



Website Gallery Development Using Tailwind CSS Framework

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Abstract

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This research designs and builds a special website for photography galleries, where this application is made to help and make it easier for photographers to store and exhibit photography widely via online media. So far, the storage media for exhibiting photographers' results is still conventional, for example exhibitions of certain photographers' artworks or special events. This makes it difficult for art enthusiasts or novice photographers to see or display their photography results. The website design uses the waterfall method and uses HTML, CSS programming language tools with the TailwindCSS framework, PHP, and MySQL as the database.

Keywords: Photography gallery, Website, Tailwind CSS

Abstrak

Penelitian ini dirancang guna membangun sebuah website khusus galeri fotografi untuk memudahkan fotografer menyimpan dan memamerkan fotografi secara daring. Saat ini, media untuk memamerkan karya fotografer masih konvensional, misalnya pameran karya seni fotografer tertentu atau acara khusus, sehingga menyulitkan para peminat karya seni atau fotografer pemula untuk melihat atau menampilkan hasil fotografinya. Perancangan website menggunakan metode waterfall dengan instrumen bahasa pemrograman PHP, Tailwind CSS sebagai framework CSS, dan MySQL sebagai databasenya. Dengan adanya website ini, diharapkan fotografer dapat menyimpan dan memamerkan karya seninya di galeri website secara daring.

Kata-kata kunci: Galeri fotografi, Website, Tailwind CSS



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1. Introduction

During the COVID-19 pandemic, the terms Industry 4.0 and the Internet of Things became an important trend. The Industrial Revolution 4.0 has a major impact on human lifestyles. To comply with the physical distancing policy, the public is required to carry out all activities digitally, from doing business to studying or working [1].

The role of the information system is to improve data management accurately, quickly, and help improve the quality of the information to convey [2]. The demand for website creation with fast page access is increasing, especially in the commercial sector [3]. The use of CSS is one of the factors affecting the speed of website page access [4]. Tailwind CSS is a utility-first framework for quickly building custom interface designs. CSS with Utility-first provides a low-level utility class for building custom designs in HTML files [5]. Tailwind CSS creator Adam Wathan said, "Best practice doesn't really work. I've written a few thousand words about why the traditional "semantic class name" is why CSS is hard to maintain, but the truth is you'll never believe me until you actually try it" [6]. Tailwind CSS was created with the aim of simplifying and speeding up the prototyping of a web page.

All kinds of pre-provided components, such as cards, buttons, containers, and the like are useful, but problems arise when users want to design new CSS styles. Tailwind CSS provides low-level utility classes that can be used to build the overall design the user wants without having to edit the HTML file [7].

Each Tailwind utility has responsive types that make it easy to build responsive interfaces without the need to use special CSS commands. Tailwind uses the intuitive {screen}: prefix, to find out which responsive classes are in the markup while preserving the original class names. Component-friendly, Tailwind provides tools for extracting component classes from iterative utility patterns and for updating multiple instances in a component from one place. Tailwind is written in PostCSS format and configured in JavaScript. A tailwind is a machine for creating design systems.

Using Tailwind as a CSS framework in the website gallery, users can shorten the processing time of a CSS style and give users the freedom to design as desired with all the features that make it easier for users, such as making a responsive or mobile-friendly website.

2. Method

The approach method used in the development of the research system is the Waterfall Method. The waterfall method is often called the classical life cycle [8]. The name of this model is "Linear Sequential Model" [9]. This method includes Requirements Analysis, System and Software Design, Implementation and Unit Testing, Integration and System Testing, and Operation and Maintenance [10]. These steps are presented by Figure 1.

