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DESIGN AND BUILD POS WEBSITE SOFTWARE FOR CV DIGITAL PRINTING BASED ON VISUAL CODE SOFTWARE USING THE IGNITER CODE FRAMEWORK 3

Popon Handayani[1] , Ade Setiawan[2], Santoso Setiawan[3]
Universitas Bina Sarana Informatika
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Abstract

This study designs a web-based Point of Sale (POS) system for CV Digital Printing, focusing on requirements analysis, user-level page allocation, database design, software architecture, and associated costs. The primary goal is to streamline and expedite sales transactions, product stock management, sales reporting, and customer data management. The main page is divided into "Administrator" and "Cashier" sections, each featuring login functionality, sales transactions, and reporting. The database design is illustrated through an Entity Relationship Diagram (ERD). The software architecture employs an object-oriented approach (OOP) using the PHP programming language and open-source software. Cost details encompass hardware, such as VPS and DNS, as well as software expenses, including IDE and software licenses. Testing is conducted using the black-box method to ensure software quality and functionality alignment. This article discusses the crucial steps in designing a POS system tailored to the needs of CV Digital Printing.
Keywords: *Web-Based Point of Sale System, Software Architecture, CV Digital Printing.*

Abstrak

Studi ini merancang sistem Point of Sale (POS) berbasis web untuk CV Digital Printing, dengan fokus pada analisis persyaratan, alokasi halaman tingkat pengguna, desain database, arsitektur perangkat lunak, dan biaya terkait. Tujuan utamanya adalah untuk merampingkan dan mempercepat transaksi penjualan, manajemen stok produk, pelaporan penjualan, dan manajemen data pelanggan. Halaman utama dibagi menjadi bagian "Administrator" dan "Kasir", masing-masing menampilkan fungsionalitas login, transaksi penjualan, dan pelaporan. Desain database diilustrasikan melalui Diagram Hubungan Entitas (ERD). Arsitektur perangkat lunak menggunakan pendekatan berorientasi objek (OOP) menggunakan bahasa pemrograman PHP dan perangkat lunak sumber terbuka. Detail biaya mencakup perangkat keras, seperti VPS dan DNS, serta biaya perangkat lunak, termasuk IDE dan lisensi perangkat lunak. Pengujian dilakukan menggunakan metode kotak hitam untuk memastikan kualitas perangkat lunak dan penyelarasan fungsionalitas. Artikel ini membahas langkah-langkah penting dalam merancang sistem POS yang disesuaikan.
Kata kunci: Sistem Point of Sale Berbasis Web, Arsitektur Perangkat Lunak, CV Digital Printing.

I. INTRODUCTION

CV Digital Printing, a fast-growing printing company, saw an urgent need to modernize their sales systems to be more efficient, ensure customer satisfaction, and penetrate the online market. Today, they are still fixated on manual systems that are not only significantly time-consuming, but also increase the risk of human error in order recording. In addition,

customers often find it difficult when they have to place orders directly or bank transfers manually. This limitation in the manual sales system causes CV Digital Printing to have difficulty in managing orders and inventory of goods properly. Companies also face the problem of lack of effective order tracking, making it difficult to monitor order status and ensure on-time delivery. In addition, accurate and up-to-date sales reports are also not yet available, hampering the company's ability to make decisions.

In the face of changing times and increasing competition in the printing industry, CV Digital Printing sees the need to transform by designing an integrated sales application. This application is expected to increase the effectiveness and efficiency in managing orders and inventory of goods, while providing convenience for customers to place orders and payments online. In a study conducted by Rifani et al. in 2020, it was suggested to create web-based applications and SMS Gateways to facilitate the creation of reports, file transfers, and material purchase recaps, so that all processes can be properly computerized, as well as provide automatic notifications to customers when orders are completed. The design of sales applications in CV Digital Printing has several identified problems that need to be addressed, such as decreased work efficiency due to manual systems, customer difficulties in ordering and payment, inventory management that is still manual, lack of an effective order tracking system, unavailability of accurate sales reports, and lack of online marketing.

Therefore, the purpose of this research is to design an effective and efficient sales application to speed up the transaction process, reduce the risk of human error in order recording, optimize inventory management, present accurate sales reports, and help CV Digital Printing expand market share and improve online marketing. Within the confines of the problem, the application will be developed in-house, focusing on printing products, including features such as order recording, stock management, online payments, order status tracking, and sales report generation, not integrated with third-party systems, accessible through various web-based devices, and developed using specific technologies and platforms.

The benefits of this sales application design research include increased work efficiency and productivity, acceleration of transaction processes, improvement of service quality and customer satisfaction, optimization of inventory management of goods, ability to make more informed business decisions, and opportunities to utilize online marketing more effectively. It is hoped that this research will help CV Digital Printing improve their performance and provide better service to customers, while allowing the company to continue to grow and evolve in the ever-changing business world.

