

# Development of an Online Sales Information System for SMEs Using Incremental Methods

*Pengembangan Sistem Informasi Penjualan Online UKM Sepatu Dengan Metode  
Incremental*

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**Abstract**— Home Industry Shoes is one of the SMEs that are engaged in the production and sale of shoes. Shoes SMEs in marketing and sales have been still relying on customers from surrounding areas of production activities. Current business competition is stringent, thus making SME shoes demanded to be more advanced in marketing and sales to be able to stay afloat. Shoes SMEs have problems with promotional media and sales, which does not yet have an independent online sales system. Therefore, the authors feel the need to help SMEs by creating an online sales information system that can be used as a promotional media as well as a media for selling independently and easy to use. In this study, the authors apply the incremental method in system development and also observation in gathering data on the needs of the system developed. Achievements in this study, the authors, produce an online sales information system for SMEs, in particular, the production of home industry shoes that can be used independently by SMEs to carry out promotions and sales online.

**Keywords**—Information System, sales, online, shoes SMEs.

**Abstrak**—Home industri sepatu merupakan salah satu UKM yang bergerak dalam produksi dan penjualan sepatu. UKM sepatu dalam pemasaran dan penjualan selama ini masih mengandalkan pelanggan dari daerah sekitar kegiatan produksi. Persaingan bisnis saat ini sangat ketat, sehingga UKM sepatu dituntut untuk lebih maju dalam pemasaran dan penjualan untuk bisa tetap bertahan, UKM sepatu memiliki masalah dengan media promosi dan penjualan, dimana belum memiliki sistem penjualan online secara mandiri. Oleh karena itu penulis perlu membantu dengan cara membuat sistem informasi penjualan online yang dapat digunakan sebagai media promosi dan penjualan secara mandiri serta mudah dalam penggunaannya. Dalam penelitian ini penulis menerapkan metode incremental untuk pengembangan sistem dan juga observasi dalam pengumpulan data kebutuhan terhadap sistem yang dikembangkan. Capaian dalam penelitian ini penulis menghasilkan sistem informasi penjualan online untuk pelaku UKM khususnya produksi sepatu home industri yang dapat digunakan secara mandiri oleh para pelaku UKM untuk melakukan promosi dan penjualan secara online.

**Kata Kunci** : sistem informasi, penjualan, online, UKM sepatu.



## **I. INTRODUCTION**

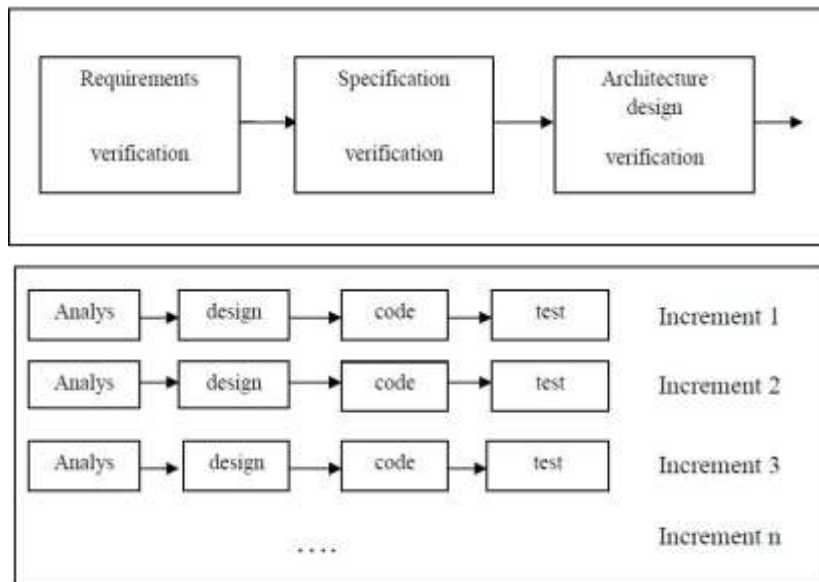
Trading Business of Ballet Shoes Home Industry is SMEs engaged in the production and sale of shoes. It is located at Jl. Sersan Mustajab, Daleman Hamlet, Japan Village, Sooko, Mojokerto. Shoe SMEs only rely on customers from within the city. Media promotion is only in the form of brochures and direct offers. Today's business competition is very tight. So Trading Business of Home Industry of Ballet Shoes is demanded to be more advanced. Not only getting customers in the city but thoroughly outside the city. TB. Ballet Shoes Home Industry Shoes has a problem with promotional media and does not yet have an item catalog. The results in the current turnover being less than the maximum. Profit is currently only obtained from customers within the city. Media campaigns that are often used are brochures, Facebook, and direct offers. The need for promotional media is significant to achieve success in business competition [1]. However, in reality, it is still less useful because it only relies on social media. One way that can be used is an online sales information system [2] [3]. The online sales information system is a media of buying and selling transactions conducted online that connect companies and consumers electronically [4]. Based on the above problems, the Home Industry Ballet Shoes Trade Business can utilize the online sales information system.

