

Development of an Inventory Dashboard Module for Enterprise Resource Planning (ERP) at PT. Mitra Kasih Perkasa

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Abstract - Businesses are growing more conscious of the value of information technology in today's digital age in order to maximize operations and decision-making. The fintech company PT. Mitra Kasih Perkasa frequently has challenges with data management and transactions since it needs an integrated ERP application. The goal of PT. Mitra Kasih Perkasa's inventory dashboard module development for the Enterprise Resource Planning (ERP) system is to increase the efficacy and efficiency of the business operations of the organization.

This dashboard module is intended to integrate many business operations into a single platform and offer simple access and monitoring of inventory activity. Rapid Application Development (RAD), a development methodology that enables quick and flexible development, is employed. User input on the system's usability and functioning is gathered through testing with questionnaires that are provided to users.

The test results show that this ERP dashboard's easy design, strong integration, and user-friendly functionality effectively satisfy user demands. Accordingly, this module may increase PT. Mitra Kasih Perkasa's operational efficiency and streamline all business operations.

Keywords: ERP, inventory, business, dashboard, Rapid Application Development

I. INTRODUCTION

The economy is one of several areas that are greatly impacted by digital progress. Many businesses are becoming more conscious of the necessity of utilizing this digital advancement to improve company process efficiency and increase information technology-based revenues. Operations,

oversight, and even decision-making are all impacted by information technology in the growth of businesses and organizations[1] .

Before the advent of information technology, companies still relied on manual record-keeping, which often resulted in errors during transaction processes, misunderstandings between divisions, and was less practical and efficient. To address all of these issues, an Enterprise Resource Planning (ERP) system application is needed that can resolve all of these problems. [2].

Right now, PT. Mitra Kasih Perkasa, a fintech company, requires an ERP solution to ensure that its operations don't run into any problems. With the development of this ERP application, it can overcome the frequent obstacles and create a centralized system integration, thereby facilitating the transaction process and monitoring of transaction activities.

II. LITERATURE REVIEW

2.1. Web

The web is a service that gives users access to tools for interacting with one another through the presentation of different kinds of information, services, communication, and online features [3]. In business, the web is the most important tool for the marketing and transaction processes, as well as for the company's communication with the target consumer [4].

2.2. Dashboard

A dashboard is a visual tool that uses tables, graphical components, and other visual aids to show statistical information in a way that is simple for non-technical users to grasp. Dashboards are useful in a variety of industries, including business, education, and finance s[5].

2.3. Enterprise Resource Planning

A software/dashboard service called enterprise resource planning (ERP) is made to manage and coordinate resources, business procedures, and operational tasks throughout the entire organization [6].

2.4. Javascript

Javascript is one of the programming languages frequently used in web development, playing a client-side role to make web pages more dynamic [7].

Because Javascript keeps adding new features over time, developers can easily create more dynamic developments with Javascript [8].

2.5. Typescript

Typescript is a programming language that is a superset of Javascript and has a number of features that make it more powerful than standard Javascript. One of these features is the ability to add static data types to JavaScript code, which enables programmers to identify errors [9].

Additionally, Typescript supports a wide range of features that Javascript does not, including generics, interfaces, and modules. Components that can work with a variety of data types can be created thanks to generics [10].

2.6. JSON

The data interchange format known as JSON (JavaScript Object Notation) is simple for systems to process and for people to read and write. Strings, booleans, numbers, and null are among the data types that can be stored in the JSON data format [11].

2.7. Application Programming Interface

The Application Programming Interface (API) serves as a digital link between databases and systems. An API facilitates communication between software and developers. Applications can send or request data to web services or other applications using an API without having to understand the specifics of implementation [12].

2.8. Postman

Postman is a tool that helps developers retrieve, test, and process data from API's. Postman allows users to create requests that can be exported and imported in different formats, including XML and JSON, and share the results with others [13].

2.9. Next.js

Next.js is a framework developed from React.js for building modern web applications with the capability to render on the server side, which enhances performance. Next.js has a routing feature that is quite flexible in managing navigation, allowing developers to create dynamic routes for managing navigation between pages [14].

2.10. PrimeReact

PrimeReact is a framework from Prime that supports the development of visually appealing user interfaces in applications using the React.js and Next.js frameworks. [15].

