Web Application Development for Syari Online Shop Using 4D Model Development

Yose Indarta[1]), Sukardi[2]), Fadhli Ranuharja[3])*, Agariadne Dwinggo Samala[4]),
Ika Parma Dewi[5])
[1,2,3,4,5)]Faculty of Engineering, Universitas Negeri Padang, Indonesia
[1)]yose_11@yahoo.co.id, [2)]sukardi@ft.unp.ac.id, [3)]fadhiranu@ft.unp.ac.id, [4)] agariadne@ft.unp.ac.id,
[5)] ika_parma@ft.unp.ac.id

Abstract: Haransaf shop is a shop that sells clothes and all Muslim/Muslim knick-knacks. Depending results of observations and data searches directly to the field with increasing requests. The use of technology in data processing of Haransaf Online Store Transactions has not been effective and efficient so that reporting takes a long time. The recording of the Haransaf store report still uses a manual system, which is still written on notes and then recorded in the sales book. The focus of this research is on an attractive interface, ease of use, and delivery of product information to consumers by utilizing the website as an online service. The research method uses 4-D. The model in the development of an online store must use a 4D model. The 4D model has four stages, namely Define, Design, Develop and Disseminate. The website-based Haransaf Online Store that uses the Codeigniter 4 Framework, functions well to produce a sales management system that manages the Haransaf online store. With the existence of this online store, it is hoped that it can provide an increase in revenue at the Haransaf Store and benefits in the form of a wider scope.

Keywords : Sales Transaction Information System, Haransaf Online Store, 4D Model, Framwork

INTRODUCTION

The development of technology is increasingly rapid today, where the need for professional personnel will be increasingly needed by large companies and small companies. It is inseparable from the development of these technologies, it is necessary to have the perfect supporting facilities, namely computers. Computers are one of the most important means for companies where we can process and access the required data quickly and precisely so that we can take advantage of the remaining time with other activities. With the provision of various facilities owned by computers, it is inevitable that every leader wants his company to be equipped with computers and application programs that are in accordance with the company's line of business (Solihin & Fuja Nusa, 2017).

Ease and accuracy in data processing and reporting is an indispensable requirement, not only in a government agency, but this need has now entered the environment of private companies, the need to process sales transaction data and the system of availability of goods in trading companies. Preparation and reporting of inventories goods and goods requirements are a process of activities that must be carried out by companies, especially in the warehouse section, but the process turns out to be very time consuming and complicated, which is the result of a simple system that makes its implementation very ineffective and efficient for its users.

Based on an interview that the author conducted on May 21, 2021 at the Haransaf Exclusive Syar'i Store, which is located at Jalan Bonjo Baru Barumbuang V, Bukittinggi City. Founded by Susilawati on February 1, 2020. The Haransaf Exclusive Syar'i shop is a business engaged in selling clothing in the Bukittinggi area. The Haransaf Exclusive Syar'i shop sells several types of products, namely syar'i clothes, khimar, fren khimar, and veils.

Initially, the Haransaf Exclusive Syar'i store was not supported by any application for all kinds of transaction processes. In carrying out activities, especially in managing data, information systems are very useful in terms of accuracy and speed of the process. At Haransaf Exclusive Syar'i, the data processing of these goods still uses a manual process, causing several problems, including slow calculations, the process of checking goods

*Corresponding author : fadhliranu@ft.unp.ac.id

is very long, searching for goods data is still relatively long and reporting is still not effective because sellers rarely do recapitulation. sales transactions.

Not to mention the bad administration, where the books start from not knowing the available stock, incoming goods, and sold ones. So the owner finds it difficult to manage these items. Moreover, when buyers order in large quantities, the owner is overwhelmed, this has an impact on the convenience of buying and selling transactions at the store.

Based on the results of interviews that have been conducted at the Haransaf Exclusive Syar'i Store, it can be concluded that in solving business management problems it has not been managed optimally. The Haransaf Exclusive Syar'i store requires an information system that can assist in managing sales transactions, stock items, and recapitulation of sales reports. The management of the available goods should be clear, be it the brand, type, quantity or condition of the goods. With the optimal use of management information systems, it is hoped that the processing of data and the presentation of the desired information can be more effective and efficient.

Making an information system for the Haransaf Exclusive Syar'i Store, wants to provide a solution by designing and applying an information system using the PHP programming language. So based on the background of the problem above, an information system was created and designed with the title "Design and Build a Sales Transaction Management Information System for a Website-Based Exclusive Syar'i Store".