The online sales information system is expected to help smooth business competition. This media is more effective in editing, storing, deleting, searching for product data. This media is designed to make product information to customers more comfortable to find. This online sales information system is designed with a simple and attractive interface so that users can use it more efficiently [5] [6].

## **II. RESEARCH METHOD**

The method applied in this research is the observation for useful data collection and studying the system by observing the research object [7] directly. Then the interview is a data collection technique by a direct question and answers about the data needed from the problem to be raised. Literature study by collecting data by reading library books, which is support in obtaining data to complete the preparation of reports relating to the issues discussed [8]. For system development, the method used by the author is the incremental method, which is a system development model based on software requirements that are broken down into functions or parts so that the development model gradually includes Requirements, where the initial stages of the incremental model are the determination of needs or analysis the need for the system to be built is, of course, an online sales information system for the Shoes Trading Business, Specification is a specification process which uses needs analysis as a reference, Architecture Design, Code and

Test which are the testing stages in this model [9] [10] [11]. The incremental steps in Figure 1 are carried out sequentially, where each part that has finished testing is sent to the user for immediate use. In the incremental model, the first three stages must be completed first before building each increment [9] [10] [11].



**Figure 1.** INCREMENTAL MODELING [9][10]

System analysis is carried out to obtain information about the system, analyze the data in the order related to online sales activities. Information collected is mainly about the advantages and disadvantages of the system [12]. Design is a new system design based on data that has been raised in the previous stage by designing software including Context Diagrams, Data Flow Diagrams (DFD), Entity Relationship Diagrams (ERD), Data Dictionary (Data Dictionary), File Structure, Menu Structure, Designing inputs and Output designs. Coding is an activity to create a program or implement the results of an application program design, which includes data conversion into a new system and periodic system conversion, including in terms of maintaining the system itself [13] [14]. Testing to tighten the program that has been made, whether it is correct or not, is appropriate or has not been verified manually if the testing is accurate, then the program may be used. Maintenance is an activity to maintain the application program that has been made, so that the integrity of the program can be managed, such as data validation, updating data, and protecting the program from virus attacks, unauthorized people who can damage the program [15].

Analysis and design of the system require systematic steps to get a proper application and following the purpose and purpose. The initial stage of the study is to analyze system requirements ranging from user needs, non-functional needs, and functional needs [12].

As for the application design stage, namely database design, and interface design [15] [16] [17]. Based on previous research and theories that support it, then the outline of this system can be arranged in the form of context diagrams such as Figure 2. This diagram illustrates the interaction of the system with external entities, namely admin, customers, and owners. Admin has full rights to the system and data management, such as insert, update, and delete. While the customer has the right to goods or products in this case in the form of shoes, shoe models, shoe colors and prices for each shoe and for the owner to get a report on the order of goods, stock of products, orders and income [13] [14].

