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Design Of A Web-Based Pickup Operational Management Information System At PT. Ninja

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ABSTRACT

Operational management information systems are important to support the operational activities of an organization or company. An operational management information system is a system that manages company operations, starting from payroll, information about activities, results, and also problems that occur every day. Currently, operational management information systems are needed to increase the efficiency of data collection and analysis, so that it can make it easier for leaders to make decisions. The problem that currently exists at Ninja Xpress is that the company's operational management information system is not yet available. Salary calculations and daily operations are still done manually and not neatly arranged in one door. The pickup operational management system at MSH Kudus is still not neatly structured, such as employee salary accounting is still input in Google Sheet, for reports on the number of pickup packages per day, fuel usage is input in a non-continuous Google Sheet template, which is then sent via email and WA. Meanwhile, the data for pickup vehicles is still manually printed on paper. This process is quite time consuming and prone to errors, therefore an operational management information system is needed that can increase efficiency and hide the process.

1. INTRODUCTION

PT. Ninja is a company engaged in the expedition field with a mission to provide hassle-free delivery services. PT. Ninja processes packages from various marketplaces, such as Lazada, Shopee, Tokopedia, Bukalapak, and many other marketplaces. Besides from marketplaces, PT. Ninja can also accept regular package deliveries without marketplaces. The initial process of package delivery is the pickup process. PT. Ninja has a special division for package pickup, namely the pickup division. The operational division of Pickup at PT. Ninja already uses the company's system, but there are still some aspects of operational management that are not yet systematized. Like the system for calculating driver and rider salaries, which uses a daily and bulk salary calculation system, daily reports that are not well-organized, vehicle monitoring, and also the operational cost usage reports that are still inputted into Google Sheets with different links, not in one centralized location, making the processes less effective and affecting the speed of analysis when problems occur.

Management information systems are data processing procedures based on integrated information technology and integrated with manual procedures and other procedures to produce timely and effective information to support the management decision-making process [1]. This research aims to develop a pickup operational management system at PT. Ninja to facilitate staff in managing data and monitoring pickup operations. This system is designed to manage salary calculations, daily reports of the pickup division, from organized record-keeping to data archiving that can be accessed in one place through the pickup operational management application.

The scope of this research includes the use of the system by 3 users, namely pickup staff, hub admin, and supervisor. The data used includes employee data, vehicle data, operational data, operational realization data, and waypoint data. This system is designed using prototype model system development, the application of the system model from the analysis results using the Unified Modelling Language (UML) method, and using PHP programming language and MySQL database.

Previous research mentions that innovations in the form of management information systems can help companies compete with competitors in their operations [2]. Goods delivery services or expeditions are a type of business that is in high demand by the public today. The numerous marketplaces and public interest in delivery services have caused the courier service industry to grow rapidly. CV. MK Express is a new company in the field of goods delivery expedition. At the beginning of its establishment, CV. MK Express did not have an adequate information system, therefore it required an innovative package delivery management information system to develop its services in order to compete with competitors. The system that was built has features for real-time package tracking, pickup, delivery, and transaction reporting. With the presence of a management information system, the company finds it easier to manage data, such as archiving, reporting, and customer service. This system was created using the MySQL Server database and the Codeigniter framework, which consists of front end and back

end. The back end has the main function of managing transaction processes and reporting. Meanwhile, the front end is used for customers to track packages and check shipping costs.

By implementing the operational pickup management information system at PT. Ninja, it is expected to facilitate the management of pickup operations and enable real-time control of each activity, ranging from daily reports, pickup operational budgets, vehicle fleet monitoring, to salary submissions for drivers and riders at PT. Ninja. In addition, the results of this research are also expected to contribute to the company in applying the operational management information system as a useful tool in managing operations.

2. RESEARCH METHOD

There are several stages carried out in this research, starting from data collection, system development, and system design.

2.1. Data Collection Method

1. Primary Data Source

To get data that is truly accurate, relevant and real, the authors collect data sources by:

a. Observation

This research begins with analyzing system requirements, considering each criterion that will be used in system design as for research methods by using descriptive analytical methods in the form of surveys, directly going to the field to make observations about matters related to the problem discussed, collecting theoretical concepts by studying existing literature and books relationship with problems and laboratory research, namely the author's efforts in process the information obtained [3].

