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The development of an integrated digital business platform as the realization of customer relationship management for student entrepreneurship at Polimedia

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Abstract

This research addresses the aforementioned challenge by proposing the Development of an Integrated Digital Business Platform as the Realization of Customer Relationship Management for Student Entrepreneurship at Polimedia. The methodology involves an in-depth analysis of existing entrepreneurship courses, business models, and current challenges faced by student-run ventures at Polimedia. A comparative study of successful integrated digital business platforms in educational institutions will also be conducted. Additionally, surveys, interviews, and focus group discussions will be utilized to gather insights from students, faculty, and stakeholders. The research will employ quantitative and qualitative approaches, ensuring a comprehensive understanding of the requirements and expectations. Explore existing literature on entrepreneurship education, digital business platforms, and Customer Relationship Management to establish a theoretical framework. The proposed Integrated Digital Business Platform is anticipated to provide an efficient and centralized solution for student businesses at Polimedia, fostering growth and visibility. By implementing Customer Relationship Management principles, the platform aims to enhance student engagement, increase market reach, and contribute to the overall success of student entrepreneurship initiatives at Polimedia.

Keywords: Business platform, CRM, student entrepreneurship

1. Introduction

Information technology and digital business platforms play a crucial role in supporting various business activities in the ever-growing digital era. The development of information technology, especially in terms of internet connectivity and the use of digital devices, has changed the business landscape significantly. The use of digital business platforms has become a necessity to meet the demands and dynamics of the market which continues to proliferate. The crucial role of information technology and digital business platforms can be seen from their ability to increase operational efficiency, speed up business processes, and open up new opportunities in terms of marketing, sales, and customer interaction (Fauzi et al., 2023). Digital business platforms provide the means to carry out various aspects of business in an integrated manner, from inventory management and financial transactions to customer service (Saputra et al., 2023).

To encourage entrepreneurship development at the Creative Media State Polytechnic, the institution has prepared an entrepreneurship education curriculum that generally includes content and activities related to developing an entrepreneurial mindset, communication skills, building networks, and creating profit-oriented business plans (Dewi, 2017). Even though it has been around for almost 14 years, Polimedia, through its entrepreneurship courses, has produced various student-managed businesses. However, no business platform accommodates all student endeavors, which causes many of these endeavors not to develop further. In the current digital era, which has become an integral part of various aspects of life, especially with the pandemic, where most activities are carried out online, significant steps are needed to survive amidst intense competition (Muliaty, 2016).

Moreover, entrepreneurial students need to get optimal support to develop and run their businesses in an academic environment such as the Creative Media State Polytechnic (Polimedia). Therefore, there is a need for an integrated digital business platform that can

provide effective and efficient solutions for entrepreneurship students at Polimedia. Customer Relationship Management (CRM) is the main focus in developing this platform. Establishing good relationships with customers and potential customers is the basis for achieving business success. Customer Relationship Management (CRM) is a term used in business that involves customer-related procedures in the form of software. The research proposal suggests developing an Integrated Digital Business Platform as a Realization of Customer Relationship Management for Student Entrepreneurship at Polimedia. This platform is intended to accommodate all student businesses and serves as an effort to market them widely (Darmawan et al., 2018).

The development of an integrated digital business platform offers various benefits for student entrepreneurship, especially in the context of Customer Relationship Management (CRM). These benefits include more effective customer monitoring, enabling in-depth data collection and analysis for more accurate decision-making, and providing better, more responsive customer service. In addition, platform integration can automate various business processes, increase operational efficiency, and reduce the potential for human error (Agunawan et al., 2021). Through digital platforms, students can develop more effective marketing strategies, provide easy customer access to products and services, and create opportunities for collaboration and partnerships with other entities. This platform also benefits the industry as a reference for collaboration and for educational institutions to market student businesses widely. CRM plays a central role in building and maintaining good relationships with customers. For entrepreneurial students, understanding customer needs, providing personal service, and managing interactions with customers is the key to business success. Therefore, there is an urgent need to develop an integrated digital business platform that supports CRM implementation.

