

ABSTRACT:

An Abstract Filing and Retrieval System

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Bulk, slow access, and singular function characterized pencil-and-paper information storage. Appropriately programmed microcomputers permit compact, rapidly accessible, multiple function systems. One example, tailored to our needs for storage of abstracts of scientific literature, is described. Its salient features are simultaneous application of multiple search criteria, transfer of bibliographic entries to text, and unattended search and printing of reports. Storage and report formats can be altered.

INTRODUCTION

Efficient storage, search, and retrieval of scientific information are significant problems considering the bulk of current literature. Library systems are often too general for an individual's needs and may not reflect an appropriate list of journals. Thus, many of us maintain abstract card files tailored to our specific needs. After many years, their size renders them unwieldy and inefficient. One alternative takes advantage of the compact storage, rapid search, and flexible report format afforded by programming microcomputers. The following describes the function of a program we designed to solve the problem.

Our system is composed of the Abstract program, a two disk drive TRS-80 Model III, TRSDOS 1.3, Scripsit, and a printer. TRSDOS is a program which supervises the computer's operation. Scripsit is a word processing program. Abstract has three features not included in moderately priced programs available at the time of its inception: (a) simultaneous application of multiple search criteria without requiring time consuming record sorts, (b) creation of bibliographic files that can be added to text, and (c) unattended

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search and printing of reports in addition to visual display.

Information is stored on diskettes pairs holding 650 abstracts. A pair represents a file made up of records, each containing the information from a single abstract. A record is made up of 10 fields representing the categories of information within an abstract. The record format is:

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DATA RECORD NUMBER: ...
YEAR: .. DISEASE: ..... AGE: ... CARD: ....
TEST 1: ..... TEST 2: ..... TREATMENT: .....
BIBLIOGRAPHY: .....
REMARKS: .....
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The periods after first eight fields indicate the maximum number of characters they may contain. A maximum of 215 characters may be used in BIBLIOGRAPHY. The unused number, plus 33, may be used in REMARKS. The program displays the number of characters available. Upper case letters are forced in all fields except YEAR and REMARKS. The program rejects commas except in BIBLIOGRAPHY and REMARKS. Characters other than numbers are rejected in YEAR. Otherwise, any keyboard character may be used in any field.

DATA RECORD NUMBERS are automatically assigned when records are added to a file and represent the sequence of entry. They are displayed only during searches and are used when transferring bibliographic information to text files. YEAR is designed to accept the last two digits of the year of publication. They are automatically added to the end of BIBLIOGRAPHY, prefaced by an apostrophe and terminated with a period. AGE requires typing one of seven letter combinations (described below). CARD permits any combination of numbers and letters. It designates how an abstract was used or where it was encountered; e.g., NIH for a grant or JC for journal club. DISEASE, TEST 1, TEST 2, and TREATMENT are fields designed to meet our needs.

USE

Turn on the computer. Place the master program diskette in drive zero. Press the RESET button. (Terms with specific TRSDOS or Abstract usage are in upper case.) An AUTO command on the diskette loads Abstract which leads to the display of an introductory message. Press any key to display the main menu. Typing 5 returns you to TRSDOS. Some house-keeping functions must be completed before proceeding. Place a blank diskette in drive one. BACKUP (duplicate) the master program diskette on the blank diskette. Repeat BACKUP on a second blank diskette. Keep the original in a safe place. Keep one copy to transfer the program to the first of each data pair. Place the other in drive zero and a third blank diskette in drive one. FORMAT (organize storage space) the diskette in drive one. It becomes the data diskette. CREATE (set aside specific file space) an

ABSXREF- file on drive zero and an ABSDATA- file on drive one. The eighth character of the two file names must be the same and may be any digit or upper case letter. The CREATE steps are done only the first time a pair is used. Remove and label the diskettes. An appropriate title for a program diskette would be "Program, 0," and "Absxref-" (after CREATE). A title for a data diskette would be "Data, 1, Absdata-". You are ready to explore the program.

Before you do, note three things. Remember the warning in the introductory message. Type Q before removing diskettes or turning off the computer. Menu options are implemented by typing their number or first letter. Pressing ENTER is not required. Although there are repeated opportunities to correct abstracts before storage, they cannot be deleted or edited afterward. Now, place the program and data diskettes in the appropriate drives. Press RESET and follow the menu options. Play with the program using dummy data.

