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IN A
COMMUNITY INFORMATION CENTER

by: Jean Tague and John Carroll

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COMPUTER UTILIZATION
IN A
COMMUNITY INFORMATION CENTER

by

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TABLE OF CONTENTS

	Page
I Introduction	1
II System Description	6
III System Evaluation	17
IV Future Developments	25
Appendix: CACTIS User's Guide	

I INTRODUCTION

COMPUTER UTILIZATION IN A COMMUNITY INFORMATION CENTER

Community information centers, also known as neighborhood information centers and information and referral centers, are children of the 1960's. They arose out of the activism of that decade in response to the bewilderment of citizens facing an increasingly complex and seemingly impenetrable fortress of governmental offices and services. Although programs to minister to the various economic, educational, medical, and social needs of citizens have increased at all governmental levels--federal, provincial, and municipal--an individual with a specific problem might spend days, weeks, or even months finding the proper office or contact person to approach. Access to services provided by business and private organizations presented similar difficulties, and the role of pathfinder here too was assumed by community information centers.

Information to citizens has always been one of the functions of the public library, and, in fact, some community information centers did emerge from that institution. However, the types of needs satisfied by community information centers on the one hand and libraries on the other are essentially different.

Information needs can be broadly divided into the following categories:

1. Pragmatic information needs--information to cope with day-to-day life, existence and amenities.
2. Recreational information needs--information to fulfill the recreational and cultural aspects of life within a social environment.
3. Business and professional information needs--information required to perform competently in a business or professional environment.
4. Educational information needs--information required to pursue educational studies.

The boundaries between the different categories are flexible, and some sources may serve more than one information need. However, community information centers are concerned primarily with the first category, and libraries primarily with the remaining three.

The difference goes beyond the needs satisfied, however, to the mode of information transfer. Libraries are collection-oriented or secondary sources, i.e. they function by collecting information in the form of records--books, journals, films, phonograph records, etc. They do not generate their own data bank. The records are stored and the user is provided with some tools for retrieving the information contained within them, for example a card catalog, an indexing or abstracting journal, a reference librarian.

Usually pragmatic information is not provided from a collection oriented source. Rather it comes from the local newspaper, the telephone directory,

radio hotline shows, and contact people in organizations and businesses. These might be called distribution-oriented sources of information. Because of the impermanent nature of pragmatic information, it cannot be provided from an information base consisting of publications and other permanent forms of record. The collection and organization of the information in their store is as important a part of the function of distribution-oriented sources as the actual retrieval of information from it.

Community information centers fall into the category of distribution-oriented sources of information. However, in a sense, they are more than a source of information. They provide an index to other distribution-oriented sources of pragmatic information within the community. They are secondary sources for the resources of the community rather than secondary sources for the resources of a library. Community information centers thus fulfill the important function of indexing and abstracting information sources within a community as well as collecting information as a primary source.

Specifically, the functions of a community information center can be divided into the following:

1. To acquire community information from all available sources.
2. To analyze this information.
3. To organize this information.
4. To link potential users to agencies and groups operational in the community.
5. To serve as a feedback port for community services and resources.

Personal interaction is the key to a successful community information center. To keep the database current, liaison must be maintained with a network of offices, services, individuals and resources throughout the community. To achieve their aim of providing pragmatic information to all clients, regardless of status or difficulty, the communication with the client is at a personal level, and includes counselling as well as informing. Very few questions are left unanswered; either the information is provided or a referral is made to another agency.

In such an environment, the value of computerization must be considered very carefully. If automation will detract from the client-staff interaction, then its value is dubious. On the other hand, if automation can free staff from onerous clerical duties, so that they can spend more time talking to clients and tracking down the information they need, then its introduction may provide real benefits.

Using a computer to carry out some of the functions at a community information center can be justified if it results in improved service

or economies of operation without deterioration of service. Funding and staffing are major problems for most community information centers. Few have a guaranteed funding base; most, like the one studied in this project, (Information London), exist from year to year on grants from a variety of sources, governmental and private. Staff are frequently voluntary or, at most, poorly paid, and the turnover rate is high. Most staff time must be devoted to handling client calls.

Many suggestions have been made for introducing computers into the retrieval operation. These usually propose the development of a computer data base for querying either by the center's personnel or, via terminals distributed throughout the community, by the clients themselves. In some proposals, user input to the data base, in the form of an "electronic bulletin board" is also possible. Some have even seen such terminals as instruments for citizen feedback to governmental agencies.

The present study does not take this approach, for several reasons. On the question of user direct access to the database, it was felt this placed conflicting requirements on the system. If users are to access and modify the database directly, the command language becomes all important. It must be simple to use, so that even poorly educated or non-English-speaking users can learn it quickly. On the other hand, it must be extremely expressive, so that all types of informational needs can be input without other assistance. If a language satisfies one of these criteria, it is unlikely to satisfy the other. Another problem, for this study, is that Information London is not physically situated so that users tend to drop in to the premises. Most queries are by telephone. There is a possibility that terminal equipment could be placed in other locations such as the public library or the urban resources center, where it would be available to the public and at the same time under some degree of supervision. This possibility is being explored in a continuation of the present study, looking generally into the question of regional information networking.

On the question of a staff-oriented online retrieval system, results of a previous study (1) had indicated that online retrieval provided no real advantage in a telephone-based question-answering service. Physically, it is more convenient to consult a manual index than to log on to a computer system, key in queries to a data base, and wait for responses. It is no doubt possible to develop more sophisticated systems than the one used in the earlier study, systems which would be continuously available for access and which would show improved response time. However, the costs of such a system seem, given the limited budget at most community information centers, to preclude its serious consideration. The online airline reservation system is an appealing model, but it must be remembered that information centers handle a much greater diversity of query types with a very small fraction of the budget of airline companies. In addition, interviews with personnel at Information London indicated low user acceptance of the retrieval system.

On the question of citizen feedback, approaches other than interactive terminals are probably equally effective, at a lower cost. While direct access gives the user a feeling of personal involvement, judicious filtering of query characteristic statistics may be a more powerful factor in determining government policy. This whole area of citizen feedback deserves more rigorous investigation. And perhaps just permitting all citizens the right to make toll-free calls to any government official would be equally effective.

The purpose of the CACTIS (Computer Assistant for a Community Telephone Information Service) system, described in the following section, is not to provide users with access to the database or with feedbacks facilities to the government. Its approach is more modest, although possibly more realistic: use the computer as an assistant to make as effective and efficient as possible the maintenance of the database and the dissemination of information from the system as it now exists, developed by Information London personnel in a form appropriate to their needs.

The day of the "total systems" approach to computer applications is past. If a computer is to play a role in an information center or any other environment where the users are not computer specialists and have no interest in becoming experts, it must interface easily and transparently with these users. We have attempted, in developing CACTIS, to provide such a system.

The system documentation for CACTIS consists of four parts:

- I System Description
- II Systems Operations Guide
- III Computer Programs
- IV User's Manual

The first part follows as Part II of this report, and the User's Manual is included as an Appendix. The remaining sections are available on request from the investigators.

II SYSTEM DESCRIPTION

1. CACTIS - SYSTEM DESCRIPTION

1.1. Information London

Information London is a non-profit community service organization that provides free information, referral and assistance to the public concerning government, social, health, counselling and emergency services as well as recreation facilities and community organizations.

In order to provide these services, by telephone, to the community, Information London requires extensive and up-to-date information files which can be easily and quickly searched. As with most community information centers, Information London creates, to a large extent, its own information bank. This is accomplished through personal contacts, from releases, brochures and other material received through the mail, as well as through careful perusal of local newspapers.

The file organization developed by the Information London staff over a period of five years is adequate to fulfill their purposes. The most heavily used information is kept on loose-leaf pages contained in subject binders. Each binder provides information about a specific area, such as senior citizen facilities, daycare facilities, community organizations. The subject areas have developed as a reflection of need and usage. In addition to these binders, a general subject Kardex file and a detailed information file-folder file are maintained.

Although the organization of the information is adequate to meet the needs of Information London staff, the maintenance of the files is becoming more and more of a problem for the staff. The data bank requires constant updating because of the nature of the information with which it deals. The information which Information London handles, such as, what functions are provided by local human service agencies both government and private, who are contact persons, what social, recreational, and educational activities are going on, is constantly changing.

In the current manual system, the staff make updates to the data base by simply writing onto the old records or inserting new records where they can. This method has resulted in binders so cluttered with inserted records and changes that the effectiveness of searching for information when needed is significantly degraded.

In addition to their telephone assistance, Information London produces an annual publication of a community directory for sale to other community groups. This project involves a sizeable investment of staff time in updating entries and re-typing the entire directory. The cost of printing the directory has been mostly recovered by selling the directory.

1.2. AUTOMATION - JUSTIFICATION

The nature of Information London's demands for information requires that the sources of information for use and/or dispersement be correct, up to date, and easily recoverable. Automation should provide more readable binders for easier recovery of information, more effective update capability, and thus allow for most effective use of the staff time.