Previous research by (Noor et al., 2022) examined the implementation of the e-lapau application using the customer relationship management concept. This research shows that E-la pau provides various daily necessities such as basic necessities, vegetables, and other dry ingredients. The current problem is the proliferation of similar online stores, causing the range of customers to become smaller, and the possibility that existing customers will move and leave online stores already running. Another specific scope of e-lapau is the reach of customers who are targeted, namely customers who are in residential areas.

Another research by Muhammad et al. (2022) examined the Implementation of Customer Relationship Management (CRM) in Marketing Information Systems using the React Framework. Website-Based JS research results show that a website-based marketing system with the application of Customer Relationship Management (CRM) on Reswara Digital printing produces structured and detailed data storage, and the delivery of product information to consumers can be carried out optimally.

The novelty of this research lies in the research object, namely the development of an integrated digital business platform to realize Customer Relationship Management for entrepreneurship students at Polimedia, which has never been researched before. This research aims to develop an integrated digital business platform focusing on Customer Relationship Management (CRM) for Polimedia student entrepreneurship products. The main goal is to simplify business processes and automate entrepreneurial activities for students, thereby increasing efficiency and productivity. Additionally, this research aims to increase customer loyalty by providing a platform that allows students to connect directly with customers, encouraging close and ongoing dialogue. The platform is also geared towards collecting, storing, and managing customer information effectively to provide a personalized user experience. Additionally, it provides data analysis tools to understand customer behavior, preferences, and market trends for strategic decision-making.

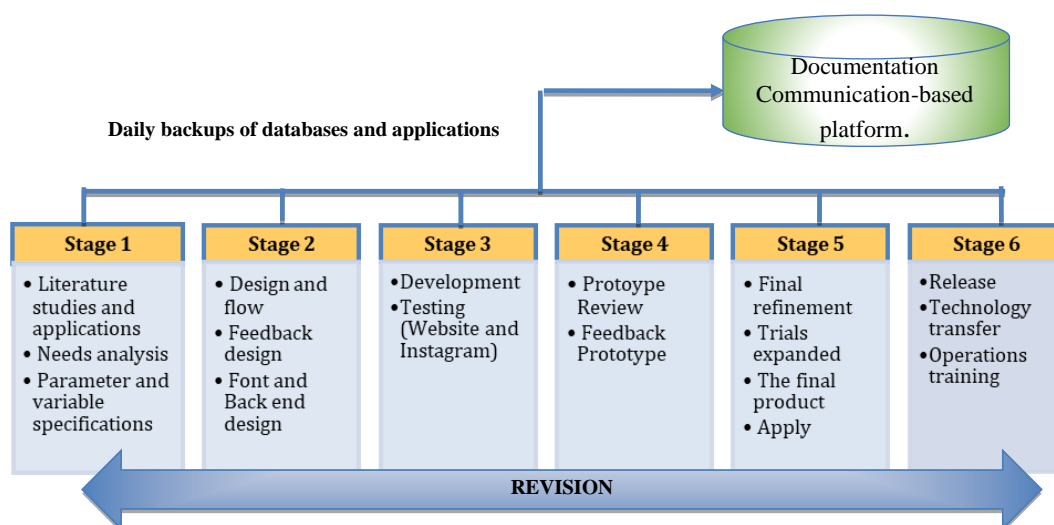
2. Method

This study will construct an integrated digital platform with a website as the main stage, integrated with social media, messaging applications, and video-sharing applications. The research is located at Politeknik Negeri Media Kreatif. This research uses the Research and Development (R&D) research method. Sugiyono (2012) defines it as a method with an output in the form of a specific product, subject to effectiveness testing. Budiyo (2017) concludes that it produces a product with effective side products in a specific field of expertise. Therefore, research and development methods involve a process to produce scientifically tested outcomes. Data collection techniques include interviews, with data processed and described for the needs of the developed system. Literature reviews strengthen conceptual studies, and application studies adopt relevant features. The object of this research is entrepreneurial students at Polimedia.

