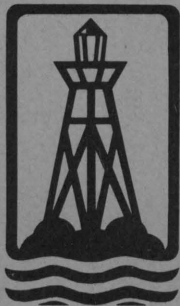
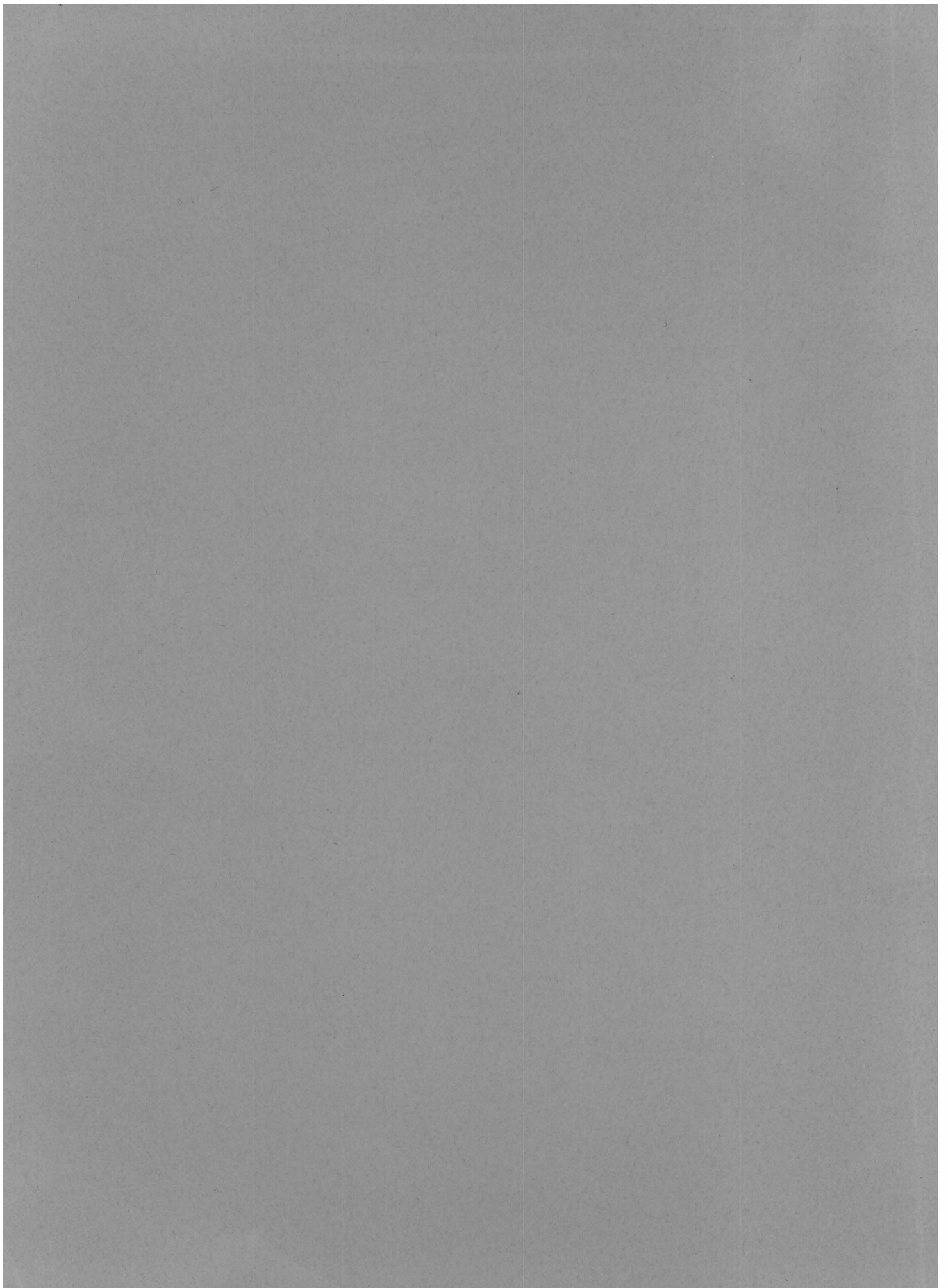


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**The  
Design and Implementation  
of  
a Computerized Information System  
of the  
Virginia Seafood Processors**



**Sea Grant  
Extension Division  
Virginia Polytechnic Institute and State University  
Blacksburg, Virginia**



THE DESIGN AND IMPLEMENTATION OF  
A COMPUTERIZED INFORMATION SYSTEM  
OF THE  
VIRGINIA SEAFOOD PROCESSORS

by  
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and  
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## I. INTRODUCTION

As the age of the computer is entered into, the storage, retrieval and processing of data or information increases in importance. This importance grows simply from the continuous generation of increasing amounts of information in today's societies. In order not to be overcome by an oncoming deluge of data, the use of the computer is being relied on to handle data storage, retrieval and processing. Although many large organizations now rely solely on their computers for data management, many smaller organizations have yet to make any use of them. The principle reasons delaying the utilization of the computer by such organizations are (1) the availability of a computer, (2) the realization of a need of a computerized information system, and (3) the creation and management of such a system. The first obstacle is being overcome by the introduction of small computers and by the buying of computer time on large computer systems. Today, it is common to find companies who operate large computer systems for the purpose of selling computer time to the small user. The second and third reasons are not as clearly defined as the first. However, a particular realization of such a need and the implementation of the computerized information system to service it will be discussed.

A simple computerized information system has been designed and placed into operation in the Food Science and Technology Department at the Virginia Polytechnic Institute and State University. This data base consists of information describing the seafood processors in the state of Virginia. The need for such information has been apparent to the extension workers serving the seafood industry as well as to the processors themselves. Data describing the number and location of the processing plants and the products they handle was of obvious importance in advising and planning for a profitable growth of the industry. Having recognized the need for this information, it was decided that the information should be computerized. In this way, the information would be easier to update and process. The acquisition, design and processing of this information or data by the computer programs written for this project will be discussed.

## II. DATA BASE

To compile the data describing the seafood processors in Virginia, it was decided to send a questionnaire to each requesting the needed information. Figure 1 shows a completed sample questionnaire. Most questions relating to their products only required the processor to check an appropriate answer rather than write a long or involved answer. Minimizing the effort needed to complete the questionnaire encouraged cooperation from the individuals canvassed. The questionnaire supplied accurate data since it was a direct method of communication. Unfortunately, it could not be relied upon to produce a high percentage response. Thus, it was necessary to have secondary methods of obtaining the information for those who failed to respond to the questionnaire. The secondary sources were the State Health Department and the Sea Grant extension personnel.