III. METHOD

3.1. Source of Data

The data collection for this research uses primary data obtained through questionnaires from users of the ERP web application, specifically users with the status of inventory and finance staff, etc., who are expected to provide direct insights from the users of the ERP web application.

3.2. Data Collecting

This data collection technique uses a questionnaire created with Google Form, which is distributed directly to users of the ERP web application who have been using the application for at least 1 month, specifically to users in the purchasing and inventory divisions, with a minimum of 30 respondents.

The questionnaire uses the Likert scale method with a scale of 1 to 5. Scale 1 indicates strong disagreement with the statement. On the other hand, a scale of 5 indicates a response of strong agreement with the statement.

3.3. Testing

1. Application

The testing of this ERP web application is conducted using the UTAUT method, which is expected to provide a deeper understanding of the elements that influence the success of this ERP dashboard application [16].

Testing using the variables Performance Expectancy (PE), Effort Expectancy (EE), and Facilitating Conditions (FC) whose results affect Behavioral Intention (BI) as shown in figure 1. This study has 31 individuals in order to evaluate the application.

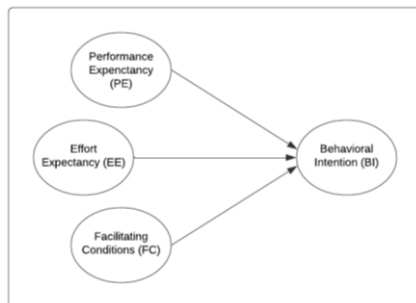


Figure 1 Diagram Model UTAUT

2. Questionnaire

The data processing from this questionnaire uses validity, reliability, and correlation testing to obtain valid results from the questionnaires filled out by the respondents.

3.4. Method

The methodology for this application development uses the Rapid Application Development method by conducting flexible iterative development, reducing risks in development, and being faster as shown in figure 2 [17].

Starting with planning, then proceeding to design the interface, which is then submitted to competent parties for review. If the design is not accurate, it can be revised again. If it is correct, it can be done by the developer and then a cutover can be performed.

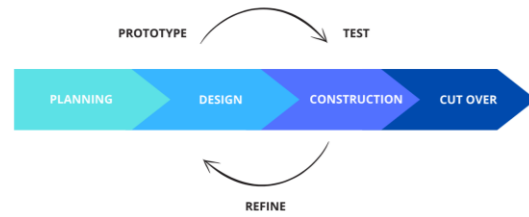


Figure 2. Rapid Application Development Method

IV. RESULT AND DISCUSSION

4.1. Design

A. Flow Chart

As shown in figure 3, the flow of using this system begins when the user logs in with a username/email and password. If the username/email/password is incorrect, the user must log in again by entering the correct username or email or password. If correct, the system will direct the user to the dashboard, and the user can access the dashboard and other features. After the user finishes their activity, they can log out to end the session in the application, and this flow stops here.

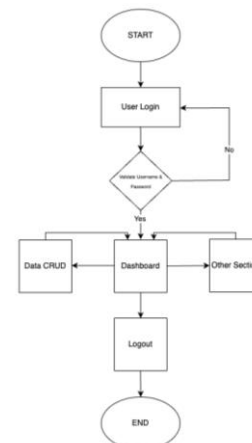


Figure 3 Flowchart Diagram

B. Use Case Diagram

As shown in figure 4, for the Inventory module, there are two users: Inventory Staff and Finance Staff/Other. For Inventory Staff, they can access login, dashboard, CRUD for Inventory documents, reporting overview, and logout. For Finance Staff/Other users, they can access login, dashboard, read, approve/reject documents, reporting overview, and logout.

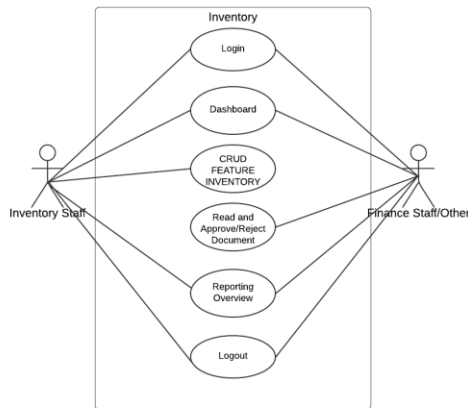


Figure 4. Use Case Diagram

C. Activity Diagram

a) Login

Figure 5 illustrates the login process. The user enters their username, email address, and password, which the system verifies by comparing them with user information stored in the database. The users is prompted to reenter the correct username and password if it is found to be invalid. The system will log the user into the dashboard if the data is legitimate.