Modeling design illustrates the entire system in the form of a context diagram. The platform is developed using the WordPress Content Management System (CMS) and MySQL as its database. Testing is conducted on user interactions and applications through interface design, both on PCs/laptops and gadgets. The planned platform is software, adopting the Waterfall Model due to its systematic and sequential stages: requirement, design, implementation, verification, and maintenance (Pressman, 2010). These stages are combined with the R&D stages by Borg and Gall (Borg & Gall, 1983) and adapted to the needs of the developed application.

Figure 1

Flow of Research Stages



Implementation of the Development Model

Referring to the adapted development model for research needs as depicted in the above diagram, the planning is outlined as follows:

1) Business Platform Development Requirements - Stage 1

Data collection: Conduct interviews with stakeholders regarding customer service coverage, promotion, product marketing, transactions, hosting, domain, features, and applications to be used, including their experiences with similar applications. Literature and application studies: Obtain theoretical insights from the planned application, including problem identification, and conduct application studies by testing marketplace applications like Bukalapak, Shopee,

Tokopedia, and direct sales via social media. Needs analysis: Analyze data related to the system and platform framework. Determine parameters and variables, ensuring that the system aligns with the requirements.

2) Design - Stage 2

Initial design: Develop the proposed model, workflow, and processes of the main application (website) and supporting applications (Instagram social media for KWU Polimedia). Discuss these stages with stakeholders for design and workflow approval on the website and social media, messaging, and video-sharing applications. If consensus is not reached, return to the requirements stage.

3) Business Platform Construction - Stage 3

The design is realized with a series of programs or program units. These units are then tested to verify if they meet the specified requirements. In this stage, PHP is used for program unit design, and a local server is utilized.

4) Prototype Review - Stage 4

Present the prototype to the team and entrepreneurship lecturers for evaluation. Collect comments and suggestions for further improvement.

5) Prototype Refinement - Stage 5

If there are no revision notes from the prototype, the team can proceed to stage 6. However, if there are client notes for system improvement, phases 4-5 will be repeated until an agreement is reached on the developed business platform.

6) Business Platform Release - Stage 6

The final stage creates the product based on the final prototype. The business platform is tested, and it is published online on the hosting server. The final validation and verification processes are conducted before the platform is officially launched.

The data that has been collected in this study is then analyzed descriptively. Descriptive analysis involves presenting data systematically and concisely without making statistical generalizations. At this stage, researchers detail the characteristics of the data, make statistical summaries, and present findings using tables, graphs, or descriptive narratives. The main purpose of descriptive analysis is to provide a clear and comprehensive picture of the data that has been collected.

3. Results and Discussion

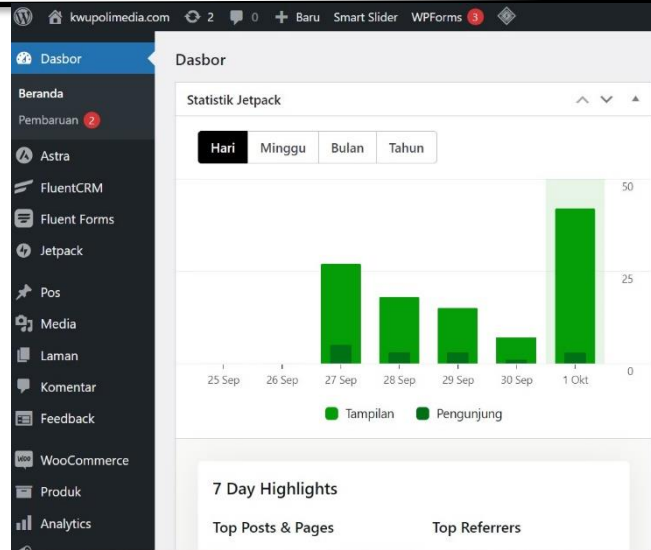
Admin Interface Design

a) WordPress Dashboard Interface

The WordPress dashboard view for a CRM website may vary based on the WordPress theme and installed CRM plugins, including Astra for website design, Fluent CRM for CRM functionality, WooCommerce for product sales and purchases, and Jetpack for WordPress site features and functionalities.

