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E-Commerce Application Design With Web-Based Codeigniter Framework

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ABSTRACT

The development of technology and information that we feel today has a big influence, especially in the world of work. One of them is the use of computers that can facilitate and expedite work. Computers in the business world, both private companies and government agencies, act as hardware that runs software that can be understood by users. In this era of rapid technological development, business people are required to keep up with the times in order to compete with other business people. The solution to buying and selling transactions without meeting directly is done online through website-based *e-commerce*. One of the web-based e-commerce applications can be designed using the codeigniter framework.

Keywords: E-Commerce, Application, Codeigniter Framework, Website

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1. INTRODUCTION

In the midst of rapid technological development, business people are required to keep up with the times in order to compete with other business people. With covid- 19, business people are required to utilize information technology because the business activities carried out are hampered by face-to-face restrictions that have the potential to spread the virus. Economic and social are the highest impacts due to this case. Therefore, the whole world is experiencing economic and social weakening, starting from the difficulty of finding work during quarantine, as well as socializing between citizens.

Therefore, all aspects of society are looking for ways to overcome the impact of this case. One simple way is by conducting buying and selling transactions. However, this buying and selling transaction experienced difficulties during the quarantine period, due to the Large-Scale Socialization Restrictions (PSBB) set by the government. Therefore, it is difficult to carry out buying and selling transactions directly.

For this reason, buying and selling transactions carried out online through website-based e-commerce is one solution. The development of technology and information that we feel today has a big influence, especially in the world of work. One of them is the use of computers that can facilitate and expedite work. Computers in the business world, both private companies and government agencies, act as hardware that runs software that can be understood by users ". (Nasution & Mulyono, 2019)

Based on the description above, the author wants to create a system where sellers and buyers can conduct buying and selling transactions without meeting in person which can help reduce the spread of Covid-19. In this case, it makes research with the title **"Designing E-COMMERCE APPLICATIONS WITH WEB-BASED CODEIGNITER FRAMEWORK.**

2. LITERATURE REVIEW

E-Commerce is one of the advantages of the Internet. There are several mentions of E-Commerce, namely Internet Commerce, Ecom, or Immerce, which basically all of the above mentions have the same meaning. These terms mean buying or selling electronically, and this activity is carried out on the Internet network. E-Commerce can also mean advertising, sales and support and the best service using a web shop 24 hours a day for all customers.

Framework is a software to make it easier for programmers to create a web application in which there are various functions including plugins, and concepts to form a certain system to be arranged and structured neatly. Using a framework does not mean it will be free from coding. Because as a framework user, you must use the functions and variables in a framework that we use according to Zulkhaidi et al. (2019). For now the PHP framework consists of:

- Laravel
- Yii
- Codeigniter
- Symphony
- Zend Framework
- Cake PHP
- Fuel PHP
- DLL

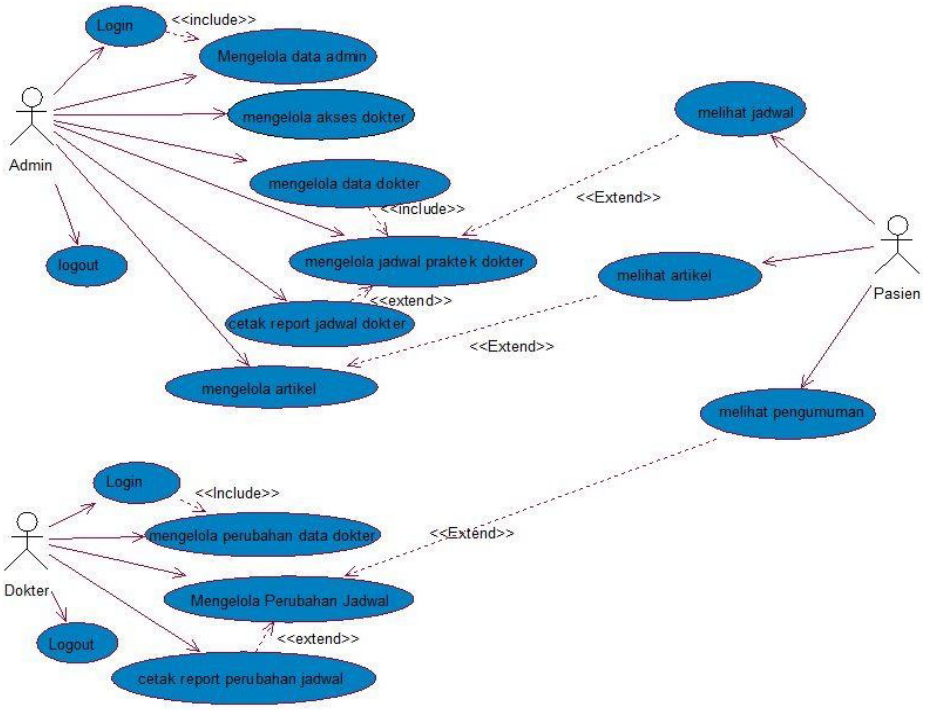
Codeigniter was first released on February 28, 2006. Codeigniter is an open source application in the form of a web application framework with the concept of MVC (Model, View, Controller) to build dynamic websites using the PHP programming language. With codeigniter, it makes it easier for web developers to create web systems quickly and easily compared to creating from scratch.