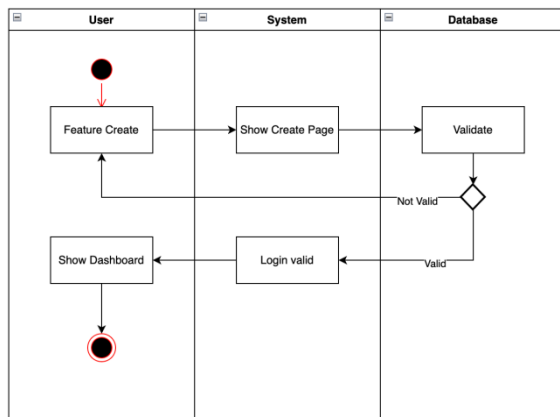


Figure 5. Activity Diagram Login

b) Create Data

The data creation process in Figure 6 begins when the user selects a feature to create data, the system will then display the steps to create data, the user reviews all available input forms in accordance with the user's requirements, and finally the user clicking the save button. If the information provided is not valid, it should be analyzed in order to produce data that is in accordance with the requirements. If it is valid, the

system will transfer the data to the database for analysis.

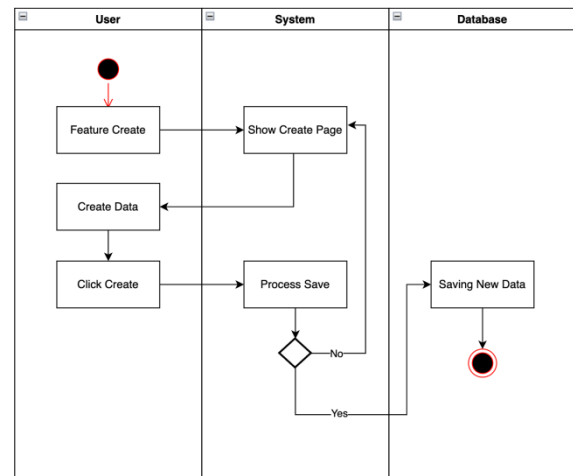


Figure 6. Activity Diagram Create Data

c) Read Data

The process of reading data begins with the user selecting the data that will be displayed, as shown in figure 7. The system then makes a query to the database to retrieve all of the data, and finally the system displays the data that the users can view.

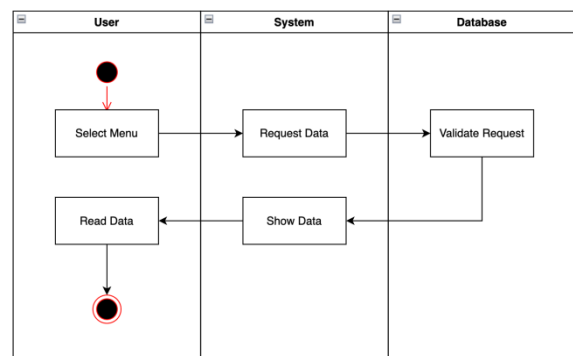


Figure 7. Activity Diagram Read Data

d) Update Data

The process starts with the user accessing the edit/update menu, and then the system displays a menu with potentially harmful data, as seen in figure 7. User cant saves data and manipulates it. The system then validates the data. If this data is not legitimate, it will be returned to the edit data menu so that users can correct the data. The system will enter data into the database if it is valid.

