Design Student Examination Mark-sheet Management System for Lebanese French University (LFU

Chiai Al-Atroshi

Information Technology Department / Lebanese French University

chiai@lfu.edu.krg

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ABSTRACT

In this paper, a custom student examination mark-sheet management system (SEMMS) is developed to overcome the problems that arise in the manual system, avoid errors while entering the data, and makes seeking information easier. The results show how useful this software is in helping LFU University and its student: 1) perform their work faster, create a better-looking diagram; 2) plan a good layout before implementing a real network; 3) keeping their information secure; and 4) make their management easier. The software provides an attractive environment where data about college students and employees can be handled easily.

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INTRODUCTION

Computer applications have dramatically influenced in our social lives, including educational systems. Traditional methods need to be reconsidered and electronic and automatized examination systems be incorporated [1]. Thus, automatic examination systems became very beneficial in various academic fields in recent years [2]. In this article, the design and implementation of a comprehensive college/institute examination mark-sheet management system and user interface is provided to replace the current paper-based examination form. College staff are able to directly access all aspects of a student's academic.

The design and implementation of the system is to provide service in institute and colleges. The system is to provide comprehensive student information system and user interface is to replace the current paper records. College Staff uploads students, teachers, subject results, and college notifications through a secure, online interface using computers and mobile devices. All data is thoroughly reviewed and validated on the server before actual record alteration occurs. All data is stored securely on MySQL database managed by the college Administrator. The system decreases paper work and time needed to access student records. Previously, college relied heavily on paper records for this initiative, which had its own disadvantages. This system provides a simple interface for the maintenance of student information. It can be used by educational institutes or colleges to maintain the records of students easily. Achieving this objective is difficult using a manual system as the information are scattered, can be redundant and collecting relevant information may be very time consuming. Our proposed system ensures to overcome these limitations. The paper focuses on presenting information in an easy and intelligible manner, which provides facilities like online registration and profile creation of students, examination marks monitoring, circular notifications, result viewing thus reducing paper work and automating the record generation process in an educational institution. There is an increasing trend for higher education institutions to be expected to monitor student records. This software generates reports on the results of research that considered the effect of attendance on student performance; surveyed planning students about attendance issues, shared the results with colleagues including agreement on a Departmental policy change, and assessed the approach academic staff should take towards poor attendance.

Literature Review

School administrative computer applications were developed in the late 1970s. In the early 1980s, several loose, non-integrated clerical designed had limited management support and data analysis capabilities [3]. During the initial stages, software development and usage aimed at improving the efficiency of school office activities. The use of computers and technologies in educational institution was to store student and personnel data [4]. The value of information management was recognized during the integration stages. Therefore, governments in developed

countries initiated many projects to achieve efficient and effective school information systems. The focus was on the development of a standard system for as many schools as possible with maximum flexibility. The professional approach to systems design was not widespread at the time. In the 1990s, Information and communication technology (ICT) was increasingly used in the developing countries to collect educational data and streamline the educational systems [3]. believes that Management Information Systems (MIS) can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation [5]. claimed that MIS has changed school management in the areas of leadership, decision making, workload, human resource management, communication, and planning [6]. These systems can assist a school head teacher in determining the goals of the school, formulating strategies, distributing resources, and evaluating staff performance as well as organization [7,8]. Indicates that the growing interest in MIS's and the trend toward [9].

Methods and materials

1. **System Analysis and Design**

The Design phase describes features and operations in detail, including database and software design, screen layouts and other aspects. Various types of design were made to develop this software, like Entity-relationship diagram (ERD) [10], Unified modeling language (UML) [11], etc.

2. Activity Diagram
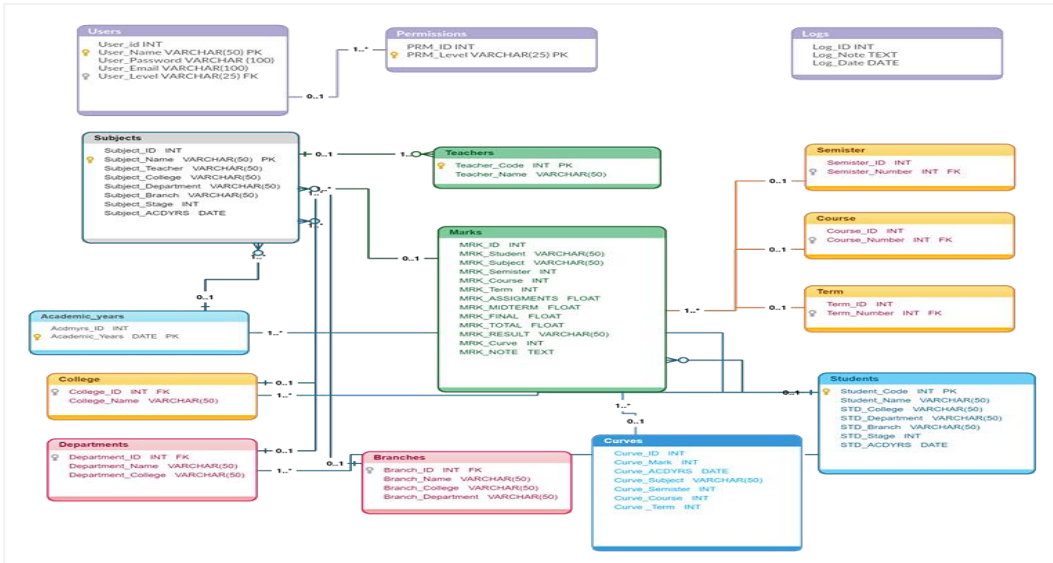
Figure (1): Relation between Tables and Connection between Database Elements