In addition to update capability, an automated system should produce special lists not otherwise available for internal use and distribution to the public with minimal time expenditure of the staff. These special lists may be subsets of binders, rearrangements of records by alternate classification schemes or geographical area, or as results of keyword searches. By treating the community directory as a binder, it can be kept up to date on a continuous basis and used as a source of community information all year. Once a year, or more often, it can be produced as a special list and sent directly to be off-set printed from the computer output. This procedure will reduce dramatically the time and money expenses incurred in producing the directory.

The use of the computer to perform the updating function was suggested by an earlier study (1). This study indicated that on-line querying of a computer data base provided no advantage for the staff over accessing printed binders at Information London. Following this study, it was recommended that a more useful system might include the following facilities:

1. to generate data in loose-leaf form to be used in subject binders
2. to allow regular updating of the data base by producing replacement pages for the binders
3. to allow for the production of special lists from the data base for both internal and external distribution
4. to provide camera-ready copy of sections of the data base for publication.

In the spring of 1975, the Federal Department of Communications awarded The University of Western Ontario a research grant of \$26,400 to implement these recommendations. The result of this grant has been the development of CACTIS System by the University and Information Systems and Services, a local consulting firm.

1.3. OBJECTIVE OF CACTIS SYSTEM

One objective of the CACTIS System for use in community information centres such as Information London, is to provide assistance to the staff by automating certain functions of their manual system for information control.

An additional objective of the system is to provide information handling capabilities beyond the scope of a manual system.

A final objective of this system is to incorporate the computer as a working tool of the information staff. To this end it must be operable by the staff with ease and confidence and within their time constraints.

1.4. DESIGN OF CACTIS SYSTEM

The CACTIS System is a mix of interactive and batch mode operations. Data input, updates and list requests are performed interactively on-line. Actual processing of these requests is done in batch mode to take advantage of less expensive computer time and free the staff for other work.

Access to the system for all input, and outputs is via terminal located in the Information London office. Data input, and requests for updates and lists are entered in a simple manner, on-line, and stored on disk. Interaction with the computer is limited to editing input, displaying input and syntax checking to eliminate likely errors. This procedure is not imposing for the user and response is rapid even when the computer is most heavily utilized.

When ready to process the requests, which may have been input in one or more input sessions, the user makes contact with the computer and issues a single command to initiate the processing of all requests stored on disk. The user is once again free to go home or attend to other work.

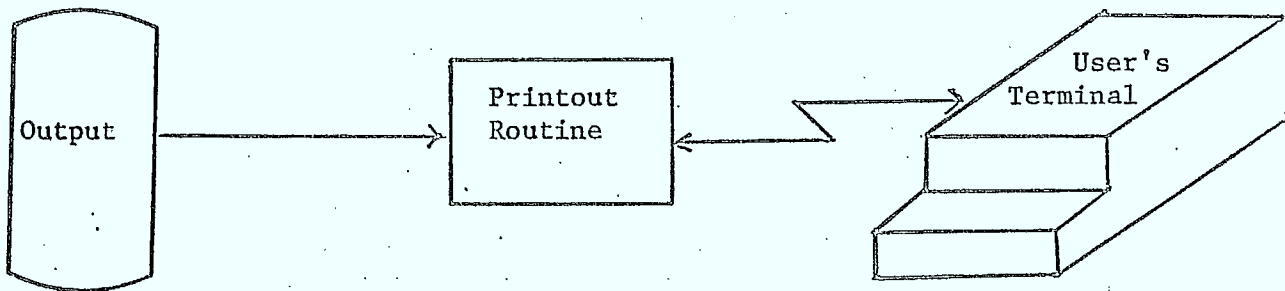
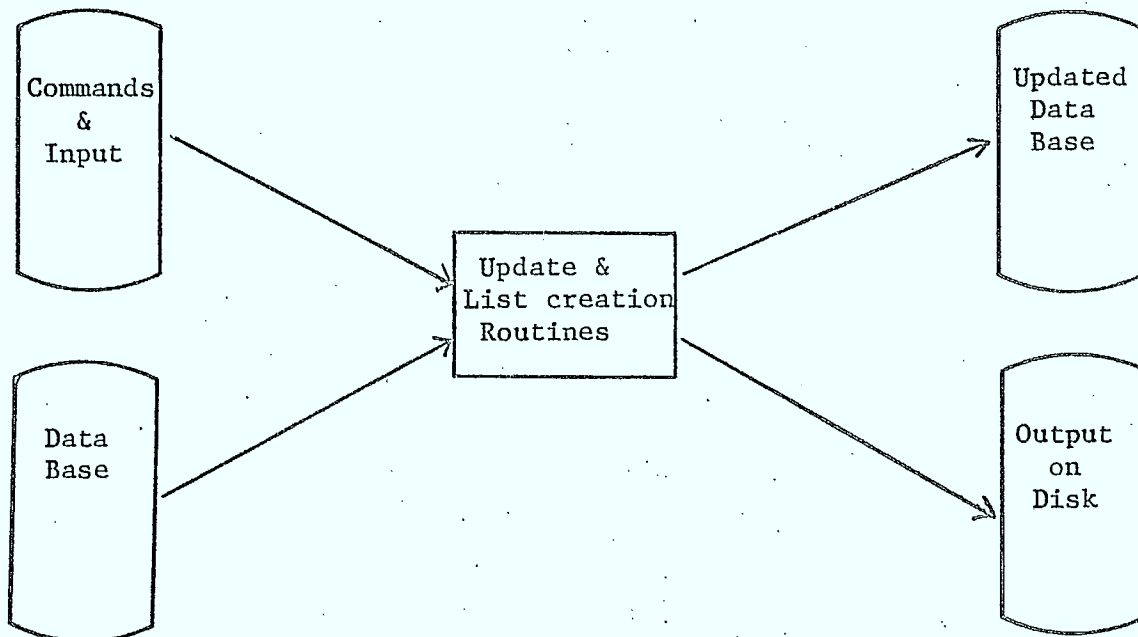
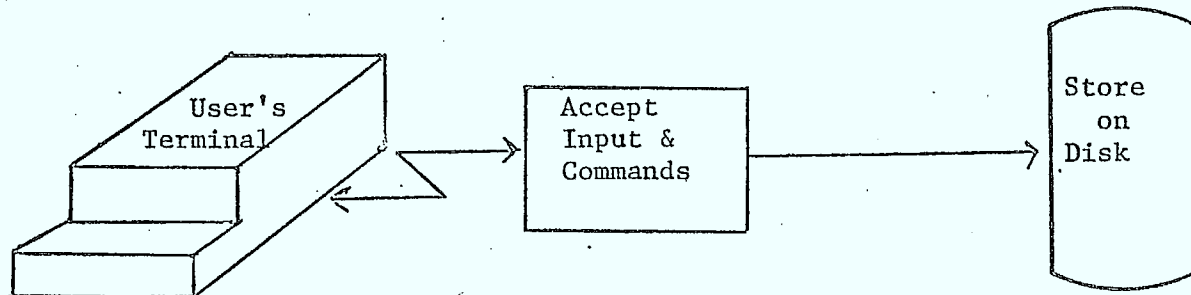
The processing in batch mode of these requests is deferred until it can utilize less expensive computer time. This deferment also ensures the availability of the private disk drive which holds the data base.

When processing is completed, the results are stored on the common disk for access by the user.

When the user is ready for the output, generally the next morning, he again makes contact with the computer from the Information London office terminal. He then issues a single statement which produces the output via the user's terminal in the format requested. The output procedure has a restart capability to allow for the production of extra copies of certain lists even though not originally requested.

The output from updates can then be entered directly into the subject binders, retaining the old pages for a history file. Special list outputs can be transformed into ditto masters for reproduction for distribution both inside and outside of the office.

CACTIS



2. SYSTEM BOUNDARIES

The system is primarily an off-line or batch run system. Interaction is provided for on-line entering of commands and input of data records. Retrieval of portions of the data base and updating of the data base has been designed for overnight use rather than for immediate response.

The emphasis of the system has been the capability to update continuously a data base which is used primarily from hard copy. On-line access to the data base is not a primary function of this system.

The organization of the data base reflects this disposition to usage of hard copy records rather than on-line access to data records.

3 SYSTEM MODULE DESCRIPTIONS

3.1 MODULE 1 - CREATION OF NEW DATA BASE

The first module of the system deals with building an entirely new data base for use by CACTIS system.

An input data file is first set up and initialized using the program, MAKRUN. New records of tagged lines can then be stored in this file by the user via the CREATE program in on-line mode.

When the entire file has been input these records are formatted for access by CACTIS system using the DATNEW program. The formatted records are then in a file which can be converted into an ISAM file called FMAS which is the data base file accessed by CACTIS system for retrieval and updates.

3.2 MODULE 2 - CREATION OF INVERTED LISTS

This module deals with the creation of inverted lists which are used to process Boolean requests for retrieval from the data base.

For a data base which is ISAM organized, inverted list files for area code, classification code, keyword of records in the data base are formed using the program, INVER.

These files are then converted into ISAM files for access by CACTIS system.