Having obtained the data, the next step was the transfer of it to keypunch cards which the computer could read. A keypunch card can contain 80 characters of information. Each character is printed across the top of the card while its appropriate computer code is punched below it. Before key punching the data on cards, the design of the data base\* or, more specifically, which data was to be keypunched where on the cards, had to be decided. For the Virginia seafood processors directory, 90 keypunch cards were used for each questionnaire. Figure 2 shows the first keypunch card from the sample questionnaire of Figure 1. Figure 3 shows a listing of the entire 90 keypunch cards from the sample questionnaire. Here the design of the data base is very simple. Each card corresponds to a line in the questionnaire. Note that instead of the name of the seafood products appearing on the keypunch cards, a two digit code number appears. Figure 4 shows the seafood products and their code numbers. For example, on the second page of the sample questionnaire, Figure 1, the seafood processor indicated on the twelfth question that he handles freshwater catfish as fresh and fresh-frozen products. This is indicated on the twelfth keypunched card, Figure 3, where freshwater catfish is indicated by its code number, 1. If a processor did not handle a particular product, then the corresponding card was left blank. Thus in the data base, each seafood processor is represented by 90 keypunch cards or 7,200 (90 x 80) characters, hereafter called a record.

After all the information on the collected questionnaire had been keypunched on cards, these cards were read by the computer and the information keypunched on them was stored on a magnetic tape and a magnetic disk storage unit. Thus the data was stored in three different physical locations. The keypunch cards and the magnetic tape were both used as back-up files to insure against an accidental destruction of the data base.

\* The terms data base and data set are used interchangeably here. In higher level information systems, a data base can be made up of several data sets.

---

FOR VPI&SU USE ONLY  
IDENTIFICATION NO. \_\_\_\_\_

---

## FOOD PROCESSORS DIRECTORY QUESTIONNAIRE

## PART 1

PLEASE FILL IN OR CHECK THE FOLLOWING BLANKS

OWNER OR MANAGER John L. Brown

COMPANY NAME Saluda Fish and Sales Co.

P. O. BOX OR  
STREET ADDRESS 300 Hemer Parkway

CITY Saluda

COUNTY Middlesex

STATE AND ZIP CODE Virginia 23149

TELEPHONE NO. 804-369-1719

TYPE OF BUSINESS: (X) RETAIL (X) WHOLESALE

STATE CERTIFICATION NO. VA 599

FEDERAL IDENTIFICATION NO. \_\_\_\_\_





(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Breaded	Canned	Convenience Dish	Dehydrated	Fresh	Fresh-Frozen	Live	Pasteurized	Pickled	Salted	Smoked	Other (specify)

( ) Other (specify) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

III. Shellfish

Crabs

( ) Blue (hard)

( ) Blue (soft)

( ) Other (specify) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Oysters

( ) Atlantic or Gulf

( ) Other (specify) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13)  
 Breaded Canned Convenience Dehydrated Fresh Fresh-Frozen Live Pasteurized Pickled Salted Smoked Other  
 Dish (specify)

Shrimp

( ) Gulf \_\_\_\_\_  
 ( ) Other (specify) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

IV. Miscellaneous Products

(X) Conch \_\_\_\_\_  
 ( ) Mussels \_\_\_\_\_  
 (X) Turtles \_\_\_\_\_  
 (X) Frogs \_\_\_\_\_  
 ( ) Crawfish \_\_\_\_\_  
 (X) Eels \_\_\_\_\_  
 ( ) Other (specify) \_\_\_\_\_  
 \_\_\_\_\_

V. Convenience Foods

Type Packages Marketed = (X) Institutional Packages (1) (X) Consumer Packages (2)

Type Products Manufactured

(X) Fish (Trout, Flounder, etc.) \_\_\_\_\_  
 (X) Blue Crab \_\_\_\_\_  
 (X) Oyster \_\_\_\_\_



(1)

VII. Specialized Equipment

- Harris Claw Picking Machine
- Harris Oyster (Steam) Machine
- Other (specify)

---

---

---

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---

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Card Image	Card No.
JOHN L. BROWN	1
SALUDA FISH AND SALES CO.	2
300 HEMER PARKWAY	3
SALUDA	4
MIDDLESEX	5
VIRGINIA 23149	6
804-369-1719	7
RETAIL, WHOLESALE	8
VA 599	9
	10
	11
1 FRESH, FRESH-FROZEN	12
2 FRESH, FRESH-FROZEN	13
	14
	15
	16
	17
	18
	19
4 FRESH, FRESH-FROZEN	20
5 FRESH, FRESH-FROZEN	21
	22
	23
	24
	25
	26
	27
	28
	29
	30
	31
	32
	33
	34
	35
	36
	37
	38
	39
	40
	41
	42
	43
	44
	45
	46
	47
	48
	49
	50
	51
	52
	53
	54
24 FRESH-FROZEN	55
	56
26 FRESH-FROZEN	57
27 BREADED	58
	59
29 FRESH	60
	61
31 INSTITUTIONAL PACKAGES, CONSUMER PACKAGES	62
33 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN, PICKLED	63
34 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN	64

Figure 3  
A Listing of the 90 Key punched Cards for the Sample Questionnaire

<i>Card Image</i>	<i>Card No.</i>
35 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN	65
36 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN	66
37 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN	67
38 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN	68
	69
	70
	71
	72
	73
	74
	75
	76
	77
	78
	79
	80
	81
	82
	83
	84
	85
	86
	87
	88
	89
	90

Figure 3  
(Cont'd)

- I. Oyster Processor (99)
- II. Fresh Water
  - A. Catfish (1)
  - B. Trout (2)
  - C. Other (3)
- III. Salt Water
  - A. Fillets (4)
  - B. Whole (5)
  - C. Other (6)
- IV. Shellfish
  - A. Carbs
    - 1. Blue (hard) (7)
    - 2. Blue (sofe) (8)
    - 3. Other (9)
  - B. Oysters
    - 1. Atlantic or Gulf (10)
    - 2. Other (11)
  - C. Lobsters
    - 1. North Atlantic (Va. - Me.) (12)
    - 2. Florida (13)
    - 3. Other (14)
  - D. Clams
    - 1. Hard or Quahog (15)
    - 2. Surf (16)
    - 3. Soft Shell (17)
    - 4. Other (18)
  - E. Scallops
    - 1. Bay (19)
    - 2. Sea (20)
    - 3. Other (21)
  - F. Shrimp
    - 1. Gulf (22)
    - 2. Other (23)
- V. Miscellaneous Products
  - A. Conch (24)
  - B. Mussels (25)
  - C. Turtles (26)
  - D. Frogs (27)
  - E. Crawfish (28)
  - F. Eels (29)
  - G. Other (30)

Figure 4  
An Outline of the Seafood Products on the Questionnaire and Their  
Assigned Code Numbers.

## VI. Convenience Foods

- A. Type Packages Marketed (31)
- B. Type Products Manufactured (32)
  - 1. Fish (33)
  - 2. Blue Carb (34)
  - 3. Oyster (35)
  - 4. Clams (36)
  - 5. Scallops (37)
  - 6. Shrimp (38)
  - 7. Specialty Dishes (39)
  - 8. Other (40)

## VII. Industrial and By-Products

- A. Bait (41)
- B. Carb Shells (42)
- C. Oyster Shells (43)
- D. Clam Shells (44)
- E. Fish Tankage (45)
- F. Crab Meal (46)
- G. Sea Weed (47)
- H. Fish Meal (48)
- I. Fish Scrap (49)
- J. Fish Protein Concentrate (50)
- K. Other (51)

## VIII. Specialized Equipment

- A. Harris Claw Picking Machine (52)
- B. Harris Oyster (Steam) Machine (53)
- C. Other (54)

Figure 4  
(Cont'd)

The data on the disk storage unit was used as the primary data file, i.e., it was this data that was used by the computer programs in processing and producing the Virginia seafood processor's directory. Physically a disk storage unit is a set of rotating disks on which data may be recorded magnetically. Because of the physical make-up of a disk, the computer can read and write data on it faster than on a magnetic tape or on keypunch cards. It was for this reason that the primary data file was stored on a disk storage unit. The computer programs used to read the keypunch cards and store this data on the magnetic tape and disk storage unit are discussed in the following sections along with the other computer programs.