3. Data Flow Diagram (DFD)

A data-flow diagram is a graphical representation of the "flow" of data through an information system. DFDs can also be used for the visualization of data processing (structured design). On a DFD, data items flow from an external data source or an internal data store to an internal data store or an external data sink, via an internal process [12].
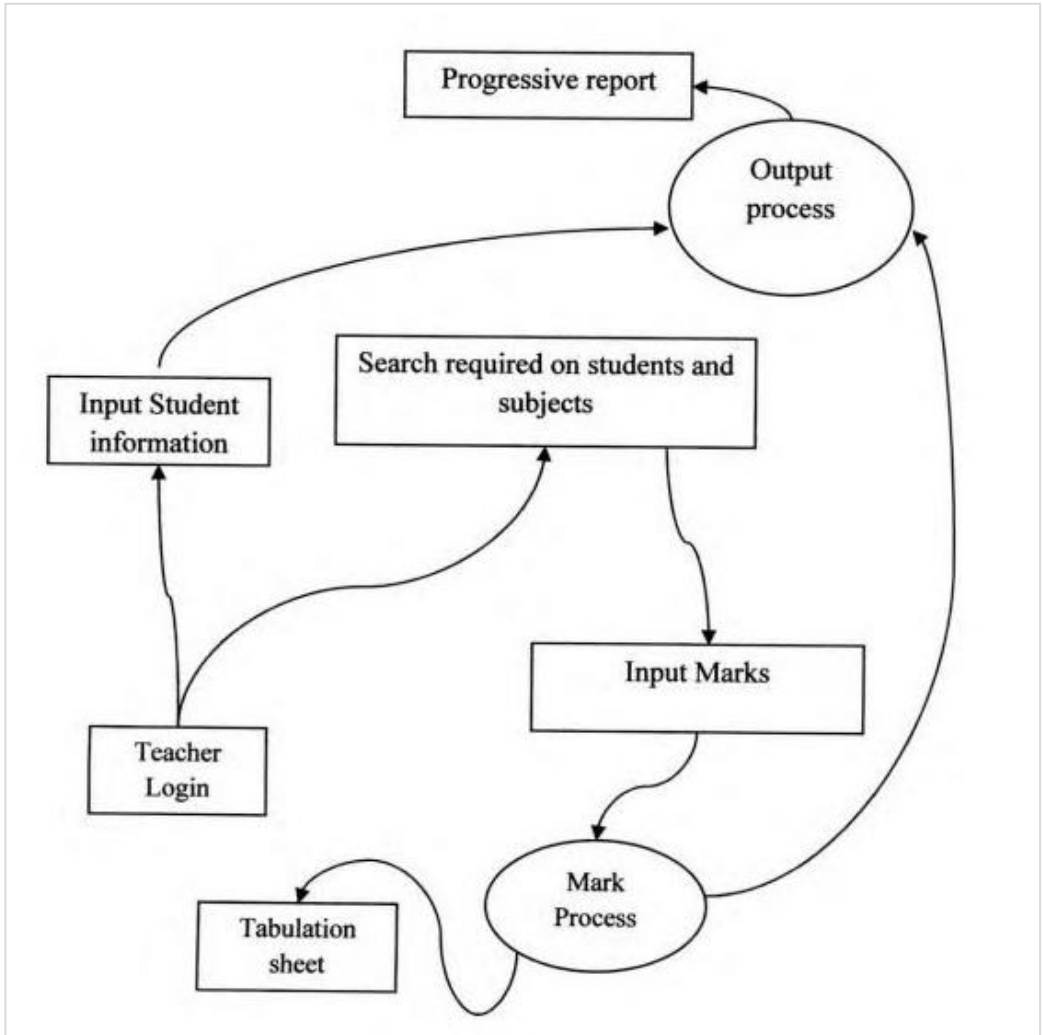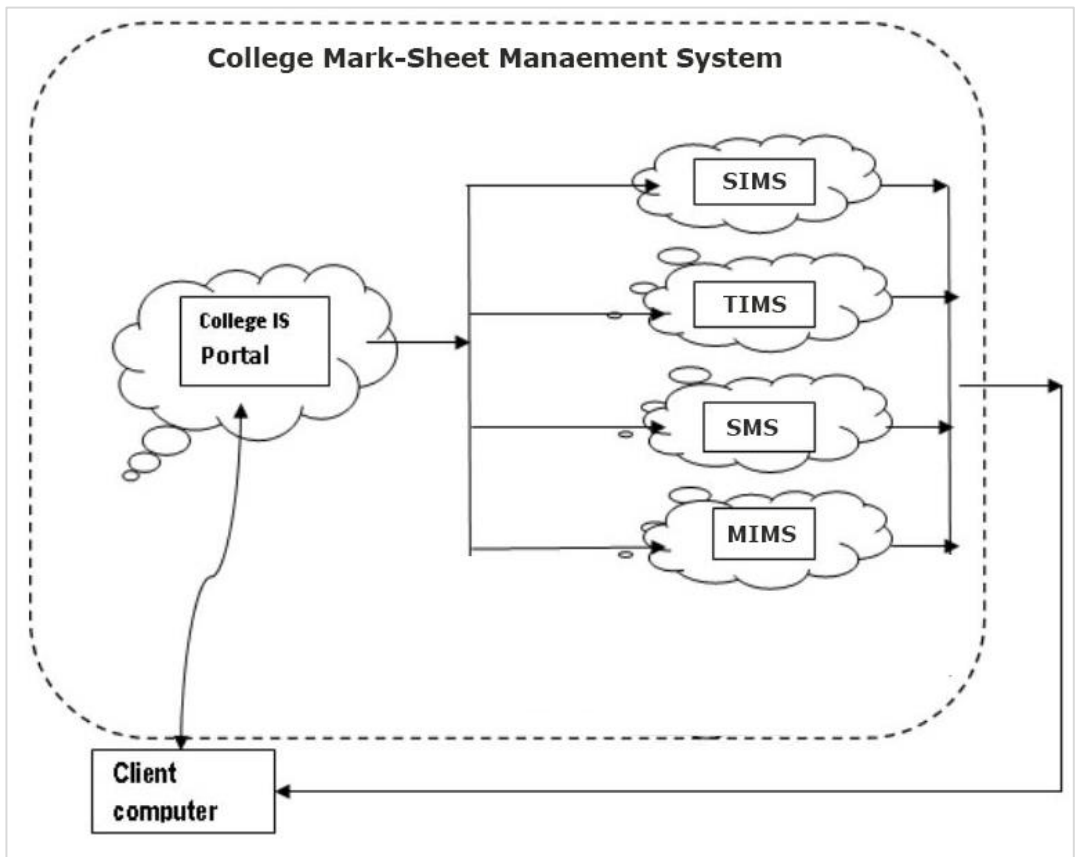
Figure (2): DFD of Proposed System

4. System Architecture

The College Mark-sheet Management System (CMMS) is composed of independent software components developed using different proprietary and non-proprietary web development tools. This design is based on Service-oriented Architecture (SOA). Using any modern browser, like Google Chrome, Firefox,

Opera, Safari, or IE10, the user can access the CMMS without installing any additional software. The System Administrator can add, edit, delete, and assign marks to student. The following information systems can be launched by the CMMS: Student Information Management System (SIMS), Teacher Information Management System (TIMS), Subjects Management System (SMS), and Mark-sheet Information Management System (MIMS). Through the links in the main page, authorized users can access the system webpages and respective databases hosted by different cloud service providers. The system architecture of CMMS is shown in Figure (3).

