



Digital Management of Micro, Small and Medium Enterprises (MSME) Activities Based on the Unified Approach

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Abstract

Purpose: Micro, Small, and Medium Enterprises (MSME) is an important part of today's Indonesian economy. The times have allowed many people to do their own business. Along with the many existing businesses, many business actors are marketing for the sustainability of their business. A web-based information system that can accommodate information about Micro, Small, and Medium Enterprises management is one of the main needs for MSME actors themselves.

Methods/Study design/approach: In addition, the public can use this web-based information system to obtain detailed information on MSME and MSME products through the web. Making the web using the PHP programming language where the approach taken in the design is the Unified Approach used as a method in object-based system development.

Result/Findings: From the final results of this study, it can be concluded that the web-based MSME Activity Management Information System can help mass marketing of MSME players and help related agencies to find out the development of existing MSME.

Novelty/Originality/Value: The website was built can help and accelerate the marketing process for existing MSMEs and can be used as a medium of communication between MSMEs and visitors.

Keywords: Web, Enterprise, Unified Approach, product. MSME

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INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) are one of the fields that significantly contribute to spurring Indonesia's economic growth. Although MSMEs are always identified with businesses that start from limited capital or resources (such as labor, machinery and others), the development and growth of MSMEs from year to year shows a fairly good increase. This is because the absorption of MSMEs to the workforce is very large and close to the small people. It is estimated that from 2014 to 2016 the number of MSMEs reached more than 57,900,000 units. In 2017 the number of MSMEs is estimated to grow to more than 59,000,000 units [1].

Even though it has a strategic role, developing an MSME is not easy, especially in the marketing process. This is because marketing will encourage productivity and business growth [2]. Suppose the marketing process is carried out effectively. In that case, it will attract consumers to come and buy a marketed product, so that the expected benefits can be realized properly, and vice versa. One of the efforts to improve marketing quality is to improve the management of information systems and technology. Because by using technology and good information systems, people can manage their business well.

In Regional Regulation Number 23 of 2009 concerning MSME, article 4 paragraph (1): MSME Management Regulatory Policies, some of which are: point (f) facilitates the use of data banks and business information networks; and point (g) providing and disseminating information about the market, sources of guarantee financing, technology, design and quality. Referring to the Regional Regulation, it is clear that the central and local governments have the same obligation to empower, foster and develop MSMEs in their respective regions.

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Based on the description above, a medium is needed to manage MSMEs, creating a web-based information system. By taking the case in Sawahlunto City where MSMEs in the Sawahlunto area still do not have a good management information system, an administrative system still managed manually makes the existing MSMEs only known by the people around the area. However, if an MSME has a good information system, it will impact the progress of the MSME itself and increase regional income.

Using the Unified Approach method, an object-oriented development methodology that combines existing processes and methodologies using the Unified Modeling Language (UML) as the modeling standard [3], will make this system development activity easier. Several previous studies have also carried out many system development activities with the same method in web development, including the Web for Complaints for Victims of Violence against Women and Children [4] and the Web-Based Integrated Disaster Response Management Information System [5]. From the results of previous research that discusses efforts to develop MSMEs in facing regional and global markets, it can be proven that the Unified Approach is very appropriate to be used as a method of current system development. The activities to help MSME players be more competitive by utilizing information technology.

METHODS

In this research activity, the method used is the Unified Approach (UA), then the steps taken are [6]:

1. The UA analysis stage consists of:

- a) Actor Identification, the stage of analyzing actors who interact with the system.
- b) Use Case Identification
Use Case Diagrams are used to understand and know what functions are contained in a system and who can use these functions [7] and
- c) Build a Use Case
- d) Building a Business Process Model
Business Process is a sequence of activities carried out by actors in the system to perform specific tasks to achieve certain goals. In this case, the UML diagram used is an Activity Diagram [8].
- e) Object Identification
- f) Classifying objects to build Class Diagrams
- g) Creating an Interaction Diagram:
 - a. Sequence Diagram
 - b. Collaboration diagram
- h) Build an Object Diagram

