CADAS 2.00

DISK/CASSETTE DATABASE SYSTEM

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GENERAL DESCRIPTION

CADAS 2.00 is a RAM-based general purpose database system for handling alphanumeric data. It is written in Z-80 machine language and is suitable for use in 32K or 48K Sorcerer microcomputers. Files may be stored on cassette or on disk under the CP/M 1.4 or later operating system.

Commands available in functional groupings are:

A:File Definition: CREATE
B:File Input/Output: LOAD, MERGE, SAVE
C:File Alteration: ADD, DELETE, EDIT, SORT
D:File Listing: LIST, REPORT, TOTAL
E:System Parameters: PRINTER, SPACE, TABSET
F:Program Exit: CPM, MONITOR

Each of these is fully described under its own heading.

Allowance is made for up to 750 records which may consist of 1-9 fields. Each field is given a name by the user when creating the database and this is used as an aid in manipulating the file. The space available for record storage is approximately 9K less than the available RAM in cassette mode and 14K less than CP/M system size in disk mode. A field may contain up to 56 characters. It is best to divide the record into small fields which are useful for sorting and searching.
e.g. For a file of names and addresses, the fields could be:

NAME, STREET, CITY, and PHONE.

CADAS 2.00 does not use the locations 0 to FF (hex) of RAM when used with cassette and these may be used to hold any routines the user wishes (e.g. printer driver). In disk mode however, these locations are used by the CP/M operating system. The BASIC ROM-PAC should be removed before loading the program. Many SORCERER monitor routines are used to provide efficient I/O and other features. For this reason, it is important that the CP/M system you use must have a working Sorcerer monitor work area.

TO LOAD AND RUN CADAS 2.00

The software is recorded on cassette tape at 1200 baud and at 300 baud.

A. Cassette System.

1. Turn off computer, wait 10 sec. and remove ROM-PAC.
2.)LO CADAS program and type GO 100 or)LOG program.

B. Disk System.

1. If program not already on disk then boot the CP/M system, exit to Sorcerer monitor (RESET),)LO program, warm boot CP/M ()GO 0) and then use SAVE 27 CADAS.COM
2. If program is on disk, then simply type CADAS

C. Restarting CADAS (for both cases)

To re-enter program after finishing, type:

>GO 100 to initialize all files. (COLD start)
>GO 103 to retain previous data. (WARM start)

NOTE: When cold started, CADAS looks for a C3H byte at location 5. If this is present, it assumes that CP/M is being used otherwise CADAS reserves more memory for file storage. In the disk case, a large file will overlay the CCP of the disk operating system.

PRINTER USE

In the LIST, REPORT and TOTAL commands, you may specify listing on a printer. Use the PRINTER command to set the type of printer before you use these commands. The default value is video only. If no printer is attached, do NOT use this command as the program may 'hang'. The program has a built in serial printer driver which is set to 300 baud. If you wish to use a 1200 baud serial printer then change the value stored at location 108H to 40H. Output from these commands will automatically be sent to the unit specified in the PRINTER command. If when finished a listing, you no longer want any output sent to the printer, use the PRINTER command to reset back to video (V).

RANGE OPTIONS

For the commands LIST, REPORT, EDIT, DELETE and TOTAL you may select the range of records to be processed from the following options:

A - ALL records in file
O - ONE of the records (by number)
R - RANGE of records (by number)
F - FIELD match using key field.

The first three are self-explanatory. The F option provides a means of accessing records whose key field matches a string entered by the user. To use this option, choose the field you want to be the key field and enter a string for comparison.
Two types of comparison are available:

F - FULL comparison (exact match)
P - PART comparison (match any part of field)

You may also select that records will be processed if the comparison is true (MATCH) or false (NOMATCH) by entering M or N. The default conditions are FULL comparison and MATCH and these may be obtained by simply pressing return in answer to these two questions.

e.g. FULL - string ROBERT would only match with field ROBERT.
    PART - string ROB would match ROB, ROBERT, THROB,
                    PROBE, ROBE ST. etc.

KEYBOARD ENTRY

For single character entries such as field numbers or Y/N answers, there is no need to press return. For entries which are (or could be) more than one character, press return at the end of the entry. For these multicharacter fields, normal monitor editing is available (SHIFT-RUB AND @).