Figure (3): Proposed System Architecture

IV. System Implementation

1. Introduction

The system requirements and implementation toolset are presented in this chapter, where a user interacts with the implemented system through a demonstration test. Finally, the empirical outcomes are discussed.

2. System Requirements

The implemented system will be run as follows:

2.1 No Need for Extra Hardware

In the current system, computer laboratory facilities exit with internet line; that is why there is no need of extra computer or internet line.

2.2 Software Interfaces

Software is a general term for information that is recorded onto a medium. Most of the software on our computer comes in the form of programs. A program consists of instructions that tell the computer what to do, and how to behave. In this work, the following software are used as helping tools:

2.2.1 Microsoft Internet Explorer
2.2.2 Apache HTTP Server
2.2.3 HTTP
2.2.4 PHP
2.2.5 Macromedia Dreamweaver MX
2.2.6 MySQL
2.2.7 SQL
2.2.8 Cascading Style Sheets (CSS)

3. Toolset

The tools that are used for implementation range from programming and data manipulation languages to implementation tools, as outlined in Section (1.5.) as detailed below:

3.1 PHP

It is a widely used open source general-purpose scripting language suited for web development and can be embedded into HTML [13].

3.2 HTML

It stands for Hypertext Markup Language used to create electronic documents (called pages) that are displayed on the World Wide Web (WWW). Each page contains a series of connections to other pages called hyperlinks. Most of the webpages seen on the Internet are written using a version of HTML code [14].

3.3 Cascading Style Sheets (CSS)

It is a style sheet language used for describing the presentation of a document written in a mark-up language, like HTML. The CSS is a cornerstone technology of the WWW, alongside HTML and JavaScript [15].

3.4 MySQL

It is a relational database management system (RDBMS), which has more than six million installations. MySQL stands for "My Structured Query Language". With its proven performance, reliability and ease-of-use, MySQL has become the leading database choice for web-based applications used by high profile web properties including Facebook, Twitter, YouTube, Yahoo! and many more. Oracle drives MySQL innovation, delivering new capabilities to power next generation web, cloud, mobile and embedded applications [16].

3.5 Querying Language SQL

It is a database computer language designed for managing data in RDBMS [17].

3.6 Apache

The Apache HTTP Server, commonly referred to as Apache is a web server notable for playing a key role in the initial growth of the WWW [18].

V.   Results and Discussions

1. Login

Login is the first window that will appear when trying to enter this system as shown in Figure (4). It includes Username and Password related to the database that allow a permitted user to log in the system and then redirect them to the System Dashboard as shown in Figure (5).

Figure (4): Login Page
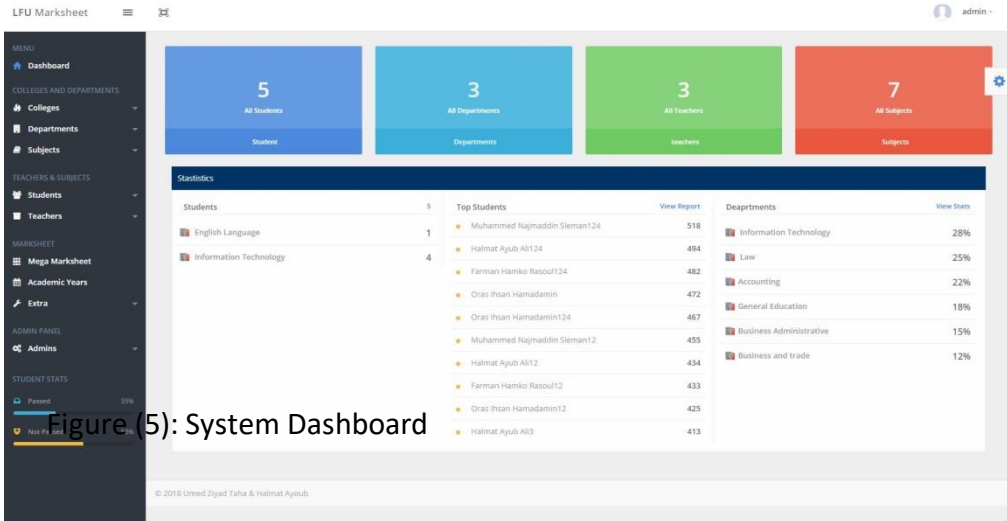
Figure (5): System Dashboard

