



Design and Development of An Information System for Indemnity Claim Box Recapitulation Using SDLC Method at Mandiri Inhealth Insurance

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Received: 10 December 2023; Accepted: 17 December 2023; Published: 30 December 2023.

Abstract: The recapitulation of indemnity claim box system is an ongoing procedural development activity aimed at producing a new system. This activity is undertaken once the system analysis phase has been completed. Based on the results of the current system analysis discussed in the previous section, this paper presents the outcomes of the new system. The performance of the new system is expected to address several issues related to claim data recapitulation. The design of the Indemnity Claim Box Recapitulation system can be applied to reduce the potential for missing documents, simplify reporting, and ensure easy, fast, and accurate access. Implementation testing can assist users and leaders in the claim data recapitulation process.

Keywords: Information System; Insurance; SDLC; Claim; Recapitulation Box.

1. Introduction

In today's information-driven world, technology plays an indispensable role, offering significant benefits to institutions and organizations. The demand for information, especially accurate and rapid information, is ever-increasing. Technological advancements, such as smartphones and the internet, have revolutionized communication methods. Various media for communication have emerged, making interaction more convenient. With the rapid progress in technology, the internet has become a necessity for society, serving as a medium for expressing ideas and meeting diverse needs [1]. The process of claim recapitulation often involves a lengthy data recording procedure, as insurance companies typically verify data for audit purposes. Manual recapitulation processes are time-consuming and can be challenging to identify, especially when searching for past claims. The manual data entry process usually involves both hardcopy and softcopy documents, leading to a buildup of documents. Swift document retrieval is crucial because any delay in processing claims, as per the Service Level Agreement (SLA), can adversely affect the administrative workload [2].

To address these challenges, insurance companies require a system that can support these activities. Currently, Mandiri Inhealth Insurance still relies on manual data entry processes, which may diminish the quality of service provided to policyholders. In order to minimize errors and expedite data verification for reporting, implementing a system would not only lead to quicker and more accurate data retrieval but also provide a wealth of data that can be effectively managed.

This data can further serve as an evaluation tool for the company to enhance its overall value [2]. As information technology continues to advance and evolve, its impact on daily life and the workplace is undeniable. Information technology has become an integral part of daily life and a critical tool for businesses and organizations. In this context, companies and organizations increasingly benefit from the use of information technology systems, which significantly aid in their operations. The claim recapitulation system is designed to integrate all claim data systems, reflecting the influence of information technology in driving change and efficiency within an organization.

2. Research Method

The system development method involves applying a systemic approach to develop and use computer-based systems. The current system development process is divided into six stages:

1) System Planning

At this stage, a broad strategic working structure is formed, outlining a clear vision of the new information system that will meet user needs. The system project is evaluated and prioritized, with the highest-priority projects selected for development. New resources are planned and allocated to support system development. Technical aspects (infrastructure required for system development), economic aspects (budget required for system development), and human resources aspects (who will develop the system; top management, analysts, and programmers) are all planned.

2) System Analysis

During this stage, an assessment of system components and their interrelationships in system development is conducted. Problem definition, objectives, needs, priorities, and system constraints are identified, along with cost-benefit analysis. The scope of system analysis is determined at this stage. System professionals interview potential users and work with them to find solutions and determine user needs. Additionally, analysts assess system feasibility from economic, technical, and human resource perspectives, in alignment with the system's goals.

3) General/Conceptual System Planning

In this phase, alternative conceptual designs are created to expand the user requirements view (based on age, status, profession, user gender). Alternative conceptual designs allow managers and users to select the best design that suits their needs. During this stage, system analysts begin designing processes by identifying the reports and outputs that the proposed system will produce. The system's interface design, user rights and authorizations, system content, and how the system will function are conceptualized.

4) System Evaluation and Selection

At this stage, the quality of the system and the cost-benefit analysis of the system project are carefully assessed and detailed in an evaluation and system selection report. The final stage of system design provides a key point for investment decisions. Evaluation is conducted not only at this stage but also at each stage of the SDLC. All aspects of the system, technical, economic, feasibility testing, are evaluated.