II. THEORETICAL STUDIES

In conducting a Literature Review, the author searched for information from relevant books and journals about the theories used in this study, some theories related to this research include:

Definition of Information Systems

According to (Anggraini et al., 2020) "Information Systems are increasingly developing along with the rapid development of computer technology. Information Systems is an organizational success and requires the business world to be able to carry out its activities effectively and efficiently. This can be done with the ability to compete both at the local and global levels with the quality of human resources, as well as the goods or services produced"

Database

According to (Andaru, 2018), "A database is a collection of information that is stored in a computer systematically so that it can be checked using a computer program to obtain information from the database. The main use of the database system is to enable users to compile a view of data abstraction. This aims to simplify the interaction between users and their systems and the database can present different views to users, programmers, and administrators"

1. Point Of Sales

According to (Jamiludin et al., 2019), "Point Of Sales (POS) is a system that regulates the flow and also reports of buying and selling or transactions and also incoming goods from the production process. The ultimate goal is that the system can provide valid reports, both transaction reports and goods reports."

2. Definition of Sales

" Sales is an activity or business in selling products or services. The general definition of sales is buying and selling activities carried out by two or more parties with legal means of payment. Definition of Pre-Order The definition of pre-order in general or often referred to as (PO) is an online buying and selling transaction, where buyers when ordering an item must pay a certain amount of money in advance, then the ordered goods will come." (Syabania & Rosmawarni, 2021).

3. *Unified Modeling Language (UML)*

Based on research (MR Julianti, 2019), "UML is a system development technique that uses graphic language as a tool for documenting and specifying the system." UML consists of different types of diagrams, but only a few are commonly used. One of them is an activity

diagram. According to (Apriliah et al., 2019), defines that, "an activity diagram models the workflow of a business process and the sequence of activities in a process. This diagram is very similar to a flowchart in that it models the workflow from another activity or from an activity to a state*"*

4. Entity Relationship Diagram (ERD)

According to Peter Chen "ERD is a conceptual model used to describe entities, attributes, and relationships between entities in an information domain."

III. RESEARCH METHODS

In designing the application of the Maintenance Engineering section, the author chose to use qualitative research methods. Qualitative research is a type of research that focuses on the quality or most important aspects of a good or service. The center of attention in qualitative research is the meaning contained in the social event, phenomenon, or phenomenon. These meanings have the potential to be used as valuable lessons in the development of theoretical concepts (Sidiq & Moh. Miftachul Choiri, 2019).

In this study, the data collection techniques used included observation techniques, interviews, and literature studies. These techniques are chosen to gather relevant and in-depth information related to the design of the Application of the Maintenance Engineering section:

Observation

According to Muhammad Ilyas Ismail in the book Learning Evaluation: "Basic Concepts, Principles, Techniques, and Procedures, observation can be interpreted as one of the data collection techniques that is more specific than other techniques." (Muhammad Ilyas Ismail, 2021)

Interview

Interviews are a research method used to obtain information directly from CV Digital Printing. In the context of this thesis, the author conducted an interview with CV Digital Printing, a company percetakan yang menggunakan sistem Point of Sale (POS) in their daily operations. This interview aims to understand the use of POS systems in the context of the company, as well as evaluate the effectiveness and efficiency of the POS system used by CV Digital Printing.

Literature Study

Literature study is an important step in this thesis research to gain an in-depth understanding of the concepts and theories related to Point of Sale (POS) and its application in the context of CV Digital Printing. This literature study will include a literature review on the basic concepts of POS, its benefits in the printing industry, and its implementation in companies.

IV. RESEARCH RESULTS

The research procedure is the sequence of actions taken during the research process. Meanwhile, to develop the system, the author uses the Software Development Life Cycle (SDLC) development process using the waterfall model. Source: (Galang Ramadhan et al., 2020). The author chose to use a waterfall diagram in designing a point of sale website on CV Digital Printing for a thesis because this method has several advantages in organizing and planning the stages of project development systematically. Here are the reasons why the author chose to use a waterfall diagram with the stages of "needs analysis, design, coding, testing, implementation"