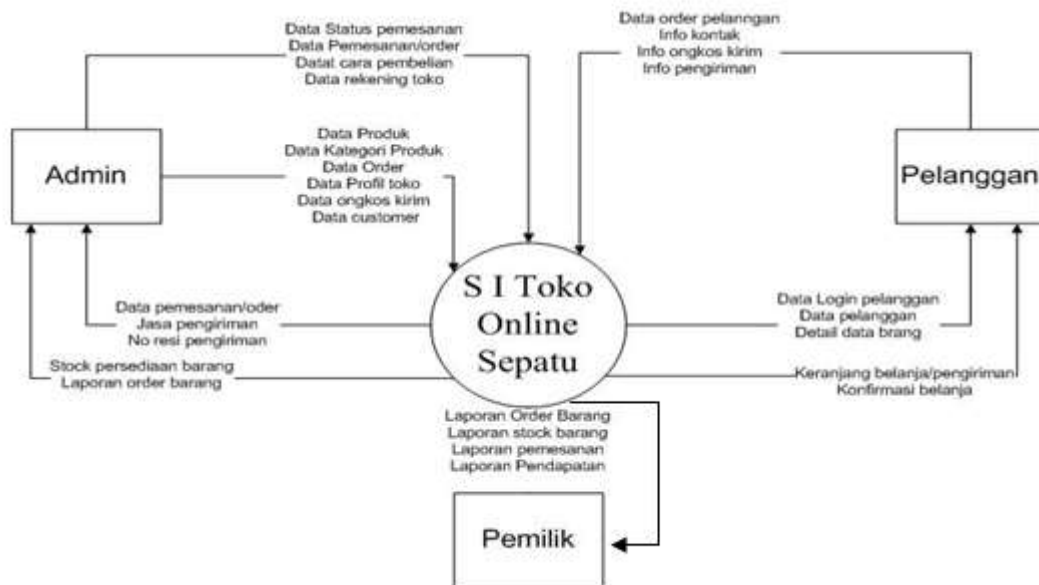
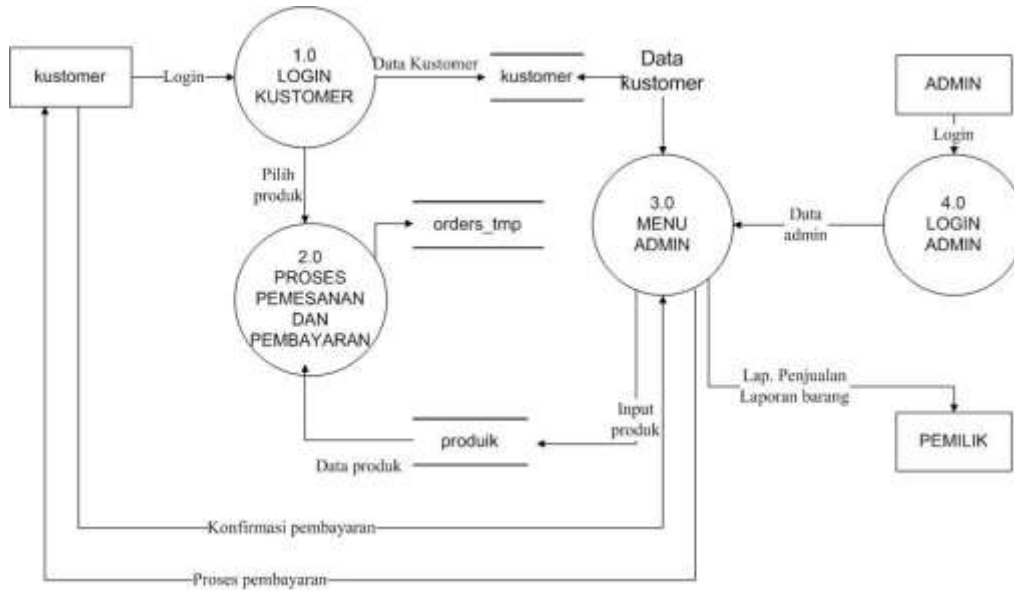


