Entrance Data Management System for Universities

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Abstract

This paper focuses on developing an application for entrance data management system which helps to handle unstructured large volume of yearly student data in maintaining database efficiently. Data Management comprises all disciplines related to managing data as a valuable resource. To make sense of the vast quantities of data that universities are gathering, analyzing, and storing and turning to data management solutions and platforms. Data management solutions make processing, validation, and other essential functions simpler and less time-intensive. The Entrance data management system is implemented by Structured System Analysis and Design Methodology (SSADM) procedure so it can be used and managed easily for system user reducing work load and time consuming. Admins are able to harness the power of their data and gain the insights they need to make the data useful.

Keywords: SSADM, Entrance Data Management System

Introduction

This paper presents a data management system, with an emphasis on how to organize information in a database management system and to maintain and retrieve it efficiently. If the data was not well defined, the data would be mis-used in applications. The approach SSADM taken in this paper is to emphasize how to manage data, while covering system implementation and architecture in sufficient detail to understand how to design a database. Universities are making use of student data to inform decisions and gain student data reports for student affairs.

Objectives

Objectives of this paper are outlined as follows:

- ☑ To maintain records for yearly students' entry.
- ☑ To support decision making by providing fast and exact information retrieval
- ☑ To manage students' data and staff data easily
- ☑ To reduce staffs' work load and time-consuming tasks
- ☑ Improve data access, speed iterative testing
- ☑ Empower collaboration between Admin, staff and students
- ☑ Automate and simplify operations
- ☑ Support operations growth

The Entrance Data Management System is implemented by step by step procedures of SSADM (Structured System Analysis and Design Methodology) to support the data management process of university's student affairs Admin and staff.

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Structured System Analysis and Design Methodology (SSADM)

The SSADM method involves the application of a sequence of analysis, documentation and design tasks concerned with the following stages in Figure 1.

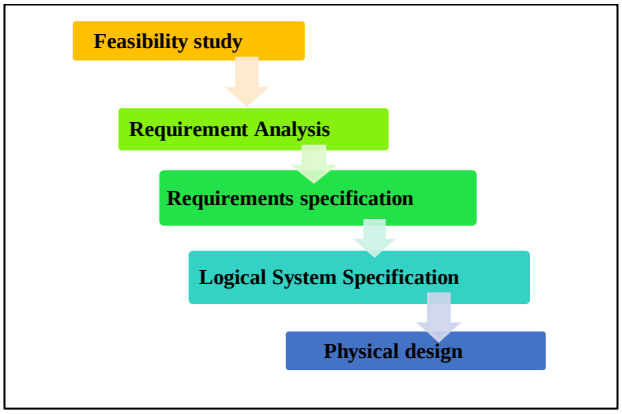

Figure 1 Stages of SSADM

Stage 1 – Feasibility study

In order to determine whether or not a given project is feasible, there must be some forms of investigation into the goals and implications of the project in technical, financial, organizational and ethical areas.

Stage 2 – Requirement Analysis

In requirement analysis stage, such as a combination of interviewing staffs, circulating questionnaires, observations and existing documentation, the analyst comes to full understanding of the system as it is at the start of the project. The outputs of the previous stage become input to the current stage. The output of this stage is the selected option for several requirements in feasibility study result.

Stage 3 – Requirements specification

The analyst must develop a full logical specification of what the new system must do. The product of this stage is a complete requirement specification document which is composed of all of the aspects that must conform to any constraints imposed by the organization such as available money and standardization of hardware and software. The output of this stage is a chosen technical system option.

Stage 4 – Logical design

The logical design specifies the main methods of interaction in terms of menu structures and command structures. These are the main interfaces in which the users will interact with the system.

Stage 5 – Physical design

This is the final stage where all the logical specifications of the system are converted to descriptions of the system in terms of real hardware and software. The logical data structure is converted into a physical architecture in terms of database structures. The product is a

complete Physical Design (User Interface Design) in specific details of hardware and software and to the appropriate standards.

Results and Discussions for Proposed System of EDMS

The system store students' data systematically and can retrieve required information easily. Admin can register new students' entry data and update students' data according to yearly changes. Students' information can be searched by Student ID, Major, NRC No and total mark. By implementing the procedures of Structured System Analysis and Design Methodology (SSADM), staff can reduce a lot of time and work load with simple automation system.

Firstly, users have to register in Login form either admin or staff with password respectively in (Figure 2). Then they can get access to related data management roles. This system has two sites; admin site and staff's site. In staff site, staff can register and save yearly student admission data in (Figure-3). In admin site of this system, admin staff can enter user name and password correctly for data security. Admin can manage (find, update, search and delete) student and staff data clearly.