### III. COMPUTER PROGRAMS

#### A. General Aspects of the Computer Programs

All the computer programs used were written in Fortran IV<sup>1</sup> except for one which was an IBM supplied program<sup>2</sup>. A complete listing of the keypunch cards of each program is given in the Appendix. These listings consist of the Fortran statements for each program and all the other cards necessary, except the directory data cards, to execute each on the IBM 370 system at Virginia Polytechnic Institute and State University. The discussion of each program is not a complete or detailed description, but rather a general overview of the functionality of each. If certain details of a program are discussed, it is only to aid in the understanding of the function of the program. The program statements other than the Fortran statements are called Job Control Language statements (JCL)<sup>3</sup>. These statements perform two different functions.

The cards beginning with slashes (//) convey information to the computer about the program to be executed. These cards are of three basic types. First there is the JOB card which appears as the first card of each of the computer jobs to be processed. This card indicates to the computer the start of a new job, the name of the job (Program 1, B0899PR1), the account number to which the cost of the processing is to be charged (50462), and the name of the programmer (Shoemaker). Second there is the card // EXEC. This card instructs the computer to execute a specified computer program. For example, in Program 1, the letters FORTGCLG which follow EXEC on the third card instructs the computer to execute a Fortran program. The third type of // card is one on which the letters DD (Data Definition) appear. This type of card informs the computer as to where it can find the program that is to be executed or a data set that is to be retrieved or stored. In Program 1, the card //FORT.SYSIN DD \* instructs the computer that the Fortran program to be executed (// EXEC FORTGCLG) follows it. The card beginning with //GO.FT09F001 DD defines the location of a data set to be processed by the above Fortran program to be on a disk storage unit. The last DD card of Program 1 (//GO.SYSIN DD \*) defines a data set that will also be processed by the Fortran program to be the keypunch cards which follow it.

The JCL cards of the second type begin with /\* with one exception. The function of these cards is to convey to the computer operator special instructions for processing of the job. In Program 1 the /\*SETUP card instructs the computer operator to mount the disk storage unit named USR301 on a disk drive in order that the computer can retrieve or store data on this disk when the program is executed. In Program 2, two /\*SETUP cards appear since for this job data is retrieved from the disk USR301 and stored on the magnetic tape 2152A. The exception to the /\* cards is the card on which /\* appears as the only characters. This is an end of file card (EOF).



Its function is to signal to the computer that the end of a program or data set has been reached. In Program 1, the last of the Fortran statements is followed by an /\* card. Also the last card of the data cards describing the seafood processor's directory is also followed by an /\* card.

According to the function of each of the programs, they can be separated into two groups. First, there are the programs which were used to create and maintain the data base. Second, there are the programs which were used to process the data base.

#### B. Creation and Maintenance of the Data Base

There are six programs which were used in the creation and maintenance of the data base. Program 1 was used to create the data base. This Fortran program read in the keypunch cards describing the seafood processors directory and stored the data on the disk storage unit which was the primary source of the data base. The disk was named USR301 as showed on the /\*SETUP card. Since the disk also contained data stored by other computer users, the seafood processors data had to be identified by a Data Set Name (DSN). This was done on the Data Definition (DD) card //GO.FT09F001. The Data Set Name was VA.SEAFOOD.A50462. Program 2 was used to copy the primary data base to a magnetic tape, thus creating a secondary source of the data base. Two /\*SETUP cards are required in this program. The first is to identify the disk (USR301) and the second is to identify the magnetic tape (2152A) which are to be mounted by the computer operator. The //GO.FT08F00 DD card identifies the location of the disk dataset which is to be retrieved by the Fortran program and the //GO.F09F001 card identifies the location of the magnetic tape dataset where the data is to be copied into. Once the original data base had been created, there were two maintenance features that were needed to keep the data current. These were the ability to add and delete data from the data base. Program 3, was used to add data at a later time to the base. For example, a new seafood processor might have opened for business after the data base for the seafood processor's had been created. Once a completed questionnaire was obtained from him, this data would have been keypunched on cards and then stored in the existing data base with Program 3. The only significant difference between Program 3 and 1 is on the //GO.FT09F001 DD card. On this card in Program 1, the characters DISP=(NEW, KEEP) inform the computer that the data base, the seafood processor's directory, is being created by this program. In Program 3, the characters DISP=(MOD, KEEP) inform the computer that the data base has been created previously and the data on the keypunch cards read by this program is to be stored at the end of this data base. Deleting the data describing a seafood processor could be done with Program 4. An example for the need of the program was when a seafood processor went out of business. In order to delete the record of information (90 cards) describing him from the data base, the first two cards, owner's name and company name, were used as input to

Program 4. Programs 3 and 4 could be used to offer an additional maintenance feature. If a seafood processor introduced a new product, his record in the data base would have been updated by first deleting the record (90 cards) describing him. Second, the new products would have been punched on the appropriate cards and then Program 3 would be used to add the record back to the data base. After additions or deletions were made to the primary base, Program 2 would be executed to keep the secondary data base on the magnetic tape current.

In addition to the maintenance programs already discussed, there are two others. If at any time a question arose as to the integrity of the data, Program 5 was used to produce an exact listing of the data as it existed on the disk. Program 6 was used to recreate the data base on the disk from the secondary copy stored on the magnetic tape which had been earlier created by Program 2. This gave a protection feature against the accidental destruction of the directory by some failure by a computer program or by the computing system. These programs, 1-6, are all that were needed to maintain the data base.