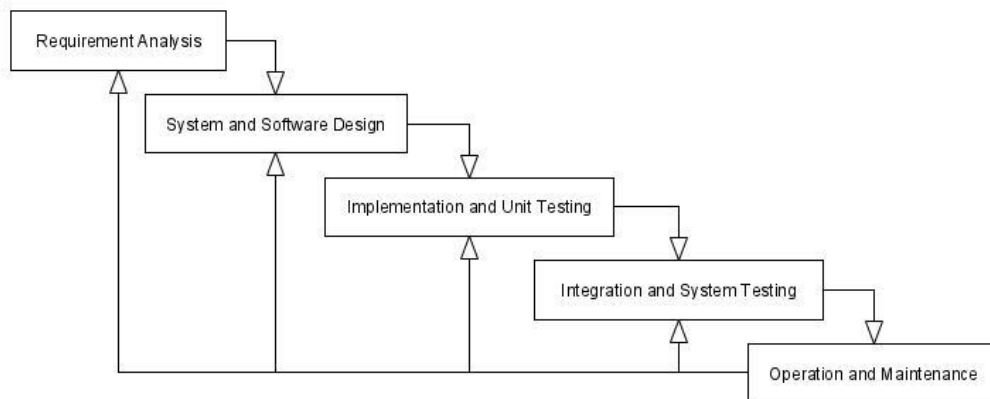


Figure 1. Research Steps

a. Requirement Analysis

The initial stage of this research was to find out what was needed so that the research runs smoothly, namely, software and hardware. The required software specifications for the program to run are listed in Table 1.

Table 1. Minimum Specifications for Software Requirements

No.	Name	Specification
1	Operating system	Windows 7 (32-bit)/Ubuntu Linux v16.04
2	NodeJS	v12.13.0
3	TailwindCSS	v2.2.19
4	Web Browser	Chrome v90
5	PHP	8.0
6	MySQL	8.0
7	Visual Studio Code	1.5

The required hardware specifications for software to run smoothly are listed in Table 2.

Table 2. Minimum Specifications for Hardware Requirements

No.	Name	Specification
1	CPU	Core™ 2 Duo
2	RAM	2 GB
3	VGA	GTX 920M
4	HardDisk	50 GB
5	Internet	1 Mbps

b. System and Software Design

The stage for designing what must be done to meet the needs of the first stage such as the website design that will be used. The system would use Unified Modeling Language as the method.

c. Implementation and Unit Testing

Tailwind CSS would be implemented as the main CSS framework for the webpage. PHP would be used as the backend of the website. MySQL is used as the database of the website [11].

d. Integration and System Testing

The next stage was testing the system using the Blackbox Testing method as presented in Figure 2. Black Box Testing is a software testing method by trying to enter data on each form. [12].



Figure 2. Black Box Testing

e. Operation and Maintenance

At this stage, efforts such as Tailwind version updates and bug fixes were made so that the effects of Tailwind CSS can work perfectly on the displayed website.

3. Results and Discussion

a. System Design

The system design is described using Use Case Diagrams and Class Diagrams.

1) Use Case Diagram

Use case diagrams are diagrams that describe what activities occur between actors and the system [13]. Figure 3 explains the relationship between the User, Admin, and the system. Users can only upload and download photo files from the website. Guest Users can only download photo files from the website. Admin organize and manage all photo files that will be displayed on the website. Therefore, Manage Photos can only be accessed by Admin to manage photos that will be displayed on the website. Meanwhile, Download Photos can be accessed by Users and Guest Users to download photos displayed on the website. Upload Photos can only be accessed by users who have logged in to upload photos with a maximum photo file size limit

of 5MB. Login is used as integrity [14] to ensure that files are not modified by unauthorized persons or parties. Use case diagram is presented in Figure 3.

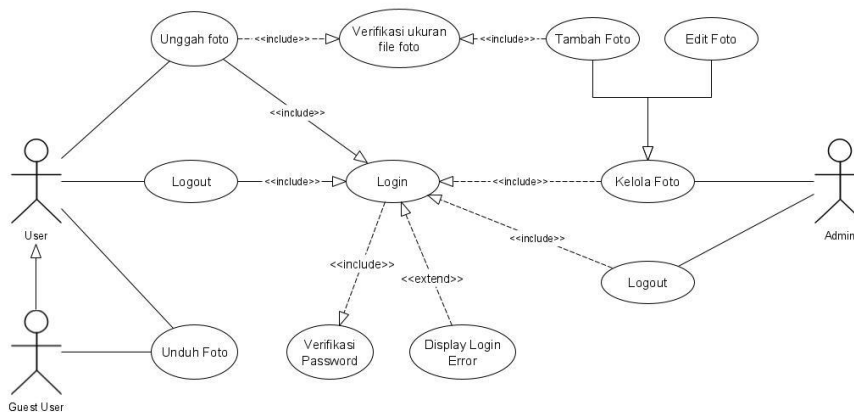


Figure 3. Use Case Diagram

2. Class Diagram

Class Diagram is used to show the relationship between classes of the system [15]. Figure 4 depicts the diagram that is implemented into the system which is Role, User, Admin, and Image. User inherit its ID and description from Role. Image and User are associated with each other. Admin inherits its component from User. Class Diagram is presented in Figure 4.