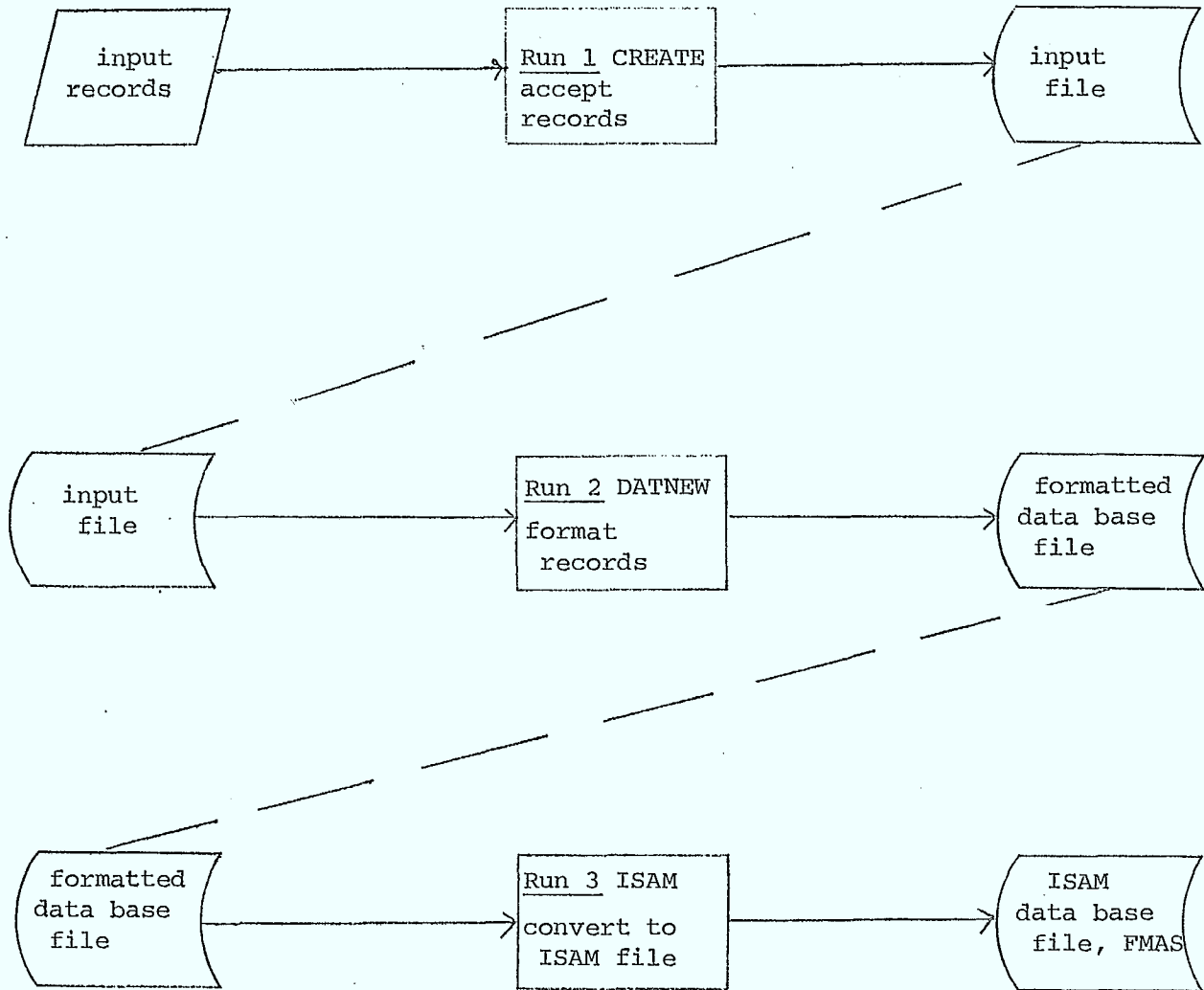
3.3 MODULE 3 - CACTIS system

The CACTIS system module is the basic module of the system. It accepts input from the user via CACTIN program in the form of commands.

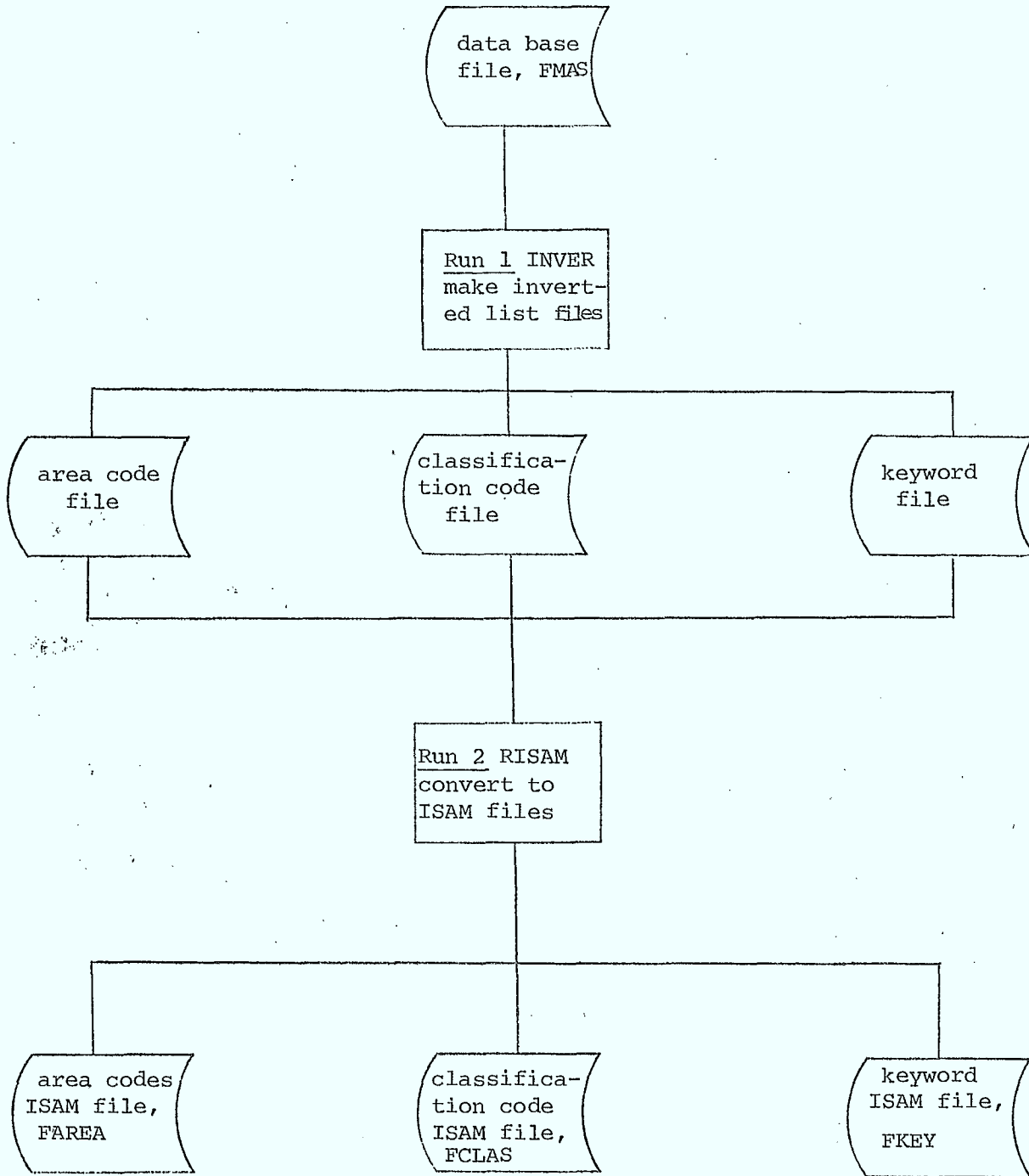
The user then submits an MPB program called CACTIS which controls the execution of these commands. The update and retrieval commands are executed by the programs, UPDATE and LIST using the data base producing output for printing at a later date.

When the user is ready for the output generated he requests that it be printed on his terminal using the CACOUT program.

