International Journal of Application on Sciences, Technology and Engineering
(IJASTE)
Volume 1, Issue 4, 2023. ISSN:2987-2499

USE OF INFORMATION SYSTEM TECHNOLOGY IN PRINTING BUSINESS DEVELOPMENT

Felix Ciawi[1], Metha Tasyakuran Andini[2], Wasino[3], Octarifa Angela[4] & Jap Tji Beng[5*]

[1]Faculty of Information Technology, Universitas Tarumanagara, Jakarta, Indonesia
Email: felix.825200088@stu.untar.ac.id
[2]Faculty of Information Technology, Universitas Tarumanagara, Jakarta, Indonesia
Email: metha.825200044@stu.untar.ac.id
[3]Faculty of Information Technology, Universitas Tarumanagara, Jakarta, Indonesia
Email: wasino@fti.untar.ac.id
[4]Faculty of Information Technology, Universitas Tarumanagara, Jakarta, Indonesia
Email: octarifa.825210106@stu.untar.ac.id
[5]Faculty of Information Technology, Universitas Tarumanagara, Jakarta, Indonesia
*Email: t.jap@untar.ac.id**

*Corresponding Author: *t.jap@untar.ac.id*

Submitted: 26-09-2023, Revised: 27-10-2023, Accepted: 08-12-2023

ABSTRACT

As time goes by, management information systems have become very important for entrepreneurs so that business management can be carried out more efficiently and effectively. A printing company called RJ Print produces a wide range of paper-based products, such as invitation cards, calendars, lunch boxes, books, name card. RJ Print Printing is located in the city of Medan, North Sumatra. In its business processes, RJ Print still uses conventional business processes. Therefore, a web-based printing product order management information system was designed. By utilizing information systems, customer reach can be wider, and sales evaluations can be neatly arranged so that they can help in making more precise and strategic decisions. In designing this information system, applying the Waterfall method using the C# programming language, .Net framework and using a SQL Server database.

***Keywords** : Information System, Printing Business Development, Waterfall*

1. PREFACE

Introduction

An information system is a process of collecting, storing, and analyzing information with a specific purpose. The information system consists of (input) and will produce reports (output) so that through these reports an organization can take better actions or decisions [1]. A management information system is a group of related parts that work together as a single unit to enable business owners to process, integrate, and store the data needed for decision-making [2].

By implementing conventional business processes, several weaknesses were found, such as shortages of raw materials, caused by material stock records that were not updated, inaccurate sales evaluations due to the manual recording process which was prone to human error, and limitations in reaching a broader customer base. Therefore, creating this management information system allows these printing shops to sell their products online and manage inventory data more efficiently. This system is capable of providing regular monthly evaluations.

These evaluations encompass not only inventory assessments but also sales and employee attendance records. With this monthly evaluation, the management of this printing shop can obtain clear information regarding business performance, sales trends, and operational efficiency which will be very helpful in making more precise and strategic decisions.

2. RESEARCH METHOD

In information system development, the Waterfall model is one of the most commonly used Software Development Life Cycle (SDLC) models. The System Development Life Cycle (SDLC) is a comprehensive methodology for creating information systems, which includes multiple phases such as requirements gathering, design, development, testing, and maintenance [3]. SDLC is a procedure that explains how to create, build, and maintain software projects while making sure that all of the project's goals, objectives, and functional and user needs are satisfied [4]. Prioritizing the needs of users is followed by a structured method for creating or developing new systems in the SDLC [5]. The Waterfall model is the oldest and the best known SDLC model [6]. In this model, the process begins with the planning stage and progresses through various stages until it reaches the management or maintenance phase. These stages are executed sequentially. It means, the stages that comprise this model do not overlap, thus the Waterfall model begins and ends with one step before beginning the next [7]. Thus, the model encourages an organized, process-focused strategy [8].

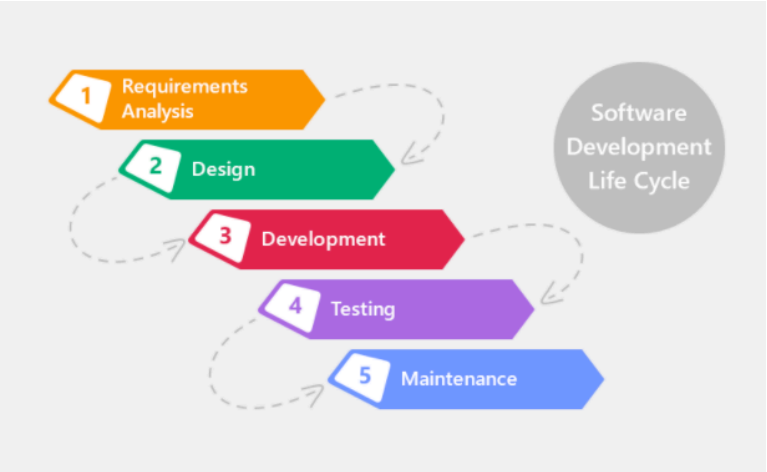

Figure 1. Waterfall SDLC
Image Source: https://www.researchgate.net/publication/348018772_Guidelines_for_Creating_Effective_Software_Design_Documentation