Unlike some other PHP frameworks, CodeIgniter's documentation is very thorough and complete. In addition, CodeIgniter is compatible with PHP4 and PHP5, so it can run on most existing web hosting. CodeIgniter also implements the Active Record pattern, this allows writing SQL queries to be easier. In addition, this pattern allows moving the database from MySQL to Oracle without having to rewrite the query described by Tanjung et al. (2018).

According to Dewi et al., (2021) "One of the most interesting elements on the internet is the World Wide Web which is the current advanced technology in the internet world. WWW or often abbreviated as web, contains pages that can display text, images, graphics, sound, animation, and the elements displayed are interactive. World Wide Web (W3) or also known as the web is a system related to documents used as a medium to display text, images, multimedia and others on the internet network ".

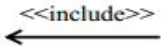
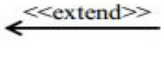
Use case diagram, a diagram that presents the interaction between use cases and actors in the system to be developed. Actors can be people, equipment, or other systems that interact with the system to be built. (Kurniati et al., 2019).

Figure 2.1 *Use Case Diagram* Example



The following are the symbols and descriptions of the *use case diagram*:

Table 2.1 *Use Case Diagram* Symbols

Simbol	Keterangan
	Aktor : Mewakili peran orang, sistem yang lain, atau alat ketika berkomunikasi dengan *use case*
	*Use case* : Abstraksi dan interaksi antara sistem dan aktor
	Association : Abstraksi dari penghubung antara aktor dengan use case
	Generalisasi : Menunjukkan spesialisasi aktor untuk dapat berpartisipasi dengan use case
	Menunjukkan bahwa suatu use case seluruhnya merupakan fungsionalitas dari use case lainnya
	Menunjukkan bahwa suatu use case merupakan tambahan fungsional dari use case lainnya jika suatu kondisi terpenuhi

Sequence Diagrams describe the behavior of objects in *use cases* by describing the life time of objects and messages sent and received between objects. The description of the *sequence diagram* is made at least as much as the definition of *use cases* that have their own processes or what is important is that all *use cases* that have been defined have their message interactions covered in the *sequence diagram* so that the more *use cases* that are defined, the more sequence diagrams are made. (Wira et al., 2019).