### C. Processing of the Directory

With the data base created, a series of programs were written with the function of producing listings of the seafood processors in various orders. They would produce listings alphabetically with respect to owners, companies, cities or counties and numerically with respect to zip codes or state certification numbers. These programs are all the same with the exception of one card which identifies the item which the list is to be ordered by. A listing of Program 7 is in the Appendix. This particular program will order and list the directory by the company names. Program 7 is actually made up of two programs. The first is the IBM Sort/Merge Program 3 and is executed by the JCL statement `// EXEC SORTD, PARM='MSG=AP,CORE=1000000'`. This program retrieves the directory and reorders it according to control statement, card seventeen, `SORT FIELDS=(81,50,CH,A), SIZE=E100`. This statement instructs the program to sort the records of the seafood processor's directory in alphabetic (CH) ascending order (A), according to the field of the 81st character (81) to 81 + 50th character (50) of each seafood processor's record. The 81st character is where the company names are started on each record (90 cards), since they were keypunched starting in the first column on the second card. The DD cards `//SORT WK01` through `//SORT WK06` are used to allocated temporary disk work space that is needed by the sort program. The `//SORTIN` DD card defines where the seafood processors directory is located in the computer system and the `//SORTOUT` DD card allocates disk storage space for the reordered directory. The second program is a Fortran program and it begins with the statement `// EXEC FORTGCLG`. This program retrieves the reordered directory and sends it to the printer. It does not print out the entire record for each seafood processor, but only the first part of the completed questionnaire of each (see Figure 1). The passing of the reordered directory from the first to the second program is accomplished by using the same Dataset Names for the reordered directory as output

(SORTOUT) by the first program and as input (GO.FT08F001) into the second program;

```
//SORTOUT DD DSN=&VA,...
```

```
//GO.FT08F001 DD DSN=&VA,...
```

Table 1 shows the other cards which, when substituted for the seventeenth card in Program 7, will order and list the directory with respect to the cities, counties, zip codes or state certification numbers. Using an example directory of five seafood processors, Program 7 produced the listing shown in Figure 12. In this listing, only the name, owner, location, telephone and state certification numbers are given. The format of the listings when ordered by the cards in Table 1 have the same form as Figure 5.

Besides having the ability to reorder the seafood processors in various ways, a program was written to show each seafood product listed on the questionnaire and the companies which handle it, Program 8. Program 8 actually consists of three programs. The first is the IBM Sort/Merge Program which reorders the seafood processor's directory alphabetically with respect to company names. This directory is then used by the next two Fortran programs in producing the resulting seafood product listing. The computer output produced by this program, using the example directory, is shown in Figure 6. Comparing this output to the completed questionnaire of one of the sample directory's companies, Figure 1, clearly illustrates the function of this program.

Finally, Program 9 was written to print the mailing addresses of all the seafood processors on 3 1/2 x 15-16 pressure sensitive labels. Program 9 also consists of two programs. First the IBM Sort/Merge program reorders the directory by zip codes. The second program is a Fortran program which prints the address labels. Since the labels are zip code ordered, this facilitates mailing by bulk mail. Figure 7 shows a reproduction of the mailing labels produced by Program 9 using the example directory. The /\*FORMAT card of Program 9 instructs the computer operator to mount on the printer the special label forms on which the addresses are printed.

TABLE I

A list of control cards each of which when substituted for the eighteenth card of Program 7, Figure 11, will produce a Directory of the Sea Food Processors in the corresponding order.

<u>ORDER BY</u>	<u>CONTROL CARD</u>
City	SORT FIELDS = (241, 50, CH, A, 81, 50, CH, A), Size = E100
State Certification Number	SORT FIELDS = (641, 15, CH, A), Size = E100
County	SORT FIELDS = (321, 50, CH, A, 81, 50, CH, A), Size = E100
Zip Code	SORT FIELDS = (410, 50, CH, A, 81, 50, CH, A), Size = E100

BAYOU SEAFOOD CO.  
 LARRY L. TRAHAN  
 P. O. BOX 792, 102 MALANT ST.  
 CHINCOTEAGUE VIRGINIA 23336  
 ACCOMACK  
 804-342-6167  
 WHOLESALE  
 VA 681 C

K AND B FISH CORPORATION  
 JOHN E. VECA  
 2521 SOUTH BROAD AVENUE  
 NORFOLK VIRGINIA 23504  
 NORFOLK, CITY OF  
 804-972-3334  
 WHOLESALE

SALUDA FISH AND SALES CO.  
 JOHN L. BROWN  
 300 HEMER PARKWAY  
 SALUDA VIRGINIA 23149  
 MIDDLESEX  
 804-369-1719  
 RETAIL, WHOLESALE  
 VA 599

SEASHELL SEAFOOD  
 RICHARD J. LACOSTE  
 9140 ST. CLAUDE AVENUE  
 LANCASTER VIRGINIA 22503  
 LANCASTER  
 804-222-3879  
 WHOLESALE  
 VA 998

SOUTHERN SEAFOODS CO., INC  
 JAMES D. WILLIAMS  
 831 ELYSIAN FIELDS AVENUE  
 HAMPTON VIRGINIA 23369  
 HAMPTON  
 804-711-1102  
 RETAIL, WHOLESALE  
 VA 410 AND VA 92 C

Figure 5  
 An Alphabetic List By Company Names of an Example Directory As Produced  
 Program 7.

I. OYSTER PROCESSORS

SEASHELL SEAFOOD

SHELLSTOCK DEALER, SHUCKER PACKER

SOUTHERN SEAFOODS CO., INC

SHELLSTOCK DEALER, SHUCKER PACKER, REPACKER

Figure 6

A Seafood Product Listing Produced By Program 8.



## II. FISH

## A. FRESH WATER

## 1. CATFISH

SALUDA FISH AND SALES CO.  
FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

## 2. TROUT

SALUDA FISH AND SALES CO.  
FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

## 3. OTHER

## B. SALT WATER

## 1. FILLETS

K AND B FISH CORPORATION  
CANNED, FRESH, FRESH-FROZEN, PICKLED, SALTED

SALUDA FISH AND SALES CO.  
FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

## 2. WHOLE FISH

K AND B FISH CORPORATION  
CANNED, FRESH, FRESH-FROZEN, PICKLED, SALTED

Figure 6 (Cont'd)

SALUDA FISH AND SALES CO.  
FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

3. OTHER

K AND B FISH CORPORATION  
FISH MEAL

Figure 6 (Cont'd)

Figure 6 (Cont'd)

## III. SHELLFISH

## A. CRABS

## 1. BLUF (HARD)

BAYOU SEAFOOD CO.

FRESH, FRESH-FROZEN, LIVE, PASTEURIZED

SOUTHERN SEAFOODS CO., INC

FRESH, FRESH-FROZEN, LIVE, PASTEURIZED

## 2. BLUE (SOFT)

BAYOU SEAFOOD CO.

FRESH, FRESH-FROZEN, LIVE

SOUTHERN SEAFOODS CO., INC

FRESH, FRESH-FROZEN

## 3. OTHER

## B. OYSTERS

## 1. ATLANTIC OR GULF

SOUTHERN SEAFOODS CO., INC

FRESH, FRESH-FROZEN

## 2. OTHER

## C. LOBSTERS

## 1. NORTH ATLANTIC (VIRGINIA-MAINE)

SOUTHERN SEAFOODS CO., INC

FRESH, FRESH-FROZEN

## 2. FLORIDA (ROCK)

SOUTHERN SEAFOODS CO., INC

FRESH, FRESH-FROZEN

## 3. OTHER

## D. CLAMS

## 1. HARD OR QUAHOG

Figure 6 (Cont'd)

SOUTHERN SEAFOODS CO., INC  
CONVENIENCE DISH, FRESH, FRESH-FROZEN

2. SURF

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

3. SOFT SHELL

4. OTHER

E. SCALLOPS

1. BAY

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

2. SEA

SOUTHERN SEAFOODS CO., INC  
FRESH, FRESH-FROZEN

3. OTHER

F. SHRIMP

1. GULF

SOUTHERN SEAFOODS CO., INC  
BREADED, CANNED, CONVENIENCE DISH, DEHYDRATED, FRESH, FRESH-FROZEN

2. OTHER

Figure 6 (Cont'd)

