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Designing a Website-Based Book Sales Information System

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Abstract

Information and Communication Technology has such a big influence in the business world. With the development of technology, it can facilitate various activities that occur in business, such as sales transaction activities and monitoring of available merchandise stocks. This is done as an effort to determine the progress of a business. One of the technological developments that are very trending in the business world is the use of websites, such as e-commerce. To design an information system, a UML design is needed to analyze what is needed and what will be built from the system. With this UML modeling can make the process of developing a system more systematic.

Keywords: *UML, Information Systems*

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INTRODUCTION

The rapid development of Information Technology has had a huge impact on the business world. This can be seen from the increasing number of businesses in various fields that use technology to create products and also market them. Apart from that, technology also really helps the development of the business world. This is because the use of technology in a business can reduce expenses significantly in that business. One part of internet technology is a website. Many people use websites to fulfill various needs and interests. And as time goes by, now the use of websites is also becoming more widespread, one of which is as an e-commerce site.

In this digital era, an information system has an important role in the progress of the business world. A sales information system is a procedure that carries out, records, calculates, creates documents and sales information for management and other purposes, such as sales orders and transaction activities. Rumah Buku Anugerah Store will use a website-based sales information system for its sales media. This sales information system will really help Rumah Buku Anugerah in storing data with a database and also help reduce errors that occur in processing sales data.

RESEARCH METHOD

In this research, a method is used, namely the waterfall method. The Waterfall Method is a method used in system development and has sequential and systematic phases which are useful for reducing errors that might occur. This

method consists of several stages, namely planning, analytics and design system. In this research, the author designed a book sales information system using tools in the form of Unified Modeling Language (UML).

2.1 Unified Modeling Language (UML)

According to Windu Gata, Grace (2013:4), Unified Modeling Language (UML) is a standard specification language used for documentation. The design of the book sales information system at Anugerah Bookstore uses UML modeling. UML is something that is used to visualize, define, and document artifacts from a software system. The following is the use of UML.

2. 1.1 Use Case Diagram

Sequence Diagram A sequence diagram is a depiction of object interactions arranged in time sequence. The following diagram specifically relates to the use case. This sequence diagram shows the steps that must occur to produce a use case diagram. This is a type of UML diagram that is used to describe the interaction relationship between the system and actors. The components used in the Use Case Diagram will be shown in Table 1.

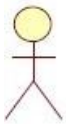
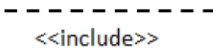
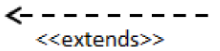
Komponen	Nama	Keterangan
	*Use Case*	Merupakan bagian utama dari fungsionalitas sistem, yang dinyatakan dengan menggunakan kata kerja.
	*Actor*	Merupakan seseorang atau sistem yang lain sistem yang lain yang mengaktifkan fungsi dari target system. *Actor* ini bertugas untuk menyediakan input, menerima output, ataupun keduanya.Dan *actor* ini juga berinteraksi dengan *Use Case*, namun tidak memiliki kontrol terhadap *use case.*
	Association Relationship	Merupakan asosiasi antara actor dan use case, dan berfungsi untuk menunjukkan komunikasi dua arah. Namun apabila hanya satu arah, maka gunakan tanda panah.
	*Include Relationship*	Merupakan pemanggilan *use case* oleh *use case* lain. Contohnya adalah pemanggilan sebuah fungsi program.
	*Extend Relationship*	Merupakan perluasan dari *use case* lain jika kondisiatau syarat.

Table 1 *Use Case Diagram*

2. 1.2 Activity Diagram

Is a depiction of the activities of a system or business process. The components used in the Activity Diagram will be shown in Table 2.

Komponen	Nama	Keterangan
	*Start Point*	Menggambarkan awal dari serangkaian aktivitas.
	*End Point*	Merupakan akhir dari serangkaian aktivitas, yang memiliki fungsi untuk menghentikan semua aliran kontrol dan aliran objek dalam suatu aktivitas.
	*Activity*	Menggambarkan suatu proses atau kegiatan atau tindakan. Untuk penggunaannya sendiri, activity ini perlu diberi label atau nama.
	*Fork /* Percabangan	Digunakan untuk menunjukkan kegiatan yang dilakukan secara paralel atau untuk menggabungkan dua kegiatan paralel menjadi satu.
	*Join /* Penggabungan	Digunakan untuk menunjukkan adanya dekomposisi.
	*Decision Point*	Menggambarkan pilihan untuk pengambikan keputusan *true* and *false*.
	*Swimlane*	Merupakan pembagian activity diagram untuk menunjukkan siapa melakukakan apa.