Figure 2

WordPress Dashboard Page of Polimedia Students' Entrepreneurship Platform



The first stage in this research is designing the admin interface design; in this research, the design is implemented with WordPress. In Figure 2 is a dashboard page that displays the number of visitor statistics.

b) CRM Analysis Interface

The Google Analytics page connected to the CRM within the entrepreneurial business platform is available at <https://kwupolimedia.com/wp-admin/index.php>. It provides an overview of trial activities to ensure they align with the initial development design.

Figure 3

CRM Analysis Overview Page

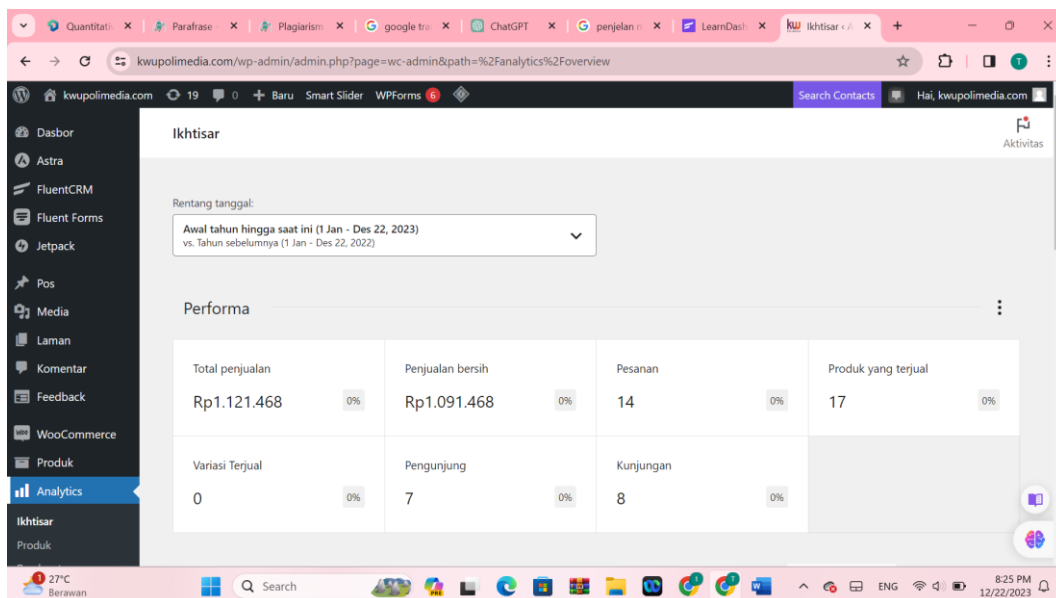


Figure 3 shows the CRM analysis overview page; this page shows the performance of the website in terms of visitors, visits, variations sold, products sold, orders, net sales, and total sales.

c) CRM Advance Report Interface

Using the Reports option in the FluentCRM plugin and navigating to LearnDash, advanced reports on LearnDash data can be viewed at <https://kwupolimedia.com/wp-admin/index.php>.