5) System Design

During this stage, specifications for the design based on the conceptual model are provided. All components are designed and detailed. Output planning (layout) is designed for all screens, specific forms, and printed reports. All outputs are reviewed and approved by users and documented. At the end of this stage, a detailed system design report is produced. This stage transforms the conceptually shaped system into a detailed design. Who are the users, what are their rights and authorizations? All requirements collected are arranged one by one. All components, including management, analysts, and programmers, work together to realize the concept.

6) System Implementation and Maintenance

At this stage, the system is ready to be built and installed, and several tasks need to be coordinated and executed for the implementation of the new system. The implementation report created at this stage consists of two parts: the implementation plan in the form of a Gantt Chart or a program, and project scheduling and management techniques such as the Program Evaluation Review Technique (PERT) chart. Evaluation is required at this stage to assess the extent to which the system development has succeeded. If there are still shortcomings, improvements will be made until the system operates as planned. After that, the system will be installed and maintained to ensure optimal performance. It's important to note that the development process does not stop at the implementation stage but goes back to the initial stage, where a new system is planned to improve the old system.

3. Result and Discussion

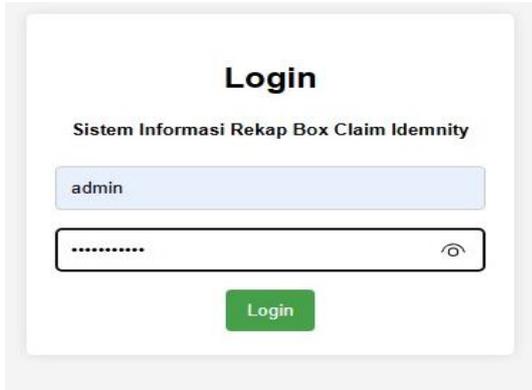
3.1 Results

3.1.1 Implementation Results of the Indemnity Claim Box Recapitulation System

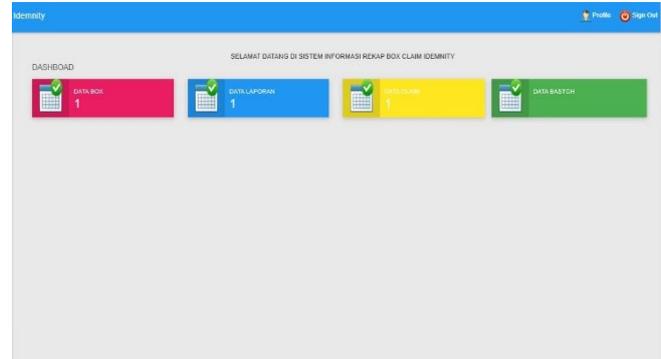
The indemnity claim box recapitulation system is an ongoing procedure development activity aimed at creating a new system. This activity is carried out once the system analysis phase has been completed. Based on the results of the system

analysis discussed in the previous section, the author will present the outcomes of the new system, with the expectation that the performance of the new system will address several issues related to claim data recapitulation. This application will facilitate user and leader interaction in the process of recapitulating box claim indemnity data.

3.1.2 User Interface



(a) Login Page Web Interface



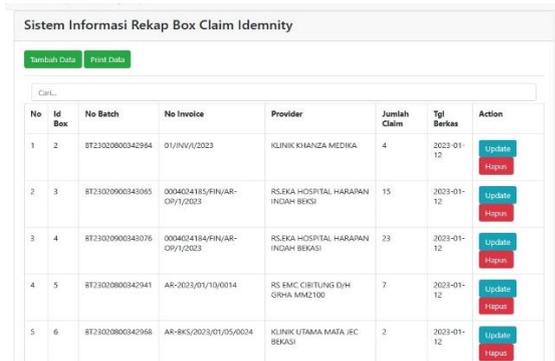
(b) Main Page Interface of the Implementation of the Indemnity Claim Box Recapitulation System