Table 2 *Activity Diagram*

2. 1.3 Sequence Diagram

This is a type of UML diagram that explains in detail the interactions of objects based on time sequence. The components used in the Sequence Diagram will be shown in Table 3

	*Actor*	Menggambarkan pengguna, baik itu admin, user atau siapa saja yang dapat melakukan interaksi dengan sistem.
	*Boundary Class*	Merupakan tepi (*edge*) dari suatu sistem. Selain itu, juga berupa *user interface* atau alat yang digunakan untuk berinteraksi antar sistem.
	*Entity Class*	Merupakan suatu komponen yang memiliki tugas untuk menyimpan data atau informasi.
	*Control Class*	Merupkan komponen yang memiliki tugas untuk mengatur arus informasi dalam sebuah skenario sistem, dan juga dapat mengatur perilaku bisnis dari suatu sistem teknis.
	Message	Merupakan simbol mengirim pesan antar *class*.
	*Recursive*	Menggambarkan pengiriman pesan yang dikirim untuk dirinya sendiri.
	*Activation*	Mewakili sebuah eksekusi operasi dari objek, panjang kotak ini berbanding lurus dengan durasi aktivasi sebuah operasi.
	*Lifeline*	Merupakan garis titik-titik yang terhubung dengan objek, dan sepanjang *lifeline* ini terdapat *activation*.

Table 3 Seuence Diagram

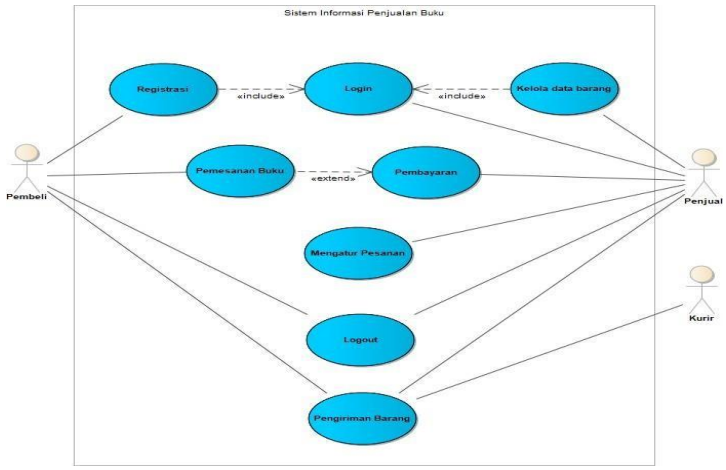
RESULTS AND DISCUSSION

In these results and discussion, the author will describe the design results using UML. The UML used includes Use Case Diagrams, Activity Diagrams, and Sequence Diagrams.

Use Case Diagram

Use Case Diagrams describe how someone will use or utilize the system, while an actor is someone or something that interacts with the system.

Gambar 1. *Use Case Diagram* Sistem Informasi Penjualan Buku

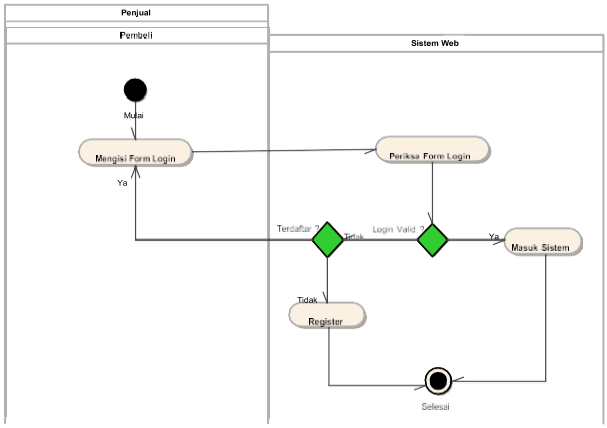


Gambar 1. *Use Case Diagram*

In this diagram, there are 3 actors, namely, buyer, seller, and courier, which explains that a buyer and seller can log in and log out. Especially for sellers, they can

manage item data and manage orders. Meanwhile, buyers can order books and make payments. Apart from that, there are also couriers who can deliver goods.*Activity Diagram*