Direct observation or observation is a method of collecting data by directly seeing the activities carried out by the user. One of the advantages of direct observation is that system analysts can be more familiar with the physical environment and help to see business processes and their obstacles. Observation also aims to learn the work process [4].

b. Interview

Data collection through face-to-face and direct question and answer with stakeholders related to the research.

2. Secondary Data Source

Data taken indirectly from the object of research. This data is obtained from books, documentation and literature, including:

a. Literature Study

Collecting data from books that are in accordance with the theme of the case study being researched.

b. Documentation Study

Data collection from literature and documentation from the internet, diktat, or other sources of information.

2.2. System Development Methods

The system development method is an important process for the creator of a system. In the development applied in this research is the prototype model. Prototyping is a system development method that is a physical form of system work and becomes an initial description of a system, it can also be referred to as an early version of the system. The application of the prototyping method will produce a system prototype that functions as an intermediary between developers and users so that they can interact in the process of developing the system being made [5].

2.3. System Design Method

The system design method in this study uses the Unified Modeling Language (UML). UML is a visual language for modeling and communicating about a system using diagrams and supporting text and describing architecture in object-oriented programming [6].

1. **Use case Diagram**
   Use cases describe an interaction between one or more actors and the information system to be created.
2. **Class Diagram**
   Class diagrams describe the structure of the system in terms of defining the classes that will be created to build the system.
3. **Sequence Diagram**
   Sequence Diagrams describe the behavior of objects in Use cases by describing the life time of objects and the messages sent and received between objects.
4. **Activity Diagram**
   Activity diagrams describe the workflow of a system or business process in the software.
5. **State chart Diagram**
   State chart Diagrams describe the state changes or transitions of a system or object.

3. RESULTS AND DISCUSSION

From the results of the discussion, the pickup management information system is designed using Unified Modelling Language (UML). Unified Modeling Language (UML) is a modeling language for building software built using object-oriented programming techniques. System design consists of interface design, aesthetics, content, navigation, architecture, components. The design in this study uses object oriented design (UML) [7]

3.1 Data and Information Needs Analysis

To build a pickup operation management system, it requires data and information that will be processed by the system, including user data, employee data, vehicle data, route data, operational budget data and daily report data.

Actors describe all users of the system, actors in this system are divided into 3, among others:

1. Pickup Staff, carry out the process of inputting daily report data, submitting operational budgets, operational realization, to submitting salaries for drivers and riders.
2. Admin Hub, verifying the pickup operational budget submission process.
3. Supervisor, check reports and verify driver and rider salary submissions.

These actors carry out several activities in the Information System of Operational Pickup Management at PT. Ninja is shown in Table 1.

Table 1. Business processes used in the system

No	Business Process	Actor	Use Case
1	All users perform login activities to enter the system	All User	Login System
2	The pickup staff manages employee data	Staff Pickup	Manage Employee Data

3	The pickup staff manages Drop Point data	Staff Pickup	Manage Drop Point Data
4	Pickup staff manage data Daily report	Staff Pickup	Manage Daily Report
5	Supervisor checks Daily Report	Supervisor	Cek Daily Report
6	Pickup staff manage operational cost reports. Hub admin manages and monitors operational costs	Supervisor, Admin Hub	Manage Operational Cost Data
7	Supervisor checks the operating expense report	Supervisor	Check Operating Expense Report
8	Pickup staff manage vehicle fleet data	Staff Pickup	Manage Vehicle Data
9	Pickup staff manage salary submission reports	Staff Pickup	Manage Salary Submission Report
10	Supervisor checks the salary submission report	Supervisor	Check Salary Submission Report
11	Pickup staff record fleet and manage vehicle fleet maintenance data	Staff Pickup	Manage Vehicle Maintenance Data
12	Supervisor checks the Fleet Maintenance Report	Supervisor	Check Vehicle Maintenance Report

3.2 Analisa Perancangan Sistem

Use case diagram is one of the UML diagrams used to describe system design where the use case diagram as a form of depicting an interaction between one or more actors and the system to be created [8].

