

Leveraging Technology for MSME Development: A Case Study of the Sistem Informasi Hasil Desa (SIHASA) in Banyumas Regency

Wahyu Adi Prabowo ^{1)*}, Tiara Pebriana Putri ²⁾, Zidan Yazid Himawan ³⁾

^{1,2,3)}Institut Teknologi Telkom Purwokerto, Indonesia

¹⁾wahyuadi@ittelkom-pwt.ac.id, ²⁾tiara.pebriana.putri02@gmail.com, ³⁾zidanyazidhimawan@gmail.com

Submitted : Jun 1, 2023 | **Accepted** : Jun 25, 2023 | **Published** : Jul 1, 2023

Abstract: Banyumas Regency in Central Java Province comprises 27 districts and 331 villages, showcasing its vast geographical coverage. Over three years, from 2006 to 2009, the region witnessed a notable increase in small businesses, rising from 643 to 717 establishments. Despite this growth, MSMEs in Banyumas face a prevalent challenge of inadequate information dissemination for effectively promoting their products. To tackle this issue, a proposed solution is the Village Results Information System (SIHASA) V2 website. This website supports village communities, MSMEs, and governments in managing their respective activities and operations. To expedite the creation of the system, the Rapid Application Development (RAD) method is employed, encompassing essential stages such as project requirement determination, prototype creation, development processes, and gathering feedback. Furthermore, to ensure an efficient system design, the implementation of Unified Modeling Language (UML) is integrated, incorporating crucial components like Use Case Diagrams and Class Diagrams. This meticulous design approach guarantees that the system effectively caters to the community's diverse needs, specifically benefiting the village community in Banyumas Regency in terms of managing village products and facilitating efficient MSME operations. The outcomes of this research endeavor hold significant promise for the community, providing practical tools and resources to enhance their livelihoods and contribute to the overall development of the Banyumas Regency.

Keywords: Rapid Application Development; UML; Information System; Website;

INTRODUCTION

One of the factors driving economic growth in Indonesia today is the increasing number of growing Micro, Small, and Medium Enterprises (MSMEs). According to the definition stated in Law No. 20 of 2008, MSMEs refer to small companies owned and managed by individuals or a small group of people with a certain amount of wealth and income. MSME is a sector that can survive in conditions of economic crisis. Despite facing the economic crisis, the number of MSMEs has not decreased; it has even increased. This is because MSMEs can survive despite their relatively simple management (Jose Marie M. Anos, 2020).

According to data released by the Ministry of Cooperatives and Small and Medium Enterprises in 2014, Indonesia has around 57.8 million Micro, Small, and Medium Enterprises (MSMEs). This number is expected to continue to increase in 2017 and the coming years. MSMEs play an important and strategic role in national economic development. MSMEs are spread across various non-agricultural sectors. Especially on the island of Java, which has a population of almost half of Indonesia's total population,

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

is the main center for MSMEs. More than 60 percent of MSMEs are found on this island. In addition, East Java, West Java, and Central Java are the provinces with Indonesia's highest number of MSMEs (Fatwitawati, 2017)

The increase in the number of Micro, Small, and Medium Enterprises (MSMEs) significantly impacts the country's economy. In addition, MSMEs also provide job opportunities for many people, thereby reducing the unemployment rate in Indonesia. As noted in the International Journal of Business Innovation and Research, it is mentioned that Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in a country's economy. They create numerous job opportunities and challenge large organizations' dominance, and the same applies to Indonesia. Several studies have proven that MSMEs are the main drivers of economic activities in Indonesia and significantly impact the Gross Domestic Product (GDP) and employment in the country. One example of an area experiencing rapid growth of MSMEs is the Banyumas district. The growth of MSMEs in Banyumas reaches 25% annually (Ikhsani, Eko, Santoso, Bagis, & Hidayah, 2021)

Banyumas Regency is part of Central Java Province, which consists of 27 districts and 331 villages. The number of small businesses increased from 643 in 2006 to 717 in 2009 in all areas of Banyumas Regency. However, the distribution of small business locations is uneven; most small businesses are in the Purwokerto area, with 142 businesses in East Purwokerto. Judging from the number of MSMEs in Banyumas, not a few people know about the existence of these MSMEs due to the lack of information distribution that the community gets and the lack of utilization or application of information technology by these MSMEs (Aslamiyah, 2022). Due to the need for better information dissemination regarding various MSMEs in Banyumas, a website is needed that can accommodate or convey information (Januarita & Prabowo, 2020) related to commodities and other information and can be used by users in carrying out other transaction processes.

The potential for developing Micro, Small, and Medium Enterprises (MSMEs) in Banyumas can be seen from several factors driving the sector's progress. First, internal and external factors play a role in this process. Internal factors include motivation on the part of MSMEs to develop their business, the desire to continue learning, and the enthusiasm to achieve excellence. Meanwhile, external factors affecting the growth of MSMEs include easy access to credit, economic development, and technological advances (Adawiyah, 2020). However, not all MSMEs can keep up with technological developments and experience significant growth. MSMEs face various complex and interrelated obstacles to improving their business capabilities. These constraints include limited capital, weaknesses in managerial ability, lack of organizing skills, and limited marketing access (Suci, 2016). As stated in previous research (Pratama, Darmawan, & Innayah, 2020), it is said that the main MSME problems in Indonesia are predominantly capital and marketing problems. To overcome capital constraints, around 17.50 percent of MSMEs took steps by accessing loans from banks. The remaining 82.50 percent did not gain access to capital from banks. Instead, it relied on non-bank institutions such as Savings and Loans Cooperatives (KSP), individuals, families, venture capital, and other sources. On the other hand, as capital for developing Indonesia's digital economy to compete in the globalization era, there is significant potential (Putra, Windah, & Tarisa, 2022).