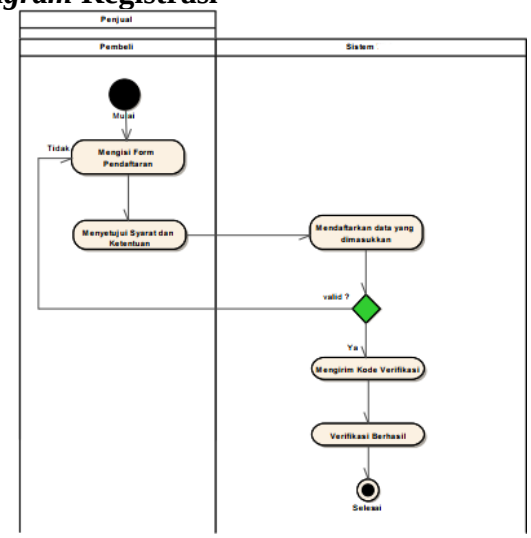
Activity Diagram **Login**



Gambar 2. *Activity Diagram* Login

The diagram above explains that sellers and buyers must authenticate their login first before entering the website system.

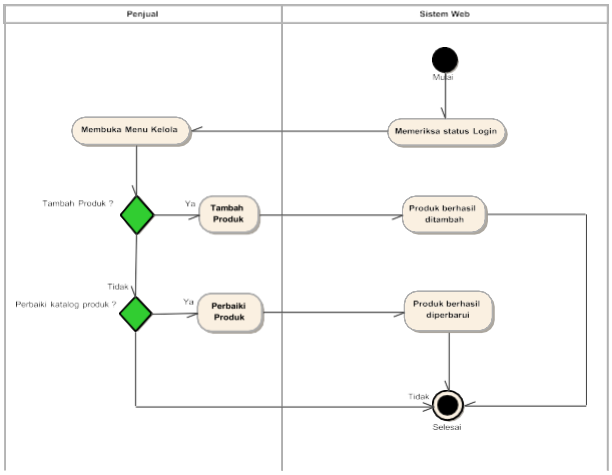
Activity Diagram **Registrasi**



Gambar 3. *Activity Diagram* Registrasi

The diagram explains that sellers and buyers must carry out the registration or registration process if they do not yet have an account.

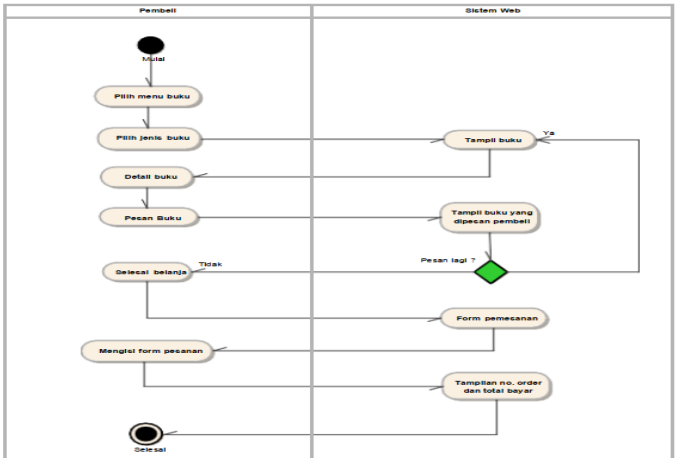
Activity Diagram Kelola Data Barang



Gambar 4. *Activity Diagram* Kelola Data Barang

This diagram shows that a seller can carry out activities to manage item data, such as adding or updating product data when successfully passing the login process.

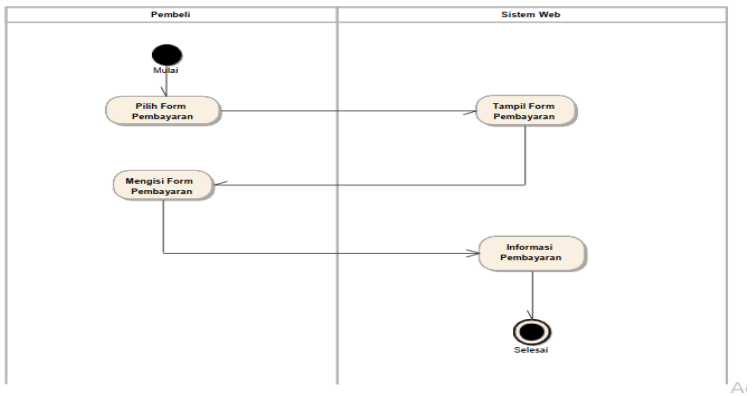
Activity Diagram Pemesanan Buku



Gambar 5. *Activity Diagram* Pemesanan Buku

This diagram explains that buyers can carry out the book ordering process by first selecting what type of book they want to buy. After that, buyers can fill out the form to order the book.