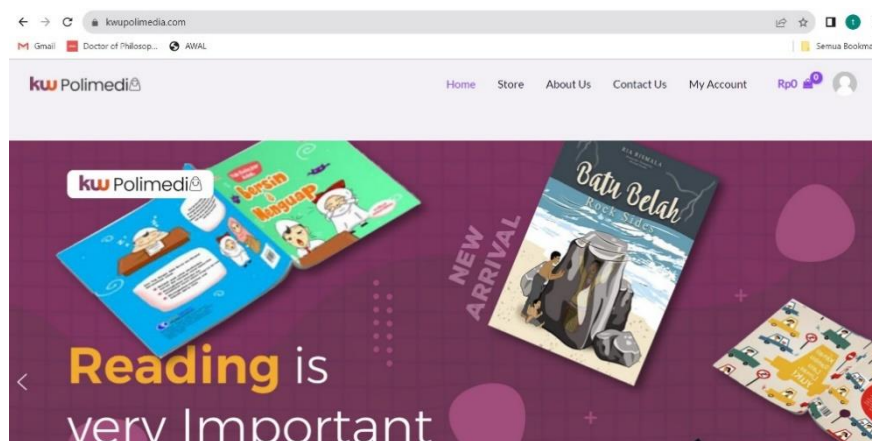
The reports include Total Users, Total Sales, Total Membership Registrations, and Best-selling Products.

User Interface Design

a) Home Page

Figure 4

Home Page Display

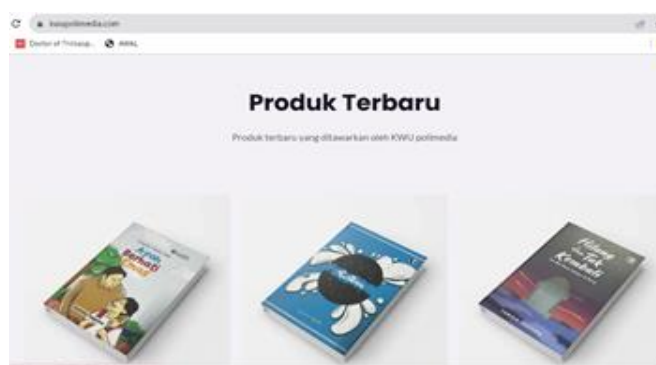


This section displays the user/member's view of the home page of the Polimedia student entrepreneurship business platform at <https://kwupolimedia.com/>.

b) Product Page View

Figure 5

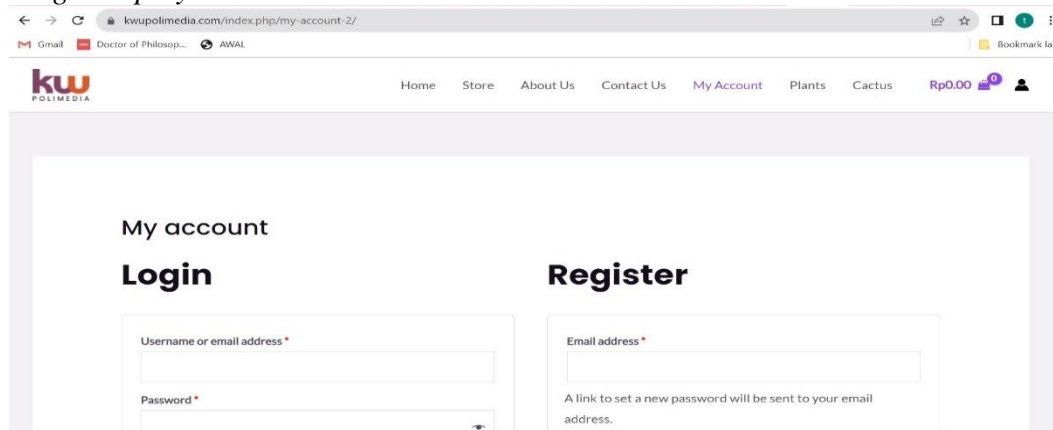
Product Page Display



Users/visitors/members can view the products offered by the Polimedia student entrepreneurship business platform. The latest products are displayed at the top, while other products are offered below and can be selected based on product type

