



Website-Based Application Project Ordering Information System at Abercode Software House

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 <https://doi.org/10.37339/e-komtek.v6i1.844>

Published by Politeknik Piksi Ganesha Indonesia

Abstract

Artikel Info

Submitted:

17-03-2022

Revised:

05-04-2022

Accepted:

05-04-2022

Online first :

30-06-2022

The rapid development of technology brings changes to all sectors. One technology that plays an important role is web-based. Abercode Software House is a company engaged in software development services. In one of the project order processing flows, the traditional method was used, namely interviews and manual notes. Therefore, a website-based Application Project Order Information System is one way to solve problems in Abercode Software House. The building of this system used software development using the Waterfall method and the PHP and HTML programming languages and MySQL as the database. The data collection method used was qualitative and data-based analysis methods and Blackbox testing methods. Based on the results of the study, it was found that the traditional method slowed down and complicated the ordering process. The testing information systems carried out with the Blackbox method obtained the expected results as a whole, with for the testing carried out directly by Abercode Software House.

Keywords: Project booking, System information, Website

Abstrak

Perkembangan teknologi yang sangat pesat membawa perubahan bagi semua sektor. Salah satu teknologi yang berperan penting adalah teknologi berbasis website. Abercode Software House adalah perusahaan yang bergerak dalam bidang jasa pembuatan perangkat lunak. Dalam salah satu alur pemrosesan pemesanan proyek, masih menggunakan metode tradisional, yakni interview dan catatan manual. Oleh sebab itu, Sistem Informasi Pemesanan Proyek Aplikasi berbasis website adalah salah satu cara untuk menyelesaikan permasalahan pada Abercode Software House. dimana dalam membangun sistem ini digunakan pengembangan perangkat lunak menggunakan metode Waterfall serta dengan menggunakan bahasa pemrograman PHP dan HTML dan MySQL sebagai databasenya. Metode pengumpulan data yang digunakan yaitu Kualitatif dan menggunakan metode analisis berbasis data serta metode testing Blackbox. Berdasarkan hasil penelitian ditemukan bahwa dengan metode tradisional memperlambat dan menyulitkan proses pemesanan. Hasil pengujian sistem informasi yang dilakukan dengan metode Blackbox mendapatkan hasil yang diharapkan secara keseluruhan dan untuk pengujian dilakukan secara langsung oleh Abercode Software House.

Kata-kata kunci: Pemesanan proyek, Sistem informasi, Website



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1. Introduction

Technology brings changes in all sectors. This, undoubtedly, provides its own demands for each agency. In every company, technology facilitates all activities, either in data collection, ordering, transactions, and others, that can simplify and streamline activities. To facilitate these activities, companies need a system. The system that can help is a website-based information system.

The Information system is a process that can facilitate the collection, management, and storage of information in supporting a decision, problem analysis, and visualization of a system [1]. Technology-based information systems provide information quickly and accurately and reduce errors due to human error.

A website-based application is an application that runs on a browser that requires an internet network for operation [2], while the web is a system that presents information in various forms of data. The data is stored in a server, presented in hypertext [3].

Absercode Software House is a software development services company. The initial system used in processing project orders was traditional methods, namely interviews and manual notes. This made the ordering process very slow and difficult when ordering data is needed. The staff used the bookkeeping system in the process of ordering applications that the clients wanted to make. And the client found it very difficult to choose the application development package. With a website, the application project ordering process simplifies everything both the service and order

2. Method

The information system design employed the Systems Development Life Cycle (SDLC) Waterfall. Furthermore, the research method used was qualitative. Qualitative research methods are research methods used to examine scientific conditions in which the researcher himself is the instrument. Data collection and analysis emphasize meaning [4].

Software development method uses the System Development Life Cycle (SDLC) Waterfall or linear sequential model. This model was chosen because the software life flow approach is sequential, starting from analysis, design, development, testing, implementation, and maintenance [5]. This method begins with analyzing problems in the initial system and taking solutions to existing problems. The second is designing a display that can make it easier for users and comfortable to use. Next is coding by using a programming language. To check that the program or application made runs properly, a testing is performed in the next step.

And the final step is the maintenance of the application so that it is ready to be used effectively and efficiently. The Waterfall method is shown by **Figure 1**.

