Indonesian Journal of Applied Technology, Computer and Science
Vol. 2, No. 1, Feb 2025, pp. 25-30
ISSN: 3063-8305

Implementation of System Development Life Cycle (SDLC) in Online Hospital Patient Registration System Based on Website

Rico Wijaya Dewantoro[1], Putri Rizki Syafrayani[2], Suci Khairani[3]
[1]Department of InformationTechnology, Universitas Prima Indonesia, Indonesia
[2]English Applied Linguistics Postgraduate Program, Universitas Negeri Medan, Indonesia
[3]Master of Accounting, Universitas Muhammadiyah Sumatera Utara, Indonesia

ABSTRACT

The online patient registration system in hospitals is an innovative solution that allows patients to register independently and obtain a queue number without having to visit the hospital directly. The purpose of this study is to analyze the advantages and challenges associated with the implementation of an online registration system in hospitals. This study aims to analyze the implementation of the software development life cycle (SDLC) on the online patient registration system in hospitals. The research method used is a case study in a hospital that has implemented an online patient registration system. This study evaluates the implementation of the SDLC from the planning stage to testing and implementation. The results of the study indicate that the implementation of the SDLC on the online patient registration system in hospitals can improve the efficiency and quality of health services and provide benefits to patients.

Keyword : Registration Information System, SDLC, Patient, Health

Corresponding Author:
Rico Wijaya Dewantoro,
Department of Information Technology
Universitas Prima Indonesia
Jl. Sampul Medan, 20118, Indonesia
Email : rico@unprimdn.ac.id

Article history:
Received April, 2024
Revised April, 2024
Accepted Mei, 2024

1. INTRODUCTION

The queue system in a hospital is one example of an information system that can be developed using the System Development Life Cycle (SDLC) methodology. The System Development Life Cycle (SDLC) is a classic model that is systematic and sequential in building software (Sari, et all 2022). The main function of SDLC is to accommodate user needs related to the system to be developed. System development needs can be in the form of changes or the creation of new applications, either modularly or with a new installation process (Mahardika, et all 2024). In today's digital era, the queue system in hospitals can be implemented electronically using sophisticated information technology. The electronic queue system can help overcome the problem of long queues in hospitals and make it easier for patients to obtain health services.

The development of a queue system in a hospital using SDLC allows system developers to design a system that suits the needs of the hospital business and minimizes the risk of errors and high costs. Queues arise because the need for services exceeds the capacity of the service or service facilities, so that users of the facility who arrive cannot immediately get service due to the busy service (Mahardika., F, et all. 2024). The SDLC planning stage can help to identify the needs and objectives of the queue system to be built, while the analysis stage can help to gather information about current problems and understand user needs.

If we look further, waiting time turns out to be one of the benchmarks of patient satisfaction with a hospital. As stated by Pohan (2007), waiting time is one of eleven aspects that affect patient satisfaction. Because it is not only the patient's recovery that is assessed but the overall service is also important.

Other studies also confirm that waiting time does have an effect on patient satisfaction in clinics and hospitals. Esti, Puspita and Rusmawati (2015) stated that waiting time up to the time of completion (examination) which is short will increase the satisfaction of the patients being served. Even so, the level of satisfaction increases significantly to reach the category of very satisfied.

In Indonesia, health services are one of the most important things and require special attention from the government and society. The large number of people who need health services has implications for the increasing number of patients who come to the hospital every day. In this case, the queue system is very important to maintain order and ensure that each patient receives health services quickly and efficiently.

However, in reality, often the queue system in hospitals still uses manual or conventional methods, such as using paper or queue numbers, which are prone to errors or complexity. This can cause long queues and long waiting times for patients, as well as difficulties in managing data and information related to queues.

Therefore, a more modern and effective electronic queue system is needed to facilitate the management of patient queues in hospitals. This electronic queue system can help reduce patient waiting time, optimize medical staff working time, and increase patient satisfaction with hospital services.

In this case, the development of a hospital queuing system using the SDLC methodology can help optimize the function of the queuing system and minimize the risk of errors and high costs. Thus, the use of an effective and efficient queuing system can help improve the quality of health services in hospitals and provide great benefits to the community.

2. RESEARCH METHOD/MATERIAL AND METHOD/LETERATURE REVIEW

A. System Analysis

The system development stage is carried out by implementing the steps contained in the System Development Life Cycle (SDLC). These stages include [7]=4:

a. System Analysis, is the process of analyzing and defining problems and possible solutions for organizational systems and processes.
b. System Design, includes the process of designing output, input, file structure, programs, procedures, hardware and software needed to support the system.
c. System Development and Testing, building the software needed to support the system and conducting accurate testing. Installing and testing hardware and operating software
d. System Implementation, is the transition stage from the old system to the new system, conducting training and guidance as needed.
e. Operation and Maintenance, is the stage carried out to support information system operations and make changes or additional facilities.
f. System Evaluation, evaluating the extent to which the system has been built and how well the system has been operated.

