**BISARS REVISITED**

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**INTRODUCTION**

At the 1981 SUGI Conference, a paper entitled "Bibliographic Information Storage and Retrieval System (BISARS)" was presented by Manjeet S Chhinnan and Leonard Moon. That paper describes a system written using SAS that permits the average (non computer specialist) researcher to create and update a file of bibliographic data and retrieve information from this file according to author(s) or keyword(s). Although this system was effective in storing and retrieving data, it had two drawbacks, namely, it required a working knowledge of JCL and was not very user friendly.

Using the original programs, supplied to us by the authors, BISARS has been enhanced with modifications to the original programs and with the creation of new programs. These enhancements give BISARS more functions, allow it to be either batch or interactive, and make it more user friendly through the use of menus and prompting TSO CLISTS.

BISARS now permits activity selection via menu and then automatically selects the appropriate SAS program(s) to perform the selected task. These SAS programs are permanently stored on disk and when selected for a requested task, are copied to allow customizing modifications to meet the specific user requirements. This process not only assures the integrity of the permanent SAS programs but also allows flexibility of program function. The system now also handles all the file management and account housekeeping chores to relieve the user of these JCL tasks. Finally, in the interactive mode, comprehensive notes are included to inform the user as to what is happening and where appropriate, optionally selectable tutorials are available.

**DATA DESCRIPTION**

Data is input in essentially the same fashion as described in the Chhinnan and Moon paper. In response to specific requests by our users, the number of authors (6) and keywords (9) have each been increased to 21, and the number of title lines (3) and source lines (3) have each been increased to 6. Since the system was made interactive, the 80 column restriction which exists in the batch environment can be eased. Using TSO Edit to create the input data set with the NONUM option (or the UNNUM command after the data set has been created) and with LRECL(133) permits the input record size to be increased to 132 which in turn permits the author and keyword fields to be increased to 39 alphanumeric (non blank) characters. This change coupled with a realignment of the field boundaries, allows the use of the TSO EDIT subcommand TABSET for all lines of the input. This simplifies the data entry functions and eliminates some errors.

**DATA FORMAT**

The input file of data which is created using TSO EDIT must have the following data format. Note, the first two columns are the card address code.

**AUTHORS** (up to 7 lines)

Col: 1-2 4-11 15-53 54-92 93-132

A1 Document Code Author #1 Author #2 Author #3

A7 Document Code Author #19 Author #20 Author #21

**TITLE** (up to 6 lines)

Col: 1-2 4-11 15-115

T1 Document Code Title

T6 Document Code Title Continued

**SOURCE** (up to 6 lines)

Col: 1-2 4-11 15-115

S1 Document Code Source

S6 Document Code Source Continued

This 8 digit alphanumeric code is described in the Chhinnan and Moon paper. There are no real restrictions in how the user wishes to use the eight characters to create a coding mechanism to suit his particular application.

**Authors**

Seven Author lines are allowed with a maximum of 3 authors per line with a maximum of 39 characters per author. The address codes for the Author lines are A1 - A7.

**Title**

Six Title lines are allowed with a maximum of 100 characters per line. The address codes for the Title lines are T1 - T6.

**Source**

Six Source lines are allowed with a maximum of 100 characters per line. The address codes for the Source lines are S1 - S6.

**Keywords**

Seven Keyword lines are allowed with a maximum of 3 keywords per line with a maximum of 39 characters per keyword. The address codes for the Keyword lines are K1 - K7.
From these data format descriptions, it can be seen that if the tabs in the TABSET command are set at 4, 15, 54 and 93, they will be able to handle all the formats.

This enhanced system, as the original, only retrieves information on the basis of the Author fields or the Keyword fields. Title and Source fields are not searched. Therefore, line T1 - T7 and S1 - S7 constitute free text lines and can be used to store any information desired in addition to or in place of the designated data.

The beginning step in this process is the creation of the temporary physical sequential file containing the input which will be used to create or update the SAS data base. The details of this process are somewhat installation dependent, but should be similar to the following. The user must sign onto the computer and access TSO. When in TSO the following instructions should be entered.

EDIT 'Data set name' DATA NEW NONUM LRECL(133) TABSET ON(4,15,54,93)

Now by typing in another carriage return (cr), you will be able to set the tabs by typing

TABSET ON(4,15,54,93)

After this, TSO should prompt for the first data input. At this point if you exit INPUT by entering a carriage return (cr), you will be able to set the tabs by typing

TABSET ON(4,15,54,93)

The purpose of this procedure is to create the Master Catalog. After having created the input data file as described above, the user has met the prerequisites for this procedure. The system describes the procedure and if the user chooses to proceed, information of the expected size of the database is requested so that an appropriately sized dataset can be created. If not, the option menu appears to permit another selection. The user must supply the name of the temporary data set and also the name of the desired permanent Master Catalog. Then the system creates a permanent SAS database, supplying all the required JCL so that the data is then entered into the database by the system and the procedure is ended with the issuance of a report. The report is a listing, sorted by document code, of the entire database.