LITERATURE REVIEW

Management Information System (MIS)

According to(Wibawanto, Pradipta, & Mulwinda, 2017) as follows: "MIS is a computer-based system, another network that can provide information for several users to support management functions and decision-making functions". According to (Ibnu Syamsi, 2000) states that a management information system (MIS) is an information network that is needed by leaders in carrying out their duties, especially in making decisions.(Samala, Fajri, & Ranuharja, 2019)states that: "MIS are ways of managing information work using a systems approach based on management principles".(Indarta, Jalinus, Abdullah, & Samala, 2021)management information systems (management information systems) is the application of information systems within the organization to support the information needed by all levels of management.(Triandini, Rijal, & Ambara, 2021)

Definition of Sales

According to(Sanprasit, Titijaroonroj, & Kesorn, 2021), Sales is presenting goods so that consumers become interested and make purchases. While according to(Indarta, Irfan, Muksir, Simatupang, & Ranuharja, 2021)Selling is the science and art of personal influence carried out by the seller to invite others to be willing to buy the goods or services offered.(Ranuharja, Oktoria, & Dwiyani, 2018)

Understanding Online Stores

According to (Pradipta, R., Wibawanto, H., & Mulwinda, A, 2017), an online shop or online business is no longer something foreign to the Indonesian people, whether they use the internet in their daily lives or not. The definition of an online shop is a process of buying goods or services from those who sell goods or services via the internet where the seller and the buyer have never met or made physical contact where the goods being traded are offered through displays with images on a website or virtual shop. After that, the buyer can choose the desired item and then make a payment to the seller through the bank account in question. After the payment process is received, the seller's obligation is to send the buyer's ordered goods to the destination address.(Hayuningtyas, 2015)

UML

Unified Modeling Language (UML) is an architectural system that runs in OOAD (Object-Oriented Analysis Design) according to(Ranuharja, Fajri, & Samala, 2020)with one consistent language for determining, visualizing, constructing and documenting artifacts (pieces of information used or generated in a software engineering process, can be in the form of models, descriptions, or software) contained in software systems.(Rafika Dewi, 2018). The system design approach using UML in this study was chosen because UML modeling is the easiest language to understand and implement, and many systems have been created through this modeling. In the design of this Haransaf store, a system flow requirements analysis approach and system actor analysis were carried out using a use case diagram. For user activities and what the user can do, the activity diagram is selected. Then after setting the activity and the user, an ERD diagram is made to determine what entities exist in the system. For more details explained in the chapter on research methods.

Mysql

MySQL (My Structure Query Language) is a database management system software SQL (Database Management System) or DBMS that is "open" (open source). Of the many DBMSs, MySQL is a multithreaded, multi-free DBMS that is free under the GNU General Public License (GPL).(Efendy, 2018). The store designer

*Corresponding author : fadhliranu@ft.unp.ac.id

must choose Mysql as the database language because it is easy to distribute and suitable for use by many system developers. For retrieval query data items is also easy to do. There are already many examples of e-commerce systems that use Mysql as their database.

Entity Relationship Diagram (ERD)

According to (Liu, Zeng, Zhang, & Zou, 2018) "ERD is a network model that uses an abstract arrangement of data stored in the system". ERD also describes the relationship between an entity that has a number of attributes with other entities in an integrated system. Entity Relationship Diagram (ERD) to document company data by identifying the type of entity (entity) and its relationship. ERD is used by system designers to model data which will later be developed into a database (database). This data model will also help when analyzing and designing databases, because this model will show the various types of data needed and the relationships between the data.

ERD is divided into three components, namely entities (entities), attributes (attributes), and relationships (relation). Broadly speaking, the entity is the basis involved in the system. Attributes or fields act as descriptors of entities, and relationships or relationships show relationships that occur between two entities (Amilia Sunan, 2020).

The entities obtained from the ERD diagram design make it easier to design the Haransaf shop both in terms of the required attributes and in terms of the relationships that will be created. For example, the relationship between orders and buyers. The buyer has several attributes depicted on the ERD such as buyer ID, name, history etc. And the relationship that exists between buyers/customers and orders can be in the form of one-to-many, which means that one customer can order several orders, not just one order.