This study aims to analyze the implementation of the software development life cycle (SDLC) on the online patient registration system in a hospital. The research method used is a case study in a hospital that has implemented an online patient registration system. This study evaluates the implementation of SDLC from the planning stage to testing and implementation. The results of the study indicate that the implementation of SDLC on the online patient registration system in the hospital can improve the efficiency and quality of health services and provide benefits to patients. However, there are still some challenges, such as the need to follow applicable rules and regulations and data security risks. Therefore, it is recommended that hospitals pay attention to these factors and ensure that the implementation of SDLC is carried out correctly and on time. In conclusion, the implementation of SDLC on the online patient registration system in the hospital is an important process and needs to be managed carefully to ensure the success and security of the system.

Based on information obtained from online news, it is known that the queue system is bad in almost all hospitals or health centers. Quoted from the old online source Detik Health, BPJS Kesehatan President Director Ali Ghufron Mukti said that although there are still many obstacles in the field, namely "The most complaints (of BPJS Kesehatan participants) are feeling neglected. Then, the long queue can be 5-6 hours. That's what often comes in," he said (Sari, et all. 2023).

3. RESULTS AND DISCUSSION

In developing this system, there are several problems and important factors that need to be considered. The factors that will be analyzed are regarding the problem of how a patient obtains up-to-date information about the doctors available on that day, obtains satisfactory service and obtains fast, precise

and accurate process services. The results of this analysis will be used as a reference in developing a website-based online hospital registration service system.

Based on the design carried out in this study, the results obtained are in the form of an online patient registration application. The application produced in this study was built using the PHP, HTML, CSS programming languages and MySQL database. The following is the output of the resulting application.

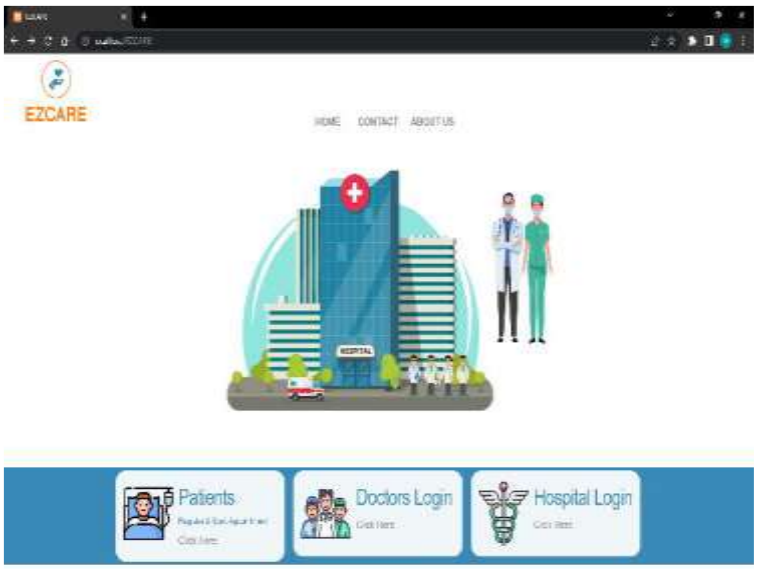

Fig 1. Home Page View

The index page is the page when the user accesses the system. On this page there are several menus, namely home, login, registration, and online registration. Patients and doctors can register into the system through the index page by selecting the registration menu. The appearance of the registration page is presented in Figure 2.

