

DESIGN OF MASTER DATA MANAGEMENT IN THE BANK USING CONSOLIDATION APPROACH AND JARO WRINKLER

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Abstract

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The main objective of this project is to introduce master data management into the PT XYZ database system through analysis, design, and implementation. A database life cycle (DBLC) approach, consisting of database analysis, design, implementation, and testing, is used for the design phase. Based on the analysis carried out, it was found that two databases belonging to PT XYZ did not have a master data management process, and there was an incomplete master data management and implementation process at PT XYZ. This project ended with the successful of implementation the master data management process, thereby reducing the time required for PT XYZ business process applications. So that all PT XYZ business process applications can produce clean and valid data.

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Abstrak

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Tujuan utama dari proyek ini adalah untuk memperkenalkan manajemen data master ke dalam sistem database PT XYZ melalui analisis, desain, dan implementasi. Pendekatan siklus hidup basis data (DBLC), yang terdiri dari analisis basis data, desain, implementasi, dan pengujian, digunakan untuk tahap desain. Berdasarkan analisis yang dilakukan, ditemukan dua database milik PT XYZ yang belum memiliki proses pengelolaan data master, serta adanya proses pengelolaan dan implementasi data master yang belum lengkap di PT XYZ. Proyek ini diakhiri dengan berhasilnya implementasi proses pengelolaan data master sehingga mengurangi waktu yang diperlukan untuk penerapan proses bisnis PT XYZ. Sehingga seluruh aplikasi proses bisnis PT XYZ dapat menghasilkan data yang bersih dan valid.

1. INTRODUCTION

Master Data Management (MDM) is a method used by companies to consolidate all critical data into a unified master file, providing a single point of reference. When implemented effectively, MDM enables seamless data sharing across teams and

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departments. Essentially, MDM eliminates duplicate and conflicting data within an organization. Many companies only analyze 12% of their data, which means they could miss out on 88% of potentially valuable information. Organizations have multiple systems to store and retrieve data, but these systems often store information differently, leading to overlapping, redundant, and inconsistent data. For instance, terms like 'supplier' and 'seller' may have different definitions across systems. This inconsistency makes it challenging for companies to achieve consistent, complete, and relevant master data. As a result, many companies are struggling to become agile by implementing information systems that can adapt to changing business needs. Managing information about products and customers is increasingly important. This leads to the question - How can users ensure they have accurate, consistent, and valid data? The answer is Master Data Management (MDM).

Data in a company can be used for a variety of purposes relating to the company's business processes. One example of data use in a business is data used for business decision-making, understanding the company's customers, reporting on the company's business results, and so on. However, this can only be accomplished if the company manages its data properly and correctly (Santoso et al., 2019).

Several companies are still experiencing data issues as a result of factors such as duplicate data, poor data quality, a lack of data standardization, and others (Indrajani, 2015; Vilminko-Heikkinen and Pekkola, 2013). All of these issues must be resolved for data that is critical to a business (Martin et al., 2022; Kreta, 2019). However, a system is required in a business to process large amounts of data. Implementing master data management in a company's database system is one solution. The implementation is carried out in order for the system to process all data quickly and easily.

Master data management can help a company manage its data. All company data can be well optimized so that all data problems can be resolved (Anggoro and Nurfadilah, 2022). Furthermore, there are several advantages to implementing master data management, such as improved decision-making outcomes, improved performance, improved expenditure efficiency, and improved customer service.

The goal of this paper is to dig deeper into the design and implementation of master data management in a company's database system. The consolidation method is used to implement master data management.

The motivation for this learning is to understand the function of master data management in a company and the methods used by a company to implement master data management in the company's database system.

The contribution of this paper is to provide a method for implementing master data management in a company, particularly with a consolidation approach. This paper can also be used as a reference by a company looking to implement a master data management system in its database system.

2. METHODOLOGY

2.1 Master data management architectural design

In Figure 2.1, the master data management design can be seen. The master data management database will pull data from two tables containing information about aircraft in two different databases. The approach used is a consolidation approach, so all the data that will eventually enter the master data management database must be processed first to

produce clean data, commonly referred to as golden data. Then, all the data in the master data management system will be processed again in the data warehouse before it can be used by users through business process applications.