## IV. MISCELLANEOUS PRODUCTS

## A. CONCH

SALUDA FISH AND SALES CO.  
FRESH-FROZEN

## B. MUSSELS

## C. TURTLES

SALUDA FISH AND SALES CO.  
FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
FRESH-FROZEN

## D. FROGS

SALUDA FISH AND SALES CO.  
BREADED

## E. CRAWFISH

SOUTHERN SEAFOODS CO., INC  
LIVE

## F. EELS

SALUDA FISH AND SALES CO.  
FRESH

## G. OTHER

Figure 6 (cont'd)

## V. CONVENIENCE FOODS

## A. TYPE PACKAGES MARKETED

SALUDA FISH AND SALES CO.  
 INSTITUTIONAL PACKAGES, CONSUMER PACKAGES

SOUTHERN SEAFOODS CO., INC  
 INSTITUTIONAL PACKAGES, CONSUMER PACKAGES

## B. TYPE PRODUCTS MANUFACTURED

## 1. FISH

SALUDA FISH AND SALES CO.  
 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN, PICKLED

SOUTHERN SEAFOODS CO., INC  
 BREADED, FRESH-FROZEN

## 2. BLUE CRAB

SALUDA FISH AND SALES CO.  
 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN

SEASHELL SEAFOOD  
 FRESH, FRESH-FROZEN, LIVE

SOUTHERN SEAFOODS CO., INC  
 BREADED, FRESH-FROZEN

## 3. OYSTERS

SALUDA FISH AND SALES CO.  
 BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN

(b' Jnoo) 8 - 19913

Figure 6 (Cont'd)

SOUTHERN SEAFOODS CO., INC  
BREADED, FRESH-FROZEN

4. CLAMS

SALUDA FISH AND SALES CO.  
BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
BREADED, FRESH-FROZEN

5. SCALLOPS

SALUDA FISH AND SALES CO.  
BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
BREADED, FRESH-FROZEN

6. SHRIMP

SALUDA FISH AND SALES CO.  
BREADED, CONVENIENCE DISH, FRESH, FRESH-FROZEN

SOUTHERN SEAFOODS CO., INC  
BREADED, FRESH-FROZEN

7. SPECIALITY DISHES

8. OTHER

Figure 6 (Cont'd)

VI. INDUSTRIAL AND BY- PRODUCTS

A. BAIT

K AND B FISH CORPORATION

B. CRAB SHELLS

BAYOU SEAFOOD CO.

SOUTHERN SEAFOODS CO., INC

C. OYSTER SHELLS

SEASHELL SEAFOOD

SOUTHERN SEAFOODS CO., INC

D. CLAM SHELLS

SOUTHERN SEAFOODS CO., INC

E. FISH TANKAGE

K AND B FISH CORPORATION

F. CRAB MEAL

BAYOU SEAFOOD CO.

Figure 6 (Cont'd)



SOUTHERN SEAFOODS CO., INC

G. SEA WEED  
H. FISH MEAL

K AND B FISH CORPORATION

I. FISH SCRAP

K AND B FISH CORPORATION

SOUTHERN SEAFOODS CO., INC

J. FISH PROTEIN CONCENTRATE  
K. OTHER

Figure 6 (Cont'd)

VII. SPECIALIZED EQUIPMENT

A. HARRIS CLAW PICKING MACHINE

BAYOU SEAFOOD CO.

B. HARRIS OYSTER STEAM MACHINE

C. OTHER

Figure 6 (Cont'd)

1 CENTER THIS LINE IN MIDDLE  
 2-----\*\*\*\*\*  
 3-----\*\*\*\*\*  
 4-----\*\*\*\*\*  
 5 LAST ADDRESS LINE ON LABEL

1 CENTER THIS LINE IN MIDDLE  
 2-----\*\*\*\*\*  
 3-----\*\*\*\*\*  
 4-----\*\*\*\*\*  
 5 LAST ADDRESS LINE ON LABEL

RICHARD J. LACOSTE  
 SEASHELL SEAFOOD  
 9140 ST. CLAUDE AVENUE  
 LANCASTER  
 VIRGINIA 22503

RICHARD J. LACOSTE  
 SEASHELL SEAFOOD  
 9140 ST. CLAUDE AVENUE  
 LANCASTER  
 VIRGINIA 22503

RICHARD J. LACOSTE  
 SEASHELL SEAFOOD  
 9140 ST. CLAUDE AVENUE  
 LANCASTER  
 VIRGINIA 22503

JOHN L. BROWN  
 SALUDA FISH AND SALES CO.  
 300 HEMER PARKWAY  
 SALUDA  
 VIRGINIA 23149

JOHN L. BROWN  
 SALUDA FISH AND SALES CO.  
 300 HEMER PARKWAY  
 SALUDA  
 VIRGINIA 23149

JOHN L. BROWN  
 SALUDA FISH AND SALES CO.  
 300 HEMER PARKWAY  
 SALUDA  
 VIRGINIA 23149

LARRY L. TRAHAN  
 BAYOU SEAFOOD CO.  
 P. O. BOX 792, 102 MALANT ST.  
 CHINCOTEAGUE  
 VIRGINIA 23336

LARRY L. TRAHAN  
 BAYOU SEAFOOD CO.  
 P. O. BOX 792, 102 MALANT ST.  
 CHINCOTEAGUE  
 VIRGINIA 23336

LARRY L. TRAHAN  
 BAYOU SEAFOOD CO.  
 P. O. BOX 792, 102 MALANT ST.  
 CHINCOTEAGUE  
 VIRGINIA 23336

JAMES D. WILLIAMS  
 SOUTHERN SEAFOODS CO., INC  
 831 ELYSIAN FIELDS AVENUE  
 HAMPTON  
 VIRGINIA 23369

JAMES D. WILLIAMS  
 SOUTHERN SEAFOODS CO., INC  
 831 ELYSIAN FIELDS AVENUE  
 HAMPTON  
 VIRGINIA 23369

JAMES D. WILLIAMS  
 SOUTHERN SEAFOODS CO., INC  
 831 ELYSIAN FIELDS AVENUE  
 HAMPTON  
 VIRGINIA 23369

JOHN E. VECA  
 K AND B FISH CORPORATION  
 2521 SOUTH BROAD AVENUE  
 NORFOLK  
 VIRGINIA 23504

JOHN E. VECA  
 K AND B FISH CORPORATION  
 2521 SOUTH BROAD AVENUE  
 NORFOLK  
 VIRGINIA 23504

JOHN E. VECA  
 K AND B FISH CORPORATION  
 2521 SOUTH BROAD AVENUE  
 NORFOLK  
 VIRGINIA 23504

Figure 7  
 A Reproduction of the Address Labels  
 Produced by Program 9

#### IV. SUMMARY:

A package of computer programs has been presented. The function of these programs was to create and maintain from keypunch cards a data base and to process this data in various ways. Also discussed was the obtaining of the data and the design of the data base.

