

Designing and Building of Students Cases Database System

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Abstract—The paper presents a proposal for a database system to converting the manual procedures at the college council for student cases to computerized procedures within a single database system.

Database; DBMS; MS Access;

I. INTRODUCTION

Student Affairs Unit is one of the administrative units in College of Business and Economics at the Qassim University, chaired by the Vice Dean for Student Affairs. The unit provides services to students. Tasks and services of the unit are described briefly below:

- Prepare the timetable and the final exam schedules, using the electronic system of the University.
- Solving students' problems related requests: to excused opportunities; extending the duration; re-entry; the alternative final tests.
- Implementation of the requests for allocation and reallocation for students.
- Preparing final exams monitors distribution.
- Issuing of a letter of identification for students, regular letters and letters directed to the health center or hospital.
- Medical excuses approval.
- Issuing the discontinuity and deprivation lists.

The number of staff at Student Affairs Unit is seven employees in addition to the Vice Dean of Student Affairs. The unit contains sixteen workstations and one server.

II. PROBLEM STATEMENT

With the increasing number of student admission at the University level, it's become necessary to improve and develop the performance of the Student Affairs Unit to cope with the ever-increasing students' numbers. This development represents a shift from manual work to computerized

procedures, such as preparing decisions in student cases for college council. The Student Affairs Unit suffered from:

- Delay on issue denial lists, which is a waste of time.
- Duplication of excuses by repeating the same excuse as a result of receiving it more than once, with the absence of a mechanism to prevent the registration of the same excuse more than once on Excel.
- It's hard to find a particular student excuses.
- The absence of accurate data of denial students who have excuses.
- The lack of a database that can be referenced when needed with respect to denial and excuses.

Some of the developed tasks are the adoption of medical excuses, issuing the interruption and denial lists to be computerized procedures within a single database.

Since the task of receiving student cases and preparing the decisions to the college council to issue reports are performed by the staff within the unit and without having to use the Web, and the number of current and potential future staff within natural range of the small institutions, Microsoft Access [1,2] is the best program suited to build a database of student cases, without the need to use another database management system, such as Oracle.

III. ADVANTAGES OF MICROSOFT ACCESS

Microsoft Access is a database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software-development tools. It has a collection of objects that serve to create an integrated database of small size, these objects are Tables, Queries, Models, Reports, Macro, and Modules [3-5].

The Benefits and Advantages of Microsoft Access such as [1-5]:

- Quick and easy to create database systems.
- It produces very user-friendly applications through its comprehensive programming language (VBA).

- It produces flexible and adaptable database systems.
- Placing all of the database objects in a single file with extension MDB, Making it easier to handle all objects within a single window.
- The ability to import and export different data types to and from all Microsoft programs.
- Designed for file server solutions on local area networks.
- Supports several levels and methods of file protection.
- The ability to split the database into two separate files, "back-end" file that contains the data tables (shared on a file server) and a "front-end" (containing the application's objects such as queries, forms, reports, macros, and modules). The "front-end" Access application is distributed to each user's desktop and linked to the shared database. Using this approach, each user has a copy of Microsoft Access (or the runtime version) installed on their machine along with their application database. Microsoft Access has two built-in utilities, Database Splitter and Linked Table Manager, to facilitate this architecture [4,5]. Fig. 1 illustrates the principle of split database.

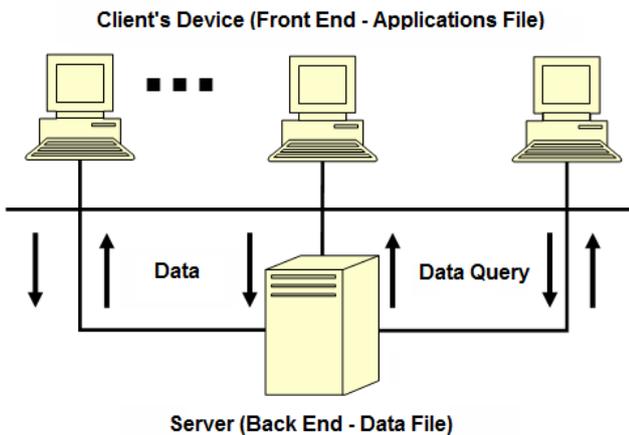


Figure 1. Split database

IV. DATA COLLECTION AND ANALYSIS

Several methods have been used to gather data on the current and proposed system, to identify the working mechanism of the unit, in addition to identifying the current system weaknesses and workers opinions:

- Interview with the current system officials; and
- Analysis of the documents relating to the current system.

