Based On Mobile Application: A Centralized Faculty Administration System For Students In Iraq

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ABSTRACT. Numerous software are now able to provide a variety of information and services via mobile devices, due to the vast improvement in the capabilities of wireless communication networks. The aim of this paper is to create a mobile web-based on centralized faculty administration system to provide students with university/college information and services. Depending on the B/S structure, an interactive management platform is designed to manage and transmit student information.

Keywords: Information, student management, information system, mobile application.

Introduction

Recently, wireless technology has attracted the interest of engineers and researchers throughout the globe because it facilitates Internet access and communication services for end-users (LIU et al., 2013, LIN et al., 2006; YANG et al., 2002).

The development and significance of this technical breakthrough have provided a unique makeover to the manner in which people communicate with one another and have created great opportunities in a variety of disciplines, including the education sector. As educational platforms, colleges and universities are not far away from this advancement and they use Internet and communication services to access a large audience and also to improve their operational efficiency. With the help of these services, colleges and universities can more effortlessly handle their students' information in terms of recruiting and retention. However, till now, most of the colleges and universities in Iraq have lack of effectively utilizing information resources in terms of centralized student management. Consequently, this work offers a system based on mobile applications for handling student information that facilitates the unification of diverse university/college departments.

The proposed system would enable students to access academic material from their mobile devices at any time and location, such as examination results, course-related information, personal information, announcements, and course registration.

2. System Design Concept

The centralized faculty administration system focuses on the entire growth of students and the establishment of a mobile web-based system that is accommodating and advantageous for maintaining normal education and teaching environment.

Managing student information involves collecting, storing, and analyzing voluminous amounts of data, such as various student information resources. And therefore, the achievement of an optimized system requires an efficient mechanism for: collecting information and facilitating communication; incorporating the management of students' information via network operations; minimizing the workload associated with students' information management; enhancing the technological effectiveness of students' information management; and promoting the effective management of university/college students. in this paper, the authors propose a design to provide a platform for staff to provide students with information services via mobile devices. The academic staff will handle student information using web browsers on PCs, whilst students will access information and services using mobile web browsers (Guan et al., 2008) on mobile devices. Mobile devices have a variety of limits, such as smaller screen size and a restricted keypad (Aijaz et al., 2007; Chang-an and Qi, 2006; YANG et al., 2002) (Di Lucca and Di Penta, 2003; Ravi et al., 2004), which hamper the system's effective operation. The academic staff, therefore, use PCs, which are suited for management systems.

3. Structure of System

3.1. Functional Plan

Six modules comprise the centralized faculty administration system: (1) academic affairs information, (2) student affairs information, (3) score information management, (4) hostel information management, (5) financial information, and (6) system management, see figure (1). These six modules are accessible via the main interface's menu bar, which incorporates these modules. The proposed system will be used by two types of users: (i) the academic staff will use the system through web browsers; they are authorized to modify, edit, and delete information; and they will be able to perform these operations with high security; (ii) the second category of users are students; they have limited privilege in using the system, where they are only permitted to record their own information (such as the contact information of their parents) into the system; and (iii) the third category of users are administrators.
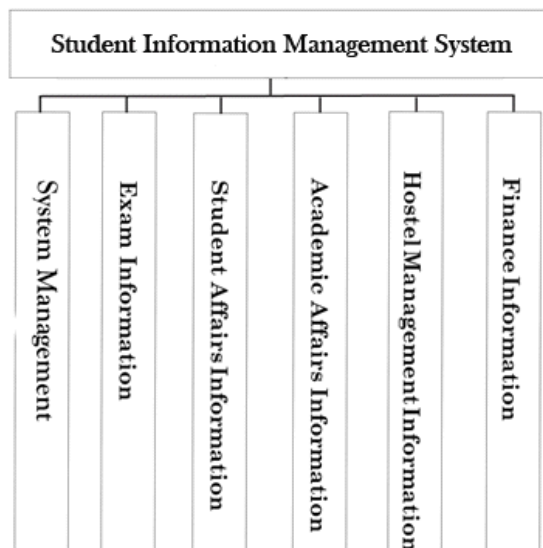
Figure 1 Overall System Function Module