Figure 2.3 Example of *Sequence Diagram*

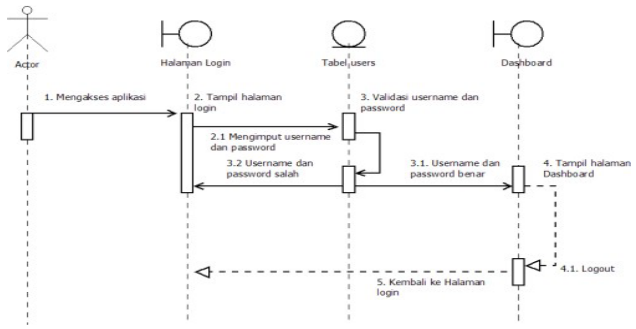
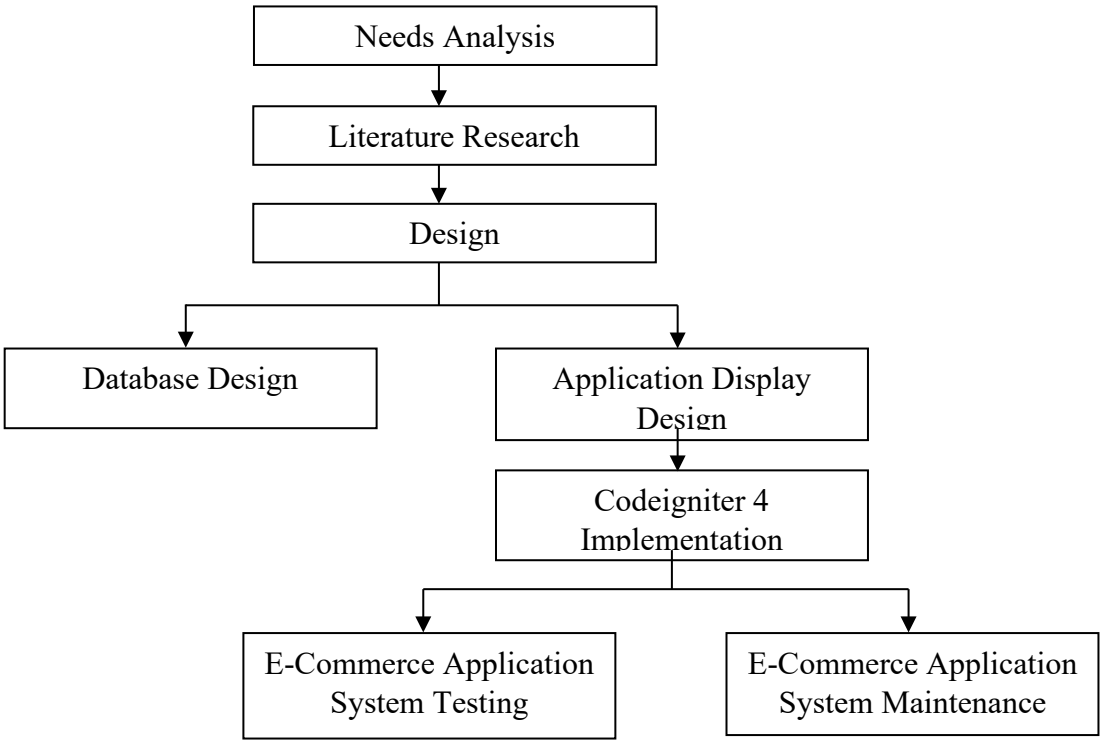


Table 2.3 *Sequence Diagram* Symbols

aktor atau nama_aktor	• orang, proses, atau sistem lain yang berinteraksi dengan sistem informasi dan mendapat manfaat dari system. • Berpartisipasi secara berurutan dengan mengirimkan dan / atau menerima pesan. • Ditempatkan di bagian atas diagram.
objek objek:kelas	Sebuah objek: • Berpartisipasi secara berurutan dengan mengirimkan dan / atau menerima pesan. • Ditempatkan di bagian atas diagram.
Garis hidup objek	• Menandakan kehidupan obyek selama urutan. • diakhiri tanda X pada titik di mana kelas tidak lagi berinteraksi.
Objek sedang aktif berinteraksi	Fokus kontrol: • Adalah persegi panjang yang sempit panjang ditempatkan di atas sebuah garis hidup. • Menandakan ketika suatu objek mengirim atau menerima pesan.
pesan pesan()	objek mengirim satu pesan ke objek lainya
<<create>>	menyatakan suatu objek membuat objek yang lain, arah panah mengarah pada objek yang dibuat
1:masukan	menyatakan bahwa suatu objek mengirimkan masukan ke objek lainnya arah panah mengarah pada objek yang dikirimi
1:keluaran	objek/metode menghasilkan suatu kembalian ke objek tertentu, arah panah mengarah pada objek yang menerima kembalian
destroy()	menyatakan suatu objek mengakhiri hidup objek yang lain, arah panah mengarah pada objek yang diakhiri, sebaiknya jika ada create maka ada destroy

3. RESULTS AND DISCUSSION



1.1 Needs Analysis

Understand the problem by collecting the data and information needed. Such as elements in the appearance of the application and the focus in making this security system intended.