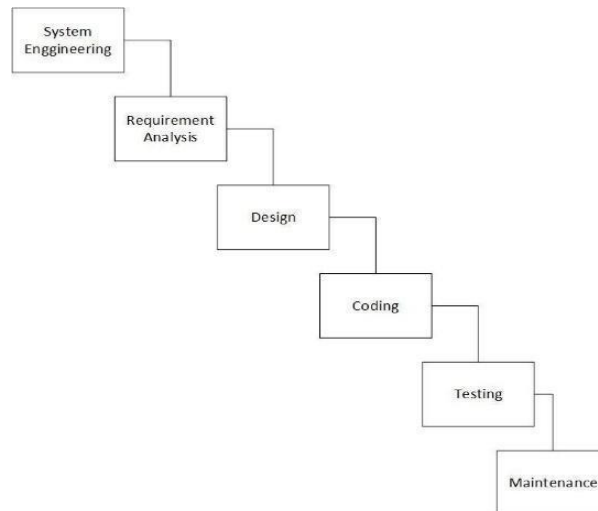


Figure 1. Waterfall Method [6]

The steps adapting the Waterfall method are elaborated as follows.

a. Requirement Analysis

At this stage, the researchers analyzed the initial system of the Abercode Software House, where the system used traditional methods. They found problems in the data management, file storage, and so on. And here, the researchers identified what system needed to be made.

b. Design

In the design process, the Context Diagrams, Data Flow Diagrams (DFD), and Entity Relationship Diagrams (ERD) were made. It was at this stage that the researchers also designed the Abercode Software House website.

c. Coding

This is the programming process of the implementation of the system to be created. The programming language used in the Abercode Software House website is HTML and PHP MySQL as the database.

d. Testing

This process can ensure that the program made has errors or not, and is as needed or not. The testing of this information system used Blackbox testing, namely to test the functionality of a program [7].

e. Maintenance

This maintenance phase serves to update the system with new features and protect the system from errors or bugs that might occur.

3. Results and Discussion

a. System Design

The results of the research on Website-Based Application Project Ordering Information Systems at Abercode Software House are Entity-Relationship Diagrams (ERD), Context Diagrams, and Data Flow Diagrams (DFD), which were developed using HTML, PHP, and MySQL.

1) Entity Relationship Diagram (ERD)

ERD is designed to create a database and relationships between entities and their attributes [8]. The Entity Relationship Diagram (ERD) of this research is presented in Figure 2.