Even though this package has been written for a directory describing the Virginia seafood processors, it could be used for seafood processor's directories in other states. However, this package could be easily modified for other applications. Such modifications could be made by rewording the questions in the questionnaire, and reassigning the code numbers in Fig. 4 to the new categories used. These modifications would only require one change in the programs. The format statements in Program 8 would have to be changed to print out the new categories used. These changes could be made by a programmer with only a moderate knowledge of the Fortran IV computer language. If more flexibility would be needed, then the entire questionnaire information could be transferred to ninety key punched cards. Programs one through six could then still be used for the creation and maintenance of the computerized data base, and the other programs would have to be rewritten for the format of the new directory.

#### REFERENCES

1. "IBM SYSTEM/360 FORTRAN LANGUAGE", GC28-6515, International Business Machines Corporation, New York (1972).
2. "OS SORT/MERGE PROGRAM", GC28-6543-8, International Business Machines Corporation, New York (1973).
3. "IBM SYSTEM/360 OPERATING SYSTEM: JOB CONTROL LANGUAGE", GC28-6704, International Business Machines Corporation, New York (1973).

APPENDIX

A Listing of the Computer Programs

```

//B0899PR1 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*SETUP DDNAME=FT09F001,UNIT=SYSDA,ID=(USR301)
// EXEC FORTGCLG
//FORT.SYSIN DD *
    DIMENSION IREC(1800)
    I=0
    10 READ(5,5005,END=200,ERR=150) (IREC(J),J=1,20)
    5005 FORMAT(20A4)
    READ(5,5005,END=175,ERR=150) (IREC(J),J=21,1800)
    I=I+1
    WRITE(9,9005) IREC
    9005 FORMAT(90(20A4))
    GO TO 10
    150 I1=I+1
    WRITE(6,6005) I1
    6005 FORMAT(//,' READ ERROR HAS OCCURRED WHILE READING THE ',I4,'COMPAN
    1Y',/, ' FILES CLOSED AT THAT POINT')
    GO TO 200
    175 WRITE(6,6010)
    6010 FORMAT(//,' ONE OF THE COMPANIES READ HAS LESS THAN OR MORE MORE T
    1HAN 90 CARDS')
    200 END FILE 9
    WRITE(6,6015) I
    6015 FORMAT(//,' THE NUMBER OF COMPANIES READ AND WRITTEN WAS',I5)
    STOP
    END
/*
//GO.FT09F001 DD UNIT=SYSDA,DISP=(NEW,KEEP),DSN=VA.SEAFOOD.A50462,
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200),SPACE=(TRK,(200,1))
//GO.SYSIN DD *
    ' The Data Cards Describing the Seafood Processor's Directory Go Here '
/*

```

## Program 1

This Program Was Used to Create the Data Base on a Disk Storage Unit from the Key punch Cards.

```
//B0899PR2 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*MAIN LINES=5,TIME=1
/*SETUP DDNAME=FT09F001,UNIT=TAPE9,ID=(2I52A,RING,SAVE,SL)
/*SETUP DDNAME=FT08F001,UNIT=SYSDA,ID=(USR301)
// EXEC FORTGCLG
//FORT.SYSIN DD *
    DIMENSION IREC(1800)
    I=0
    10 READ(8,9005,END=200,ERR=150) IREC
    WRITE(9,9005) IREC
9005 FORMAT(90(20A4))
    I=I+1
    GO TO 10
    150 I1=I+1
    WRITE(6,6010) I1
6010 FORMAT(' READ ERROR OCCURRED WHILE READING ',I4,' RECORD',/, 'FILES
    1 CLOSED AT THAT POINT')
    GO TO 210
    200 WRITE(6,6005) I
6005 FORMAT(' PROCESSING AT END',/,1X,I5,' RECORDS READ AND COPIED')
    210 END FILE 9
    STOP
    END
/*
//GD.FT09F001 DD UNIT=TAPE9,DISP=(NEW,KEEP),DSN=VASEAFOD,
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//GD.FT08F001 DD UNIT=SYSDA,DISP=(OLD,KEEP),DSN=VA.SEAFOD.A50462
//
```

## Program 2

This Program Was Used to Copy the Data Base from the Disk to a Magnetic Tape Which Served as a Backup Copy.



```

//B0899PR3 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*SETUP DDNAME=FT09F001,UNIT=SYSDA,ID=(USR301)
// EXEC FORTGCLG
//FORT.SYSIN DD *
    DIMENSION IREC(1800)
    I=0
    10 READ(5,5005,END=200,ERR=150) (IREC(J),J=1,20)
5005 FORMAT(20A4)
    READ(5,5005,END=175,ERR=150) (IREC(J),J=21,1800)
    I=I+1
    WRITE(9,9005) IREC
9005 FORMAT(90(20A4))
    GO TO 10
    150 I1=I+1
    WRITE(6,6005) I1
6005 FORMAT(//,' READ ERROR HAS OCCURRED WHILE READING THE ',I4,'COMPAN
    1Y',/, ' FILES CLOSED AT THAT POINT')
    GO TO 200
    175 WRITE(6,6010)
6010 FORMAT(//,' ONE OF THE COMPANIES READ HAS LESS THAN OR MORE MORE T
    1HAN 90 CARDS')
    200 END FILE 9
    WRITE(6,6015) I
6015 FORMAT(//,' THE NUMBER OF COMPANIES READ AND WRITTEN WAS',I5)
    STOP
    END
/*
//GO.FT09F001 DD UNIT=SYSDA,DISP=(MOD,KEEP),DSN=VA.SEAFOOD.A50462
//GO.SYSIN DD *

```

*' The Data Cards to Be Added to the Seafood Processor's Directory Go Here '*

```
/*
```