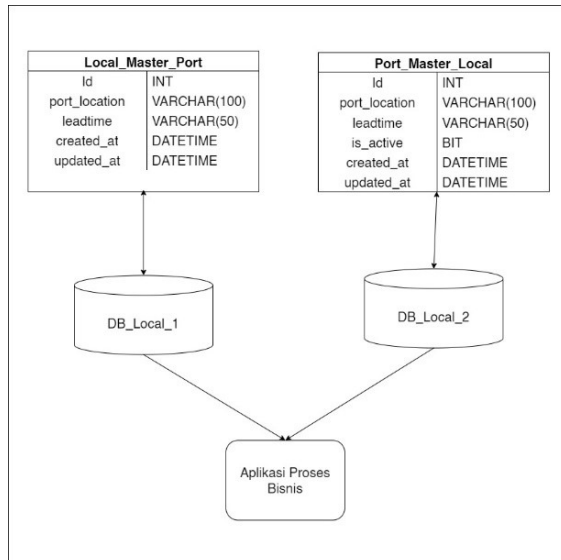


Figure 2.1.
Design Master Data Management

3.2 Datasets

Two tables that contain information about aircraft at an airport. In this paper, both tables will be used as data sources for the master data management design. Only a few columns will be used in this master data management design. Columns that are related to the aircraft, such as airline name and airline code, will be used from both tables.

3.3 Design Queries

The next stage will be the query design. The table creation query and the table population query will be created at this stage. There will be three columns created in the table creation query that have been adjusted to both datasets used. This table will eventually become a master data table for airline companies.

The query will be created using the Jaro Winkler technique in the table data query design. This was done in order to obtain valid data from the two compared airline data sets. As a result, the data in the master data table will be more accurate.

3. RESULT AND DISCUSSION

Before implementing master data management, the business process application retrieves data directly from the source database. To prevent any negative impact on the main database's performance, we will modify the architecture to ensure that the business process application does not directly access the database. This modification is intended to prevent issues such as deleted or altered data.

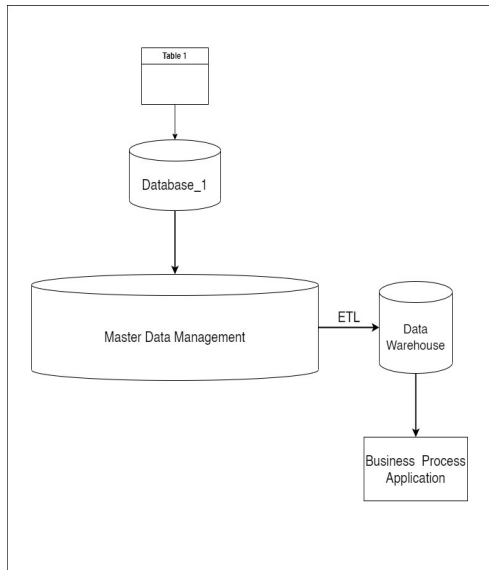


Figure 3.1.
Database Architecture before Master Data Management Implementation

Optimizing bank data management has a significant impact on operational efficiency and cost reduction. It streamlines processes and reduces the need for manual intervention. Improved data quality and accuracy directly contribute to an enhanced customer experience. Personalized services and targeted offerings result from better data management. Establishing key performance indicator and metrics is crucial for measuring the success of data optimization efforts. ROI analysis helps justify investments in data management.

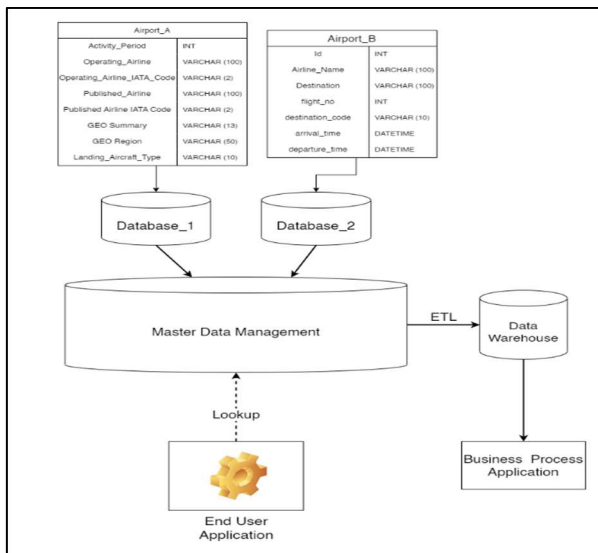


Figure 3.2.
Database Architecture after Master Data Management Implementation

After creating the query, the next step is to set up an automated job in the SQL Server application to run the newly created stored procedure at a specific time. The job creation process involves specifying the job name, category, and description in SQL Server. Once these details are added, the next step is to input the SQL Server command to execute the stored procedure. After successfully entering the command, the job can be scheduled to run automatically at the specified time.

4. CONCLUSION AND RECOMMENDATION

In conclusion, optimizing bank data management through consolidation and the Jaro-Winkler approach is crucial for achieving data accuracy, operational efficiency, and customer satisfaction. Embracing these strategies positions banks for success in the digital era. The future of bank data management lies in AI-driven automation and real-time data processing. Innovations in data governance and analytics will shape the industry.

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