METHOD

This research is a type of development research. Development research is a type of research that aims to develop and produce a product. The product of this research is the Haransaf Online Store Sales Transaction Management Information System. The development design of the Haransaf Online Store Sales Transaction Management Information System uses the Four D (4D) model which is an extension of Define-Design-Develop-Disseminate.

Figure 1. Haransaf's 4D Model Development workflow

RESULT

Define

Define is the needs analysis stage. In product development, the developer needs to refer to the development requirements, analyze and collect information on the extent to which development needs to be carried out.

System Analysis

In designing a system, there are several things that must be considered, namely the existence of a system analysis that will be made including:

Business Process Analysis

Business process analysis is a collection of interrelated activities or tasks to solve a specific problem or produce a product or service. For more detailed information, you can see the current business processes in the table below:

Table 1 Business Process Analysis

No	Business process	Detailed Activities	*User*Related
1.	Store Facility Management	- *Owner*choose a strategic place to sell goods - *Owner*make banner - *Owner*recruiting employees to help the owner in terms of making products	Owner/manager
2.	Stock fulfillment procedures	- The shop produces its own goods - Employees organize and organize	Owners and Employees

*Corresponding author : fadhliranu@ft.unp.ac.id

		things	
3.	Procedure for buying and selling services to consumers	- Consumers come to the Haransaf Exclusive Syar'i shop to see what to buy - Owner checks stock availability - The owner shows the requested product - Consumers see the requested product - Consumers adjust prices with the seller (owner) - The seller (owner) agrees to the price agreement - Consumers pay and receive goods	Owner and Consumer
4.	Sales Report Management	- Employees provide a list of products that are ready to be sewn - *Owner* record sale and purchase transactions	Owners and Employees

System actor analysis

System actors are people who are involved in the system and their respective functions and duties. For more details can be seen from the following table:

Table 2 Analysis of System Actors

No	System Actors	Information
1.	Owner/Owner	- The shop owner who has the highest authority - Recruit, fire and pay employees - Store financial management - Setting the price of goods - Serving Customers - Serving payment transactions
2.	Employee	- The worker selected by the owner - Sewing product - Organize and arrange products - Serving consumers
3.	Consumer	- Is a buyer who will process purchases at the Haransaf Exclusive Syar'i Store

Business Rules Analysis

Business rule analysis is an explanation of the business rules that are running on the current system.

Table 3 Analysis of Business Rules

No	Rules
1.	The seller must have a product that is guaranteed to be suitable for use.
2.	The seller must guarantee the availability of stock
3.	The seller must notify changes both in terms of prices, available product stock, etc
4.	The seller responds if the customer asks
5.	If there are criticisms and suggestions, the customer must convey it politely

Problem Analysis and Solution

Analysis of problems and solutions is to analyze what problems occur in the field and the solutions given to solve these problems

Table 4 Analysis of problems and solutions

No	Problem	Solution
1.	Report system that still uses the recording system (manual)	The system provides management of sales reports that make it easier for sellers to manage the finances of the

*Corresponding author : fadhliranu@ft.unp.ac.id

		Haransaf Exclusive Syar'i Store.
2.	Limited employees in charge of serving prospective buyers	The system should provide transaction ordering services without having to have employees.
3.	An error occurred in calculating the payment	The system should provide automatic summation of orders and total payments so that there are no errors in payments.

System modeling using UML
Haransaf Online Online Store Context Diagram
Context diagram shows the system as a whole and clearly describes the scope of the system to be created according to (Ranuharja, Fadhli, 2020)
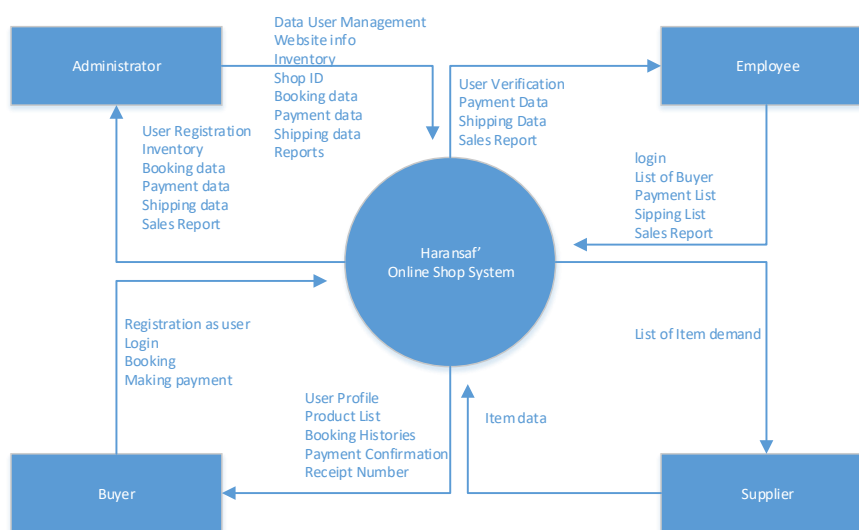
Figure 2 System Context Diagram

