

Database System Model of Tender Management System In Kadastra

N. Ahmad¹, S.N. Abdul Samad², M. R. Ramli³, N. M. Noor⁴, S. Ngah⁵, M. F. Zolkipli⁶

¹⁻⁶Faculty of Computer Systems & Software Engineering,
University Malaysia Pahang,
Locked Bag 12, 25000 Kuantan, Pahang, Malaysia.

Abstract: In this paper, we will focus on the database system model in order to calculate the tender payment claim for the land surveyor company. The calculation is based on the Vide Federal Government Gazette PU (A) 169 dated 1 May 1997 Thirteenth Schedule (Regulation 99) Scale of Fees for Title Surveys given by Land Surveyors Board. Based on the system, it provides high availability for read and writes operations with limited fault-tolerance, while supporting the fast data transformation in a client server environment. Accurate, relevant and timely information required the use of sophisticated system called Tender Management System (TMS) In Kadastra with the database management system, MySQL.

Keywords: Database, kadastra, MySQL, TMS, software.

INTRODUCTION

Database can be define as a shared collection of logically related data, designed to meet the information needs of an organization [1,2]. It is a single, large repository of data, which used by many departments and users. Instead of disconnected files with redundant data, all data is integrated with a minimum amount of duplication. The database is now underlying framework of the information system, and has fundamentally changed the way many organizations operate. In particular, the developments in this technology over the last few years have produced system that are more powerful and and more intuitive to use.

Tender Management System In Kadastra with the database technology, capable to manage the tender information. The information includes the account details customers, the information of separating process for division or boundary, temporary properties and survey of land. Briefly, PHP language and MySQL were used to develop the Tender Management System In Kadastra and its database system respectively. Other software had been used include MySQL Client Server GUI, PHP Editor, Microsoft Front Page and Apache Web Server.

In a realistic world, tender management work through the manual system is quite complex and very difficult. Before the advent of system, organization keeps all their data in manual or paper files. Basically, the manual system workflow is very unefficient and uneffective.

Data processing in organizations tended to be largely departmental in nature. To manage the tender information, there are many staffs will involved and the process need to be done in many stage. At an early stage, customers details and the business dealing information has been recorded by the staff in the registration book. For each registration that exist, file no will be generated manually to make sure the project information can be refer. All the arrangement of the files will be done by the clerks in Administration Department. They stored this files in filling cabinets. Although the file-based system were helpful, they really didn't produce the kind of information that management needed. Inevitable, the manual system can impact the loss, delay and wrong information, which cause the decline of company operation performance.

This paper is organized as follows: In Section 2, we review the concepts of the system. Section 3 presents the step-by-step methodology of the system. In Section 4, we describe the system implementation.

CONCEPTS OF THE SYSTEM

Tender

Tender can defined as an official offer to carry out the service or to supply items [3]. Either the service or items had already been fixed with the particular amount prices. The implementation of the project must be finished in the period that already fixed. This formal offer usually written for the purpose of getting the service or supplying items can be done.

Kadastra

'Kadestar' terminology is an abbreviation on Indonesia-Holland, which means land office [3]. Kadastra is a discipline that closely related with all the survey of land works include:

- Permit for land separations
- Survey of land
- Application of land
- Forest preservation

This discipline is related with industry, agriculture, forestry and mining, which all the management subjected to Land Surveyors Board.

Data Management

Data management is a terminology that usually use for referring to the system, which provide the interface that can hide specifically physical file operation, hence they can fully concentrate to the data logical [4]. Database system is a software system class that relate with Database Management System and file management system [2]. We can consider a database to be a collection of related data and the Database Management System (DBMS) to be the software that manages and controls access to the database. The database approach overcomes most of the problems in manual system and file-based system [1,2]. It is intended to meet the informational needs of all users at all department or operational level as well as users at the strategic level.

