

SMART DEPARTMENTAL DATABASE FOR ACADEMIC ADMINISTRATION

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ABSTRACT

Database system has become the primary mechanism used in various areas to store and manage their important information. This system is a Static Web-based Database Management System in a Teaching Department of a University. It is based on various departmental documents of Engineering Department of Y.T.U. The basic information of the department. is organized by five pages. They are Home, Contact, Labs, Information and Database. Database page is the main entry of the departmental database system. The departmental data are mainly classified into three categories: Documents, Forms and Records according to QMS system. There are two different types of records in teaching department. Office records are designed by twelve months and the teaching and learning records are designed by academic year or semester. The system is created by open source programming for user friendly access.

KEYWORDS: Database, Open Source

INTRODUCTION

Today, various data are typically collected in digital form. With the progress and advancement of computer systems, database is necessary part not only for modern organization, even small businesses are compelled to use this magical system of this century. Database system has become the primary mechanism used in various areas to store and manage their important information. Because information is so important in most organizations, computer scientists have developed a large body of concepts and techniques for managing data.

Databases are widely used. Here are some representative applications:

- (1) Universities,
- (2) Manufacturing,
- (3) Human resources,
- (4) Banking,
- (5) Airlines, and
- (6) Finance.

These concepts and technique form the focus of this research. The aim and objectives of this research are to develop a computerized departmental database management system and to reduce the paper work and save time in departmental management.

The static web-based system is designed and developed for a teaching department. The documents are divided into two portions: academic information and office information. According to academic year, the academic information of a department can be searched. The office data can be searched year by year.

There are three main tasks in the developing of this research. The first task includes three steps: analysing departmental documents, collecting database and studying HTML and CSS. Secondly, data structure is planned and designed. Then the static web pages are written in HTML using CSS and implemented. Finally, the software is ensured and verified.

PROGRAM DEVELOPMENT AND DATABASE SYSTEM DESIGN

Web development is the process of developing websites or webpages hosted on the Internet or intranet. While there are a couple of basic languages in common use, other languages are used specifically for client-side scripting or server-side scripting. Hyper Text Markup Language (HTML) and Cascading Style Sheets (CSS) are the two most basic web development languages, and are used to build nearly all webpages on the Internet. These two languages provide the basic structure and style information used to create a **static** webpage — a page that looks the same to everyone who visits it. Many webpages now are **dynamic** webpages, which can be tailored to each new visitor.

In this system, documentation is based on information of Engineering Department of Yangon Technological University. For QMS the documentation of the department is categorized by three different types. They are forms, documents and records.

Main database system design with five pages including entry window to departmental database is shown in Figure 1.

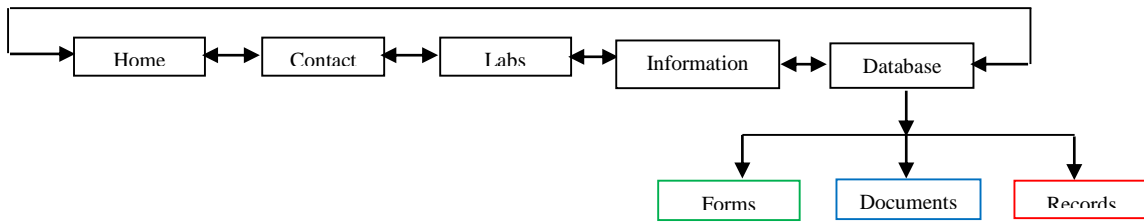


Figure 1. Main Database System Design

Forms Used in Department

Form is a fixed template, and there are several different types of forms used in the department. Some of them are as follows:

- (1) Incoming Letters,
- (2) Outgoing Letters,
- (3) Office Attendance,
- (4) Outpass Record,
- (5) Departmental Library,
- (6) Laboratory Equipment,
- (7) Meeting Record Form, and
- (8) Students' Attendance.

The forms are stored in pdf format. For example, incoming form is saved as incoming.pdf. These form files are linked from the form.html. Form design is shown in Figure 2.

