DATASTOR: A multivariable data handling system

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Research involving the collection of multivariable behavioral and physiological data from experimental subjects can be facilitated if a variety of data can be stored, in digital form, under a single filing system. The PDP-12-based system described here is designed to format a LINCTAPE for data storage (LIBWRITE), store the contents of the second 4K of memory on the prepared LINCTAPE (DATASTOR), print the index of the LINCTAPE's contents (PLIB), and recall the data from LINCTAPE to memory (DATACALL). The system provides an automatic index with a unique entry number and identification for each data record so stored, and recall from LINCTAPE by specification of the entry number only. The two binary subsets of this system, DATASTOR and DATACALL, are attached to various physiological and behavioral data collection programs, providing standard data arrays on LINCTAPE that all new programs can instantly read once DATACALL is attached.

Input. The system requires that each data LINCTAPE be initialized. LIBWRITE is the program which performs tape initialization to the index by writing the tape-resident pointers. It must be used only once per LINCTAPE, usually just after the tape has been marked. The index on the tape resides in Blocks 0-77, and data starts at Block 100 and goes to Block 777. There is room for approximately 200 index entries if the data area is not filled first. Automatic protection from overwrite on either the index or data areas is built-in, and warning messages are typed after the last safe entry is made.

At the conclusion of a data collection program such as SLEEPSTA (Walker & Reite, 1976), DATASTOR is used to supervise storage. DATASTOR first checks the status of the LINCTAPE to determine the location at which the data should be stored. Once this is accomplished, DATASTOR asks descriptive

information about the data and inserts it into the tape index. Examples of the descriptors are: name, date, time, program used, experiment, and user. After a final review of the descriptors, DATASTOR stores the data on LINCTAPE and returns control to the main program.

Output. DATACALL is a binary subroutine, used to retrieve data from LINCTAPE. DATACALL must be appended in binary form to the retrieval or analytic main program in LIF1; when it retrieves a specified entry, it will load its data into memory in the same location at which the data was originally stored under the control of the original data collection program. Once the retrieved data is loaded, the original program to which DATACALL is appended can be used to manipulate the data in the same manner it could have when the data was originally collected.

Each original data collection program has DATACALL appended, and the name is changed slightly to indicate that the program is being used for retrieval from LINCTAPE instead of original data collection. DATACALL can also recall a number of individual entries or contiguous strings of entries.

PLIB is run periodically to produce printouts of the contents of a LINCTAPE. Each entry number lists the identification descriptors and the block numbers on the LINCTAPE for the actual data.

This system provides access to data stored on LINCTAPE through an exclusive computer-derived numbering and storage scheme. It can provide as much or as little identifying information as desired. The system allows the operator to store data as it becomes available, without a bulky filing system, because the index is contained on every tape. It avoids the restriction of DIAL to have only 64 eight-word titles, and, similarly, allows greater specification than afforded by an OS8 filing system.

Hardware requirements. PDP-12, 8K, 2 LINCTAPES.

Software requirements. LAP-6-DIAL.

Availability. LINCTAPE cost: \$10. The material may be obtained from Stephen Walker, Department of Psychiatry, University of Colorado School of Medicine, Denver, Colorado 80262.

REFERENCES

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