METHODOLOGY

System Analysis

System development starts from early to last of each System Development Life Cycle phase. The structured system development method is effective and efficient approach because it relevant with sequence management works [5]. Planning process start with a list of tasks.

The main objective of system analysis phase is to study the system that is using nowadays. Therefore, the problems were identified and the problem solution alternatives have been studying for the purpose of learning the tender management procedures. In the analysis phase, the requirements of the system are analyzed, reviewed and documented. The requirements include both functional and non-functional requirements. Analysis methods consider with the system necessity and the information structure. This sub-phase involve careful studying of the manual system and the computer system that is currently using by the managers and the staffs at the company. The analysis phase includes specifying the data model by using Entity Relationship Diagrams and the process model by using Data Flow Diagrams.

Gathered information is restructured again based on relational with each other, while useless data is isolated. System input and output design are generated roughly before comparing with the real system that needed. On the other hand, the cost of operation, time consuming and technical level for the development can be fixed.

About System

TMS In Kadastra will manage all information that relevant with Measurement System for the purpose to make easily information access by the users. Besides, managing the tender information through fully computerize is better than manual system. For example, through the computerize system; customer details can be

easily access in short period. User can refer to file transaction details specifically with fast and accurate. The Measurement System is develop to help the user calculate the tender payment claim that include two type statues, either transaction claims or quotations. The Land Surveyor Board fixes the standard matrixes rate for survey of land fees.

Computerize system is more reliable and accurate. Data analysis will be process very fast and safe. TMS In Kadastra also support the automatically generated reports. Through computerize system, users do not need to worry anymore about the wrong calculation of tender payment tender claims. TMS In Kadastra is developed base on the manual system and existed computerize system, 'Sistem Kadastra Jurukur Jitu Runding Kuala Terengganu'.

Logical Design

Database management system help organizations to organize or structure their data in a logical way so that the data are accessible in Tender Management System. For example, users in Administrator Department may need to access customers details by name, Customer No, IC No and etc. A database management system allows an organization to structure its information so those users can retrieve data in a flexible manner.

Files and processes involve in company operation is specifying by using Data Flow Diagrams and Data Dictionary. Entity Relationship Diagrams has been using for specifying the data model. The main purpose of the ERD is to provide a set of normal relations that can be used to design database that are consistent and free from unnecessary redundancy [1,2]. The E-R model describes a system in terms of entities and their interactions as well as their properties [5]. These system objects are then reduces to a set of normal relations that can be used by designing and implementing the system as a relational database [1].

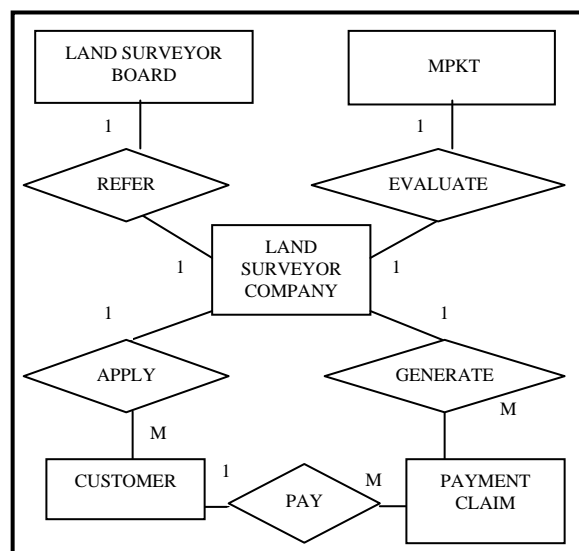


Fig. 1. Entity Relationship Diagram

IMPLEMENTATION

TMS is developing using software such as PHP Editor, Microsoft Front Page, CoffeeCup HTML, MySQL Client GUI and etc. PHP Editor Software was chosen because it can easily detect the error when we do the compilation. Instead of this feature, it also quite user-friendly and support direct access for the information through icons and menus. The interface design have been generated by using Microsoft Front Page and CofeeCup HTML. Using MySQL Client Server is an efficient and effective solution to manage the data. This DBMS support timely data transformation and it also have big capacity storage. MySQL database thus emphasizes the integration of all data is one of the world's most popular database management software and very powerful.

