QuikBase™

The quick database program

Preliminary draft

12/7/88

QuikBase™ at a Glance

(12/5/88)

File structure: flat non-relational structure, up to 999 fields in a record, number of records in database limited only by storage medium

Data types: real, long integer, (date)[1], fixed length and *variable length text*

Field Attributes: case insensitive searches, no range testing, no default values, no unique fields, no automatic incrementing fields, no calculated fields,

Data manipulation: Up to six indices at once, *redefinable indexed fields, redefinable file definition*, (multiple record update or deletion)

Sorting: Fast sorting using *B-tree indexing*. Uses up to 3 fields automatically; uses 6 indices in the report generator

Input facilities: Fields have 20 character labels, supports tab delimited text import files with column headers

Screen definition: Line oriented with up to 20 character labels and 56 character fields (with hypertext variable length text fields)

Output facilities: Powerful script language with automatic script generation for routine reports —single-line and multiple-line reports such as mailing labels. Report generator provides arithmetic functions, totals, subtotals,, average, count, min/max, etc. functions and sophisticated formatting. Sends output to screen, printer, or disk files; programmer accessible predefined script files for complicated or frequently used reports

Query facilities: Boolean expressions with up to six conditions, whole word and embedded substring with ? and * wild cards, case sensitive or not

Special features: (Multiple input formats), scripting for extensive report generating capabilities

Hardware: 256K IBM-PC and full compatibles, PC-DOS 2.0 and higher, printer recommended, color or monochrome screen

Other: No installation—only requires CONFIG.SYS with sufficient Files and Buffers set.

Unique Features: Interface uses pull-down and pop-up menus with scrolling, cursor selection of menu items, i.e., "point and shoot" even for template formatting and report generation; very rapid searches using B-tree indexing; designed for use by nonprogrammers

Potential Uses: Personal bibliographic retrieval system with interface to word processor for manuscript and thesis preparation; managing listed oriented data such as staff directories, room key lists and off-campus housing; capturing data from decentralized sources e.g, rapid creation of centralized databases such as telephone directory, accounting records, status of research projects, or even course registration; distribution of searchable database extracts such as library card catalog, course and room rosters, course catalogs, list of publications, advisee lists, employment opportunities with interview schedules, academic calendars, athletic and cultural events, faculty research interests

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[1] parentheses indicate planned additions

Chapter 3

QuikBase™ Reference Guide

(DRAFT 12/07/88)

QUIKBASE™ provides rapid, yet simple, storage and retrieval of data—text and numerical. This chapter presents a detailed description of the features and operation of QUIKBASE™. The distribution disk contains a file, DEMO, which is described in this chapter.

1.0 Features

QuikBase™ is a specialized database application for the IBM PC and workalike compatibles. The database handles as many **records** as your disk storage medium will accommodate. A *record* consists of up to 300 user-defined *fields* or entries) such as "Last name", "First name", "Street", etc. *Field types* include: *fixed length text* where the input string is padded on the right with blanks to completely fill the field; *variable length text* where only the input string—without the trailing blanks—is stored, *integer numbers*, numbers without a decimal point and up to 10 digits; *real numbers*, numbers which include a decimal point, and a *date* type of mm/dd/yy format.

File	Edit	Sequence	Report	Import	Template

```
        Last name: Bartlett
       First name: James
      Institution: Cornell University
           Street: 162 Riley Robb Hall
             City: Ithaca
            State: NY
              Zip: 14853
```

```
<Alt><N> Next record      <PgDn>  Next page        <Right>  Next character
<Alt><P> Previous record<PgUp>  Previous page      <Left>   Previous character
<Alt><A> Add record       <Home>  Top of screen    <Del>    Delete character
<Alt><D> Delete record    <End>   Bottom of screen<Ins>     Toggle insert mode
<Alt><E> Edit menu        <Down>  Next field       <Alt><U> Undo string edit
<Alt><S> Sequence menu    <Up>    Previous field   <Backsp> Delete left
<Alt><H> Toggle help      ^<Home> Top of record    ^<End>   Bottom of record
```

Fig 3.1 Typical record input layout

Fig 3.1 illustrates the format of the input record layout. Each field has a text label of up to 12 right justified user-assigned characters; the contents of a field, which can

have up to 56 characters, are left-justified on the same line of the display screen. When you create a *database*, i.e., a collection of records, you define the fields and the field labels. QUIKBASE™ allows you to make the inevitable changes to an existing database: add new fields before or after any existing fields, delete fields, modify the sequence of fields, and even change field types (with automatic translation).

Multiple databases can reside in a subdirectory. Data entry via keyboard is rapid and convenient. The input layout of Fig 3.1 provides access to all fields, but you can alter fields to which you have assigned the protected attribute only if you press additional keys. {You can limit the number of fields displayed in the input layout to increase entry speed, to improve visual clarity, and to block designated fields from view for security reasons.}

A B-tree index gives you rapid access to stored data. With even *very* large databases the program requires at most four disk accesses to locate any given record. You can define up to 10 indices at a time to facilitate rapid searches. A template menu provides keyboard control of customization of the contents of the records. You can modify the choice of fields, format, and placement of fields even after you have used the database, which provides an important degree of flexibility as usage of the database expands.

Data manipulation capabilities include manual modification of records to modify the contents of a field by assignment and by adding and subtracting other fields. You can handle more sophisticated operations by exporting the data, performing calculations in a separate application such as a spreadsheet, and then importing the resulting calculations. In addition a powerful script language permits you to customize calculations and reports. Limited assignments to previously defined fields allow you to record activities such as the mailing date of a brochure sent to the address of selected records. {To add: a few tools to modify contents of database.}

QUIKBASE™ provides report generation capabilities for the routine handling of tabular data. You can produce two types of reports—one line per record and multiple lines per record—and send them to the screen, to the printer, or to a file for subsequent use by programs such as a word processor. Sort and selection features allow you to order and filter records included in your reports. For example, you can produce a mailing list in zip code order. You can produced this as a text file or as a mail merge list for an individualized letter.

The one line per record format is convenient for producing quickly a paper trail. The multiple line per record format provides more user control of the layout and allows you to produce complete paper trails as well as create useful extracts of data. Use this option to produce mailing labels, too.

2.0 Program organization

Simplicity of use is the overriding design criterion for QUIKBASE™.

QUIKBASE™ is controlled from pop-down menus which are displayed across the top of the screen. The commands are arranged in the left-to-right sequence of normal use: access a file, edit records, revise the indices for sequencing records for rapid lookup of records, report generation and export of data via text files, import of data from text files, and revision of the template used for records. These menus make use of pop-up submenus (Table 3.1) and edit windows. When display space permits, a reminder of the keystroke commands accompanies each input window.

TABLE 3.1 MENU COMMANDS	Defaults
File	Page width
About QB	Page length
Database	Left margin
File name	**Report format**
Subdirectory	Single-line
Path name	Multi-line
Quit	Select/Sort
	Selection criteria
Edit	Sort criteria
First	**Store format**
>= record	File name
<= record	**Retrieve format**
Last	File name
	Generate Script
Sequence	File name
(create indices)	**Generate report**
Report	**Import**
Destination	File name
Printer1	Append
Printer2	Merge
Screen	**Template**
Disk file	(Field labels, field type, field width)

BEFORE YOU BEGIN: Make a working copy of the distribution disk.
- Place a write-protect tab on the master diskette.
- Use the usual DOS commands to make a duplicate copy.
- Store the master distribution disk in a safe place.

Activate QUIKBASE™.

• After selecting the drive and subdirectory of QUIKBASE™, type QB and press <Enter>.

Note: Typographic convention: <Enter> means press the "Enter" key.

Use of menus
When the menu bar is active, type the first letter of a menu command or use the left and right cursor keys to highlight a menu name and press <Enter> to access the pop-down menu. To select a command from the menu, again type the first letter of the command or use the arrows to highlight a command and then press <Enter>. Press <Esc> to exit the menu and to return to the menu bar.