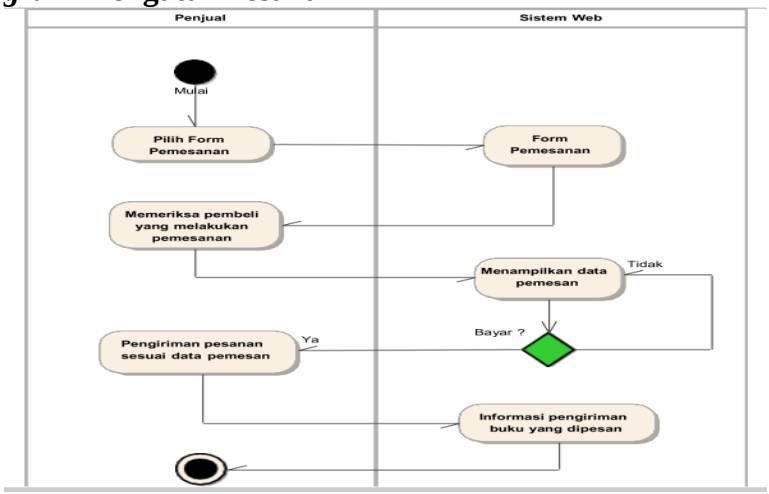
***Activity Diagram* Pembayaran**



Gambar 6. *Activity Diagram* Pembayaran

After ordering a book, the buyer can immediately carry out the payment process by filling in the payment form first.

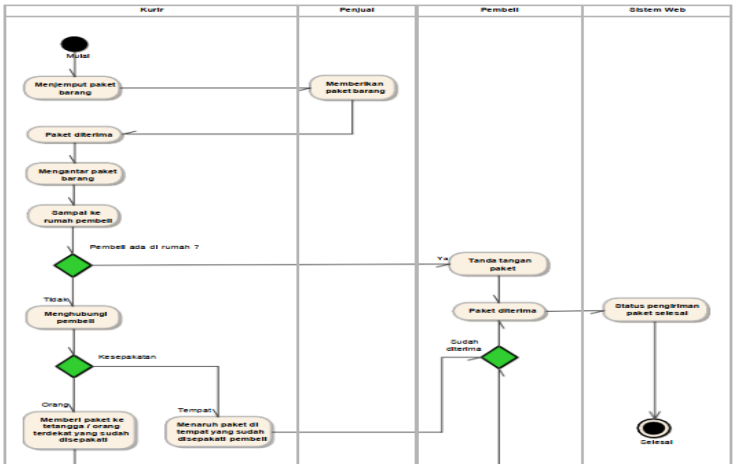
***Activity Diagram* Mengatur Pesanan**



Gambar 7. *Activity Diagram* Mengatur Pesanan

In the diagram above it is explained that a seller will arrange the order. The seller will check the buyer who has placed an order, and after that the seller will send the order according to the data from the order.

***Activity Diagram* Pengiriman Barang**

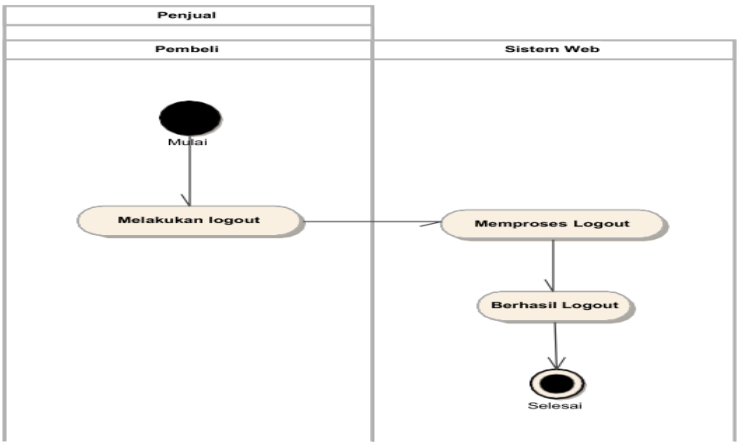


Gambar 8. *Activity Diagram* Pengiriman Barang

The diagram explains that a courier will deliver goods received from the seller to the buyer. However, there are conditions for receiving packages, if

The buyer is not there, then the package will be given to a neighbor or someone closest to him, or the package will be placed in a place agreed upon by the buyer.

