

## Optimization and Migration Services Customer Data (Case Study: PDAM Tirta Musi Palembang)

Silvia, Prihambodo Hendro Saksono, Ahmad Haidar Mirza

Master of Information Technology Program  
Bina Darma University  
e-mail:Silviamkom@gmail.com

### *Abstract*

*Optimization and data migration is a system used to make improvements to the database and then do a data migration to the new design . The database is a storage medium enterprise transactions is very important for the development company itself . Optimization itself is done by using the method of normalization against the old database based on reports required by the user to be used as information for management to make decisions . Normalization is taken based on the report is then used as an attribute of a new table design . After the data desian formed from the Software Requirements Specification ( SRS ) , and then do the data migration . Data migration can be done using the Query command . This process will also determine whether a new design can be done during data migration . Once the migration is complete then checking speed data transfer performance by using application program or Query command . This study was limited to the data migration process optimization and customer service so as to produce a perfect database no empty each column , data migration according to the number of initial data and the maximum speed of data access .*

**Keywords :** *Customer service data, Optimization, and Migration*

## 1 INTRODUCTION

Regional Water Company (PDAM) Tirta Musi Palembang is the provincial enterprises (enterprises), which was established on April 3, 1976. The company aims to provide services to the public drinking water supply of the city of Palembang with quality and quantity in accordance with established standards . People who want to get clean water services must apply for a new pair to PDAM Tirta Musi Palembang to become customers by fulfilling some administrative requirements that will be in store for a computerized customer data.

Customer service data stored in the database, where each inputting transactions, carried out by filling some parts of the column corresponding to the division. If the data entry is done by the customer service part of the service, not all columns from tables filled so that the techniques and the cashier would just update the table. Difficulties in database now lead the table is not filled with all columns and if the database administrator must perform queries

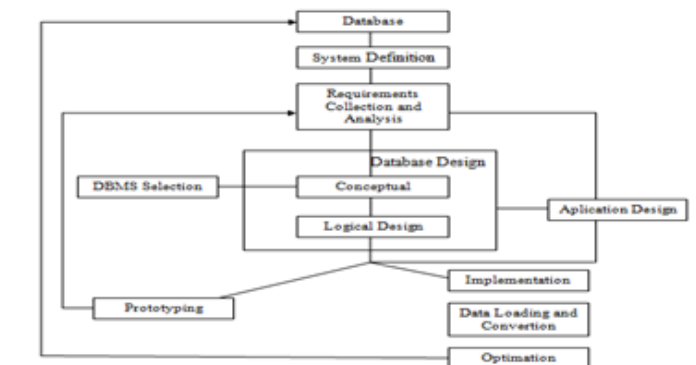


Figure 1: designed to solve research problems

really keen to make the query data update and delete data. The attributes of the tables used in the customer service database redundancy and there are many tables that have the attributes/fields that are all very much become a part of each respective division.

Optimization and database migration needs to be done by dividing the table into multiple tables customer request in accordance with their respective divisions while still using relational. For such cases will be tried repairing the database using the Software Requirements Specification (SRS) in the customer service system which researchers think is most appropriate to reduce null and column data also allows the database administrator to perform the transaction data using queries. Researchers also will look at the data after the optimized performance with the performance data before optimized.

Purpose of Research is How to optimize database using the Software Requirements Specification (SRS) at the Customer Service System to produce a faster run time and the data migration process by using a query.

The benefits derived from this study are:

1. Can build databases by using Software Requirements Specification (SRS);
2. Can be use to query the data migration process;
3. Can see the performance (run time) database that has been optimized in the RDBMS on customer service system.

Restrictions that will be taken in this study are as follows:

1. The database is taken from Data Base Customer Service;
2. Microsoft SQL Server;
3. Analysis of relational database using the Software Requirements Specification (SRS).

## 2 DATABASE

Data is a facts of an object such as a human , objects, events, concepts and so forth circumstances that can be recorded and have implicit meaning. Data can be expressed robin

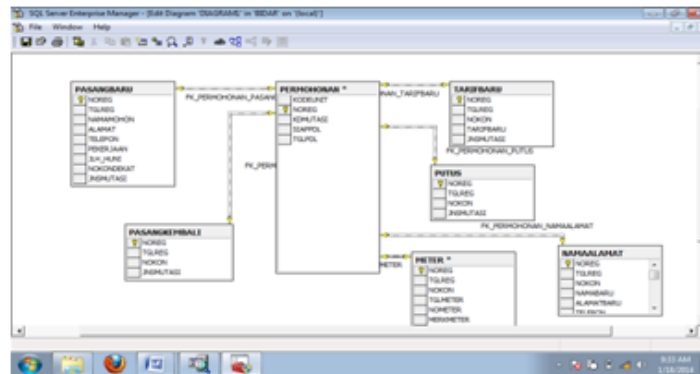


Figure 2: Optimization Results Table with SRS Method

figures, characters or symbols, so that when the data is collected and interconnected with the term database [3]. Database is a collection of useful information that is organized into a rule which is specialized [2]. This information is data that has been organized into a form that suits one's needs. According to the Encyclopedia of Computer Science and Engineer, scientists receive information in a standard definition of information is data that is used make decision.

