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The Commonwealth of Learning Student Record Management System

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BACKGROUND

The Commonwealth of Learning (COL) was established in 1988 as a result of the Commonwealth Heads of Government Meeting that took place in Vancouver in November, 1987. One of the main objectives of the new organisation was to make use of distance education and its associated technologies to increase access to education and training for audiences in developing countries.

An institution offering courses through distance may have the technology present to deliver the courses, courseware available, expertise on-site, etc. However it is still necessary to have systems in place to register students and monitor their progress, both within courses and within programmes of study.

By the time COL had been under-way for a year or so, it had received a number of requests from administrators in institutions in developing countries for assistance in identifying and acquiring such a system. Many of these came from small institutions with only microcomputer capacity, or from departments in larger institutions which needed help to track students in distance education courses. Professional staff at COL made inquiries and conducted a search in an attempt to locate an appropriate system, but met with little success.

SYSTEM REQUIREMENTS

In order to be useful to COL's clientele, it was determined that the administrative system required needed to meet a number of criteria, such as:

- the ability to run on a PC-compatible microcomputer,
- be inexpensive to run, that is, not require specialised hardware or software,
- be generic in order to be useful to as wide a range of institutions as possible,
- be flexible in design so that institutions could choose to use only specific functions as required,
- be easy to use and maintain in order that specialised staff do not have to be retained to run or maintain the software, and
- be easily modified if required, but still useful in a generic sense.

DEVELOPMENTAL PROCESS

As no existing system was located that met all the criteria, the decision was taken to develop one. A professional staff member at COL developed specifications for the software based on personal experiences in open learning institutions, as well as on the requests and suggestions received from various clients. These specifications were then forwarded to the Systems Development Department at Camosun College in Victoria, British Columbia, which is responsible for maintaining the Student Registration System (SRS) for many of the community colleges in that Province. The SRS is run on a minicomputer and is not designed for an open learning institution. However, because there was expertise available through the Department on file structures required for storing, maintaining and reporting on student enrolments, etc., as well as expertise in programming, the decision was taken to contract their services.

The specifications were refined through consultations between the COL professional staff member responsible and the Co-ordinator of the Systems Development Department at Camosun College. It was agreed that the *FoxPro* database programming language should be used, for a number of reasons: it is inexpensive and provides an efficient developmental environment; it is compatible with other languages and therefore data can be shared between applications; and it has the capacity to provide the functions and meet the criteria required by the System.

FIELD TESTING

Although the System was tested during the programming phase, it was clearly necessary to field test it with 'real' students, courses, etc. in an educational institution. During the development stage, personnel in the Health Sciences Division at Grant MacEwan Community College (GMCC) in Edmonton, Alberta had become aware that COL was working with Camosun College to create a microcomputer-based student registration system. As they had for some time been trying to locate a similar system, they requested that they be kept informed of the progress. Once the

System was ready to be tested, staff from GMCC were provided with a demonstration of its functions and capabilities. They were pleased with what they saw, and as a result GMCC and COL reached an agreement in which GMCC would be permitted to use the System in exchange for testing the software and writing a user manual.

SYSTEM FEATURES

The SRMS is a database system developed to assist administrators and instructors with many of the routine records management and tracking functions required in educational institutions. It provides the basic file structures to register students in both courses and programmes of study; records students' marks for assignments in specific courses as well as final marks; prepares correspondence for individual students and for specified groups; produces hard copy reports based on selected information; and records tutor and institutional information, etc.

The System has been designed for an open learning/distance education structure, is generic in nature, and can be used for various types of courses, in academic, as well as vocational and technical fields. It can be used by an individual tutor, a department or division or an institution as a whole and is flexible in design in order that only selected functions can be used if required.

SYSTEM USE

The Student Record/Management System has been designed to be used and understood by non-computer experts. Movement around the System is facilitated through a series of menus, which are accessed in a similar fashion at all levels. Menu selections, as is becoming a standard in many software packages, can be carried out either through using the arrow keys to highlight a choice and pressing the Enter or Return key, or through typing the first or highlighted letter of the selection.

The User and Reference Manuals (see below) provide information to the novice user as to the type of data required, the codes that must be established, decisions that should be taken prior to data entry, the order in which the information should be entered into the System, etc.

SYSTEM DESIGN

The System was designed with the Student as the central entity to which all the other functions are linked (see Figure 1).