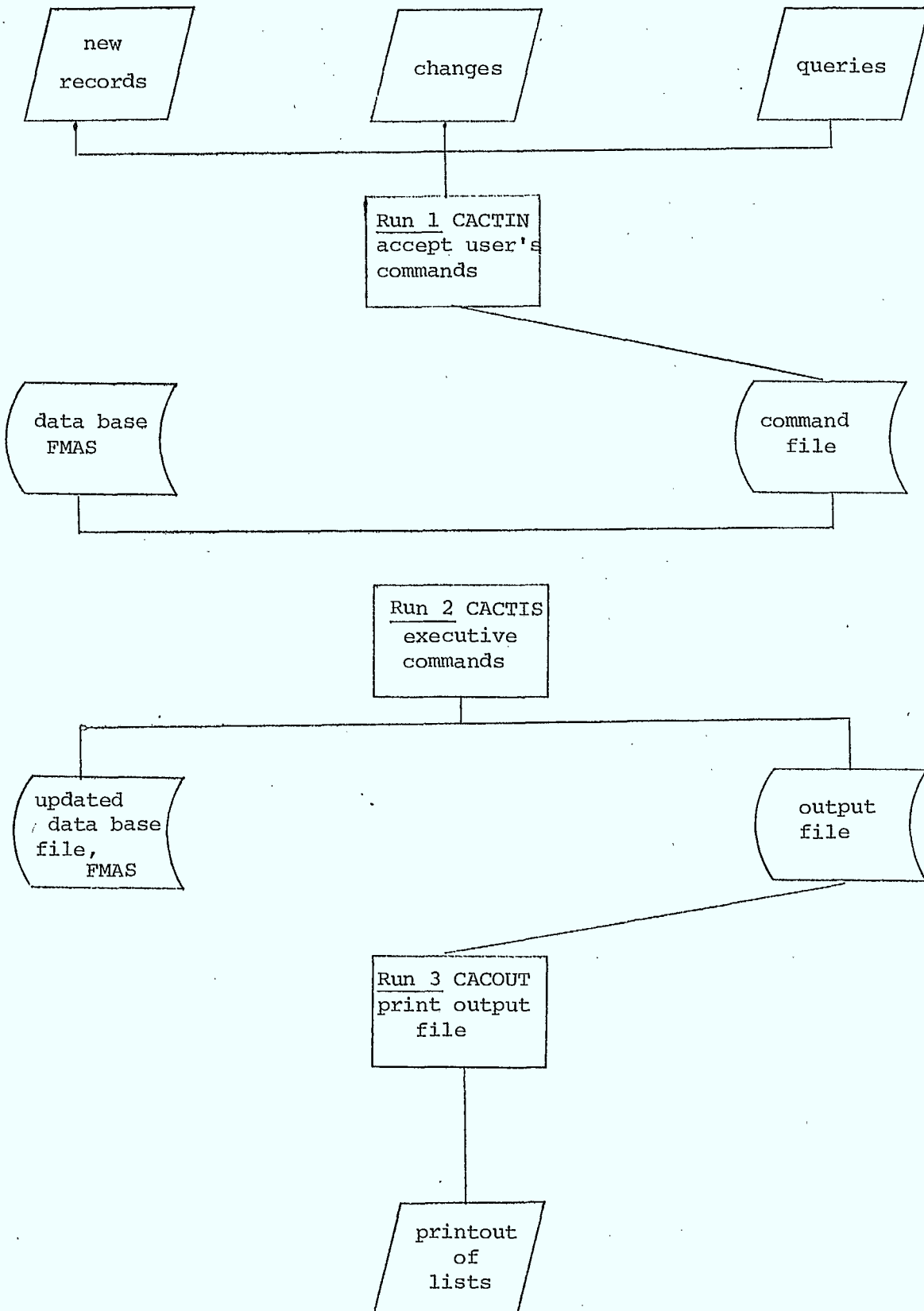
Module 1 - Creation of New Data Base



Module 2 - Creation of Inverted Lists



Module 3 - CACTIS Core System



III EVALUATION

In evaluating the CACTIS system and, more generally, the use of computers in a community information center, four aspects can be considered:

1. staff time economies
2. cost benefits
3. provision of new products or services
4. user acceptability.

Since the system became fully operational only during the last month of the study, hard data for evaluating is not available in any quantity. However, some initial assessments will be attempted.

Staff Time Economies

In December, 1970, Information London began operation with a database consisting of the information in what is now their Community Services Directory. They now have, in addition, a general binder and nine special binders. The sections of these binders and of the directory and the number of records in each are listed in the accompanying table, "Contents of the Directory and General and Special Binders at Information London."

During the fall of 1975 and the following winter, all of this material was input into the CACTIS database. The use of the database falls into three categories, as noted above:

1. Production of camera-ready copy for printing of directories and other compilations from the database.
2. Production of updated looseleaf inserts for the Directory, General and Special Binders.
3. Production of special listings, on client demand.

The Community Services Directory is published annually, and, prior to this publication, is updated by verifying and modifying the descriptions of all of the agencies listed within it. This work has, in the past, been carried out by students, working through the summer under special grants such as OFY. It is estimated that this project took 100 hours of student time, together with 200 hours of staff time. The typing of the camera-ready copy for the printing of the Directory cost approximately \$200.

Now that the Community Services Directory forms part of the CACTIS database, some, although not all, of this labor can be eliminated. The verification will still take place, but only changes need be input and the typing will be completely eliminated. Camera-ready copy can be produced at the terminal. It is intended to use this method for publishing the fall, 1976, edition of the Directory.

CONTENTS OF THE DIRECTORY AND GENERAL AND
SPECIAL BINDERS AT INFORMATION LONDON

COMMUNITY SERVICES DIRECTORY (594 records)

Information and resource centres
Counselling and Social Services
Financial programs and Pensions
Legal and Consumer Services
Services for immigrants, visitors
Services for native peoples
Employment and Vocational services
Housing and Accommodation services
Health services
Education and Recreation

GENERAL BINDER (556 records)

Accommodation
Childrens services
Community services
Consumer services
Counselling services
Education
Emergency
Employment
Family
Ontario government
Federal government
Health
Information
Law
Tenants
Social welfare

continued . . .

CONTENTS OF THE DIRECTORY AND GENERAL AND
SPECIAL BINDERS AT INFORMATION LONDON (cont'd)

SHOPPING BINDER (563 records)

Boutiques
Books and records
Clothing
Factory outlets
Food specialities (orchards, health foods)
Restaurants
Unusual items
Unusual services (engraving, lock-smiths, real estate)

SENIORS BINDER (340 records)

Accommodation
Financial assistance
Health services
Home services
Hospitals
Old age pension
Recreation

DAY CARE BINDER (99 records)

Day nurseries
Day care--other
Nursery Schools
Montessori
Pre-kindergarten
Special programs
Out-of-town

SPORTS AND RECREATION BINDER (1013 records)

Art Galleries & Museums
Community schools
Entertainment
Games
Library programs
Music
Parks--provincial and local
PUC programs
Theatres
Tours and trips
YM/YWCA programs

Sub-section for most sports

CONTINUING EDUCATION BINDER (540 records)

Academic
Diving
Short courses
Tutors
Careers
Art
Crafts
Dancing
Drama
Music
Language

ORGANIZATIONS BINDER (250 records)

Updates to the binders take the form of

- (1) changes to an existing record, for example a new contact person, telephone number, service produced, vacancy at a daycare center,
- (2) addition of new records,
- (3) deletion of cancelled records.

Under the earlier system, such changes were made in handwriting, individually by each staff member. Now, using CACTIS, updates are made at the terminal and replacement looseleaf sheets are run off for each binder.

From early use of the CACTIS system, it appears that some 500 updates are made in a month, with a resulting 78 pages printed for insertion into the binders. Should this rate continue, the use of the CACTIS system will result in a substantial savings in time for Information London personnel.

At the present time, however, no staff-time economies can really be credited to the CACTIS system. In fact, additional staff time has been spent in inputting the database, over the past five months. However, now that the input phase is complete, it will be possible to cumulate appropriate measures of time and cost. (see below)

Cost Benefits

Costs of the CACTIS system can be divided into (1) developmental costs, and (2) maintenance costs. The former can now be determined; however, estimates of the latter are made difficult, again, by the short period in which the system has been fully operational.

Developmental costs can be classified as follows:
(rounded to nearest 100)

<u>Item</u>	<u>Amount</u>
Programming and Data Input	\$ 5800
Equipment	4400
Supplies	1200
Salaries	9300
Consultants	<u>5200</u>
Total	\$25900

Cost of maintaining the communication link with The University of Western Ontario Decsystem 10 computer, on a monthly basis are as follows:

<u>Item</u>	<u>Amount</u>
Dial-up port	\$ 50
Business line at Information London	16
Line and dataset at Computer Center	30
Terminal maintenance	25
Paper	<u>11</u>
Total	\$132

By running the system on a strictly batch basis these costs could be eliminated. However, although this possibility was considered, it was rejected on the grounds of user unacceptability. Because Information London is so short-staffed, a system which required staff members to run a delivery service to and from The University of Western Ontario computer center is unlikely to be used.

The computer time and disk charges are more difficult to estimate because of the lack of operational data. During development, these totalled nearly \$1000 per month, but it is unlikely such a rate will continue. A "guestimate" might be \$300 per month.

Although cost benefits are not immediately evident from this analysis, it is anticipated that eventually the system can be maintained on a cost-recovery basis. Sale of publications such as the Directory, generated from the CACTIS database, could defray most of the cost of the communication link.

New Products and Services

Computer-based publication offers a potential for several new services for Information London. Camera-ready copy need not be restricted to the Community Services Directory. Already, a new publication, The Inventory of Continuing Education Courses in London, is being compiled, under a LIP grant. When the database is complete, CACTIS programs will be used to produce camera-ready copy as for the Directory. It is expected that this publication can be published two or three times a year and should generate a wide demand.

Shorter listings such as clubs or organizations in a specified area can be produced at the terminal onto a stencil and then reproduced in quantity. Two listings of over 100 items each--of ratepayers groups and of community organizations--have already been produced in this manner. It is planned, under the second phase of the project to purchase a copier for this purpose.

Another new service is the provision of listings in response to a specific client request. These can be supplied at cost to the user. Particularly valuable here is the Boolean query capability of CACTIS,

which permits listings of records delimited by a Boolean combination of binder class codes, location codes, and keywords, from either the title or description fields of the record. Such specific access of the database was not previously possible. The ability to pinpoint services such as daycare centers in specific geographical locations will be particularly useful at Information London. The geographic code used is the first three characters of the postal code.

