

# Laravel-Based Web Application for Alumni Books

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**Abstract**—Alumni are an inseparable unit in the world of education. Alumni have a close relationship with the annual album book which is used to store alumni data. The alumni data at the Banyuwangi State Polytechnic is still kept in the form of an alumni album book. Data entered in printed form has many shortcomings, including the possibility of being damaged, lost, or not being able to be changed periodically. To overcome the above problems, making a Website-Based Alumni Book Application with the Laravel Framework is the right way to deal with these problems. With this alumni book application, users can store information data digitally and the data stored in this application can be updated regularly. The alumni book application provides a search feature that is used to quickly search alumni data and print alumni albums to print their own albums. In this alumni book application, users are given various kinds of information related to alumni. In addition, users can also view details of alumni annual albums from different graduating generations. Based on software testing carried out using the black box method, the Website-Based Alumni Book Application with the Laravel Framework which was tested at the Banyuwangi State Polytechnic has been in accordance with user needs and resulting the average for each page around 7MB.

**Keywords**—Alumni, framework, laravel, website.

## I. INTRODUCTION

Alumni is someone who has finished attending or graduated from an educational institution with predetermined criteria. The word alumni itself comes from the Latin "alumnus" in the form of a noun intended for individual male graduates (masculine), while the plural word is called alumni [1]. As for women, the Latin term "alumna" for the plural word is alumnae. Alumni are an important and inseparable part of the world of education, every year an educational institution finishes hundreds of students, but often the existence of alumni is not well organized so data discrepancies still occur with existing facts. This alumni data is one example in an information system that is designed to be able to help work in an educational institution, especially in higher education institutions in processing data to provide complete and complete data the availability of this web-based information service [2]. The existence of accurate and up-to-date alumni data is very important for institutions to improve the quality of their education, but after graduating and becoming alumni, data or information [3] about alumni is difficult to obtain because communication between alumni and alumni and the institution does not go well, causing the lost data or information from alumni [4].

From these problems, a website-based alumni book application was made with the Laravel framework. With this application, both institutions and alumni can easily find information about alumni. [3] The alumni book application provides information in the form of data and can be updated anytime and anywhere by users, making it easier for institutions to find out more about alumni information.

The alumni book application is a website application that contains information, data, and albums from alumni. In this website application, there is also an official album from the institution that can be printed and recorded by the user or the user himself. The features provided for digitally storing data can be updated at any time so that alumni can get well-organized and up-to-date data information from alumni. The use of this information system is expected able to facilitate the management of alumni data. In addition, the alumni information

system can also facilitate various purposes such as forums between alumni, news and information on activities, vacancies work, scholarship information, tracing alumni, and all of that can be accessed anytime and anywhere as long as you have internet access [5]. The design of a website-based alumni book application with the Laravel framework is intended as a medium for communicating and organizing data to facilitate the search for data information for alumni and institutions so it is hoped that this alumni book application can be useful for users who use it.

## II. METHOD

The method used to build a web-based alumni book application with the Laravel framework is Extreme Programming. The stages to be carried out are (Planning), (Design), (Coding), (Testing) can be seen in Fig.1. below.

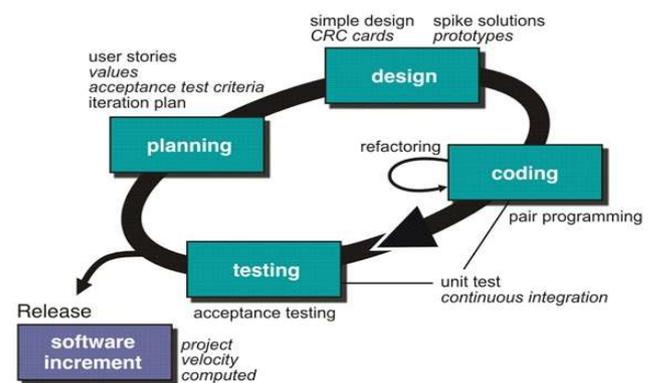


Figure 1. Extreme Method Programming

Stages of the Extreme Programming method:

### A. Planning

The planning stage is the first step in the application of Extreme Programming, which involves identifying problems, analyzing needs, and determining the implementation schedule. [5]

### B. Design

The next stage is system design. At this stage system modeling activities include use cases, activity diagrams, databases and mockups. [6]

C. Coding

At this stage, the implementation of the design that has been made into the form of a user interface using a programming language is carried out.