From some of these definitions , it can be said that berbagaisumber memounyai database data in the data collection, varying degrees of interaction events of the real world, designed and built to be used by multiple users for various purposes [4].

## 2.1 Database Optimization Methods SRS (Software Requirement Specification)

This study focuses on the representation of the process of preparing Software Requirement Specification (SRS) Pattern [1]. To obtain the final result is a representation of Software Requirement Specification (SRS) Pattern, then the domain is taken the problem of academic registration process at a university as a case study. While the methodology is implemented in several case studies. The procedure is done at the beginning of the research is to study literature / literature on software requirements and requirements in general Pattern. A literature study to look at this problem domain is more comprehensive and ideal, because of the running applications may have done simplification and eliminating the requirement that important. Simultaneously, the domain issues that will be discussed as well as the materials studied to determine the requirements to be implemented into a pattern that will be compiled.

## 2.2 Data Base Management System (DBMS)/ Database Management System (SMB)

DBMS can be defined as a computer program used to enter, modify, delete, modify and obtain data/information in a practical and efficient [4]. The advantages of DB MS are: DBMS can be defined as a computer program used to enter, modify, delete, modify and obtain data/information in a practical and efficient. The advantages of DBMS are:

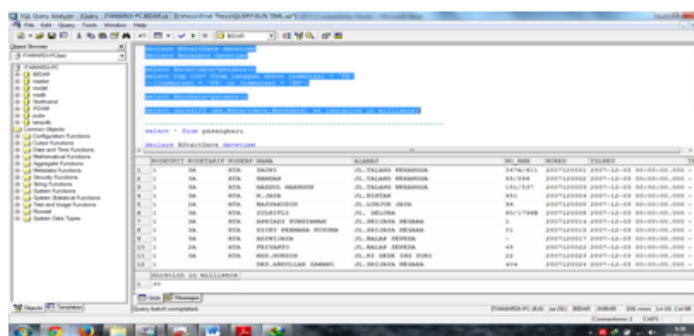


Figure 3: Transaction Data Tables Mutations Subscribe to New Installation

1. Practicality. DBMS provides permanent storage media that is small but many store data when compared to using paper.
2. Speed. Computers can search for and display the required information quickly.
3. Reduce boredom. Repetitive work that can lead to boredom for the men, while the machine does not feel it.
4. Update to date. The information available is always changing and accurately each.

The advantages in the use of DBMS include [4] :

1. Pooled data control . With a DBMS under the control of one person or group can guarantee the maintenance of data quality standards and safety limits its use and can neutralize the conflict in terms of data and data integrity can be maintenance.
2. The use of shared data (shared data). The information in the database can be used more effectively by the use of multiple users with control data is maintained.
3. Data were free (independent). Separate application program with data stored in the computer.
4. Ease of programming new applications.
5. Usage directly. DBMS provides an interface that allows users to process data.
6. Redundant data can be controlled. Input data can occur repetition ( redundancy ), for the DBMS serves to reduce the level of redundancy and management of the data update process.
7. View of the user (user view). There is a possibility that the data base is accessed the same, then the DBMS is able to set a different interface and adapted to the understanding of each user in the database according to the needs.

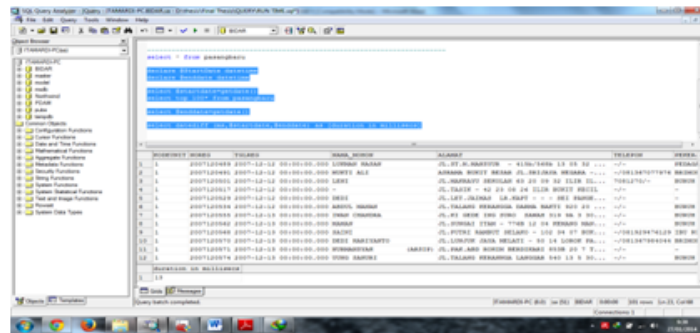


Figure 4: Transaction Data Tables New Installation

## 2.3 Analysis of System Development

### 2.3.1 Analysis of Micro System Life Cycle

In the Database known a few cycles or grooves that are commonly used , namely the information system life cycle is often referred to as micro life cycle, where the cycle of life is a micro database life cycle. One example is the process of database design is part of the information system life cycle . The stages are there in the circle of life micro information systems, namely :

1. Database Planning

In these activities are organized how the life cycle steps can be realized more efficiently and effectively.

2. System Definition

The definition of the scope of the database.

3. Design

In part of this phase, the database system design conceptually, logical and physical executed.