Fig. 2 shows the proposed system structure based on the collected information.

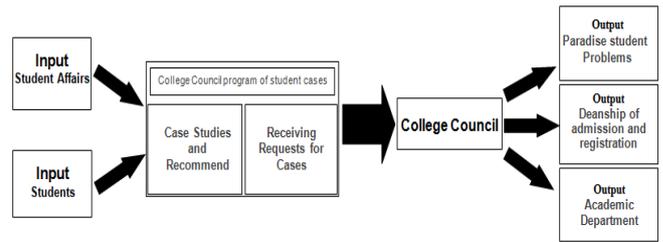


Figure 2. The structure of the system

The data inputs and outputs of the proposed system are described below:

System Data Inputs:

- Student Affairs Unit data input, such as males and females' students data, faculty members data, and the semester data.
- Male and female students data input for requesting case studies, such as twice duration of the study, re-enrollment, fifth, sixth, and seventh exceptional opportunity, course or semester dropping, re-grade exam papers, final exam alternative, course grade change, and incomplete grade.

System Data Outputs:

- College council decisions which go to the heads of departments in the college and to the central committee with regard to alternative exam and re-grade exam papers.
- College council decisions which go to the admission and registration deanship regarding twice duration of the study, re-enrollment, course grade change, and incomplete grade.
- College council decisions which go to the standing committee of student problems with regard to fifth, sixth, and seventh exceptional opportunity and course or semester dropping.

Fig. 3 illustrates the data flow diagram of the proposed system.

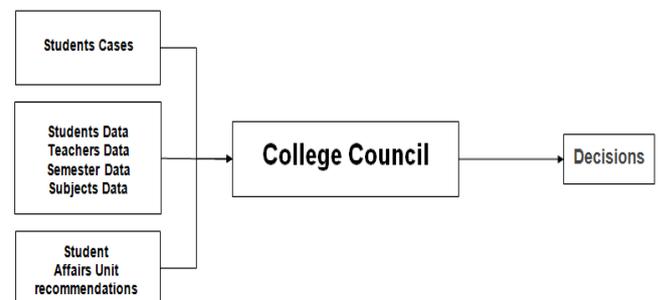


Figure 3. The data flow diagram

V. DATABASE AND INTERFACE DESIGN

The database of the proposed system consists of the following tables: students, department, subjects, semester and years of study, students' cases, and meeting schedule. Fig. 4 shows the Entity-Relationship diagram of the system.

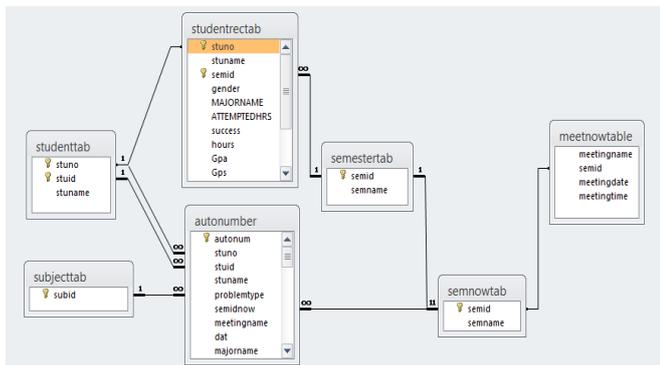


Figure 4. The E-R diagram of the system

The main idea of this program is to enter the data of male and female students' cases to the college council to take decisions for each case. The system generates reports which concerns with students' cases and decisions. Fig. 5 illustrates the structure of system screens.