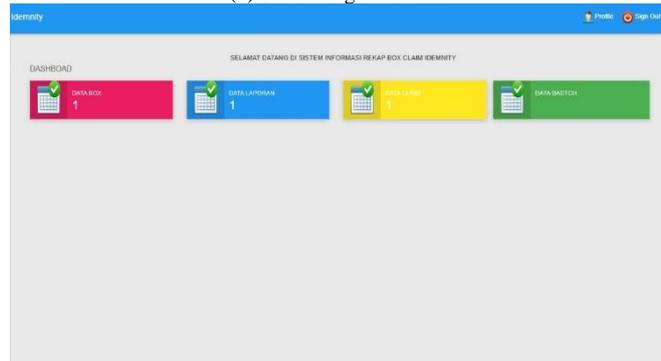
(c) Page Interface for Managing Indemnity Claim Box Recapitulation Data

No	Id Box	No Batch	No Invoice	Provider	Jumlah Claim	Tgl Berkas	Action
1	2	BT23020800342964	01/INV/2023	KLINIK KHANZA MEDIKA	4	2023-01-12	Update Hapus
2	3	BT23020900343065	0004024185/FIN/AR-OP/1/2023	RS.EKA HOSPITAL HARAPAN INDAH BEKASI	15	2023-01-12	Update Hapus
3	4	BT23020900343076	0004024184/FIN/AR-OP/1/2023	RS.EKA HOSPITAL HARAPAN INDAH BEKASI	23	2023-01-12	Update Hapus
4	5	BT23020800342941	AR-2023/01/10/0014	RS EMC CIBITUNG DIH GUNAM MMS100	7	2023-01-12	Update Hapus
5	6	BT23020800342968	AR-BKS/2023/01/05/0024	KLINIK UTAMA MATA JEC BEKASI	2	2023-01-12	Update Hapus

(d) Search Page Interface



(e) Report Page Interface



(f) Logout Page Interface

Figure 1. User Interface

The login menu in this system serves user data validation. Before accessing the main menu, users must input their username and password. After clicking the "Login" button, the application checks the database with the user's login data. If the input data is correct, it will proceed to the main menu. The login menu interface can be seen in the following figure 1.a. The main menu can be accessed if the access in the login menu is deemed valid. In this main menu, users can view the homepage and several other menus in the application. Below is the interface for the main menu of the created application (Figure 1.b) In this main menu, users can view Claim data as a reference for data recapitulation in the application. Below is the interface for the student data menu in the created application (Figure 1.c) This page's interface is where users can view the data box as a reference for searching the required data. Below is the interface for the learning menu in the created application (Figure 1.d Search Page Interface). This page's interface is where users can view report data. Below is the interface for the report content menu in the created application (Figure 1.e). This page's interface is where users can log out, serving as a reference data used in the application. Below is the interface for the logout menu in the created application (Figure 1.f Logout Page Interface).

3.3 System Testing

Testing plays a pivotal role in the software development life cycle, ensuring that the software maintains high-quality standards and effectively translates every aspect of the system's implementation, from specifications and analysis to

design and coding. In this research, black-box testing methodology was employed, focusing primarily on assessing the software's functional compliance. The testing process was carried out on the application with an emphasis on evaluating the system's performance and adherence to expected functionality. Below are the testing results for the application:

Table 1. Testing Results

No	Scenario	Test Case	Expected Outcome	Actual Outcome	Conclusion
Login Testing Form					
1	Login Form Testing	Typing incorrect username and password	Username: Admin (Correct), Password: admin (Incorrect)	The application should reject login access and display an error page	The outcome did not meet expectations - Invalid Result
2	Login Form Testing	Typing correct username and password	Username: Admin (Correct), Password: Admin (Correct)	The application should accept login access and display the dashboard page	The outcome met expectations - Valid
Data Box Form Testing					
3	Data Box Form Testing	Clicking on the data box button	Click Data Box Button	The application should not display any data input results for the data box	The outcome met expectations - Valid
Search Form Testing					
4	Search Form Testing	Clicking on the search button	Click Search Button	The application should display search results	The outcome met expectations - Valid
Report Form Testing					
5	Clicking on the report button	Click Report Button	The application should display report results	The outcome did not meet expectations - Invalid Result	Clicking on the report button
Exit Testing					
6	Logout Testing	Clicking on the logout button	Click Logout Button	The application should not display any logout results	The outcome did not meet expectations - Invalid Result

