



## Implementation of the Laravel Framework in Designing the BUMDESMA Kompak Sejahtera Lkd Website using the Prototype Method

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 <https://doi.org/10.37339/e-komtek.v8i1.1771>

Published by Politeknik Piksi Ganesha Indonesia

### Abstract

BUMDESMA, as a village-owned business entity, needs a website for a wider information dissemination process. Websites are used to share information quickly, accurately, and easily. Websites can increase the credibility and existence of a company when developing its business. BUMDESMA Kompak Sejahtera Lkd is one of the BUMDESMA that does not yet have a website for disseminating information or means for conducting business transactions. Information dissemination has only been limited to distributing printed brochures offline. To increase the dissemination of information on the existence of BUMDESMA Kompak Sejahtera Lkd, a BUMDESMA website was designed using the prototype method in this research. To get an effective and efficient website design, the Laravel framework was chosen as the solution. After designing the website, it is hoped that information about BUMDESMA Kompak Sejahtera Lkd will widen to help increase business activities at BUMDESMA.

**Keywords:** Website, BUMDESMA, Laravel, Prototype

### Abstrak

BUMDESMA sebagai badan usaha milik desa membutuhkan website untuk proses penyebaran informasi yang lebih meluas. Tidak hanya sebagai sarana berbagi informasi yang cepat, akurat, dan mudah, website juga dimanfaatkan untuk menjaga kredibilitas dan eksistensi suatu perusahaan dalam mengembangkan usahanya. BUMDESMA Kompak Sejahtera Lkd merupakan salah satu BUMDESMA yang belum memiliki website untuk penyebaran informasi maupun sarana untuk melakukan transaksi bisnis. Selama ini, penyebaran informasi hanya sebatas penyebaran brosur cetak secara offline. Untuk meningkatkan penyebaran informasi keberadaan serta eksistensi BUMDESMA Kompak Sejahtera Lkd, dalam penelitian ini dilakukan perancangan website BUMDESMA menggunakan metode prototype. Untuk mendapatkan rancangan website yang efektif dan efisien, framework Laravel dipilih untuk menjadi solusi. Setelah dilakukan perancangan website BUMDESMA ini, diharapkan informasi mengenai BUMDESMA Kompak Sejahtera Lkd menjadi lebih meluas hingga dapat membantu meningkatkan kegiatan bisnis pada BUMDESMA tersebut.

**Kata-kata kunci :** Website, BUMDESMA, Laravel, Prototype



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## 1. Introduction

According to PP RI No. 11 of 2021 concerning Village-Owned Enterprises, BUMDESMA (Joint Village-Owned Enterprises) is a legal entity established by villages to be managed jointly to manage businesses, utilize assets, develop investment and productivity, provide services, and provide various other efforts for the welfare of village communities [1]. BUMDESMA Kompak Sejahtera Lkd is one of the BUMDESMA that provides conventional microfinance services such as Community Revolving Funds, Trading, and Savings and Loans.

Since it was founded in 2022, the dissemination of information at BUMDESMA Kompak Sejahtera Lkd still uses conventional methods such as distributing printed brochures or flyers. This is felt to hamper the development of economic activities in BUMDESMA, where in current technological developments, people need information that is fast, accurate, and easy [2]. In this problem, websites are one solution that can make it easier to find information. A company website is needed in addition to providing information. It also has considerable value in maintaining the credibility and existence of a company developing its business [3].

Not only speed and ease in providing information, but websites also need to be packaged attractively so that readers can more easily understand the information content and feel comfortable reading it [4]. A framework combined with CSS and JavaScript is one way to get a website's attractive appearance and ease of design [5]. In designing the website, the Laravel framework was used as a responsive website design framework by prioritizing front-end requirements. Laravel offers various key features, such as a flexible routing system, integrated authentication management, and database migration capabilities, making it easier to manage database schemas [6]. The MVC (Model View Controller) concept written in PHP within the Laravel framework improves software quality by reducing initial development and maintenance costs while providing an expressive, clear delivery syntax and saving application time [7].

It is hoped that the BUMDESA website design can be used as soon as possible so that the prototype method can be chosen as an effective and efficient SDLC method. In the prototype method, users actively participate in website design to provide ideas and suggestions and state the weaknesses and advantages of the designed website [8]. Using this method, the stages become more concise and faster, then proceed to the evaluation stage to obtain results in the form of an application mock-up [5]. The combination of the Laravel framework and the prototype method is expected to enable the design of the BUMDESMA Kompak Sejahtera Lkd website in a shorter time while still maintaining good quality.