QUIKBASE™ displays the copyright notices (Fig 3.2).

```
              Q U I K B A S E ™
              The Quick Database

         Database ©1989 Cooke Publications
              All Rights Reserved

      NOTICE: THIS IS A PRELIMINARY VERSION.
           NOT READY FOR PRODUCTIVE USE
                  CONFIDENTIAL
```
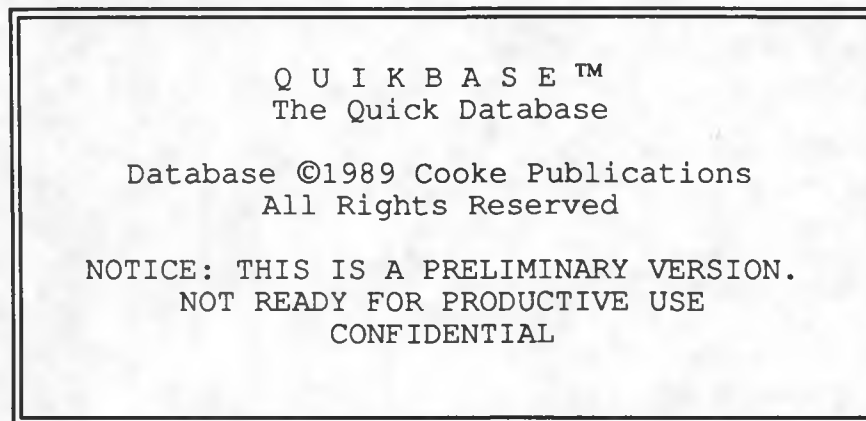
Fig 3.2 Copyright notices

You may need to adjust the screen brightness and contrast. QUIKBASE™ supports both monochrome and color screens.

Press any key to enter the File menu.

Note: General instructions in this manual are italicized and precede the detailed step-by-step instructions.

2.1   File Menu

The file menu allows you to select the database, including specification of the subdirectory. In addition, you create new database files here.

Select a database file. (DEMO in this example.)

QUIKBASE™ automatically presents the File menu when you activate the program (Fig 3.3).

However, if the program were already active, you would:

• Press <F> (or position the cursor on "File" and press <Enter>).

```
┌─────────┬──────────────────────────────────────────────────────────────────┐
│  File   │   Edit      Sequence     Report      Import      Template          │
├─────────┴──┐
│ About QB   │
│ Database   │
│ Subdirectory│
│            │
│ Quit       │
└────────────┘
```
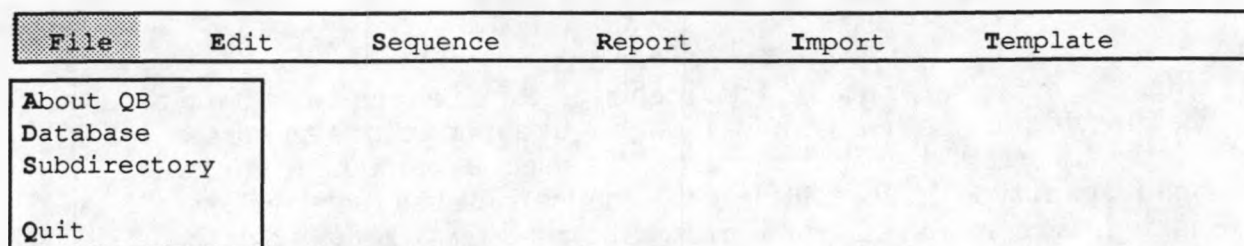
Fig 3.3 File menu

The About QB command (Fig 3.4) contains acknowledgments.

```
                    About QuikBase™

        The database software was produced
             at Cornell University by

        J.Robert Cooke, Project Director,
                      and
          James V.Bartlett, Programmer,

           using the B-Tree search index
           and report generation kernels
        published by FairCom of Columbia, MO.
```
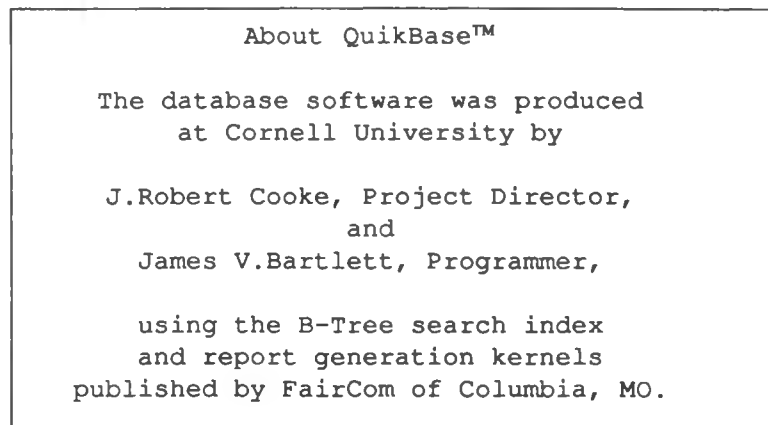
Fig 3.4 About window.

Identify the subdirectory which contains the database files.

If the database DEMO is in a different subdirectory:

• Press <S> (or position the cursor on "Subdirectory" and press <Enter>).

```
 File        Edit       Sequence      Report     Import     Template

About QB
Database
Subdirectory

Quit      Subdirectory: C:\QB
```
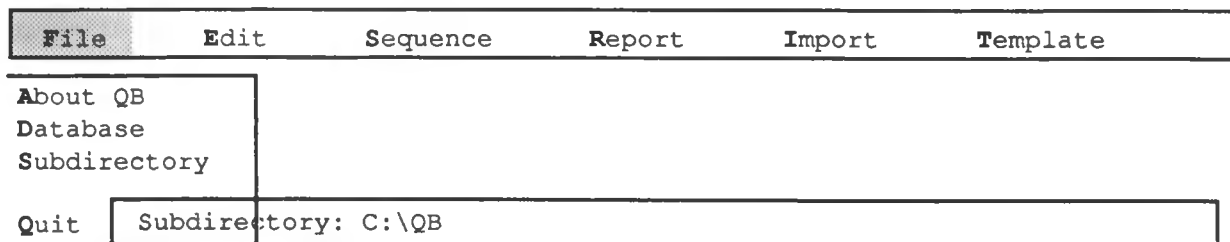
Fig 3.5 Subdirectory designation

• Supply the letter for the disk drive, followed by a colon, and the path name in the submenu window. Follow the customary DOS conventions for naming files and specifying path names. In Fig 3.5 you type "C:\QB".

• Press <Enter>.

In the example (Fig 3.5), the QB subdirectory on drive C has been specified. QUIKBASE™ and the data need not be located in the same subdirectory. Only one database can be open at a time.

The database consists of three files: DEMO.DAT (the data file of records), DEMO.DEF (the description of the format of the records), and DEMO.IDX (the file of indices). ALL THREE MUST BE PRESENT IN THE SAME SUBDIRECTORY. The ".IDX" file can be rebuilt by QUIKBASE™, but the ".DEF" file which contains the definition of the file structure cannot be regenerated.

Select the database.

• Press "D" (or use the cursor arrows to highlight "Database" and press <Enter>).

```
┌─────────────────────────────────────────────────────────────────────────┐
│ File       Edit      Sequence      Report      Import      Template       │
└─────────────────────────────────────────────────────────────────────────┘
┌──────────────────┐
│ About QB         │
│ Database         │
│ Subdir┌────────────────────────┐
│       │ Database: DEMO         │
│       │                        │
│ Quit  │                        │
└───────┴────────────────────────┘
```

Fig 3.6 Database name

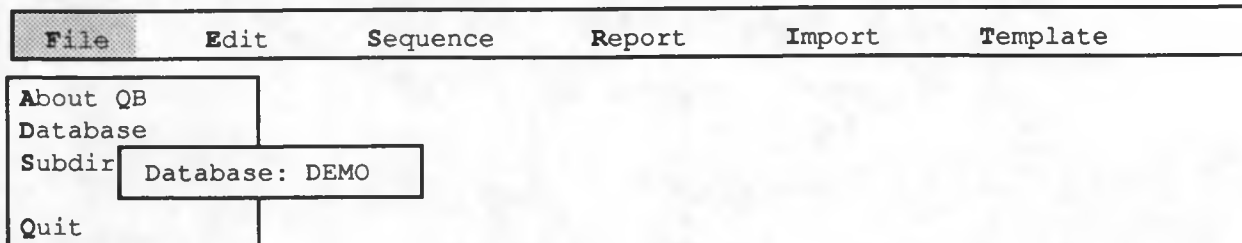Enter the database name which can have up to eight (8) characters. No blanks and no file extension are allowed. The extensions for the three files are added by QUIKBASE™. Lowercase letters are automatically converted into uppercase. Follow the rules for naming DOS files.