1.2 Literature Research

Read and collect relevant scientific references such as journals and the like as supporting needs in this research.

1.3 Database Design

The first stage in designing this application database is made with MySql.

1.4 Application Display Design

The design of this application display using HTML, CSS, and JavaScript languages is used to create an attractive appearance.

1.5 Codeigniter 4 Implementation

Combine the database and application interface and implement the logic of the E-Commerce application, such as login, register.

1.6 E-Commerce Application System Testing

E-Commerce applications will be tested after applying the logic of E-Commerce applications. If there are errors or the security system runs not as desired and the results must be completely in accordance with the previously defined needs.

1.7 Analysis of the current system

The Shopee E-Commerce application has key features that make it easy for users to use the application, both in Mobile Application and Web Application. Among them are favorite features, add basket, and messaging with sellers directly.

1.8 Weaknesses of the current system

It is difficult for Shopee application users to use the application, because the appearance is less attractive and confuses application users.

1.9 Research Design

a. Use Case Diagram

Use case diagram describes the interaction between users (E-Commerce users who have not logged in and have not registered), buyers (users who have logged in and have registered), sellers (users who have logged in and have verified their membership), and admin. Users will interact with the system which will be shown in the use case diagram below:

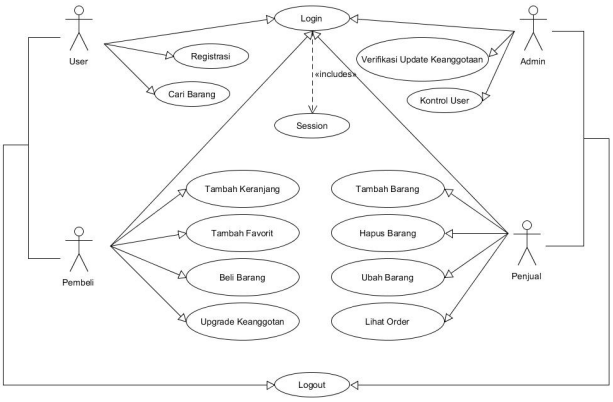
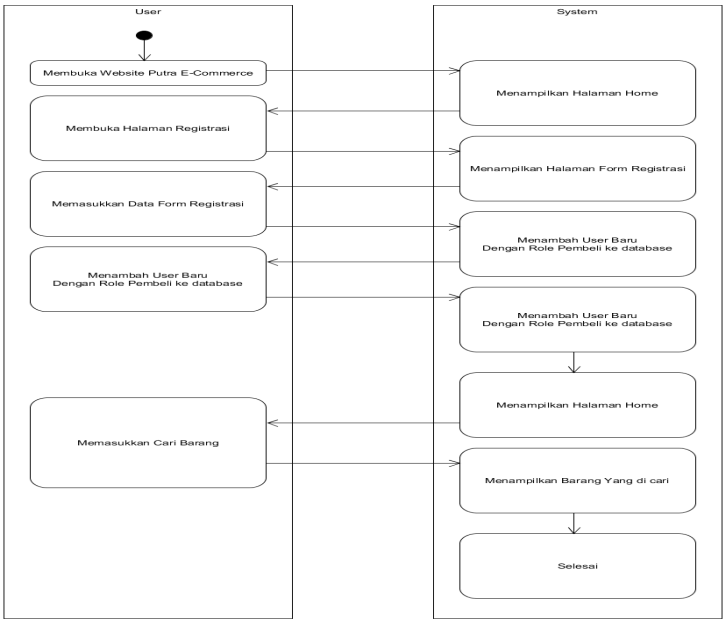