## 2. Method

### 2.1 Collecting Data Method

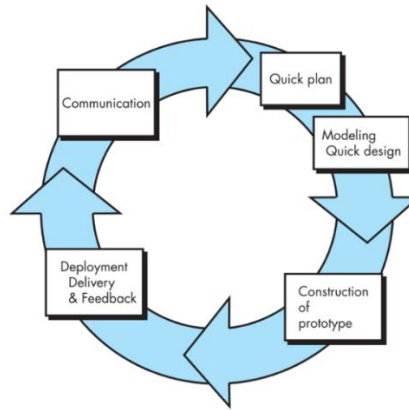
The research was adapted to the business processes running at BUMDESMA Kompak Sejahtera Lkd and related to ongoing events and current conditions. Hence, the researcher used descriptive methods. The descriptive method examines the current state of human groups, subjects, conditions, systems of thought, or categories of events. Descriptive research aims to describe or describe the relationship of each event systematically experienced [9]. In designing the BUMDESMA website, a descriptive method was used to collect data on website needs by interviewing BUMDESMA managers.

### 2.2 Development System Method

The BUMDESMA website design uses prototyping to speed up the website design process. Prototyping is a software development model that describes the system's working methods and functions as an initial version of the system [10]. In the prototyping method, there is an iterative system development process where requirements are converted into system language, which can be continuously improved through collaboration between users and analysts [11]. The advantages of using the prototyping method [12]:

- a. Realizing the real system in a replica of the system that will run, accommodating user input for system perfection.
- b. Users will be more ready to accept any system changes that develop as the prototype progresses to the final result of the system being developed.
- c. Prototypes can be added or removed while the development process is ongoing. The user can follow the step-by-step progress directly by the user.
- d. Saving resources and time in producing products.

Meanwhile, according to Aditya et al., the prototyping method must be completed, evaluated, and developed further [13]. **Figure 1** shows the stages of the prototyping method.



**Figure 1.** Prototype Method [14]

There are five main stages in the prototype method, including:

a. Communication

Communication identifies problems and system needs through intensive communication with users [12]. At this stage, the developer and client meet and determine the general goals, desired needs, and description of the parts needed [15]. Then, developers record and describe the desired requirements, which will be consulted directly with customers and repeated [10].

b. Quick plan

This stage involves making temporary designs that focus on customer or client desires, such as creating the required input and output [9]. The design is carried out quickly in this stage and meets all the client's needs. This design will be the basis for making a prototype [15].

c. Modeling Quick Design

At this stage, create a website design [13]. The developer determines the user's needs or desires and then creates an interface design that the user can easily understand [16]. Before creating a display design, a design is made regarding the website's workflow, which will be developed through actor design and a process using the Unified Modeling Language (UML) [13].

d. Construction of Prototype

Based on the design from the previous stage, the next step is to construct a prototype, which involves translating the design into a website programming language [17]. In this research, the website was designed using the Laravel framework because it was considered to speed up the prototype construction process.

e. Development Delivery & Feedback

After designing and making a prototype that meets the user's needs, the next stage is for the user to try and evaluate the prototype [15][17]. The website is ready if the prototype is built

according to the customer's wishes. However, if the prototyping is inappropriate, the developer will make revisions by repeating steps 1, 2, or 3 (design changes) [18].

### 3. Results and Discussion

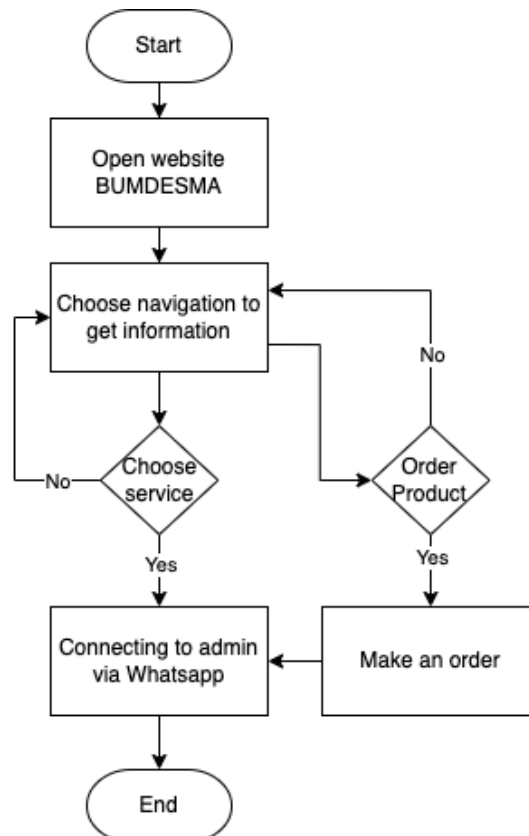
#### 3.1 Result

##### A. Communication

In the communication stage, the developer and BUMDESMA, as the client, meet directly to find out the business needs of the BUMDESMA website. Developers conduct interviews to identify both functional and non-functional needs. This communication is also an essential stage in development using the prototype method. In this stage, the point of view of the website that will be designed is equalized between the developer and BUMDESMA.