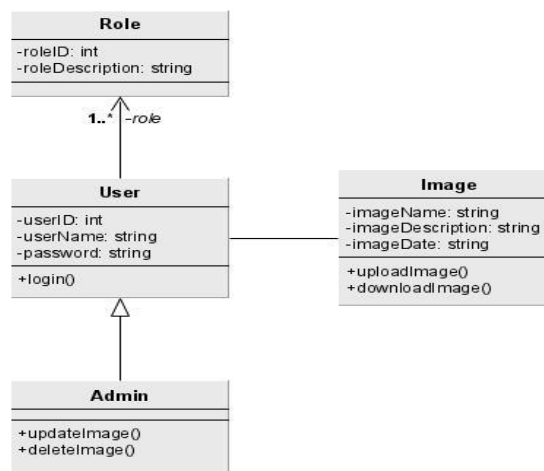


Figure 4. Class Diagram

b. Implementation

1) Register Form

A Register Form page is a place for users to create an account to be able to access the gallery website by creating a new username and password. Figure 5 depicts the display that will be seen by the user when registering.

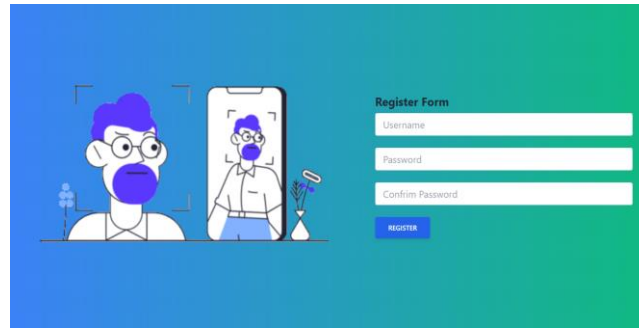


Figure 5. Register Form

2) Login Form

The Login Page presented in Figure 6 is the first page the user will see when accessing the website gallery. On this page, the user must enter a username and password to enter the main page of the website gallery. If the user has not created an account, the user can create a new account by clicking on the word Register and will be directed to the registration page showed by Figure 6.

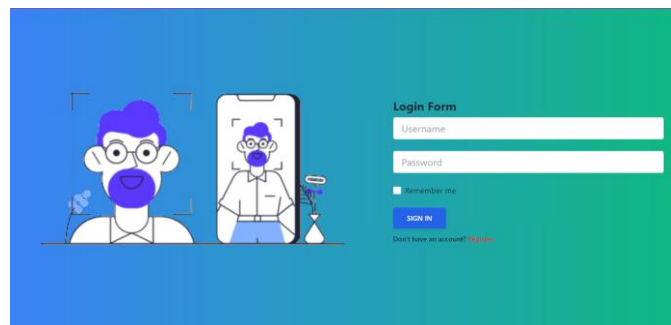


Figure 6. Login Form

3) Main Page

The Main Page as presented in Figure 7 is where all the content from the website gallery is located after the user logs in. On the main pages are several menus to help users from uploading photos, editing, deleting, and viewing photo collections from the gallery website.

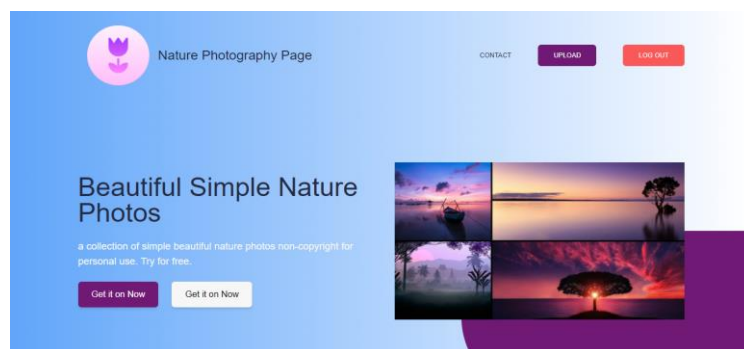


Figure 7. Main Page

4) Upload Form

The Upload Form page is a menu page where users can upload photos. On this page, there are some data to be input such as name, date, description, and photos that the users want to upload to the gallery website. Upload form is presented in **Figure 8**.

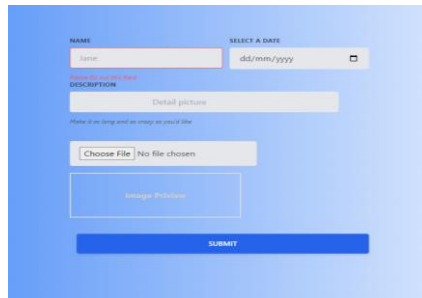


Figure 8. Upload Form

5) Edit Form

The Edit Form page, as presented in Figure 9, is a menu page where users can change the name, date, description, and photo data the same as that on the upload form page. Edit form is presented in **Figure 9**.