2. Colleges

The first step in this system is enter the college and department data and only the Administrator can manage or add colleges as shown in Figures (6) and (7) or print a result page, Figure (8).
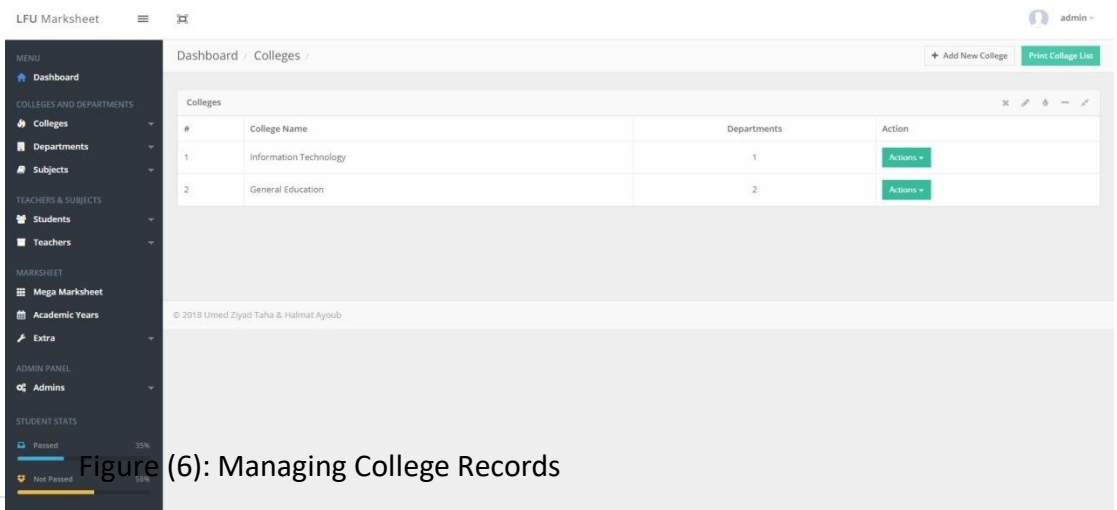
Figure (6): Managing College Records
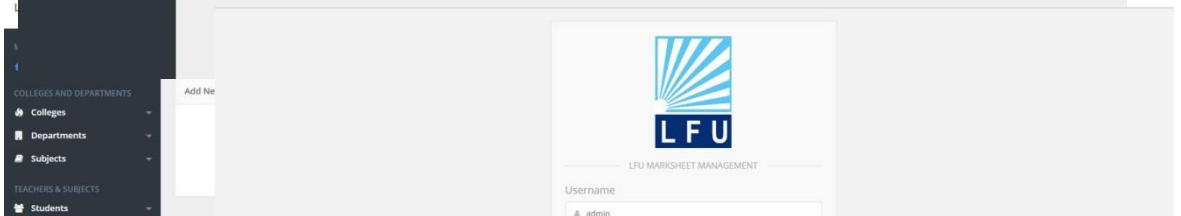
Figure (7): Adding New College
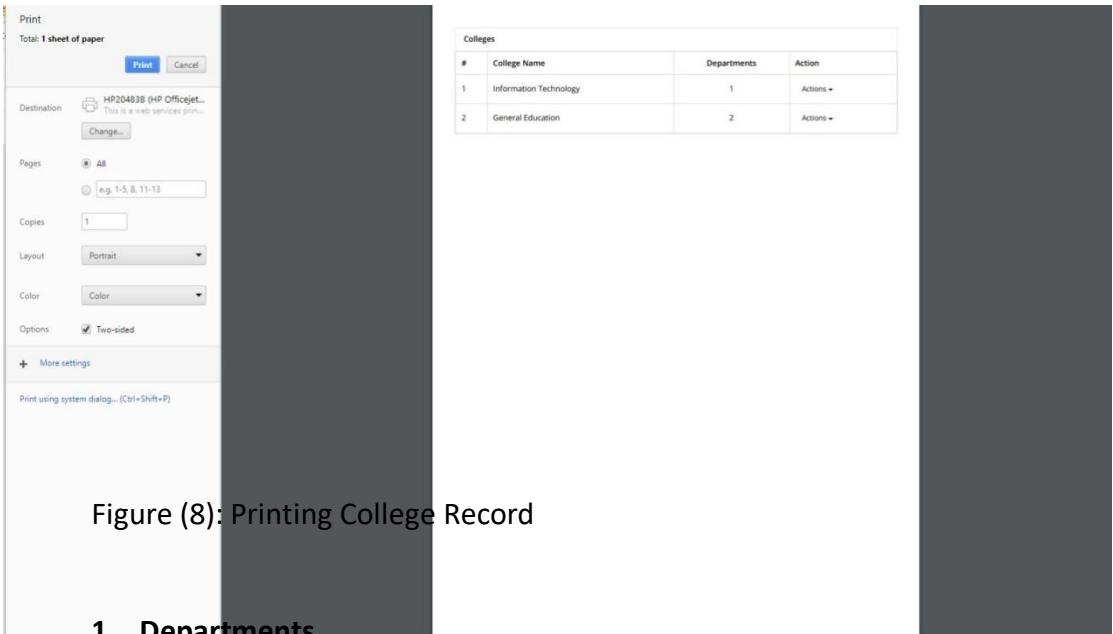
Figure (8): Printing College Record