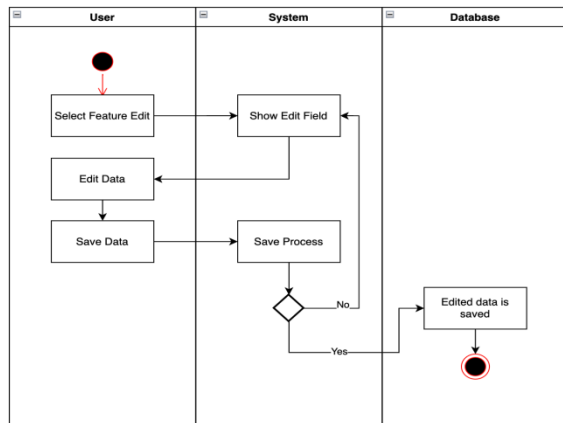


Figure 8. Activity Diagram Update

e) Delete Data

As shown in figure 9, the process of deleting data begins when the user selects the data that will be used. The system will generate validation to identify data omissions that are not intended. If the user does not meet the purpose of data collection, the data collection process will be resumed. If the user wants to change the data, the database will change the data and the system will then perform validation.

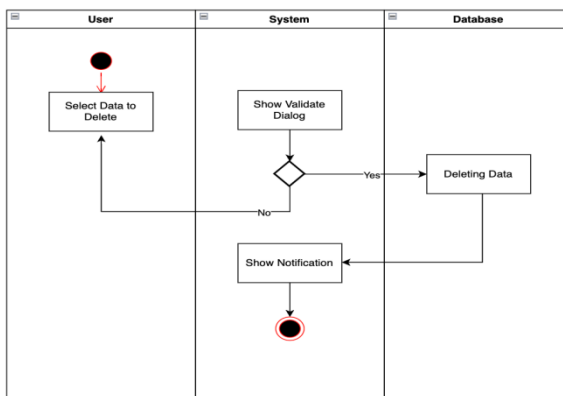


Figure 9. Activity Diagram Delete Data

d) Export Data

As shown in figure 10, the process of export data begins with the user selecting documents that want to be export by performing data filtering. By using the export button, the system will be able to carry out the export process. If the export process fails, the user will be directed to the next document. If the export process is successful, the system retrieves data from the database and then organizes the data in a certain format

according to the data format. In the end, user can be used to generate or analyze data.

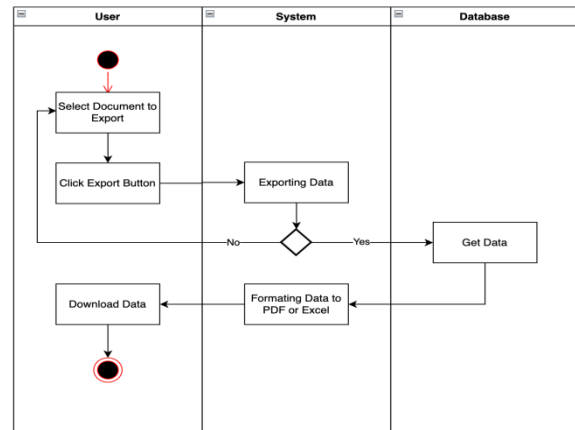


Figure 10. Activity Diagram Export Data

4.2. Implementation

A. Login

Username and password are entered in the input field, as shown in figure 11. When this is finished, the system will verify whether the login and password match the database or not. If not, the user must establish a strong username and password. The dashboard will be displayed for users to access the available menu if it is true.

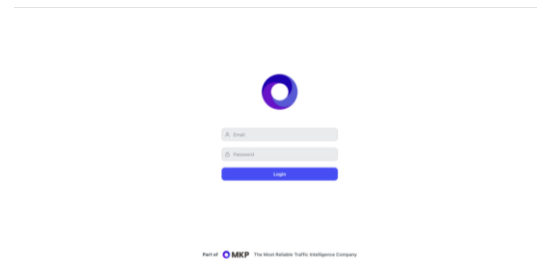


Figure 11. Login Page

B. Dashboard

After successfully logging in, users will be presented with a dashboard as shown in figure 12, which displays several data summaries available in the application, ranging from general information to specific information that is only accessible to users with the role of warehouse staff.

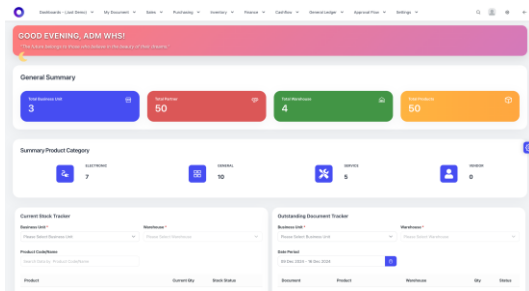


Figure 12. Dashboard Page for Inventory Staff

C. Create Data

Users can create data by entering the required information in the available input form as shown in figure 13.