### Program 3

This Program Was Used to Add New Seafood Processors to the Already Existing Directory.

```

//B0899PR4 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*SFTUP DDNAME=FT08F001,UNIT=SYSDA,ID=(USR301)
/*MAIN LINES=30,TIME=15
// EXEC FORTGCLG
//FORT.SYSIN DD *
C   PROGRAM DELETE
C   THIS PROGRAM IS USED TO DELETE RECORDS FROM THE DATA SET
C   VA.SEAFOD.A501B0 ON DISK PACK USER06 (DDNAME=FT08F001)
C
C   A RECORD CONSISTS OF 90 CARDS CONTAINING INFORMATION DESCRIBING A
C   A COMPANY
C
C   BY PLACING THE FIRST TWO CARDS OF ANY RECORD IN THE INPUT DATA
C   ATFER THE //GO.SYSIN DD * CARD WILL CAUSE THE ENTIRE RECORD TO BE
C   DELETED FROM VA.SEAFOD.A50462
C
C   ANY NUMBER OF RECORDS MAY BE DELETED DURING ONE RUN OF THIS
C   PROGRAM
C
C   FT09F001 AND FT10F001 ARE TEMPORARY DATA SETS USED BY THE PROGRAM
C
COMMON   OWNAME(20),CONAME(20),STADD(20),CITY(20),STZIP(20),
IBUS(20),STNUM(20),PHONE(20),COUNTY(20),IREST(1620)
EQUIVALENCE (IREC(1),OWNAME(1))
DIMENSION IREC(1800),OWN(20,40),CO(20,40)
INTEGER OWNAME,CONAME,OWN,CO
IA=5
IB=8
IC=6
ID=9
IE=10
C   DIRECTORY IS COPIED TO TEMPORARY DATA SET ON UNIT IE
ICOUNT=0
DO 10 I=1,9999
READ(IB,5010,END=15,ERR=450) IREC
ICOUNT=I
WRITE(IE,5010) IREC
10 CONTINUE
15 CONTINUE
END FILE IE
REWIND IE
REWIND IB
WRITE(IC,6005) ICOUNT
6005 FORMAT(//,' NUMBER OF RECORDS EQUAL ',I5)
IF(ICOUNT.EQ.0) GO TO 450
C   THE FIRST 40 RECORDS TO BE DELETED ARE READ IN
INPUT=0
9 JX=0
DO 11 J=1,40
READ(IA,5005,ERR=400,END=12) (OWN(I,J),I=1,20)
READ(IA,5005,ERR=400,END=400) (CO (I,J),I=1,20)
5005 FORMAT(20A4)
JX=J
11 CONTINUE
INPUT=1
GO TO 13
12 CONTINUE
INPUT=0
13 CONTINUE
IF(JX.EQ.0.AND.INPUT.EQ.0) GO TO 425
IF(JX.EQ.0) GO TO 100
JIND=0
C   THE DIRECTORY IS NOW READ ONE RECORD AT A TIME - IREC
20 READ(IE,5010,END=65,ERR=450) IREC

```

## Program 4

This Program Was Used to Delete Seafood Processors Who Had Gone Out of Business  
from the Directory.

```

5010 FORMAT(90(20A4))
      IF(JIND.EQ.1) GO TO 56
C     IREC IS NCW COMPARED TO THE RECORDS TO BE DELETED
      DO 55 J=1,JX
      DO 50 I=1,20
      IF(OWN(I,J).NE.OWNAME(I)) GO TO 55
      IF(CO(I,J).NE.CONAME(I)) GO TO 55
50    CONTINUE
C     IREC HAS BEEN FOUND AMONG THE RECORDS TO BE DELETED
      JD=J
      GO TO 60
55    CONTINUE
C     IREC HAS NOT BEEN FOUND AMONG THE RECORDS TO BE DELETED
C     AND IS COPIED TO THE NEW TEMPORARY DIRECTORY
56    WRITE(ID,5010) IREC
      GO TO 20
60    CONTINUE
C     IREC IS TO BE DELETED
      WRITE(IC,6010)
6010  FORMAT(/,' THE FOLLOWING WAS FOUND AND DELETED',/)
6015  FORMAT(9(1X,20A4,/))
      WRITE(IC,6015) (IREC(I),I=1,180)
C     IREC IS NOW ALSO DELETED FROM THE LIST OF RECORDS WHICH WERE TO
C     BE DELETED
      JX=JX-1
      IF(JX.NE.0) GO TO 61
      JIND=1
      GO TO 20
61    IF(JD.GT.JX) GO TO 20
      DO 62 J=JD,JX
      DO 62 I=1,20
      OWN(I,J)=OWN(I,J+1)
62    CO(I,J)=CO(I,J+1)
      GO TO 20
C     DIRECTORY HAS BEEN COPIED TO UNIT ID AND THE FIRST SET OF JX
C     RECORDS HAVE BEEN SEARCHED FOR AND DELETED WHEN FOUND
65    CONTINUE
      IF(JX.EQ.0) GO TO 75
C     THE FOLLOWING WERE NOT FOUND IN DIRECTROY
      WRITE(IC,6020)
6020  FORMAT(/,1X,'THE FOLLOWING WAS NOT FOUND',/)
      DO 70 J=1,JX
      70  WRITE(IC,6015) (OWN(I,J),I=1,20),(CO(I,J),I=1,20)
75    CONTINUE
      END FILE ID
      REWIND ID
      REWIND IE
      DO 95 I=1,500
      READ(ID,5010,END=96,ERR=450) IREC
      WRITE(IE,5010) IREC
95    CONTINUE
96    END FILE IE
      REWIND IE
      REWIND ID
      IF(INPUT.NE.0) GO TO 9
100   CONTINUE
      ICOUNT=0
      WRITE(IC,6030)
6030  FORMAT(/,' *RECOPY OF VA.SEAFOOD BEGUN',/)
      DO 250 J=1,9999
      READ(ID,5010,END=300,ERR=500) IREC
      ICOUNT=J
      WRITE(IB,5010) IREC
      WRITE(IC,6035)(IREC(I),I=1,180)

```

```

6035 FORMAT(//,90(1X,20A4,//))
250 CONTINUE
300 WRITE(IC,6040)
6040 FORMAT(1H1,//,' END OF DATA')
END FILE IB
WRITE(IC,6005) ICOUNT
WRITE(IC,6036)
6036 FORMAT(//,' RECOPY OF VA.SEAFOOD HAS ENDED',//)
STOP
400 WRITE(IC,6041)
6041 FORMAT(//,' ***READ ERROR HAS OCCURRED, CHECK INPUT CARDS **',
X /,' ***DATA SET VA.SEAFOOD UNCHANGED ***',//)
GO TO 600
425 WRITE(IC,6425)
6425 FORMAT(//,' ***NO RECORDS WERE FOUND TO BE DELETED FROM UNIT 5**',
X /,' ***DATA SET VA.SEAFOOD UNCHANGED **')
GO TO 600
450 WRITE(IC,6045)
6045 FORMAT(//,' ***READ ERROR HAS OCCURRED DURING RECORD SEARCH**',
X /,' ***DATA SET VA.SEAFOOD UNCHANGED ***')
GO TO 600
500 WRITE(IC,6050)
6050 FORMAT(//,' ***ERROR HAS OCCURRED DURING RECOPY OF VA.SEAFOOD***')
600 STOP
END
/*
//GD.FT03F001 DD UNIT=SYSDA,DSN=VA.SEAFOOD.A50462,DISP=(OLD,KEEP),
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//GD.FT09F001 DD UNIT=SYSDA,DISP=(NEW,DELETE),SPACE=(7200,(200,10)),
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//GD.FT10F001 DD UNIT=SYSDA,DISP=(NEW,DELETE),SPACE=(7200,(200,10)),
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//GD.SYSIN DD *

```

' A data Card for the Owner and a Card for the Company Go Here  
for Each Company to Be Deleted from the Data Base '

/\*

```
//B0899PR5 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*SETUP DDNAME=FT08F001,UNIT=SYSDA,ID=(USR301)
// EXEC FORTGCLG
//FORT.SYSIN DD *
    DIMENSION IREC(1800)
    10 READ(8,8005,END=200) IREC
    8005 FORMAT(90(20A4))
    WRITE(6,6005) IREC
    6005 FORMAT(1H1,90(1X,20A4))
    GO TO 10
    200 STOP
    END
/*
//GO.FT08F001 DD UNIT=SYSDA,DISP=(OLD,KEEP),DSN=VA.SEAFOO.A50462
//
```