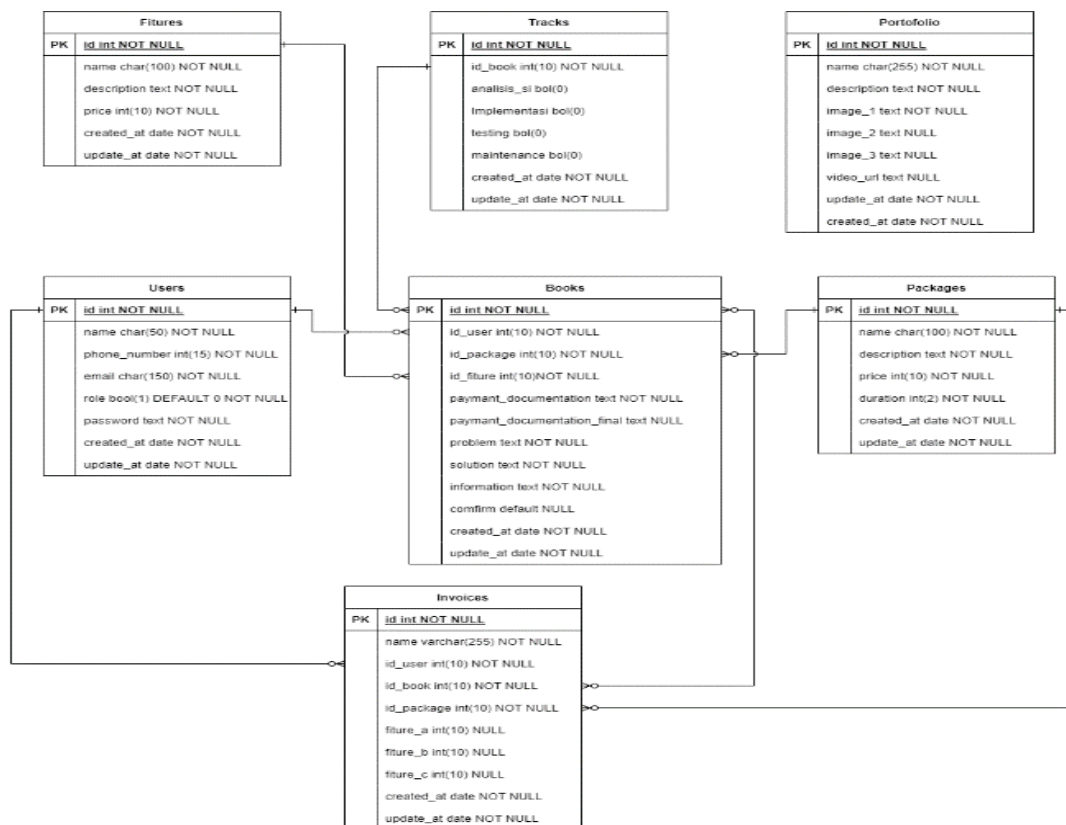


Figure 2. Entity Relationship Diagram (ERD)

Figure 2 displays seven interrelated tables. The Users table is used to hold user and admin's information, but the difference is the role. The Package table and fitur tables are used to accommodate information on services offered by Abercode Software House. Furthermore, the Books table is used to accommodate package order information and features ordered by

users. The Invoices table holds price information and order status. The Portofolio contains service, was created exclusively by Abercode Software House which would be used for the home page.

2) Data Flow Diagrams (DFD)

Data flow diagrams (DFD) are used to represent systems with diagrams. DFD focuses on the data process flow that makes users understand the data flows and is processed in the system [9]. The Context Diagram is presented in **Figure 3**.

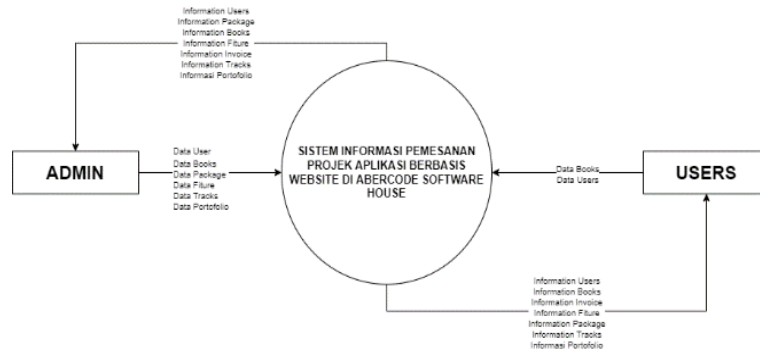


Figure 3. Context Diagram

Figure 3 explains what data flows were needed by the system and the data issued by the system to admins and users. DFD Level 1 is presented in **Figure 4**.

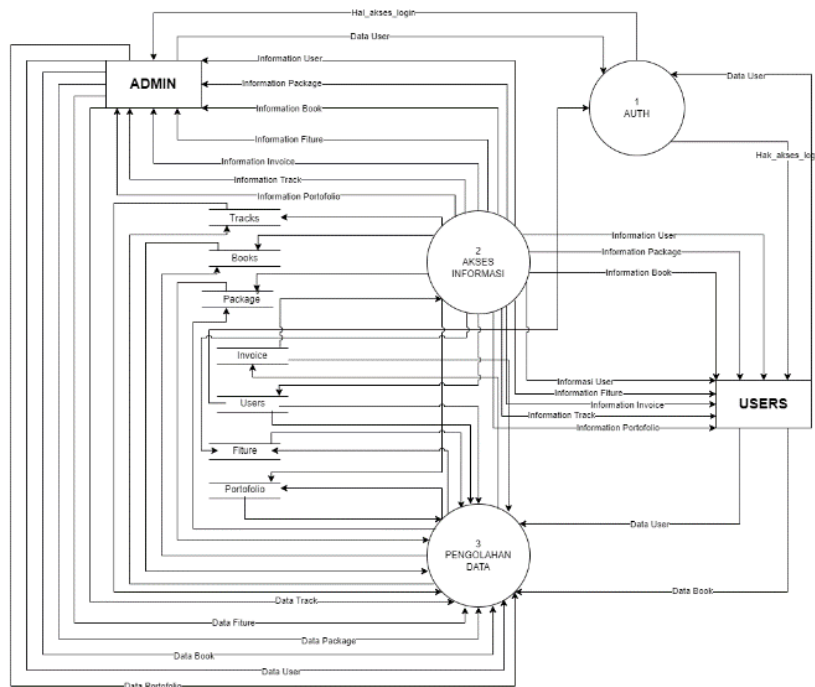


Figure 4. DFD Level 1

In **Figure 4**, three data processing processes are presented, namely authentication, access to information, and data processing. The authentication is made to overcome logins and registrations, both admins and users. Access to information is made to overcome access to

information that users need. And lastly, the data processing process is used for important data management. DFD Level 2 Auth is presented in **Figure 5**.