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Use Case Diagrams
Use case diagram is a diagram that describes the interaction between the system with external systems and users. In other words, it graphically describes who will use the system and in what way according (Solihin, H. H., & Nusa, A. A. F, 2017)
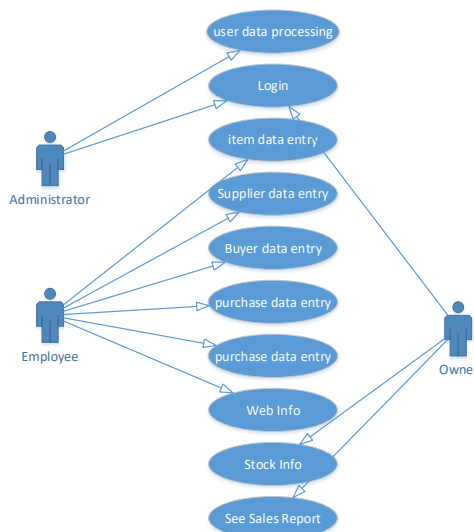

Figure 3 Use System Diagram

*Corresponding author : fadhliranu@ft.unp.ac.id

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Activity Diagram
Activity Diagram describes the flow of work (workflow) or activities of a system or business process. The following is an activity diagram of this system :
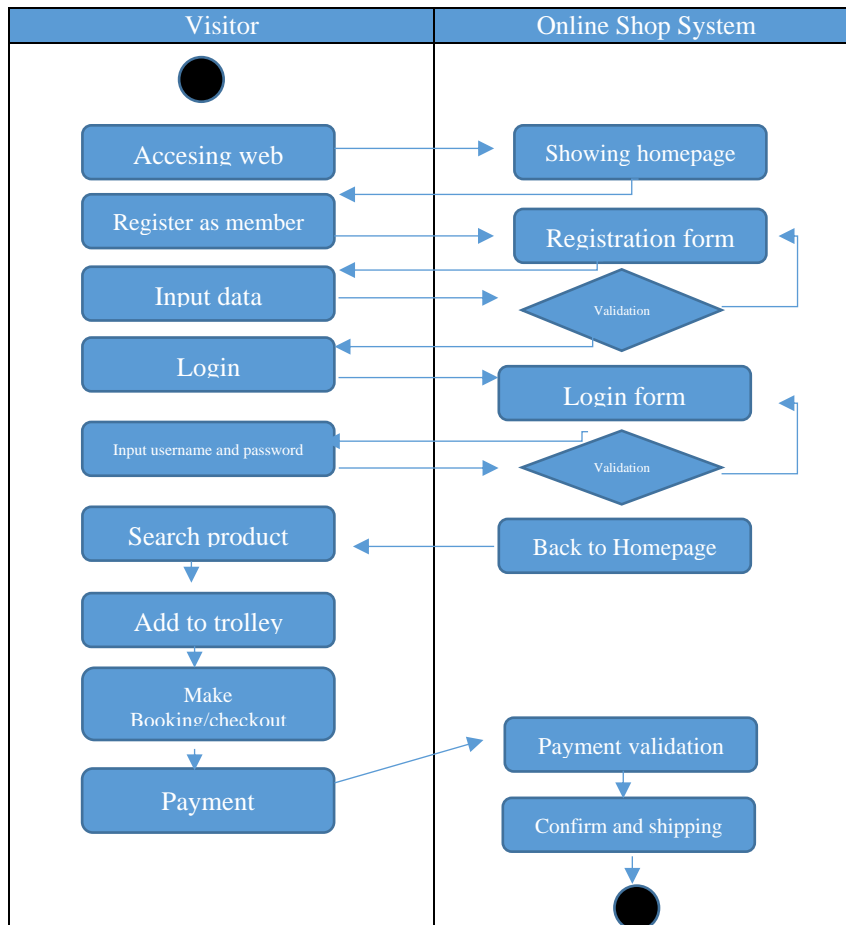Customer Activity Diagram

