A SARS-VSPC INTERFACE FOR HANDLING LIBRARY FUNCTIONS

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ABSTRACT

This paper describes the use of SARS procedures for the creation, maintenance and recording of materials contained in a research oriented library in the Bureau of Governmental Research and Service at the University of South Carolina. SARS is used in conjunction with VSPC through a CRT terminal located in the library and aids in the creation of a highly user-oriented and flexible bibliographical system. The system handles a multitude of inputting, editing, sorting, selecting and reporting procedures that are common to the operation of any library. SARS INPUT, SORT, FORMS and IF procedures in various combinations provide extensive capabilities to generate specialized searches and output products. More specifically, PROC FORMS was used to create a card catalogue for a public administration library that was based on an alphabetical classification scheme developed by the International City Management Association. PROC SORT is used extensively to generate specialized lists that facilitate information dissemination with other libraries and governmental units. Additional listings have been output on microfiche (COM) for efficient hard copy storage. VSPC provides an interactive data editing and job submission system that allows the flexibility and efficiency of SARS. VSPC is used not only to create edited input data for submission to SARS procedures but also to help the user to selectively retrieve SARS output. The combination of SARS and VSPC has proven to form a versatile and easy to use system that should have similar applications in any number of library related activities.

A move to a new facility in 1976 provided the Bureau of Governmental Research and Service at the University of South Carolina with an opportunity to reexamine the functions of its library. The University's new emphasis on public service activities made a system which would facilitate the sharing of information with state and local governmental units highly desirable. With the availability of IBM's Virtual Storage Personal Computing (VSPC) System (IBM, 1978), the development of an automated system for processing library materials and sharing bibliographical information became feasible. The purpose of this paper is to describe the components of and the various processes involved in the utilization of a VSPC-SARS interface that has been implemented to meet these objectives.

The unique nature of the library's collection was instrumental in the determination of the method of storage, as well as the classification scheme. Aside from the reference section, half of which are South Carolina legislative materials, few of the holdings are what would be commonly thought of as "books". Rather, they are primarily paper bound reports from other interest organizations for which vertical hanging folders have proven to be a practical storage method. The functional classification system developed by the International City Management Association (1975) was adapted to the library materials. The system utilizes an alphabetical arrangement of major subject areas commonly used in the field of public administration. Each subject is coded with the appropriate letter, followed by a number, which is determined by the total number of other major subject headings beginning with that letter. For example, there are only two major subjects beginning with the letter "D". The number code is determined by dividing one more than the number of primary categories into 1000. The resultant interval may be achieved by adding a final two digit number. For example, the subcategory "equipment" under "data processing" would be D333E50, while "data processing-equipment-mini-computers" would be represented as D333E5050. For bookkeeping purposes, each individual item is assigned an additional unique sequential number to distinguish it from all other materials in the same class.

To aid the user in finding all relevant materials for a given category, the classification scheme includes special symbols which refer to the correct primary headings or to headings under which additional information may be found. A different symbol indicates that certain headings are inappropriate. For example, someone researching the field of "human relations" would also be directed to holdings under "minorities-human relations", while being informed that "community relations" is not a legitimate heading. While the new classification procedure was much more suitable for the library it made the existing card catalogue virtually meaningless. For safety's sake the subcategory "data processing-equipment-mini-computers" was begun, a decision was made to develop an automated system for handling the materials.

In conjunction with the staff of the University's Social and Behavioral Sciences Laboratory a system for handling various library functions was designed and implemented. The basic objectives of the system were to input, sort, select and print alphanumeric information, in a manner that would be both versatile and easy to use by a non-technical staff. Similarly, any changes to the system had to be free of special software development requirements, and easily enacted by the Bureau staff. SARS was judged to meet most of these objectives, and therefore became the backbone of the system. The key SARS elements utilized are the flexible INPUT, SET, SORT, and FORMS procedures. All of the existing materials in the collection were coded to conform with the input statement in Figure 1. It was

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deemed that the special nature of materials and purpose of the library required the following information for each entity: numeric classification code (IDNUM), extended subject code (SUB1, SUB2), year of publication (DATE), whether the material specifically deals with South Carolina (SC), whether it contains a bibliography (BI), number of pages (PAGES), title (TITLE1 to TITLE4), author (AUTHOR1, AUTHOR2), and publisher (PUB1 to PUB4).

In order to generate a card catalogue the input records had to be designed to accommodate an 18 line by 50 character or 3 inch by 5 inch card form (fig. 2). Therefore, instead of using a free input format, fields that would normally extend beyond column 40 or onto the next line of form (fig. 2). Therefore, instead of using a free input format, fields that would normally extend more than 50 characters (subject code, title, author and publisher) were divided into two or more fields of 40 characters each. No individual word contained in these fields was allowed to extend beyond column 40 or onto the next line of the 80 column coding sheet.

The actual coding of materials began with the first subject (Abandoned Buildings) and was done consecutively, new materials, which arrive almost daily, are invariably out of place. The SAS SORT procedure, utilizing the sequence number, has proven to be invaluable in providing the library with an ordered listing of its holdings which has helped to minimize duplications. Bibliographic listings on specific holdings are easily generated by the SET and SORT procedures.