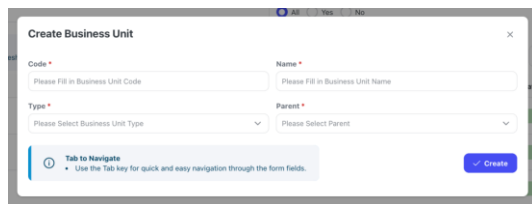


Figure 13. Modal Page for Create Data

D. Read Data

Users can view the data that has been created in the relevant menu in figure 14. Users can also apply filters to obtain data according to their needs.

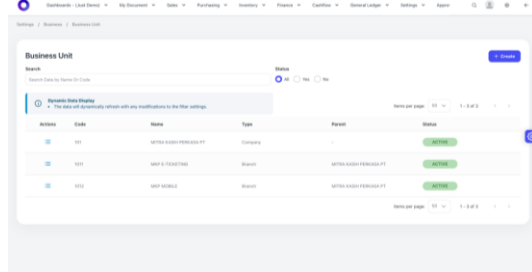


Figure 14. The page displays data in a table.

E. Update Data

Users can edit data to correct incorrect information or update data in the modal form update data in figure 15. Users only need to update the displayed and accessible data.

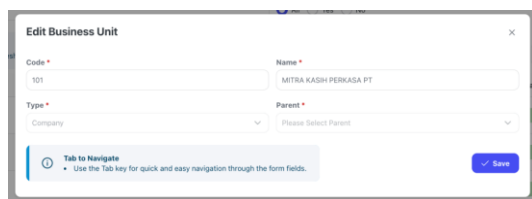


Figure 15 Modal Page Form for Update Data

F. Delete Data

Users have the ability to remove unnecessary data. As seen in figure 16, a validation window will pop up to prevent inadvertent deletion.

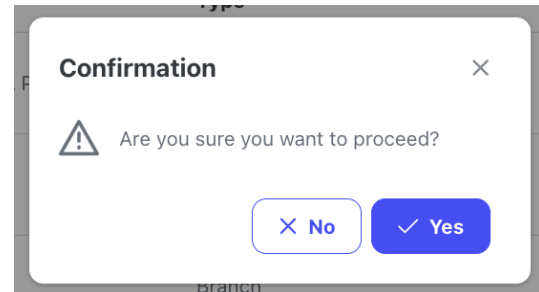


Figure 16. Modal Dialog for Deletion Validation

G. Export Data

The user exports the data that has been filtered beforehand. Then a dialog form will appear displaying a preview of the form to be exported as shown in figure 17. Users can choose to save the data in their computer storage or print it.

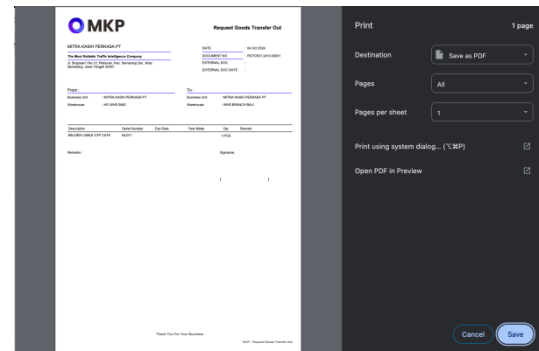


Figure 17. Preview Page for Save or Print Data

4.3. Validity Test

The distributed questionnaire received 31 replies for the validity test. In Table 1, the total column displays the sum of the points from every variable. According to the Pearson correlation table, variables are considered genuine if their computed r values are greater than the table R value of 0.344 (for df 1-40, $n=31$).