Therefore, the Internet is used as a tool for marketing commodities digitally, and with the Internet, MSMEs can expand markets globally and carry out commodity marketing at a lower cost through digital marketing strategies; seeing these various problems, a system is needed that can perform data management effectively and efficiently (Zulfanetti, Octavia, & Erida, 2018). This research aims to design and develop a village-based information system through a website using the Laravel framework. The main purpose of this system is to assist the village government in effectively and efficiently managing aid in Banyumas Regency. With this website, micro, small, and medium enterprises (MSMEs) owned by the people of Banyumas Regency can market their products online, provide significant employment opportunities, and enhance customer credibility and trust. This website also provides benefits in addressing unemployment issues, expanding business networks, and monitoring the marketing performance of MSMEs more effectively. This research refers to the Rapid Application Development (RAD) method, which has proven successful in previous research contexts for website design. Therefore, this research is expected to provide ease for the village in managing aid and promoting MSMEs in Banyumas Regency.

*name of corresponding author



Referring to another study entitled "Website as a Marketing Media for MSME Superior Commodities in Semarang City", a system is produced that can provide convenience and provide information regarding the development of MSMEs in Semarang City can also be used to access information on commoditization factors, as well as communicating with other MSMEs globally, in order to expand their business network (Kristiyanti & Rahmasari, 2017). Furthermore, in the reference entitled "Development of Sales Information System for SME with the Waterfall Method: BSR Grocery Store Case", which aims to improve business process efficiency through the development of a sales information system in the form of a web and mobile Android application, becomes the focus of this research. The method used in the development of the sales information system is the waterfall method. The test results show that the developed information system helps improve business process efficiency at BSR grocery stores (Wijaya et al., 2022), as for references from another study entitled " Designing of Restaurant Information System using Rapid Application Development ", this study used the Rapid Application Development (RAD) method with the results of several website designs, namely logins, dashboards, goods input pages, buying and selling of goods, MSME data (Prabowo & Wiguna, 2021)

LITERATURE REVIEWS

An information system is a series of systems organized within an organization, consisting of various computer-based and manual components designed to collect and compile data to produce relevant information for users. It can be a group of connected hardware and software to process data into meaningful information (Algipari et al., 2022). An information system is a collection of components that are interrelated and function to solve problems and make decisions, which are referred to as Information Systems. Information systems are used to collect, store, and distribute data or information to support decision-making and control within an organization (Freeman, 2021).

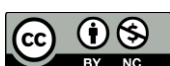
Website is also known as site, site, website, or portal. This is a collection of web pages connected, with the first page referred to as the main page (home page), while the other pages are independently referred to as web pages (web page). In other words, a website is a site that can be accessed and viewed by Internet users around the world. The ever-increasing number of internet users opens up market opportunities that continue to grow (Handayani, Harmadi, Purnamasari, & Patriya, 2022).

The framework is a structure that is used to solve complex problems. In this case, the framework can be used as a container for building a website, making improvements easier. A popular framework developers use is Laravel, an open-source framework based on PHP that systemizes the Model-View-Controller concept and is licensed under the MIT license using GitHub as a code-sharing platform (Ongadi, Lihana, Kiiru, Ngayo, & Obiero, 2022). Researchers utilize a PHP framework called Laravel in making this web system. Laravel is an MVC-based web system development framework that aims to improve the quality of the resulting system while reducing development and maintenance costs and producing structured and functional source code. This allows for more efficient system implementation (Valarezo & Guarda, 2018).

PHP is an open-source programming language useful for developing web systems and can be combined with HTML. PHP is different from JavaScript because PHP is a programming language that runs on the server side, while JavaScript is a programming language that runs on the client side. The server runs PHP code, displaying the results to the client while the client browser executes JavaScript. The advantage of PHP is that it is easy to understand and suitable for both beginners and advanced users. In addition, because PHP is an open-source programming language, PHP can be used on various types of operating systems (Abid & Karim, 2017) .

A database system is designed to organize, store and retrieve data easily. Data organized in an orderly manner and grouped for one or more purposes is stored in digital form. A database management system (DBMS) is used to organize and process digital data sets, which store the contents of the database, enabling the creation, maintenance, search, and access of other data. Some examples of database management systems available today include PostgreSQL, MS Access, MySQL, SQL Server, and Oracle (Community, 2021)

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.

METHODS

In this study (see Fig 1), software development methods and data collection methods were used. The software development method used is Rapid Application Development (RAD), which is an incremental software development process model, especially for short processing times (Petrovic, Roblek, Radenković, & Nejkovic, 2020).

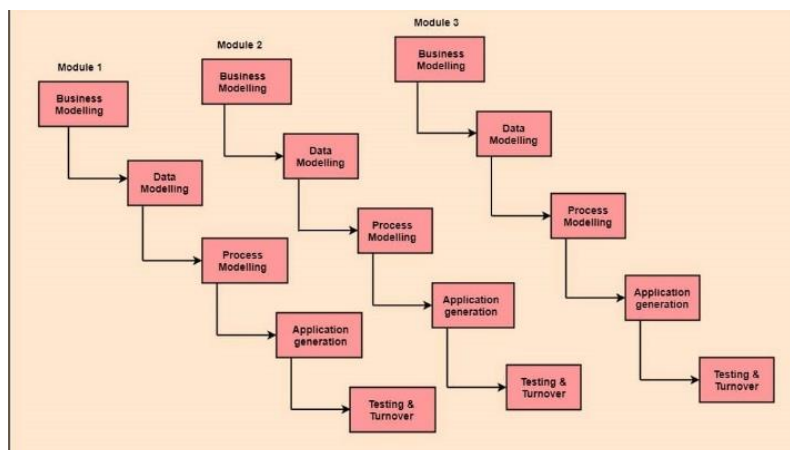


Fig. 1 Illustration of the RAD model

The RAD (Rapid Application Development) method has three development stages known as models 1, 2, and 3. Model 1 is the initial stage, where a preliminary analysis of requirements and needs is conducted, often accompanied by an initial conceptual design. Model 2 involves deeper design, development, and more comprehensive prototype testing based on a better understanding user requirements. Lastly, model 3 involves further iterations to refine the design, implement additional features, and perform additional testing, leading to the development of software that becomes more mature and approaches the final product.

Business Modeling

Business Modeling is a process carried out to describe existing business functions, including the information that needs to be made, the party responsible for making the information, the flow of information, and the processes related to that information. In this stage, the author collects material and observes the need for a website-based system compared to a desktop-based system.