The first thing which is done is to set certain parameters in TSO to prohibit any message interruptions of the session. Next, BISARS finds and purges any temporary data sets set up by a previous session which for some reason still exist (this would have had to have been an abnormal end of the session caused by a system failure or a communications failure). At this point a menu of following options is presented.

1) Create Master Catalog
2) Update Master Catalog
3) List Master Catalog
4) List Master Catalog by Keyword
5) List Author and ID Code
6) Search Master Catalog by User Logic and Keywords
7) Search Master Catalog by User Logic and Author
8) Exit from BISARS
9) Restore Backup to Master Catalog Utility
10) List Keyword and ID Code
11) List Master Catalog by First Author

The user is then prompted to make a selection from the menu. Here, as in all parts of the BISARS system, the options are verified via echo and the user is permitted to make corrections prior to continuing. As an option is selected, an explanation of the selected procedure is given and the user is permitted to exit the procedure if it is not what he thought it was or if he has not completed the listed prerequisites. Finally, in every procedure except the RESTORE procedure, the user is prompted to supply a descriptive title to the report which is produced.
named, BACKUP. "database name". The system asks if the update will increase the size of the database to a point larger than the original estimates. If this is so, then as part of the update process, the system will allocate more space for the database. After the update is run, the backup version remains on the system. Updating is accomplished by replacement. The entire line in the database is replaced with the new line in the update file. New entries are merged into the database using the document code as the key. The procedure prints out a report which is a complete listing of the updated database. The user has the opportunity to check the database to verify that the update was successful. When completely satisfied, the user must delete the backup version. He can either do this using the delete command in TSO, or use the procedure. As noted previously, the system inquires as to the status of the backup file. If it has not been deleted, the user has the option of requesting the procedure to do it prior to beginning the new update.

LISTING PROCEDURES

The five listing procedures serve as report generators as well as error checking tools. All the listing procedures, when selected, begin with a description of the procedure. The user may choose to return to the menu or continue. If the listing is desired, the Master Catalog name must be supplied and then an optionally title can be specified. All of the listing procedures produce a batch request. The user then uses the system status command to determine when the job has completed. Then depending upon the anticipated size of the output, the type of terminal being used, and installation regulations the output can be printed at the local terminal or can be routed to a high speed printer.

OPTION 3 - List Master Catalog

This report is a complete listing of the database sorted by document code. It is the same report that is produced by the Master Catalog Creation procedure and the Update Master Catalog procedure. Under each document code all the information contained in the database concerning that document is printed.

OPTION 4 - List Master Catalog by Keyword

This report is a listing of every Keyword used in any of the documents, sorted by Keyword. Under each Keyword is a list of all the documents which contain that Keyword, sorted by document code. Under each document code, all the information contained in the database concerning that document is printed.

OPTION 5 - List Author and ID Code

This report is a listing of every Author who appeared in any of the documents, sorted by Author. Under each Author is a list of all the documents in which that author's name appears, sorted by document code.

OPTION 10 - List Keyword and ID Code

This report is a listing of every Keyword used in any of the documents, sorted by Keyword. Under each Keyword is a list of all the documents which contain that Keyword, sorted by document code. No other information from the database is printed.

OPTION 11 - List Master Catalog by First Author

This report is a listing of every Author who appeared in the first author location in any of the documents, sorted by Author. Under each Author is a list of all the documents in which that author's name appears, sorted by document code. Under each document code, all the information contained in the database concerning that document is printed.

SEARCHING PROCEDURES

There are two search procedures available. These procedures search the Master Catalog by user supplied Keywords or Authors and user supplied logic. Both the search procedures, when selected, begin with a description of the procedure. The user may choose to return to the menu or continue. If needed, the user can request a tutorial to help step through the procedure. If the search is desired, the Master Catalog name must be supplied and then an optional title can be specified. The searches can be done on line taking advantage of the interactive SAS or can be done by submitting a batch job. The user is asked to pick his preference. If the interactive option is selected, all the file allocations and SAS setup requirements are taken care of by the system. They are all transparent to the user.