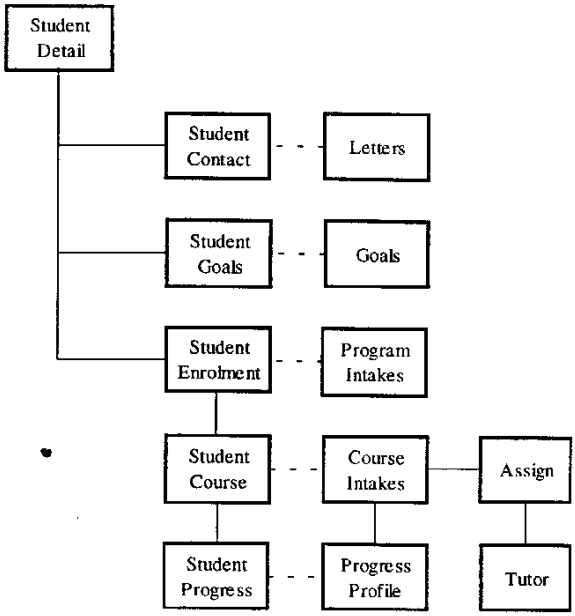

Figure 1 System Design

MAIN MENU

The SRMS offers eight selections through its Main Menu in addition to exiting the System. These include Student, Program, Course, Goal, Tutor, Report, Letter and Maintain. Figure 2 depicts the Main Menu which is displayed when the System is activated.

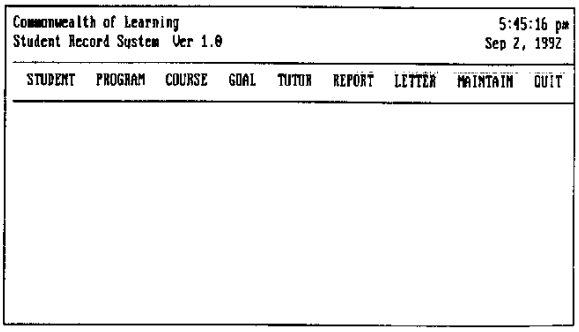

Figure 2 Main Menu

Student information

As noted above, the Student entity is the core of the System, and it stores information about the students, including their mailing addresses, courses in which they are registered, institutional contacts, etc. It is through this selection that information is stored and accessed regarding students' progress in specific courses, and through programs of study, as well as past educational history.

Program, course, goal and tutor

These Main Menu choices each reflect a different function within the System, and for the most part can be used independently with data entered through the

'Student' selection as required. However, before these linkages can be established, for example enrolling students in programs or courses, the program and course information must first be input into the System.

Each of the selections has optional as well as required information stored through it and this information may be associated with information input through other selections on the Main Menu. For example, within 'Course', the assignments for each course can be listed in a 'Student Course Progress' form, and student marks for each assignment can be entered, stored and retrieved through the specific student file *via* the 'Student' selection.

Pre-programmed reports

There are 19 reports pre-programmed in the System. These reports are available through the Main Menu selection 'Report' – the sub-menu shown below (Figure 3). All these reports can be customised in a limited way, such that only data that is requested for certain students, certain courses or programs, or during certain time periods, are selected and output in the reports.

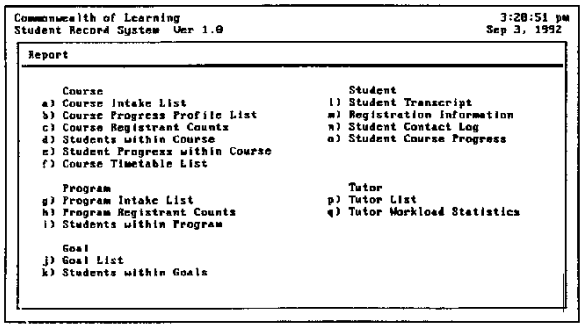

Figure 3 Report Sub-Menu

Merging letters

The 'Letter' selection is used to create, save and then send letters to a group of students, based on specific information input by the user such as course enrolment, program enrolment, date registered, etc. Letters can also be created and sent to individual students. In either case, copies are saved electronically to the appropriate student files for reference purposes. This function is linked to the student files so that the names and addresses are merged with the letter(s) to be sent in order that this information does not have to be re-entered by the user.

Maintenance

The 'Maintain' choice displays a sub-menu that allows the user to carry out a number of functions related to system performance and maintenance, such as re-indexing files, changing system parameters, making back-up copies of data files, entering grades, etc. Maintenance capabilities are important to users and provide features that are necessary for system housekeeping.

SUB-MENUS

Each Main Menu selection (other than 'Maintain' and 'Quit') will display a data input screen with a sub-menu across the bottom (see Figure 4). The desired choice on the sub-menu can be made either through the use of the arrow keys to highlight, or by typing the appropriate letter. These menus have been designed so that they look alike and have similar features regardless of which of the main selections the user has chosen.