The quantity of special lists which may be produced by CACTIS is still unknown. One suggestion is 60 per month, but wider use of this facility may develop as it becomes known.

The computer publication facilities of CACTIS may, to some extent, expand the function of Information London from almost exclusively a telephone-based query answering service to a distributor of publications about local groups and activities. Particularly if this service is advertised it can be expected to grow.

User Acceptability

From an interview with the five staff members at Information London, it appears that the CACTIS system has achieved a high degree of user acceptance. All said that the clean, clear copy provided by CACTIS for binder and directory updates made these indexes more readable and eliminated problems created by individual variation among directory and binder sets. Staff also appreciated the capability of obtaining multiple copies of pages from the database.

The two staff members involved in the actual input of the data and the updates at the terminal found the CACTIS system easy to use after an initial period of instruction. They varied somewhat on the value of the Users' Manual as a training tool. One felt she could learn about the system directly from the Manual, the other found the Manual useful as back-up, but wanted supplementary expert assistance during the learning stage. The tagging of fields, which was initially expected to create some antagonism, presented no difficulty. Input clerks found they rapidly memorized the tags and could thus eliminate a preliminary editing stage.

Some problems did arise with regard to response time. The University of Western Ontario Decsystem 10 is subject to peak utilization periods (November-mid-December, March-mid-April) when, because of heavy student use, response time degenerates, in some cases severely. However, now that the system is operational, online processing will be minimal, with most processing occurring at night in batch mode. Thus the effect of system degeneracy should be slight. It is hoped, also, that the University computer will be upgraded in the near future.

Since CACTIS is written in COBOL, it can be mounted on another system with few modifications, should this need arise. The advantage of the University system lies, at the moment, in cost savings. The portability of CACTIS also means it can be easily adapted to other community information centers.

Staff members were asked if other information could be usefully entered into the database. Two suggestions were made:

1. The where-to-find-it index, which provides a finding tool, particularly for new staff members, to the resources--directory, binders, kardex, and vertical file, of the Center.
2. Vertical file material on governmental programs.

It is expected these suggestions will be implemented in the second phase of the project.

Although it may be premature to claim the CACTIS system will not provide any difficulties for the Information London staff, the attitude now is one of interest and enthusiasm. Hopefully, further experience will justify this thinking.

IV FUTURE DEVELOPMENTS

IV FUTURE DEVELOPMENTS

Over the period of the next year, a more formal evaluation of the CACTIS system and a study of its possible expansion in a regional information network for southwestern Ontario will be carried out. Details of this study are given below.

Evaluation

The evaluation of CACTIS and the feasibility and design study for a network can proceed concurrently.

As well as statistics collection, interviews with the staff will be used to obtain qualitative assessments of the CACTIS system, in particular the user-system interface. Specifically, personnel will be asked to evaluate the command language, the response time, and the reliability of the system. They will be asked their preference - manual or computer-based - and the reasons for this choice.

The result of the evaluation will be a series of recommendations for modifications to the system, which will increase its efficiency, effectiveness, and/or acceptability.

Other types of information might be entered into the data base, for example, the regulations and programs of various government agencies - immigration, OHIP, UIC, pensions, etc.

Network-Feasibility and Design

The study would investigate the feasibility of network linking the other centres such as constituency offices, resource centres and community information centres with Information London.

This network would facilitate the updating of the data (a perennial problem for information centres) used for updating, production of lists and directories and exchange of information between centres with a minimal use of staff time.

In order to determine the optimal form for the information network, the investigators will consult, through personal visits, those active in constituency offices, community information and resource centres in the area and, where these do not exist, other local groups interested in forming such centres. This survey will involve the following aspects:

1. The information flow directed towards and away from London, with a view to determining the geographic area for which London is the "information" centre.

2. Present facilities and services; amount of overlap among data bases, use which might be made of additional information sources.
3. The utility of an information network in meeting some or all of the local information needs.

Following this survey, the investigators will develop the design for an information network using, as a base, the present CACTIS system. The design will provide the basis for an optimal exchange of information both within the regional network and in an interface with other networks. Some projection will be made of future co-operation with other local, provincial, and national networks.

Network - Pilot

Following the network design, a pilot project will be implemented. For the Pilot network Information London and at least two other centres, preferably one constituency office and one resource centre will be included.

ACKNOWLEDGMENTS

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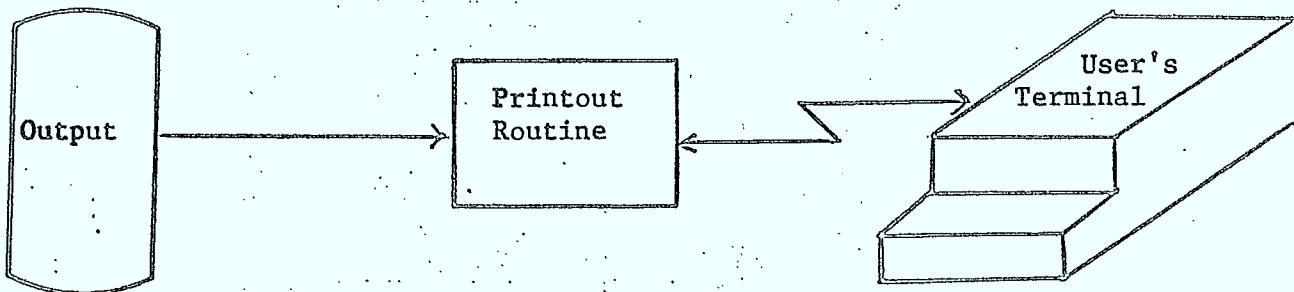
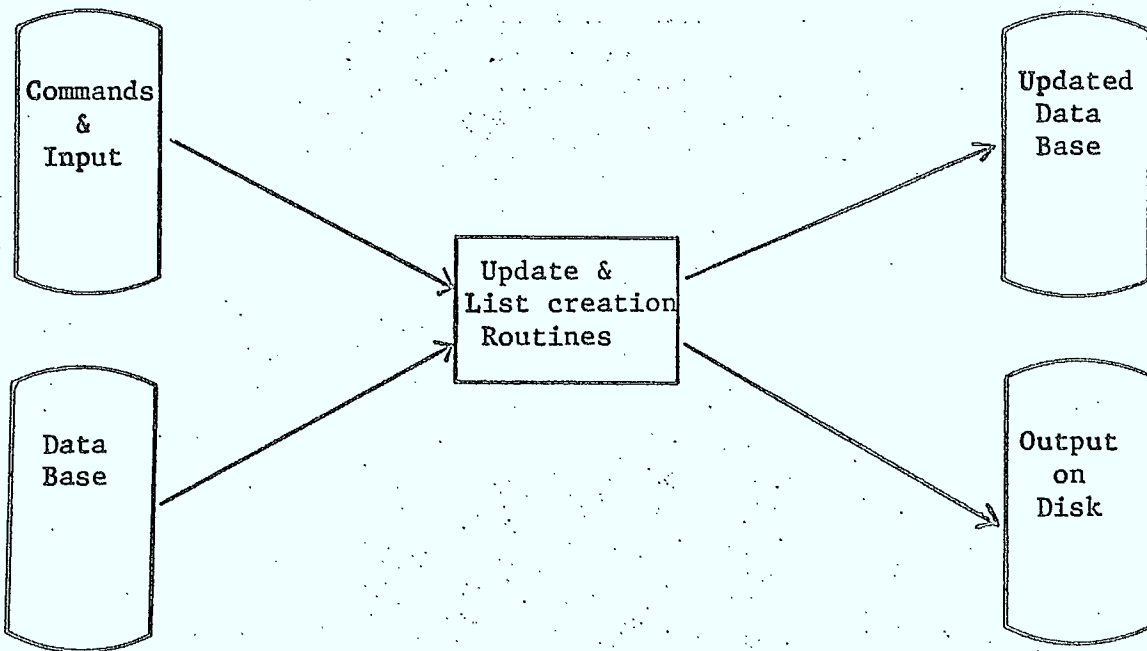
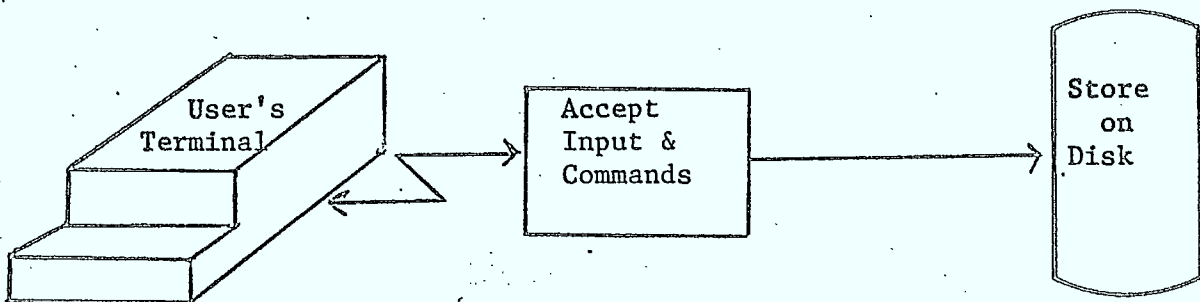
REFERENCES

1. Carroll, John and Tague, Jean, "Community Information Centers and the Computer". Proceedings of the Third Open Conference on Information Science in Canada, Quebec City, 1975, 1-7.

