BAB I INTRODUCTION

1.1. Background

Technological developments in the era of Industry 4.0 have driven significant progress in various sectors of life, including education, economics, and especially health. Currently, the world of health continues to develop rapidly, both in developed and developing countries. Clinics, as one of the health service units, play an important role in providing services to the community. As science and technology (S&T) in the healthcare field continue to advance, healthcare providers are required to deliver effective and efficient services to achieve optimal service quality. One form of technology utilization in the healthcare sector is the use of website-based electronic information systems.[1]

Clinics are one of the health institutions that people choose for initial examinations and treatment. Clinics play an important role, especially in providing fast, affordable, and easily accessible medical services to the community. The types of services they offer also vary, ranging from treating minor injuries to general health checkups. As people become more aware of the importance of health, many clinics now focus not only on medical treatment but also on beauty services.

Although it has distinctive features in the field of health and beauty, this clinic certainly has several obstacles, one of which is offline[2] patient data management, sorting patients, searching for patients, and also the obstacle of the patient consultation system, which must be done via WhatsApp chat. This has several impacts, namely long queues just for registration.

Several clinics in Indonesia continue to strive to advance services in the fields of health and beauty. One of them is Weiku Clinic, which is known for providing attractive, fast, and reliable services. This clinic also has many testimonials from its patients, most of whom give positive impressions and support the quality of services provided. This shows that Weiku Clinic is able to build public trust through professional and satisfying services. One of the key strengths of Weiku Clinic lies in its acupuncture services. In today's world, acupuncture has become a popular choice

[1] Agung Suryadi, Yunita Wisda Tumarta Arif, and Nur Syahbani Novitasari, 'Rancang Bangun Sistem Informasi Rekam Medis Klinik Rawat Jalan Berbasis Web', *Infokes: Jurnal Ilmiah Rekam Medis Dan Informatika Kesehatan*, 12.1 (2022), 37–43 <https://doi.org/10.47701/infokes.v12i1.1498>.

[2] Muhammad Yusuf Saputra, Adam Hendra Brata, and Faizatul Amalia, 'Pengembangan Sistem Informasi Manajemen Klinik Berbasis Web (Studi Kasus: Klinik Ortho Dental Malang)', *Jurnal Pengembangan Teknologi Informasi Dan Ilmu Komputer*, 7.2 (2023), 892–99 <http://j-ptiik.ub.ac.id>.

for enhancing facial beauty, particularly among women. Beyond its aesthetic benefits, acupuncture also serves therapeutic and wellness purposes. The combination of medical and beauty services sets Weiku Clinic apart from other clinics, giving it a unique appeal.

However, with the increasing complexity of the services offered and the high number of patients coming in, an effective and efficient data management system is needed to support clinic operations. Manual systems have the potential to cause various problems, such as delays in service, recording errors, and even loss of patient data. Therefore, the development of a technology-based information system is essential to support real-time patient data and service management. The use of a website-based information system is one of the solutions being implemented.

This study provides solutions to the shortcomings that occur at the Weiku Clinic. The solutions that have been researched are online registration and real-time chat consultations with doctors. With these features, the clinic will find it easier to handle patients who want to register and consult. In this information system, the researcher uses three access rights that will be granted to patients, staff, and doctors. Each of these three user groups has different features and distinct roles in the system's operation.

In the context of maqasid syariah. This information system is primarily focused on the principle of ḥifẓ al-nafs (preserving life). This principle emphasizes efforts to protect human safety and health, both physically and non-physically. With a website-based system that simplifies patient registration, minimizes the risk of data loss, and enables quick direct consultations with medical staff, healthcare processes can be carried out more efficiently and on time. This supports the creation of faster, more accurate, and reliable access to healthcare services, thereby minimizing the potential risks of delayed treatment or misinformation that could endanger patients' lives. The implementation of this technology not only improves the quality of service but also serves as an effort to protect and preserve life in accordance with the primary objectives of Islamic law.