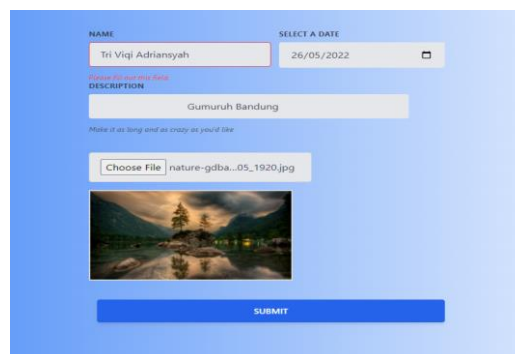


Figure 9. Edit Form

6) Gallery Page

The Gallery Page as presented in **Figure 10** is the place where users can view, change, and delete photos or images that have been uploaded.

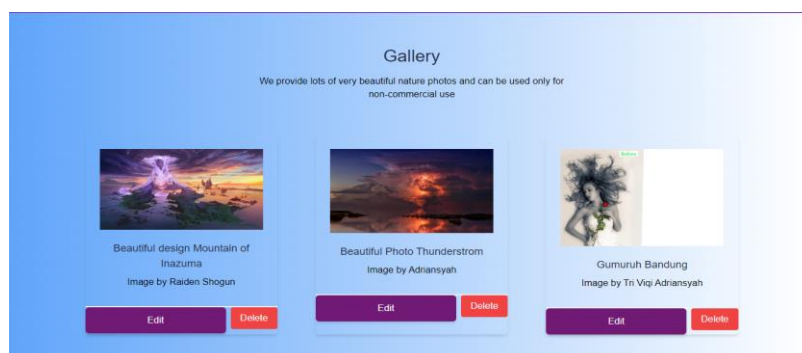


Figure 10. Gallery Page

7) Mobile Responsive

The gallery website can already be accessed via mobile devices via the web browser of each user's smartphone. The mobile display will adjust to the user's device. **Figure 11** is the portrait version of the website view on mobile devices.

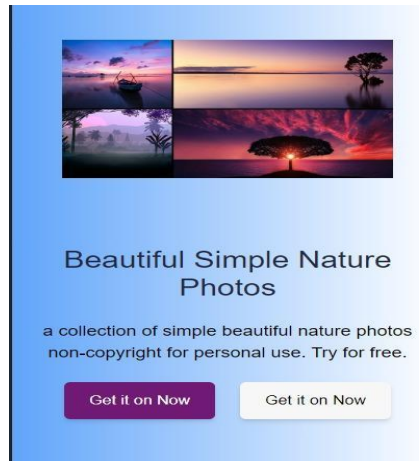


Figure 11. Mobile Responsive Portrait View

c. System Testing

System testing was the last stage of this study. It used the Black Box as described in Figure 2. This test is carried out to determine whether the final results meet the expectations or not. The test results are shown in **Table 3**.

Table 3. Black Box Testing

No.	Test Description	Testing Scenario	Expected results	Test result	Conclusion
1.	Login	The user enters the username and password	The user has successfully logged in with the appropriate username and password	Go to the main page	Successful
		The user enters the wrong username or password	A warning appears "Invalid Username or Password"	Login failed and a warning "Incorrect Username or Password" appears.	Successful
3.	Register	The user creates a new account by entering a username and password	A warning 'new user has been added successfully' appears.	A warning 'new user has been added successfully' appears.	Successful

4.	Main Page	Show all content and menu	Display all content and appropriate menu	The contents and menus displayed follow those in the database	Successful
5.	Add Image	The user uploads an image along with the desired description	Image and image description are uploaded correctly	A warning appears 'Image added successfully!'	Successful
		The user uploads an image that does not match the specified file type	A warning appears 'What you chose is not an image'	A warning appears 'What you chose is not a picture'	Successful
		The user uploads an image that does not match the specified file size	'File Size Too Large' warning appears	'File Size Too Large' warning appears	Successful

4. Conclusion

Based on the research that has been done and the discussion that has been described, the site gallery has worked well and made it easier for photographers or users to display the results of the game. The Tailwind CSS framework in this study makes it easy to create a gallery website interface and is equipped with responsive features for users to open websites via mobile devices

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