2. The UA design stage consists of:

- a) Completing the Class Diagram by adding details to the class diagram in the form of: Improving attributes, associations between classes, refining the hierarchy and design of classes and their inheritance, and designing the properties of Class Private, Public, Protect [9].
- b) Interface Design
- c) Design View layer Class.
- d) Build an Activity Diagram
- e) Build a Statechart Diagram (if the system is real-time)
- f) Build Component Diagrams
- g) Build a Development Diagram

RESULT AND DISCUSSION

Use Case Diagram

The use case diagram shown in Figure 1.

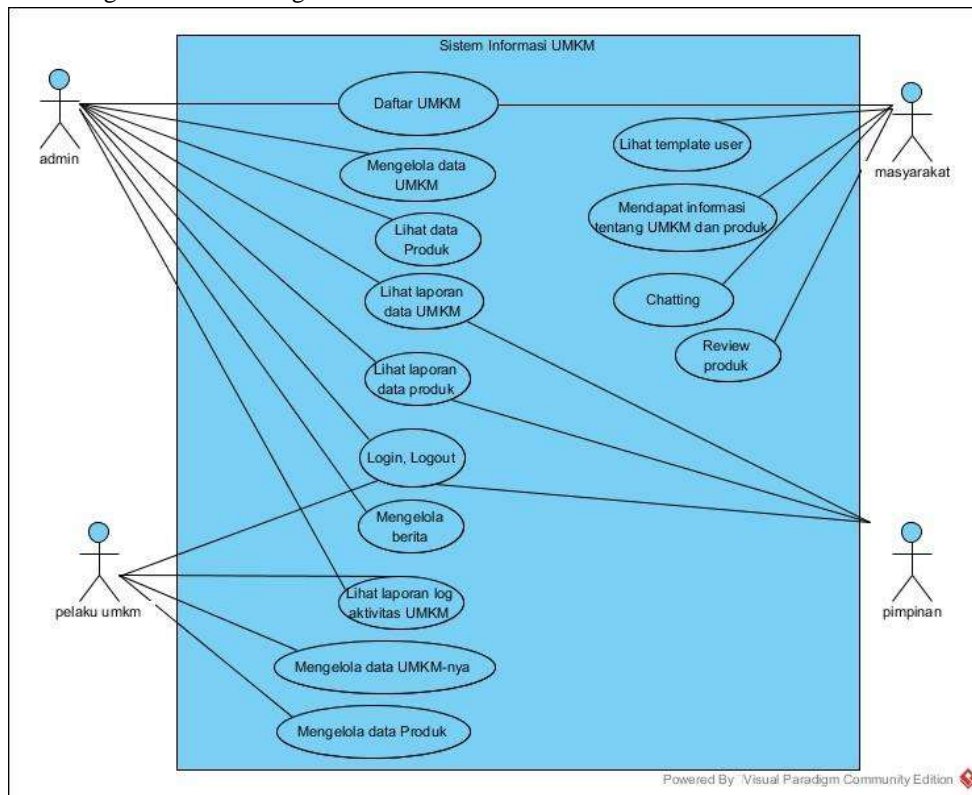


Figure 1. Use Case Diagram

Based on Figure 1, the proposed use case diagram can be explained as follows:

- There is 1 system that covers all activities of the information system for managing MSME activities.
- There are 4 actors who carry out activities, including: admin, MSME actors, community and leaders.
- There are 14 use cases carried out by actors, including: login: include username and password. home: MSME menu, product menu, news menu, list menu, MSME report, product report, MSME activity log report and logout.

Sequence Diagram

Sequence diagrams describe in detail the sequence of processes carried out in the system to achieve the objectives of the use case [10].