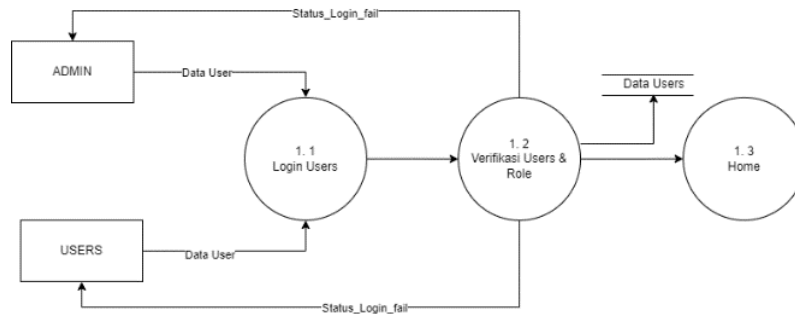


Figure 5. DFD Level 2 Auth

Figure 5 demonstrates three processes. In the first process, the user enters the login data. Then, the data are verified by the next process. If users enter incorrect information, this process will be returned to the user or admin as error information. Otherwise, if the user’s data are verified, it will enter the next process according to the role that has been set. DFD Level 2 Shown Information is presented in **Figure 6**.

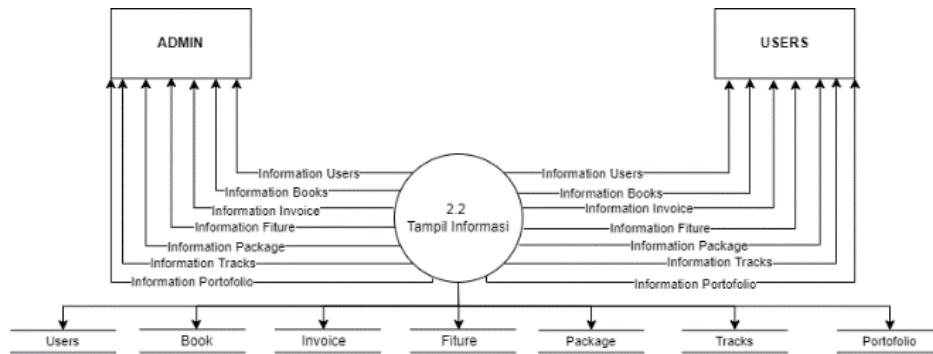


Figure 6. DFD Level 2 Information Displays

Figure 6 displays data from admin processes and users according to roles given. DFD Level 2 Data Processing is presented in **Figure 7**.

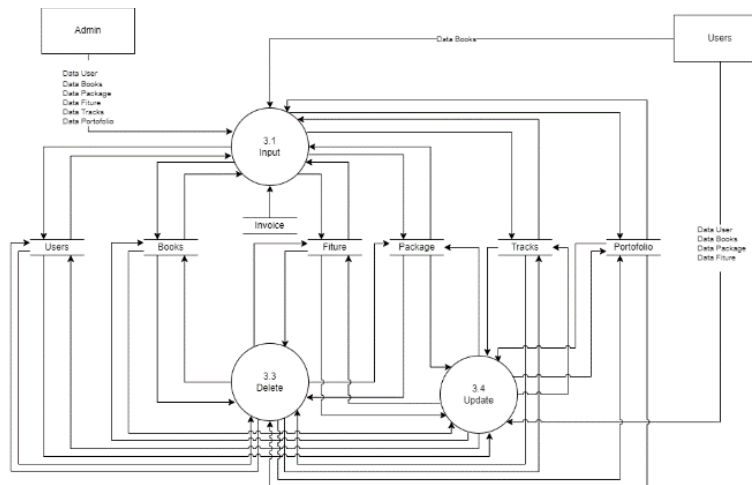


Figure 7. DFD Level 2 Data Processing

Figure 7 displays the 3 processes, namely the input process as data addition to the system, updating as data modifier, and deleting as data erasing according to the needs of the admins and users.

b. System Implementation

The analysis of the system that has been made is represented as a display interface [10]. The display interface of the website-based application project ordering information system consisting of login, registration, project orders, and others is as follows.

