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Design and Development of a Web-Based Invitation and Gift Set Order Management Information System Using CodeIgniter 4 with the DevOps Method

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ABSTRACT
This study aims to design and build a website-based invitation and gift order management information system using the DevOps method as a software development approach. The system's main features include a client order form, a gift order form, and a client report management database. The implementation of the DevOps method enables a faster, more collaborative, and more predictable development cycle through the planning, coding, building, testing, release, deployment, operation, and monitoring phases. The result of this system design and development is a website that facilitates digital order entry, automatically presents client reports, and displays the company profile in a more professional manner. This system is expected to improve work efficiency and reduce errors in data processing.

Keywords : CodeIgniter; DevOps; Information System; Invitation Orders; Gift Sets.

INTRODUCTION

In this era of rapidly advancing globalization, the development of information technology has brought significant changes across various aspects of life, including social, economic, and organizational domains. Digital transformation has become an important indicator in improving work efficiency, business process effectiveness, and service quality in both the public and private sectors [1].

Advances in information technology enable faster, more accurate, and integrated processes of accessing, storing, processing, and disseminating information. This condition encourages organizations to adopt technology-based systems to support operational activities and decision-making processes. One of the most widely used information technology products today is the web [2].

The web not only functions as a medium for providing information but also serves as a platform for interaction, communication, and data management that can be easily accessed through internet networks. Through the utilization of web technology, organizations can enhance service flexibility, expand user reach, and develop information systems that are more effective and efficient [3].

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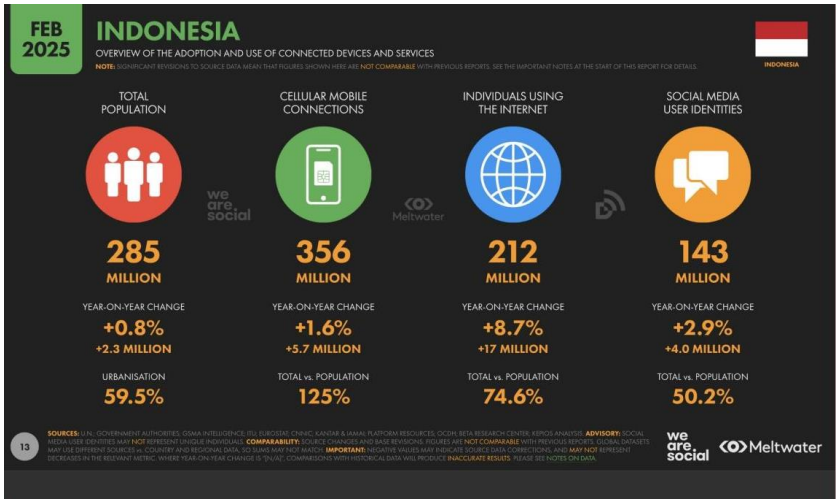

Figure 1. Trends in Internet and Social Media Usage in Indonesia in 2025
(*Source: We Are Social & Hootsuite, Digital Report Indonesia 2025*)

According to the Digital 2025 Indonesia report published by We Are Social and Hootsuite, the number of internet users in Indonesia has exceeded 220 million, representing approximately 78% of the total population. In addition, the number of connected mobile devices has surpassed 356 million, indicating that digital access has become an integral part of daily life. Active social media users also increased to more than 285 million individuals in 2025. These data indicate that Indonesian society is highly familiar with and reliant on digital services.

PT Karya Cita Corellia is a company engaged in the provision of gift sets (seserahan) and invitation services, including both physical and digital invitations. Along with the increasing demands of clients, the company requires an information system capable of facilitating business activities, particularly in managing order forms for invitations and gift packages.

The manual system currently implemented still presents several challenges. Previously, Corellia relied on Google Forms for clients to submit order details, after which administrators were required to manually copy and paste the data into Excel files. This process is not only time-consuming but also increases the risk of data entry errors. Furthermore, data related to gift packages are still manually recorded on printed Excel sheets, resulting in difficulties in tracking, recapitulating, and storing data over long periods [4].

Moreover, the manual system leads to delays in order preparation, inaccuracies in recording complete client information, and difficulties in organizing and maintaining a client database. These conditions reduce work efficiency, slow down service delivery, and ultimately affect the quality of services provided to clients [1]. To address these issues, an integrated and easily accessible web-based information system is required. The DevOps method is applied in the system development process as it enables faster development cycles, improves coordination between development and operations teams, and supports continuous system improvement. With the implementation of this system, it is expected to enhance data management orderliness and improve the accuracy of client database reports [5].