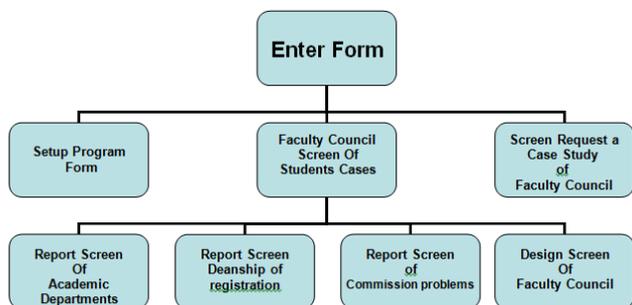


Figure 5. The structure of the system screens

Fig. 6 shows the main screen of the system.



Figure 6. The main screen

Fig. 7 shows the screen of submitting students' cases.



Figure 7. Students' cases submitting screen

Fig. 8 shows the college council students' cases screen.



Figure 8. College council students' cases screen

Fig. 9 shows the college council decision taking screen.

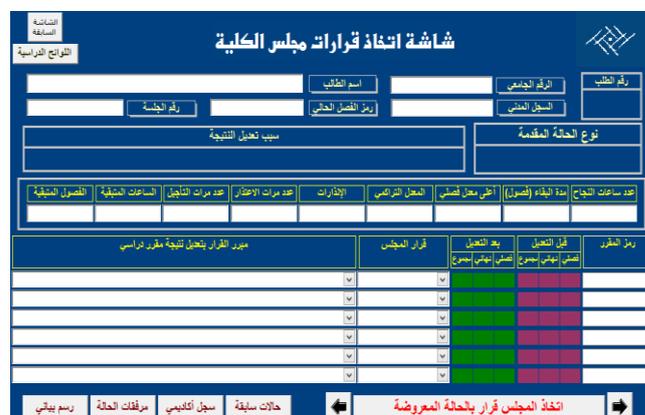


Figure 9. Decision taking screen

VI. STUDENTS CASES SYSTEM OUTPUTS

The system outputs the following reports:

- A report to the standing committee of student problems: a detailed report to the standing committee of student problems which headed by the vice president of student affairs, and held to make appropriate decisions based on the recommendations of the college council, which includes the fifth, sixth and seventh exceptional opportunity in addition to course or semester dropping.
- A report to the admission and registration deanship: a detailed report to the admission and registration deanship, which implements the decisions of the college council, which includes twice duration of the study, re-enrollment, and course grade change.
- A report to the heads of departments: a detailed report to the exams committee and the heads of departments in order to implement the decisions issued by the college council, which includes cases of alternative exam and re-grade exam papers.

Fig. 10 shows an example of a report generated by the system.

رقم التسلسلي	الرقم الجامعي	اسم الطالب	رمز المقرر	قرار المجلس
1	311202741		BUS 488-25250	موافقة
2	341206542		MATH122-25363	عدم موافقة
3	331103026		MATH-11795	عدم موافقة
4	322114059		STAT124-11895	موافقة
5	321109082		ACCT354-11642	عدم موافقة
6	301108532		ACCT360-11646	موافقة
7	301111312		ACCT241-11634	موافقة
8	311102637		ACCT360-11646	موافقة
9	321111366		ACCT350-11636	عدم موافقة
10	301109235		ACCT482-11664	عدم موافقة
11	321110933		ACCT120-11612	عدم موافقة
12	291111790		ACCT241-11634	عدم موافقة
13	331108168		ACCT120-11616	عدم موافقة
14	311107610		ACCT360-11646	عدم موافقة
15	301212585		ACCT120-25144	موافقة
16	321109082		ACCT365-11664	موافقة
17	331209818		ECON120-25273	موافقة
18	331106218		FIN 230-11749	عدم موافقة
19	322208824		ECON120-25280	موافقة
20	311209051		FIN 361-25330	موافقة

Figure 10. An example of the system reports

VII. CONCLUSION

Student Affairs Unit used a manual method to implement the procedure of students' cases in the college council, which

leads to waste time and effort. The solution of the problem was by designing and implementing a database system using MS Access, which is designed to:

- Computerize the data entry of students' cases by the unit of student affairs, results in accuracy and prevents the repetition of the same cases as well as reducing the time and effort.
- Provide accurate data of students' cases for decision-makers, and this reduces effort in the process of studying the cases, which provide enough time for the issuance of the final decisions.
- Provide recommendations and decisions reports, to be forwarded to the concerned authorities to implement them.

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