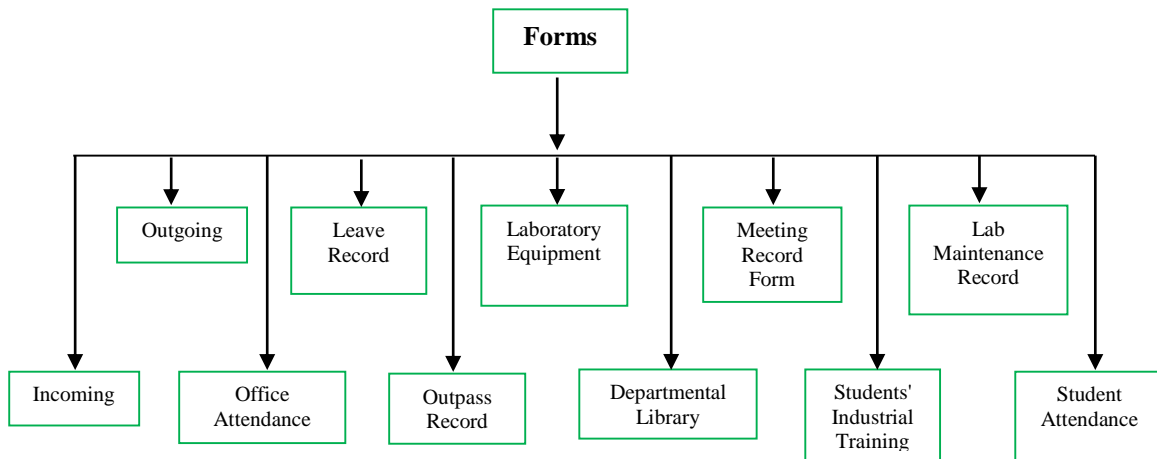


Figure 2. Data Structure Design for Forms

Documents Used in Department

There are six different types of documents in the department. They are:

- (1) Quality Manual,
- (2) Quality Procedure Manual,
- (3) Work Instruction Manual,
- (4) Management Review Meeting,
- (5) Course Learning Outcomes, and
- (6) Text Books and Reference.

Quality Manual, Quality Procedure Manual, and Work Instruction Manual are saved as pdf files. The management review meeting is organized by year. The course learning outcomes, text books and reference are organized by academic year. Figure 3 shows data structure design for documents.

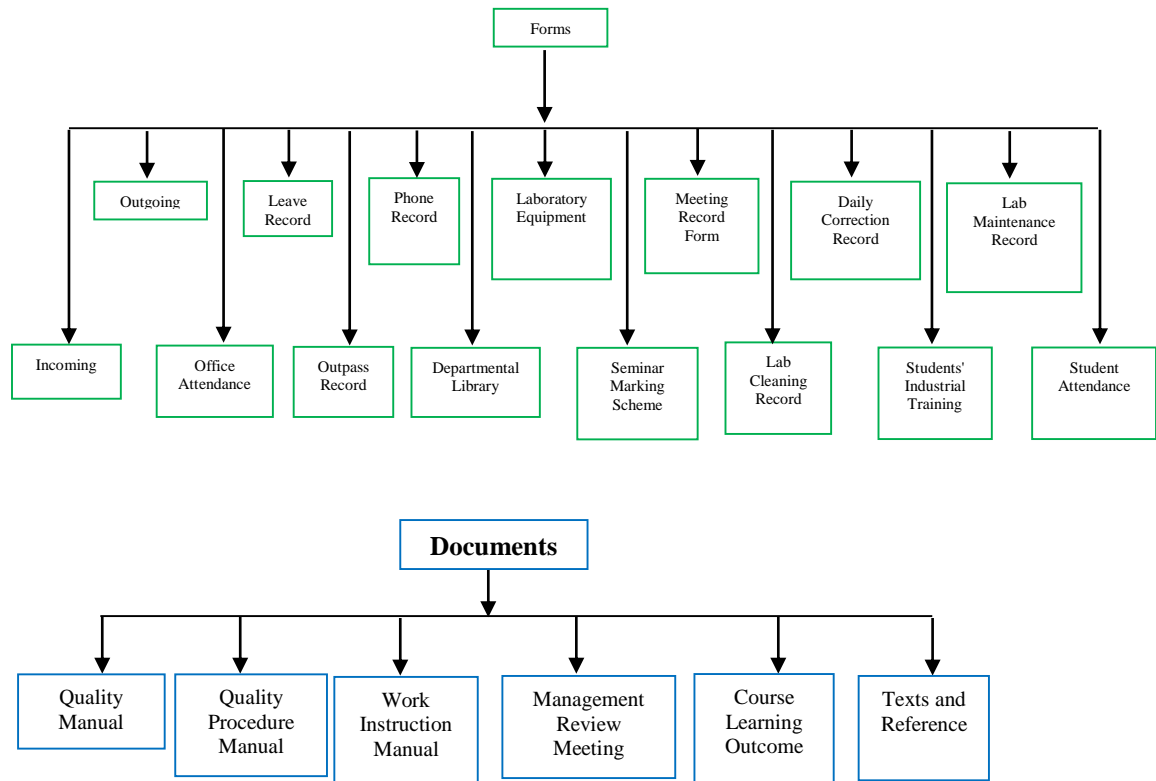


Figure 3. Data Structure Design for Documents

Records Used in Department

There are various types of records stored in the department. Some of them are as follows:

- (1) Curriculum and Syllabus,
- (2) Attendance Sheet,
- (3) Evaluation,
- (4) Student Training Records,
- (5) Responsibility Records,
- (6) Staff Training Records,
- (7) Non-Conformance Report,
- (8) Organization Chart,
- (9) Office Attendance,
- (10) List of Equipment,
- (11) Questions and Marking Scheme, and
- (12) Syllabus and Curriculum Meeting Record

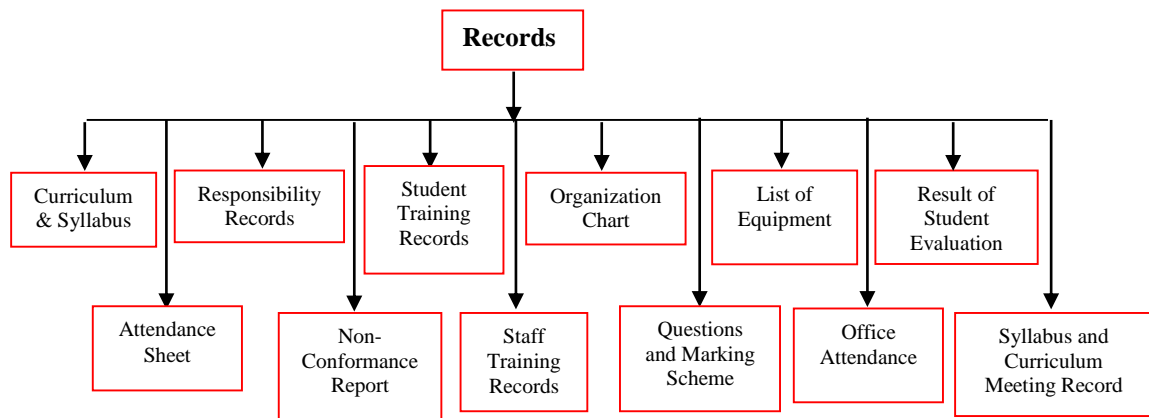


Figure 4. Data Structure Design for Records

Among these records, office records are organized by year and each year record is divided into twelve month records. The incoming letters is divided into twelve months in each year. The incoming letters files for twelve months can be searched in incoming letters path. Some of them are as follows.

- (1) ILJanuary.pdf
- (2) ILFebruary.pdf
- (3) ILMarch.pdf
- (4) ILApril.pdf
- (5) ILMay.pdf
- (6) ILJune.pdf

The teaching and learning records are organized by academic year or semester. They are divided into different academic months. The student attendance is divided into eight months in each year for two semesters. The following monthly student attendance files can be searched in first semester in each year path.

- (1) MEAttendDec2015_2016.pdf
- (2) MEAttendJan2015_2016.pdf
- (3) MEAttendFeb2015_2016.pdf
- (4) MEAttendMar2015_2016.pdf

RESULTS AND DISCUSSION

In this system, the main pages are **Home**, **Information**, **Labs**, **Contact** and **Database** pages. Home page presents main window of the system. Information page shows the brief explanation of the system, Labs page illustrates the photos of departmental laboratory and Contact page displays the address and photo of the department's building. Database page is the entry window of the departmental database.

Home page is saved as "home.html". Home page is composed of two portions; large header and footer.



Figure 5. Home Page

In header, there are main menu and title of the system on the background image of the main building of Yangon Technological University (Y.T.U). The width is 800 pixels and the height is 530 pixels. Developer name is displayed in footer window. The background color of footer is #E3ECEC and its size is 800 pixels × 100pixels. Figure 5 shows Home Page.

Information is composed of three portions; header, content and footer. It is saved as "information.html". In header, there is main menu on the background image of the main building of Y.T.U. The width is 800 pixels and the height is 200 pixels. The brief information of the system is in content window and the size is 800 pixels×350 pixels and the background image uses a blur image of a swel taw flower. The developer name is displayed in footer window. The background color of footer is #E3ECEC and its size is 800 pixels × 100 pixels. Figure 6 shows Information Page.



Figure 6. Information Page

Labs page is composed of two portions: header and content. In header, there is main menu on the background image of the main building of Yangon Technological University. The width is 800 pixels and the height is 200 pixels. The content window illustrates the photos of departmental laboratories. The background color is #EEEDA3, and its size is 800 pixels × 600 pixels. Figure 7 shows Labs Page.



Figure 7. Labs Page

Primary database page is composed of three portions; header, content and footer. In header, there is main menu on the background image of the main building of Yangon Technological University. The background color of entry window is #E033A3.