THE COMMANDS (in functional order)

Note: To enter a command, type at least the first two letters of the command followed by a return.

A: FILE DEFINITION

A.1:CREATE

Use this to define the number of fields and their names when setting up the database. Type the field name beside its number. Only 6 characters are used and the name is either truncated or blank-filled on the right to achieve this. If less than 9 fields are wanted, enter a blank one after the last by pressing return only. You may use this command also to rename the fields for an existing file by creating the same number of field names and then merging the file. (see MERGE).

B: FILE INPUT/OUTPUT

B.1:LOAD

Use this to load a previously saved CADAS file from either disk or cassette. Note that any files saved on tape with a previous version of CADAS are compatible with this version. When the prompt 'Unit/Filename?' appears, enter one of the following:

1/FNAME to load from cassette unit 1.
2/FNAME to load from cassette unit 2.
A/FILENAME to load from disk unit A.
B/FILENAME to load from disk unit B.

If a file is already present, the prompt REALLY? will be shown. If you answer 'Y' to this, then that file will be deleted and loading can continue. Answering 'N' will take you back to command mode. Thus there is no need to delete one file before loading another. If you want to load a further file as well as the one you have in RAM, then see MERGE. The file is always loaded in physical record order and you may have to SORT to regain any previous order you had when saving.

(a) Cassette Use

If using a serial data cable, the cassette motor will automatically be switched on and off. All CADAS cassette files have a file type C. If the file found is not the one wanted, either load the correct tape and keep going or press escape and start the program by typing GO 100. The file name is limited to 5 characters with the first alphabetic. All cassette files are saved and loaded at 1200 baud. If you want tape files loaded and saved at 300 baud, change the value of the byte at location 109H from 40H to 0.

(b) Disk Use

It is a good idea to do a directory listing of the disks you are using before loading CADAS, to see what files are there and how much space is left. The file extension type is always .CAD and you need not enter this when typing the file name (up to 8 characters). If any hardware error occurs, your operating system should display its error message. CADAS provides a single error message **DISK ERROR** which can mean that the file name is not present on the disk or an error has occurred in the opening of the file. You may use either the A or B disk for loading/saving. The disk operation will commence immediately after you enter the unit/filename.

B.2:MERGE

This is used to load a further CADAS file in and append it to one already existing. See LOAD command for details of disk/cassette use. Three important points must be noted about the MERGE.

1. The number of fields MUST be the same for each file.
2. The total number of records must be 750 or less.
3. The combined file must fit in the RAM available.

It is your responsibility to ensure that the combined file will still fit in the file space available. Use the SPACE command to find the amount of space left before merging. If the combined file will not fit in the space available, the number of fields is different or the total number of records would be greater than 750 an error message **ERROR IN MERGE** will be displayed and the original file left intact. After merging, the file will be in actual stored order and you may have to re-SORT to obtain the order you had previously.

B.3:SAVE

Use to save a CADAS 2.00 file on cassette or disk. See the LOAD command for details of cassette/disk operation. In the disk case, if a file of the same name exists on the disk being used, its extension type will be changed to .BAK and any previous back-up file with this name will be deleted. This provides standard CP/M back-up.

C:FILE ALTERATION

C.1:ADD

Used to add new records to the file. Records are always added at the end of the file. The contents of each field is typed beside its name, followed by a return (CR). Fields may consist of any character except for the first character of the field which may only be \ (back slash) if you want to exit the ADD routine. In this case, the current record being entered will be ignored.

Note: The ADD routine will automatically stop after the 750th record is entered or if there is no further file space (see OUT OF SPACE error message). You may use normal monitor editing when entering fields. To enter a blank field simply press return.

C.2:DELETE

Use this to remove records from the file. The full range options are available. Two types of delete are available, Auto delete and Query delete. The Query delete allows you to decide whether the particular record is to be deleted or not. You may also exit from the Query option delete routine by pressing CTRL-C instead of answering Y/N.

As the record is to be deleted, it is listed on the video monitor. The records are deleted in order from the highest number to the lowest in the range. The space freed is available for immediate use for file expansion. To delete the whole file, see LOAD and CREATE commands.

C.3:EDIT

Use this to change the contents of records in the file. Full range options are available. This routine may be used in two ways. These are chosen by the Y/N response to the prompt 'Single Field Edit (Y/N)'.