D. Testing.

The last step is to test the completed system. This activity aims to test the system to find out what errors arise when the application is run. It also aims to find out whether the system has been made in accordance with user needs.

The Transformation System

Whenever a system is made or developed, an overview is needed. [7] There will be two topics explained in the general description of the system, namely an overview of the running system and an overview of the proposed system. This discussion is intended to determine what updates or developments will be made to the current system.

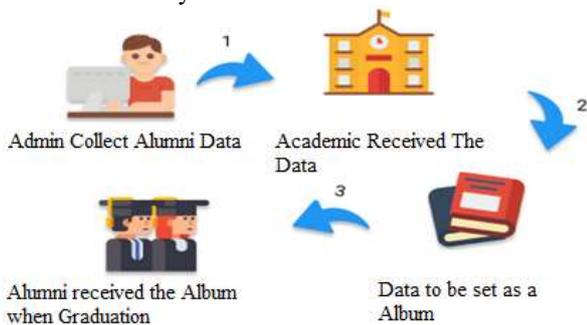


Figure 2. Current system

A screenshot of the current system can be found in Fig. 2. The picture shows that alumni data will be submitted to academics in the form of a spreadsheet that has been stored by the study program academics. Academics will create an alumni book after collecting alumni data from all study programs. The information in the alumni book will be limited. [8] The alumni book is ready for printing once it has been processed. Alumni will receive this book when they graduate..

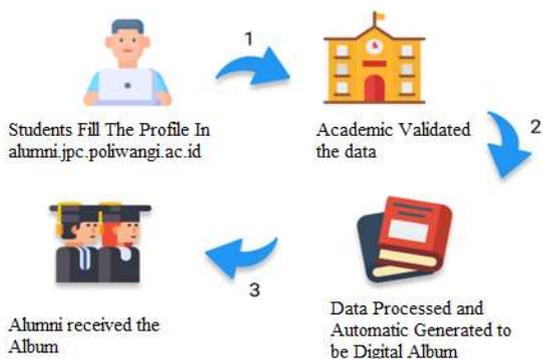


Figure 3. Proposed system

In Fig. 3 it is explained like the picture above. This is because when a student finishes the trial and is declared graduated, the student fills in his/her personal data into the form provided by the alumni book website. As soon as the academic side has validated the data, it is sent to the academic side. Validation of student data is carried out. An alumni album book will be created from the data and published on the website. The album will be distributed to graduates.

Use Case Diagram

An overview of the alumni management application using a use case as shown in Fig. 4.

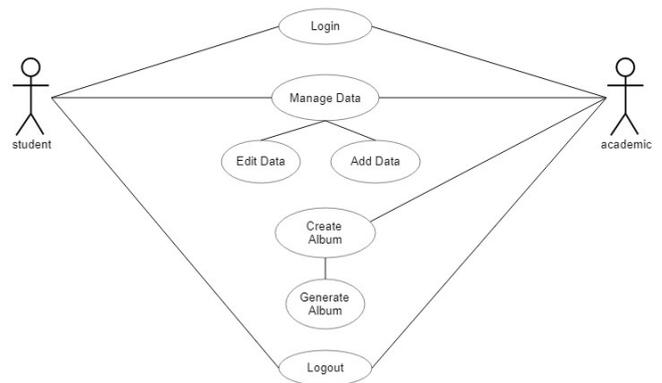


Figure 4. Use Case Diagram

Use case diagrams on website-based alumni books can be seen in Table I, where there are 2 actors, namely students and academics. The use case explanation is shown in the following table:

TABLE I  
USE CASE EXPLANATION

No.	Actor	Roles
1.	Student	Students are users who can access the website to view alumni data, alumni albums, print alumni books and input data
2.	Academic Staff	Academic is a user who has access rights to view and manage album data and perform validation.
<i>Use Case Name</i>		<i>Login</i>
<i>Actor</i>		Student, Academic
<i>Description</i>		Validate to enter the system
<i>Trigger</i>		User enter the registered nim and password in the JPC database that is connected using the REST API
<i>Pre-Condition</i>		The actor must visit the website and go to the login page.
<i>Post-Condition</i>		Go to the home page
<i>Alternative Course</i>		Login was not successful, because the user entered the nim and password that did not match those registered in the system database.