1. **Departments**

Each college department has its own manager who can add, edit, delete, and print each department's data as demonstrated in Figure (9). A new department can be created by selecting Exist College as shown in Figure (10).
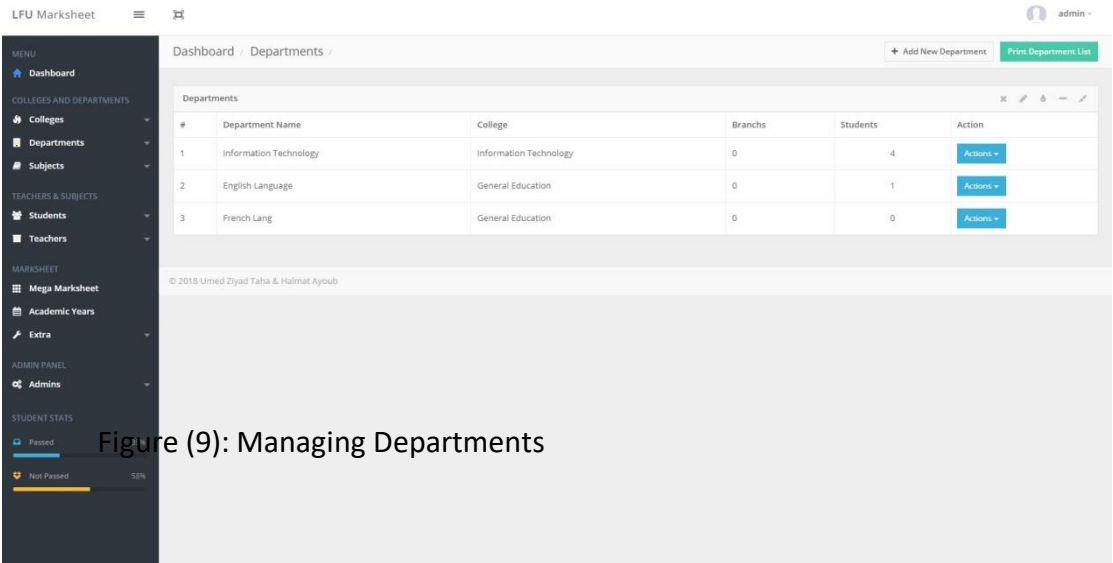
Figure (9): Managing Departments
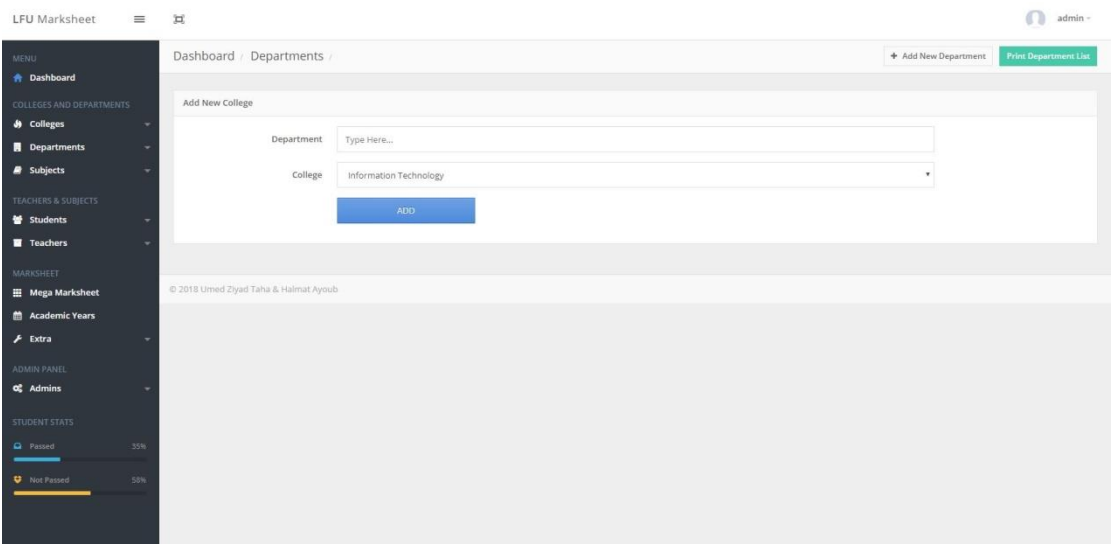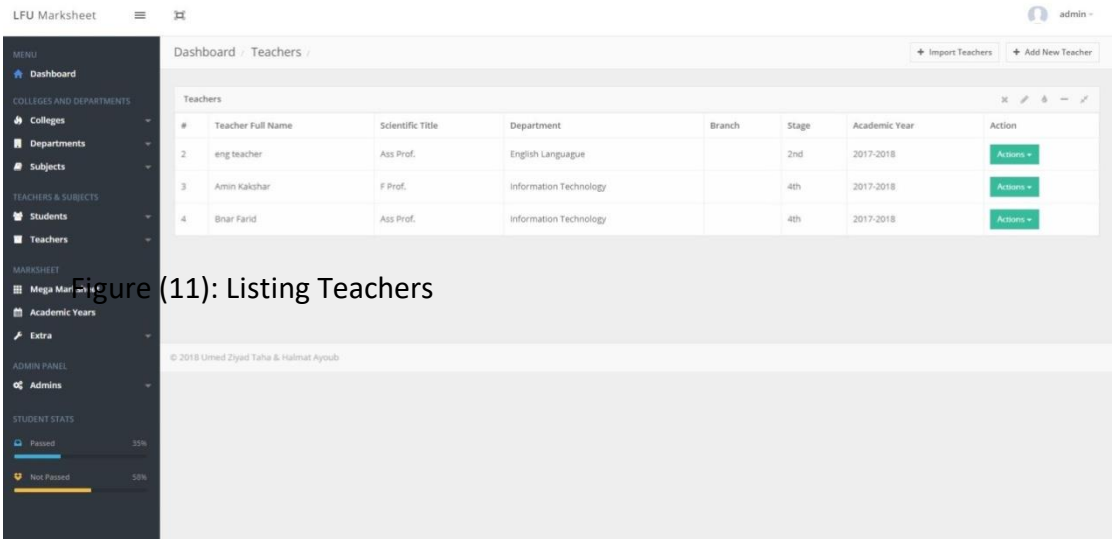
Figure (10): Adding New Department

2. Teachers

Teachers can give a lecture to students in different departments and may have various subjects in different stages. Figure (11) shows a list of teachers and Figure (12) shows how the Administrator or Manager can add a new teacher.