4. Implementation

Processing of writing the definition of a conceptual database, external, and internal, of making the database files are empty, and implementation of software applications.

5. Loading or Data Conversion

Databases are placed either directly retrieve data or change existing files into a format the database system and call back.

6. Application Conversion

Some software applications from a previous system is converted to a new system.

7. Optimization

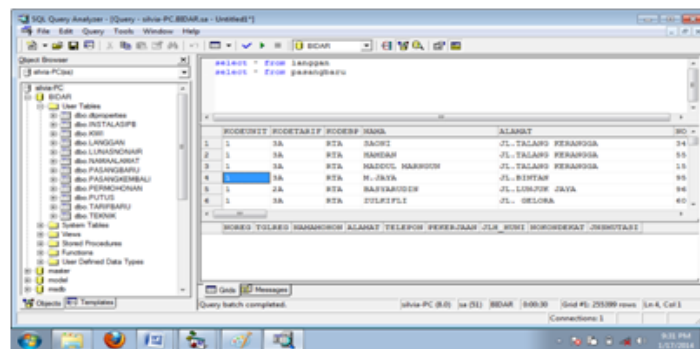


Figure 5: Before Data Migration Customer Service New Installation

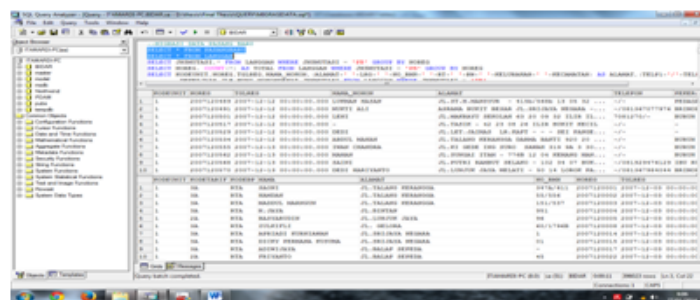


Figure 6: After Data Migration Customer Service New Installation

The new system is a way of optimizing the database system using the method of normalization.

#### 8. Operation.

Operations on database systems and applications.

## 2.4 Framework

The framework is designed to solve research problems encountered in this study. Based on these problems, the researchers will fix a database using the Software Requirements Specification (SRS) in the customer service system that researchers consider the most interesting thing to do with the purpose of reducing the data columns null redundancy of data and also allows database administrators to perform data transactions using queries. Researchers also will perform data migration using queries of the data that has not been in normalize to the data that has been normalized. Show in Figure 1.

## 3 RESULTS OPTIMIZATION AND DATA MIGRATION

The results of this study is a draft Customer Service System PDAM Tirta Musi Palembang as one way to perform optimization and migration of the system design researchers using the

Software Requirements Specification (SRS), where researchers in conducting design research methods with the Action Research Model experiments before after.

### 3.1 Optimization Based on User Needs

Data optimization function based customer service system itself is based on the output of the system itself, then on to a new database consisting of several tables that relate to each other. Data optimization function based customer service system itself is based on the output of the system itself, then on to a new database consisting of several tables that relate to each other. Show in Figure 2.

Relation to the new table using one to one in which a single unit and the registration number is only one between tables and must be unique. The results of the method used creates some tables from the old table based method used SRS. The table consists of pairs of the new table, the new rate table, table feet, table names and addresses, tables and tables reinstall termination. The table is adjusted based on each division in accordance with the transaction request made by the customer.

### 3.2 Comparison of Results of Run Time Data

Running the query to be done at the customer's table when searching data based on New Installation.

In the new query table after running takes 30 milliseconds to perform a search based on the data rate by a total of 25,089 customer records. Show in Figure 4.

In the new query table after running takes 19 milliseconds to perform a search based on the data rate by a total of 25,089 customer records.

### 3.3 Results Data Migration Customer Service

Having created a new form of database in accordance with the frame of mind then conducted research database migration from the old to the new database using a query in Ms procedures. SQL Server.

After the migration of data using query syntax, between the number of records long table with a new table records the number of generating the same number of records is 140 626 records.

## 4 TESTING

Based on the results of the testing that has been done, it can be seen that the conditions are not too long tables and the data in each record is filled with no null can affect the data rate at the time of entry into a table. Designing a database can be done based on the user needs to see the desired output. The output we can make a design attribute for each table. Based on the results of data migration is performed using the Query syntax in Microsoft SQL Server Enterprise Manager, the migration process can be done perfectly and in accordance with the amount of preliminary data to final data.

## 5 CONCLUSION

Of Research on optimization and migration of customer service system on a case study of PDAM Tirta Musi Palembang using the Software Requirements Specification (SRS), some

conclusions can be drawn, namely:

1. The database generated by using the Software Requirements Specification (SRS) produced some tables in accordance with their respective divisions and no longer contained some null records.
2. By using the query to migrate the data from the old table into the new table that has been in the design.
3. Run Time generated faster than new table transactions compared with the old table.

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