(a) Single Field Editing.

The record to be edited is listed and then the field that you have chosen is listed, followed by a '?' on the next line. Enter the new field contents if you want to change it (CR will blank the field). If you do not wish to change the field, enter '\' (back slash) followed by a CR. If you wish to leave the edit mode, enter '!' (shift-back slash) followed by a CR. In this mode the edited record is not relisted.

(b) Random Field Editing.

The record to be edited is listed and then you are asked for the number of the field you want to change. This field is printed out and you then type the new field contents beside the '?' on the next line. You may change as many fields in the one record as you like and each time the new version of the record is printed out. To go to the next record in the range, enter '\' (back slash) for the field number. To exit the EDIT routine altogether, enter CTRL-C for the field number. This procedure is repeated for all records in the range in ascending order.

C.4:SORT

Use to sort the records in the file using one of the fields as a sort key. The sort is an alphabetic bubble sort. To correctly sort fields holding numbers, they should have the same number of digits in each. The method of sorting permits multi-key sorts. If you wish to sort by several keys, sort first by the innermost key through to the outermost.

e.g. To sort by first name within surname, sort firstly by first name and then by surname. This will put the file into surname order, with first names in order for a given surname. The time taken depends on number of records, average length of sort field, position of sort field and any order present in file. Sorting commences immediately after you enter the sort field.

D:FILE LISTING

D.1:LIST

Use this to list out the records in the file. You may choose to have the record numbers and field names printed out with the contents of the records by answering 'Y' to the initial prompt, otherwise only the contents are listed. For a more controlled type of listing see the REPORT command. The full RANGE options are available. The listing will be output to whatever device you have previously set with the PRINTER command. You may interrupt the listing by holding down the RUN/STOP key until the listing stops at the end of the current record. The listing may be resumed by pressing any key. To exit from the listing altogether hold down the CTRL-C keys until it stops. This will return you to command mode.

D.2:REPORT

Use this to list records from the file in a user requested format. Full range options are available and a printer may be used (see printer notes). You may interrupt listing as for LIST command.

The REPORT command provides for single or multiple records to be listed on a line. If you reply '1' to the prompt 'Records across page (1-5 or return)', then you may use TAB settings 1-5 to specify field placement (see TABSET command). For the case of multiple (2-5) records/line, these TAB settings will be used to locate the positions of the records automatically. For both cases you have the choice of the following for each field:

6 - Do NOT print field
7 - Print field on same line after a space
8 - Print field on next line
9 - print field on line after next.
as well as 1-5 TAB settings for the single record/line case.

You also have the choice of the number of lines in between records vertically. If you have used the PRINTER command to set output to other than video, you can additionally specify the number of records vertically on a page and whether you want to interrupt at the end of a page to change paper. If you choose not to stop at the end of the page, you will be asked for the number of CRs (Carriage return-line feeds) at the end of the page. You should always set this to 1 or greater. Further, you are given the choice of whether or not you want a heading. If used, the heading is limited to 59 characters and will be automatically printed at the start of each page, followed by 2 CR-LFs.

NOTES:
1. You should always use 8 or 9 for the first field of record to be printed, unless you use a special TAB position.
2. If you enter a return (CR) for the Number of Records across page prompt, a default setting of the field placements will be used. If you have entered a setting while the program has been running (as described above) this will be used otherwise a format similar to the LIST command without field names or record numbers will be used.
3. If in doubt as to the length of the page you are using, use the stop at end of page option to allow you to manually form feed.

D.3:TOTAL

Use this to sum the contents of any field. It is assumed that the field being summed is numeric. Full range options are available and the result may be printed out if you have used the PRINTER command. The total may range from -9999999999.99 to +9999999999.99. If it is outside this range then a ** SUMMATION ERROR ** will be flagged. To be numeric, the first character of the field must be one of (+ - . space or digit). Only two decimal places are recognized, any more than this will be truncated. The use of decimal places in the numbers is mainly intended for representing sums of money. If you attempt to add a non-numeric field into the total, an error message of the form:

(nn) FIELD ERROR: field

will be displayed, where nn is the record number and field is the contents of the field. If you are uncertain whether all the occurrences of a field are numeric, sum them without using a printer to check. The answer is printed out in the form: field-name TOTAL = nn

where field-name is the actual name of the field and nn is the total, which is printed without leading zeroes. A leading '-' is printed if the number is negative or a space if positive. A decimal point will be printed only if there is a fractional part to the total in which case two decimal places are printed.