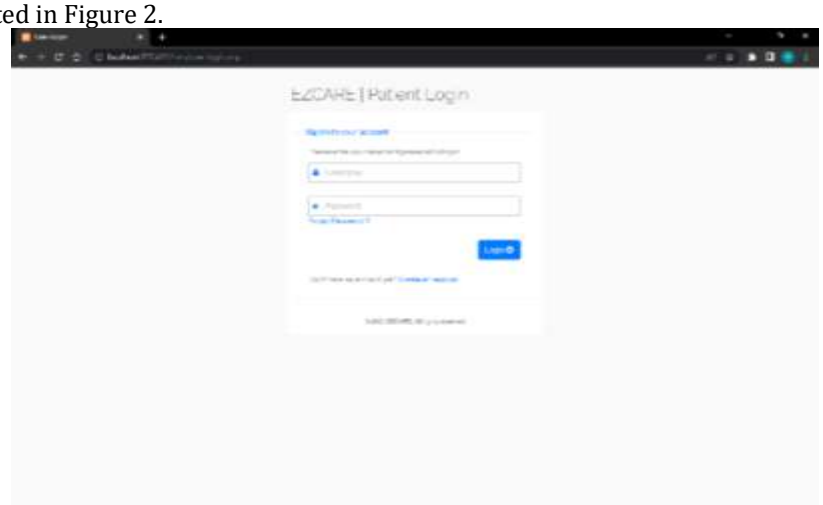

Fig 2. Patient Login View

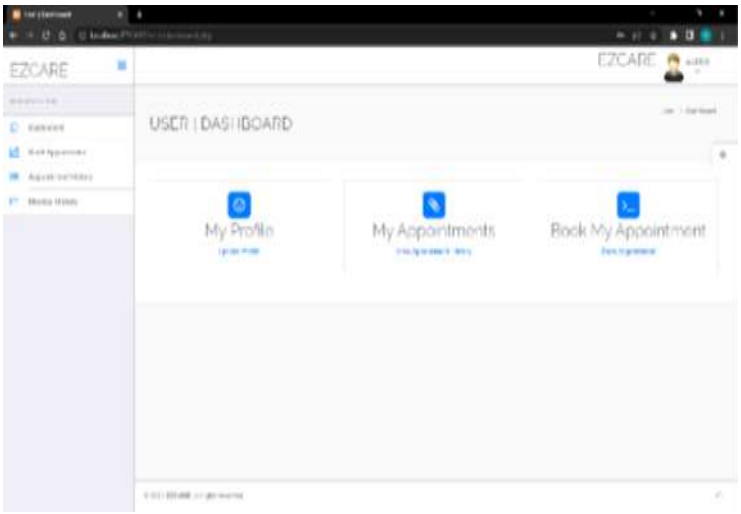

Fig 3. Dashboard View

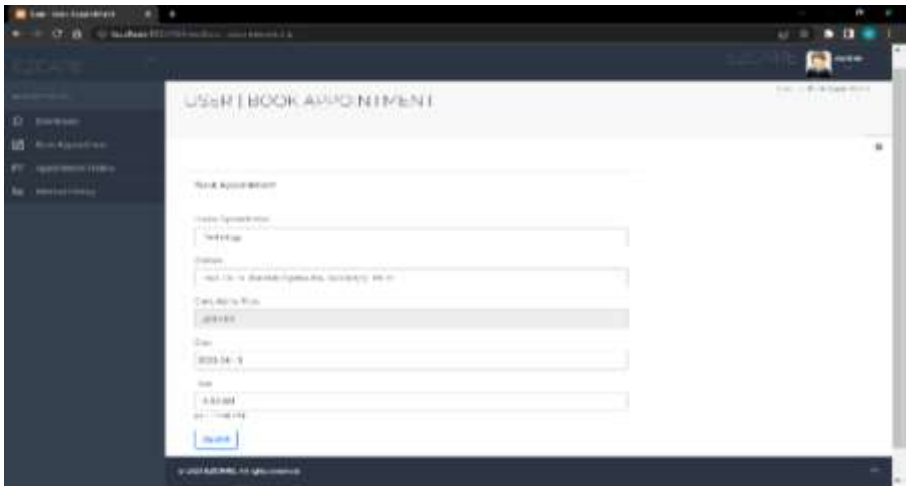

Fig 4. Patient Appointment Page

Figure 4 is the patient appointment page. This page is used to store information related to the patient's appointment schedule with the doctor. The appointment approval/validation is carried out by the doctor concerned according to the scheduling made by the patient. The doctor's appointment page is presented in Figure 5.