Figure 4 Activity Diagram for customers

Design
Database Design
ERD (Entity Relationship Diagram)
Entity-Relationship Diagram (ERD) is a form of diagram that uses the relationship and substance of information. Entity relationship diagrams are constructed using perceptions consisting of . Consists of a set of objects that exist, exist, and are different from other objects. According to (Nurjamiyah, N., & Dewi, A. R, 2018)

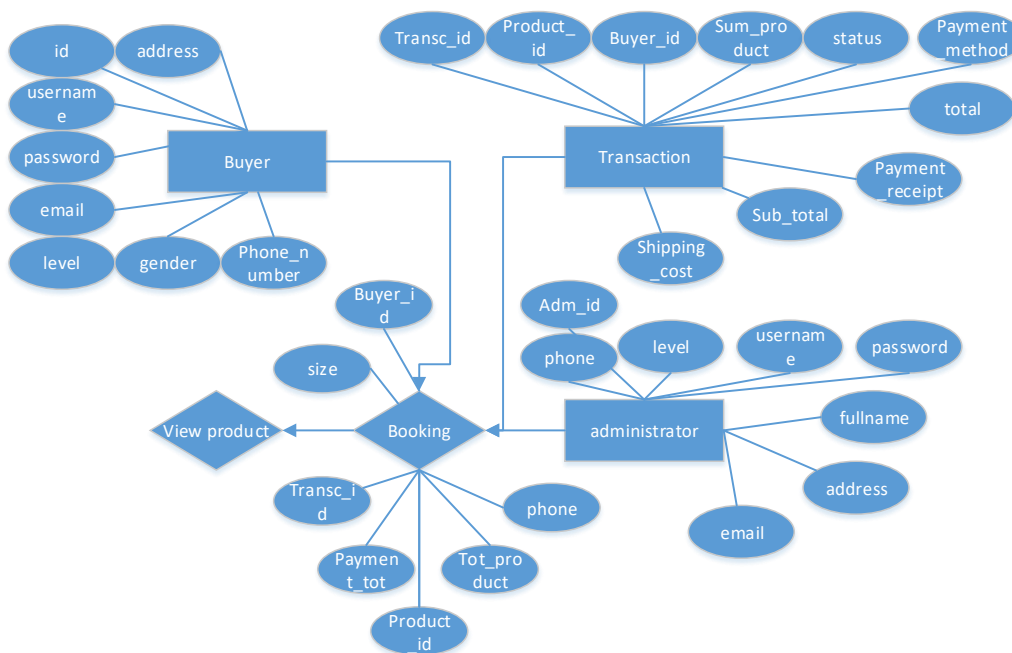*Corresponding author : fadhliranu@ft.unp.ac.id

Figure 5 ERD System

Relationships Between Tables
Relationships between tables, relationships that occur in a table with others that represent relationships between objects in the real world and serve to regulate the operation of a database.
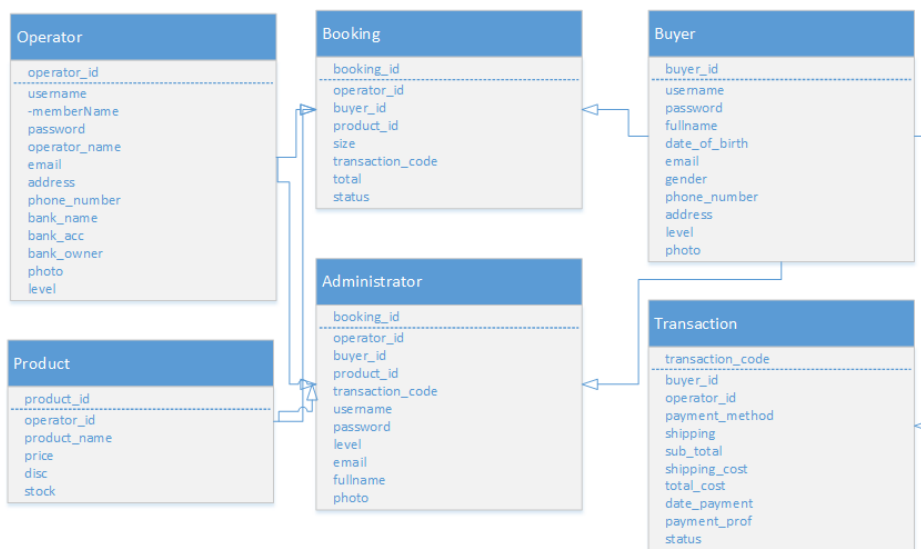