The Waterfall model is often described as a sequential model due to its structured development stages. This model is appropriate when the software project's needs and specifications are well-defined [9]. When this model is successfully executed, it is known for simplifying the software maintenance process [10]. The stages of the waterfall method are as follows.

i) Requirements

Data was collected through a process involving discussions, observations, and interviews. Following data collection, it was processed and analyzed to derive the specifications needed for the application being developed by the shop.

ii) Design

Create a system description and appearance of the web-based application that will be built.

iii) Development

Web-based application development was carried out using the C# .Net programming language.

iv) Testing

At this stage the application has been built and then testing will be carried out with the main aim of validating whether the website being built complies with the specifications and requirements that have been determined.

v) Maintenance

At the maintenance stage, bug fixes, user requests, and preventive repairs are performed to ensure the system continues to run smoothly.

3. RESULT AND DISCUSSION

In its design, this website was created using the C# programming language, with the .Net framework and using a SQL Server database. The design of the relationships between tables can be seen in Figure 2.

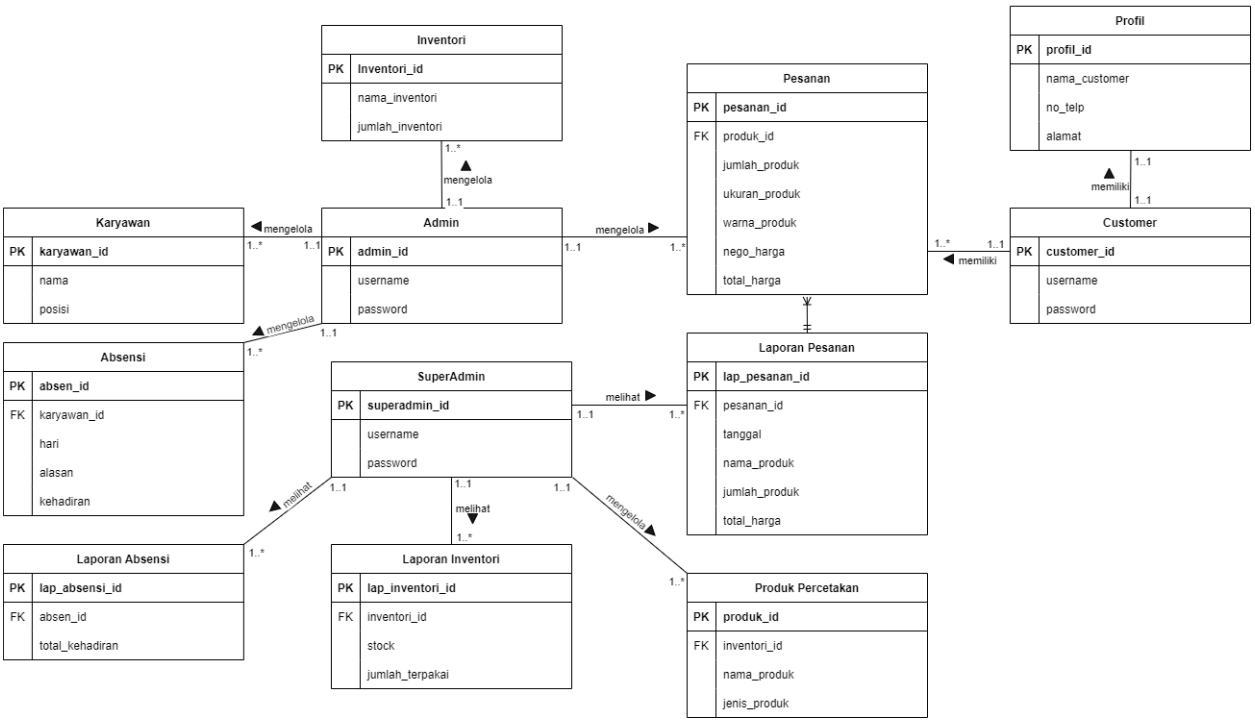

Figure 2. Relational Tabel

As a result of implementing a web-based information system in the development of this printing business, customers can easily view and carry out the ordering process via the website. Figure 3 displays the home page for customers and potential customers. Before placing an order, customers are required to register or log in first as depicted in Figure 4.