Figure (11): Listing Teachers

Figure (12): Adding Teacher

1. **Subjects**

Each department has at least four stages and each stage as a variety of subjects. The Manager can add and edit the marks of each subject. Figure (13) shows the list of subjects and Figure (14) shows how the Manager can add a new subject.
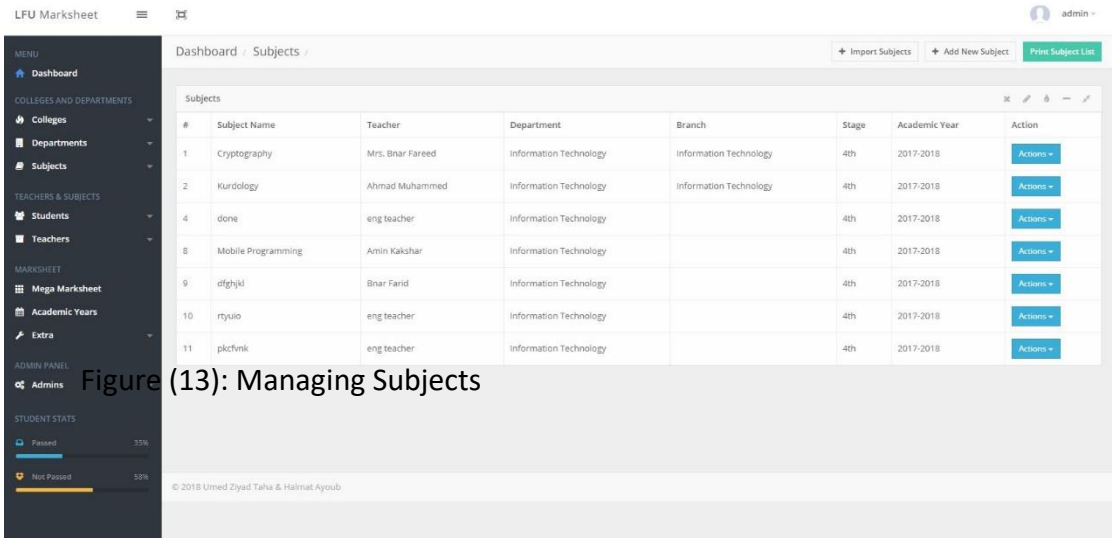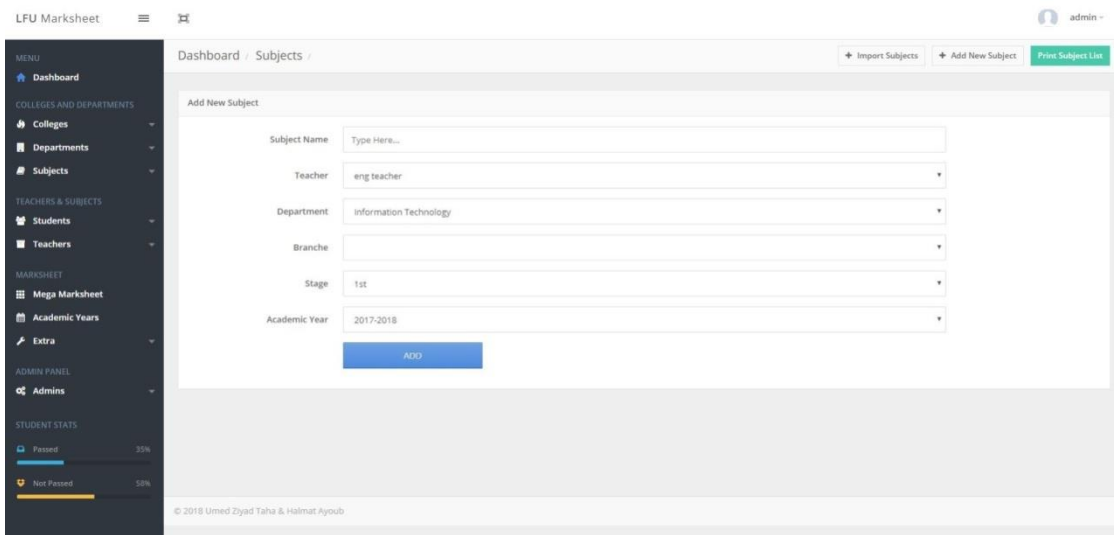
Figure (13): Managing Subjects

Figure 14: Adding New Subject

2. Students

The Manager can add, edit, delete, and manage single or multiple students and import students from Excel files, as shown in Figure (15). Figure (16) shows the list of students and Figure (17) shows how a single student is added.
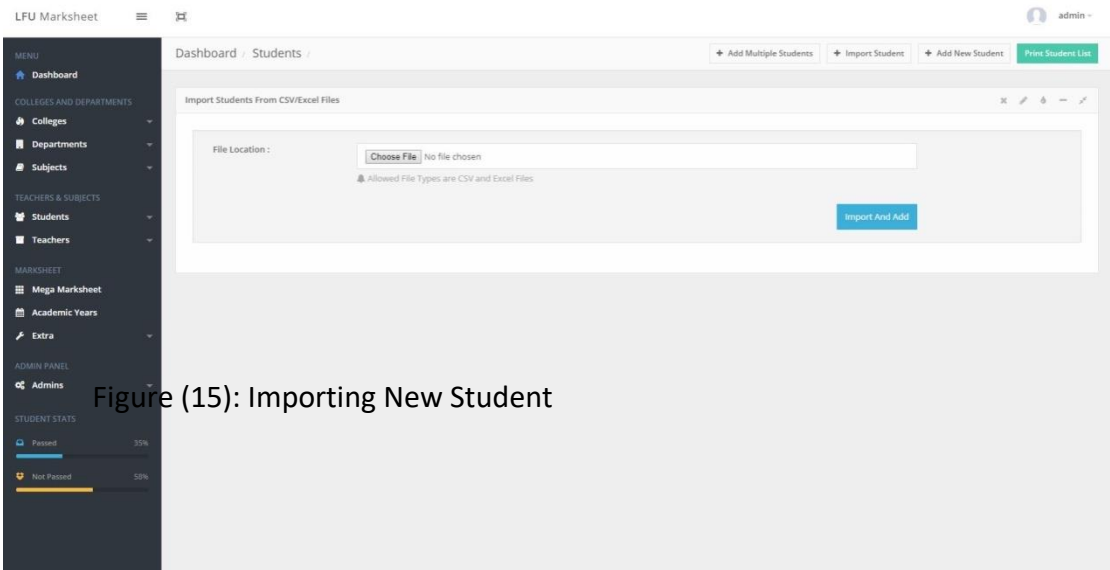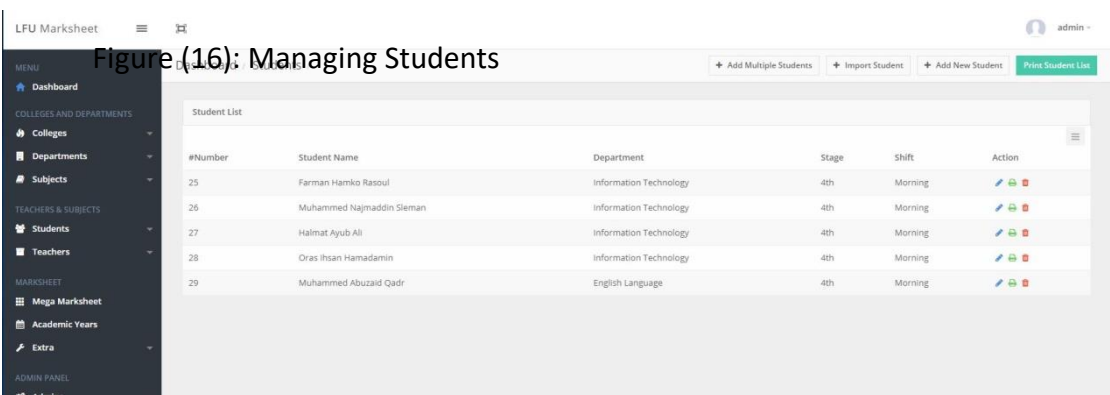

