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DESIGN OF FINANCIAL SYSTEM DATABASE PT. BAGJA JAYA SOLUSINDO

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Abstract

The use of information systems and information technology today greatly facilitates and helps in daily work. The rise of MSMEs, CVs and Startups in various fields of expertise certainly have their own business financial records. However, most of the company's financial records are still manual, so a database design is needed for a financial information system that is intended to facilitate financial records at PT. Bagja Jaya Solusindo. The creation of a database for this company's accounting or financial information system certainly has several stages that must be passed. In this study, the R&D method was used to build the database design. The results of this study are in the form of a database design for the accounting or financial information system of PT. Bagja Jaya Solusindo. With this database design, it will certainly make it easier for companies to help record company finances.

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1. INTRODUCTION

In the era of increasingly rapid digitalization, information systems have an important role in improving the efficiency and effectiveness of a company's operations. One of the crucial aspects in business management is the accounting information system, which functions to record, manage, and analyze financial data to support more accurate decision making.

Competition in the business industry is getting tighter along with technological advances. Therefore, the use of information technology in a company can help them to increase their competitiveness. With the introduction of information technology, the power of information and the use of this technology are used as a strategy to achieve excellence in business competition [1]. To maximize profits in a business, innovation is needed. Therefore, business actors need to ensure that this can be implemented effectively [2].

PT Bagja Jaya Solusindo as a company engaged in Information Technology requires a reliable accounting information system to ensure better financial management and increase transparency and accuracy in recording transactions. The design of the financial system database implemented in a company must be able to meet user needs and support smooth business operations. However, in its implementation, many companies still face various obstacles, such as manual recording that is prone to errors, inefficient processes, and limitations in financial reporting. Therefore, an integrated accounting information system is needed to increase efficiency and reduce errors in the process of recording and processing financial data.

Previous research was conducted by Soni Ayi Purnama (2018) using the Oracle Enterprise Architecture Framework in designing a financial system [3]. Research conducted by Sudarsono and Muslim (2018) used the System Development Life Cycle (SDLC) design method using the waterfall model on the geographic information system for mapping certified land blocks and ownership of tax notices owed in Gunungsari Village, Tasikmalaya. The database design in this study used the ERD model to explain the relationship between data in the database [4]. Database design using SDLC was conducted by Nofiyani (2019) to support the service administration and motorcycle repair system [5].

This study aims to design a financial system database that can help PT Bagja Jaya Solusindo in managing financial transactions more effectively and efficiently. The results of this study are expected to provide benefits for the company in increasing productivity, accuracy of financial reports, and supporting better decision making based on data integrated with the system. With the existence of a waterfall-based accounting information system, PT Bagja Jaya Solusindo is

expected to be able to increase efficiency in financial management and reduce the risk of recording errors that can impact overall business performance.

2. METHOD

In this study, the R&D method is applied to build a database. Sugiyono (2009) explains that R&D is a method used to create a particular product and test how effective the product is [6]. The product is not always a physical object or hardware, such as stationery, books, or other educational tools. On the other hand, the product can also be software. Database design is carried out using the SDLC method, and the research variable is database design for a financial system that uses a relational data model. The focus of the research includes conceptual database design, logical database design, and physical database design as seen in Figure 1. [7]

Figure 1. Database Design

3. RESULTS AND DISCUSSION

3.1. CONCEPTUAL DATABASE DESIGN

In designing the financial system database at PT. Bagja Jaya Solusindo, the Entity Diagram Relationship (ERD) concept is used. Entity Relationship Diagram (ERD) is a diagram that shows the relationship between various data objects in a database. ERD is used to design the database structure and identify the types of data to be stored, as well as explain how the data is interrelated. [8].