Data Modeling

In this stage, data modeling is carried out based on business modeling to determine what data is needed. In addition, data attributes and their relationship with other data are also defined. The author uses Entity Relationship Diagram (ERD) and Logical Record Structure (LRS) to model the database so that it can find out the required attributes and how the data is interconnected.

Process Modeling

In this stage, the implementation of business functions defined concerning defining data is carried out. The author uses use cases to identify business processes and activity diagrams as business process modeling.

Application Generation

In this stage, the implementation of process modeling and data into programs is carried out. The RAD model approach advocates using existing components whenever possible. The author performs system programming using the PHP, HTML, and CSS programming languages according to the designs that have been made before.

Testing and Turnover

In this stage, testing of the components that have been made is carried out. The development team can develop the next component if a component has been tested properly. Testing is carried out using the black box testing method to evaluate whether the component can operate properly or not.

*name of corresponding author



RESULTS

This research resulted in an information system called SIHASA V2 Banyumas, designed using the Laravel framework. This system aims to promote Micro, Small, and Medium Enterprises (MSMEs) in the Banyumas area and provide an online purchasing process. In this system, MSMEs in Banyumas can register and promote their commodities online through the website that has been built. In addition, users can also make the process of purchasing MSME commodities directly through this system.

The Banyumas SIHASA V2 system uses features that support the promotion process, such as commodity catalogs, commodity details, commodity charts that have a large stock in a village, news about MSMEs in Banyumas, making business licenses so that users can easily search and view complete information, regarding available MSME commodities. This system makes it easy for the public to explore and support MSMEs in Banyumas through an easily accessible online platform. Through this research, the Banyumas SIHASA V2 system was successfully designed and developed, facilitating the promotion of MSMEs and the purchasing process effectively through the website. It is hoped that this system can increase the exposure and sales of MSME commodities in Banyumas and provide a comfortable shopping experience for users.

Business Modeling

Based on the analysis, three users can access the system, namely users, village admins, and SIHASA V2 admins.

- a. Analysis of User Needs
 1. Analysis of User Needs
 2. Users can register as sellers in the SIHASA V2 system.
 3. Users can input or add the commodities they want to promote and sell.
 4. Users can view charts of commodity stocks and commodities that have been sold.

- b. Village Admin Needs Analysis
 1. Users can make a business license in the letter submission feature.
 2. Village Admin Needs Analysis
 3. Admin can see a list of commodities in his village.
 4. The village admin can display a graph of Total Commodities by the name of Goods, Total Stock by the name of Goods, Total Commodities by Village, Total Commodities by District, Total Sold by the name of Goods, Total Users by Village, and Total Users by District.

- c. SIHASA V2 Admin Needs Analysis
 1. The village admin can view and search for a list of applications for business licenses.
 2. Village admins can manage village government data related to village commodities in Banyumas.
 3. SIHASA V2 Admin Needs Analysis
 4. Admin can see a list of commodities in his village.
 5. Admin can see graphs of the total commodity by item name, total production by village, total commodity by district, and sold by item name.
 6. Admin can manage news related to village commodities in Banyumas.
 7. Admin can view and search for a list of applications for business licenses.
 8. Admin can manage village government data related to village commodities in Banyumas.
 9. Admins can manage the list of website users along with user roles.
 10. Admin can manage the data of each user.

*name of corresponding author



Data Modeling

a) Entity Relationship Diagram (ERD)