1) Admin Login Sequence Diagram

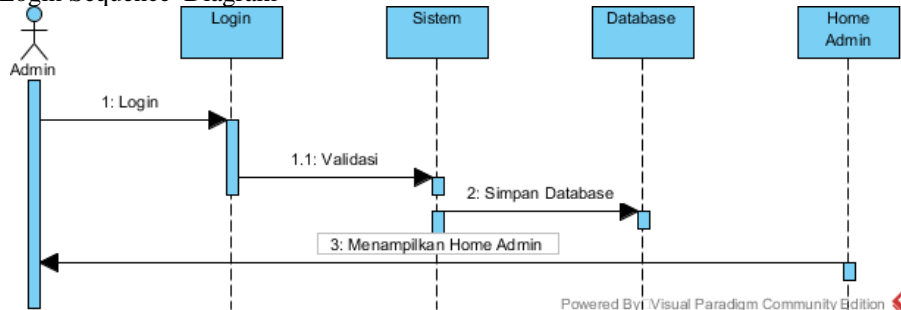


Figure 2: Login Sequence Diagram

Based on Figure 2, Login sequence diagram above is proposed:

- There is 1 actor, namely Admin.
- There are 4 lifelines, namely login, system, database, and home.
- There are 4 messages.

2) Sequence Diagram Admin List of MSME

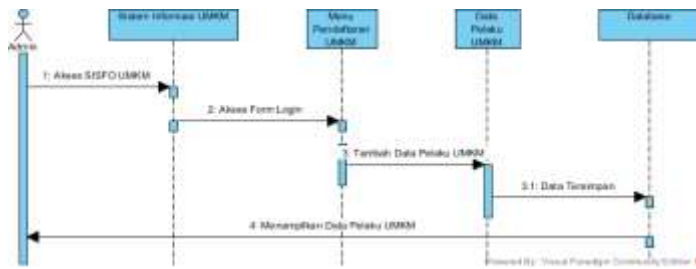


Figure 3. Sequence Diagram of the Admin List of MSMEs

Based on Figure 3. The proposed sequence diagram of the MSME list:

- There is 1 actor, namely admin.
- There are 4 lifelines: the MSME information system, the MSME registration menu, data on MSME players, and a database.
- There are 5 messages.

3) Sequence Diagram for MSME Admin Data

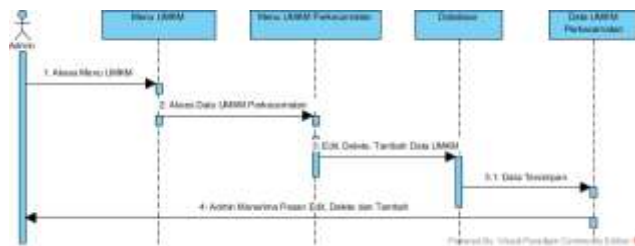


Figure 4. MSME Admin Data Sequence Diagram

Based on Figure 4, the proposed MSME data sequence diagram:

- There is 1 actor, namely admin.
- There are 4 lifelines: the MSME menu, the Sub-district MSME menu, and the Sub-district MSME database and data.
- There are 5 messages.

4) Sequence Diagram for MSME News Admin



Figure 5. Sequence Diagram for MSME News Admin

Based on the 5 proposed MSME news data sequence diagram:

- There is 1 actor, namely admin.
- There are 4 lifelines: the news menu, news data list, database, and news data.
- There are 5 messages.