Option one of the main menu displays the record format described above, less the DATA RECORD NUMBER. Its options are quitting to the main menu by typing Q or entering data with E. E produces a cursor at the YEAR field. YEAR and AGE cannot be omitted. AGE must be NEO(natal), PED(iatric), ADU(lt), GER(iatric), MIX(ed ages), or NHS (nonhuman subjects). Press the @ key to omit data in any other field. Press ENTER to terminate entry in one field and move to the next. Backspace and retype to correct characters within a field. When you have completed REMARKS, the program asks if all the entries are correct. Y stores the information. Then, all entries are erased from the screen and you may return to the main menu or enter other records. N also returns you to the quit or enter options. However, the most recent entries in each field remain displayed. Typing Q returns you to the main menu, eliminating the data. Typing E allows you to use the @ key to move to the field(s) to be changed. Retype the entire field. The corrected information is displayed as you type. Press ENTER to end the correction. When you have completed the corrections, use @ to skip past REMARKS. The program again asks if the entries are correct. Y stores the abstract, clears the display, and returns you to the quit or enter options. N allows you to make further corrections.

Option two of the main menu searches the stored abstracts and allows for two forms of report. Abstracts containing criterion phrases can be printed or viewed on the screen. P produces a printed copy of all fields of any abstract meeting criteria plus its DATA RECORD NUMBER. V simply locates abstracts meeting criteria. Abstracts must then be displayed, one at a time, by typing R. Q will terminate the process. Only the DATA RECORD NUMBER, BIBLIOGRAPHY and REMARKS are displayed. Keep a written list of the DATA RECORD NUMBERs of bibliographic entries you want to add to text such as articles. The list is used in main menu option three. After selecting the type of report, you are asked to specify search

criteria, one for each of the second through seventh fields of the record format. Criterion entry is similar to record field entry except that only a range of years must be specified. Retype the same numbers to search a single year. All other categories are optional. @ skips a field, producing a wildcard effect; i.e., data in the corresponding fields of every stored record will produce a match without regard for its content. An explicit match occurs when a records field equals the criterion or when the first part of its field equals the criterion; e.g., "audio" matches "audiology" and "audiogram." The program prints or prepares to display a record when all criteria match all corresponding fields.

Option three of the main menu permits saving BIBLIOGRAPHY fields to a separate file on the program diskette. There is room for about 150 entries. The file may be APPENDED to any ASCII (a standard alphanumeric code) file with TRSDOS or CHAINED to Scripsit files. Similar commands are part of other word processing programs. Any will work if they decode ASCII format. You must have the DATA RECORD NUMBERs found during a search. First, you are asked to name the file in which to store the information. The file is CREATED for you. Then, typing a DATA RECORD NUMBER displays the associated BIBLIOGRAPHY and REMARKS. You are given the option of saving the BIBLIOGRAPHY (but not REMARKS.) After saving all desired information, COPY the file to another diskette. Then, KILL (erase) it on the program diskette to make room for other data.

Continue to play until you are satisfied you can successfully enter, search for, and save data. When you are ready to store valid abstracts, KILL ABSXREF- and ABSDATA- on the diskettes you have been using. Then reCREATE them for use with valid data.

MODIFICATIONS

Field names and length may be modified to suit individual needs. However, the total information for each record must not exceed 56 characters for the first eight fields or 248 characters for the last two.

The program is compatible with TRS-80 Model 4 or Model 4P computers operating in Model III mode and with hard disks available for Models III, 4, and 4P. A program for LDOS 5.1.3 (an alternative to TRSDOS) is available. Compatibility with other computers, equipment, or operating systems has not been established.

SUMMARY

We have described the operation of a program we designed to store information we abstract from scientific literature. Its primary advantages are physical compactness and rapid access to abstracts meeting a combination of criteria. Its secondary advantage is the ability to transfer bibliogra-

phic entries to text files such as articles. The elimination of retyping and proofreading saves additional time. The record fields were structured to meet our needs. They can be changed.

ACKNOWLEDGEMENTS

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