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METHOD

This study employs a Research and Development (R&D) approach by applying the DevOps method in the development of a web-based information system. This method is selected because it is able to integrate development and operational processes in a continuous manner, enabling the system to be developed rapidly, adaptively, and in accordance with user requirements. The system development stages include planning (plan), coding (code), system building (build), testing (test), releasing (release), deployment (deploy), operation (operate), and monitoring (monitor). During the planning stage, an analysis of functional and non-functional requirements is conducted, such as order management, client data recording, access security, and ease of use.

The system is developed using PHP as the main programming language with the CodeIgniter framework, HTML, CSS, and JavaScript for the user interface, and MySQL as the database management system, which is operated through XAMPP. System design is modeled using Unified Modeling Language (UML) to represent the system structure and workflow in a structured manner. System testing is carried out using the black-box testing method and the Katalon testing tool to ensure that each function operates according to the specified requirements, including order forms, client data management, and the company profile interface. System evaluation is conducted by comparing conditions before and after system implementation, particularly in terms of process efficiency, data accuracy, and ease of report management.

DevOps is a combination of Development and Operations. The development team is responsible for planning, coding, building, testing, releasing, and deploying applications. Meanwhile, the operations team is responsible for operating and monitoring the system. These responsibilities are carried out sequentially from planning to monitoring within each development cycle. Automated DevOps enables faster and more frequent execution of these cycles to anticipate changing requirements and ensure alignment with customer needs [11].

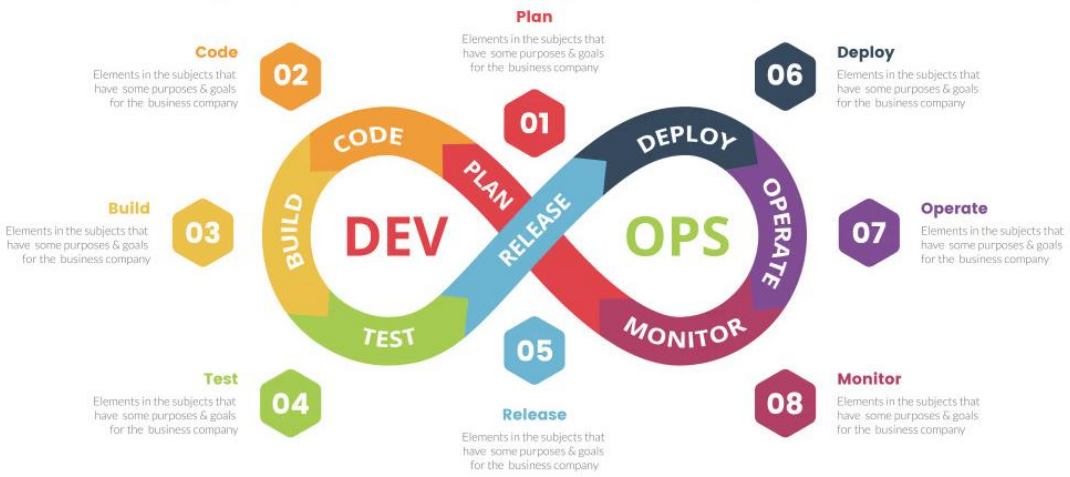

Figure 2. DevOps Cycle

The DevOps development cycle in this study consists of the following stages:

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1. Plan; at this stage, system requirement analysis is conducted, including functional requirements such as client order forms, gift set (seserahan) order forms, and client database reports. In addition, non-functional requirements are identified, including accessibility, security, and ease of use.
2. Code; the coding stage involves developing the source code using PHP as the backend programming language, HTML, CSS, and JavaScript for the frontend, and MySQL as the database management system. The development environment utilizes XAMPP.
3. Build; at this stage, the system is built according to the previously designed specifications. Integration between system modules is performed to ensure that the system operates as intended.
4. Test; testing is conducted to ensure that the system functions according to the specified requirements. The testing methods applied include black-box testing and Katalon testing, which focus on evaluating the functionality of order forms, client reports, and the company profile interface.
5. Release; the release stage involves preparing a stable version of the system for use. At this stage, the system is uploaded to a local server using XAMPP for initial deployment.
6. Deploy; after successful testing, the system is deployed on a server that can be accessed by users, either for internal use or public access.
7. Operate; the operation stage involves the use of the system by the company to manage client orders, gift set orders, and client database reports. Observations are also conducted at this stage to evaluate whether the system operates as expected.
8. Monitor; the monitoring stage is carried out to continuously evaluate system performance, including identifying bugs, data entry errors, and the need for additional features.