Diagram preprocessing helped this research to get the lexical information and structural information. In the beginning, UML use case diagram was built by a UML designing tool [9].

Figure 1 is a use case system from the design of a pickup operational management information system at PT. Ninja.

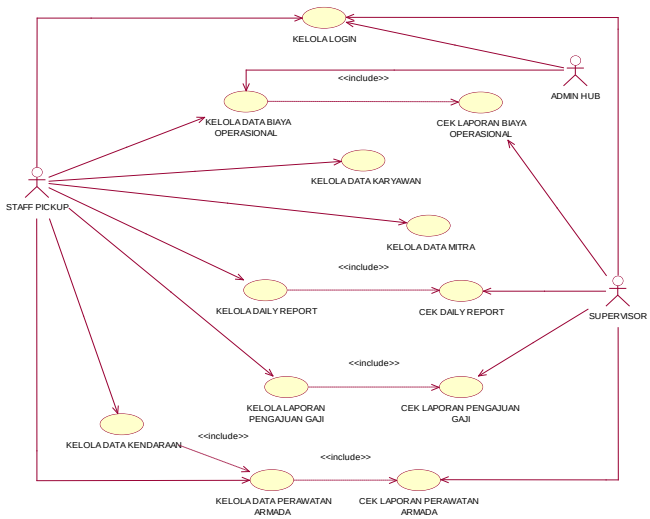

Figure 1. Use Case Diagram

In Figure 1, each system actor has different access rights to the existing usecase

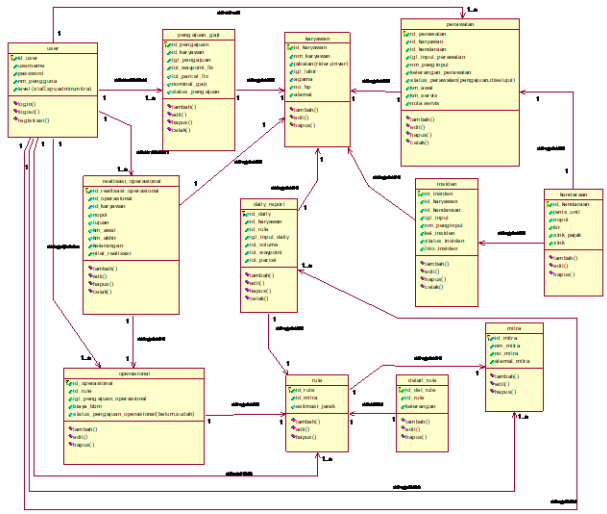

Figure 2. Class Diagram

In Figure 2, Class diagrams are used to illustrate the objects used in the system. In the pickup operational management information system, there are 12 diagram classes used in building the system.

3.3 Database Design

Before diving deep into the making of the database itself, it is important to understand certain basics of database design and the phases of the database life cycle itself [10].

The data from the pickup operational management information system developed is processed using MySQL

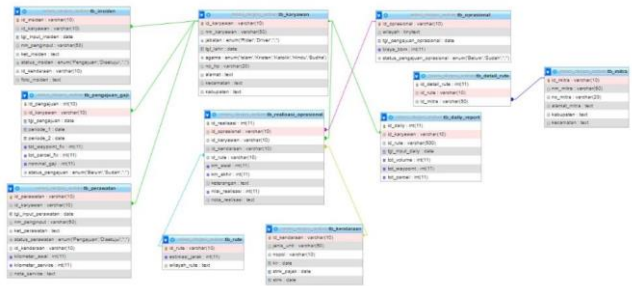

Figure 3. Desain Database

From Figure 3, In the database, as many as 12 tables were created, it illustrates the table relations formed in the database for creating the Pickup Operational Management Information System.

3.4 System Result

1. Log in Page

This page is a display of the system login page. Users who are registered in the system can login through this page. The display of the login page can be seen in Figure 4 below.

Figure 4. Halaman Login

2. Dashboard Page

This page is a view of the dashboard page. The dashboard page displays a summary of the information contained in the system. The dashboard page display can be seen in the figure 5 below.