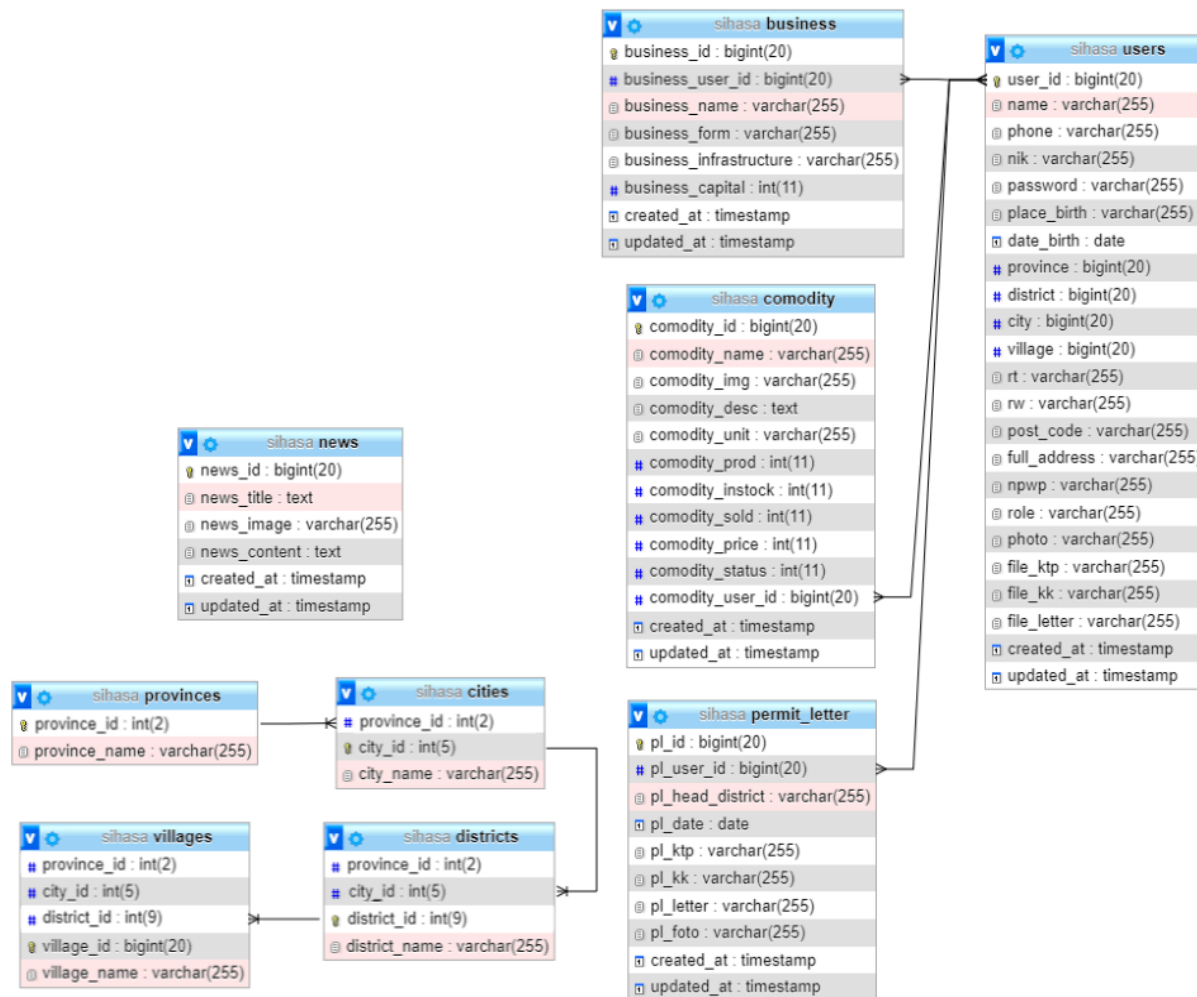


Fig. 2 ERD Diagrams (Entity Relationship Diagrams)

In Fig 2 above, we can see the Entity Relationship Diagram (ERD) here, which explains the relationships between entities in the SIHASA V2 Banyumas application. The ER diagram for the SIHASA V2 Banyumas system includes the main entities involved, such as Users, Commodities, Businesses, News, Settings, permit letter, Provinces, Cities, Districts, and Villages. The relationships between these entities can be depicted using symbols such as lines and cardinality notations in the ER diagram. For example, the relationship between Users and Commodity can be shown as one-to-many, as one user can have multiple commodities. This ER diagram will provide a clear visual representation of how the system's entities interact, aiding in the design and implementation of an efficient database structure for the SIHASA V2 Banyumas system.

Process Modeling

a) Use Cases

The author compiled a Use Case Diagram that will be used in the Banyumas SIHASA V2 system. This diagram has three actors: Users, Village Admins, and SIHASA V2 Admins.

*name of corresponding author



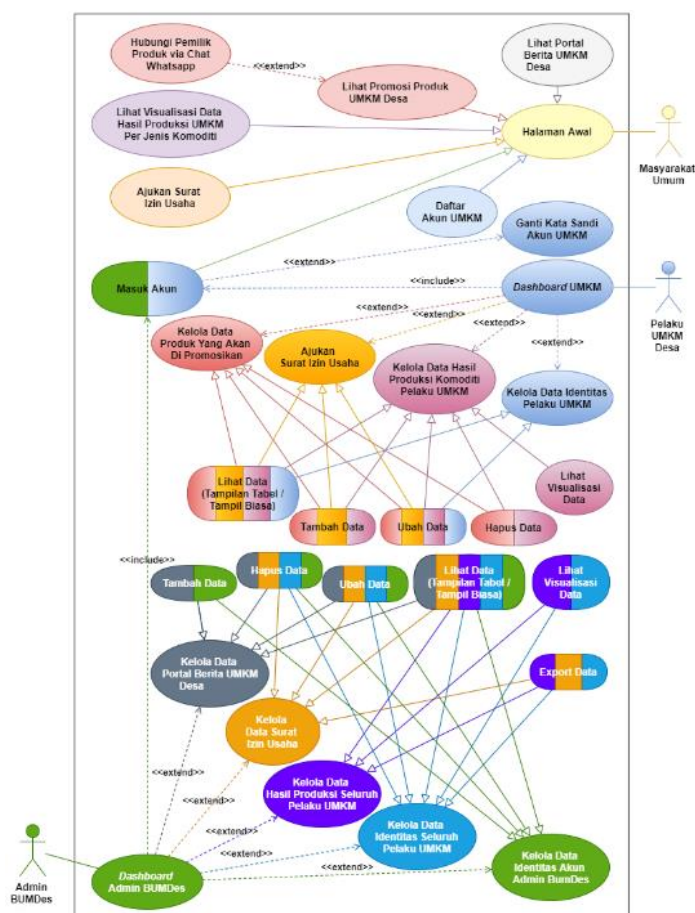


Fig. 3 Use Case Diagram

Fig 3 shows the Use Case Diagram used in the S SIHASA V2 Banyumas system. In this case, some use cases that can be included in this diagram are: "Add Commodity," "Create Business Permit Letter," "Add Village Data," "Approve Business Permit Letter," "Manage User Data," and "Create News." The main actors in this system are "MSME," "Village Admin," and "SIHASA V2 Admin." The "Add Commodity" use case will show how users can create and add new commodities to the system. The "Create Business Permit Letter" use case will demonstrate how customers can create this business permit letter to be addressed to the Village Admin. The "Add Village Data" use case will illustrate how the Village Admin can add the names of respective village heads. The "Approve Business Permit Letter" use case will show how the Village Admin can approve business permit requests from users in their village. The "Manage User Data" use case will demonstrate how the SIHASA V2 Admin can manage user accounts, such as resetting passwords and modifying user data. The "Create News" use case will demonstrate how the SIHASA V2 Admin can manage and create news to be displayed on the SIHASA V2 Banyumas system. This use case diagram provides a clear overview of the interaction between users and the system and the main functions within the system. It can aid in designing and implementing a responsive and efficient online sales system.

b) Class Diagrams

Sample Class diagrams clearly show the structure and description of classes, attributes, methods, and relations between objects in the SIHASA V2 Banyumas system.