<i>Use Case Name</i>	View alumni data
<i>Actor</i>	Student, Academic
<i>Description</i>	Actors view alumni and album data
<i>Trigger</i>	Actors can view the whole or certain parts of the alumni and album data.
<i>Pre-Condition</i>	The actor has logged in and successfully entered the website.
<i>Post-Condition</i>	Can see alumni data and albums.
<i>Alternative Course</i>	-

<i>Use Case Name</i>	Validate data
<i>Actor</i>	Academic
<i>Description</i>	Actors validate data
<i>Trigger</i>	The actor determines whether the data sent by the student is valid or not.
<i>Pre-Condition</i>	The actor has logged in and successfully entered the website.
<i>Post-Condition</i>	Can validate data
<i>Alternative Course</i>	-

<i>Use Case Name</i>	Album print
<i>Actor</i>	Student
<i>Description</i>	Actor prints alumni album
<i>Trigger</i>	Actors can print albums of the desired generation
<i>Pre-Condition</i>	Actors must enter the website and go to print albums.
<i>Post-Condition</i>	Can print alumni album
<i>Alternative Course</i>	-

<i>Use Case Name</i>	Manage data
<i>Actor</i>	Student, Academic
<i>Description</i>	Actors manage data
<i>Trigger</i>	Actors can fill in their personal data into the form provided.
<i>Pre-Condition</i>	Actors must enter the website page and go to the alumni data page. In it actors can delete and edit data.
<i>Post-Condition</i>	Can manage alumni data
<i>Alternative Course</i>	-

<i>Use Case Name</i>	Manage alumni albums
<i>Actor</i>	Academic
<i>Description</i>	Actor management alumni album
<i>Trigger</i>	Actors can add, make changes and delete alumni albums from the database
<i>Pre-Condition</i>	Actors must enter the website page and go to the alumni album page.
<i>Post-Condition</i>	Can manage alumni album
<i>Alternative Course</i>	-

<i>Use Case Name</i>	logout
<i>Actor</i>	Academic, Student
<i>Description</i>	Actor leaves website
<i>Trigger</i>	The actor exits the web page
<i>Pre-Condition</i>	Actors must enter the website page.
<i>Post-Condition</i>	Actors are outside the website
<i>Alternative Course</i>	-

### III. RESULTS AND DISCUSSION

Alumni and academics can store and find information relating to alumni more easily with the Laravel framework-based alumni book application. There is a data search feature in the alumni book application that users can use to look up alumni data from previous classes to those who have just graduated. Certain circumstances may allow data storage with the alumni book application to be updated at any time. This is additional, users can also view and print their own alumni yearbook through the alumni book application. The alumni book application is intended for two users, namely academics and alumni.

#### - Database Connection

A website application that uses the Laravel framework, the connection between databases is available in the .env file [9]. To make a connection between the database and the application, fill in the name of the database that has been created in the database script. The following that described in Fig. 5. is a snippet of the connection code between the database and the website application.

#### - Login Page

The login display on the alumni book application is the display used by academics and alumni to enter the alumni book application. On this page that showed in Fig. 6. the user is required to enter the registered email and password to enter the application.

```

1 APP_NAME=Laravel
2 APP_ENV=local
3 APP_KEY=base64:xBmXZ0zNPXNruyqmmq4k03BUWJQT89jL2sFuikJABM=
4 APP_DEBUG=true
5 APP_URL=http://localhost
6
7 LOG_CHANNEL=stack
8
9 DB_CONNECTION=mysql
10 DB_HOST=127.0.0.1
11 DB_PORT=3306
12 DB_DATABASE=buku_alumni
13 DB_USERNAME=root
14 DB_PASSWORD=
15
16 BROADCAST_DRIVER=log
17 CACHE_DRIVER=file
18 QUEUE_CONNECTION=sync
19 SESSION_DRIVER=file
20 SESSION_LIFETIME=120
    
```

Figure 5. Database connection



Figure 6. Login page

#### - Dashboard Page

The dashboard display or start page on the website-based alumni book application with a framework is the starting page that will be seen by users when they first enter the alumni book application. On the dashboard page, a welcome message will be displayed to users who have entered the application. In this view there is a logout menu or exit from the application located at the top right of the screen. Furthermore, there are several navigations or menus provided by the alumni book application, namely Study Programs, Alumni, Albums and Student Accounts.