• Type the file name "DEMO" in any combination of upper or lower case letters and press <Enter>.

The name of the selected database appears in the status bar at the bottom of the screen (Fig 3.7). The name of the current index also appears in the status bar.

```
┌─────────────────────────────────────────────────────────────────────────┐
│ File       Edit      Sequence      Report      Import      Template       │
└─────────────────────────────────────────────────────────────────────────┘
```

Database: demo   Sequence: Last name:
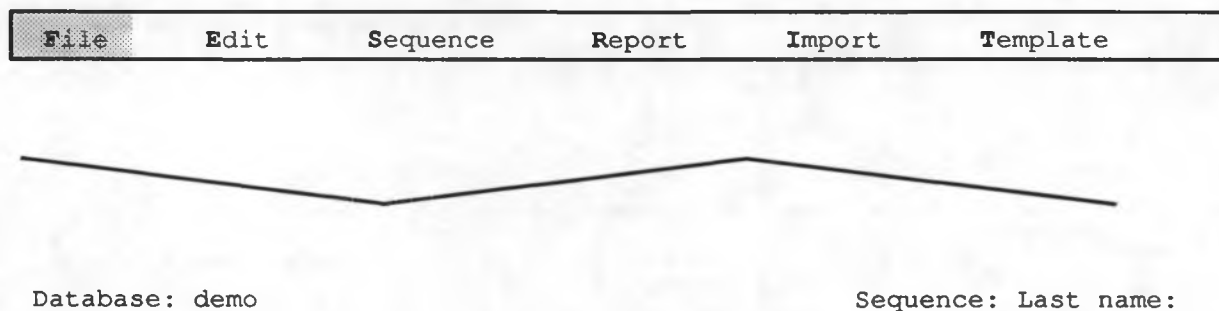
Fig 3.7 Status bar

To create a *new file* rather than to open an existing file, enter a file name not already in use in the current subdirectory. When you create a new file, you *must* first define the fields using the Template menu (§2.6) and then create at least one sequencing index using the Sequence menu (§2.3). These menus are described below.

2.2   Edit Menu

The Edit menu provides you rapid access to existing individual records and allows you to edit the contents of the fields of the records. In addition, you can delete old records and add new ones.

Locate a specific file and enter new data or modify the current contents of a record.

To edit the contents of records in the current database:

• Press <E> (or position the cursor on "Edit" and press <Enter>).

File	Edit	Sequence	Report	Import	Template

```
First
>= record
<= record
Last
```

Fig 3.8 Edit menu

The pop-down menu allows you to move immediately to the first or to the last record by typing "F" or "L". If you type "<" or ">", you can also begin editing at any record (Fig 3.9). Enter one or more leading characters corresponding to the current index (which is the Last name index in this instance and which is named in the submenu and at the bottom of the screen). Refer to the discussion of the Sequence menu for more detail.

• Press ">" and the submenu appears.
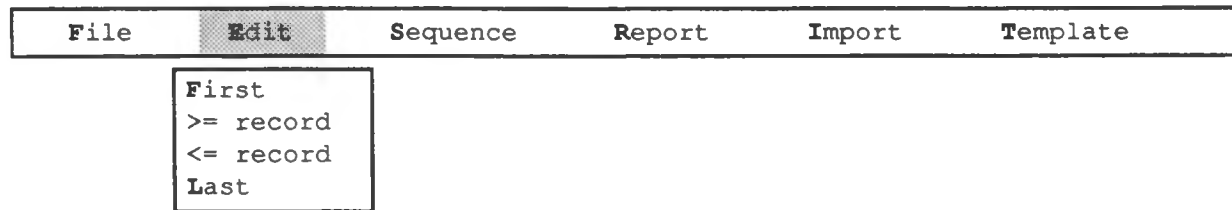
File	Edit	Sequence	Report	Import	Template

```
First
>= record
<= record
Last
```

```
Last name:
```
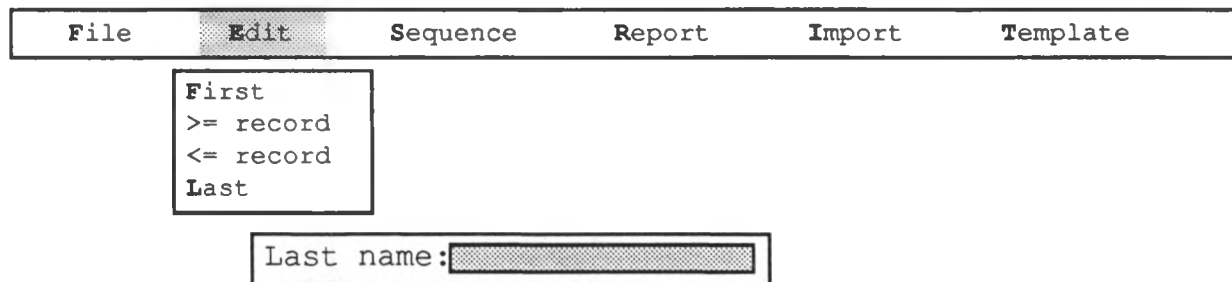
Fig 3.9 Search substring

• Type "Sm", and the first record which matches the substring "Sm" appears.

In this case the first record which matches "Sm" as the first two characters in the File name index is found. Other records, e.g., Sue Smith or Sam Smythe, might follow. Your search locates the first such match. See the discussion of the Sequence menu for additional information on the search order. Fig 3.10 displays the top of the record you just located. The field identifiers appear on separate lines and precede the contents stored in that field. Records can have up to 300 rows of information. Scrolling commands provide access to the entire record. You can move the cursor to the top or to the bottom of the current screen or up or down a field at a time. Scroll commands also provide immediate access to the previous and next screen (or page) of information. If more than one screen of data exists, you can also move immediately to the first and last such pages of data.

Use the left and right cursor keys to move nondestructively within a field. You can delete the character highlighted by the cursor and the character to the immediate left of the cursor. New characters can either overwrite the existing characters or move all remaining characters to the right. An undo command allows you to restore the initial contents of a field.

You can also add a new record or delete an existing record as well as access the next and previous records. The help window can be removed for a larger view of the existing record and restored only as needed.

Note 1: You must *NOT* set the NumLock key if you wish to use the cursor keys.

Note 2: The ^ symbol denotes the control key.

File	Edit	Sequence	Report	Import	Template

```
        Last name: Bartlett
       First name: James
      Institution: Cornell University
           Street: 162 Riley Robb Hall
             City: Ithaca
            State: NY
              Zip: 14853
```

```
<Alt><N> Next record      <PgDn>  Next page         <Right>   Next character
<Alt><P> Previous record<PgUp>  Previous page     <Left>    Previous character
<Alt><A> Add record       <Home>  Top of screen     <Del>     Delete character
<Alt><D> Delete record    <End>   Bottom of screen<Ins>     Toggle insert mode
<Alt><E> Edit menu        <Down>  Next field        <Alt><U> Undo string edit
<Alt><S> Sequence menu    <Up>    Previous field    <Backsp> Delete left
<Alt><H> Toggle help      ^<Home> Top of record     ^<End>   Bottom of record
```

Fig 3.10 The edit menu and help reminders

• Press <Alt><H> (i.e., press and hold "Alt" and then press "H".) to remove or to restore the help screen. By removing the help information, you increase the maximum number of displayed lines from 11 to 20. If a record exceeds 20 lines, you can scroll to the next or to the previous page.

You can move the cursor to the top of the current screen to the bottom of the current screen, and to the first line or last line of the record even if that line is not currently displayed. The arrow cursor keys move the cursor to the next or the previous line if NumLock is not set.

Editing within a field also follows the usual word processor conventions: left and right arrows move the cursor left and right without erasing the contents. Character deletion is also provided. New characters typed in the field are either inserted without deletion or overwrite existing characters as set by toggling the "ins" key. You can restore the original contents in a field with the "undo" command.

A summary of all QuikBase keystroke commands is included in the Appendix.

To leave the edit environment:

- Press <Esc> to return to the menu bar *or*

- Press <Alt><E> to return to the Edit menu *or*

- Press <Alt><S> to set a different sequence index.