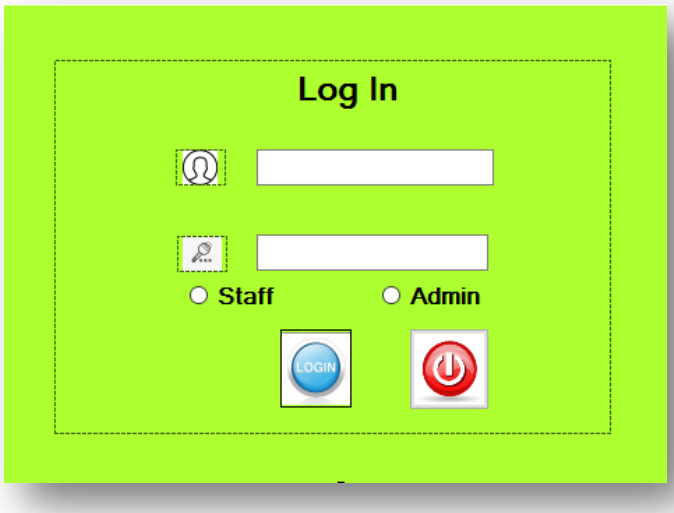

Figure 2 User Log in form (Controlled by password)

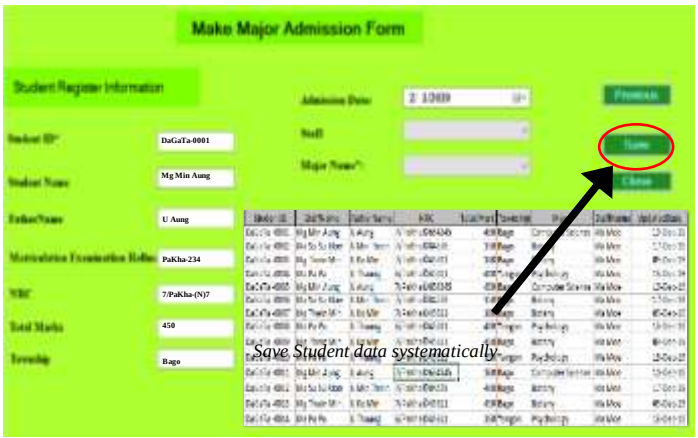

Figure 3 Student Registration form

The problem domain of this system is query (Retrieve) the required data of students. User can retrieve the university students by major by namely, student ID and NRC no in (Figures 4,5,6).

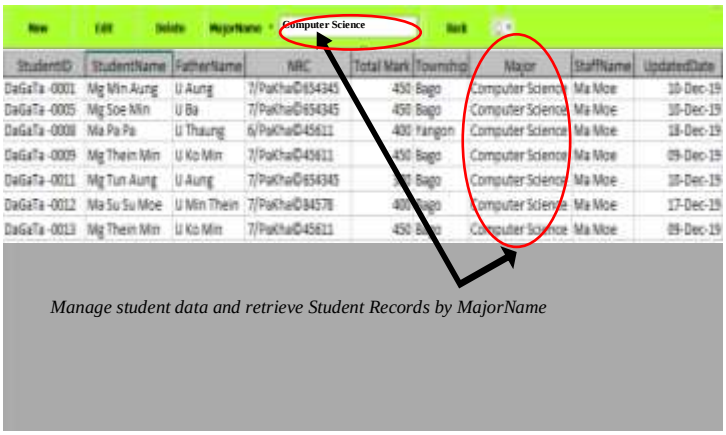

Figure 4 Search by Major Name

Figure 5 Can serach Student's information by (StudentID/NRC/Total Marks/Name)

Figure 6 Search by Student ID

The proposed method generates the input query consists of number of objects or databases or data sets. Each data set has its own schema and number of tables or relational objects where the original information is stored. Each relational object has number of properties or attributes which constructs the rows of a table (Student Table- StudentID, StudentName, FatherName, NRC, TotalMark, etc.). For any simple execution of a small query, the query execution module has to possess the schema of the relational object and has to identify which object is necessary to perform the execution of input query.

The main advantage of this system is managing and retrieving the yearly income student data easily. Entrance Data Management System (EDMS) provides the following types of result generally:

1. Admin can analyze the total registered students to university yearly.
2. Admin can maintain records for yearly students' entry.
3. Admin's decision making is improved by fast and exact information retrieval
4. Admin can manage students' data and staff data easily
5. System can reduce staffs' work load and time-consuming tasks
6. Office Automation process results simplify operations

The illustration of Data Flow Chart in (Figure 7) to clarify the step by step data transformation of Entrance Data Management System is carried out as part of SSADM approach.