##### B. Quick Plan

The next step is determining the website's input specifications and the process needed to process the input into the expected and desired outputs [13]. The quick plan flow design is shown in the flowchart in [Figure 2](#).



**Figure 2.** Website Plan Flowchart

C. Modeling Quick Design

1. Use Case Diagram

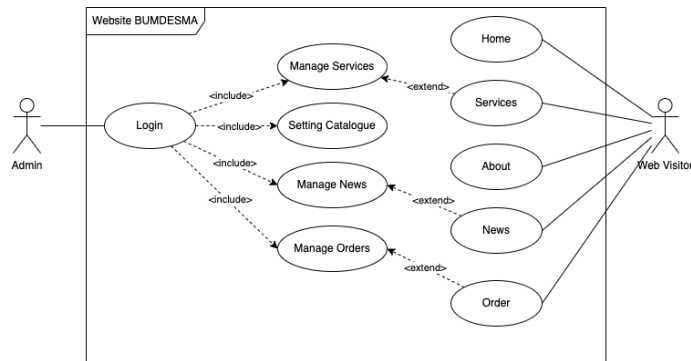


Figure 3. Use Case Diagram

2. Activity Diagram

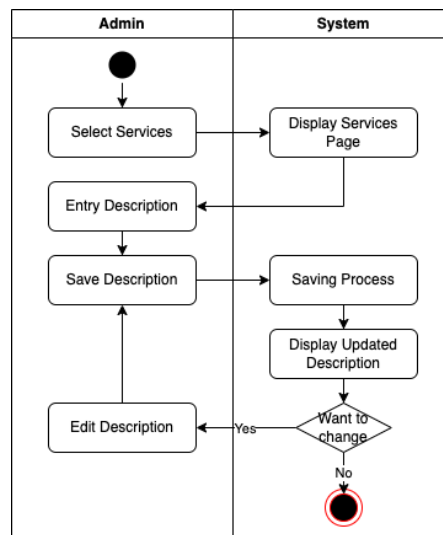


Figure 4. Manage Services Activity Diagram

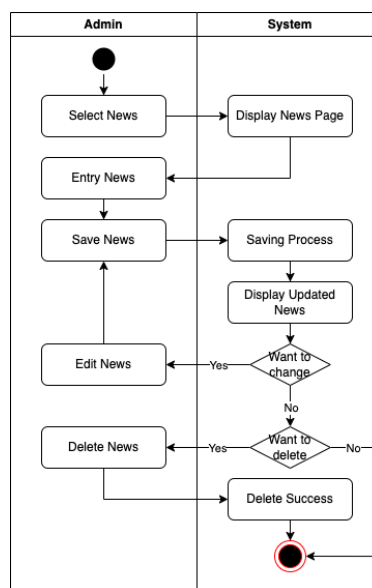


Figure 5. Manage News Activity Diagram

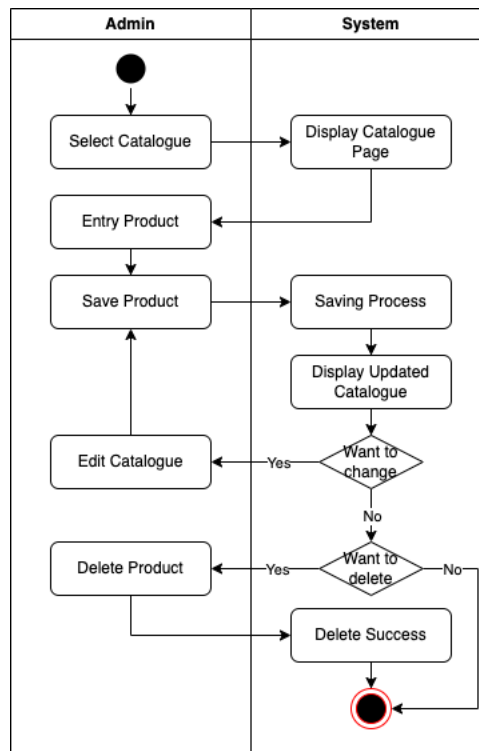


Figure 6. Manage Catalog Activity Diagram

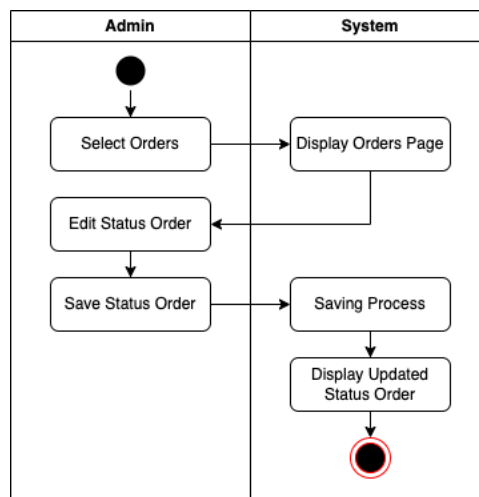
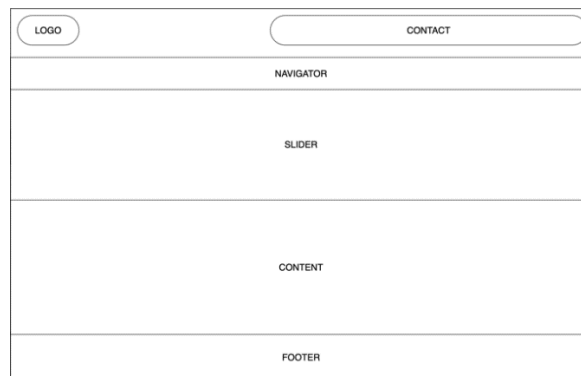


Figure 7. Manage Orders Activity Diagram