RESULTS AND DISCUSSION

System Design and Implementation

The system design stage was conducted to identify functional requirements and define the workflow of the invitation and gift set (seserahan) order management information system. The design phase was modeled using Unified Modeling Language (UML), including use case diagrams to describe user–system interactions, flowcharts and activity diagrams to explain process flows, sequence diagrams to illustrate interaction sequences, and Entity Relationship Diagrams (ERD) to design the database structure. In addition, user interface (UI/UX) design was carried out through the development of wireframes for both desktop and mobile versions to ensure usability and responsive display in accordance with user needs.

The implementation stage applied the design results into a web-based information system using CodeIgniter 4, PHP, HTML, CSS, JavaScript, and MySQL. The developed system provides core features such as user authentication, management of invitation and gift set order data, client data management, order progress monitoring, and report generation with export functionality in Excel format.

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System testing was conducted to ensure that all functions operate in accordance with user requirements, both for administrators and users, so that the system is ready to support company operations more effectively and efficiently.

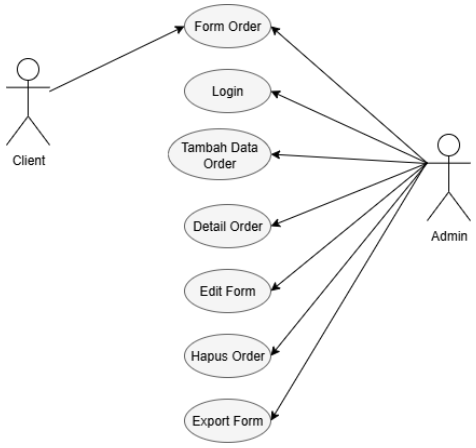

Figure 3. Use Case Diagram of the Invitation Order Form

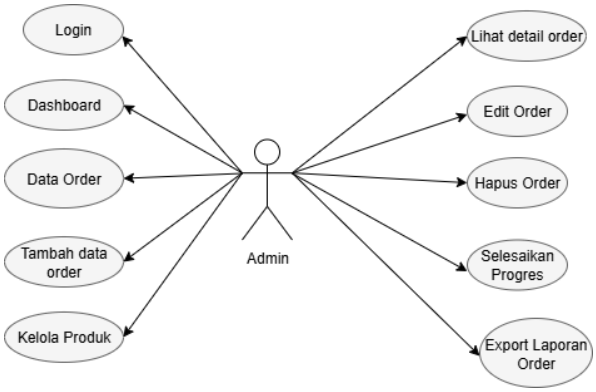

Figure 4. Use Case Diagram of the Seserahan Order Form

The results of this study indicate that the web-based invitation and gift set order management information system was successfully developed and implemented according to user requirements. The system was built using the CodeIgniter 4 framework with MySQL as the database and Bootstrap for responsive interface design. System modeling using UML including use case diagrams, flowcharts, activity diagrams, sequence diagrams, and ERD, ensured that the system structure and process flows were well organized.

The system implementation resulted in several main features, including user authentication, management of invitation and gift set orders, client data management, order progress monitoring, and report generation with data export in Excel format. These features were designed to replace the previously manual recording processes, thereby making data management more structured and integrated.

System testing was performed using the black-box testing method and the Katalon Studio tool. The testing results showed that all system functions operated according to user requirements, with no functional errors identified. The order forms were able to automatically store data into the database, the login feature