c) Login Page View

Figure 6
Login Page Display

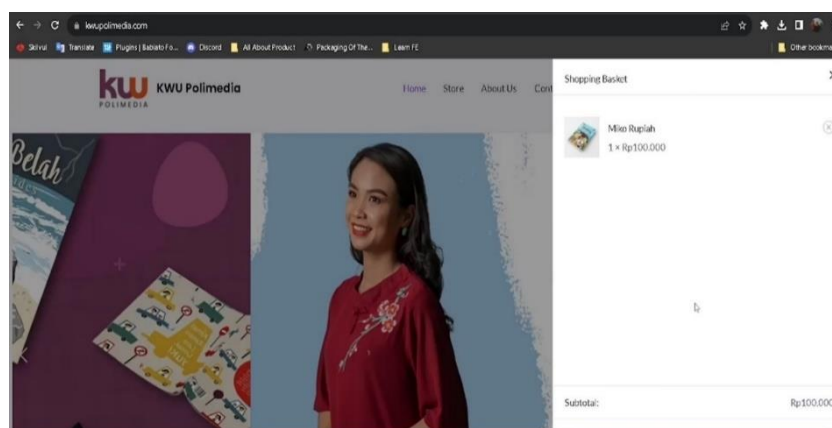


This page is designed to provide a structured user experience by providing a direct login option for users with accounts. In contrast, for those who do not have an account, the registration process is the first step. Users with an account can log in easily without going through a registration process, enabling quick access to personalized information and services. On the other hand, for visitors who don't have an account and want to check out the product, the system takes the initiative to direct them to fill out the registration page first before continuing. This aims to ensure that buyer data, including relevant information, is entirely recorded in the database. Thus, this step not only gives visitors access to explore products but also ensures that every transaction or interaction made by potential buyers is appropriately recorded, increasing the efficiency of information management and providing the basis for a more personalized user experience.

d) Product Purchase Process

Figure 7

Shopping Cart Page Display



In Figure 7, the Shopping Cart Page Display shows the critical stages in the product purchasing process. This page provides a visual overview of the items the user has selected and is ready to purchase. Each selected product is displayed in detail, including image, product name, quantity, and price. Users can see a summary of their order before moving on to the next step in the purchasing process.

Figure 8
Display of Entering Return Details Page

The screenshot displays a web form for entering return details, divided into two main sections: 'Billing details' and 'Your order'.

Billing details:

- Nama Depan ***: Input field containing 'pembeli'.
- Nama Belakang ***: Input field containing 'polimedia'.
- Alamat Jalan ***: Input field containing 'jagakarsa'.
- Provinsi, Kota, Kecamatan, dan Kode Pos ***: Dropdown menu showing '12640, Jagakarsa, Jakarta Selatan, DKI Jakarta'.
- No Tlp ***: Input field containing '085' and 'I'.
- Alamat Email ***: Input field containing 'pembeli@gmail.com'.
- Deliver to a different address?**
- Order notes (optional)**: Input field containing 'Notes about your order, e.g. special notes for delivery.'

Your order:

Product	Subtotal
Miko Rupiah x 1	Rp100.000
Subtotal	Rp100.000
Shipping	Free shipping
Total	Rp100.000

All Supported Payment

Accept all various supported payment methods. Choose your preferred payment on the next page. Secure payment via Midtrans.

Your personal data will be used to process your order, support your experience throughout this website, and for other purposes described in our privacy policy.

In Figure 8, a Display is Entering the Return Details Page, which details important information required in the product return process. This page provides a form with fields for entering the user's first name, last name, address, telephone number, and email address. Each column is clearly designed to ensure users can fill in their data easily and accurately. Additionally, there is an option to include order notes, which is optional. This allows users to include additional information or special instructions regarding returning the product. With structured and clear columns, users can quickly and easily input the information needed to process their product returns.

Figure 9
Display of Invoice Information for Purchased Products

Thank you for your **order**

Hi Elvina,

Thanks for your **order**. It's on-hold until we confirm that payment has been received.

