

PRELIMINARY DEVELOPMENT OF A PORTAL FOR LECTURER WEB DATABASE SYSTEM

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ABSTRACT

This paper discusses the development of a model for lecturer web database system. The database system is developed using the Microsoft Access 2000 as the database and Active Server Pages for the interface. The database has been developed using Relational Database Management System (RDBMS) model. The database comprises 4 major entities which are university, faculty, department and lecturer. There are 6 attributes for university, namely ID, university name, address, phone, fax, and website; 6 attributes for faculty, namely ID, faculty name, address, phone, fax, university; 6 attributes for department, namely ID, department name, address, phone, fax, and faculty; and 16 attributes for lecturer, namely, name, identity card no, department, phone no, email, academic qualifications, professional memberships, positions, teaching, research, publication, consultation, expertise, conference, service, and awards. The system is online and capable of running several functions such as data collection, search, report and user's information record. The system will be a part of e-learning application of which lecturers are able to put academic and teaching portfolio online. It will be the source of information for users to seek all sorts of expertise, research, seminars, consultancy and others.

INTRODUCTION

Lecturers online database system, namely, eLecturers.net is a model for academicians' web portal. It will be a part of an e-learning application which allows users to interact with the system in the process of disseminating knowledge 24 hours a day. The system comprises of basic information sought by users - either students, researchers, corporate governance or the public. The system will be suggested to be a portal for all high learning institutions' lecturers in Malaysia.

eLecturers.net would allow interactions between academicians and students 24 hours a day and 7 days a week with content management web sites and online articles and lecture notes. It hopes to be a reference in finding and consulting academic scholars. Future advancement of the project which incorporates more affiliate applications would enhance the systems.

MATERIALS AND METHODS

We used a technique called the systems development life cycle (SDLC) to plan and manage the systems development process. The SDLC includes the following steps: systems planning, systems analysis, systems design, systems implementation, and systems operation and support (Cashmen 2001).

Systems planning

The purpose of the planning phase is to identify clearly the nature and scope of the business opportunity and problem by performing a preliminary investigation, often called a feasibility study. Therefore, the scope of this project is to develop a model lecturer online database. This system is able to manage lecturers' information for the whole high learning institution in the country. This system could facilitate the scholars' information for the public and industry. The end product is a report that describes business considerations, reviews anticipated benefits and costs, and recommends a course of action based on economic, technical, and operational factors.

Systems analysis

The purpose of this phase is to understand business requirements and build a logical model of the new system. The first step is requirement modeling which involves various fact-finding techniques, such as interviews and observation. Next, we constructed process modeling and data modeling where we developed a logical model of business process the system must support. The end product for this phase is the system requirement document that describes management and user requirements, alternative plans and costs, and our recommendation. Below is the context diagram that depicts a general view of the process modeling that describes the boundaries of the system.

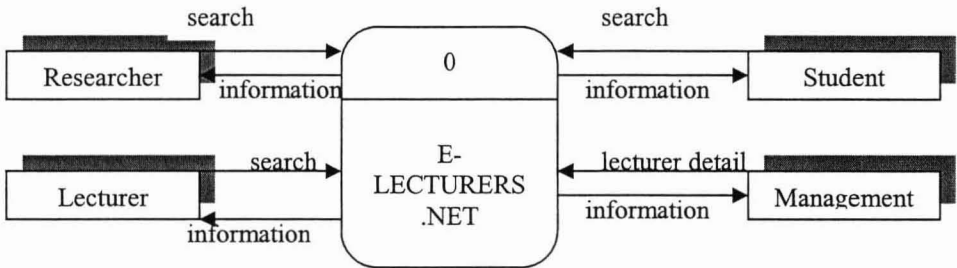


Figure 1 : The Context Diagram represents the logical model of Lecturers Database System

Systems design

The purpose of this phase is to create a blueprint for the new system that will satisfy all documented requirements. During systems design, we identified all necessary outputs, inputs, interfaces, and processes. In addition, we designed internal and external controls, including computer-based and manual features to guarantee that the system will be reliable, accurate, maintainable, and secure. The system uses Relational Database because it is a flexible and powerful database model. A relational database use common fields, which are attributes that appear in more than one table, to establish relationships between the tables and form an overall data structure. The figure below shows an entity relationship diagram for the system.

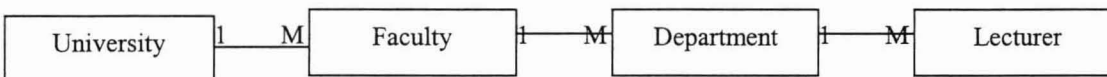


Figure 2 : Entity Relationship Diagram

The attributes for the above entity relationship diagram are as follows:

UNIVERSITY (ID, university name, address, phone, fax, and website)

FACULTY (ID, faculty name, address, phone, fax, *university*)

DEPARTMENT (ID, department name, address, phone, fax, *faculty*)

LECTURER (IC, name, *department*, phone no, email, academic qualifications, professional memberships, positions, teaching, research, publication, consultation, expertise, conference, service, and awards)

Systems implementation: During this phase, we constructed the system. We wrote the programs, tested, and documented. Finally, the system was installed.

User levels: The system consists of three user levels for security and management: Normal user, Registered Lecturers and Administration. The system will give the users the flexibility to obtain the required information about Malaysian academicians and scholars.

Systems operation and support: During this phase, we maintained and enhanced the system. A well-designed system is very important because the system will be reliable, maintainable, and scalable which can expand to meet new business requirements and volumes.

RESULTS AND DISCUSSION

Normalization of ERD: Result of our research, we found that all entities involved in the database are as follows.

UNIVERSITY (ID, university name, address, phone, fax, and website)

FACULTY (ID, faculty name, address, phone, fax, *university*)

DEPARTMENT (ID, department name, address, phone, fax, *faculty*)

LECTURER (IC, name, *department*, phone no, email, academic qualifications, professional memberships, positions, teaching, research, publication, consultation, expertise, conference, service, and awards)

Benefits: Among the benefits from this database system are:

- This system is easy to maintain and save time and money in the process of updating the data;
- Bring new competitive advantages to organization by providing new and better services to students, researchers and the public and use better ways of providing information services;
- The system is developed as a web-based application. This will give the users the ability to access the system anywhere and anytime;
- Information retrieval is easier and more flexible. Thus, the system can improve productivity, enhance effectiveness and increasing efficiency; and
- Data security is enforced where only authorized users based on user levels are allowed to modify or update the information.

Suggestion and Future enhancements: To upgrade the system and the database of academicians and scholars in general, we suggest some enhancements to the system:

- Search engine is one of the additional criteria that can be included in this system. The search engine can be specific to trace users' passwords, in case they forget them. Without this mechanism, users will have to contact the database administrator to get their passwords. This will be more time-consuming and will affect the system's performances;
- Upgrade the database management system to a better and more powerful client server DBMS;
- Include more communication capabilities of the system such as discussion board, electronic mail and short messaging system; and
- Provide a more flexible ad hoc query for user for search for the information in the database.

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