5) Sequence Diagram for MSME Product Admin



Figure 6. Sequence Diagram for MSME Products

Based on Figure 6, the proposed MSME product data sequence diagram:

1. There is 1 actor, namely admin.
 2. There are 3 lifelines: the MSME product menu, the MSME product data list, and the MSME product data.
 3. There are 3 messages.
- 6) Sequence Diagram for Admin MSME Data Reports

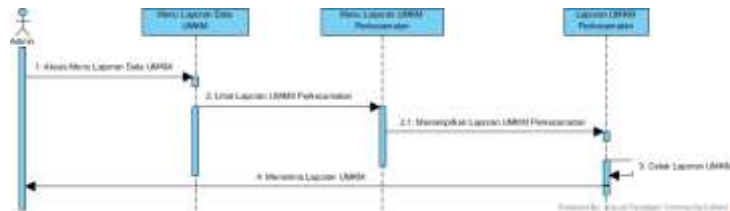


Figure 7. Sequence Diagram of Admin MSME Data Reports

Based on Figure 7 the proposed MSME data report sequence diagram:

1. There is 1 actor, namely admin.
 2. There are 3 lifelines: the menu for MSME data reports, the menu for sub-district MSME reports, and the sub-district MSME reports.
 3. There are 5 messages.
- 7) Sequence Diagram for MSME Product Report Admin

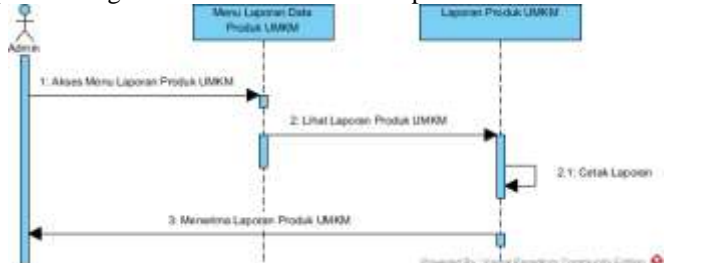


Figure 8. Sequence Diagram for MSME Product Report Admin

Based on Figure 8, the proposed MSME product report sequence diagram:

1. There is 1 actor, namely admin.
 2. There are 2 lifelines: the MSME product data reports and MSME product reports.
 3. There are 4 messages.
- 8) Sequence Diagrams Admin MSME Activity Logs



Figure 9. Sequence Diagram Admin Activity Log Report

Based on Figure 9 the sequence diagram of the activity log report above is proposed:

1. There is 1 actor, namely Admin.
2. There are 2 lifelines: the MSME activity log report menu and the MSME activity log report.
3. There are 3 messages.

9) Sequence Diagram of MSME Players Login



Figure 10. Sequence Diagram of Login MSME Players

Based on the Figure 10 the login sequence diagram above is proposed:

1. There is 1 actor, namely MSME actors.
2. There are 4 lifelines: login, system, database, and home of MSME players.
3. There are 4 messages.

10) Sequence Diagram of MSME Players Managing MSME Data

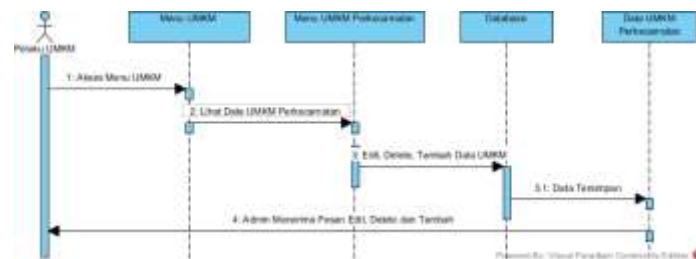


Figure 11. Sequence Diagram of MSME Players Managing MSME Data

11) Sequence Diagram of MSME Actors for MSME Products

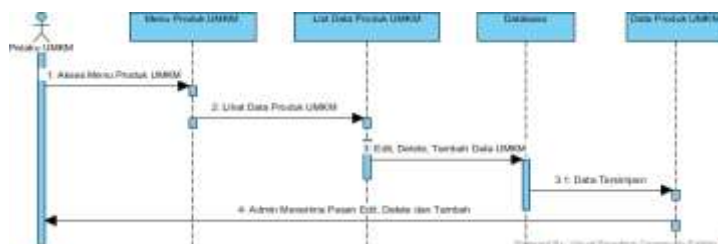


Figure 12. Sequence Diagram of MSME Players Managing MSME Products

Based on Figure 12 the proposed product data sequence diagram above is proposed:

1. There is 1 actor, namely MSME actors.
2. There are 4 lifelines, namely product menu, MSME product data list, MSME product database and data.
3. There are 5 messages.