Figure 3.2 Use Case Diagram of Putra E-Commerce Application

b. Activity Diagram

i. Activity Diagram User

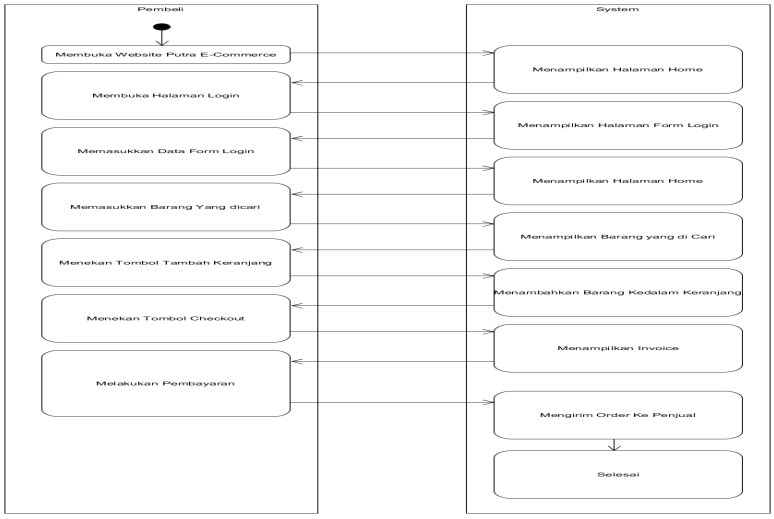
Figure 3.3 Activity Diagram User



In the user activity diagram section, it explains that users (users who have not registered and logged in). It can be seen in the user activity diagram that the user cannot checkout before registration and login. However, users are given the opportunity to search for goods by keyword or by category.

ii. Buyer Activity Diagram

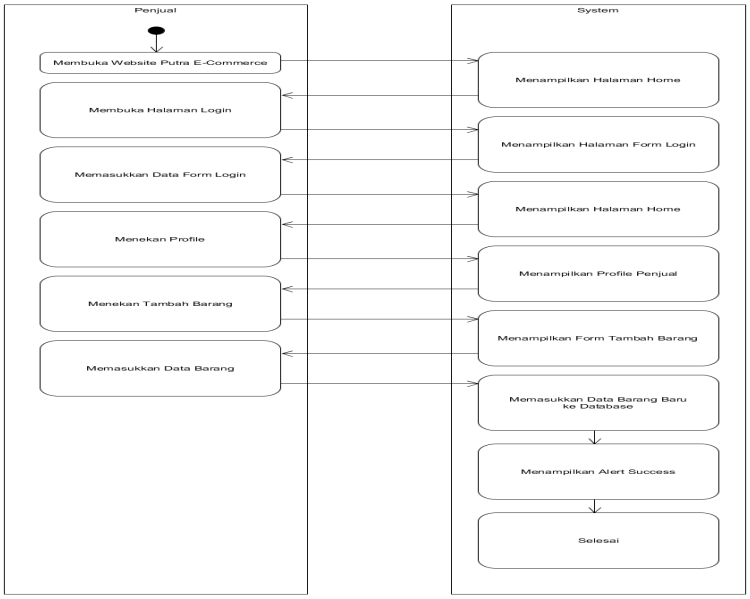
Figure 3.4 Activity Diagram of Buyer



In the buyer's activity diagram section, it explains that buyers (users who have registered and logged in). It can be seen in the buyer's activity diagram that the buyer cannot add items before upgrading the membership. However, buyers are given the opportunity to upgrade their membership which will be verified by the admin.

iii. Seller Activity Diagram

Figure 3.5 Activity Diagram of Seller



In the seller activity diagram section, it explains that the seller (verified user). It can be seen in the seller's activity diagram that the seller can add items