The login form consists of the email and password inputs and a login button. If they do not have an account to login, they will be directed to the Register page. The login form is presented in Figure 8.

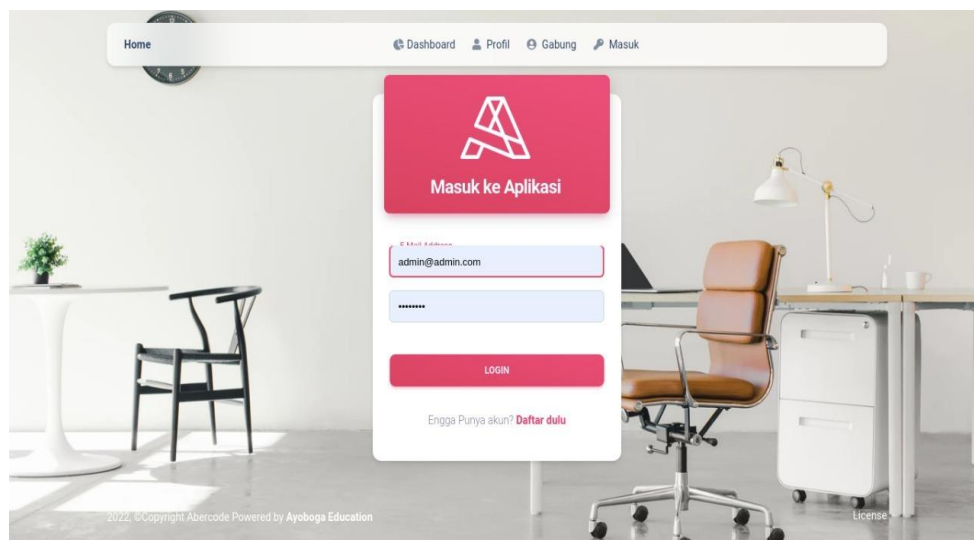


Figure 8. Login Form

The registration form consists of data input in the form of user identity, including name, email, phone number, and password. The registration form is presented in Figure 9.

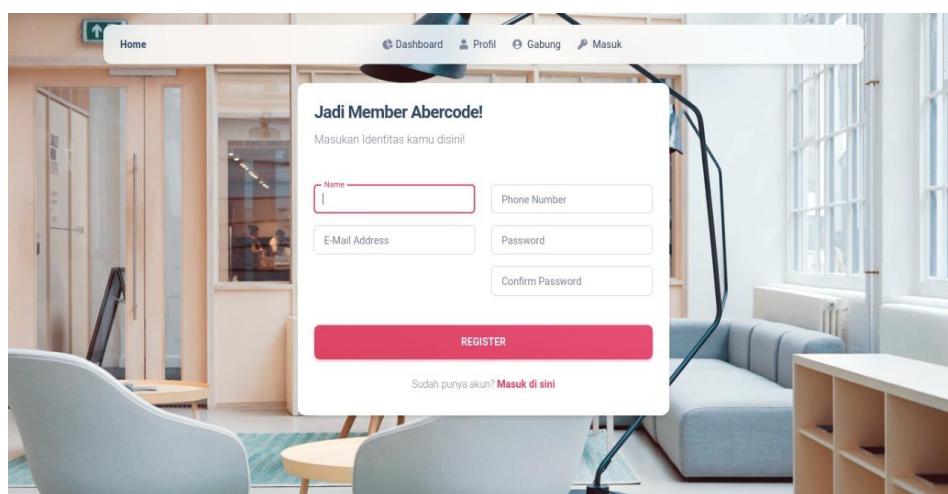


Figure 9. Registration Form

The dashboard displays information of the list of orders, list of users, list of packages, list of additional features, and list of products menus. The dashboard is presented in **Figure 10**.