Thorough testing is essential to ensure the software functions are as intended. Although some aspects of the application performed as expected, there were critical issues with report generation and logout functionality. These issues require further investigation and resolution to ensure software and user reliability.

3.2 Discussion

In the previous section, the researcher explained the user interface of the implemented Compensation Claim Box Recapitulation System. In this discussion, we will study the implications and importance of these interface components in the context of system functionality and usability. The login page functions as a gateway to the system, where the user must enter his credentials to access the application. A successful login process allows the user to proceed to the main menu. This authentication step is important for data security and privacy. Users with valid credentials are granted access, ensuring that sensitive information remains protected. After logging in, the user is directed to the main menu. Here, they have access to the app's important features and functions. The home page acts as a central hub, giving users an overview of their options and facilitating navigation. It is designed to enhance the user experience by offering clear and intuitive paths to various functions. Within the main menu, users can access the "Data Box" section. This interface allows users to manage and input data related to the recapitulation of compensation claim boxes. The absence of data entry at this stage is in line with the intended function of the system, as data entry usually occurs later in the process. These user interface elements lay the foundation for efficient data management. The search function is an important aspect of the system, allowing users to quickly retrieve specific data. The search interface provides an easy-to-use way to access information from the database. Its precise functionality ensures that users can find the data they need quickly, thereby contributing to the overall usability and efficiency of the system. The reports page is designed to generate and display relevant reports. However, based on the test results, there is a problem with this function. Addressing these issues is critical to ensuring that the system can provide accurate and timely reports to users. Reports play an important role in decision making and data analysis, so their function is important. The logout function allows users to exit the application safely. The absence of logout results in the testing phase indicates that this element requires attention and correction. Proper logout ensures that user sessions are terminated, increasing security, and preventing unauthorized access. Discussion of user interface elements highlights their significance in shaping the overall user experience and functionality of the Indemnity Claim Box Recapitulation System. Although some components function as expected, there are critical issues with report generation and logout. These issues need to be addressed to optimize the usability and reliability of the system, ultimately increasing its effectiveness in managing compensation claims data.

4. Related Work

This research study differentiates from previous research in several key aspects. Although many studies have investigated the development of customized information systems for various purposes, including educational and administrative functions, research conducted by Muyassar, Hadikristanto, and Fatchan (2022) stands out for its specific focus on web-based school information systems, exemplified by SDIT Azzahiriyah. In contrast to some previous research which may explore broader aspects of information systems, this research sharpens the importance of web-based platforms in the education sector [3]. Likewise, research conducted by Setiawan, Lina, and Parwatiningtyas (2020) on implementing an event administration information system for CRPG using Java, although relevant, does not directly overlap with the focus of this research. These recent studies highlight the role of technology in simplifying administrative tasks in organizations, but their scope and application differ [4]. Apart from that, Maryam (2019) research on the school fee management information system at SMK PGRI 11 Ciledug which uses an object-oriented methodology is distinctive in its emphasis on educational administration [5]. However, it addresses certain different administrative aspects of the web-based school information systems explored in this study. Sarmidi (2018) study which explores the development of a waste management information system at the Puspasari Waste Bank highlights the integration of information technology in environmental management [6]. Although the themes are both technology-driven, the domains and applications differ from the educational contexts that are the focus of the current research. Likewise, Susanto, Hamdani, and Tari (2020) explored a web-based school financial administration system at Al-Kahfi Vocational School showing the usefulness of web-based tools in financial processes in educational institutions [7]. However, the implementation and specific objectives are different from the web-based school information systems examined in this research. In addition, Hoiriyah and Raharjo (2020) research on a web-based school administration payment monitoring system for MTS Al Ikhwan Banjarmasin emphasizes the role of web-based solutions in increasing administrative efficiency. Although this study used a web-based approach, and its aims were different from the current study [8].