iv. Activity Diagram Admin

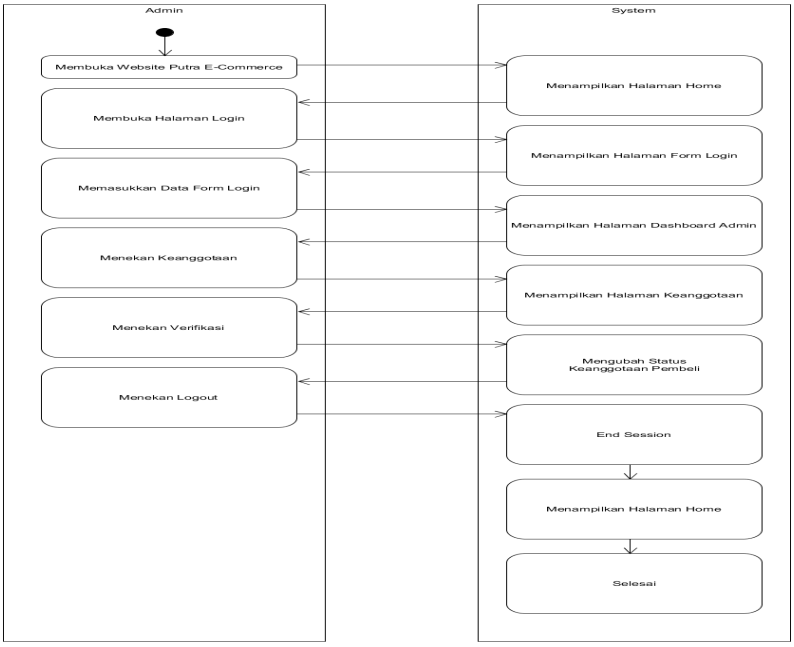


Figure 3.6 Activity Diagram Admin

In the admin activity diagram section, it explains that the admin can open a special page for the admin, and can verify buyers who want to become sellers.

v. Sequence Diagram

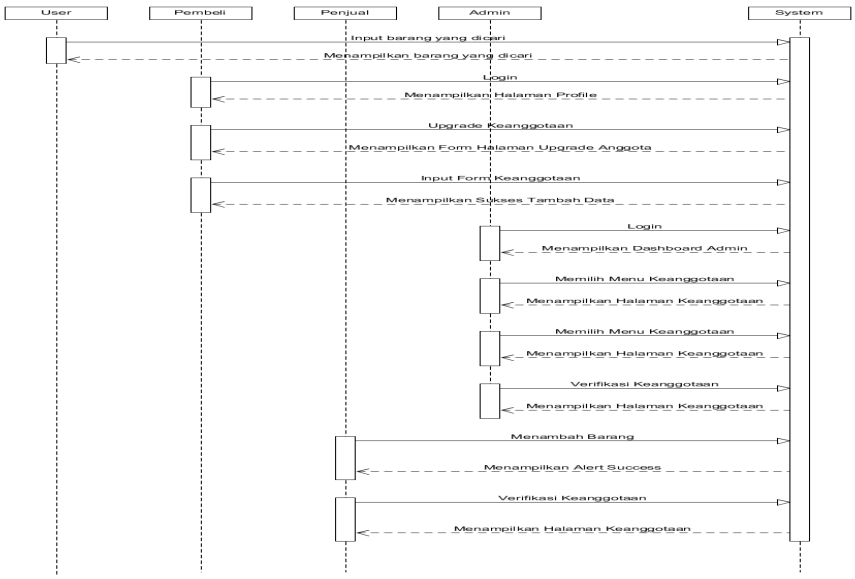


Figure 3.7 Sequence Diagram

In the sequence diagram above, it can be seen the process of the user when searching for goods, and is responded to by the system by displaying the results of the keywords being searched. When the user logs in, the system displays the login page first and then directs the user to the profile page where the user can upgrade to membership by sending the required data, then the

admin verifies the data that has been sent by the buyer, then the user can directly add the items he wants to sell.

4. CONCLUSION

After designing and completing the preparation of this thesis and e-commerce application, the author draws several conclusions including:

1. E-Commerce applications, successfully run funds can be used to add goods, search for goods, search for goods by category, upgrade membership, and have multi-user features.
2. This application can be opened on a mobile phone / smartphone because it has a responsive display.
3. Admin can add new categories that can be used by users to sell their goods.
4. This app is supported by most browsers, Google Chrome, Mozilla Firefox, and Operamini.

ACKNOWLEDGEMENTS

For further development and improvement of this application, the authors provide suggestions, namely:

1. The e-commerce application that has been designed is expected to be used by all groups, from the lower class to the upper class.
2. Improve SEO to make it more searchable by visitors/sellers.
3. This e-commerce application is expected to be developed on the Android / IOS operating system.
4. Not only that, this application is expected to be used by users to not only sell goods, and is expected to be used to provide convenience in transactions through mobile banking.

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