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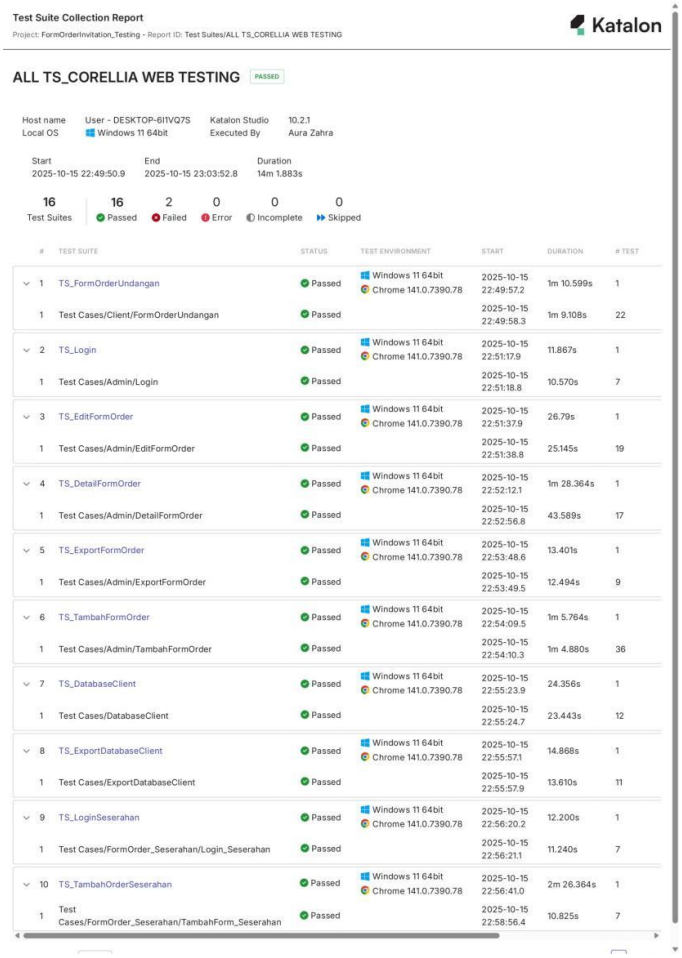
successfully restricted access based on user roles, and the reporting and data export features generated accurate and relevant information.



Test Suite Collection Report

Project: FormOrderInvitation_Testing - Report ID: Test Suites/ALL TS_CORELLIA WEB TESTING

Katalon

ALL TS_CORELLIA WEB TESTING PASSED

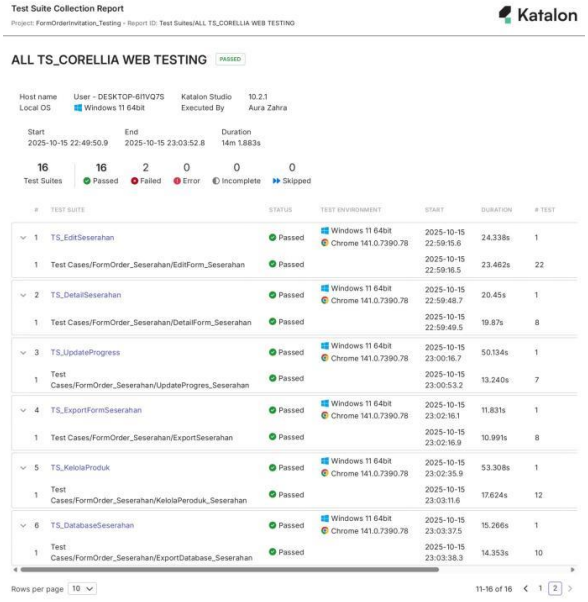
Host name	User - DESKTOP-6I1VQ7S	Katalon Studio	10.2.1
Local OS	Windows 11 64bit	Executed By	Aura Zahra