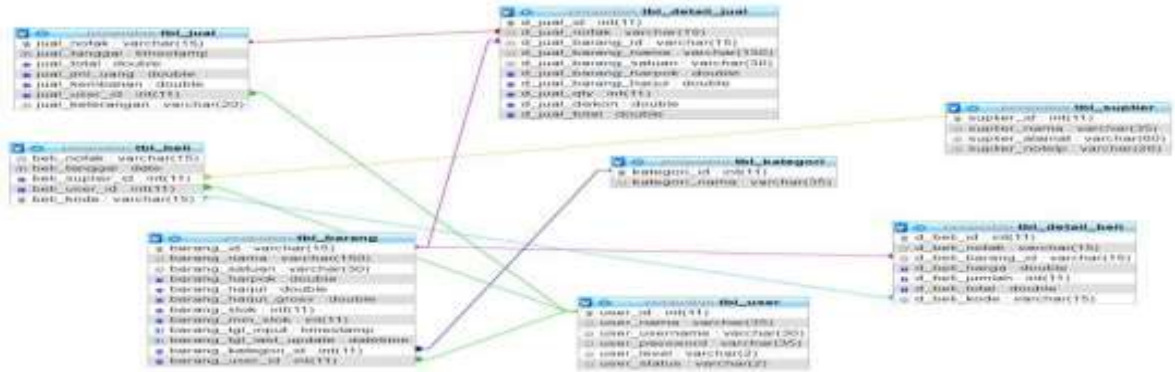
1. Analisis

This stage is important to understand the business needs and requirements that the point of sale system must meet. In this stage, the author will analyze the needs of the user, the necessary functionality, and the limitations of the project. This will help the author in planning the development of the system better.:

2. Desain

After the needs are collected, the design stage will assist the writer in designing an interface appearance that suits the user's needs. Design will also consider aspects such as safety, efficiency, and ease of use. In this stage, the author can use tools such as wireframes and prototypes to describe the structure and appearance that *Desired. Use Case Diagram The author uses the Use Case Diagram as part of the design of designing system needs.*

Figure 2. Use Case Diagram Activity Diagram Activity Diagram

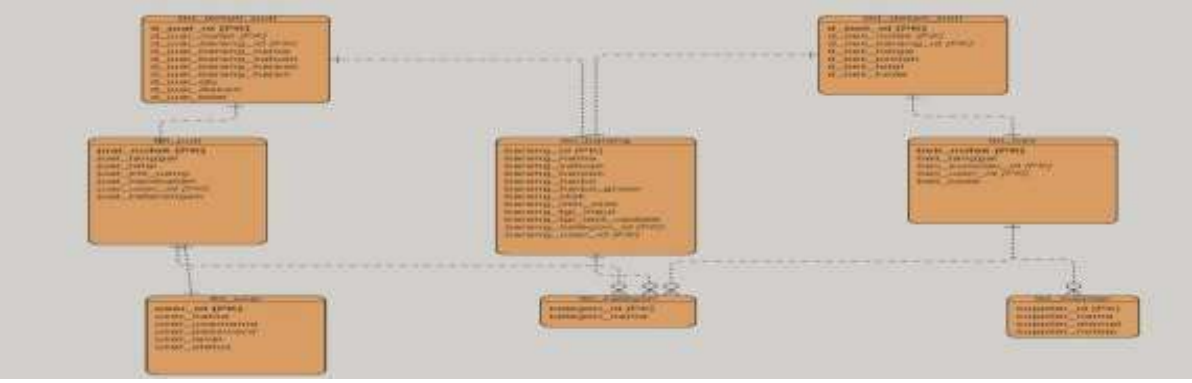


Next, the author creates an Activity Diagram as a visual representation of the processes that occur within each pre-designed use case.

Gambar 3. Activity Diagram

a. *Entity Relationship Diagram (ERD)*

After the design of the application system functions is completed, the author creates an ERD (Entity Relationship Diagram) diagram to design the database to be used.