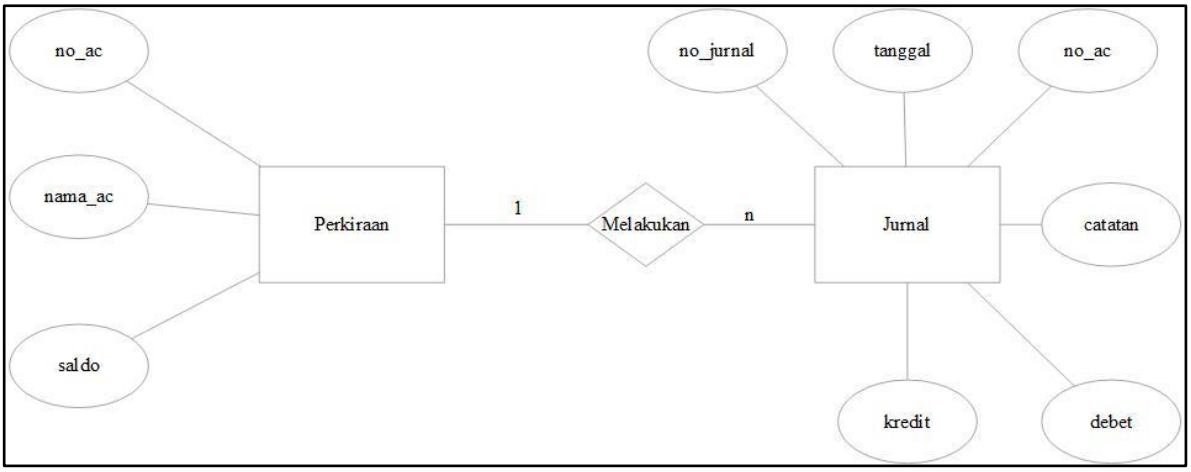

Figure 2. Entity Diagram Relationship Financial System PT. Bagja Jaya Solusindo

3.2. DATABASE DESIGN LOGICAL DATA

A relationship consists of an organized set of data that links the information in each table. According to [9], the purpose of DBMS is to offer data protection, data distribution, and data stability. Software that falls into the DBMS category includes various applications such as dbase III+, FoxBase, MS-Access, and Borland-Paradox for the basic level. While for more complex layers, there are Borland Interbase, MySQL, SQLServer, Oracle, Informix, and Sybase. These tables include forecast and journal tables.

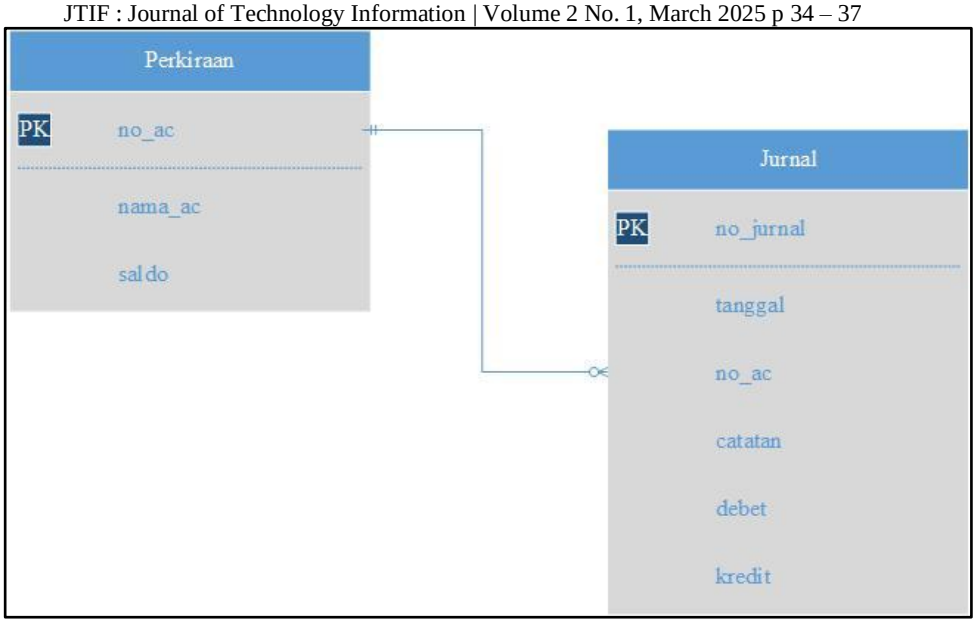

Figure 3. Database Relationship Financial System PT. Bagja Jaya Solusindo

In Figure 3. it can be explained that the relationship between the estimates and journal tables is one-to-many. This means that one journal can provide many estimates, but estimates only store unique estimate data between each other. The relationship between the employment table and the journal table is connected through no_ac (Account No.), no_ac in the estimates table as the primary key while in the journal table as a foreign key.

3.3. PHYSICAL DATABASE DESIGN

At this point, to implement the results of the database design in real terms on external storage devices in accordance with the provisions of the selected Database Management System (DBMS). One of the DBMS used in this study is My Structured Query Language (MySQL), the following are Tables 1 and 2 containing financial information system entities.

Table 1. Perkiraan Table

No	Field Name	Type	Size
1	no_ac*	Varchar	10
2	nama_ac	Varchar	50
3	saldo	BigInt	8 bytes

Table 2. Jurnal Table

No	Field Name	Type	Size
1	no_jurnal*	Varchar	20
2	tanggal	Date Time	YYYY-MM-DD hh:mm:ss
3	no_ac**	Varchar	10
4	catatan	Text	65,535 bytes
5	debet	BigInt	8 bytes
6	kredit	BigInt	8 bytes

The next step is to present the physical design of the database into the Database Design Language (DDL) to determine its variable data. DDL is a collection of SQL commands that function to create, alter and drop structures and data types in database objects [10]. The following are DDL commands implemented in the financial system.

a. SQL CREATE TABLE perkiraan

```
CREATE TABLE perkiraan(
no_ac varchar(10) primary key,
nama_ac varchar (50) NOT NULL,
saldo BIGINT NOT NULL)
```

b. SQL CREATE TABLE jurnal

```
CREATE TABLE jurnal(
```

```
no_jurnal varchar(20) primary key,
tanggal DATETIME NOT NULL,
no_ac varchar(10) NOT NULL,
catatan Text,
debet BIGINT NOT NULL,
kredit BIGINT NOT NULL)
```

4. CONCLUSION

In designing a database with an R&D approach, it can be concluded that this database has fairly easy entities and forms a relational structure with the following explanation:

a. Utilization of conceptual design will facilitate the process of creating the required entities.
b. Through a logical database model, 2 (two) entities are generated that are relationally connected, both in a One-to-Many binary relationship.
c. To create a quality application, it cannot be separated from the database model used, so it needs to be developed with a relational data model.

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