2.3 Sequence Menu

Use the sequence menu to create up to ten indices for record retrieval.

From the menu bar,

- Press <S> to enter the Sequence menu.

```
┌──────────────────────────────────────────────────────────────┐
│   File       Edit      Sequence      Report     Import     Template │
└──────────────────────────────────────────────────────────────┘
        ┌─────────────────────┐
        │ Last name           │
        │ First name          │
        │ Institution         │
        │                     ┌──────────────────────────────────┐
        │                     │ <Alt><A>  Add new index          │
        │                     │ <Alt><D>  Delete index           │
        │                     │ <Alt><E>  Edit index             │
        │                     │ <Down>    Next index             │
        │                     │ <Up>      Previous index         │
        │                     │ <Enter>   Set current index      │
        │                     │ <Esc>     Exit                   │
        └─────────────────────┴──────────────────────────────────┘
```
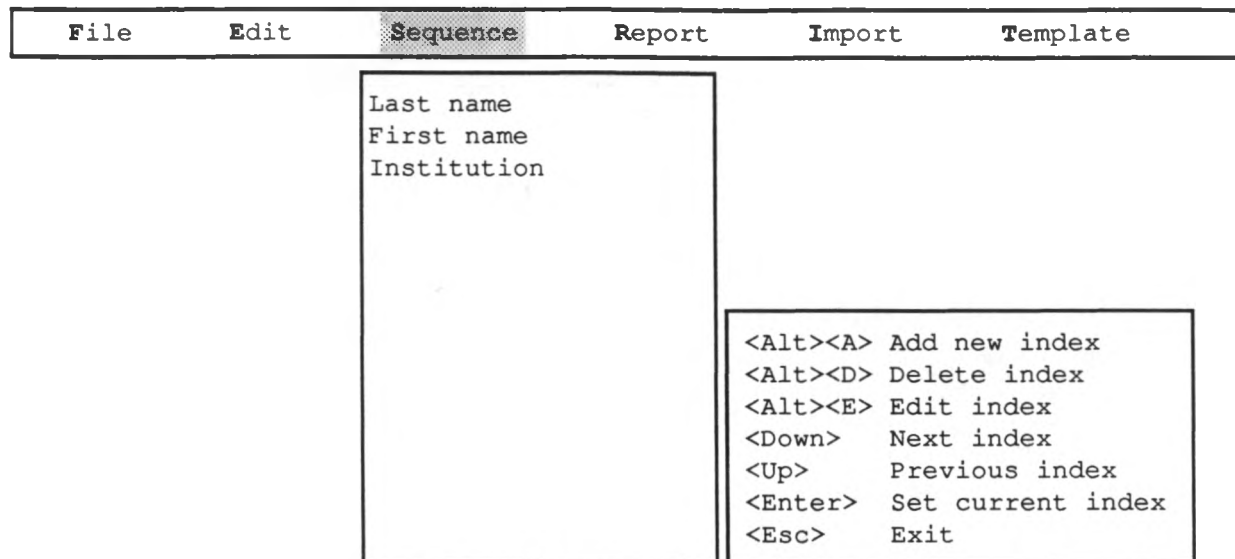
Fig 3.11 Sequence menu

The sequence window (Fig 3.11) lists all the currently defined indices, in this case we have defined three indices. A help window automatically appears.

To select an existing index for record searches:

- Use the up and down arrows to select an existing index, e.g. Last name.

- Press <Enter> to accept the highlighted choice, and then

- Press "Esc" to exit.

To add, delete, or edit an index do the following:

To add an index,

• Press <Alt><A>.

File	Edit	Sequence	Report	Import	Template

```
┌─ Index segments ──────────────────────────┐
│ Last name                                  │
│ First name                                 │
│ Institution                                │
│                                            │
│          Segment #1: Last name             │
│                                            │
│          Segment #2: First name            │
│                                            │
│          Segment #3: _____      │
│                                            │
│                                            │
│                                            │
└────────────────────────────────────────────┘
```

Fig 3.12 Sequence menu

An index window appears (Fig 3.12). Each index is composed of portions of up to three fields. The index establishes the sort order associated with the index. For example, if you use Last name and First name, then the program creates an alphabetical index for retrieval using the person's name. The entries shown in Fig 3.12 direct that the index be constructed from the first five characters of the last name and the first five characters from the first name. To create such an index:

• Move the cursor to Sequence #1 using the up and down arrows.

To move the cursor to the list of field names in the column at the left:

• Press <Enter>. A place holder identifies the current segment field when the cursor moves to the list of field names at the left.

• Use the up and down arrows to highlight the field name you wish to use as the first segment of the index. Actually all the scrolling commands mentioned for the Edit menu (Fig 3.10)— <PgDn>, <PgUp>, <Home>, <End>, ^<Home>, and ^<End> apply.

• Press <Enter> to copy that file name to the field with the place holder.

• Repeat this process to select one or two more segments.

The index segments determine the retrieval order used in the edit menu. The first segment is the primary sort key. When the first segments match, the sort continues using the second segment, etc. However, you enter only the first segment in a record search.

When you have completed the index definition:

• Press <Esc> to return to Fig 3.11. The name of the first segment becomes the name of the index although, in general, the index is based upon three fields.

To delete an index:

• Use the cursor to highlight the name of the index (Fig 3.11) and press <Alt><D>.

To edit an index:

• Use the cursor to highlight the name of the index (Fig 3.11) and press <Alt><E>. Follow the instructions described for "Add".

Once you have added, deleted, or edited the list of indices, return to the Sequence menu and select the "current" index.

• Use the up and down cursor keys to highlight an index.

• Press <Enter> to designate the highlighted index name as the current index.

• Press <Esc> to leave the Sequence menu and return to the main menu bar.

2.4   Report Menu

Use the Report menu to extract reports from the current database. You can send output to the screen, to either printer port, or to a file. The report format can be single-line, i.e., organized by "columns" with one record per line, or multi-line, i.e., page oriented with multiple lines of output from a record per page. You define a Boolean record selection criterion and specify the sort order of the output. You can produce frequently used reports from a collection of script files. Reports which are a variation on a theme are easily constructed from saved formats.

```
┌─────────────────────────────────────────────────────────────────────┐
│  File       Edit      Sequence    Report     Import     Template      │
└─────────────────────────────────────────────────────────────────────┘
                                  ┌─────────────────┐
                                  │ Destination     │
                                  │ Defaults        │
                                  │ Report format   │
                                  │ Select/Sort     │
                                  │ Store format    │
                                  │ Retrieve format │
                                  │ Generate script │
                                  │ Generate report │
                                  └─────────────────┘
```
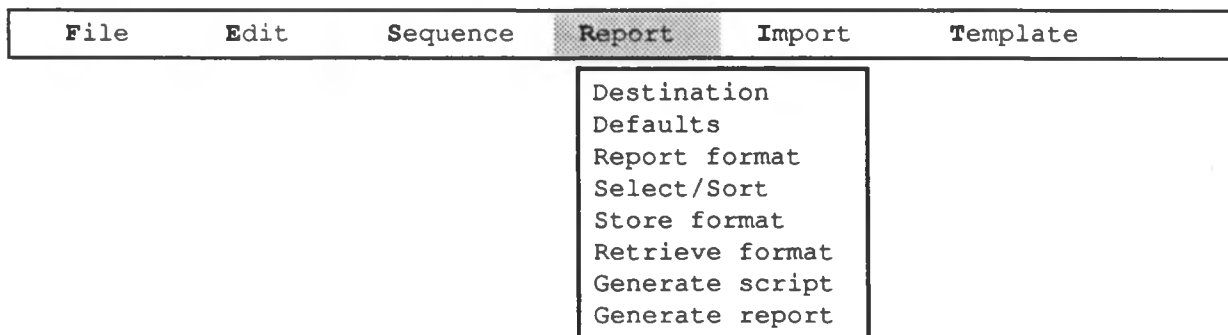
Fig 3.13 Report menu

The Report menu (Fig 3.13) contains eight commands which define the report format and contents. You can send output to the screen, to printer ports 1 and 2, or to a text file (Fig 3.14). Use the "point and shoot" method to select the destination.