APPENDIX

CACTIS System User's Guide

CACTIS



CACTIS SYSTEM - USER'S GUIDE

1. GETTING STARTED
 - 1.1. Log-in
 - 1.2. Log-off

2. USING THE DATA BASE
 - 2.1. COMMAND ENTRY
 - 2.1.1 ADD
 - 2.1.2 CHANGE
 - 2.1.3 LIST
 - 2.1.4 DELETE
 - 2.1.5 EXIT
 - 2.1.6 HOLD
 - 2.1.7 MAKE
 - 2.1.8 PARAMETER
 - 2.1.9 FORMAT
 - 2.2 EXECUTION OF COMMANDS
 - 2.3 GETTING OUTPUT

3. MAKING A NEW DATA BASE

4. APPENDIX - EXAMPLES

1. GETTING STARTED

1.1 LOG-IN

1.1.1 Preliminaries

- .1 Plug in both the terminal and coupler box and then turn on the terminal. The on-off switch is found at the back of the terminal.
- .2 Dial the computer at the University by dialling the number 2741. If the number is busy hang up and try again. Let the phone ring until you hear a high pitched tone. Now place the receiver firmly into the coupler with the phone cord at the opposite end as the cord from the coupler box.
- .3 Check that the 'on-line' button on the front of the terminal is lit. If it is not, push it in.
- .4 Connect with the computer by depressing the 'CTL' key and the 'C' key simultaneously.

The computer should respond with a dot: .

You can now proceed to log-in.

1.1.2 LOG-IN

.1 Type:

LOG (carriage return)

.2 Computer should respond with a message such as:

JOB 21 S152A UWO 5.06B TTY227

#

.3 This is a request for your project/programmer number, which is 35005/3000.

Enter this now, followed by a carriage return.

Type: #35005/3000 (carriage return)

.4 The computer should respond with

Password:

.5 Now enter your password which is CJHPC

Type: Password: CJHPC

(Note: the password itself will not appear in print on your terminal)

.6 The computer should now respond with a message such as:

0854 15-Nov-75 Thurs TTY227

.7 This dot: . , indicates that the log-in procedure is complete.

NOTE: Underscored words or characters are those printed by the computer and are repeated for your guidance only.

1.1.3 SETTING THE PARAMETERS

- .1 To set the terminal printing control parameters

type in following the computer's dot: '.'

.SET TI O

.SET TTY WIDTH 80

.SET TTY LC

.SET TTY FORM

- .2 These parameters respectively

- provide computer time
- set the carriage width to 80 characters
- allow the use of upper and lower case letters.
- allow use of form feed

1.2 LOG-OFF

- .1 To initiate the log-off procedure, in order to disconnect from the computer, first type 'Control C' by depressing the CTL and C keys simultaneously
AC
- .2 The computer should respond with a dot.
.
- .3 To request to log-off:
Type .kj (carriage return) (kj = kill job)
- .4 The computer should respond with
CONFIRM:
- .5 You confirm that you wish to log-off:
Type: CONFIRM:f (carriage return) (f = fast log-off)
- .6 The computer should respond with a message such as:
Charge: \$2.33 Account's balance: xxx
Runtime: 1 min....
Connect time (not charged):
123315356660020/11402202
Job 16, User (35005,3000) LOGGED OFF TTY 227
- .7 You are now logged off and may turn off the terminal.

2. USING THE DATA BASE

2.1 COMMAND ENTRY (CACTIN)

Type: . RU CACTIN

Computer: 1* * indicates that a command type
can be entered

Type: ADD : one of these commands;
LIST refer to the command description
CHANGE for command entries
DELETE
HOLD
MAKE
PARAMETER
HOLD
EXIT

NOTE: When a command type (one of the above) has been entered following an '*', multiple command entries of that command type can be entered. That is, several ADD entries may follow one ADD command. Each entry is delimited by 'END' and the last entry is 'ALL'. In response to 'ALL' the computer will return to state of accepting another command type.

To terminate the program enter 'EXIT' as a command type in response to an '*' from the computer.

COMMAND TYPE DESCRIPTIONS

2.1.1 ADD

The ADD command allows new records to be added to an existing data base. If a large number of new records are to be added or if an entire section is to be added then the HOLD command should be used.

Type: ADD

Computer: ? ; ready to accept entry

Type: 01 ; enter a new record

.

.

.

END

Computer: ? ; ready for another record

Type: 01 ; enter another record

.

.

END

OR:

Type: ALL ; no more ADD entries

Computer: 2* ; ready for next command type

; return to section 2.1 #

NOTES

i. ERROR CORRECTION FOR ADD ENTRIES

After the end of a record is indicated by 'END' line,
the program will check that

- each line begins with a 2-digit tag
- a 01 line is present
- either a 10 line or a 99 line is present.

For each of these errors found in the record:

Computer: ERRORS ; all errors found are printed
No 01 tag
bh tag error
?

Type: ; enter new line for each line
.... to be corrected; delimit
.... corrections with 'END' line
END

Computer: ? ; when all errors have been
corrected and you can proceed
with next entry

ii. DISPLAY AND CORRECTION OPTIONS

In response to the computer's ? you can display the last
record entered or make changes and additions to that
record using the

DISPLAY and CHANGE options.

Refer to Section 3. for particulars of these options.

iii. NEW RECORDS

a. MINIMUM REQUIREMENTS

Each new record added to the data base using the

ADD command must contain

- 1) a 01 tag line - the record id. must designate - list
- class
- first letter

plus

either 10 tag plus name or 99 tag plus header.

- 2) lines beginning with two-digit numeric tag codes.
- 3) an 'END' termination line

Any violation of these requirements will produce an error message for each error encountered.

b. KEYWORDS

Keywords for each record will be isolated from the following fields:

- 1) 05 tag - branch name
- 2) 10 tag - organization name
- 3) 15 tag - alternative name
- 4) 98 tag - additional keywords.

c. REFERENCE RECORDS

Examples:

1. C.N.I.B. see Canadian National Institute for the Blind

would be entered as follows:

01 xxx/C

10 C.N.I.B.

60 see Canadian National Institute for the Blind

End

2. Section A5C see also Ontario Blue Cross Health Insurance

would be entered as follows:

01 A5C/Z

10 See also

60 Ontario Blue Cross Health Insurance

End

2.1.2 CHANGE

This command allows updates to be made to records in the data base.

Each entry must contain:

- record identification or range of record id.s
- update lines each of which has a 2-digit tag
- 'END' line

The entries are checked for these requirements and errors are processed in the same manner as errors in ADD entries.

Type: CHANGE

Computer: ? ; ready for record update

Type: D2A1 ; record identification of record to be updated

23 new phone ; update lines

68 3 vacancies

70 ; delete line 70

END

Computer: ? ; no errors, ready for next

Type: D4/g4 ; next record id. to be updated

27 Mrs. Temple ; changes

.

.

END

OR

Type: ALL ; no more records to update

Computer: 2* ; ready for next command type

; return to section 2.1 #

2.1.3 LIST

This command allows requests for printouts to be made.

Each command must contain

- query line

- END line

A) LIST FUNCTION

ENTRIES

1. Number of copies - optional

Type: COPIES=n ; default is 1 copy

2. Format of printed list - optional

Type: FORMAT= n ; default is tagged format (i.e. FORMAT=1)
; refer to section B for description
; of formats available

3. Lines to be included in each record of
the list - optional

Type: TAGS ; tags to be included

xx ; tag xx

yy-zz ; tags yy to zz inclusive

ww ; and tag ww

OR

Type TAGS ; tags to be excluded from list

NOT

jj ; jj lines

kk-pp ; tags kk to pp inclusive

4. QUERY LINE - not optional

Each list command must contain a list query line.

This query may be single term or multiple term Boolean
type query.

B) Standard Formats for Output

i. Format=1.	<u>Tags included</u>	<u>Date</u>
		01
		02
		03
	10	
	15	
	20	
	21	
	22	
	23	
	25	
	26	
	27	
	60	
	61	
	62	
	..	
	..	
	..	
	80	

ii. Format=2. Tags excluded

Name of group
street
city
postal code
phone
contact person
descriptive information
...
...
...
...

iii. Format=0 Stencil option

iv. Format=3-9 Special formats

The special formats are defined by the user via the
FORMAT command (see Section 2.1.9)

C) QUERY LINES

A. SINGLE TERM QUERIES

1. BINDER REQUESTS , B=

Queries can be made for printing of binder sections.

These requests are of the form: B= record id.

Each binder request must be preceded by B=

Record identifications can take the form of

- unique record id., B=D2/A4
- range of record id's, B=D2/A1-D2/D4
- Binder section id., B=D2
- range of binder sections, B=D2-D4

2. CLASSIFICATION CODE C=

Queries can be made for printing of records selected on the basis of their classification code. These requests are preceded by 'C='.