Figure 6 Database Tables and Their Relationships

Interface Design
The purpose of interface design is to design an effective interface for the software system. Effective means ready to use, and the results are in accordance with the needs. The need here is the user's need. Users often judge the system from the interface, not from its function but from the user interface. The design of this interface must be comfortable to see, easy to use, unambiguous and so on. The following is an information system interface design

Customer Home Menu Display
This Customer Home Menu page is the Website's start page. This page will display several products. Customers and visitors can search for the product they want by name or product category

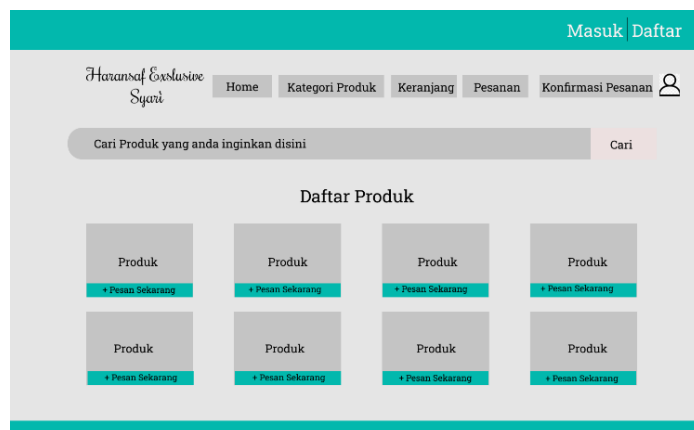*Corresponding author : fadhliranu@ft.unp.ac.id

Figure 7 Menu Display for Customers

Admin Home Menu Display
This Admin Home Menu page is used to manage users and see the running of the system
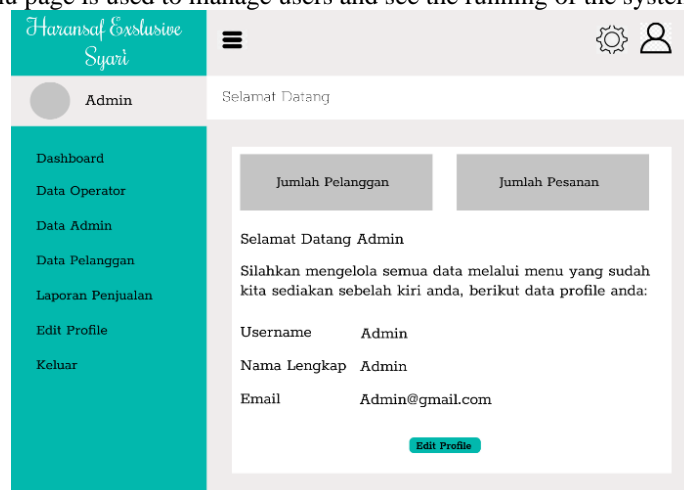

Figure 8 Display Main Menu Admin

DISCUSSIONS

The Exclusive Haransaf Online Store was developed using the 4 D model. In the early stages, several analyzes were determined, such as analysis of user needs, analysis of current systems, analysis of business rules, especially in the field of e-commerce and the Haransaf shop is a type of e-commerce business to consumer (B To C). UML modeling starts from making context diagrams to determine the relationship between users who get output and enter input into the system. Then the system character is described in the form of a use case diagram. Continue to the activity diagram to describe what the user can do. The next stage of the development of the 4D model is design, here the application is designed starting from the database and then the user interface. The database is obtained from the main tables and their relations, Of course, this database must be normalized first so that the tables do not overlap. The user interface is designed so that the application description can be seen clearly before being implemented into the css web programming language.

CONCLUSION

Based on the results of the design of a website-based haransaf store sales transaction management information system, it can be concluded that this system can be developed using 4D (Define, Design, Develop and Desiminate). This development helps the haransaf shop in making buying and selling transactions at the store. This system provides information about the latest products from the Haransaf store and provides information about buying and selling reports at the store, with this application, ordering transactions can be carried out more quickly and can assist stores in processing sales data more effectively and efficiently.

*Corresponding author : fadhliranu@ft.unp.ac.id
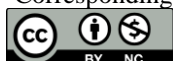
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*Corresponding author : fadhliranu@ft.unp.ac.id