In other words:

• Use the up and down cursor to highlight a choice. Then

• Press <Enter> to select the highlighted option.

QUIKBASE™ returns you to the Report menu and the destination remains set until you explicitly modify it. You can examine and modify text files using a standard word processor or editor. Certain exported files can be read by QUIKBASE™.
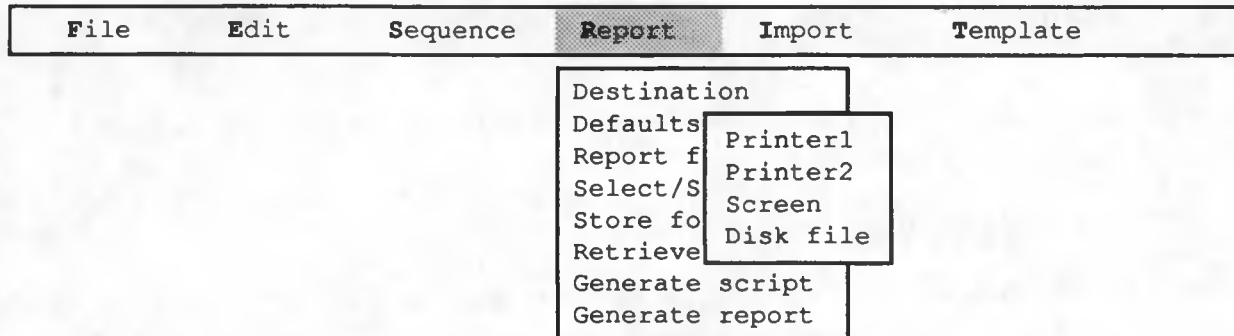
```
 File         Edit        Sequence     Report      Import       Template
```
```
                            Destination
                            Defaults
                            Report f  Printer1
                            Select/S  Printer2
                            Store fo  Screen
                            Retrieve  Disk file
                            Generate script
                            Generate report
```
Fig 3.14 Destination submenu

• Set Defaults (Fig 3.15) for page width, page length, and the number of characters reserved for the left margin. These need not be set for screen output.
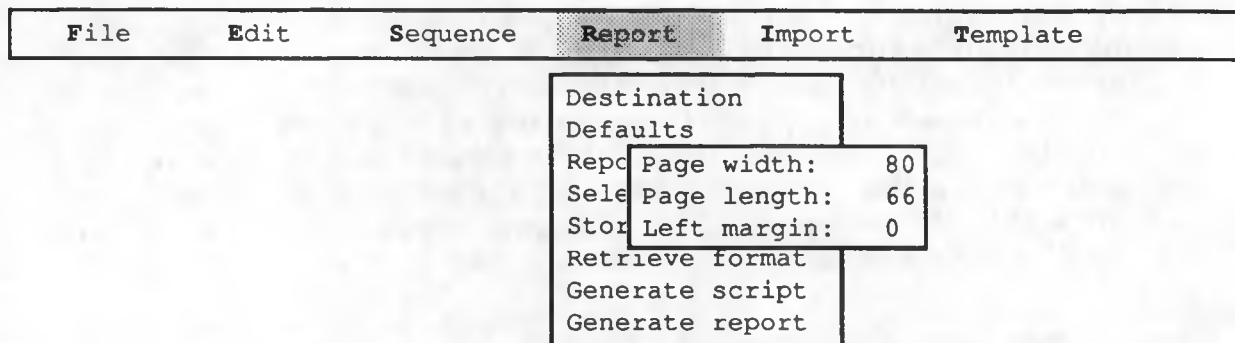
```
 File         Edit        Sequence     Report      Import       Template
```
```
                            Destination
                            Defaults
                            Repc  Page width:    80
                            Sele  Page length:   66
                            Stor  Left margin:   0
                            Retrieve format
                            Generate script
                            Generate report
```
Fig 3.15 Defaults submenu

• Press <Esc> to return to the Report menu.

• Use Report format (Fig 3.16) to choose one of the standard report formats: Single-line or Multi-line using the "point and shoot" method.

File	Edit	Sequence	Report	Import	Template

```
Destination
Defaults
Report format
Select/S  Single-line
Store fo  Multi-line
Retrieve format
Generate script
Generate report
```
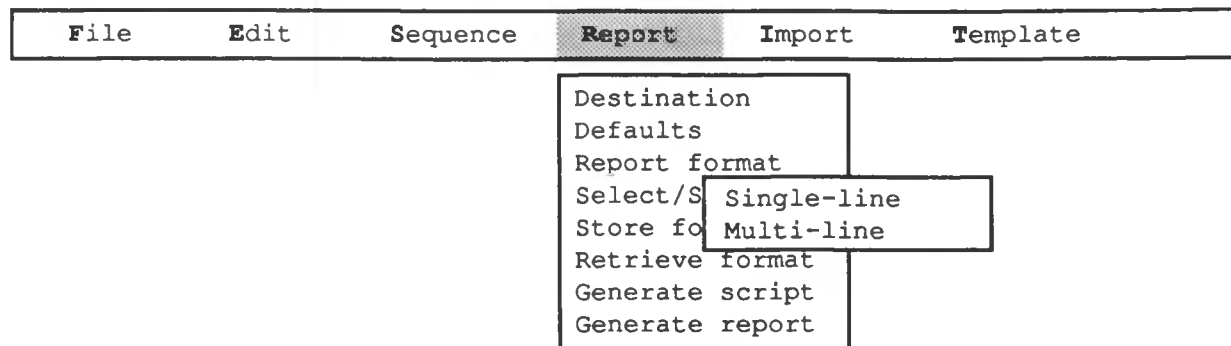
Fig 3.16 Report format submenu

A. Single-line Report:

The single-line or "column format" is the simpler—QUIKBASE™ displays the fields you select "in columns" with all fields for a particular record on a single line. A telephone directory is an example of this style report. After you select "Single-line" (Fig 3.15), a window for report definition appears (Fig 3.17).

File	Edit	Sequence	Report	Import	Template

```
Last name:
Institution:
Street:
City:
State:
Zip:
```

```
                    Header:  Labels

                    Labels: None

                Alignment: Field width

            Page breaks: on




            Report width : 133
```

Last name First name Street address City State Zip code

Fig 3.17 Single-line report definition

You can make choices in any order.

Select fields for the single-line report.

• Use the left arrow to move the cursor to the list of field names on the left.

• Use the "point and shoot" method to highlight and choose a field.

• Repeatedly use the "point and shoot" method to select the additional fields you wish to include in the report. If the list of database field names exceeds 20, use the up and down arrows to scroll the list into view.

The list of selected names appears at the bottom of the screen separated by delimiters. Since the length of a field need not match the length of the field name, QUIKBASE™ displays a running total for the report line width in the largest window (Fig 3.17).

• Use the right arrow to move the cursor back into the largest window.

Note: Use <Alt> <D> to delete an entry for the currently highlighted field label.

By toggling you can make choices in the four remaining categories.

• Use the up and down arrows to move the cursor to each of the four categories—headers, labels, alignment, and page break.

• Use the space bar to cycle among the available choices (Fig 3.17).

Header choices for the report are:

1) *Labels*: use field labels as column headings. If necessary, QUIKBASE™ truncates the labels to conform to field width.

2) *Symbols*: uses stylized field names to match the requirements of the report generator and for subsequent importing of the data. QUIKBASE™ uses only alphabetic, numerals and underscores. Underscores replace spaces.

3) *None*: no header is produced.

Field label choices immediately precede the contents of *each* field value and uniquely identify the values:

1) *Labels:* the field precedes each field value in the report.

2) *Symbols:* a stylized field name precedes each value.

3) *None:* no label precedes each field value.

Alignment choices control the spacing of the fields:

1) *Field width:* QUIKBASE™ pads the field on the right with spaces to preserve vertical alignment of the fields.

2) *Tab separated:* QUIKBASE™ places a tab character between fields.

3) *Space separated:* QUIKBASE™ places a space character between fields.

You can provide more specialized formatting by editing the script file. See the Appendix.

After making these choices or accepting the defaults:

• Press <Esc> to return to the Report menu.

• Use the "Generate script" command to create a script file and "Generate report" to generate the report (Fig 3.13 and 3.16), and send all records in physical storage order to the output destination chosen earlier. See the discussion of the "Select/Sort" command below to print only records which meet certain qualifications and to control the ordering of the records in the report.

