizky Natasya, "Sistem Informasi Pemesanan Tiket Wisata Kota Surabaya Berbasis Web Menggunakan Metode Model View Controller," *Informatech J. Ilm. Inform. dan Komput.*, vol. 1, no. 1, pp. 1–9, 2024, doi: 10.69533/bfb9x126.

[5] R. Hutasoit and M. Silalahi, "Perancangan Sistem Informasi Penjualan Tiket Kolam Renang Yonif 136 Berbasis Website," *J. Comasie*, vol. 06, no. 04, pp. 134–140, 2022, [Online]. Available: https://forum.upbatam.ac.id/index.php/comasiejournal/article/view/5366

[6] A. Suparwo, R. Roisah, F. Fitriyani, and D. Rahmawati, "Perancangan Sistem Booking Kolam Renang Di Wilayah Bandung Timur Berbasis Web," *Jompa Abdi J. Pengabdi. Masy.*, vol. 1, no. 4, pp. 263–269, 2023, doi: 10.57218/jompaabdi.v1i4.557.

[7] A. G. Tindaon, R. Septiani, A. T. Manurung, and A. Desktop, "Perancangan Sistem Pemesanan Tiket Tempat Wisata Online Dengan Visual Basic . Net," vol. 2, no. 1, pp. 16–22, 2025.

[8] A. Mubarok and G. Z. Muflih, "IMPLEMENTASI WEBSITE SEBAGAI MEDIA DIGITAL MARKETING UNTUK MENINGKATKAN LOYALITAS PELANGGAN (STUDI KASUS : KNALPOT SAEMUFFLER)," vol. 9, no. 1, pp. 15–23, 2025.

[9] A. R. Faqih and A. A. Widya, "Implementasi Aplikasi E-Ticket pada Bumdes Desa Sumbermulyo Kec. Jogoroto Kab. Jombang sebagai Solusi Digitalisasi Pengelolaan Tiket," *J. Sist. Informasi, Tek. Inform. dan Teknol. Pendidik.*, vol. 2, no. 2, pp. 49–54, 2023, doi: 10.55338/justikpen.v2i2.30.

[10] K. Nova, E. Ariadi, G. Ngurah, M. Nata, and I. K. P. Suniantara, "Sistem Informasi Pemesanan Tiket Masuk pada Objek Wisata Wanagiri Heaven Berbasis Website," vol. 1, no. 3, pp. 275–280, 2024.