Table 1. Result of validity test table using Pearson correlation

		PE1	PE2	PE3	PE4	EE1	EE2	FC1	FC2	FC3	FC4	BI1	BI2	BI3	Total
PE1	Pearson Correlation	1	.687**	.256	.362*	.321	.257	.130	.217	.562**	-.034	.106	.178	.106	.584**
PE2	Pearson Correlation	.687**	1	.111	.216	.580**	.047	-.088	.061	.562**	.178	.299	.178	.106	.522**
PE3	Pearson Correlation	.256	.111	1	.264	-.004	.280	.341	.256	.246	.132	.195	.327	.373*	.523**
PE4	Pearson Correlation	.362*	.216	.264	1	-.078	.594**	.177	.508**	.056	.306	.349	.306	.168	.584**
EE1	Pearson Correlation	.321	.580**	-.004	-.078	1	.006	.067	.063	.285	.271	.309	.271	.309	.449*
EE2	Pearson Correlation	.257	.047	.280	.594**	.006	1	.383*	.363*	.121	.376*	.493**	.518**	.493**	.692**
FC1	Pearson Correlation	.130	-.088	.341	.177	.067	.383*	1	.240	.196	-.086	-.030	.062	.104	.420*
FC2	Pearson Correlation	.217	.061	.256	.508**	.063	.363*	.240	1	.134	.178	.299	.390*	.299	.542**
FC3	Pearson Correlation	.562**	.562**	.246	.056	.285	.121	.196	.134	1	.037	.131	.037	.131	.495**
FC4	Pearson Correlation	-.034	.178	.132	.306	.271	.376*	-.086	.178	.037	1	.878**	.713**	.616**	.538**
BI1	Pearson Correlation	.106	.299	.195	.349	.309	.493**	-.030	.299	.131	.878**	1	.878**	.762**	.689**
BI2	Pearson Correlation	.178	.178	.327	.306	.271	.518**	.062	.390*	.037	.713**	.878**	1	.878**	.706**
BI3	Pearson Correlation	.106	.106	.373*	.168	.309	.493**	.104	.299	.131	.616**	.762**	.878**	1	.664**
Total	Pearson Correlation	.584**	.522**	.523**	.584**	.449*	.692**	.420*	.542**	.495**	.538**	.689**	.706**	.664**	1

4.4. Reliability Test

Reliability testing is an examination to measure whether the questionnaire is consistent and reliable or not. Questionnaire data can be considered reliable if the Cronbach's Alpha value is above 0.6 and is described as shown in Table 2.

Table 2. Cronbach's Alpha Value

Cronbach's Alpha	Level Reliability
>0,90	Excellent
0,80 - 0,89	Good
0,70 - 0,79	Acceptable
0,60 - 0,69	Questionable
0,50 - 0,59	Poor
<0,59	Unacceptable

From the results of testing the questionnaire data, the results are as shown in Table 3 below. In Table 3, there is a result of 0.806. Compared to table 2, it can be concluded that this test achieved a reliability level in the Good category.

Table 3. Reliability Testing Results Table

Reliability Statistics	
Cronbach's Alpha	N of Items
.806	14

4.5. Correlation Test

Table 1 shows the results of the Pearson correlation test. Correlated data is marked by a significant value (2-tailed) of less than 0.05, indicating a significant relationship between the variables. The results of this test are summarized as follows:

- The PE and BI variables show a strong correlation, with correlation values of PE1 and PE2 being $r=0.687$ and PE4 being $r=0.362$, respectively. This indicates a good relationship between user expectations for performance improvement and their perception of the benefits and ease of use of the system.
- The EE and BI variables have a significant correlation, where BI1 and BI2 show correlation values of $r=0.493$ and $r=0.518$, respectively. These results indicate that the easier the system is to operate, the higher the user's intention to continue using it.
- The variables FC and BI show a positive relationship with a relatively lower correlation. FC1, FC2, and FC4 have significant relationships, indicating that the availability of supporting facilities affects users' intentions to use the system, although the impact is smaller compared to other factors.

The results of this test show that all variables (PE, EE, and FC) have a significant influence on BI. Ease of use, perceived performance benefits, and facility support are the main factors driving users' intentions to adopt the system.

V. CONCLUSION

The development of a business operations dashboard emphasizes the value

of usability, workflow effectiveness, and the placement of visual components that suit user preferences. Designing the user interface, developing functionality, and independently developing API services are all part of the Next.js and PrimeReact ERP dashboard creation process. This approach combines corporate processes and simplifies user activities in the dashboard.

The test results demonstrate that this ERP dashboard's straightforward layout, easy integration, and user-friendly functionality effectively satisfy PT. Mitra Kasih Perkasa's needs. Because of this, the dashboard is a useful tool for providing comprehensive assistance for the business's operations.

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