B. Multi-line Report

The multi-line report format is slightly more complicated—the fields you select are displayed in multiple lines. A mailing label is an example of this style report. After you select "Multi-line" (Fig 3.15), a window for report definition appears (Fig 3.18).

```
┌──────────────────────────────────────────────────────────────────────┐
│   File        Edit        Sequence     Report    Import     Template   │
└──────────────────────────────────────────────────────────────────────┘

┌──────────────────────────────────────────────────────────────────────┐
│ Labels:  None      Alignment:  Field width                             │
├──────────────────────────────────────────────────────────────────────┤
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
│  ----------------  ----------------  ----------------  ---------------- │
└──────────────────────────────────────────────────────────────────────┘
```

Fig 3.18 Multi-line report format

You can make the choices in any order.

Select fields for the multi-line report.

*Use the grid (Fig 3.18) to specify the **sequence** of fields you want to display on each row.* The Labels and Alignment options discussed below control the actual print positions within the rows.

• Use the four cursor arrows to select a position within the grid (Fig 3.18).

• Press <Enter> to select that highlighted position within the grid, a list of field names pops-up at the left, and the cursor moves into the list of field names.

File	Edit	Sequence	Report	Import	Template

```
Last name:       Alignment:   Field width
Institution:
Street:          ------------------  ------------------  ------------------
City:            ------------------  ------------------  ------------------
State:           ------------------  ------------------  ------------------
Zip:             ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
                 ------------------  ------------------  ------------------
```

Fig 3.19 Field selection for page oriented report

• Use the up and down arrows to highlight a field name.

If the list of database field names exceeds 20, use the up and down arrows to scroll the list into view.

• Press <Enter> to select the highlighted field.

QUIKBASE™ copies the selected field name to the position marked by the place holder and highlights it.

• Repeat the previous four steps to assign other fields.

By toggling you can make two remaining choices.

• Use the up arrow to move the cursor to the top row— labels and alignment— and use the left and right arrows to move between the two categories.

• Use the space bar to cycle among the available choices (Fig 3.18).

Field labels immediately precede the contents of *each* field value and can be used to uniquely identify the values (as with Column reports):

1) *Labels:* the field precedes each field value in the report.

2) *Symbols:* a stylized field name precedes each value.

3) *None:* no label precedes each field value.

Alignment choices control the spacing of the fields:

1) *Field width:* QUIKBASE™ pads the field on the right with spaces to preserve vertical alignment of the fields.

2) *Tab separated:* QUIKBASE™ places a tab character between fields.

3) *Space separated:* QUIKBASE™ places a space character between fields.

After making these choices or accepting the defaults:

• Press <Esc> to return to the Report menu.

If you wish to generate similar, but slightly different, report

• Use the Store format command described below.

To use the just designed format:

• Invoke the "Generate report" command (Fig 3.13 and 3.16) to send all records in physical storage order to the output destination chosen earlier.

See the discussion of the "Select/Sort" command to print only records which meet certain qualifications and to control the ordering of the records in the report.

Selection and sorting of records in the report

The final step before you generate the report is the selection of the records you want to include in the report and designation of a convenient sequencing of the records.

From the Report menu (Fig 3.13)

• Highlight "Select/Sort" and press <Enter>.

The screen (Fig 3.20) now contains three windows: a list of the field names, six

Boolean selection conditions, and six fields for designating the sorting sequence.

Selection criteria

Note: Leave the Selection criteria window blank to include all records in a search.

• If the cursor is not at Field Name 1, use the cursor arrows to highlight this entry.

• Press <Enter> to move the cursor into the list of fields.

```
┌─────────────────────────────────────────────────────────────────────────┐
│   File        Edit        Sequence    Report     Import      Template     │
├──────────────────────┬──────────────────────────────────────────────────┤
│ Last name:           │  ┌─── Selection criteria ───────────────          │
│ Institution:         │                                                    │
│ Street:              │       Field Name      Oper  Value      Boolean     │
│ City:                │   1)  Last name        <>  Bartlett      AND       │
│ State:               │   2)  First name        =  James         END       │
│ Zip:                 │   3)  _____         =  _____    END       │
│                      │   4)  _____         =  _____    END       │
│                      │   5)  _____         =  _____    END       │
│                      │   6)  _____         =  _____    END       │
│                      │                                                     │
│                      │  ┌── Sort by ────────────────────────────          │
│                      │       Field name                                   │
│                      │   1) _____    2) _____                    │
│                      │   3) _____    4) _____                    │
│                      │   5) _____    6) _____                    │
└──────────────────────┴──────────────────────────────────────────────────┘
```

Fig 3.20 Selection/Sort window

• Use the up and down arrows to highlight a field name. If the list of field names is long, you may need to scroll the list with the arrow keys or use the other scrolling commands (Fig 3.1).

• Press <Enter> to select the highlighted field name.

QUIKBASE™ copies the field name to the select window.

• Use the right arrow to move the cursor from the selected field name to the Boolean operator.

• Repeatedly press the space bar to toggle among the six comparison operators: = equals; <> not equal to; < less than; <= less than or equal to; > greater than; >= greater than or equal to.

With the desired comparison showing,

• Use the right arrow key to move the cursor to the field value.

• Type a valid value of the same type as the field type (real, integer, string).

Note: You can use the DOS wildcard characters "*" and "?" with "=" and "<>" comparisons . For example, *son* matches strings with the substring "son" embedded, e.g., Donaldson, Dyson, as well as Sondheim, while *son would exclude the last name; and son* would exclude the others. Dys?n would match both Dyson and Dysen, but not Donaldson.

• Use the right arrow to move the cursor to the last column.

• Use the space bar to toggle among "END", "AND", and "OR".

If you are going to apply an additional condition in line 2, choose either "AND" or "OR", as appropriate. On the other hand, if this line concludes the Boolean expression, select "END".

Note: QUIKBASE™ groups each of the numbered lines by an implicit set of parentheses.

The example in Fig 3.20 locates all records of persons having first name James, except those with last name Bartlett.

Sort the selected records

After completing the selection criteria:

• Use the down arrow to move the cursor to field 1 in the "Sort by" window (Fig 3.20).

• Press <Enter> to move to the list of field names.

• Use the up and down arrows to highlight a field.

• Press <Enter> to select a field and copy the field name to the sort window.

You can choose up to six sort keys for the records. The order of selection is important. For example, if you were producing a set of mailing labels, you would chose Zip code first, Last name second, and First name third to produce a zip code ordered list with names alphabetized with each zip code.

• Press <Esc> to return to the Report menu after you have specified the selection and sort criteria.

Store format

This command saves a QUIKBASE™ editable report configuration.

If you wish to explore several similar report formats:

• Use Save format (Fig 3.21) to save the complete set of existing format, selection, and sort choices.

Then for subsequent iterations simply:

• Use Retrieve format described below to reinstate all the save choices.

In other words, the save condition become the starting point for the report design.
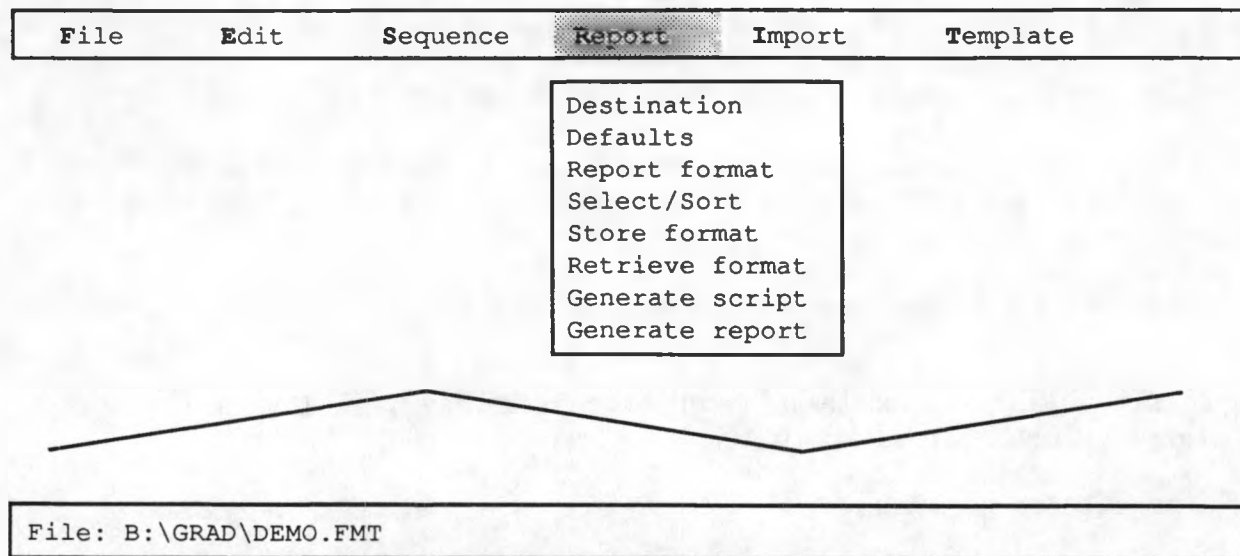
File	Edit	Sequence	Report	Import	Template

```
Destination
Defaults
Report format
Select/Sort
Store format
Retrieve format
Generate script
Generate report
```

```
File: B:\GRAD\DEMO.FMT
```