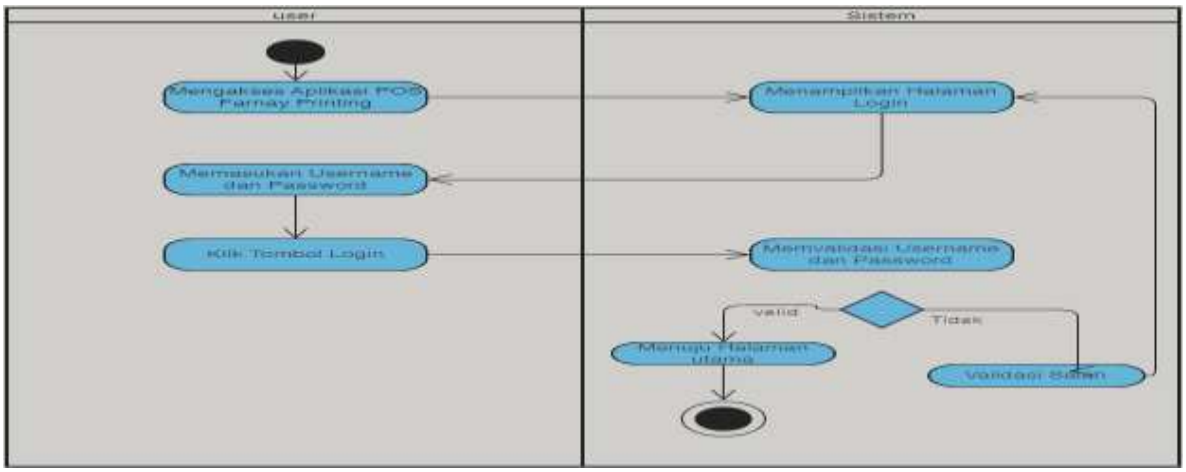


Gambar 4. *Entity Relationship Diagram*

Logical Record Structure (LRS) The author also designed a logical data structure that is used to organize information in the system.

Gambar 5. *Logical Record Structure*

3. Implementasi



After all stages of testing are completed, the point of sale website that has been developed will be fully implemented in CV Digital Printing. At this stage, the author will integrate the system with the existing infrastructure, engage the operational team to ensure a smooth transition, and train users in the use of the new system.

4. Testing

The testing stage is important to ensure that the point of sale website functions properly and meets the needs of users. The author will conduct tests to check for errors and weaknesses that may exist in the system. This includes testing functionality, security, performance, and compatibility.

Tabel 1. *Black Box Testing Results*

No	**Proses Bisnis**	**Fitur yang diuji**	**Hasil**
1	User Login	*Username and Password Verification*	*Valid*
2	Sales	Makinga Transaction	*Valid*
		Perform Checks in the Database	*Valid*
		Create a Report	*Valid*
		Create a Payment Receipt	*Valid*
3	Add Report	Doing Crud	*Valid*
		Validation sur la base de données	*Valid*

Tabel 2. Spesifikasi *Virtual Private Server*

HARDWARE		
No	***Hardware***	**Kapasitas**
1	CPU	Core i5 10300H
2	RAM	16 GB
3	*Hard Disk Drive Storage*	1 TB
SOFTWARE		
No	***Software***	**Jenis dan Versi**
1	*Operating System*	Windows 11 Home Single Language

V. CONCLUSION

Based on the research conducted in this thesis, it can be concluded that ssPrinting based on Visual Code software using the CodeIgniter 3 framework has benefits and advantages in increasing the efficiency and effectiveness of transaction processes and company data management. By integrating relevant features and supported by an intuitive user interface, the system provides a good solution in meeting the needs of companies and making it easier to use POS applications.

REFERENCE

Andaru, Andri. (2018). *Fakultas Komputer Andry Andaru Section Class Content PENGERTIAN DATABASE SECARA UMUM*.

Anggraini, Y., Pasha, D., & Setiawan, A. (2020). *SISTEM INFORMASI PENJUALAN SEPEDA BERBASIS WEB MENGGUNAKAN FRAMEWORK CODEIGNITER (STUDI KASUS : ORBIT STATION*).

Jurnal Teknologi Dan Sistem Informasi (JTSI), 1(2), 64–70.

http://jim.teknokrat.ac.id/index.p hp/JTSI

Apriliah, W., Subekti, N., & Haryati, T. (2019). *Penerapan Model Waterfall Dalam Perancangan Aplikasi Sistem Informasi Simpan Pinjam Pada Koperasi* PT.CHIYODA INTEGRE INDONESIA KARAWANG.

Jurnal Interkom: *Jurnal Publikasi Ilmiah Bidang Teknologi Informasi Dan Komunikasi*, 14(2), 34–42.

https://doi.org/10.35969/interko m.v14i2.50

Galang Ramadhan, M., Nurpulaela, L., Latifa, U., Teknik Elektro Universitas Singaperbangsa, J., Jl Ronggo Waluyo, K. H., Telukjambe Timur, K., Karawang, K., & Barat, J. (2020). *Perancangan Sistem Informasi POS (Point Of Sales) Berbasis Web dengan Menggunakan Framework Codeigniter pada Pasar Swalayan*.

Hamdan Romadhon, M., & Yudhistira, Y. (2021). *Sistem Informasi Rental Mobil Berbsasis Android Dan Website Menggunakan Framework Codeigniter 3 Studi Kasus* : CV Kopja Mandiri. In Jurnal Sistem Informasi dan Teknologi Peradaban (JSITP) (Vol. 2, Issue 1). www.journal.peradaban.ac.id

Hanggoro, B., & Yanti, F. (n.d.). *OKTAL: Jurnal Ilmu Komputer dan Science Perancangan Aplikasi Point Of Sale Pada Tok.*

Kang Udin Berbasis Web.https://*journal.mediapublikasi*.id/ index.php/octal.