12) Sequence Diagram Print MSME Activity Log Reports

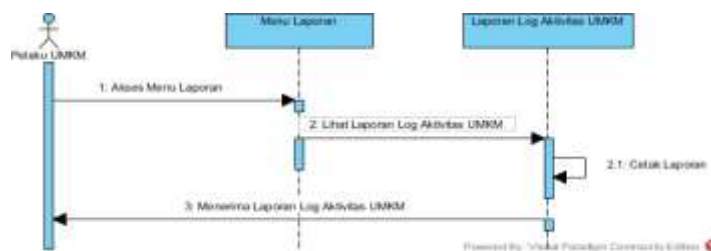


Figure 13. Sequence Diagram Print MSME Activity Log Reports

Based on Figure 13, the proposed sequence diagram of the MSME activity log report above is:

1. There is 1 actor, namely MSME actors.
2. There are 2 lifelines, namely the menu reports and MSME activity log reports.
3. There are 4 messages.

13) Leadership Diagram Login Sequence



Figure 14. Login Sequence Leadership Diagram

Based on Figure 14 the login sequence diagram above is proposed:

1. There is 1 actor, namely the Leader.
2. There are 4 lifelines, namely login, system, database, and home.
3. There are 4 messages.

14) Sequence Diagram for MSME Data Report Leadership

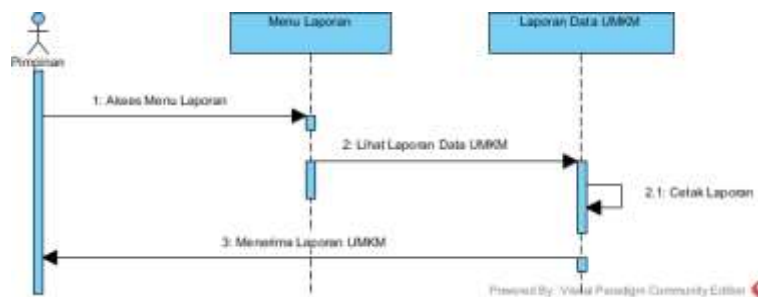


Figure 15. Sequence Diagram of the Leadership for MSME Data Reports Print

Based on the Figure 15 the proposed MSME data report sequence diagram:

1. There is 1 actor, namely the leader.
2. There are 2 lifelines, namely the menu reports and MSME data reports.
3. There are 4 messages.

15) Sequence Diagram for MSME Product Report Leadership

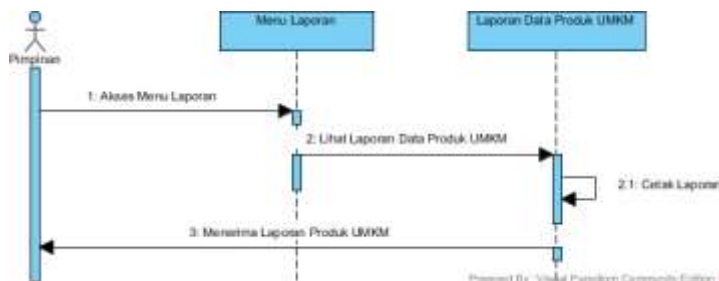


Figure 16. Sequence Diagram of Leadership for MSME Product Reports Print

Based on Figure 16, the proposed MSME product report sequence diagram:

1. There is 1 actor, namely the leader.
2. There are 2 lifelines, namely menu reports and MSME product reports.
3. There are 4 messages.