***Activity Diagram* Logout**



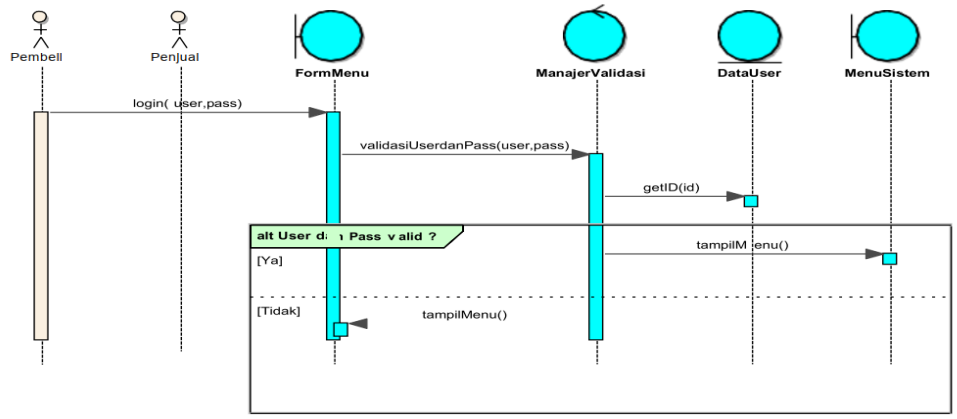
Gambar 9. *Activity Diagram* Logout

The diagram above is an explanation of the last activity of an activity carried out by the actor sellers and buyers, namely carrying out the logout process or exiting the system.

Sequence Diagram

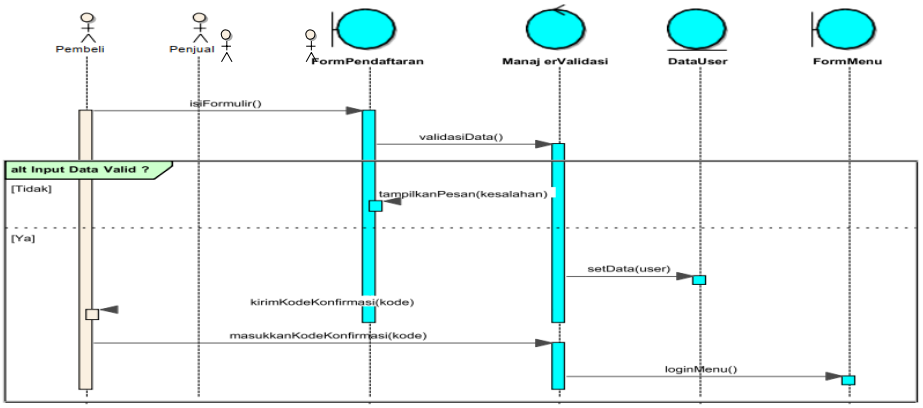
This Sequence Diagram has similarities to an activity diagram. However, this diagram explains in more detail the workflow and data flow contained in the system.