E:SYSTEM PARAMETERS

E.1:PRINTER

Use this to set up the appropriate printer driver for your printer if you have one. You may choose either serial or Centronics-compatible parallel drivers (see Printer notes for details of serial case). You may also enter the address in hex of your own printer driver. The driver selected here will be the one used when output from the LIST, REPORT and TOTAL commands is listed. You should only set the printer type when you actually want output to be sent to the printer. If you do not have a printer attached to your system, ALWAYS leave the device set to 'V' (video).

E.2:SPACE

Use this to check the amount of space left in the file area for records. The routine will print out the number of bytes of RAM left for file expansion as a decimal number, as well as the current size of the file as a decimal number. If the file is bigger than the file space, it prints an OUT OF SPACE error message (see error messages).

E.3:TABSET

Use to set the values of the TAB settings for the REPORT command. There are 5 TAB positions available and these are set to 10, 20, 30, 40 and 50 initially. The line is considered to be 128 chars max with TAB positions from 0 (left margin) to 127 (right margin). The TAB values are shown and entered as decimal numbers. To change a TAB setting, first type its number and then the new value. To exit from this command, enter '\' (back slash) as the TAB number.

CONVENTION: TABS 0 to 127 are on the current line
             TABS 128 to 255 are on the next line.

To TAB to a position in the following line, enter a value of 128 + position.

e.g. To TAB to position 60 on current line, enter 60
     To TAB to position 60 on next line, enter 188

The maximum value that may be entered is 255.

These TAB postions are used by the multiple recs/line option in the REPORT command to position the top left hand corner of the corresponding record across the page. They can be used as required with any field in the single record case. Note that if the printer is past the TAB position wanted, the field is printed at that position. You must set these values before using the TABS in the REPORT command. If you want to permanently change the default settings, enter the values you want as hexadecimal numbers at locations 10AH-10EH for tabs 1-5 respectively.

F:PROGRAM EXIT

F.1:CPM

Use to exit to the CP/M operating system. If there is no C3H byte at location 5, you will be returned to command mode. If the file has been changed and not saved, a warning message will be printed. If you want to save the file, type 'Y' and you will be returned to command mode. If the file is large, it will overlay the CCP area of the disk operating system. When you use the CPM command, this area of the file will be lost. In emergency situations, it would be better to use the MONITOR command, since this does not overwrite the end of a large file and allows you to save the file on cassette.

F.2:MONITOR

Use to exit to the Sorcerer monitor. If the file has been changed and not saved, a warning message is printed (See the CPM command). If you want to re-enter the program without losing the data, use GO 103.

ERROR MESSAGES

1. ** ILLEGAL ENTRY **

Your input to a command, record number or field number was not in an allowable range. Repeat as directed.

2. * NO DATABASE PRESENT *

You have attempted to ADD records before CREATing or LOADing a database. This error will return you to command mode.

3. * OUT OF SPACE *

(a) When ADDing records, the last record entered would not fit in the file space left. It will be ignored and the ADD routine left.

(b) When EDITing, the revised record would extend beyond the end of file space. The record will be included but the EDIT routine left. To ensure correct operation of CADAS, you should reduce the file size by EDIT or DELETE.

4. ** ERROR IN MERGE **

When merging in a file with one already present, the number of fields for the two files is different or the total number of records is greater than 750. Your previous file will be left unchanged.

5. ** ERROR - NO OF RECORDS IN FILE = N

There are too few records in the file to execute the command you have typed in.

6. ** SUMMATION ERROR **

The total is too large and underflow/overflow has occurred.

7. (nn) FIELD ERROR: field

The field being summed in record nn is not numeric.

8. ** DISK ERROR **

There is not enough room on disk for the file to be saved or the file does not exist when loading. This error can also occur when disk hardware errors occur.

CADAS is designed to withstand abuse, so try all the commands on a trial database to get used to their operation before using it seriously. You can reset the computer at any time except during the ADD, Auto-DELETE or SORT without losing your data. Use GO 103 to go back to command mode.