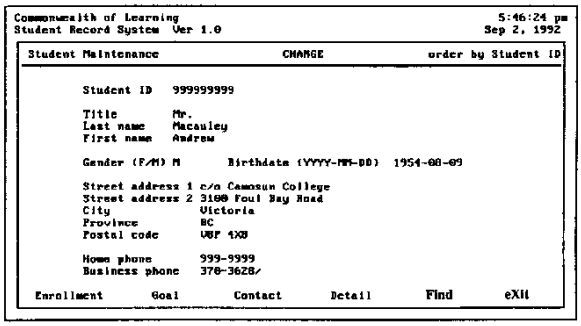

Figure 4 Sample of a Data Input Screen

ON-LINE HELP

Help messages are available on-line to assist an operator when who is uncertain about carrying out a particular function. The on-line help is accessed through the use of the Function 1 (F1) key and is available in many parts of the System.

Specialised tables for data look-up are also available, where appropriate, in order to simplify data input and assist with maintaining data integrity in the System. These tables are accessed through the Function 2 (F2) key and are available for the programs, students, courses, goals and tutors that have been input into the System.

DOCUMENTATION

Two manuals are distributed with the software: the User Manual and the Reference Manual. As mentioned earlier, the Health Sciences Division at GMCC produced the User Manual. In addition to this manual, Camosun College, as part of their original contract with COL, produced a Reference Manual. Although there is some overlap in content between the two manuals, as would be expected when authors in different locales are writing manuals on the same software system, there are also a number of differences. The User Manual is written in a somewhat more user-friendly style, whereas the Reference Manual tends to contain more specific technical information. The Reference Manual also contains

examples of all the pre-programmed reports available, as well as the corresponding title pages.

The Reference Manual contains specific information that is relevant if users plan to modify the source code. For example, it contains the data file layouts and the field contents for each of these files. This information is also important if users plan to import or export data for use with other programs or software systems.

An information brochure is available which provides a brief overview of the System and its features, and the hardware and software configurations. The purpose of the brochure is to provide enough information so that potential users can determine if the System might meet their institutional or divisional requirements and therefore they should invest the time in exploring it further.

TYPES OF CODE

The software programs comprising the System are available to clients as two different types of code. The type generally sent out and most commonly requested is the executable version. In this format, the data stored in the System can be used and shared among applications, but the actual software programs cannot be modified. This version can be executed without additional software – the only requirement is *DOS 3.0* or better.

The second type of code in which the System is available is as source code. The System is also executable in this form, but the difference is that the software programs can be accessed and modified. However, in order to modify the code, the *FoxPro* programming language must be purchased and used to make the programming modifications, and experienced programmers are required to implement these changes.

CURRENT AND POTENTIAL USERS

COL will provide the SRMS free of charge to institutions in developing Commonwealth countries. To date, COL has had more than forty requests for copies to be sent to various institutions. In most cases, the requests have been for the executable version, although in one case the source code has been requested and is being modified internally in order that some ten sites of the requesting institution can use the localised product.

COL did not initially envisage that the System might be of use to institutions in developed countries, as most already have their own registration and tracking systems However, there has been some interest in the System in developed countries, particularly at the divisional or departmental level, and COL has provided copies to institutions as requested for a nominal cost which covers diskette and manual duplication, and shipping charges.

SUPPORT

It is not possible to provide full technical support for the System. However, it has been tested very thoroughly and in a number of different sites, with no reports of any 'bugs'. In the cases where queries regarding the software have been made, COL has contacted Camosun College and, with assistance from personnel there, has been able to provide a satisfactory respond to the users.

TRAINING

As stated earlier, the System has been designed for ease of use by personnel with limited computer experience, and has proven to be very successful in this respect. However, training on the System, under the auspices of the COL/British Columbia Fellowships Programme, has been provided in a few instances and has proved to be extremely worthwhile, particularly on some of the System's more advanced features.

VERSION II MODIFICATIONS AND ENHANCEMENTS

Since releasing SRMS, a number of enhancements and modifications have been suggested by trainers and users of the SRMS. A joint contract involving GMCC, COL and Camosun College has recently been signed; it will incorporate many of these amendments in a second version of the software. There are two major enhancements to the software, in addition to a number of smaller modifications. The first major change is to re-program the software in order for it to run on a local area network (LAN). The second enhancement is to rewrite the software such that data from a number of sites can be integrated and comprehensive reports produced which will provide information on all sites involved. It is anticipated that this will be a very useful feature, particularly in situations where institutions have a number of campuses or learning centres.

The latest version of *FoxPro* has been developed to run on a *Windows* platform and it is being used to develop Version II. The next version of the System will take advantage of many of the features offered through *Windows*, thereby increasing the flexibility through such means as the ability to use various word processors for editing letters and creating custom-designed reports. Other specific modifications and enhancements have been suggested or proposed by users, such as producing labels, incorporating grade point averages, creating reports automatically, changing date and telephone formats, etc., and will be incorporated into the new version as feasible.

It is anticipated that the software for Version II of the Student Record/Management System will be complete by early 1995, with the release, which will include a re-written User Manual, to take place later that spring.