Figure (15): Importing New Student

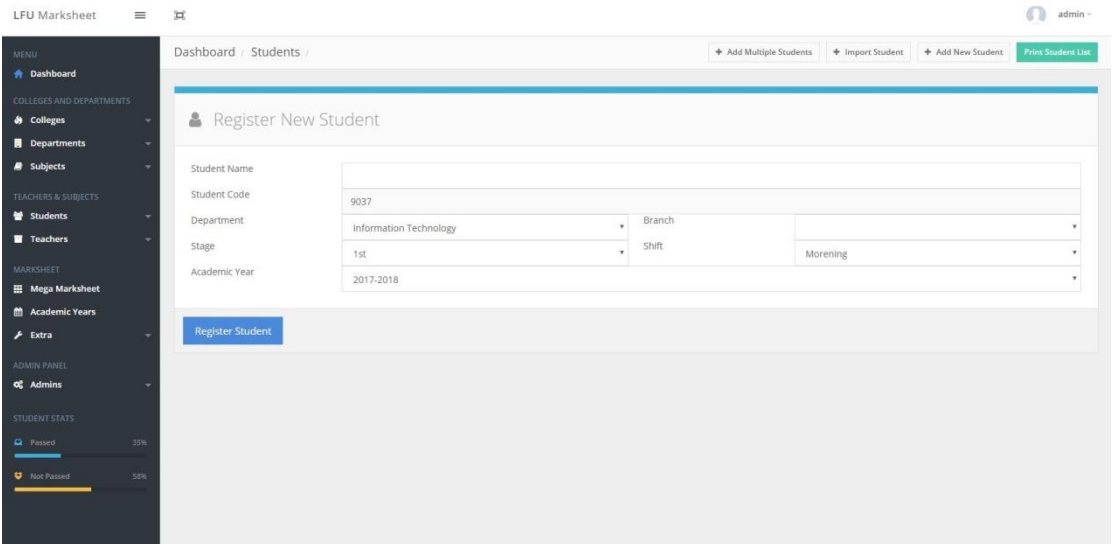Figure (16): Managing Students

Figure (17): Adding New Student

3. Curves

In this system, we have two types of curve (horizontal and vertical). The vertical curve is given by manager for every student under an selected subject, as shown in Figure (18). The horizontal curve includes only those students whose status will be changed from Fail to Pass, as shown in Figure (19).
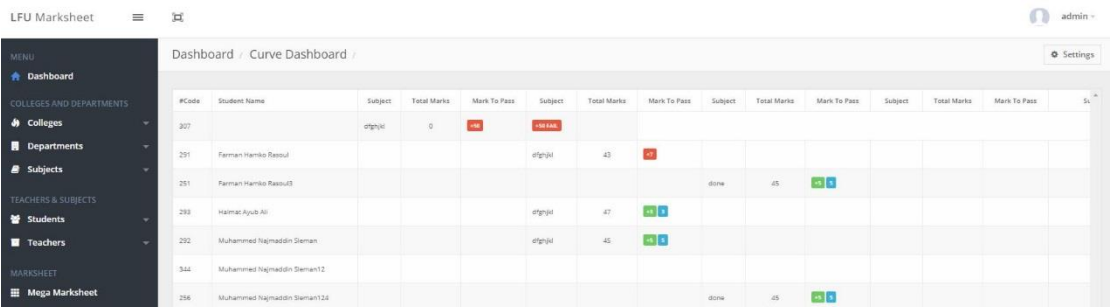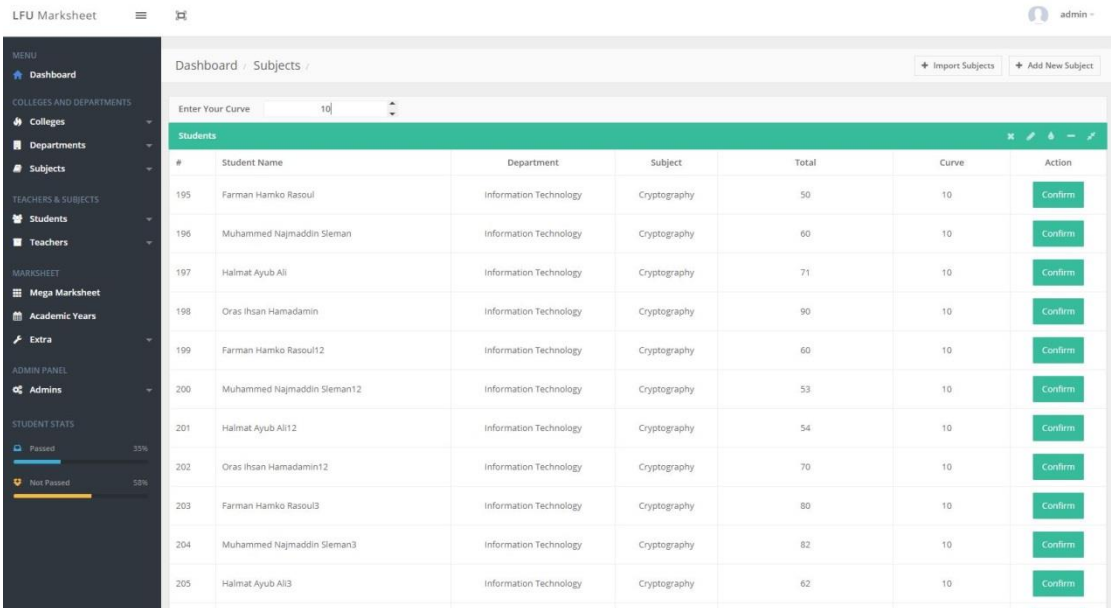
Figure (18): Horizontal Curves

Figure (19): Vertical Curves

4. Mega Sheet

The mega sheet consists of marks for every student in each stage arranged in order and can be exported in Excel file or printed out. Figure (20) shows how the Manager can view or select a Mega Sheet for each stage; Figure (21) shows the Mega Sheet result.