In developing information systems, it is essential to have a method for creating a framework that suits the developer's needs. The method used in this study is the waterfall model, one of the SDLC models often used in software system development, from the planning stage to the management stage.[3]

[3] A. A. Wahid, '"Analisis Metode Waterfall Untuk Pengembangan Sistem Informasi," ', *Jurnal Ilmu-Ilmu Informatika Dan Manajemen STMIK*, 1.October (2020).

In this study, we developed using the MERN (MongoDB, ExpressJS, ReactJS, NodeJS) programming style. MongoDB serves as the database foundation we use, leveraging flexible documents that eliminate the need for fixed table structures, thereby simplifying table structure creation and offering high scalability—features that strongly support this research. MongoDB itself is one of the NoSQL database types, meaning it uses an alternative data model besides tabular[4] structures and integrates with the server-side runtime environment via Node.js, making data management more efficient and asynchronous[5]. Additionally, using ExpressJS as the backend framework makes the system lighter and more flexible, and simplifies API development.

By using ReactJS, the performance of the display on this information system will certainly be more attractive and pleasing to the eye, providing more dynamic, interactive, and modern development. Of course, the design will always be responsive and the components will be well organized. ReactJS is a JavaScript library used to create reusable segments (UI). Respond essentially empowers large and complex electronic applications that can change their information without refreshing the page[6].

1.2. Problem Fomulation

The problem encountered is that it is difficult for patients to know their place in the registration queue when they are seeking treatment, due to the lack of a clear information system in the registration process. This can cause patients to wait in uncertainty or even constantly ask staff about the situation. This can cause discomfort, especially when the waiting room is full.

1.3. Batasan Masalah

In solving this problem, there are limitations that need to be considered in order to focus more on our main problem area and achieve the desired targets. The limitations are as follows:

[4] Renaldi Renaldi and others, 'Tinjauan Pustaka Sistematis Terhadap Basis Data MongoDB', *Jurnal Inovasi Informatika*, 5.2 (2020), 132–42 <https://doi.org/10.51170/jii.v5i2.79>.
[5] Ghufron Faqih Sucipto and Aries Soeharso, 'Pengembangan Aplikasi E-Learning Sukabaca Menggunakan Framework Express.Js Dan MongoDB', *Jurnal Pendidikan Tambusai*, 7.2 (2023), 18757–66.
[6] Archana Bhalla, Shivangi Garg, and Priyangi Singh, 'Present Day Web-Development Using ReactJS', *International Research Journal of Engineering and Technology (IRJET)*, 7.5 (2020), 1154–57 <https://www.irjet.net/archives/V7/i5/IRJET-V7I5223.pdf>.

- Limitations on website features

On this website, we use the most frequently used features that have the greatest impact on the clinic, including: real-time chat, online registration, profiles, and website theme changers. Each of these features has its own advantages.Batasan dalam penggunaan *framework*

In this research, we used Reactjs as the framework for creating the user interface (UI), and we also used NodeJs and expressJS for the server side.

- User scope restrictions

For limitations, we only provide admin users and one user. The admin is the nurse herself, and the user is the patient who will consult through this website.

1.4. Tujuan Penelitian

Based on the above problem statement, it can be concluded that the purpose of this research is to develop a website-based clinical information system for real-time patient data management and consultation at the Weiku Care Clinic.

1.5. Research Usefulness

The benefits expected by the author from this research are as follows:

Benefits for other researchers

- This research can serve as a basis or reference for the development of information systems in other areas of health.
- This study enriches the literature related to the development of website-based systems, particularly in clinic management.

Benefits for patients

- Patients can easily find out the clinic schedule, thereby reducing unnecessary waiting time.

Benefits for the general public

- With the digitization of clinics, people can enjoy more modern and efficient healthcare services.

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Benefits for Weiku clinics

- The system helps clinics manage patient data, doctor schedules, and consultations automatically, thereby reducing the workload of administrative staff.
- Reducing the use of physical documents for patient records and consultations, making it more environmentally friendly and efficient.