[Order #15882] (27 September 2023)

Product	Quantity	Price
Miko Rupiah	1	Rp100.000
Subtotal:		Rp100.000
Shipping:		Free shipping
Payment method:		All Supported Payment
Total:		Rp100.000

Billing address

Elvina Julie
JL. Jagakarsa II No.30A
Jakarta Selatan
DKI Jakarta
12530
[081210165135](tel:081210165135)
trifaisr@gmail.com

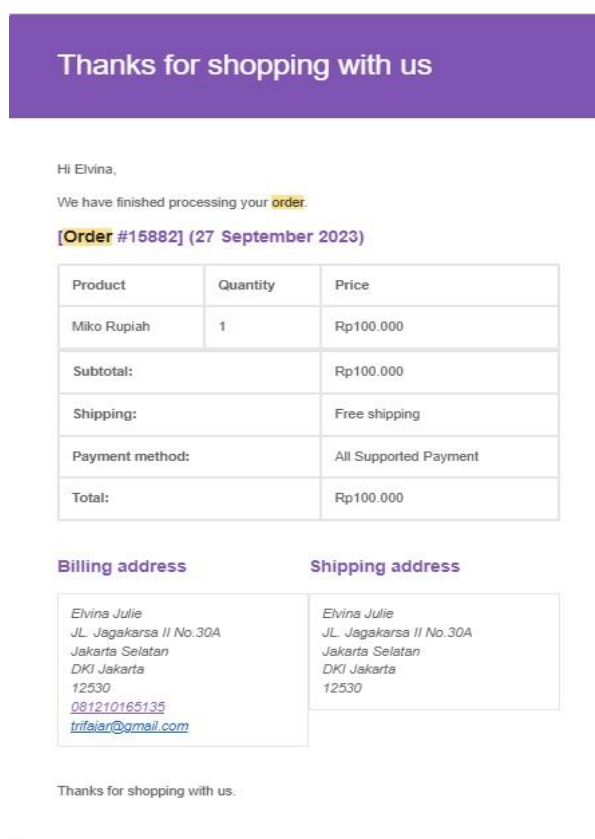
Shipping address

Elvina Julie
JL. Jagakarsa II No.30A
Jakarta Selatan
DKI Jakarta
12530

We look forward to fulfilling your **order** soon.

In Figure 9, you can see the Invoice Information Page for Purchased Products which provides detailed important information related to purchase transactions. This page is the main reference for users who want to verify and view in detail the elements related to their purchase invoices. This Invoice Information page includes information on the products purchased, includes the product name, price per unit, number or quantity of products ordered, and the total cost for each item. Apart from that, there is billing address information which is used for transaction billing purposes, as well as a shipping address which shows where the product will be sent. The design of this page is designed to provide a clear and structured view of the invoice elements, so that users can easily verify that all the information listed is correct and matches their order. With an organized appearance, the Invoice Information Page in Figure 9 helps create an informative and transparent user experience during the product purchasing process.

Figure 10
Display of Information that the Purchase Process has been Completed



Thanks for shopping with us

Hi Elvina,
We have finished processing your **order**.

[Order #15882] (27 September 2023)

Product	Quantity	Price
Miko Rupiah	1	Rp100.000
Subtotal:		Rp100.000
Shipping:		Free shipping
Payment method:		All Supported Payment
Total:		Rp100.000

Billing address

Elvina Julie
JL. Jagakarsa II No.30A
Jakarta Selatan
DKI Jakarta
12530
[081210165135](tel:081210165135)
trifajar@gmail.com

Shipping address

Elvina Julie
JL. Jagakarsa II No.30A
Jakarta Selatan
DKI Jakarta
12530

Thanks for shopping with us.

In Figure 10, you can see on the Information Page that the Purchase Process Has Been Completed, which provides confirmation and a detailed summary regarding the purchase transaction that has just been carried out. This page is an official announcement that the purchasing process has been completed. This page presents information on products purchased, including product name, price per unit, number or quantity of products ordered, and total cost for each item. In addition, billing and shipping address details remain visible to assure users that the information has been recorded and is as intended. This confirmation is accompanied by a message or sign that the purchasing process has been completed, creating a satisfying user experience and providing confidence that the transaction has been successful. The Information that the Purchase Process is Complete page in Figure 10 is designed to provide a clear understanding of the purchase details, provide the user with the necessary confirmation, and provide a satisfactory conclusion to the product purchasing experience.