OPTION 6 - Search Master Catalog by User Logic and Keywords

This search uses user supplied Keywords (up to 12) and user supplied boolean algebra statements to search the database. The system asks how many Keywords will be used and then prompts for them. Each Keyword is echoed upon entry and changes are permitted. Next the system prompts for an optional title for the report. Finally the system requests the boolean statements (and, or and not are allowed) which define the associations among the supplied keywords. Once this information is supplied, the search can be done. If done interactively, the results appear on the terminal.

OPTION 7 - Search Master Catalog by User Logic and Author

This search uses user supplied Authors (up to 6) and user supplied boolean algebra statements to search the database. The system asks how many Authors will be used and then prompts for them. Each Author is echoed upon entry and changes are permitted. Next the system prompts for an optional title for the report. Finally the system requests the boolean statements (and, or and not are allowed) which define the associations among the supplied Authors. Once this information is supplied, the search can be done. If done interactively, the results appear on the terminal.
BACKUP AND RECOVERY PROCEDURE

OPTION 9 - Restore Backup to Master Catalog

Utility

If, during an update, a system error or user error has caused the database to be corrupted, then the user will want to restore the database to its original condition prior to the update. This is the reason for the backup copy of the database which is made prior to the update. That backup copy resides in the user account under, BACKUP."database name". This procedure automatically handles the restoration. The user is prompted for the name of the corrupted database and the system deletes the corrupted database, and converts the backup Master Catalog into the active Master Catalog.

READY

EXEC BISARS

*******************************************************************************
* * BIBLIOGRAPHIC INFORMATION STORAGE AND RETRIEVAL SYSTEM * *
*******************************************************************************
DO YOU WISH TO SEE THE SYSTEM MENU ?NO

OPTION (NUMBER) YOU WISH TO ENVOKE ?6

SEARCH MASTER CATALOG BY USER LOGIC AND KEYWORD PROCEDURE

THIS PROCEDURE SEARCHES THE MASTER CATALOG BY USER SUPPLIED KEYWORDS AND USER SPECIFIED LOGIC. THE OUTPUT FROM THIS PROCEDURE IS A LISTING OF ALL INFORMATION AVAILABLE ON PAPERS WHICH HAVE MET THE REQUIREMENTS SPECIFIED BY THE USER.

DO YOU WISH TO CONTINUE IN THIS PROCEDURE (YES OR NO)....YES

WHAT IS THE BIBLIOGRAPHIC INFORMATION MASTER CATALOG NAME ?BA253.BIBLIO

THE PERMANENT MASTER CATALOG WILL BE NAMED.... BA253.BIBLIO

IS THE PERMANENT CATALOG NAME CORRECT ?YES

HOW MANY KEYWORDS WOULD YOU LIKE TO SEARCH BY (1-12) ?2

THE BISARS SEARCH ROUTINE WILL NOW PROMPT YOU FOR THE KEYWORDS REMEMBER THAT BISARS WILL NOT ACCEPT MULTIPLE KEYWORDS SEPARATED BY A SPACE. MULTIPLE KEYWORDS SHOULD BE SEPARATED BY AN UNDERSCORE (_). EXAMPLES:

1) CARBONIC_ANHYDRASE
2) PROJECT2_BUDGET

WHAT IS THE FIRST KEYWORD ?OXITROPIUM-BROMIDE

THE FIRST KEYWORD WILL BE ....OXITROPIUM-BROMIDE

IS THE FIRST KEYWORD ENTERED CORRECTLY ?YES
WHAT IS THE NEXT KEYWORD? PLACEBO

THE NEXT KEYWORD WILL BE .... PLACEBO

IS THE NEXT KEYWORD ENTERED CORRECTLY? YES

DO YOU WISH TO INCLUDE A TITLE ON THE OUTPUT REPORT? YES

YOU WILL NOW HAVE THE OPPORTUNITY TO INCLUDE IN YOUR OUTPUT REPORT
ONE ADDITIONAL LINE FOR A TITLE. PLEASE LIMIT THIS TITLE TO 60 CHARACTERS.
A GUIDE WILL BE PRINTED SO THAT YOU WILL KNOW THE LINE LENGTH
WHEN THE SYSTEM WRITES THE LINE "TITLE", TYPE IN YOUR TITLE LINE.