*name of corresponding author



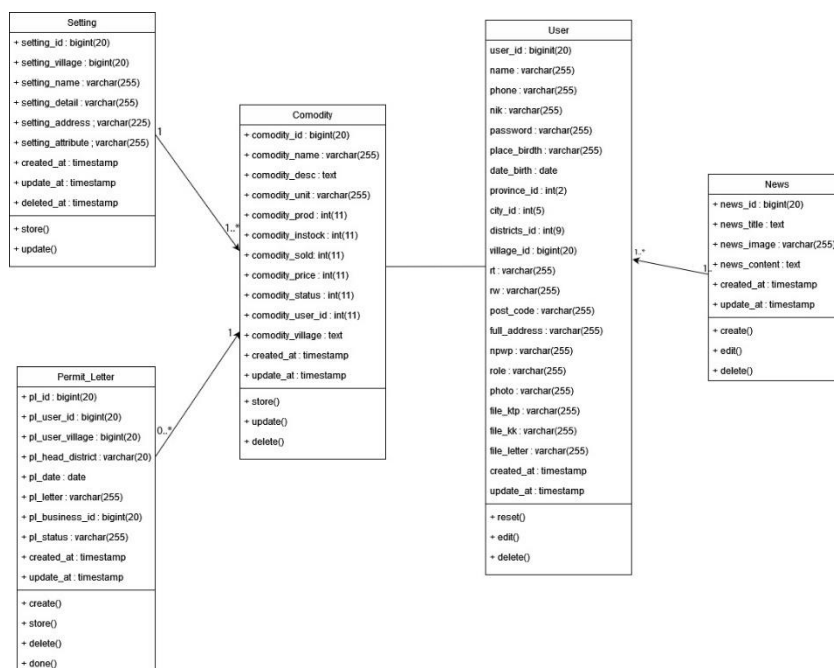


Fig. 4 Class Diagrams

In Fig 4, we can see the Class Diagram, which visually represents the class structure and relationships between classes in the SIHASA V2 Banyumas system. In this system, some classes that can be included in this diagram are: "User," "Commodity," "News," "Setting," and "Permit_Letter." This Class Diagram of the SIHASA V2 Banyumas system provides a clear visual overview of the class structure and relationships between class classes. Therefore, it can help design and implement an efficient and scalable program structure for the system.

Application Generation

This stage will explain in detail how the system works. Following are the results of the stages of implementing the program that has been built, in the form of displaying information systems on village results in the Banyumas area and providing an online purchasing process. In this system, users in Banyumas can register and promote their commodities online through the website that has been built. In addition, users can also process commodity purchases directly through this system. On the login page in Fig 5, the user inputs the username and password according to the data already registered in the database. At this stage, the author makes a design for the SIHASA V2 Admin, which is part of the user who has the duty and responsibility to be in charge of monitoring or monitoring in certain villages.



Fig. 5 Login/Register Display

*name of corresponding author



After successfully logging in on the login page, the user will be directed to the dashboard page. This page displays some of the data contained in the database. Users can manage data as required. The dashboard page can be seen in Fig 6 below.

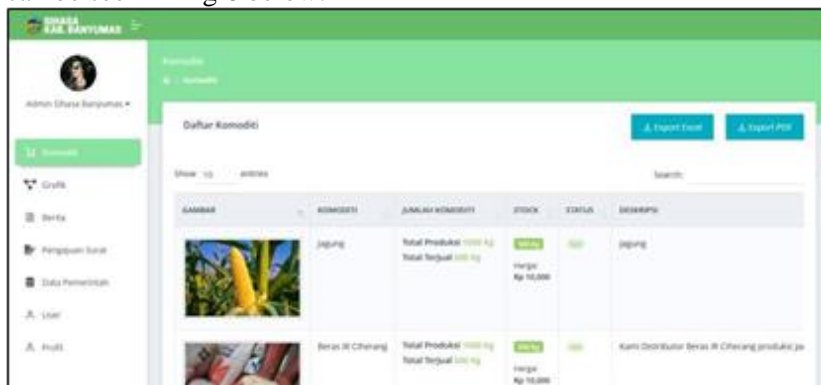


Fig. 6 Dashboard View

In Fig 6 and Fig 7, there are several features on the dashboard page, namely the commodity feature. This feature is the admin's page to see a list of village commodities in Banyumas. Then the Graph Page, which is a page for the admin that displays a graph of Total Commodities by Name of Goods, Total Stock by Name of Goods, Total Commodities by Village, Total Commodities by District, Total Sold by Name of Goods, Total Users by Village, and Total Users by District.



Fig. 7 Admin Graphic Page

The news page depicted in Fig 8 serves as a crucial tool for the SIHASA V2 administrator in effectively handling and overseeing updates concerning village commodities in Banyumas. This page acts as a central hub for managing and disseminating news, ensuring that the community stays informed about the latest developments in the village's commodity sector. By leveraging Fig 8, the SIHASA V2 admin can efficiently organize and publish news articles, allowing villagers to stay up to date with important information, such as market trends, agricultural practices, and trade opportunities. This comprehensive platform empowers the administrator to maintain a well-informed community, fostering sustainable growth and economic prosperity within Banyumas.



Fig. 8 News Page

*name of corresponding author

Fig 9 showcases the reporting page utilized by the SIHASA V2 administrator to access and search through a comprehensive list of applications for business licenses. This page serves as a valuable tool for the administrator to efficiently manage and monitor the process of granting licenses for various businesses. By leveraging the reporting functionality, the administrator can easily navigate through the list, filter applications based on specific criteria, and track the progress of each application. This feature streamlines the administrative tasks associated with business licensing, enabling the SIHASA V2 admin to promptly review, approve, or reject applications, ensuring a smooth and transparent process for businesses seeking licensure. Ultimately, the reporting page in Fig 9 empowers the administrator to effectively oversee the licensing procedures, contributing to a well-regulated and thriving business environment in Banyumas.

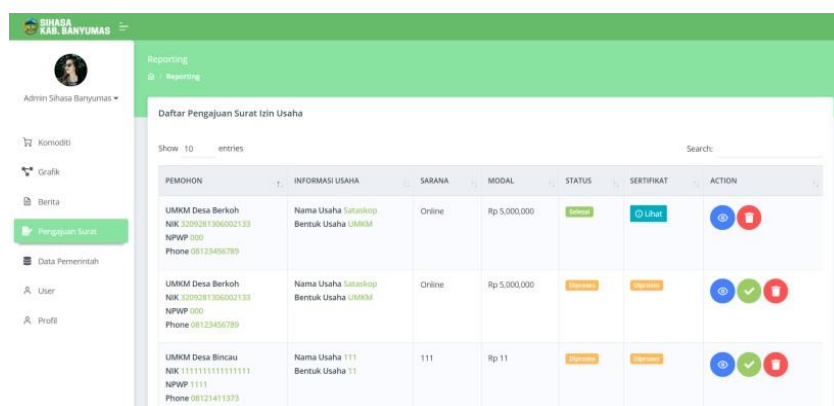


Fig. 9 Letter Submission Page

In Fig 10, we can observe the Village Government feature, which serves as a dedicated page utilized by the SIHASA V2 admin to effectively manage village government data pertaining to village commodities in Banyumas. This feature plays a pivotal role in facilitating the administration's ability to organize and oversee essential information regarding the village's commodities sector. By leveraging the Village Government page, the admin can efficiently handle various aspects, such as demographic data, land usage, agricultural practices, and other relevant details pertaining to village commodities.