Figure (20): Mega Sheet

Figure 21 Mega Sheet Result

5. Users & Permissions

There are three types of users in this system who can access and edit data through permission given to each. The arrangement of user levels are shown below:

- **Administrator:** Has full access to all departments and colleges.
- **Department Manager:** Has limited access to specific departments.
- **Viewer:** Views student marks but does not have permission to edit them.
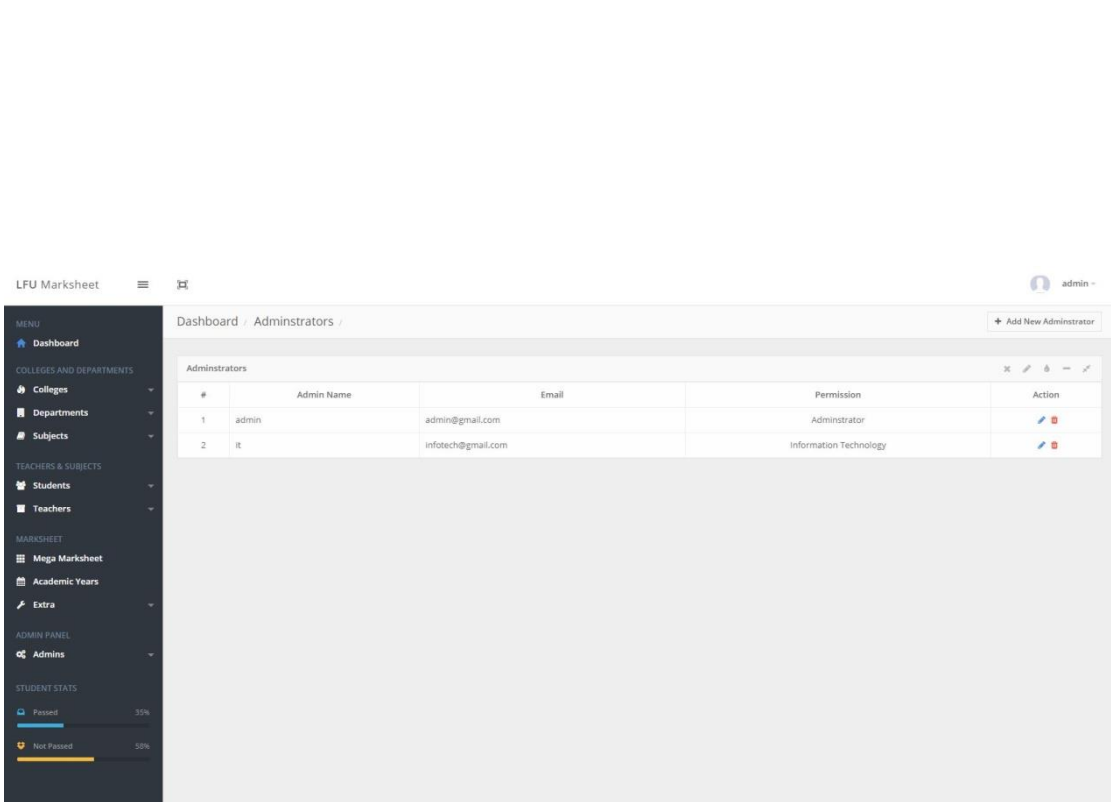
Figure (22): Managing Users

Figure (23): Adding New Users

Conclusions

This attractive application designed for the Lebanese French University will provide information on how to manage grades or information of students smoothly. The implemented application will offer distinct advantages more than those of the systems used presently. The most notable features are its user-friendliness and highly beneficial outputs. The users will greatly benefit from this system.

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الملخص

في هذه البحث ، تم تطوير نظام إدارة امتحانات اختبار الطالب المخصصة (SEMMS) للتغلب على المشاكل التي تنشأ في النظام اليدوي ، وتجنب الأخطاء أثناء إدخال البيانات ، وجعل البحث عن المعلومات أسهل. تُظهر النتائج مدى فائدة هذا البرنامج في مساعدة جامعة LFU وطالبها: 1) أداء عملهم بشكل أسرع ، إنشاء مخطط بياني أفضل. 2) تخطيط جيد قبل تنفيذ شبكة حقيقية ؛ 3) الحفاظ على أمن معلوماتهم ؛ و 4) جعل إدارتها أسهل. يوفر البرنامج بيئة جذابة حيث يمكن التعامل مع البيانات عن طلاب الجامعة والموظفين يمكن التعامل معها بسهولة.

پوخته

لەم توێژینەوەیدا, گەشە بە سیستەمی بەرێوەبردنی تاقیکردنەوەکانی قوتابی (SEMMS) کە تایبەتە بە چارەسەرکردن ئەو کێشانەی کە لە سیستەمی دەستی دەکوێت پێدرا, هەر وەها دورکەوتنەوە لە هەڵەکان لە کاتی تۆمارکردنی داتاکان , هەر وەها گەڕان بە دوایی زانیاریەکان ئاسانتر دەکات , روون دەبیتەوە لە دەر ئەنجامەکان سوودی ئەو پروگرامە بۆ یارمەتی دانی قوتابیانی زانکو LFU : 1) بە خێرایی کارەکانییان جێ بە جێ دەکرێت, دروست کردنی هێلکاری گونجاوتره 2) بۆ پلان دانانی باشتر پێش دروست کردنی تیشک راستەقینەوە 3) پاراستنی ئاسایشی زانیاری 4) بە رێوەبردنی ئاسانتر دەبێت , هەر وەها ئەم پروگرامە ژینگەیەکی سەرنج راکێشی دروست دەکات لە مامەلەکردنی لە گەڵ داتاکان کە سەر بە قوتابیانی زانکۆ وفەرمانبەران بۆ ئەوەی بە ئاسانی مامەلەی لەگەڵ بکەن .