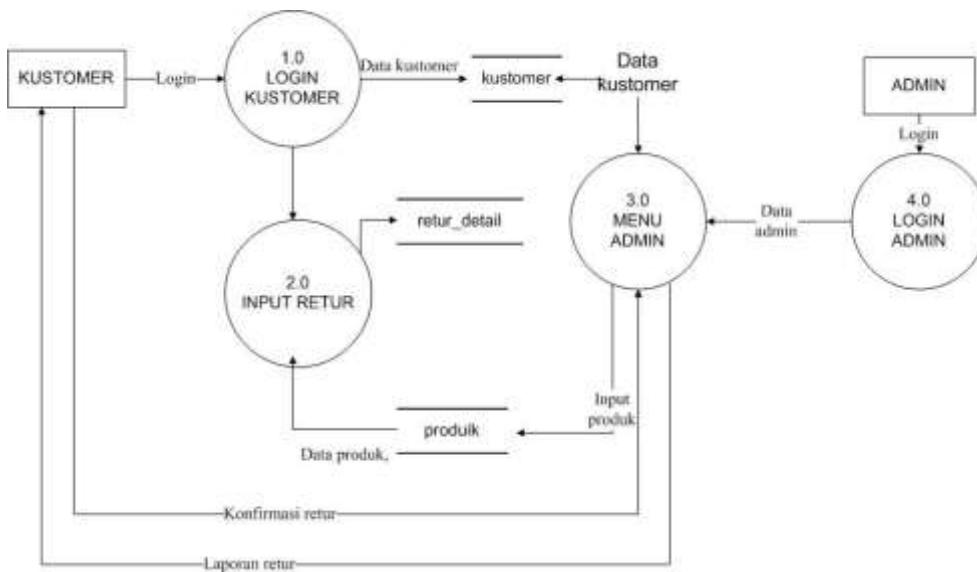
Figure 2. DIAGRAM OF CONTEXT

Data flow diagram level 1 for the login process of the customer, admin, and owner to the system, the ordering process, and payment for customers, as in figure 3.



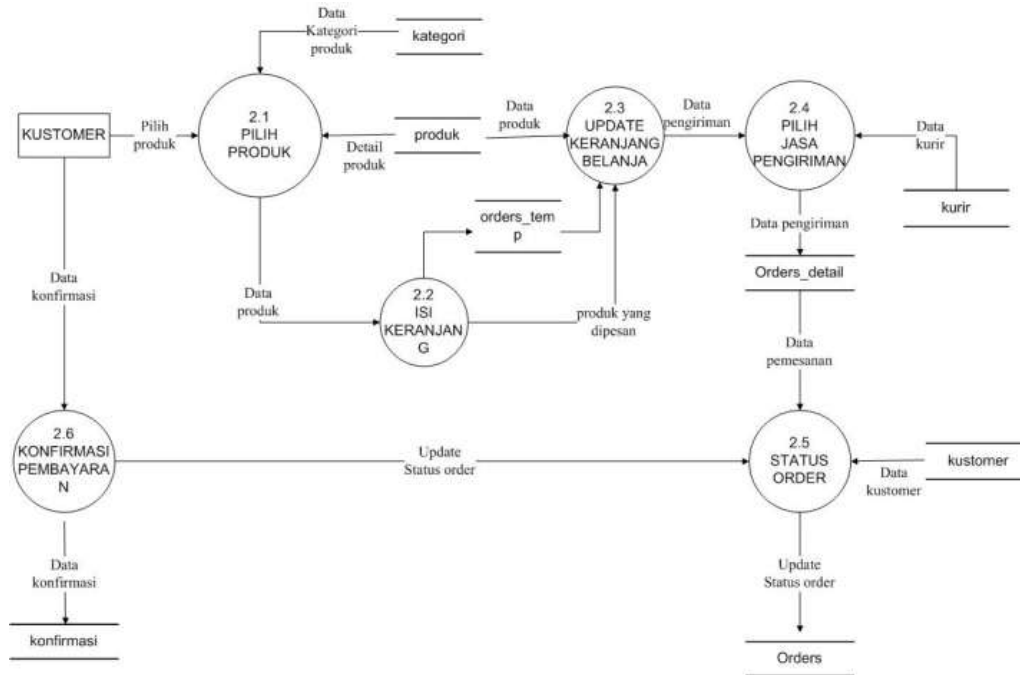
**Figure 3.** DFD LEVEL 1 PRODUCT ORDER PROCESS

For designing the process of returning goods or products can be seen as Figure 4, still in data flow diagram level 1.