XXXXXXXXX1XXXXXXXXX2XXXXXXXXX3XXXXXXXXX4XXXXXXXXX5XXXXXXXXX6

NOW ENTER YOUR TITLE AFTER THE SYSTEM WRITES "TITLE?"
TITLE?
SUGI DEMONSTRATION (SEARCH KEYWORD PROCEDURE)

THE FOLLOWING IS A COPY OF YOUR TITLE
SUGI DEMONSTRATION (SEARCH KEYWORD PROCEDURE)

IS YOUR TITLE LINE ENTERED CORRECTLY? YES
PLEASE WAIT WHILE BISARS PROCESSES YOUR TITLE

DO YOU WISH TO HAVE THE KEYWORDS PRINTED OUT WITH THE TITLE, AUTHORS AND SOURCE?
NO

THIS IS THE USER LOGIC DESCRIPTION SECTION

IF YOU HAVE NOT USED THIS PROCEDURE BEFORE YOU MAY WANT A USER TUTORIAL
BEFORE PROCEEDING THROUGH THIS SECTION. IF ON THE OTHER HAND YOU HAVE
EXPERIENCE USING THIS PROCEDURE YOU MAY NOT NEED TO BE REFRESHED ON THE
OPERATION OF THE KEYWORD SEARCH PROCEDURE.

DO YOU WISH TO HAVE A TUTORIAL ON THE USE OF THIS PROCEDURE (YES OR NO)? NO

XXXXXXXXX1XXXXXXXXX2XXXXXXXXX3XXXXXXXXX4XXXXXXXXX5XXXXXXXXX6XXXXXXXXX7XX

LINE 1
K11='OXITROPIUM-BROMIDE' AND K22='PLACEBO'

LINE 2

LINE 3

THE FOLLOWING IS A COPY OF YOUR RESPONSES. ANY MISTAKES CAN NOW BE
CORRECTED IN THIS SECTION OF THE SYSTEM

LINE 1
K11='OXITROPIUM-BROMIDE' AND K22='PLACEBO'

IS LINE 1 CORRECT (YES OR NO)? YES

LINE 2

IS LINE 2 CORRECT (YES OR NO)? YES

LINE 3

IS LINE 3 CORRECT (YES OR NO)? YES
THE KEYWORD(S) AND LOGIC EXPRESSION ARE NOW BEING PROCESSED BY BISARS.
PLEASE WAIT FOR NOTICE THAT THIS SECTION HAS BEEN COMPLETED.

YOU WILL NOW HAVE THE OPTION OF OBTAINING YOUR SEARCH ONLINE OR IN BATCH.
IF YOU EXPECT THAT THIS SEARCH COULD RESULT IN A VERY LARGE OUTPUT, THEN
THE BATCH MODE IS THE APPROPRIATE CHOICE. IF HOWEVER THIS SEARCH IS
SELECTIVE ENOUGH TO RESULT IN A BRIEF NUMBER OF RESPONSES THEN THE ONLINE
MODE WILL PROVIDE YOU WITH THE INFORMATION IMMEDIATELY.

DO YOU WISH AN ONLINE OR A BATCH SEARCH. (ANSWER ONLINE OR BATCH) ?ONLINE

IS THIS THE FIRST TIME YOU HAVE DONE AN ONLINE SEARCH SINCE ENVOKING THIS BISARS
SESSION ?YES

NOTE: SAS RELEASE 79.5 AT DATACROWN INC. (00162).

NOTE: DATA SET WORK.BBLDUMY HAS 13 OBSERVATIONS AND 22 VARIABLES. 20 OBS/TRK.
NOTE: DATA SET WORK.D1 HAS 12 OBSERVATIONS AND 2 VARIABLES. 320 OBS/TRK.
NOTE: DATA SET WORK.D2 HAS 1 OBSERVATIONS AND 2 VARIABLES. 326 OBS/TRK.
NOTE: DATA SET WORK.ALL HAS 1 OBSERVATIONS AND 2 VARIABLES. 1168 OBS/TRK.

15:02 TUESDAY, JANUARY 5, 1982
DOCUMENTS RETRIEVED FROM THE MASTER FILE BASED ON SUPPLIED LOGIC AND KEYWORDS

SUGI DEMONSTRATION (SEARCH KEYWORD PROCEDURE)

25300002 FLOHR,E BISCHOFF, KO
OXITROPUM BROMIDE, A NEW ANTICHOLINERGIC DRUG, IN A
DOSE-RESPONSE AND PLACEBO COMPARISON IN OBSTRUCTIVE
AIRWAY DISEASES.
RESPIRATION 28(2):99-104, AUG 1979
(MED DEPT, UNIV ESSEN, W GERMANY)
NOTE: 7 LINES WERE WRITTEN TO FILE PRINT.

NOTE: SAS INSTITUTE, SAS CIRCLE, BOX 8000, CARY NC 27511

DO YOU WISH TO ENTER THE SEARCH BY KEYWORD PROCEDURE AGAIN ?NO
DO YOU WISH TO GO TO ANOTHER PROCEDURE OR END. (ANSWER YES OR END) ?END

THIS COMPLETES BISARS SYSTEM SESSION
READY