Sequence Diagram Login



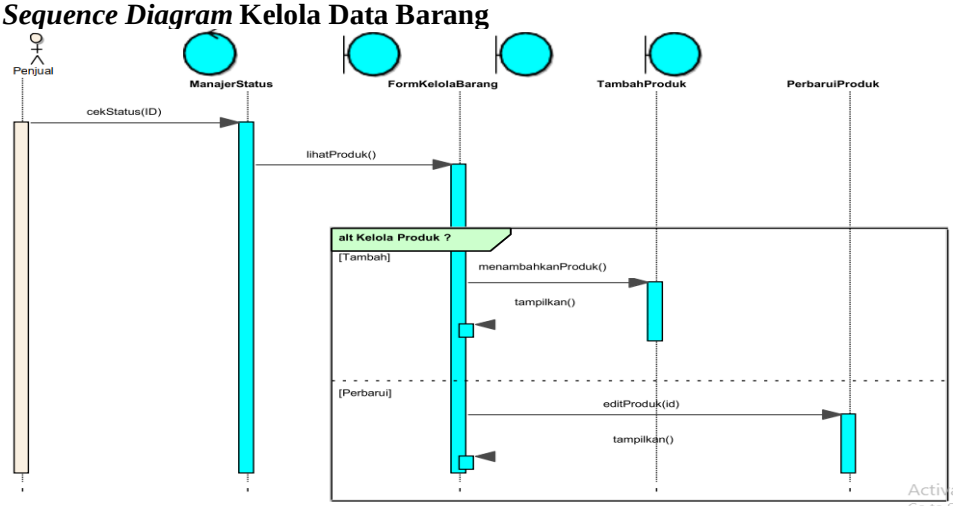
Gambar 10. *Sequence Diagram* Login

Sequence Diagram Registrasi



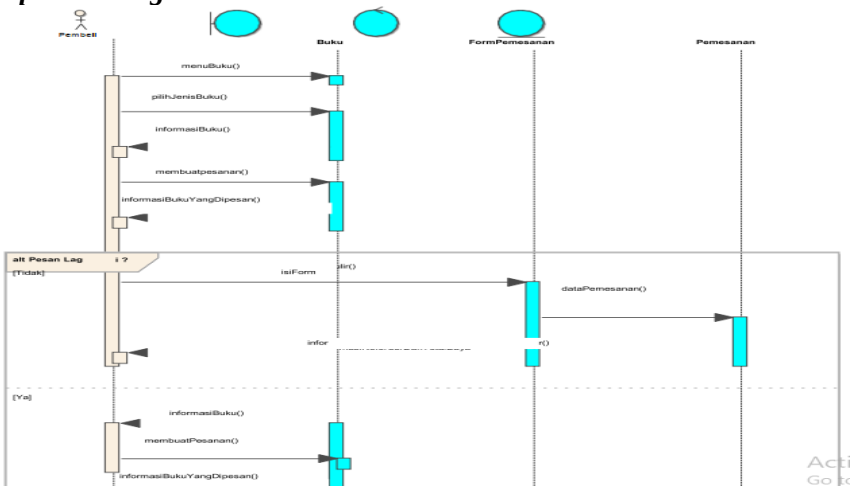
Gambar 11. *Sequence Diagram* Registrasi

Sequence Diagram Kelola Data Barang



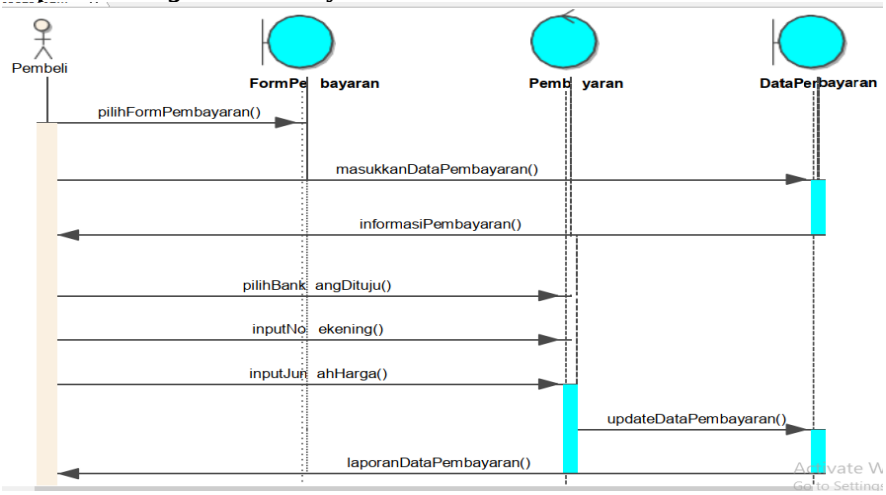
Gambar 12. *Sequence Diagram* Kelola Data Barang