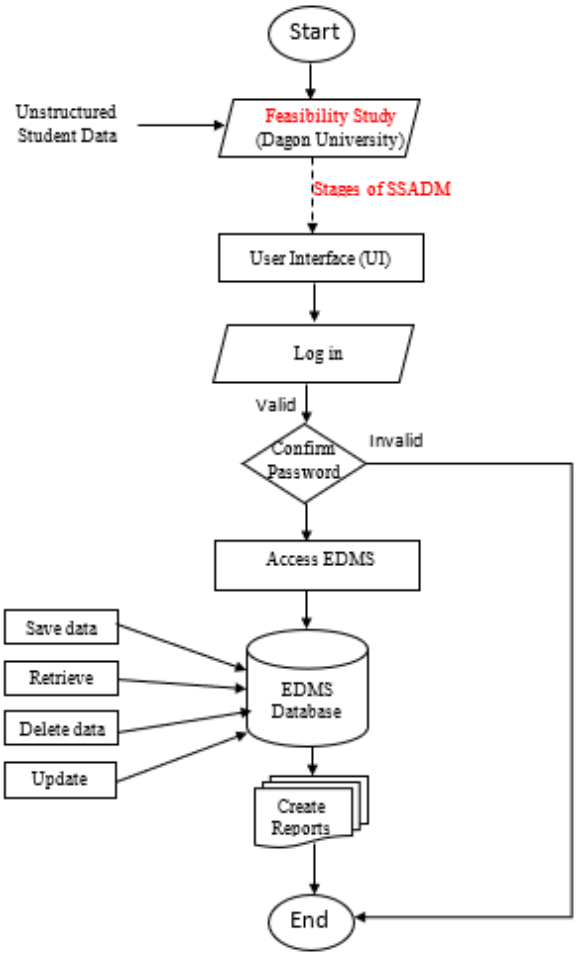

Figure 7 Flow Chart of Entrance Data Management System

Admin staff can improve decision making concerned with student data report because system is implemented by database management system using yearly income student data table by major in (Figure 8).

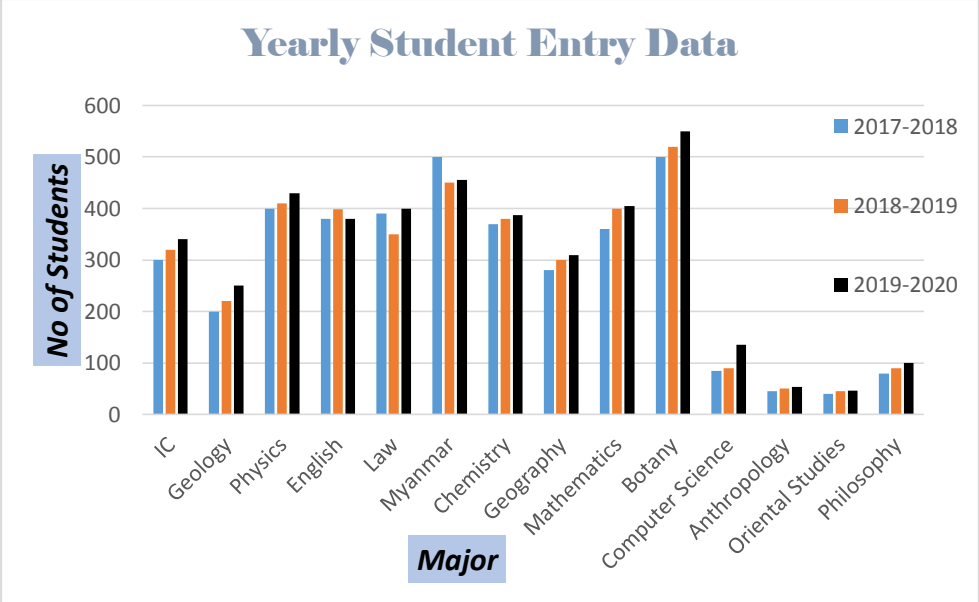

Figure 8 Yearly Student Entrance Data Chart (2017-2020)

The EDMS system design and development are to create the academic Admins with a tool for organized information access, enable assessment of academic statistical data for evaluation of part of the entrance data management. These facts can be achieved and the following objectives are available:

- This system is a computerized software unlike most current systems, which necessitate manual data extraction and evaluation,
- Create the student database for adaptation of universities' student affairs service.
- Design, implementation and analysis of a software system suitable for general university environments.
- Implement of intelligent user interfaces for easy navigation and gathering of required information from the databases
- Demonstration of powerful techniques for achieving the aims of the project.

As a result of the program, administrator and staff in university student affairs office can manage yearly student entrance data effectively. Traditional paper-based office system can be replaced with computerized system reducing work load of staff, accelerating daily office work.

Conclusion

The system is proposed for saving time, increasing data integrity, sharing required information and updating large volume of students' data easily. It is very simple to use and reduces the work load of staff by implementing Structured System Analysis and Design Methodology (SSADM). Structured System method implementation makes entrance management system reliable in admin and staff access right. University's Student Affairs Admin can update, search, delete and retrieve required information effectively. In conclusion, this paper analyzes the university students' entrance data management usage in structured system analysis and design methodology approach.

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