This feature provides a centralized platform for the admin to input, update, and analyze vital data, enabling them to make informed decisions and develop comprehensive strategies for the development and growth of the village's commodity sector. By having a structured and easily accessible repository of information through the Village Government feature, the admin can efficiently monitor trends, identify areas of improvement, and implement targeted initiatives to enhance the overall management and productivity of village commodities in Banyumas.

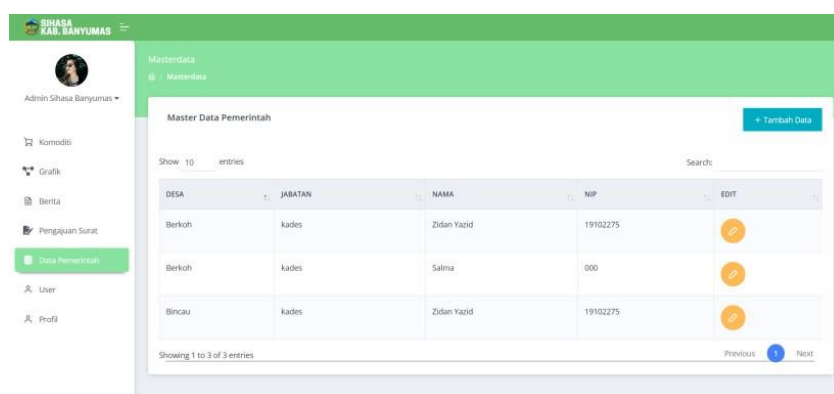


Fig. 10 Government Data Page

*name of corresponding author



In Fig 11, the User page is depicted as the dedicated page used by the admin to manage the list of website users along with their respective user roles on the website. This page serves as a central hub for the administrator to oversee and maintain user accounts, ensuring proper user management and access control. Within the User page, the admin can efficiently view and manage the complete list of registered users on the website. This includes essential tasks such as adding new users, editing user information, activating or deactivating accounts, and assigning specific user roles. User roles play a crucial role in defining the permissions and privileges granted to each user, allowing for customized access levels based on their responsibilities and requirements. By leveraging the User page in Fig 11, the admin can streamline user management processes effectively, promoting security, accountability, and personalized experiences for website users. The admin has the ability to assign roles such as administrators, moderators, or regular users, each with distinct permissions and responsibilities within the website's framework.

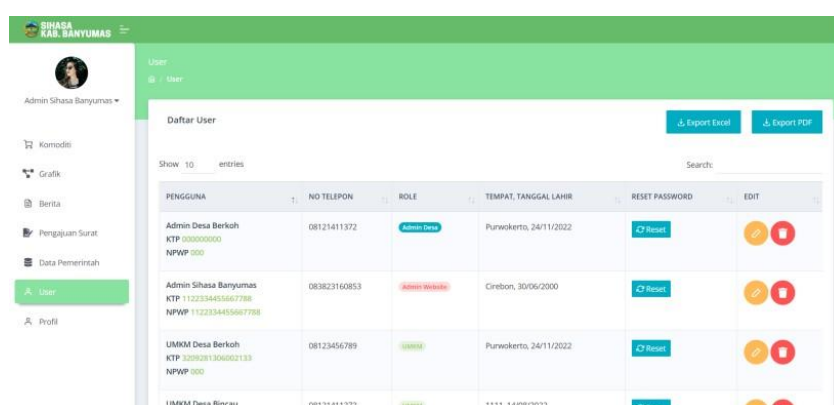


Fig. 11 User page

Fig 12 depicts the Profile page, which serves as a dedicated page utilized to manage data for each user on the platform. This page plays a crucial role in facilitating user-specific data management and customization. Through the Profile page, users can access and modify their personal information, preferences, and settings. They have the ability to update details such as their name, contact information, profile picture, and any other relevant information associated with their account. Additionally, users may have the option to customize their account settings, such as privacy settings or notification preferences, to align with their individual needs and preferences. For the admin, the Profile page provides a centralized interface to view and manage user data. The admin can access user profiles, make necessary changes or updates, and address any user-related issues or queries. This allows the admin to maintain accurate and up-to-date user information within the system.

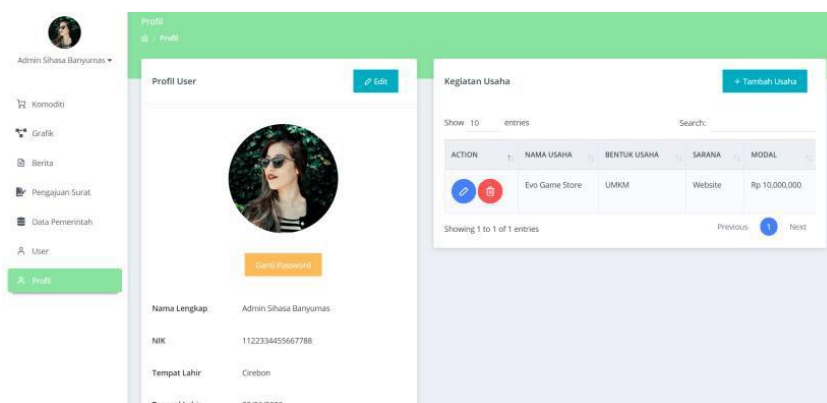


Fig. 12 Profile Page

*name of corresponding author



Testing and Turnover

Testing programs in table 1 using black box testing primarily emphasizes the input process of the program. It aims to evaluate the functionality of the program by examining its response to different inputs without considering the internal structure or code implementation. The focus is on ensuring that the program produces the expected outputs based on the specified requirements and inputs. On the other hand, system testing is conducted to assess the overall performance and behavior of the system that has been designed.