Start	End	Duration
2025-10-15 22:49:50.9	2025-10-15 23:03:52.8	14m 1.883s

Test Suites	Passed	Failed	Error	Incomplete	Skipped
16	16	2	0	0	0

#	TEST SUITE	STATUS	TEST ENVIRONMENT	START	DURATION	# TEST
1	TS_FormOrderUndangan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:49:57.2	1m 10.599s	1
1	Test Cases/Client/FormOrderUndangan	Passed		2025-10-15 22:49:58.3	1m 9.108s	22
2	TS_Login	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:51:17.9	11.867s	1
1	Test Cases/Admin/Login	Passed		2025-10-15 22:51:18.8	10.570s	7
3	TS_EditFormOrder	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:51:37.9	26.79s	1
1	Test Cases/Admin/EditFormOrder	Passed		2025-10-15 22:51:38.8	25.145s	19
4	TS_DetailFormOrder	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:52:12.1	1m 28.364s	1
1	Test Cases/Admin/DetailFormOrder	Passed		2025-10-15 22:52:56.8	43.589s	17
5	TS_ExportFormOrder	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:53:48.6	13.401s	1
1	Test Cases/Admin/ExportFormOrder	Passed		2025-10-15 22:53:49.5	12.494s	9
6	TS_TambahFormOrder	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:54:09.5	1m 5.764s	1
1	Test Cases/Admin/TambahFormOrder	Passed		2025-10-15 22:54:10.3	1m 4.880s	36
7	TS_DatabaseClient	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:55:23.9	24.356s	1
1	Test Cases/DatabaseClient	Passed		2025-10-15 22:55:24.7	23.443s	12
8	TS_ExportDatabaseClient	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:55:57.1	14.868s	1
1	Test Cases/ExportDatabaseClient	Passed		2025-10-15 22:55:57.9	13.610s	11
9	TS_LoginSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:56:20.2	12.200s	1
1	Test Cases/FormOrder_Seserahan/Login_Seserahan	Passed		2025-10-15 22:56:21.1	11.240s	7
10	TS_TambahOrderSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:56:41.0	2m 26.364s	1
1	Test Cases/FormOrder_Seserahan/TambahForm_Seserahan	Passed		2025-10-15 22:58:56.4	10.825s	7

Figure 5. Testing Results (1)



Test Suite Collection Report

Project: FormOrderInvitation_Testing - Report ID: Test Suites/ALL TS_CORELLIA WEB TESTING

Katalon

ALL TS_CORELLIA WEB TESTING PASSED

Host name	User - DESKTOP-6I1VQ7S	Katalon Studio	10.2.1
Local OS	Windows 11 64bit	Executed By	Aura Zahra

Start	End	Duration
2025-10-15 22:49:50.9	2025-10-15 23:03:52.8	14m 1.883s

Test Suites	Passed	Failed	Error	Incomplete	Skipped
16	16	2	0	0	0

#	TEST SUITE	STATUS	TEST ENVIRONMENT	START	DURATION	# TEST
1	TS_EditSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:59:15.6	24.338s	1
1	Test Cases/FormOrder_Seserahan/EditForm_Seserahan	Passed		2025-10-15 22:59:16.5	23.462s	22
2	TS_DetailSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 22:59:48.7	20.45s	1
1	Test Cases/FormOrder_Seserahan/DetailForm_Seserahan	Passed		2025-10-15 22:59:49.5	19.87s	8
3	TS_UpdateProgress	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 23:00:16.7	50.134s	1
1	Test Cases/FormOrder_Seserahan/UpdateProgres_Seserahan	Passed		2025-10-15 23:00:53.2	13.240s	7
4	TS_ExportFormSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 23:02:16.1	11.831s	1
1	Test Cases/FormOrder_Seserahan/ExportSeserahan	Passed		2025-10-15 23:02:16.9	10.991s	8
5	TS_KelolaProduk	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 23:02:35.9	53.308s	1
1	Test Cases/FormOrder_Seserahan/KelolaPeroduk_Seserahan	Passed		2025-10-15 23:03:11.6	17.624s	12
6	TS_DatabaseSeserahan	Passed	Windows 11 64bit Chrome 141.0.7390.78	2025-10-15 23:03:37.5	15.266s	1
1	Test Cases/FormOrder_Seserahan/ExportDatabase_Seserahan	Passed		2025-10-15 23:03:38.3	14.353s	10

Rows per page 10 11-16 of 16 1 2

Figure 6. Testing Results (2)

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Based on the system testing results using Katalon Studio, all executed test suites showed a *passed* status with no *failed*, *error*, *incomplete*, or *skipped* tests identified. This indicates that the system operated in accordance with the designed testing scenarios and no functional errors were found during the testing process. The developed system was proven to improve order management efficiency, reduce the risk of data input errors, and accelerate the report generation process. Furthermore, the system enables the company to monitor the status and progress of each order in real time, thereby supporting improvements in service quality provided to customers.

CONCLUSION

This study resulted in a web-based invitation and gift set order management information system developed using CodeIgniter 4, MySQL, and Bootstrap. The implementation and testing results using Katalon Studio demonstrated that all system functions operated according to user requirements without any functional errors. The developed system is capable of improving the efficiency of order data management, reducing the risk of manual data input errors, accelerating report generation, and enhancing service quality through an integrated and responsive system.

The practical contribution of this study lies in providing an applicable digital solution for creative service companies, while its academic contribution adds references to the implementation of web-based information system development in the context of order management. However, this study has limitations, including the absence of online payment integration, automated notification systems, and mobile application development. These limitations present opportunities for future research and system enhancement.

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