The actual input data for the library was key-punched by the University's Computer Services Division from coding forms. Although the system could function with standard card, tape and paper mediums, VSFC has greatly expanded its capabilities. VSFC combines an on-line data editing system in the foreground with a batch job submission and retrieval system in the background. These capabilities enable the majority of the library functions to be handled directly by the Bureau staff through a Courier 3000 CRT terminal (similar to IBM 3277) housed in the library.

All of the necessary Job Control Languages, SAS procedure statements and actual data are stored in separate VSFC workspaces as card images which can be directly submitted to the batch stream through a simple SUBMIT command. Up to 13 data workspaces may be directly submitted with workspaces containing JCL and SAS procedures to form a complete job. The status of any jobs submitted through VSFC may be interactively checked through the terminal. Output of completed jobs can be loaded into VSFC workspaces for examination or storage (fig. 3). Alternatively, the SAS output can be routed to any printer in the University system either through a route statement in the JCL of the SAS job or through a route command in VSFC.

Figure 1. Sample SAS Setup as displayed on terminal in VSFC Viewmode.

N (594)

- MUNICIPAL GOVERNMENT

- 1948 SC 289

- CITY OF COLUMBIA, SOUTH CAROLINA

- REPORT NO. 3

- SUMMARY ACTIVITIES AND CODES COLUMBIA (CITY)

- GIFFENBAUGH & ASSOCIATES

Figure 2. Three by five inch card format generated by SAS FORMS procedure.

As previously mentioned, the Bureau wished to increase its information sharing capacity through the automated system. The flexibility of the SAS FORMS procedure permitted the data to be coded in the same manner regardless of the format desired for the final output. While the 3 inch by 5 inch format provided an excellent card catalogue, it also produced very bulky computer printouts. Thus, after experimentation with the six forms parameters (width, number of lines, number of lines down, number of lines skipped, number of units across and number of print positions between form units) a format which condensed the data into fewer, but wider lines, was chosen. When printed on white paper, information in the second form is more attractive, as well as being more convenient and less expensive to mail to those requesting bibliographical searches. The FORMS procedure makes the design of such specialized output listings extremely easy for the non-programmer. The often cumbersome formatting problems all alleviated by simple line number and variable statements in the procedure.

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In addition to the ability to use VSPC for batch submission and retrieval of SAS jobs, its on-line editing functions have also proven to be invaluable. Once cards are read into VSPC workspaces, they are edited directly on the terminal located in the Bureau Library. Data contained in any workspace can be located easily, changed or rearranged with VSPC FIND, CHANGE, DELETE, RENUMBER and MOVE commands (figs. 4 and 5). With the recent installation of release 2 of VSPC, up to 20 lines of data can be displayed and edited in VIEWMODE through the simple movement of a cursor and keyboard commands.

**Figure 4.** Example of VSPC 'FIND' mode.

```plaintext
'columbia', 'capital city', 'capital city', 'city',
1090 COLUMBIA, OFFICE OF THE CITY MANAGER
1280 CAPITAL CITY, OFFICE OF THE CITY MANAGER
1280 COLUMBIA, OFFICE OF THE CITY MANAGER
1400 CITY OF COLUMBIA, SOUTH CAROLINA
1560 CITY OF COLUMBIA, SOUTH CAROLINA
1760 CITY OF COLUMBIA, SC REPORT NO. 10
2160 CITY OF COLUMBIA, SOUTH CAROLINA
2350 CITY OF COLUMBIA, SOUTH CAROLINA
2540 CITY OF COLUMBIA, SC REPORT NO. 13
2550 CITY OF COLUMBIA, OFFICE OF THE CITY MANAGER
2550 CITY OF COLUMBIA, OFFICE OF THE CITY MANAGER
4250 CITY OF COLUMBIA, SOUTH CAROLINA
4430 CITY OF COLUMBIA, SOUTH CAROLINA
5240 THE CITY OF COLUMBIA, SOUTH CAROLINA
5740 COLUMBIA, OFFICE OF THE CITY MANAGER
5740 COLUMBIA, OFFICE OF THE CITY MANAGER, 1973 CENSUS
5760 HOUSING CODE COLUMBIA, S.C.
5760 (CHARLESTON, COLUMBIA, GREENVILLE)
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**Figure 5.** Example of VSPC 'CHANGE' mode.

The combined features of VSPC and SAS enable staff in the Bureau Library to interactively check holdings through VSPC commands or generate more extensive bibliographical searches through SAS. Since the library is presently staffed by part-time personnel, record keeping can be a problem. Through its ability to locate materials by any string of alphanumerical characters, VSPC has made it possible to check on holdings knowing only minimal information about them. Over time the interface will be expanded to include an ordering and check out system. New materials are now being entered directly into VSPC workspaces through a VSPC-APL FULLSCREEN (IBM, 1976) data entry format (fig. 6).

As the VSPC-SAS interface has developed and expanded it has responded to a varied set of requests with but minor adjustments. Most modifications have involved changing SAS statements and have been made directly by the library staff. The system's ability to meet the basic library functions has now been recognized by other groups at the University. Masters students in the College of Librarianship are presently being introduced to the system as part of their curricula and a number of faculty members in the humanities and social sciences have expressed interest in adapting it to meet their needs. The VSPC-SAS interface is ideal for groups or individuals with sizeable collections of reference materials that require frequent searches, updating and listings. Although originally SAS may have been designed to meet number crunching and statistical analysis requirements, it may prove to be equally valuable to those individuals whose data are basically non-numerical.

**REFERENCES**

