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Design Of A Sales Monitoring Information System As A Profit Planning Tool (A Study Of A Food Distribution Company)

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ABSTRACT

Sales monitoring involves tracking, analyzing, and documenting all aspects of the sales process through the evaluation of outcomes achieved. In the event of a sales fall relative to established targets, prompt corrective measures are implemented to guarantee alignment with profit objectives. This sales monitoring is typically conducted by leaders or supervisors managing their subordinates. In a food distribution company, the supervision by leaders, known as Area Coordinators, has been suboptimal due to the lack of a mechanism for automatic monitoring of sales stability. This research seeks to assist Area Coordinators in monitoring sales performance with greater speed and efficiency. This information system is developed using the Agile technique, leading to the creation of a sales monitoring system for profit planning.

Keywords: Information System, Monitoring Sales, Agile Method

INTRODUCTION

In the contemporary digital landscape, proficient administration of sales information is essential for a company's success in strategizing and optimizing earnings. Numerous firms continue to have difficulties in real-time sales performance monitoring and leveraging such data for strategic planning. Manual sales recording systems or non-integrated solutions

frequently result in reporting delays, data entry inaccuracies, and challenges in assessing sales trends. This leads to mistakes in profit forecasts and decision-making.

Information Systems

In the contemporary digital landscape, proficient administration of sales information is essential for a company's success in strategizing and optimizing earnings. (Saputri et al., 2021) Numerous firms continue to have difficulties in real-time sales performance monitoring and leveraging such data for strategic planning. Manual sales recording systems or non-integrated solutions frequently result in reporting delays, data entry inaccuracies, and challenges in assessing sales trends. This leads to mistakes in profit forecasts and decision-making. (Julyan & Wahyudi, 2023)

Accounting Information System

An accounting information system is a framework that gathers, documents, retains, and analyzes data to generate information for decision-makers (Fauzi, 2021). Turner, (Widiyanto & Wicaksono, 2022) define an accounting information system as comprising processes, procedures, and systems that acquire accounting data from business activities, document this data in suitable records, process it through classification, summarization, and consolidation, and disseminate the summarized accounting information to both internal and external stakeholders. Consequently, an accounting information system is a framework that produces information through activities like the collection, recording, storage, processing, and generation of accounting reports, which facilitate decision-making for both internal and external users.

Monitoring Sales

Monitoring activities involve evaluating the alignment of a specific activity with established objectives, identifying issues, and subsequently resolving those issues. This entails assessing work patterns and management methods to ascertain their efficacy in meeting objectives, as well as comprehending the correlation between goals and actions to gauge progress (Indrayani & Idris, 2020).

Monitoring is the process of assessing the implementation by evaluating the outcomes or successes realized. Immediate corrective actions are implemented to address deviations from specified standards, ensuring that all outputs conform to the plan (Kusuma et al., 2022).

Profit

Profit is the revenue generated from operating activities after subtracting interest, taxes, and research and development expenses. The Financial Services Authority defines Profit as the surplus of revenue over the total expenses incurred to generate that revenue; thus, Profit signifies net earnings or returns from the company's operations. There exist four categories of Profit: 1) Gross Profit, 2) Net Profit, 3) Operating Profit, and 4) Net Profit Before Tax.

(Palandeng, R. I., & Retnoningsih, 2021) defines Profit as the aggregate of the net outcomes of company activities over a designated timeframe, articulated in financial terms.

Programming Languages

A programming language is a standardized collection of instructions utilized to direct a computer to do particular tasks. This language comprises a set of syntactic and semantic principles utilized to delineate processing structures (programs). It enables a programmer to delineate precisely the data the computer will handle, the manner in which this data will be stored or transferred, and the specific actions to be executed under various circumstances (Wikipedia).

A programming language serves to direct the computer in processing data according to specified logic. The output of this programming language manifests as a processing structure or application. Examples encompass the software utilized by cashiers in shopping malls or supermarkets, traffic signal systems on roadways, and further instances.

Visual Studio Code (VSCode)

Rahwanto, E., & Sudaryono (2022) states that Visual Studio Code is an integrated development environment (IDE) created by Microsoft to facilitate software development for applications on its platform. Visual Studio Code is a source code editor utilized for writing and editing diverse code files, including HTML, CSS, JavaScript, Python, Java, C++, and others.

Website

Mustika (2024) defines a website as a compilation of pages that encompass digital data in various formats, including text, images, animations, sound, and video, or a combination thereof, accessible globally through an internet connection.

Database

Badiwibowo Atim (2024) defines a database as a systematically organized collection of information kept in a computer, enabling access using computer software for information retrieval.