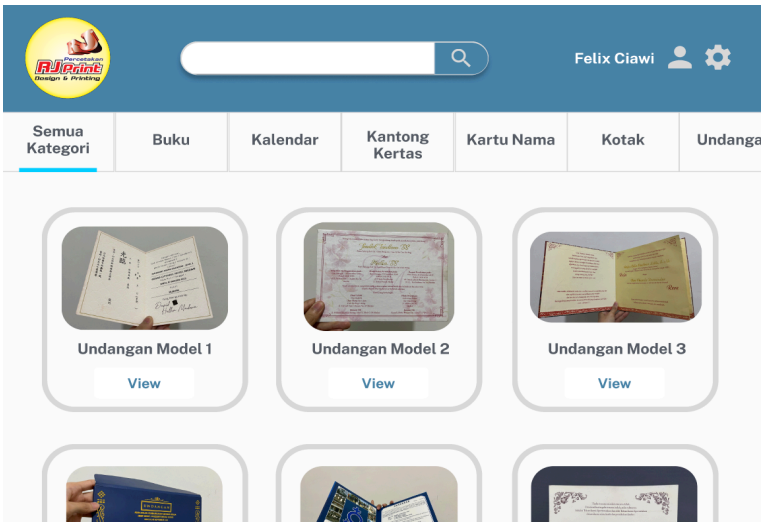

Figure 3. Home Page

As admin or superadmin, to be able to manage order data, products and monthly evaluations, you need to log in as admin or superadmin. Figure 4 depicts the login page.

Figure 4. Login Page

This website also displays evaluations and reports every month so that sales records can be seen more clearly and help in making decisions in the future. Figure 5. Displays the unpaid invoice report.

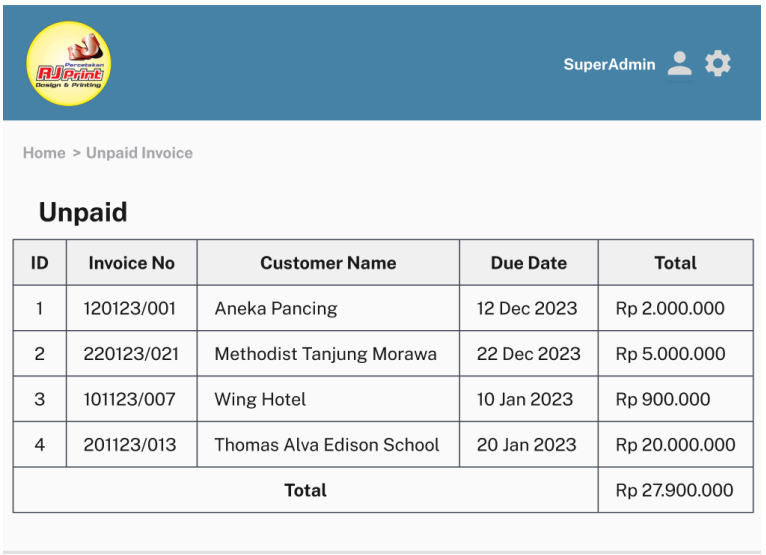

Figure 5. Unpaid Invoice Report

4. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Designing a web-based order management information system can make it easier for customers to find information about printing products and place orders. This information system can also provide a more accurate sales evaluation every month**,** which can aid in decision-making.

Future Works

In future website development, payments can be integrated so that when customers make payments, they can be automatically verified without uploading proof of payment. The addition of the live chat feature could also make it easier for customers to search for information and make orders.

Acknowledgements

We would like to thank the Directorate of Research and Community Engagement at Universitas Tarumanagara for their support through funding for this research. We would also thank to William for assisting in improving the writing of this manuscript.

REFERENCE

[1] Prehanto, D. R. (2020). Buku Ajar Konsep Sistem Informasi. In D. R. Prehanto. Surabaya: Scopindo Media Pustaka.

[2] Laia, O., Halawa, O., & Lahagu, P. (2022). Pengaruh Sistem Informasi Manajemen Terhadap Pelayanan Publik. *Jurnal Akuntansi, Manajemen dan Ekonomi (JAMANE), I*, 70-71.

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

[4] Arora, R., & Arora, N. (2016). Analysis of SDLC Models. *International Journal of Current Engineering and Technology, 6*(1), 268-272.

[5] Rahayu, T., Susanto, & Suwarjono. (2020). Application Report Process Of Islamic School Based On Pesantren Boarding Using Waterfall Model. *Journal of Physics: Conference Series, 1569*(2), 022025.

[6] Balaji, S., & Murugaiyan, M. (2012). Waterfall vs. V-Model vs. Agile: A comparative study on SDLC. *International Journal of Information Technology and Business Management, 2*(1), 26-30.

[7] Alshamrani, A., & Bahattab, A. (2015). A Comparison Between Three SDLC Models Waterfall Model, Spiral Model, and Incremental/Iterative Model. *International Journal of Computer Science Issues, 12*(1), 106.

[8] Adenowo, A., & Adenowo, B. (2013). Software engineering methodologies: a review of the waterfall model and object-oriented approach. *International Journal of Scientific & Engineering Research, 4*(7), 427-434.

[9] Tuteja, M., & Dubey, G. (2012). A Research Study on importance of Testing and Quality Assurance in Software Development Life Cycle (SDLC) Models. *International Journal of Soft Computing and Engineering (IJSCE), 2*(3), 251-257

[10] Fonggo, F., Beng, J., & Arisandi, D. (2020). Web-based Canteen Payment and Ordering System. *IOP Conference Series: Materials Science and Engineering 1007, III*.