Platform Testing

Polimedia Entrepreneurship CRM Platform testing is critical in ensuring that the system meets quality standards and is ready to be implemented. Two main test methods are used in this test: the Black Box and White Box. The Black Box method tests platform functionality without considering internal details or code structure. This test aims to evaluate whether the platform can produce output that meets expectations and responds correctly to the various inputs it may receive. The results of the Black Box method help assess the platform's overall performance from the end user perspective. Meanwhile, the White Box method involves internal testing of the platform by checking the structure and logic of the code. This is done to ensure that

necessary improvements have been implemented effectively and to assess the reliability and security of the platform from a programming and design perspective. This testing process is iterative, and if additional necessary improvements or deficiencies in development are found, the stage can return to the previous step or the initial development stage. This ensures that every aspect of the platform has been thoroughly checked and any issues can be addressed before the platform is fully implemented. After undergoing a series of trials on the platform, the evaluation results show that this platform can provide significant improvements to the Customer Relationship Management (CRM) system for entrepreneurship students at Polimedia. Testing has successfully highlighted the platform's ability to optimize relationship management with customers, such as students who are developing their own businesses.

Discussion

This platform effectively repairs and enhances various aspects related to CRM. In terms of functionality, the platform can produce appropriate responses to student needs and requests, support managing customer data, and increase efficiency in the interaction and communication process. In addition, after testing, it was found that the user interface provided by this platform was intuitive and easy to use, making it easier for students to access and utilize the various features provided. These positive evaluation results indicate that the platform has achieved its primary goal, namely improving the CRM system for entrepreneurial students. This success provides confidence that the platform is ready to be implemented widely, providing maximum user benefits and supporting the growth and development of student businesses at Polimedia.

Developing an integrated digital business platform emerged as a strategic solution for entrepreneurial students to improve Customer Relationship Management (CRM). Students can experience various significant benefits in managing customer relationships through this platform. First of all, the platform allows students to expand the reach of their business by reaching a more comprehensive range of local and global customers. The platform also facilitates increased interaction between students and customers, creating an efficient and effective communication channel. Students can design more targeted marketing strategies by understanding customer needs and wants and adapting their products or services to customer preferences.

This digital business platform plays a role in creating a positive customer experience. Students can build strong, long-term relationships with their customers by providing a user-friendly interface, responsive service, and additional services that meet customer expectations. Developing an integrated digital business platform facilitates technical aspects and creates an environment that supports growth and success for entrepreneurial students. With this platform, it is hoped that students can be more effective in building and managing relationships with customers, positively impacting the development of their business in the digital world.

4. Conclusion

The research findings lead to the following conclusions derived from the study's objectives. Firstly, the study highlights the significance of website-based business platforms and social media as concrete implementations of Customer Relationship Management (CRM). These implementations specifically target decision support, market research, marketing strategy formulation, customer service enhancement, and collaborative engagement with customers regarding products and services. Secondly, the identified Integrated Digital Business Platform proves instrumental in enabling businesses to elevate and optimize their utilization of customer relationships and business intelligence tools. The platform provides a well-organized framework, suggesting its effectiveness in integrating CRM principles. This systematic approach equips businesses with the means to strategically leverage customer interactions and harness business intelligence for informed decision-making. Recommendations for future

development include: (1) provide specialized employees or individuals to serve CRM activities for direct online/offline customer interaction. (2) enhance third-party logistics services to premium. Develop a web platform for selecting entrepreneurial products that can be input and validated directly. (3) future platform development could evolve into a broader marketplace, incorporating Financial Technology (Fintech).

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