Classification codes can take the following forms:

- single classification code, C= 0702
- range of codes , C= ??02
- , C= 07??

3. AREA CODE A=

Queries can be made for printing of records selected by geographical location determined by the first three digits of the postal code. These requests are preceded by 'A='.

D) COMBINED TERM QUERIES

Queries for lists can be requested for combinations of single terms by Boolean operators.

Operators

- i. The AND operator will produce lists of records containing both terms.
- ii. The OR operator will produce lists of records containing either of the terms or both of the terms.
- iii. Brackets may be used to clarify the order of combinations. Without the use of brackets AND operations take precedence over OR operations.

Single-Term Operands

Operands which can be used with operators are

B=

C=

A=

K=

TWO-TERM QUERIES

Examples:

- | | |
|--------------------|--|
| B=D2 AND A=N6A | ; records in D2 with area code N6A |
| B=D2-D4 AND C=0702 | ; records in D2, D3, D4 with classification code of 0702 |
| B=D AND K=NURSERY | ; records in D with keyword NURSERY |
| B=D OR K=NURSERY | ; all records in D along with any other records in data base with NURSERY as a keyword |

MULTIPLE-TERM QUERIES

Brackets may be used to clarify the order of operations in a multiple-term query. Without the use of brackets, AND operations take precedence over OR operations.

For example:

1. B=D AND (K=daycare OR K=nursery)

This query will produce a list of records from D binder having either DAYCARE or NURSERY as a keyword

2. Daycare or nursery schools in Central London.

B=D2 OR B=D4 AND A=N6?

This query will produce a list of those records in D2 and those records in D4 which are in any area of the city with area code starting N6.

3. A list of vacation care for senior citizens in Central London.

B=S AND K=vacation AND A=N6A

This query will produce a list of those records in Senior binder with keyword 'vacation' which also have area code N6A.

4. B=S AND K=vacation AND (A=N6A OR A=N6B)

This request allows for a broader range of area location.

NOTE:

If the LIST command record identification does not specify the unique record identification part or any other breakdown of the identification then the request deals with the smallest subdivision of the data base specified.

For example:

B=D2/A3	; refers to one specific record in Daycare binder
B=D2/A	; refers to all of D2 sections of Daycare
B=D2	; refers to all of D2 section of Daycare
B=D	; refers to whole Daycare binder

2.1.4 DELETE

This command allows the deletion of records from the data base.

Type: DELETE

Computer: ?

Type: D2/A1 ; record identification of record to
END be deleted

Computer: ?

Type: record id.
END

OR

Type: ALL

Computer: 2* ; ready for next command type
return to Section 2.1 #

2.1.5 EXIT

This command terminates the program which accepts commands.

Type: EXIT

Computer: EXIT

You may execute the commands entered (section 2.2)

or log-off.

2.1.6 HOLD COMMAND

This command allows for the addition of a new section to the data base. The new records can be added during several input sessions. When all records have been input then a MAKE command is needed to process and add these records to the data base.

Type: HOLD

Computer: ?

Type: 01 ... ; enter a new record
 . (refer to ADD command for
 . particulars and options, Section 2.1.2)
 END

OR

Type: ALL ; terminate input

Computer: 2* ; ready for next command type
 return to section 2.1 #

2.1.7 MAKE COMMAND

This command initiates the addition of all records input using the HOLD command to the data base.

This command differs from the others in the following ways:

- no END or ALL is required
- computer does not respond with ?.

Type: MAKE

Computer: 2* ; command has been accepted
; ready for next command type
(section 2.1 #)

2.1.8 PARAMETERS

This command allows you to change the values of the default parameters

Type: *PARAM

Computer: CURRENT PARAMETER DEFAULT VALUES

COPIES=1

FORMAT=1

TAGS= 0102030405060708091011121314151 1718

192021222324252627.....9596979899

?

Type: FORMAT=2 ; to reset a default type
; name and new parameter default
; condition

Computer: ? ; ready for next parameter if any

Type: ALL ; when all changes have been made

NOTE: If the parameters are changed they will remain set at the new values until they are once again changed.

2.3 GETTING OUTPUT (CACOUT)

Before output can be generated at the terminal you must be logged in (1.1).

Adjust form feed control and paper.

Type: . RU CACOUT

Computer: RESTART OR START? (Y/N)

Type: N ; for new list

OR

Type: Y ; for partial list - see Note I

Computer: BLOCK NUMBER - 1 ; starting block for restart opt.
B=D6-D7 ; query of list
NUMBER OF RECORDS =56 ; number of records in list
PRINT LIST?(Y/N) ; do you really want this list
; to be printed - see Note 2

Type: Y ; to confirm list to be printed

Computer: prints list

.
. .
. .
EXIT
.

; all done.

You may now

- enter new commands using CACTIN (2.1)
- restart CACOUT and print all or some of the lists (2.3)
- log-off (1.2)

NOTE 1:

The RESTART option allows the user to restart the output at the beginning of any list in the output.

In response to the computer response

Computer: RESTART OR START? (Y/N)

Type: Y

Computer: STARTING BLOCK -

type: nn ; input block number printed
out at beginning of list
to be printed.

Computer will begin output at that list. When the requested list has been printed you have the option of printing the rest of the output or terminating output.

Computer: MORE LISTS? (Y/N)

Type: Y ; rest of output to be printed

OR:

Type: N ; terminate output.

3. CREATION OF ENTIRELY NEW DATA BASE

Input of Records (CREATE)

3.1 To start the program to accept new records

TYPE: .RU CREATE (carriage return)

The computer should respond with an introductory message:

INFORMATION LONDON DATA CREATION

AFTER "?" INPUT NEW RECORD DELIMITED WITH "END"

"C" FOR CHANGES TO LAST RECORD DELIMITED WITH "END"

"D" TO DISPLAY THE LAST RECORD

!" TO ABORT CURRENT RECORD

Following this introductory text the computer will print:

DISPLAY LAST RECORD WRITTEN? (Y/N)

This allows you to have the last record input to the file displayed on the terminal.

Type: Y (carriage return)

OR

Type: N (carriage return)

If you have typed in "Y" the last record will be printed on your terminal.

Computer: ?

3.2 User Responses to Computer's '?'

.1 Input a New Record

a) Input a record one line at a time following these rules:

- each line must start with a 2-digit tag
- each line may be maximum of 78 characters
- each record must contain a 01 line
- each record must contain either a 10 line or a 99 line
- lines may be input in any order
- inputting a second line with the same tag replaces the first line with the second.
- the last line must be 'END'

b) Possible Errors - after 'END' line

i. if a line has been entered without a 2-digit tag:

Computer: ERROR IN TAG xx

?

You can now enter a correct line. To omit this line from the record enter carriage return.

ii. If 01 line has not been entered for the record:

Computer: 01 TAG MISSING

?

You must enter a 01 tag line followed by carriage return.

iii. If neither a 10 nor a 99 line has been entered:

Computer: 10 OR 99 TAG MISSING

?

You must now enter one of these lines.

.2 Accepted Record

When the record is accepted the computer responds with a '?' and you may then input another record.

NOTE:

If you are entering a new record and have many errors in a record or for any other reason do not wish to have that record included in the file, simply type in '!' in response to any of the error messages. This will return you a '?' and be prepared to accept a totally new record disregarding the last record entirely.

If at any time you get confused or need to get out of the program quickly without going through the EXIT command type in CTL key and C key simultaneously. This will cause the computer to stop the create program and respond with a '.' You can then restart the create program or log-off

(1.2)

.3 Correct a Record

In order to make corrections to a record just entered and accepted by the computer,

Type: C (carriage return)

Computer: ?

Following this '?' you can now enter new lines, corrected lines or delete lines by entering blank lines. These lines will be entered into the last record and it will be checked for errors.

The correction lines must be

- tagged
- one per line
- delimited by an 'END' line.

For Example:

Computer: ?

Type: C

Computer: ?

Type: 60 all parents must pick up children ; change line 60
75 ; delete line 76
80 Area served: London ; add line 80
END

Computer: ?

The final question mark again signifies that the record has been accepted.

.4 Display Record

In order to display the final form of the last record:

Type: D

This requests that the last record corrected or entered be printed on your terminal.

For example:

Computer: ?

Type: D

Computer: 01 D1

10 Ann Dee Nursery School

60 All parents must pick up children

61 Cost;

80 Area served London and district

?

The final question mark indicates that you can make corrections to this record or enter a new record.

.5 Terminate input session

In order to terminate the input session:

Computer: ?

Type: EXIT

Computer: NUMBER OF RECORDS WRITTEN =

XX

END OF PROGRAM CREATE

EXIT

You now have terminated your input session and may
log-off (1.2).