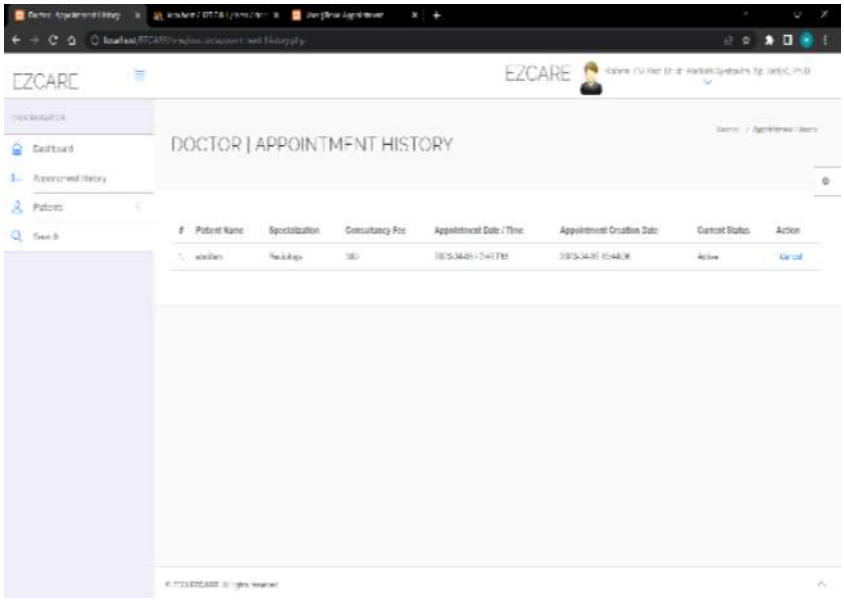

Fig 5. Appointment History Page for Doctors

On this page, doctors can see who their patients are and the time they are listed on the patient's list. If the doctor is unable to attend, the doctor can cancel the appointment with the patient.

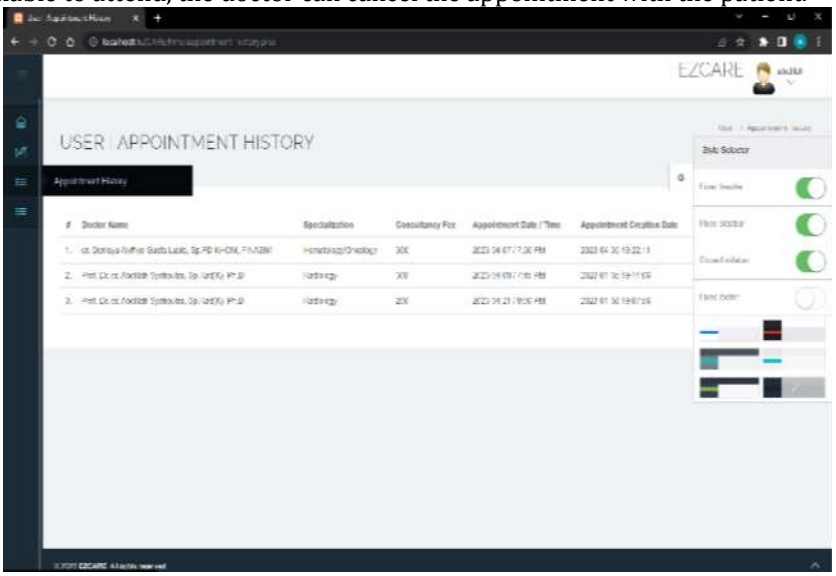

Fig 6. Appointment History Page on Admin

Testing of the application is done by conducting process testing and system face-to-face. Process testing is done by running each process provided in the system to ensure that there are no errors in both the data process and the calculation of each treatment cost charged to the patient. Based on the results of the testing carried out, the system has been able to run well and there are no errors in each data process.

4. CONCLUSION

Online registration systems can be an effective solution to improve the efficiency and quality of healthcare services in hospitals, especially during the COVID-19 pandemic. However, it is also necessary to pay attention to the potential risks and challenges that must be overcome to ensure the safety and success of this system. Second, this system can improve the efficiency of hospital services because it can reduce patient waiting time at the registration counter. Third, online registration systems can provide convenience for patients who have difficulty communicating or have limited mobility. Based on real-life cases, of what hospitals have achieved with patient journey management systems.

REFERENCES

Mahardika., F, & Azizah., N. (2024). Designing A Dealer Service Management Information System Motorcycle with Unified Modeling Language (UML) Method. Hanif Journal of Information Systems 2 (1), 1-10

Sari., I.P, Batubara., I.P, Al-Khowarizmi., A, & PP Hariani. (2022). Perancangan Sistem Informasi Pengelolaan Arsip Digital Berbasis Web untuk Mengatur Sistem Kearsipan di SMK Tri Karya. Wahana Jurnal Pengabdian kepada Masyarakat 1 (1), 18-24

Jannah., A, Meuraxa., A.M, & Azzahrah., A. (2023). Web Based E-Commerce System Design at EXO Shop Using Th Waterfall Method. Hanif Journal of Information Systems 1 (1), 1-5

Sari., I.P, A Syahputra, N Zaky, RU Sibuea, & Z Zakhir. (2022). Perancangan sistem aplikasi penjualan dan layanan jasa laundry sepatu berbasis website. Blend sains jurnal teknik 1 (1), 31-37

Hariani.,P.P, Sari.,I.P, & Batubara., I.H. (2021). Implementasi e-Financial Report BUMDes. IHSAN: JURNAL PENGABDIAN MASYARAKAT 3 (2), 169-177

Habibi., F, Qathrunada., I.F, & Anggraini, T. (2023). Design and Build a Tourism Website Using Shopify Framework. Hanif Journal of Information Systems 1 (1), 11-17

Sari., I.P, A Azzahrah, FQ Isnaini, L Nurkumala, & A Thamita. (2022). Perancangan sistem absensi pegawai kantoran secara online pada website berbasis HTML dan CSS. Blend sains jurnal teknik 1 (1), 8-15

Maniah dan Dini Hamidin. 2017. Analisis dan Perancangan Sistem Informasi. Yogyakarta: Deepublish.