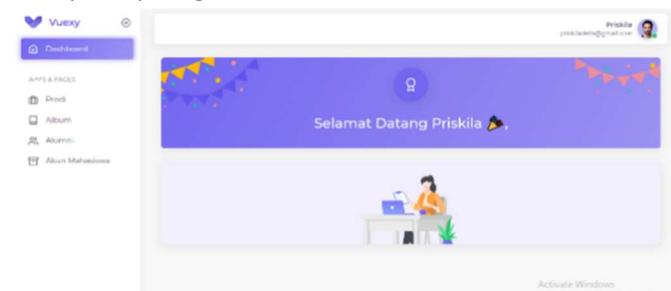


Figure 7. Dashboard page for academic



Figure 8. Dashboard for alumni

Fig. 7 and Fig. 8 shows the dashboard display or start page on the website-based alumni book application with a framework is the starting page that will be seen by users when they first enter the alumni book application. On the dashboard page, a welcome message will be displayed to users who have entered the

application. In this view there is a logout menu or exit from the application located at the top right of the screen. Furthermore, there are several navigations or menus provided by the alumni book application, namely Personal Data, Alumni, and Albums.

- Album

The album page display is a display that contains information about alumni books at the Banyuwangi State Polytechnic. The alumni book that has been made will be included and can be seen in the alumni book application.

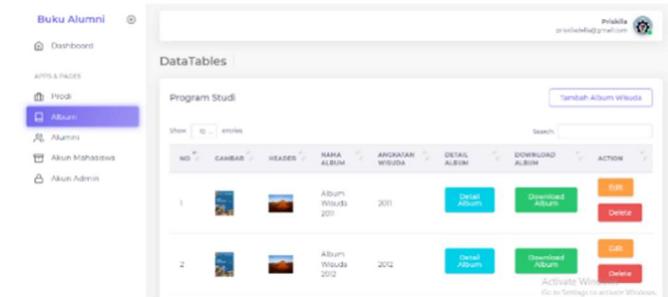


Figure 9. Album page

In this view, users can add albums by pressing Add Graduation Album which is in the upper right corner of the screen. In this view, users can view alumni album details by pressing the Album details button. Users can also download graduation albums by pressing the Download album button. There are edit and delete features in the action column that can be used by users to change album data and delete the album.

- Edit Profile

Fig.10 shows the add personal data display that's used to enter the user's personal data into the alumni book application. This view will appear when a new user enters the alumni book application for the first time. To enter personal data, the user must press the Add button.

Figure 10. Adding data



Figure 11. Generated Files

Fig.11 describes the generated files for an alumni book in 2022. Each page contains three data of the alumni for each department. This book generated in pdf version, So the alumni can access this data from their account.

TABLE II  
TEST CASE

Case	Test	Test Case	Result	Status
Login User	On the Login page fill in your email and password	The user enters an email and password that is not registered in the application database	failed to enter the alumni book application	match
		The user enters the email and password that is registered in the application database	successfully entered the alumni book application	match
Data validation	Alumni add personal data to the alumni book application	Validation testing when the data sent by students has not been validated.	The display of self-data is still empty and does not display the personal data that has been entered by the user.	match
		Validation testing when the data submitted by students has been validated	In the personal data display, the data that has been filled in by the user will appear on this page.	match
Add data	Adding data to the alumni book application	The user adds invalid data in an inappropriate format.	The result appears an alert or data discrepancy warning.	match
		The user enters the data according to the requested format.	As a result, the data will appear in the table provided.	match

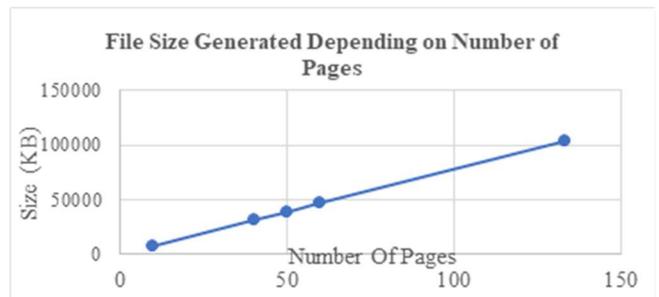


Figure 12. File size generated depending on number of pages

Fig. 12. describes the result of blackbox test for this system. We tried all function from login until generating data with different scenario that describes above. From this test, we can conclude that the system works well as the request from the users. We also try to generate data with different number of pages. Each page contains three alumni data and this file is uncompressed A5 size. It can be seen in the graph above, the more the number of pages, the larger the resulting file size. The

average for each page is 7M and we tried up to 133 pages with a file size of 103 MB.

#### IV. CONCLUSION

This research shows that digitization greatly simplifies the process of creating albums, and if there is a change in the data, it is enough to just generate it from the server. Testing with the Blacbox method also produced good results, and the pdf version of the album was also tested well. Currently, there is no data compression system, so the generated files are still very large and this will be developed in the future..

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