Fauzi (2021) defines a database as an assemblage of logically interconnected data structured to facilitate the retrieval of information required by an organization.

Laravel

Haqqi & Vivianti (2022) states that Laravel is a PHP framework distributed under the MIT license, with its source code accessible on GitHub. Similar to other frameworks, Laravel is constructed on the MVC (Model-View-Controller) paradigm and features a command-line utility named "Artisan," which facilitates the packaging and installation of bundles using the command prompt.

Alman Faluti Ashari & Rizqi Putri Nourma Budiarti (2023) identifies several characteristics of the Laravel framework, including Bundles, Eloquent ORM, Application Logic, Reverse Routing, Restful Controllers, Class Auto Loading, and View Composer.

The development of an integrated sales monitoring information system can provide a solution to these challenges. This technology enables the organization to monitor sales operations in real-time, evaluate sales effectiveness, and utilize that data for more precise profit forecasting.

This research seeks to develop an information system that aids the organization in tracking sales success and uses that data for profit planning. This system is anticipated to improve operational efficiency, reporting precision, and the efficacy of the company's strategic decision-making.

METHOD

SYSTEM ANALYSIS

Analysis of the Current System

Sales Assistants and Store Crew generate daily sales reports encompassing transaction counts, customer visits, and goods sales recorded in the ledger. The report is thereafter submitted to the Area Coordinator for evaluation, analyzing progress towards objectives and enhancements in customer visits, while a spreadsheet is created to compute percentages. Subsequently, the Area Coordinator convenes a meeting with the Operational Manager to assess and scrutinize progress and challenges faced in the field, as well as to devise strategies for achieving targets aligned with corporate objectives. The sales data documented in the ledger is preserved and archived upon the completion of the book, which is then substituted with a new volume. Retrieving sales data from prior periods may require significant effort, particularly if archived records are misplaced or inadequately managed, rendering them susceptible to water damage or termite infestations.

SWOT Analysis

This analysis presents an overview of the proposed system's potential strengths, flaws, opportunities, and dangers. The following delineates each component of the SWOT analysis.

a. Strength

Concentrating on efficient sales monitoring can reveal patterns and sales prospects. Integrating sales data with profit forecasts enables precise and realistic profit planning, thereby enhancing strategic decision-making regarding pricing, products, or markets. Information systems improve data accuracy by minimizing human errors and facilitating the rapid processing of substantial data volumes. Real-time information enables managers to assess current sales performance and promote rapid, data-informed decision-making.

b. Weakness

Creating a sophisticated system necessitates substantial investment in essential hardware and software. The system may be susceptible to technological disruptions or power failures and may necessitate regular maintenance or upgrades, hence increasing operational expenses. Productivity may experience a temporary reduction during the transition phase, as training personnel on the new system requires time and resources.

c. Opportunity

Enhanced precision in profit forecasting allows the organization to modify plans more rapidly if expectations are not fulfilled. Enhancing sales methods can facilitate the identification of the most lucrative products or services. Swift and precise decision-making can confer a competitive edge, potentially improving overall operational efficiency.

d. Treat

Data security risks provide prospective hacking incidents that may result in sensitive data breaches, with the threat of data loss from system failures or natural disasters. A potential fall in employee morale may occur if the implementation is not executed smoothly, resulting in worker discomfort with the changes. Moreover, neglecting to stay abreast of technological progress may enable competitors to create more advanced systems or implement analogous systems more efficiently.

5 Use Case Diagram

A use case diagram illustrates the interaction between actors and use cases. An actor signifies a person who will engage with the system. A use case is a series of events that demonstrates the interaction between the user and the technology.



Figure 1. Use Case Diagram

Activity Diagram Analysis

Sukanto and Shalahuddin (2014:161) assert that an activity diagram delineates the workflow or activities of a system, business process, or software menu. An activity diagram delineates the system's activities rather than the actions of the actors.

8 Login Activity Diagram

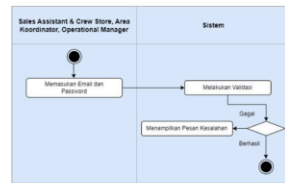


Figure 2. Login Activity Diagram

DISCUSSION

Sequence Diagram

Munawar (2018:138) states that a sequence diagram is a UML diagram that delineates item interactions in chronological order. This diagram illustrates various example objects and the communications exchanged among them within a use case. The sequence diagram of this research is illustrated in the subsequent graphic.