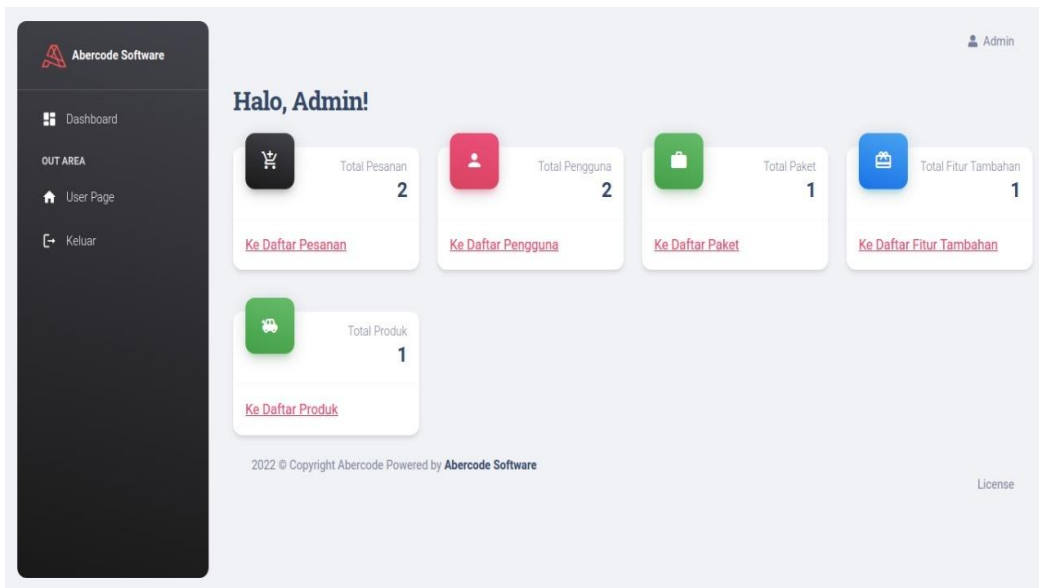


Figure 10. Dashboard

The project order form consists of choices and blanks for users to input the project order data.

The project order form is presented in **Figure 11**.

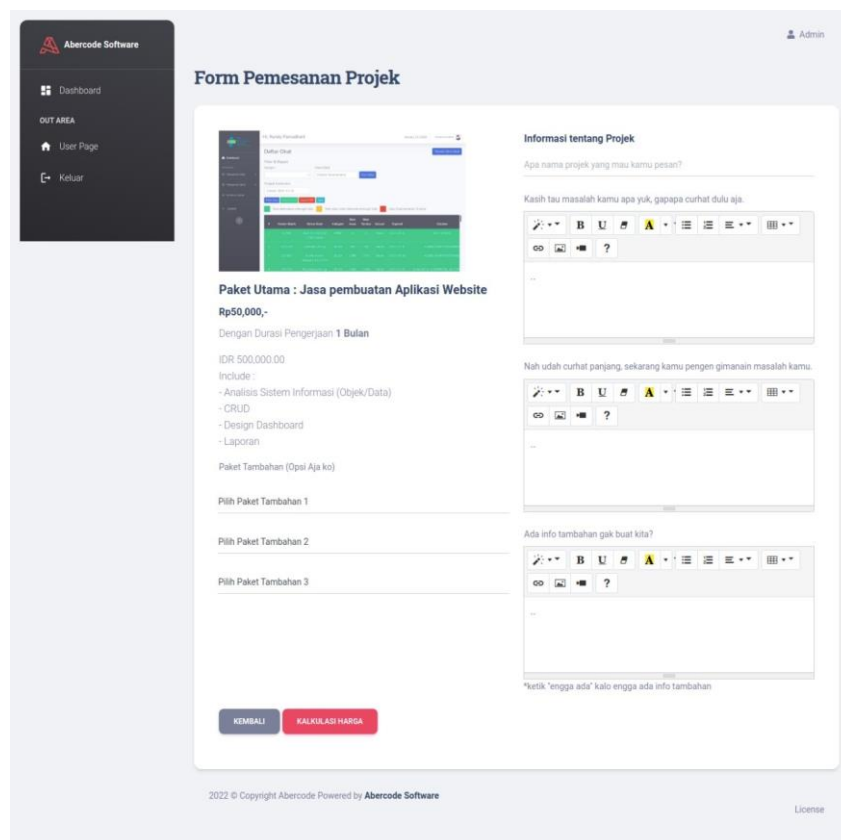


Figure 11. Project Order Form

The order price calculation contains price information for the desired application creation. The order price calculation is presented in **Figure 12**.