Fig 3.21 Store format and retrieve format windows

Retrieve format

This command allows you to retrieve a previously saved report description.

You can either:

• Use the retrieved format (Fig 3.21) to generate a report or

• Modify the report description before generating a report.

QUIKBASE™ supplies the file extension ".FMT".

Generate Script

This menu command automatically transforms the report specifications you entered above into a report generator script.

Script files can be re-used to produce your standard reports. You cannot edit these script files from within QUIKBASE™, but you can modify these text files using a word processor or text editor if you know the syntax.

• Supply the name of the script file (Fig 3.22). QUIKBASE™ supplies the file extension ".SCR" .
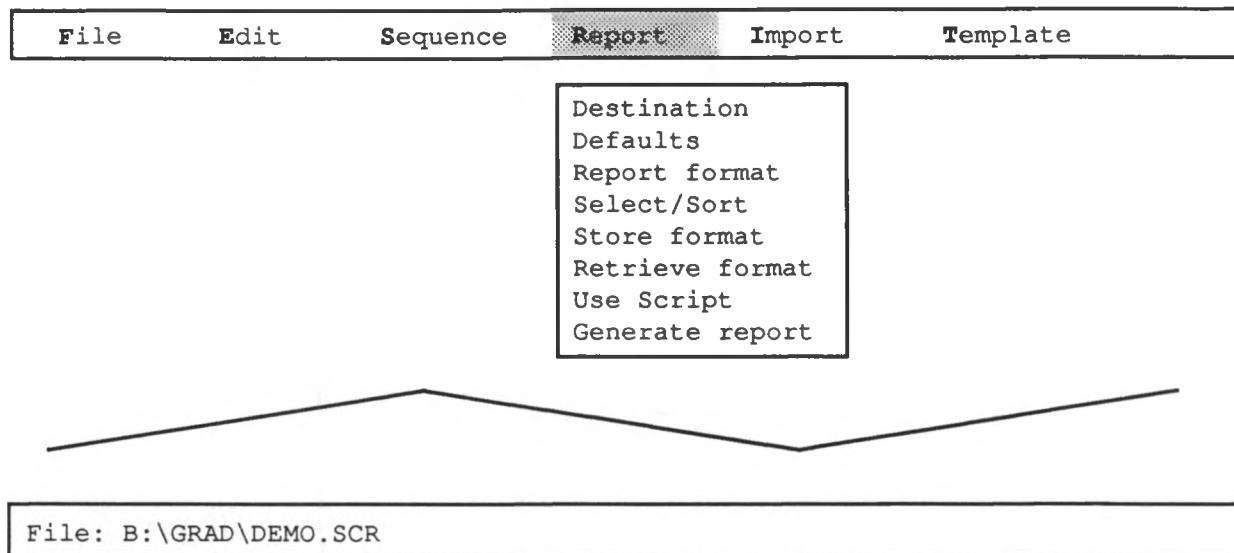
• Press <Esc> when ready.

File	Edit	Sequence	Report	Import	Template

```
Destination
Defaults
Report format
Select/Sort
Store format
Retrieve format
Use Script
Generate report
```

File: B:\GRAD\DEMO.SCR

Fig 3.22 Selection of a report script

Generate Report

This command of the Report menu generates the report according to the script file generated above and sends the report to the designated output device.

You must supply the name of the script file. QUIKBASE™ automatically presents the name of a just-completed script as the default; simply press <Enter> to accept the default.

2.5   Import Menu

This menu provides a capability for transferring data from a text file into QuikBase™.

For example you can transfer obtained from a centralized database into QUIKBASE™ and use them to produce mailing labels, track responses and to monitor the records through the completion of the admission process. You can append records to the end of an existing list (which might have no records yet) {or assign values to selected fields from an import file}. In this case, you must specify a field you want QUIKBASE™ to use to make an unambiguous match of records.

To enter the Import command:

• Press "I" (or use the arrows to highlight Import and press <Enter>).

• Select File name to name the import file (Fig 3.23).

If a properly prepared file exists:

• Enter the file name and press <Enter>.

```
┌─────────────────────────────────────────────────────────────────────┐
│   File      Edit      Sequence     Report     Import     Template    │
└─────────────────────────────────────────────────────────────────────┘
                                            ┌──────────────┐
                                            │ File name    │
                                            │ Append       │
                                            │ Merge        │
                                            └──────────────┘
```
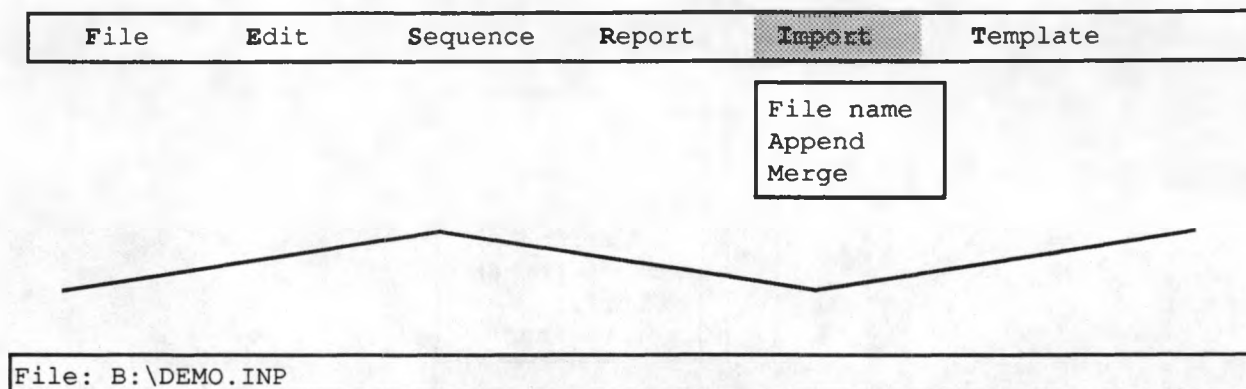
```
File: B:\DEMO.INP
```

Fig 3.23 Import menu

Format of import files.

What is a properly prepared file? QUIKBASE™ imports standard text files *IF*:

1) the fields of a record are tab-delimited,

2) the record is delimited by carriage returns, and

3) the first record consists of stylized field labels to identify the fields. These labels must match exactly the the corresponding field label to which you are assigning the data.

You can obtain an exact rendering of this header information by creating a text file using the following options of the Report menu: Destination: **Disk file** (Fig 3.13); Report format: **Single-line** (Fig 3.16) with (Fig 3.17) Header: **Symbols**; Labels: **None**; Alignment: **Tab separated**; with the desired fields selected (Fig 3.17) and a record selection criterion (Fig 3.20) which includes no records.

2.6   Template Menu

The template command allows you to define and redefine the fields. You specify field names, field type (real, integer, fixed length string, or variable length string) and maximum field lengths.

For a new database, you must define the template immediately after you name the database. Then you must define at least one index sequence (Using the Sequence menu) to produce a usable database.

From the menu bar:

• Press <T> (or use the cursor keys to highlight Import and press <Enter>.