Table 1. Application Testing with Blackbox Testing

No	Test Scenarios	Test Cases	Test Results	Conclusion
1	No. Call less than 10 numbers then click the register button	No. Phone : (less than 10 digits)	The system will reject and display the message "Please fill in the telephone number correctly"	Valid
2	No. Phone and password are not filled then click the login button	No. Phone : (blank) Password : (blank)	The system will reject and display the message "Please fill in the Phone Number and Password"	Valid
3	No. Phone and password filled in accordingly then click the login button	No. Phone : (admin) Password : (admin)	The system accepts to enter the admin dashboard page	Valid
4	Adding commodities to the user account	Input commodity data accordingly	The receiving system and the commodity have been successfully added	Valid
5	Displays graphs of commodity stocks and commodities that have been sold	The user adds commodities to the system	The system successfully displays the appropriate graph of the stock and commodities that have been sold	Valid
6	The SIHASA V2 admin added news to the system	The SIHASA V2 admin creates news to be displayed on the system and visible to users	The system receives and the news has been successfully added and appears on the system	Valid
7	Make a letter submission on the user account but the business data has not been filled in	Name : Business Data User : (blank)	The system will reject and display the message "Please fill in your business data"	Valid

*name of corresponding author



8	The Village Admin adds government data to the system	The SIHASA V2 admin adds village head data to the government data menu	System receiving and government data added successfully	Valid
9	The user resets the password but the old password is filled with the wrong password	Old Password : (blank) New Password : Test	The system will reject and display the message "Please enter the Old Password correctly"	Valid

Based on the successful completion of the tests described above, it is evident that all the conducted tests met the expectations of the testers. This indicates that the website-based village information system in Banyumas Regency has achieved a system eligibility percentage of 90%. With such a high eligibility percentage, it can be concluded that the system is functioning well and is ready for immediate use. The tests conducted have validated the functionality and performance of the system, ensuring that it operates according to predetermined specifications. This high eligibility percentage implies that the system has met a significant portion of the desired functionalities and requirements outlined for its intended use. By achieving a system eligibility percentage of 90%, the website-based village information system demonstrates its reliability and readiness for practical utilization. Users can expect a well-functioning system that meets their needs and facilitates efficient access to village-related information in Banyumas Regency. However, it is important to note that achieving a 90% system eligibility percentage does not imply complete perfection or absence of potential issues. Continuous monitoring, maintenance, and future testing may still be necessary to address any potential shortcomings and further enhance the system's performance and usability over time.

In the research conducted on the Banyumas SIHASA V2 system, user feedback played a vital role in assessing the system's effectiveness. Users highly praised the system's user-friendly interface, which facilitated seamless navigation and efficient task execution. The inclusion of features such as 'Add Commodity,' 'Create Business Permit Letter,' and 'Manage User Data' garnered positive feedback as they effectively streamlined user interactions with the system. Moreover, the approval process for business permit requests was described as efficient and hassle-free. Users also expressed appreciation for the SIHASA V2 Admin's ability to manage user accounts and provide news updates, enabling them to stay informed about the latest developments in the Banyumas area. Overall, the user feedback clearly indicated that the Banyumas SIHASA V2 system significantly improved the online commodity system, enhancing operational efficiency and providing a reliable platform for seamless communication and collaboration between users and administrators."

DISCUSSIONS

In this study, the primary objective is to develop an information system that serves as a platform to promote and facilitate Micro, Small, and Medium Enterprises (MSMEs) in the Banyumas area, while enhancing the convenience of the online purchasing process. The proposed system enables MSMEs to register and showcase their products on a dedicated website, providing them with increased visibility and marketing opportunities. Concurrently, users are empowered to directly purchase the showcased commodities through the system. The development process of this system follows the Rapid Application Development (RAD) method, encompassing five key stages: business modeling, data modeling, process modeling, system development, and testing and replacement. Rigorous testing utilizing the blackbox testing method confirms the system's smooth functionality, as no issues were identified during the testing phase. With the successful design and development of this system, the researchers recommend further exploration and enhancement to amplify the benefits it offers to users, fostering continued advancements in supporting MSMEs and facilitating their growth.

*name of corresponding author



CONCLUSION

The successful design and development of the website-based SIHASA V2 Banyumas information system has yielded significant findings. The implemented information system has proven to be highly effective in supporting the Banyumas Regency Government's initiatives to promote and streamline Micro, Small, and Medium Enterprises (MSMEs) in the region through an efficient online commodity purchasing process. The adoption of the Rapid Application Development (RAD) method in this study facilitated rapid system development, enabling iterative collaboration between users and developers. Consequently, the application of the RAD method resulted in the creation of the Banyumas SIHASA V2 system, which boasts features specifically designed to support MSME promotion and enhance the purchasing process. This system simplifies the registration and marketing of commodities for MSMEs in Banyumas through the dedicated website. Thorough testing using the blackbox testing method confirmed the robust performance of the Banyumas SIHASA V2 system, as it operated smoothly without encountering significant issues. Users can seamlessly navigate the system to explore and directly purchase MSME commodities. Overall, this research has successfully designed and developed an effective SIHASA V2 Banyumas information system, providing a valuable platform for promoting MSMEs in Banyumas and facilitating a convenient online commodity purchasing process. It is anticipated that this system will deliver substantial benefits to its users and contribute to the growth of MSMEs in the region.