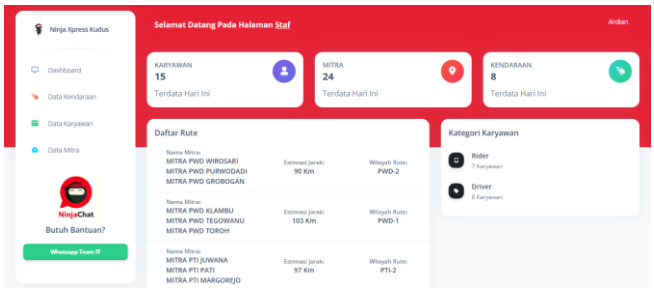

Figure 5. Dashboard Page

3. Vehicle Data Page

This page is a view of the vehicle data page. The vehicle data page displays vehicle data information contained in the system. The display of the vehicle data page can be seen in the figure 6 below.

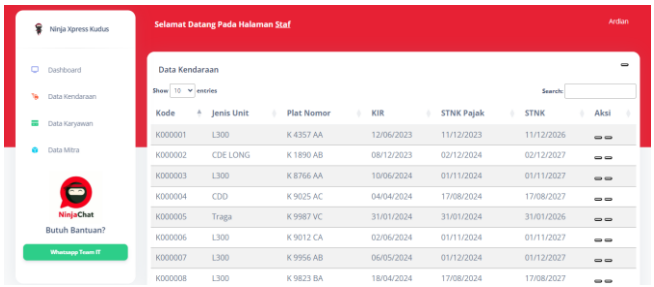

Figure 6. Vehicle Data Page

4. Employee Data Page

This page is a view of the employee data page. The employee data page displays information on company employee data. The display of the employee data page can be seen in the figure 7 below.

Figure 7. Employee Data Page

5. Drop Point Page

This page is a view of the Drop Point data page. The drop point data page displays drop point data in the work area coverage. The display of the drop point data page can be seen in the figure 8 below.

Figure 8. Drop Point Page

6. Route Page

This page is a view of the route page. The route page displays pickup route data information based on partner areas or drop points located in certain areas. The display of the vehicle data page can be seen in the figure 9 below.

Figure 9. Route Page

7. Daily Report Page

This page is a Daily report data page with add action to add/input Daily report data, edit to edit Daily report data, and delete to delete Daily report data. The display of the Daily report data page can be seen in the figure 10 below.

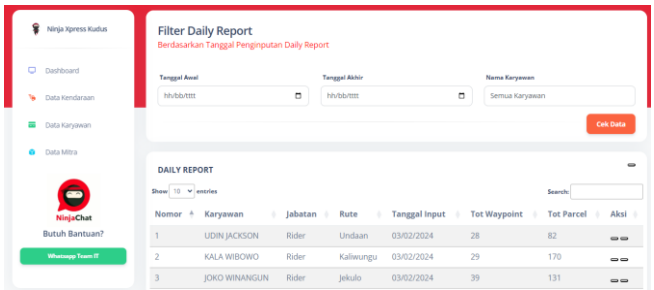

Figure 10. Daily Report Page

8. Operational Page

This page is a display of the operational page for fuel usage. The operational page displays the submission of operational cost requirements for fuel every day. The operational page display can be seen in the figure 11 below.

Figure 11. Operational Page

9. Vehicle Maintenance Page

This page is a view of the vehicle service page. The vehicle maintenance page displays service history and vehicle service information contained in the system. The display of the vehicle maintenance page can be seen in the figure 12 below.

Figure 12. Vehicle Maintenance Page

10. Payroll Page

This page is a payroll data page with a data check action to display payroll data based on date filters. The display of the payroll data page can be seen in the figure 13 below.

Figure 13. Payroll Page

4. CONCLUSION

Based on the results of analysis and design, as well as implementation and discussion, the authors can provide the following conclusions:

1. Implementation of a system to manage pickup operations starting from recording the number of pickups per day, spending on operational costs, and monitoring the vehicle fleet becomes more efficient with the system.
2. Pickup operational data management and data archiving are more organized and well documented.
3. Vehicle fleet monitoring can be done in real time and photo archives can be stored automatically with the system used.

Further research from the design of the pickup operational management information system at PT.Ninja is expected to be developed again to improve the system in the future so that it is more developed and up to date.

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