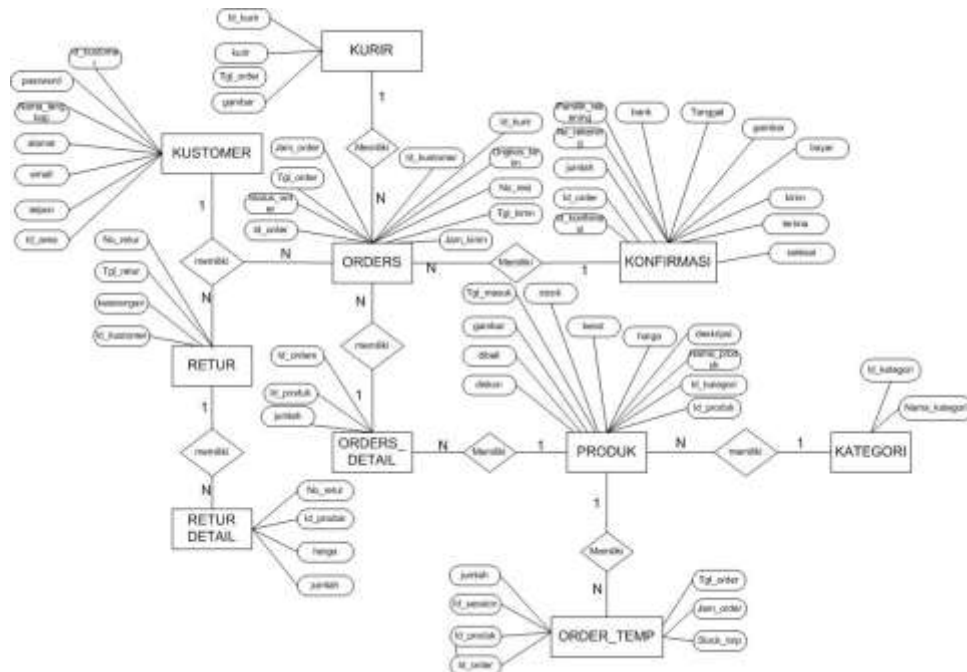
**Figure 4.** DFD LEVEL 1 RETURN PROCESS

Data flow diagram level 2 for the detailed process of ordering goods for SMEs products used by customers looks like in Figure 5.

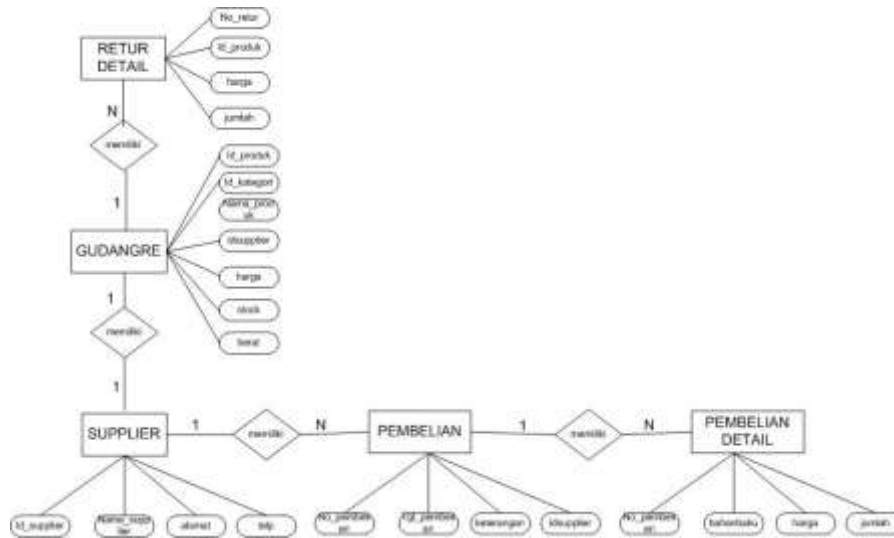


**Figure 5.** DFD LEVEL 2 ORDER DETAILS

An entity-relationship diagram is a form of arrangement of tables in a database, including relations between one table with another table. Entity-relationship pictures for this system can be seen, as shown in Figure 6.