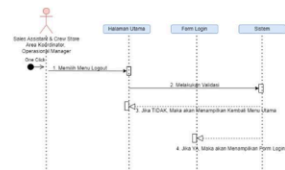


Figure 3. Login Sequence Diagram

Class Diagram

A class diagram is a structural diagram in UML that illustrates the structure and details of each object's classes, attributes, methods, and relationships. It is static, indicating that it does

not elucidate the dynamics of class interactions but rather delineates the existing relationships. This is an illustration of a class diagram in a real-world application software.

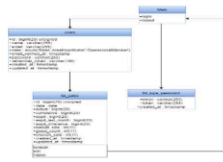


Figure 4. Class Diagram

Menu Structure Design

The menu structure design comprises menus that enhance user interaction with the system. The menus are categorized according to each user's access privileges. This document provides an overview of the menu layout of the Sales Monitoring Information System utilized as a Profit Planning Tool.

User Menu Structure

The user menu architecture is intended for data administration. Users can access the dashboard, generate sales reports, modify and remove reports, and assess sales performance and target attainment. Users may also modify their profiles by altering their email address and password.



Figure 5. Sales Assistant and Crew Store Menu Structure

1 Interface Design

User Interface Design (UI) or user interface engineering pertains to the design of computers, electronics, machinery, mobile communication tools, software programs, and websites, emphasizing user experience and interaction. The configuration of the interface in this information system is as follows.



Figure 6. User Interface Dashboard

SYSTEM IMPLEMENTATION AND TESTING

System Implementation

The system implementation phase succeeds the system analysis and design process. System implementation refers to the execution of the finalized system to enable its operation. System implementation enables the confirmation of design modules, allowing users to provide feedback on system development.

Hardware Implementation

The hardware implementation delineates the necessary hardware to facilitate the sales monitoring information system procedure as follows.

Table 1. Hardware Implementation

Hardware	Specification
Processor	1.20 GHz
Memori	4GB
Hard Disk	
Keyboard	Standard
Monitor	

Software Implementation

The software implementation delineates the necessary software to facilitate the sales monitoring information system procedure, as seen in the subsequent table.

Table 2. Software Implementation

Hardware	Specification
Operating system	Microsoft Windows 11
Web Browser	Google Chrome
Database Server	MySql
Code Editor	Visual Studio Code

Database Implementation

The implementation of a database constitutes a phase in the database design process. This phase executes the outcomes of logical and physical modeling. This program comprises multiple databases, including:

1. User Database Table

This table is utilized to retain system user data, including ID, name, email, roles, email_verified_at, password, remember_token, created_at, and updated_at.

Database Name: sales-monitoring

Table Name : users

System Menu: Sales

Table 3. User Database

#	Name	Type	Collation	Attributes	Null	Default	Comments	Index	Index
1	id	INTEGER		UNSIGNED	No	None		AUTO_INCREMENT	✓ Change ⚙️ Drop Menu
2	name	VARCHAR(255)	utf8mb4_unicode_ci		No	None			✓ Change ⚙️ Drop Menu
3	email	VARCHAR(255)	utf8mb4_unicode_ci		No	None			✓ Change ⚙️ Drop Menu
4	roles	JSON_ARRAY	utf8mb4_unicode_ci		No	None			✓ Change ⚙️ Drop Menu
5	email_verified_at	TIMESTAMP			No	NULL			✓ Change ⚙️ Drop Menu
6	password	VARCHAR(255)	utf8mb4_unicode_ci		No	None			✓ Change ⚙️ Drop Menu
7	remember_token	VARCHAR(100)	utf8mb4_unicode_ci		No	NULL			✓ Change ⚙️ Drop Menu
8	created_at	TIMESTAMP			No	NULL			✓ Change ⚙️ Drop Menu
9	updated_at	TIMESTAMP			No	NULL			✓ Change ⚙️ Drop Menu

2. Add Sales Database Table

This table is utilized to incorporate sales data, which includes id, date, actual, cumulative, aspd, aspd_last_month, aspd_difference, basket_size, guest_count, chicken_sold, created_at, and updated_at.

Nama Database : sales-monitoring

Table Name : sales

System Menu: Sales

Table 4. Database Sales

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Actions
1	id	bigint(20)	utf8mb4_0900_ai_ci		No	None		AUTO_INCREMENT	Change Drop Max
2	date	date	utf8mb4_0900_ai_ci		No	None			Change Drop Max
3	actual	bigint(20)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
4	cumulative	bigint(20)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
5	aspd	bigint(20)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
6	aspd_last_month	bigint(20)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
7	aspd_difference	bigint(20)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
8	basket_size	int(11)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
9	guest_count	int(11)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
10	chicken_sold	int(11)	utf8mb4_0900_ai_ci		No	0			Change Drop Max
11	created_at	timestamp	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop Max
12	updated_at	timestamp	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop Max

3. Database Table Forgot Password

This table facilitates password modification in the event of a forgotten previous password, encompassing email, token, and created_at information.