In addition to Arabic, this system also supports English; thus, to prevent grammatical and collocation errors, the Proofing, and Collocation toolbars, which are powerful tools in this regard, are included. For instance, if a user randomly navigates a website, the collocator will automatically identify if any collocations exist in the article. If any collocations are discovered, the system will highlight them for the user and compare them to the learner corpus to identify collocations that correlate. Additionally, the system enables a variety of advanced writing tools for the staff to update and develop student-specific online guide materials. After the materials have been modified, they are saved in a database of resources for student usage. In addition, the system provides a way for information agents to direct students to the right knowledge path and minimize information overload, see figure (2).
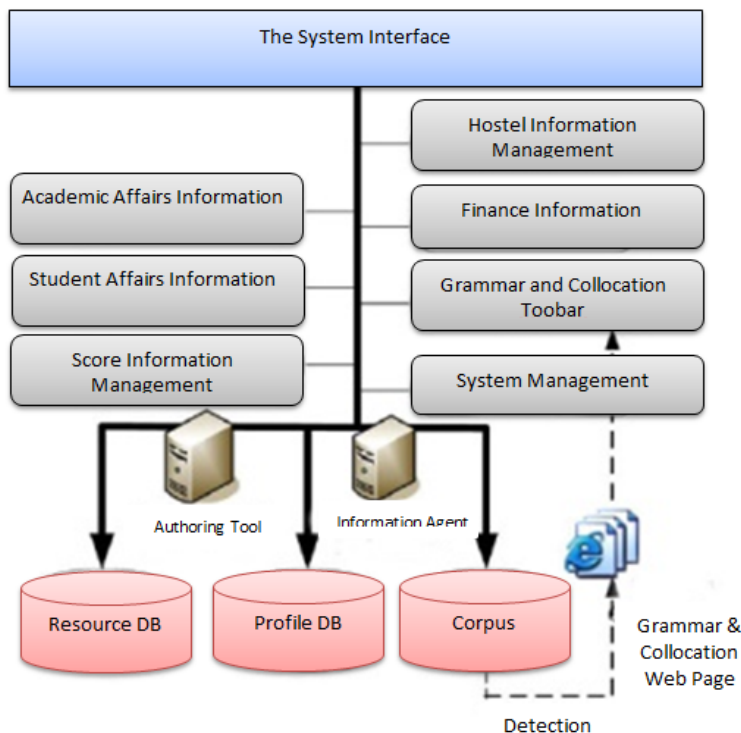
Figure 2 Web Service Architecture

3.2. System Design

Depending on the browser server (BS), integrating diverse student information resources into a central database and constructing a mobile web-based solution to enable university employees to handle diverse student information resources from a single access point (Tu and Guo, 2011). The conceptual foundation of the information technology management system utilizes three layers of B/S (Su et al., 2009) to complete system functioning, which includes the web and mobile web browser, see figure (3). The incorporation of a mobile web browser into the B/S model provides several advantages to student information services, including the flexibility and mobility of portable devices, which are suitable for students to access the database via a mobile device (Khiem et al., 2007).
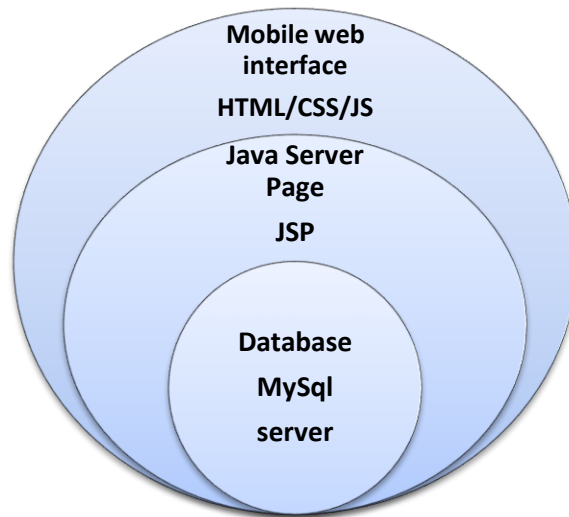
Figure 3 Three Layers Structure of B\S

The following describes the functioning of the three-layered system:

• The first layer, the user interface layer, presents the entire system to users in the form of web and mobile web pages; academic staff will access the system via the web browser to manage all types of information, while students will access the system via mobile web browser on their mobile devices to obtain information and services at any time, and from any location.

• Business logic layer: This layer serves as a bridge between the interface layer and the data access layer. It consists of logical judgment, business processing, and data transfer. The interface layer does not access the database, which makes the data more safe. This layer receives requests from the browser, transmits them to the data access layer, and simultaneously returns the result of processing to the browser (Yang, 2010).

• The third layer is the database layer; the database server's role is comparable to C/S mode (Chinnappen and Hancke, 2003) in terms of coordinating various logical components to deliver MYSQL service requests (Lorincz et al., 2007). The data layer is the backbone of the entire system, providing functional modules with services such as storing data operation results and returning data search results.

4. Database Design

Since the system has a broad purpose, works for an extended length of time, the volume of information stored in the system will be enormous, and it must serve the demands of a large number of users, it is vital to create a highly efficient system that can handle all these big data (Katz, 1983). The system includes a variety of student information resources, such as information related to academic affairs, student affairs, results information and hostel information management, as well

as finance information. All of these student information resources are designed on a relational database, making it simple for the academic staff to add, insert, and delete information.

5. Conclusion

This paper designs a system to help universities/colleges in centralizing their various information resources. Proposed system modules include academic affairs information, student affairs information, score information management, hostel information management, financial information, and system management. Also, advanced tools were proposed such as authoring, proofing and collocation, and information agent mechanism for supporting both staff and students. Finally, a simple interface was proposed to avoid mobile constraints and to meet student's needs.

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