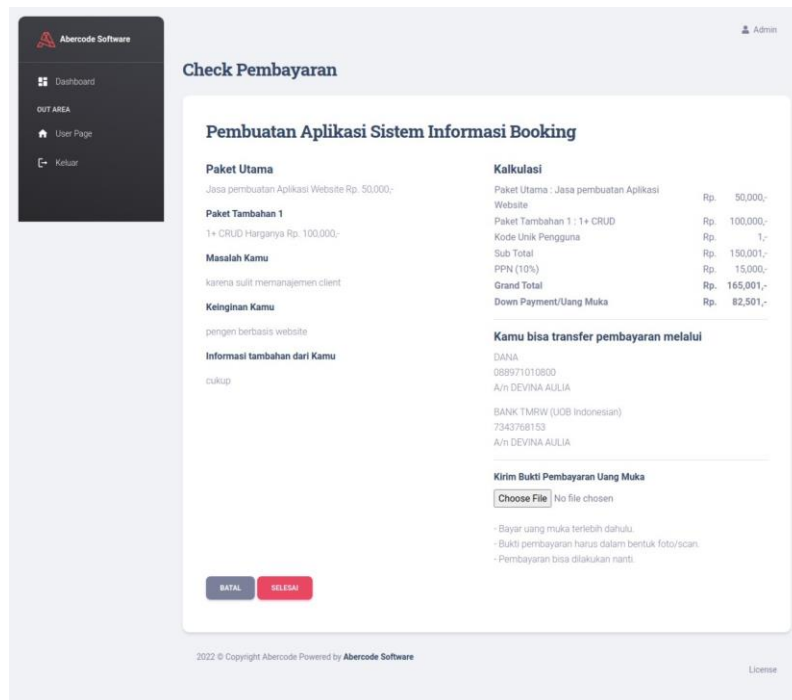


Figure 12. Order Price Calculation Display

The order list contains the order information that has been entered. The order list is presented in **Figure 13**.

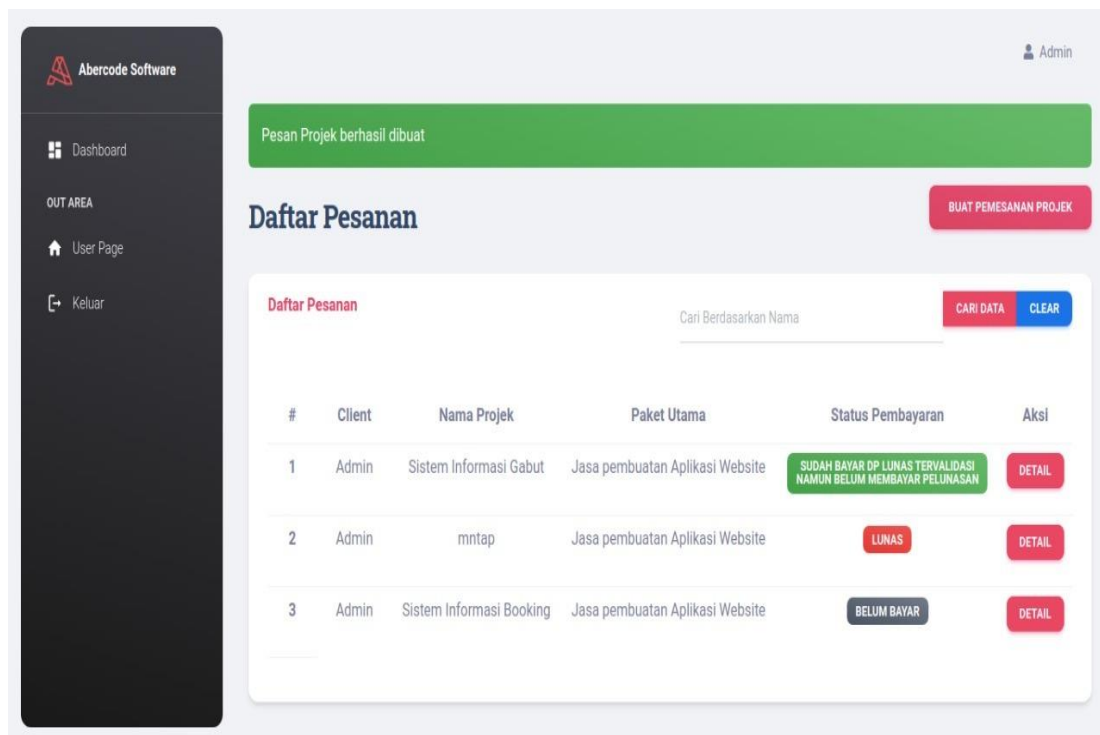


Figure 13. Order List Display

The package list contains a list of packages available at the Abercode Software House. The package list is presented in **Figure 14**.