Furthermore, Exploration of machine learning and linear regression analysis of health insurance costs by Sholeh, Suraya, and Andayati (2022) using Python Jupyter Notebook offers a unique blend of data analysis and programming [9]. However, the subject matter and focus are different from the educational information systems domain. Likewise, research by Didik and Hadi (2019) on an academic information system with RFID and SMS Gateway integration at SMK Muhammadiyah 2 Boja represents the integration of innovative technology into academic management [10]. However, they retain academic administration, which deviates from the focus of current research. Research conducted by Rosa (2016) on structured and object-oriented software engineering methodologies contributes valuable insights to the field of software development. However, its scope differs from the specific domain of educational information systems [11]. In the field of population data management, the introduction of the Population Administration Information System (SIAK) by Fakrulloh and Wismulyani (2019) discusses population data management but is not directly in line with the educational context explored in this research [12]. Furthermore, Fathansyah (2016) emphasis on basic database knowledge provides important insights into information systems. However, it serves more as a basic reference and not as a comparative study of a similar nature [13]. The design of a web-based journal teaching information system in an academic context by Firman, Wulandari, and Irawan (2020) shows the versatility of information systems [14]. However, these studies differ in terms of their application and objectives. Additionally, Nugraha and Irawan (2023) comparative study on fraud detection in health insurance claims using Support Vector Machine (SVM) and Extreme Gradient Boosting (XGBoost) adds value to the growing field of data analysis [15]. However, it focuses on different domains and problem domains. Research by Saputro and Fatchan (2022) in developing a web-based Substation Equipment Information System underscores the practical application of web technology in managing equipment-related data [16]. However, the context and scope do not directly align with the educational domain explored in this research. The analysis and design of a financial administration information system for SMKS PGRI 1 Jambi City carried out by Lestari and Devitra (2019) offers valuable insights into financial management in educational institutions [17]. However, it addresses certain administrative aspects that are different from the web-based school information systems discussed here. Although each of the previous studies made significant contributions to the field of information systems, this study distinguishes itself by focusing on web-based school information systems, offering insight into their specific applications and significance in education.

5. Conclusion

This research focuses on the design and development of an Information System for Compensation Claim Box Recapitulation using the SDLC (Software Development Life Cycle) method at Mandiri Inhealth Insurance. The main objective of this research is to create a new system that overcomes problems related to claims data recapitulation, with the aim of reducing the potential for lost documents, simplifying reporting, and ensuring easy, fast, and accurate access to claims data. Key findings and results from this research include: 1) Development of a web-based system that makes it easier to recapitulate data on compensation claim boxes, 2) User-friendly interface with features like login validation, data box management, search function, report generation and logout capability, 3) Test results showing some issues with report generation and logout functionality, highlighting the need for further improvements and optimization in those areas.

This research follows the SDLC approach, which consists of six stages: system planning, system analysis, general/conceptual system planning, system evaluation and selection, system design, and system implementation and maintenance. The discussion section emphasizes the significance of user interface elements in shaping the overall user experience and system functionality. This underscores the importance of features such as login validation, data management, search, report generation, and logout in ensuring data security, usability, and efficiency. The related works section briefly mentions other research in the field of information systems, especially related to web-based systems in various domains. However, the emphasis is that this research is unique in its focus on web-based school information systems and applications specifically in the education sector. This research contributes to the development of an Information System for Recapitulation of Compensation Claim Boxes, with a focus on improving management and data access in the insurance industry. It also highlights the importance of user interface elements and the need for further refinement in certain areas for optimal system performance.

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