Sari.,I.P, & Ramadhani., F. (2021). Pengaruh Teknologi Informasi Terhadap Kewirausahaan Pada Aplikasi Perancangan Jual Beli Jamu Berbasis WEB. Prosiding Seminar Nasional Kewirausahaan 2 (1), 874-878.

Ichsan., A, Al-Khowarizmi., A, & Azhari., M. (2024). Implementation of The Sales and Purchase Program Application Using the Rapid Application Development Model Web Based. Tsabit Journal of Computer Science1 (1), 27-34

Sari., I.P, A Jannah, AM Meuraxa, A Syahfitri, & R Omar. (2022). Perancangan Sistem Informasi Penginputan Database Mahasiswa Berbasis Web. Hello World Jurnal Ilmu Komputer 1 (2), 106-110.

Maulani, Giandari., Septiani, D., dan Sahara, P. N. F. 2018.Rancang Bangun Sistem Informasi Inventory Fasilitas Maintenance Pada Pt. Pln (Persero) Tangerang. ICIT Journal. 4(2).

Sari., I.P, & Batubara., I.H. (2021). Perancangan Sistem Informasi Laporan Keuangan Pada Apotek Menggunakan Algoritma K-NN. Seminar Nasional Teknologi Edukasi dan Humaniora (SiNTESa) 1 (2021 - ke 1

Ramadhani., F, A Satria, & Sari., I.P. (2022). Aplikasi Internet Berbasis Website sebagai E-Commerce Penjualan Komponen Sport Car. Blend Sains Jurnal Teknik 1 (2), 69-75

Sari., I.P, & Batubara., I.H. (2021). User Interface Information System for Using Account Services (Joint Account) WEB-Based. International Journal of Economic, Technology and Social Sciences (Injects), 462-469

Sari., I.P, Al-Khowarizmi., A, & Batubara., I.H. (2021). Implementasi Aplikasi Mobile Learning Sistem Manajemen Soal dan Ujian Berbasis Web Pada Platform Android. IHSAN: JURNAL PENGABDIAN MASYARAKAT 3 (2), 178-183

Ramadhani., F, & Sari., I.P. (2021). Pemanfaatan Aplikasi Online dalam Digitalisasi Pasar Tradisional di Medan. Prosiding Seminar Nasional Kewirausahaan 2 (1), 806-811

Sari., I.P, Batubara., I.H, & M Basri. (2022). Implementasi Internet of Things Berbasis Website dalam Pemesanan Jasa Rumah Service Teknisi Komputer dan Jaringan Komputer. Blend Sains Jurnal Teknik 1 (2), 157-163

PP Hariani, Sari., I.P, & Batubara., I.H. (2021). Android-Based Financial Statement Presentation Model. JURNAL TARBIYAH 28 (2), 1-16

Ramadhani., F, Sari., I.P, & Satria., A. (2024). Perancangan UI/UX Surat Keterangan Waris dalam Pengembalian Dana Haji Berbasis Web. Blend Sains Jurnal Teknik 2 (3), 198-203.

Sari., I.P, Sulaiman., O.K, Ramadhani., F, & Satria., A. (2023). Perancangan Sistem Manajemen Surat Berbasis Web Pada Kantor Camat Tano Tombangan Angkola. INCODING: Journal of Informatics and Computer Science Engineering 3 (2), 61-76.

Sari., I.P, Al-Khowarizmi., A, , Jannah., A, Meuraxa., A.M, & Tanjung., M.I. (2023). Web-Based Offline Game Suit Design: A Model Overview. Journal of Computer Science, Information Technology and Telecommunication Engineering 4 (2), 389-394.

Sari., I.P, Sulaiman., O.K, Al-Khowarizmi., A, & Azhari., M. (2023). Perancangan Sistem Informasi Pelayanan Masyarakat pada Kelurahan Sipagimbar dengan Metode Prototype Berbasis Web. Blend Sains Jurnal Teknik 2 (2), 125-134.