4. APPENDIX - EXAMPLES OF COMMANDS

FIELD TAGS

<u>Tag</u>	<u>Field Explanation</u>
01	binder section identification
02	classification code
03	duplicate
05	branch name
10	name or organization
15	alternate name
20	street and number
21	city
22	postal code
23	phone
24	phone
25	hours of operation
26	contact person and title
27	contact person and title
30	street and number of second office
31	city
32	postal code
33	phone
34	phone
35	hours of operation
36	contact person
37	contact person
40	street and number of third office
.	
.	
.	
50	street and number of fourth office
.	
.	
.	
60	first line of descriptive information
61	second line of descriptive information
.	
.	
.	
.	
80	area served by organization
90	source of funds
98	keywords
99	heading

Note: use fields 17, 18, 19 to extend addresses and keep street in field 20

e.g. 19 Knox Church
20 15 Base Line Road

4.1 LOG IN AND LOG OUT

4.1.1 LOG IN

LOG
JOB 22 SIBRAT J20 5.05 110317
#33075/3000
PASSWORD:
0947 02-Nov-75 Fri 11:07 CODE(AT 11:07) = 54K/115

SETTING PARAMETERS

.SET TTY LC
.set tty width 50
.set ti 0
.set tty form

4.1.2 LOG OUT

.kj
CONFIRM: f
CHARGE: \$4.63 ACCOUNT'S BALANCE: \$980.30

Runtime: 1 Min. 03.06 SEC.
CONNECT TIME (NOT CHARGED): 3 HRS. 46 MIN.

123367307247026/13055226

Job 22, User [4021,3000] LOGGED OFF TTY227 AT 1306 ON 27-Nov-75

4.2.1.1 ADD COMMAND

.ru cactin

CACTIN

1*

ADD

?

01 D2/C

10 THE CHILDREN'S PLACE

20 1851 Dundas Street, East,

26 Mr. & Mrs. Kiersted

23 451-5837

60 United Pentecostal Church, southside side, (Clarke Side Road)

61 Capacity: 30 - License pending

62 Ages: 2-5, Kindergarten pupils may go half day

63 Transportation: Provided, Van will pick up as far east as Adelaide St. FNF \

64 Free until further notice

25 Hours: 7 a.m. - 6 p.m.

65 Cost: Full day \$30./wk. Half days \$16./wk., Kindergarten \$25./week

66 including lunch and transportation. Lower cost for second child.

67 Dec. 3/75 - Vacancies for both full day and half day, kindergarten children
en\ne\END

?

ALL

2*

LIST

?

D2/C

END

?

ALL

3*

EX

EXIT

4.2.1.1 ADD COMMAND

.RU CACTIN

*ADD

?

01 5112

22 INFORMATION AND REFERRAL SERVICES IN ONTARIO

end

?

c

?

22 INFORMATION AND REFERRAL SERVICES IN ONTARIO

end

?

u

01 5113

22 INFORMATION AND REFERRAL SERVICES IN ONTARIO

?

01 5114

02 0705

10 LABATT LIBRARY

50 Economic researcher, Statistics Canada publication

51 including Cost of Living Index.

end

ERROR MESSAGES

?

01 5115

-2 07

02 0705

10 OXFORD CANADIANA BOOKSTORE

20 Royal Bank building

50 See under London Libraries, Public.

end

ERROR IN TAG -2

?

?

01 5116

02 0304

10 MEMBERS OF PARLIAMENT

50 See Kardex: Government, Political, Information Canada line under

end

?

4.2.1.2 CHANGE COMMAND

.RU CACTIN

*CHAN

?

S#B/S3

NOT A VALID RECORD ID

S3B/S3

6010% discount on all regular merchandise. Sale items not included,

END

?

S3B/T2

62receive

62Receive 20% discount on Red Days, 15% discount on White Days and only a

6310% discount on Blue Days.

END

?

S3B/W1

61Red Cross, Mr. Wallace, 672-2990 - for temporary use

63Odd Fellows, old equipment - Mrs. Wendie Steel, 439-3167

64Shriners, Mr. Kingsmill, 432-7111

END

?

S3B/W2

10WHEELCHAIRS AVAILABLE FOR SALE OR RENT

60London Ostomy Centre, 455-2300

END

?

S3C/1

60Identity Cards to be sent automatically within three months to all O.A.S.

67If not received, can contact Judd Buchanan's office, 672-6210

END

?

4.2.1.3 LIST COMMAND

.RU CACTIN

CACTIN

1*
LIST
?
B=S4
END
?
B=S5-S5/T1
END
?
B=S6B/P1-S6B/S1
END
?
B=S7/J1-S7/S3
END
?
B=S8-S8D/U1
END
?
B=S9A/C2-S9A/T1
END
?
B=S9C/N1-S9D/B1
END
?
B=S9D/F1-S9D/S2
END
?
B=S9G4/M1-S9G4/O3
END
?
ALL
2*
EX

EXIT

4.2.1.3 LIST COMMAND

SPECIAL ,LISTS

.ru cactin

CACIIN

!*

LIST

?

copies=2

format=2

tags

10

20

21

22

o=02

end

?

tags

not

60-79

end

ERROR:INVALID LIST COMMAND

REDO QUERY LINE

?

tags

not

60-79

o=02

end

?

all

TABLE OF CONTENTS LISTS

.ru cactin

CACIIN

!*

list

?

1=Jb

end

?

all

2*

ox

EXPI

4.2.1.4 DELETE COMMAND

.ru cactin

CACTIN

1*

DELETE

?

D3/A1

end

?

D4B2/D5

end

?

all

2*

ex

EXIT

4.2.1.6 HOLD COMMAND and 4.2.1.7 MAKE COMMAND

HOLD COMMAND

.ru cactin

CACIIn

1*

hold

DISPLAY LAST RECORD WRITTEN ?(Y/N)

y

MAKE COMMAND GIVEN, RECORDS WERE PROCESSED

?

01 D3

10

15 CUIE

50 this is a trial record

end

ERRORS

01

ENTER CORRECTIONS

01 D3

end

?

01 D3

10 (NEXT RECORD NAME

50 this is also a trial record

end

?

all

2*

ex

EXIT

MAKE COMMAND

.ru cactin

CACIIn

1*

make

2*

ex

EXIT

4.2.1.8 PARAMETER COMMAND

.ru cactin

CACTIN

!*

param

CURRENT PARAMETER DEFAULT VALUES

COPIES = 1

FORMAT = 1

TACS =

01020304050607080910111213141516171819202122232425262728293031323334353637383940

41424344454647484950515253545556575859606162636465666768697071727374757677787980

81828384858687888990919293949596979899

?

copies =2

4.2.1.9 FORMAT COMMAND

2*
format

THERE ARE 0 SPECIAL FORMATS
ENTER NEW FORMAT NUMBER(3 -)
MUST BE ONE DIGIT
3

READY TO ACCEPT FORMAT DEFINITION
SPECIAL FORMATS CAN BE A MAXIMUM OF 3 LINES LONG
TWO COLUMNS (TAG CHARS) MUST BE SEPARATED BY A SPACE

LINE 1 (TAGS CHARS)

10 20

15 20

end

LINE 2 (TAGS CHARS)

20 10

21 10

22 10

end

LINE 3 (TAGS CHARS)

23 10

30 45

end

3*

ex

EXIT

4.2.3 GETTING OUTPUT

.ru cacout

RESTART LIST (Y/N)?

Y STARTING BLOCK?

1

BLOCK NUMBER IS - 1

B=A9

NUMBER OF RECORDS= 135

PRINT LIST?(Y/N)

Y

4.3 MAKING A NEW DATA BASE

.LOG
JOB 22 S152A4 UWO 5.06B TTY227

#35005/3000

Password:

1351 11-Mar-76 Thur TTY227 CORE(MINIMUM OF)=32K/32K

.SET TI 0

.SET TTY WIDTH 80

.SET TTY LC

.ru create

INFORMATION LONDON DATA CREATION
AFTER "?" INPUT NEW RECORD DELIMITED WITH "END".
"C" FOR CHANGES TO LAST RECORD DELIMITED WITH "END".
"D" TO DISPLAY LAST RECORD.
OR "!" TO ABORT CURRENT RECORD .

DISPLAY LAST RECORD WRITTEN? (Y/N)

n

?

01 511

0

?

?? Information

end

?

?

01 511

0?

?? Information

?

01 511A

?? London

end

?

01 511A1

?? Libraries

end

?

01 511A2

?? media

end

?

01 511A3

?? Other

end

?

?

4.3 MAKING A NEW DATA BASE

.ru create

INFORMATION LONDON DATA CREATION
AFTER "?" INPUT NEW RECORD DELIMITED WITH "END",
"C" FOR CHANGES TO LAST RECORD DELIMITED WITH "END",
"D" TO DISPLAY LAST RECORD,
OR "!" TO ABORT CURRENT RECORD .

DISPLAY LAST RECORD WRITTEN? (Y/N)

n

?

01 B1

99 ACCOMMODATION

end

?

01 B1A

02 05

99 EMERGENCY ACCOMMODATION

end

?

01 B1A

02 0502

10 MISSION SERVICES

05 MENS' MISSION

20 459 York Street,

21 London

23 072-8500

end

?

01 B1A

02 0502

10 MISSION SERVICES

05 WOMENS' EMERGENCY RESIDENCE

20 461 York Street (upper)

21 London

23 433-1456

60 No women with children accented

end

?

exit

NUMBER OF RECORDS WRITTEN=

4

END OF PROGRAM CREATE

EXIT

CACC / CCAC



73737