Account Details Customers

Account Details Customers modules supported users to add new records; edit, delete or search the customers details. User can search specifically the account details customers even there were exist different customers that have the same name. The delete conformation has done before any record can be deleting by the users.

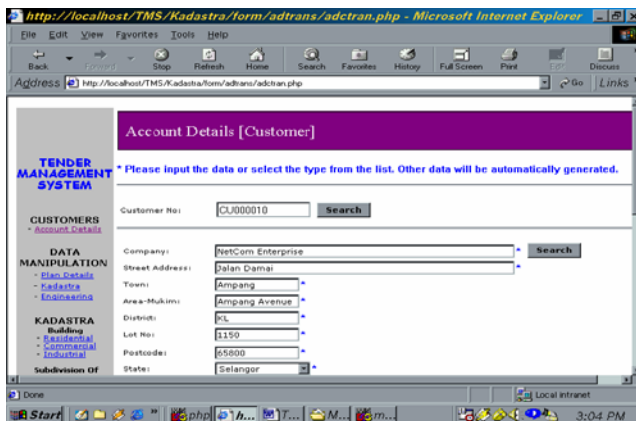


Fig. 2. Interface of TMS In Kadastara for Account Details Customers module.

Kadastara Measurement System

Kadastara Measurement System module give the facilities to user include add new record, edit, delete, data search and user-friendly print report. There are three different processes relate with the tender payment claims:

- A - Fees for the separating of boundary or division
- B - Fees for temporary property (HSD/HSM)

- C - Fees for survey of land

In Process C, there are five categories include building, subdivision of building, agriculture, aquaculture and mining. The building category is split to three types: residential, commercial and industrial; while the subdivision of building category is split to two different types: residential other purpose.

Fig. 3 shows an interface of Tender Management System In Kadastara for the Kadastara Measurement System which is survey of land for buildings with residential category. At the top of the form, banner display the title of tender payment claim type. User need to scroll down the form to complete the tender information.

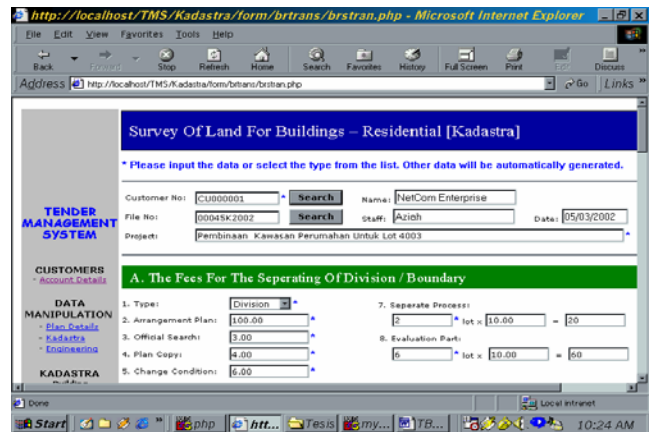


Fig. 3. Interface of TMS In Kadastara for Kadastara Measurement System module.

CONCLUSIONS

Database thus emphasizes the integration and sharing of all data in an organization. In the database approach, data duplication is minimized. Data in different departments are integrated into a logical structure and made available to all on a as as-needed basis. Besides, the database approach has advantages include data independence, reduced program maintenance and eases application development.

The implementation of Tender Management System In Kadastara with the database system model can help users at land surveyor company to manage their daily operation with more effective and efficient. Hopefully, this TMS overcomes most of the problems encountered in the manual system. TMS is software that enables to manage information in this ICT explodes which based on user-friendly feature, effective data control and support files sharing. This system approach allows users to access data in a flexible manner.

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