**Figure 6.** ENTITY RELATIONSHIP DIAGRAM



**Figure 6.** ENTITY RELATIONSHIP DIAGRAM (CONTINUE)

### III. FINDING AND DISCUSSION

After system planning, the next step is testing the system that is made. For testing the system, several support systems are needed, including PCs with Windows 7 32 bit OS or later versions, Xampp version 1.7.3., My SQL, Mozilla browser, or Google Chrome. Implementation of the interface is done with every page that is made both the front view that is built for customers to log in and shop and the back view that is used by the admin for the input and transaction processes. The following are some of the interface displays that have been implemented. The front display system interface consists of item menus, shopping carts for customers, and the login and register process. To be able to process transactions, customers must first register for membership. The initial menu implementation can be described, as shown in Figure 7.

The frontend is the main menu display of the system displayed on the website. To access the main menu, the user or customer must register first so they can process the transaction. The main menu implementation can be described, as shown in Figure 6.



**Figure 7.** MAIN MENU

Shopping cart menu interface is useful to keep a list of products ordered by customers. The implementation of the shopping basket menu can be described, as shown in Figure 8.



**Figure 8.** SHOPPING CART PAGE

The payment confirmation form interface is used for the user or customer to confirm payment by transfer. If you have approved, the admin will process the order to send the goods. The implementation of payment confirmation can be described, as shown in Figure 9.



**Figure 9.** PAYMENT CONFIRMATION PAGE

The order detail page interface is used for users or customers to view data on transactions that have been carried out, transaction status, as well as shipping information. The implementation of order details can be described, as shown in Figure 10.





**Figure 10.** PAYMENT CONFIRMATION PAGE

The transaction interface is the page used by the admin to process the order from the customer, and confirm payment from the customer. The following picture displays the results of the implementation of the transaction page illustrated in Figure 11.



**Figure 11.** ORDER TRANSACTION

The confirmation interface is a page for payment confirmation from customers. The following chart displays the results of the implementation of the confirmation page illustrated in Figure 12.



**Figure 12.** CONFIRMATION PAGE

The goods return page interface is a page to process the product return from the customer. The following figure 13 displays the results of the implementation of the item return page.



**Figure 13.** GOODS RETURN PROCESS

Usability Testing is a way to evaluate a software product by testing it with prospective users, namely the SMEs of shoe trading businesses with male or female gender, aged 23-40 years who are familiar with the use of computers. In this test, the software to be tested is an online shoe trading information system. In usability testing, only use completion rate as success metrics like Table 1. To find out which pages the user has difficulty using the design that has been made. The pages or software modules that will be tested in 5 stages, with five users [18].

**Table 1.** SYSTEM TESTING PROCESS WITH USABILITY TESTING

	User Login Module	Product Promotion Module Input	Sales Price Input Module	Payment Confirmation Module	Check Payment Module
<b>User 1</b>	100	100	100	100	100
<b>User 2</b>	100	100	100	100	100
<b>User 3</b>	100	100	100	100	100
<b>User 4</b>	100	50	100	100	100
<b>User 5</b>	50	100	100	100	100

**Information :** (0 = Hard, 50 = Medium, 100 = Easy )

From the test results, it appears that user 1 to user 5 has the ease of carrying out every step in the Usability Testing model. It appears that user 4 when running the stage of the product promotion of product input process does not experience difficulties including user five also does not experience problems at the time of initial login to the system, but overall almost all users have no difficulty in running every step available at completion rate.

#### IV.CONCLUSION AND SUGGESTION

Results of design and development have been done on the system SME information online sales. This shoe can be concluded that this system can facilitate SME's Trading Business of Ballet Shoes Home Industry in the promotion and selling of shoe SME products independently. The online sales information system is expected to increase the breadth of promoting and selling SME shoe products to increase sales.

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