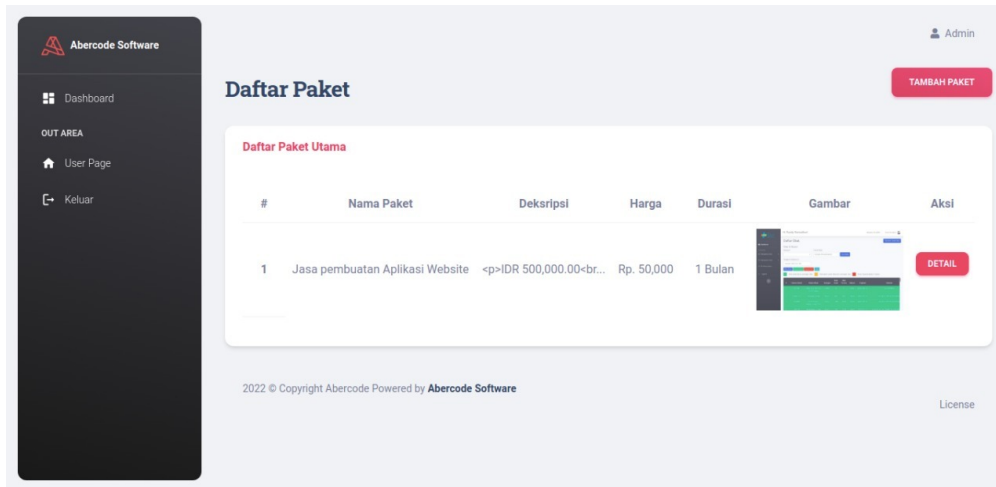


Figure 14. Package List Display

c. System Test

The last stage of the analysis was system testing. The system testing, as described previously, used Black Box, because it focused on the smallest functionality of the system. The black box testing was based on three tests, namely user verification when logging in, project ordering by users, and the order price calculation.

1) Login Form Testing

The first test was a test of login form which was to find out whether the test was as expected. The Login Form Testing is presented in **Table 1**.

Table 1. Testing Login Form

Description of Testing	Expected Results
Fill in all the data that is displayed and meet the rules that have been determined	Users have successfully added data to the system
Fill out all the data displayed, but do not meet the rules that have been determined	Users fail to add data to the system and provide lacking information in any part of the form
Leaving form empty of data	Users fail to add data to the system and provide information on the spaces in parts that must be filled in on the form

2) Project Order Form Testing

The next test was testing the form where this test was as expected. The Project Order Form Testing is presented in **Table 2**.

Table 2. Project Order Form Testing

Description of Testing	Expected Results
Fill in all the data displayed and meet the rules that have been determined	Users have successfully added data to the system
Fill out all the data displayed, but do not meet the rules that have been determined	Users fail to add data to the system and gave a description of deficiencies in any part of the form
Leaving form with data blanks	Users fail to add data to the system and provide a description of the spaces in parts that must be filled in on the form

3) Order Calculation Testing

The last test was testing the order price calculation where this test was based to find out whether the order calculation worked in accordance with the logic that has been set on the system. The Order Calculation Testing is presented in [Table 3](#).

Table 3. Order Calculation Testing

Description of Testing	Expected Results
Calculation of the main package and 3 additional packages	The system has successfully handled the calculations of the main and additional packages and added the calculation logic for the unique user code, subtotal, 10% VAT, grand total, and down payment or advanced payment
Package calculation: main package and emptied one of the additional packages	The system has successfully handled the calculations of the main package and one of the additional packages and added the logic for calculating the user's unique code, subtotal, 10% VAT, grand total, and down payment
Status and documentation	The system successfully handles automatically if the users upload proof of advanced payment with the status of already paying the DP and not yet validated. And the system successfully handles it when a user uploads proof of payment with the payment status having paid a validated down payment. However, the repayment has not been validated.

4. Conclusion

With the presence of a website-based project application ordering information system at Abercode Software House, it makes it easier for users and admins to manage data and project orders and streamline business relationships between users and admins in interacting within the scope of project orders.

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