***Sequence Diagram* Pemesanan Buku**



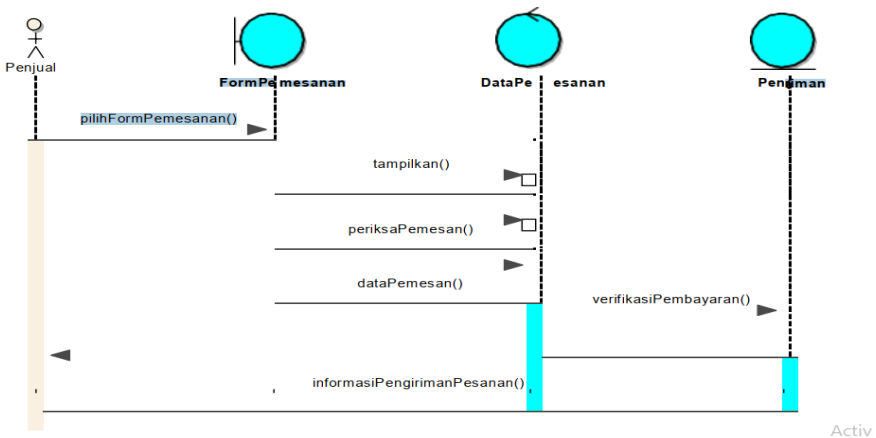
Gambar 13. *Sequence Diagram* Pemesanan Buku

***Sequence Diagram* Pembayaran**



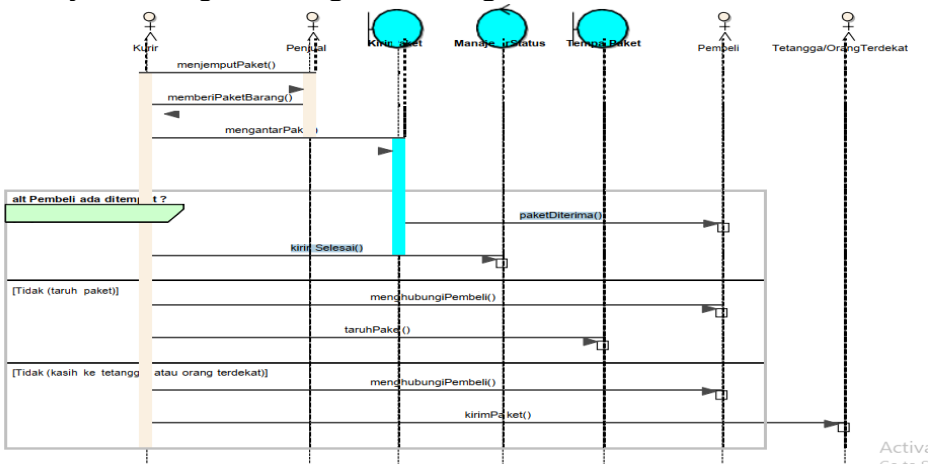
Gambar 14. *Sequence Diagram* Pembayaran

***Sequence Diagram* Mengatur Pesanan**



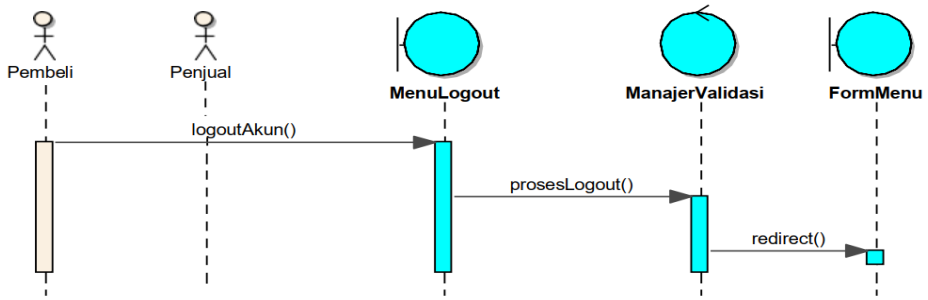
Gambar 15. *Sequence Diagram* Mengatur Pesanan

***Sequence Diagram* Mengirim Barang**



Gambar 16. *Sequence Diagram* Mengirim Barang

***Sequence Diagram* Logout**



Gambar 17. *Sequence Diagram* Logout

CONCLUSION

Based on the results of the discussion above, the author concludes that using the Unified Modeling Language (UML) is very helpful in designing a sales information system. Apart from that, it can also make sales order activities and transaction activities in stores more efficient and effective.

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