REFERENCES

- Abid, F. B. Al, & Karim, A. N. M. R. (2017). Cross-platform development for an online food delivery application. In *Proceedings of the IEEE International Conference on Computing, Networking and Informatics, ICCNI 2017* (Vol. 2017-January). Retrieved from <https://doi.org/10.1109/ICCNI.2017.8123769>
- Adawiyah, E. R. (2020). KOLABORASI LEMBAGA KEUANGAN, PEMERINTAH DAN PERUSAHAAN DALAM MENINGKATKAN PERAN KOPERASI KARYAWAN INDUSTRI SEBAGAI ALTERNATIF SOLUSI DALAM PEMBANGUNAN SEKTOR EKONOMI INDONESIA. *PROFIT: Jurnal Kajian Ekonomi Dan Perbankan Syariah*, 4(1). Retrieved from <https://doi.org/10.33650/profit.v4i1.911>
- Algipari, F. I. R., Ramdhini, N. A., Kusmana, R. S., Fani, T. R., Putri, W. S., Rizki, Z. M., & Firmansyah, R. (2022). PENGAPLIKASIAN SISTEM INFORMASI MANAJEMEN TERHADAP PERFORMA PEGAWAI PADA YOGYA JUNCTION 8 CEMARA. *Jurnal Muhammadiyah Manajemen Bisnis*, 3(1). Retrieved from <https://doi.org/10.24853/jmmb.3.1.29-36>
- Aslamiyah, S. (2022). Development of Increasing Business Competitiveness In Betoyoguci Village Gresik Regency. *Kontribusi: Research Dissemination for Community Development*, 5(2). Retrieved from <https://doi.org/10.30587/kontribusi.v5i2.3942>
- Community, Db. (2021). DBeaver Community: Universal Database Tool.
- Fatwitawati, R. (2017). *POTENSI USAHA MIKRO KECIL. Pengelolaan Keuangan Bagi Usaha Mikro Kecil Menengah (UMKM) Di Kelurahan Airputih Kecamatan Tampan Kota Pekanbaru*.
- Freeman, S. R. (2021). Public Health Cybersecurity Education Gaps: Pandemics Are Both Digital and Viral. *ProQuest Dissertations and Theses*.
- Handayani, null, Harmadi, A., Purnamasari, W., & Patriya, E. (2022). A Study on the Role of Internal and External Factors in Consumer Buying Behaviour Through E-Marketplace. *International Journal of Economic Behavior and Organization*, 10(1). Retrieved from <https://doi.org/10.11648/j.ijebo.20221001.11>
- Ikhsani, M. M., Eko, S., Santoso, B., Bagis, F., & Hidayah, A. (2021). STRATEGIES FOR INCREASING THE COMPETITIVENESS OF MICRO SMALL AND MEDIUM ENTERPRISES (MSMEs) IN BANYUMAS DURING THE COVID-19 PANDEMIC. *Business and Accounting Research (IJEBA) Peer Reviewed-International Journal*, 5(3).
- Januarita, D., & Prabowo, W. A. (2020). Software Requirement Specification Sistem Informasi Manajemen Rumah Makan Berdasarkan ISO/IEC/IEEE 29148-2018. *Jurnal Sisfokom (Sistem Informasi Dan Komputer)*, 9(2). Retrieved from <https://doi.org/10.32736/sisfokom.v9i2.872>

*name of corresponding author



- Jose Marie M. Anos, J. A. O. F.-G. O. E. M. D. J. D. R. M. V. V. (2020). Financial Management of Micro, Small, and Medium Enterprises in Cebu, Philippines. *International Journal of Small Business and Entrepreneurship Research*, 8(1). Retrieved from <https://doi.org/10.37745/ejsber.vol8.no.1p53-76.2020>
- Kristiyanti, M., & Rahmasari, L. (2017). Website sebagai Media Pemasaran Produk-Produk Unggulan UMKM di Kota Semarang | Kristiyanti | Jurnal Aplikasi Manajemen. *JAM (Jurnal Aplikasi Manajemen)*, 13(2).
- Ongadi, B., Lihana, R., Kiiru, J., Ngayo, M., & Obiero, G. (2022). An Android-Based Mobile App (ARVPredictor) for the Detection of HIV Drug-Resistance Mutations and Treatment at the Point of Care: Development Study. *JMIR Formative Research*, 6(2). Retrieved from <https://doi.org/10.2196/26891>
- Petrovic, N., Roblek, V., Radenković, M., & Nejkovic, V. (2020). Approach to Rapid Development of Data-Driven Applications for Smart Cities using AppSheet and Apps Script (preprint), (October).
- Prabowo, W. A., & Wiguna, C. (2021). Designing of Restaurant Information System using Rapid Application Development. *SISFORMA*, 8(1). Retrieved from <https://doi.org/10.24167/sisforma.v8i1.3021>
- Pratama, B., Darmawan, A., & Innayah, M. (2020). Covid-19 impact on MSME Business Operations around Banyumas Regency: Overview, Problems, and Suggestions. Retrieved from <https://doi.org/10.4108/eai.5-8-2020.2301226>
- Putra, P., Windah, A., & Tarisa, A. (2022). ADOPSI DAN IMPLEMENTASI KECAKAPAN LITERASI INFORMASI DAN LITERASI DIGITAL UNTUK AKSELERASI UMKM DI INDONESIA PASCA PANDEMI COVID-19. *Fihris: Jurnal Ilmu Perpustakaan Dan Informasi*, 16(2). Retrieved from <https://doi.org/10.14421/fhrs.2021.162.177-199>
- Suci, Y. R. (2016). Pengembangan UMKM dalam Meningkatkan Kesejahteraan Masyarakat di Wilayah Pedesaan. *Journal Development*, 4(2). Retrieved from <https://doi.org/10.53978/jd.v4i2.37>
- Valarezo, R., & Guarda, T. (2018). Comparative analysis of the laravel and codeigniter frameworks: For the implementation of the management system of merit and opposition competitions in the State University Península de Santa Elena. In *Iberian Conference on Information Systems and Technologies, CISTI* (Vol. 2018-June). Retrieved from <https://doi.org/10.23919/CISTI.2018.8399242>
- Wijaya, S., Andhika, A., Ilyas, M., Studi, P., Rekayasa, T., Lunak, P., ... Cikarang, I. (2022). Development Of Sales Information System for SME with the Waterfall Method: A Grocery Store BSR Case. *Jurnal Teknik Informatika (JUTIF)*, 3(4).
- Zulfanetti, Z., Octavia, A., & Erida, E. (2018). Profile and Development Model of Micro, Small and Medium Enterprises (MSMEs) in Jambi Province (Through Superior Commodities Approach). Retrieved from <https://doi.org/10.2991/piceeba-18.2018.35>

*name of corresponding author



This is an Creative Commons License This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.