Table Name : pass-word_reset_token

System Menu: Sales, Area Coordinator, Operational Manager

Table 5. Database Lupa Password

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Actions
1	email	varchar(255)	utf8mb4_0900_ai_ci		No	None			Change Drop Max
2	token	varchar(255)	utf8mb4_0900_ai_ci		No	None			Change Drop Max
3	created_at	timestamp	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop Max

Interface Implementation

The interface is the program's page display developed from the design outcomes presented in the preceding chapter. This application comprises 13 pages, each serving a distinct role. The subsequent image depicts the interface implementation within the system:

1) Login Form Display

The login form is a webpage that includes fields for inputting a username and password to gain access to the program. This page is essential in an application as it can govern or distinguish the categories of consumers who will utilize it.



Figure 7. Implementation of the Login Page Interface

2) Implementation of the Dashboard Page Interface

The homepage/dashboard is the primary page displayed when logging in.

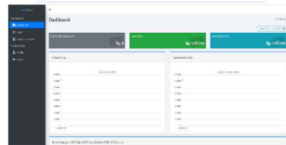


Figure 8. Implementation of the Dashboard Page Interface

3) Implementation of Sales Page Interface

The sales page presents previously entered sales report data.

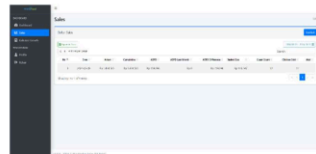


Figure 9. Implementation of the Sales Page Interface

4) Implementation of the Add Sales Page Interface

This page presents the Sales form, which includes Actual, Guest Count, and Chicken Sold.

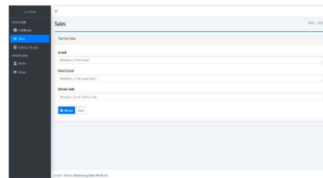


Figure 10. Implementation of the Add Sales Page Interface

5) Implementation of the Edit Data Page Interface

This page presents the Sales form, which includes Actual, Guest Count, and Chicken Sold.

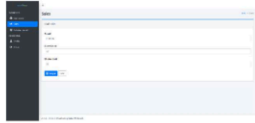


Figure 11. Implementation of the Edit Data Page Interface

6) Implementation of the Delete Data Page Interface



Figure 12. Implementation of the Delete Data Page Interface

7) Implementation of the Growth Calculation Page Interface

This site provides information regarding the advancement towards targets determined by the system, along with a formula for the calculation process.



Figure 13. Implementation of the Growth Calculation Page Interface

8) Implementation of Profile Page Interface

This profile page features a user profile form followed by a menu for password modification.

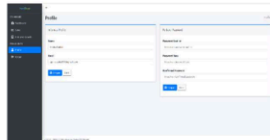


Figure 14. Implementation of the Profile Page Interface

9) Implementation of the Logout/Exit Page Interface

The existence of the logout button is contingent upon the component's status, akin to the login button.

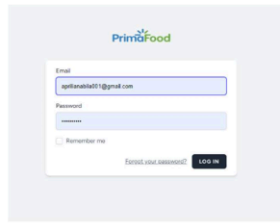


Figure 15. Implementation of the Logout Page Interface

CONCLUSION

From the design and analysis performed for this information system, various conclusions may be derived. The developed information system has effectively enhanced the efficiency and precision of sales data monitoring. By facilitating the company's ability to collect, process, and analyze sales data in real-time, it has markedly diminished human errors and delays in decision-making. The system offers significant assistance for the company's profit planning; with systematic and integrated monitoring, management can forecast income and pinpoint areas for enhancement, thus rendering profit planning more quantifiable and dependable.

The study illustrates that the proficient application of information technology can substantially enhance the company's business processes, especially in oversight and strategic planning. The introduction of this information system has enhanced the sales team's efficiency, allowing them to focus on strategic activities while automating administrative tasks and routine oversight. The system has streamlined resource allocation, resulting in enhanced operational efficiency and profitability, with improved profit forecasts attained through thorough data analysis.

Based on these data, numerous recommendations are suggested. Despite the system's considerable advantages, additional development is recommended to improve predictive analytic capabilities and interaction with other firm systems for more thorough profit planning. Moreover, additional investigation into data security procedures is crucial, especially regarding sensitive information like sales data and profit projections. Ultimately, leveraging machine learning to drive sales forecasts can enhance the accuracy

of profit planning by utilizing historical data and market trends. This sales monitoring information system has enhanced the company's profit planning by providing more precise and pertinent data for superior decision-making.

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