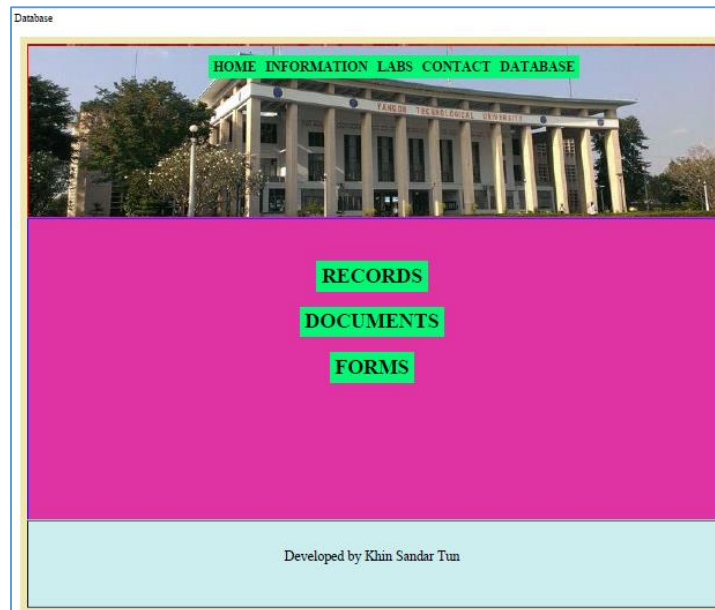


Figure 8. Database Page

The record selection page is designed in top-down format. If office attendance is selected, the office attendance page by year will be linked. Office Attendance Page by year is shown in Figure 9.



Figure 9. Office Attendance Page by Year

When one of year buttons is selected, the monthly office attendance page appears. Figure 10 shows monthly office attendance page. Then, one of month buttons is selected, the file of office attendance in selected month will be opened.

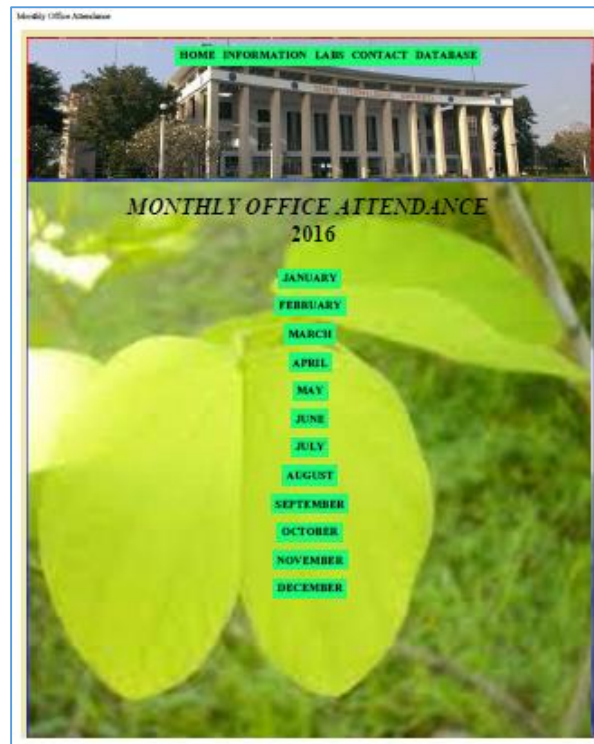


Figure 10. Monthly Office Attendance Page

CONCLUSION

According to the basic criteria of the QMS system the teaching department of a university needs the systematic documentation process. This system is designed for computerized documentation to support the QMS for teaching department of a university.

In this system, there are five main pages and Database page is the entry window of the departmental database. This system is based on three types of documentation of QMS: forms, records and documents. All departmental documents are stored in database and can be linked as pdf files due to relevant paths.

Each main page is composed of two or three portions: header, content and footer. According to the need of web design, the parameters of each portion of web page are different; for example, width, size, font, colour, background and etc. This static web page program is created by HTML using CSS. In this system HTML 5.0 and CSS version 3 are used. This system can be used in all teaching departments in technological universities by changing the departmental data files.

ACKNOWLEDGEMENTS

I would like to express special thanks to Prof. Dr. Maung Maung Latt, Rector, Technological University (Taungoo), for his helpful suggestions, advice and true-line guidance. Moreover, I would like to express thanks to Ms. Khin Kyu Kyu Win, Lecturer, Department of Electronic Engineering, Yangon Technological University and Ms. Thi Thi Soe, Lecturer, Department of Electronic Engineering, Yangon Technological University, for their kind encouragement, invaluable suggestions and good motivation.

I also want to thank my family, teachers and all of friends for their support and encouragement.

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