16) Sequence Diagram for the Community List of MSMEs

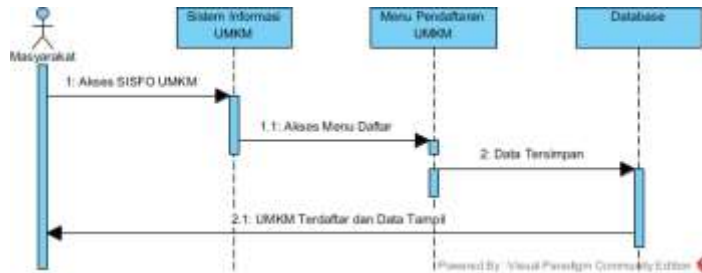


Figure 17. Sequence Diagram of the Community List of MSMEs

Based on Figure 18 the community sequence diagram of the proposed MSME list above is proposed:

1. There is 1 actor, namely the community.
2. There are 3 lifelines: the MSME information system, the MSME registration menu, and the database.
3. There are 4 messages.

17) Sequence Diagram for Product Review Society

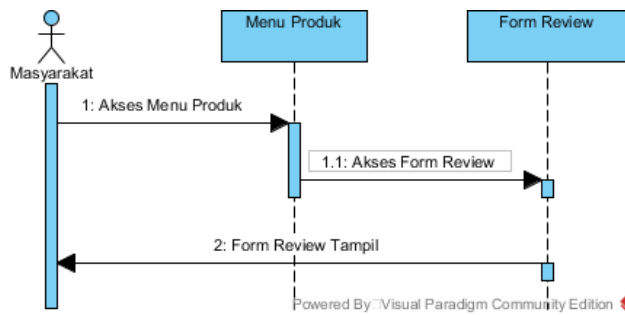


Figure 18. Sequence Diagram of the Product Review Society

Based on Figure 19, the suggested product review sequence diagram above is:

1. There is 1 actor, namely the community.
2. There are 2 lifelines, namely product menu and review form.
3. There are 3 messages.

Class Diagram

Class diagrams describe the following class behaviors and states by connecting between classes. The class diagram describes the Class Diagram description as follows:

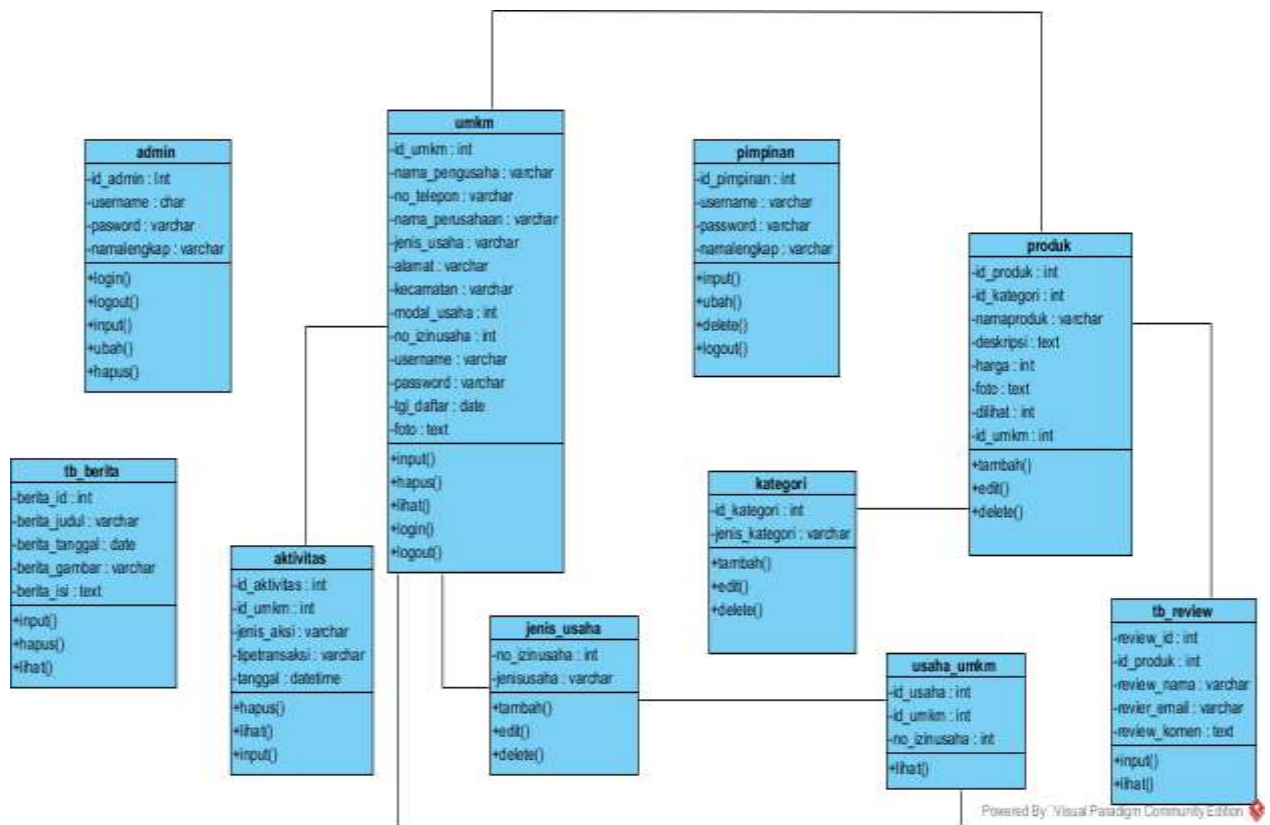


Figure 20. Class Diagram

Based on Figure 20 the proposed class diagram:

1. There are 7 classes, a set of objects that share the same attributes and operations.
2. There are 4 associations, used to model the relationships between objects.

Object Diagram

The object diagram shown in Figure 21.

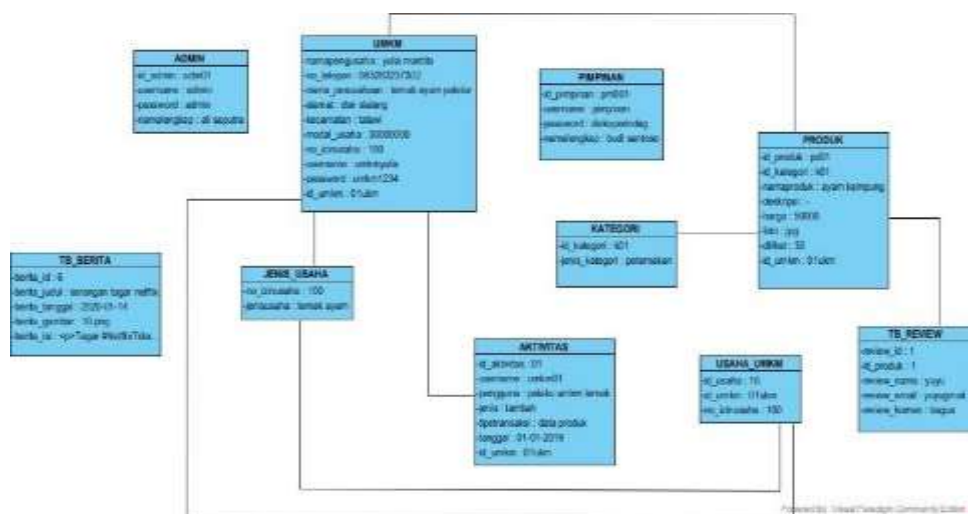


Figure 21. Object Diagram

CONCLUSION

The website built can help and accelerate the marketing process for existing MSMEs. Because in product marketing activities, information technology has been used in the form of websites, and can provide information on products sold and prices details so that this website can be used as a medium of communication between MSMEs and visitors.

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