DEVELOPING MSU-ERDMS with B^+-Tree Indexing

A capstone project

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By

Jomaid A. Cato

Norodien P. Sharief

Professor Mudzna Muin Asakil

Instructor

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Chapter 1
Introduction

In striving to achieve management of documents, organizations have been turning to information technologies, and one of these technologies is the use of an Electronic Document and Record Management System (EDRMS). ERDMS allows the storage of electronic documents to lessen the burden of employees in an institution in maintaining and managing documents. An electronic records environment encompasses the existing records management awareness amongst all officers; records keeping procedures; legal and regulatory framework; safety, security and confidentiality of records; monitoring of records keeping practices; resources and facilities for records management; training and skills for records management; electronic information systems and ICT use; and the management of records emanating from these systems (Nengomasha, 2009).

The intent of this initiative is to increase access to information critical to decision-making for the employees of Mindanao State University – Marawi (MSU-Marawi). It places information centrally as a strategic tool to achieve the objectives of the university.

Indexes help database in finding rows quickly. Indexing a database table means marking a particular column within a particular database table to be stored for use later. Without an index, database must perform a full table scan where the database just looks through a table one row at a time, looking for the desired row or rows. In large tables as an example, this can be slow. An index provides shortcuts which the database can use to help find what it is looking for more quickly. Most MySQL indexes (primary key, unique, index, and fulltext) are stored in B-trees which was also used in the project of Lingga and Muidin (2014) (How MySQL Uses Indexes, n.d). However, B tree requires a traversal of every level in the tree, and this full-tree traversal will likely involve more cache misses than the linear traversal of B+ leaves. B+ tree as a method of placing and locating files (called records or keys) in a database (Concept of B^+ Tree and Extension – B^+ and B tree index files in DBMS, n.d.). The B+-tree algorithm minimizes the number of times a medium must be accessed to locate a desired record, thereby speeding up the process (Concept of B^+ Tree and Extension – B^+ and B tree index files in DBMS, n.d.).

This proposed ERDMS therefore, would intend to enhance the implementation, capabilities and efficiency of the existing system proposed by Lingga and Muidin (2014) notably, through the use of B+ indexing.

1.1. Project Context

The proposed project entitled Developing MSU-ERDMS with B+ Tree Indexing is a website development project directed in handling and tracking documents from the Offices of MSU-Marawi that handle and manage paper documents. It is focused on the development and implementation of the system requirement for the website.

Through this website people can track their documents with ease by providing them information online and a user friendly interface. Potential users of this system can track their documents online without the worry of missing or misplaced documents. Also, the system is expected to minimize the time wasted on retrieving documents and copying of files.

This project began on March 2017 and expected to be done on May 2017 for the capstone project 1 by utilizing the present information about the document tracking system.

1.2. Purpose and Description

This project is intended to leverage the work of the employees of Mindanao State University by developing a system that will automate the document processing and management. This will result to ease of document access, reliable dissemination and management of electronic documents, and lessen or avoids human errors. The implementation of this project will be a great help for the following:

- Admin

  This project will help the MSU-Marawi admin to maintain the management of the electronic document system for ease of retrieval and dissemination. The admin has also all the right in giving the roles and privileges for the different types of accounts.

- Employee

The employee will have designated account to be provided by the admin. The employee will be allowed to upload document files (PDF), lock or unlock a document file, and track related documents. Employees will also be able to download or print an electronic copy of the document.

- General user

The general user will not be required to have an account. However, they can search and view electronic documents set to be publicly viewed. Document files that are locked or prohibited will not be visible to users.

1.3. Objectives

1.3.1. General Objective

The main objective of this study is to develop a new framework that will enhance the development of an Electronic Record and Document Management System in Mindanao State University Main Campus with B+-tree indexing

1.3.2. Specific Objective

- Study the flow of ERDMS developed by Lingga and Muidin (2014).
- Developed a new framework that would enhance the existing system of Lingga and Muidin (2014).
- Develop and implement ERDMS with B+ indexing.
- Test and evaluate the ERDMS of Lingga and Muidin (2014) with the proponent's proposed project.

1.4. Scope and Limitation

This study is focus on enhancing the existing project, MSU-ERDMS. With B+ indexing, the system can retrieve range retrieval or partial retrieval. Traversing through the tree structure makes this easier and quicker. Searching will become very easy.

This project will be bounded by the requirement set by Mindanao State University - Marawi and focused on creating, managing, maintaining, processing, and retrieving of electronic documents. Signing of the document will not be part of the project. Signing will be manually done. The file types that will be allowed in the system are pdf, jpeg, png, and gif. There will be no mobile implementation for this system.

1.5. Significance of the study

Keeping track of all documents and records in Mindanao State University was never an easy task especially when documents and records were only paper-based. Thus, the document management in the university is currently in a manual process. These manual processes are often turned out to be inefficient, error-prone and time-consuming.

With this proposed project, the problems that MSU are facing might be lessened especially in managing records and documents. This proposed project will help in organizing documents in efficient manner, so that any documents can be found whenever needed. It will enable users to search and retrieve documents quickly. It will maximize the workspace of the office such as desks, storage(s) by reducing the number of papers used. It will also, of course, make your time valuable.