### 3. Interface Design

In the interface design, a website display design is described that has been adapted to BUMDESMA's wishes. This interface design is divided into three parts, namely header, content, and footer. The header has a logo, BUMDESMA contacts, and a navigator. The navigator comprises five menu options: home, services, about us, news, and catalog. For the content section, on the home page, there is a slider and a content section, while only the content section is available on the other menus. At the bottom is a footer containing the BUMDESMA logo, slogan, social media, service types, navigation menu, and contacts. The

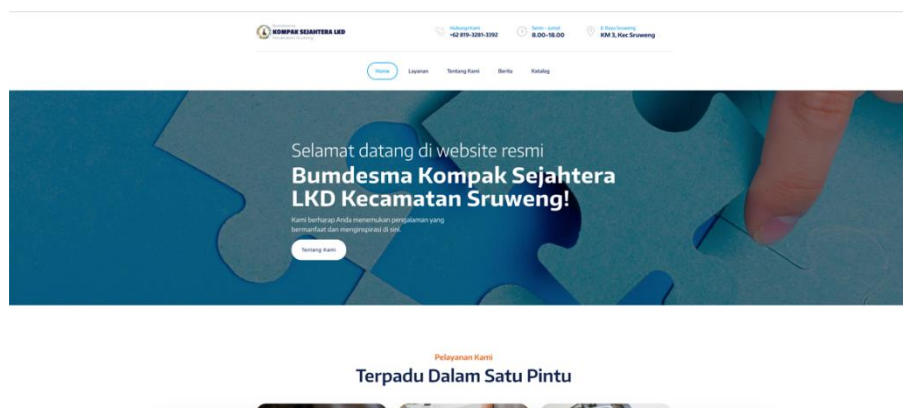
interface design that has been agreed upon with the client can be seen in **Figure 8**.



**Figure 8.** BUMDESMA's Website Design Interface

#### 4. Construction of Prototype

Next is the translation stage of the design into a website programming language designed using the Laravel framework. The results of the prototype's construction can be seen in **Figures 9 – 12**.