The template window (Fig 3.24) appears.

```
┌─────────────────────────────────────────────────────────────────────────┐
│   File        Edit      Sequence     Report     Import     Template       │
└─────────────────────────────────────────────────────────────────────────┘
┌──────── Edit Template ────────┐  ┌─────────────── Template help ──────────┐
│ Label        Type    Width    │  │                                        │
│ Last name:    4       20      │  │  <Alt><A> Add field at current row     │
│ Institution:  4       50      │  │  <Alt><Z> Add field after current row  │
│ Street:       4       50      │  │                                        │
│ City:         2       20      │  │  <Alt><D> Delete current field         │
│ State:        2       12      │  │                                        │
│ Zip:          2       12      │  │  <Alt><N> Move field to next row       │
│                               │  │  <Alt><P> Move field to previous row   │
│                               │  │                                        │
│                               │  │  <Tab> Horizontal cursor movement      │
│                               │  │  <Up>,<Down> Vertical cursor movement  │
│                               │  │  <PgUp>, <PgDn>, <Home>, <End>         │
│                               │  │  <Ctrl><Home>, <Ctrl><End>             │
│                               │  │                                        │
│                               │  │  Legal Field types                     │
│                               │  │   1. Integer field (4 bytes)           │
│                               │  │   2. Fixed length text field           │
│                               │  │   3. Floating point field (4 bytes)    │
│                               │  │   4. Variable length text field        │
│                               │  │                                        │
│                               │  │  Maximum field width = 56              │
└───────────────────────────────┘  └────────────────────────────────────────┘
```

Fig 3.24 Template window

The window on the left (Fig 3.24) shows the structure of the current database. A reminder of the keystroke commands is displayed at the right. The cursor controls are the same as described above.

To add a new field:

• Highlight a field name using the up and down arrows.

• Use <Alt><A> to add a field at the position of the highlighted field and move all subsequent fields down *or*

• Use <ALT><Z> to add a field at the position just *below* the highlighted field and move all subsequent fields down.

To delete a field:

• Highlight the field to be deleted using the cursor keys.

• Press <Alt><D>.

The addition or deletion of a field requires QUIKBASE™ to restructure the database file. The time for this depends upon the size of the database.

To move fields:

• Highlight a field name using the up and down arrows.

• To move a highlighted field down, use <Alt><N>

• To move a highlighted field up, use <ALT><P>.

Note: You can use blank lines to separate groups of fields into logical clusters.

For each field in the database you must specify:

a) display label (for user information only—up to 20 characters)
b) field type
> 1. Integer field of length (4 bytes)
> 2. Fixed length text field (up to 56 characters)
> 3. Floating point field (4 bytes)
> 4. Variable length text field (up to 56 characters)

c) field width.

Only the variable length text field varies in length according to field contents.

Simply rearranging the sequencing of fields does not require QUIKBASE™ to modify the entire file.

To leave the template window:

• Press <Esc>.

If you have made substantive changes (i.e., added fields, deleted fields, changed field types or field widths), QUIKBASE™ must rebuild the database. Minor changes such as field labels and field sequencing do not require that the database be rebuilt.

> QuikBase must create a backup of the old database before changes are made (Fig 3.24). Note: Making a backup file is also an appropriate security step.

```
┌──────────────────────────────────────────────────────────────────┐
│   File        Edit      Sequence      Report      Import    Template │
└──────────────────────────────────────────────────────────────────┘
┌────── Edit Template ──────┐ ┌──────────── Template help ──────────┐
│ Label        Type   Width │ │                                     │
│ Last name:    4      20   │ │  <Alt><A> Add field at current row  │
│ Ins┌──────────────────────────────────────────────────────┐row    │
│ Str│  The current database must be rebuilt to accommodate changes  │
│ Cit│  in the database template.                            │       │
│ Sta│                                                       │       │
│ Zip│  Backup database name:                                │       │
│    │                                                       │row    │
│    │                                                       │       │
│    │                                                       │ment   │
│    │                                                       │       │
│    │                                                       │       │
│    │                                                       │       │
│    │                                                       │       │
│    │                                                       │s)     │
│    │                                                       │       │
│    └──────────────────────────────────────────────────────┘       │
│                           │ │   Maximum field width = 56          │
└───────────────────────────┘ └─────────────────────────────────────┘
```

Fig 3.25 Rebuilding the database due a changed file structure

Terminate a session

If not already at the menu bar level:

• press <Esc> to reach that point.

• Press <F> to enter the File menu.

• Press <Q> to quit QUIKBASE™.

Appendix
Key commands

<Alt><A>	Add field, index, record
<Alt><D>	Delete current field, index, record
<Alt><E>	Edit index, menu
<Alt><H>	Toggle help
<Alt><N>	Move field to next row
<Alt><N>	Next record
<Alt><P>	Move field to previous row, move to previous record
<Alt><S>	Sequence menu
<Alt><U>	Undo string edit
<Alt><Z>	Add field after current row
<Backsp>	Delete left
<Ctrl><End>	Scroll to end
<Ctrl><Home>	Scroll to beginning
<Del>	Delete character
<Down>	Next field, index, cursor down
<End>	Bottom of screen
<Enter>	Accept current value
<Esc>	Exit, return to previous level
<Home>	Top of screen
<Ins>	Toggle insert mode
<Left>	Previous character
<PgDn>	Next page
<PgUp>	Previous page
<Right>	Next character
<Tab>	Horizontal cursor movement
<Up>	Previous field, index, cursor up
^<End>	Bottom of record
^<Home>	Top of record

Sample Script Files

Single-line Report

Suppose you wish to prepare a one-line per record style report such as the following:

```
Last-name    First-name    Street-address         City        State
Cooke        J. Robert     214 Riley-Robb Hall    Ithaca      NY
Bartlett     James         162 Riley-Robb Hall    Ithaca      NY
```

QUIKBASE™ automatically generates the following script file, which controls the preparation of the report. You need only provide the required information via the menu commands on the Report menu. Ordinarily, therefore, you need not be concerned with this step. However, you can exercise additional control over the report by making changes to the script file. This example illustrates the structure of such files.

```
/*

Last_name
First_name
Street_address
City
State
*/
START


SEARCH
   FILE "DEMO.DAT" ALL

SELECT
   ALL

DISPLAY
   DEVICE          1
   PAGE_WIDTH      132
   PAGE_LENGTH     66
   LEFT_MARGIN     0

IMAGE
   PAGE_HDR
+Last-name    First-name      Street-address           City          State
+---------    ----------    -------------------        ----------    -------
   BODY
+@xxxxxxxxx   @xxxxxxxxxxx   @xxxxxxxxxxxxxxxxxxx       @xxxxxxxxx    @xxxxxxx
Last_name First_name Street_address City State

EXIT
```

The script begins with a comment delimited by /* and */ which lists the labels in symbol form, i.e., with spaces replaced by underscores and only alphanumerics as

characters. The key START indicates the beginning and EXIT closes the script. The search file is named and all records in the file are to be included. The display is to be sent to printer1 which has width of 132 characters, 66 lines per page and the left margin has no offset. The image has literal headers shown on the lines which begin with plus signs. The field templates also have an initial plus but individual fields begin with the @ symbol and are separated by spaces. The "x"s are place holder templates for the field values identified just below that line. The "x"s indicate the maximum field width which will be padded on the right with space characters as needed. "v"s indicate no padding is to be added.

Multi-line Reports

A mailing label example illustrates additional commands. Suppose you wish to produce the following report:

```
J. Robert Cooke
214 Riley-Robb Hall
Ithaca NY

James Bartlett
162 Riley-Robb Hall
Ithaca, NY

/*

Last_name
First_name
Street_address
City
State
*/
START


SEARCH
   FILE "DEMO.DAT" ALL

SELECT
   ALL

SORT USING KEY
   UPPER   Last_name

DISPLAY
   DEVICE          1
   PAGE_WIDTH      80
   PAGE_LENGTH     5
   LEFT_MARGIN     10

IMAGE
   BODY
+@---------   ----------
```

```
+First_name Last_name
+@-------------------
Street_address
+@----------  -------
City State
PAGE_BREAK

EXIT
```

In this example the names have been sorted by the Last name label, although you would normally sort by the Zip code label. The page length is shorter and a left margin was used to match the label spacing. The body of the report includes multiple lines. Each record is followed by a page break.