**Figure 9.** Home Page



**Figure 10.** Services Page



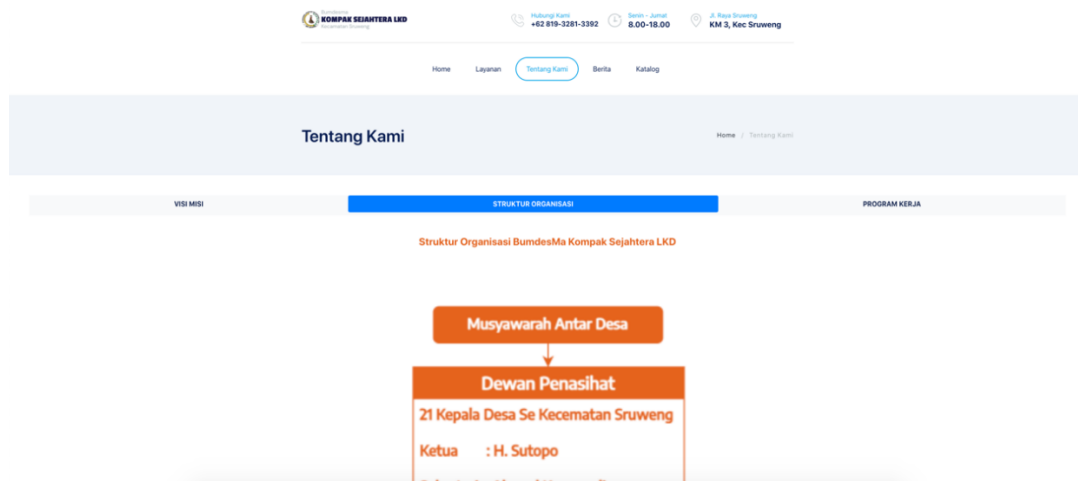


Figure 11. About Page

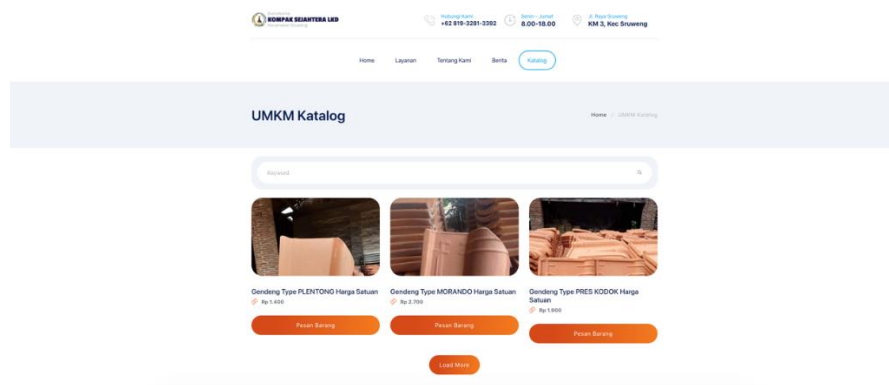


Figure 12. Catalog Page

## 5. Deployment Delivery and Feedback

After the prototype is successfully developed, testing and implementation are carried out. The testing used is black box testing, which focuses on the functional features provided. The results of black box testing can be seen in [Table 1](#).

Table 1. Testing Table

ID	Description	Expected Result	Test Result	Status
1	Visit the website	Display the home page	Display the home page	Succeed
2	Choose the menu in the navigation	Display the page with the chosen	Display the page with the chosen	Succeed
3	Choose a product in the catalog	Display the product detail	Display the product detail	Succeed
4	Make an order	Connect with the admin WhatsApp chat account	Connect with the admin WhatsApp chat account	Succeed

At this stage, implementation is also carried out by hosting the website address <https://www.bumdesmakompaksejahteralkd.com/>.

### 3.2 Discussion

In this study, the design of the BUMDESMA Kompak Sejahtera Ldk website has been implemented by considering the specific needs of users and the goals that the BUMDESMA wants to achieve. The results of this study show that the designed website successfully meets users' information and transaction needs and increases the efficiency and effectiveness of information dissemination in BUMDESMA operations.

The main focus in designing the BUMDESMA Kompak Sejahtera Ldk website is on ease of navigation and clarity of information. This is in line with the findings in the study by Dewangkara et al., which also emphasized the importance of intuitive and easy-to-use interface design for ordinary users in rural areas [19]. The striking difference lies in using bolder colors and iconography on the Kompak Sejahtera website.

However, the design of this BUMDESMA website still has shortcomings. Community involvement to measure the ability to get information and understand websites has not been paid much attention. The community is only involved in the last part, namely Deployment Delivery, and Feedback, where the community should be involved from the beginning of the website design process, especially in the user needs section.

### 4. Conclusion

Based on the research, the BUMDESMA website, designed using the prototype method with the help of the Laravel framework, can be built faster. The information presented can also be displayed in a more attractive appearance. Apart from providing static information, website visitors can also conduct transaction activities by contacting the admin via WhatsApp, which is available on the catalog and service pages. The BUMDESMA website can be accessed and used to disseminate information via the URL address <https://www.bumdesmakompaksejahteralkd.com/>.

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