## Program 5

This Program Was Used to Produce an Exact Listing of the Data Base as It Existed on the Disk Storage Unit.

```

//B0899PR6 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*MAIN LINES=5,TIME=1
/*SETUP DDNAME=FT08F001,UNIT=TAPE9,ID=(2I52A,NORING,SAVE.SL)
/*SETUP DDNAME=FT09F001,UNIT=SYSDA,ID=(USR301)
// EXEC FORTGCLG
//FORT.SYSIN DD *
    DIMENSION IREC(1800)
    I=0
    10 READ(8,9005,END=200,ERR=150) IREC
    WRITE(9,9005) IREC
9005 FORMAT(90(20A4))
    I=I+1
    GO TO 10
    150 I1=I+1
    WRITE(6,6010) I1
6010 FORMAT(' READ ERROR OCCURRED WHILE READING ',I4,' RECORD',/, 'FILES
    1 CLOSED AT THAT POINT')
    GO TO 210
    200 WRITE(6,6005) I
6005 FORMAT(' PROCESSING AT END',/,1X,I5,' RECORDS READ AND COPIED')
    210 END FILE 9
    STOP
    END
/*
//GO.FT08F001 DD UNIT=TAPE9,DISP=(OLD,KEEP),DSN=VASEAFOD
//GO.FT09F001 DD UNIT=SYSDA,DISP=(OLD,KEEP),DSN=VA.SEAFOD.A50462,
// DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//

```

## Program 6

This Program Was Used to Recreate the Directory on the Disk from the Back-up Copy Previously Stored on the Magnetic Tape.

```

//B0899PR7 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*SETUP DDNAME=SORTIN,UNIT=SYSDA,ID=(USR301)
// EXEC SORTD,PARM='MSG=AP,CORE=100000'
//SORTIN DD DSN=VA.SEAFOO.A50462,UNIT=SYSDA,DISP=(OLD,PASS),
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//SORTWK01 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK02 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK03 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK04 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK05 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK06 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTOUT DD DSN=&VA,UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200),
//      DISP=(NEW,PASS),
//      SPACE=(CYL,(20,1))
//SYSIN DD *
      SORT FIELDS=(81,50,CH,A),SIZE=E100
      END
/*
// EXEC FORTGCLG
//FORT.SYSIN DD *
      DIMENSION OWNAME(80),CONAME(80),STADD(80),CITY(80),STZIP(80),
      IBUS(80),STNUM(80),PHONE(80),COUNTY(80)
      INTEGER OWNAME,BUS
      5 X=1.0
      WRITE(6,2)
      2 FORMAT(1H1,7X,'DIRECTORY',//)
      6 READ(8,1,END=100)(OWNAME(I),I=1,80),(CONAME(I),I=1,80),
      1(STADD(I),I=1,80),(CITY(I),I=1,80),(COUNTY(I),I=1,80),
      1(STZIP(I),I=1,80),(PHONE(I),I=1,80),(BUS(I),I=1,80),
      1(STNUM(I),I=1,80)
      1 FORMAT(9(80A1))
      WRITE(6,3)(CONAME(I),I=1,72)
      WRITE(6,3)(OWNAME(I),I=1,72)
      3 FORMAT(1H ,72A1)
      WRITE(6,3)(STADD(I),I=1,72)
      WRITE(6,4)(CITY(I),I=1,20),(STZIP(J),J=1,50)
      4 FORMAT(1H ,70A1)
      WRITE(6,4)(COUNTY(I),I=1,63)
      WRITE(6,3)(PHONE(I),I=1,72)
      WRITE(6,3)(BUS(I),I=1,72)
      WRITE(6,10)(STNUM(I),I=1,72)
      10 FORMAT(1H ,72A1,//)
      X=X+1.0
      IF(X.EQ.8.0)GO TO 5
      GO TO 6
      100 WRITE(6,9)
      9 FORMAT(1H1,'END OF INPUT DATA')
      STOP
      END
/*
//GO.FT08FOO1 DD DSN=&VA,UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200),
//      DISP=(OLD,KEEP)
/*

```

## Program 7

This Program Was Used to Produce an Alphabetical Listing of the Directory by the Company Names.

```

//B0899PR8 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*MAIN LINES=30,TIME=(3,3,53)
/*SETUP DDNAME=SORTIN,UNIT=SYSDA,ID=(USR301)
// EXEC SORTD,PARM='MSG=AP,CORE=100000'
//SORTIN DD DSN=VA.SEAFOOD.A50462,UNIT=SYSDA,DISP=(OLD,PASS),
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//SORTWK01 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK02 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK03 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK04 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK05 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK06 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTOUT DD DSN=&VA,UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200),
//      DISP=(NEW,PASS),
//      SPACE=(CYL,(20,1))
//SYSIN DD *
      SORT FIELDS=(81,50,CH,A),SIZE=F100
      END
/*
// EXEC FORTGCLG
//FORT.SYSIN DD *
      DIMENSION REC(1800)
      INTEGER REC
101 INDEX1=1
      INDEX2=20
      READ(9,1,END=100) (REC(J),J=1,1800)
      1 FORMAT(200A4,200A4,200A4,200A4,200A4,200A4,200A4,200A4)
102 WRITE(8,3)(REC(J),J=INDEX1,INDEX2)
      3 FORMAT(20A4)
      INDEX1=INDEX2+1
      INDEX2=INDEX2+20
      IF(INDEX2.GT.1800)GO TO 101
      GO TO 102
100 END FILE 8
      STOP
      END
/*
//LKED.SYSLMOD DD DSN=&TEMP1(MAIN)
//GO.FT08F001 DD DSN=&QST,UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200),
//      SPACE=(TRK,(200,1)),DISP=(NEW,PASS)
//GO.FT09F001 DD DSN=&VA,UNIT=SYSDA,
//      DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200),
//      DISP=(OLD,PASS)
/*
// EXEC FORTGCLG
//FORT.SYSIN DD *
      DIMENSION CONAME(72),DESCR(72),OWNAME(72)
      INTEGER OWNAME
      WRITE(6,1)
      1 FORMAT(1H1,10X,'PRODUCTS',//)
      WRITE(6,57)
      57 FORMAT(10X,'I. OYSTER PROCESSORS')
      X=1.0
102 READ(8,66,END=100) (OWNAME(J),J=1,72)
      66 FORMAT(72A1)
      READ(8,67)(CONAME(J),J=1,72)
      67 FORMAT(72A1)
      DO 68 JJ=1,8
      68 READ(8,70)Y
      70 FORMAT(A1)
      READ(8,65)NUM,(DESCR(K),K=3,72)
      65 FORMAT(I2,70A1)

```

## Program 8

This Program Was Used to Produce a List of Seafood Products and the Companies Which Handled Each.



```

      IF(NUM.NE.99)GO TO 71
      X=X+4.0
      IF(X.LT.50.0)GO TO 202
      WRITE(6,200)
      X=1.0
202  WRITE(6,73)(CONAME(J),J=1,72),(DESCR(K),K=3,72)
      73  FORMAT(/13X,72A1,/13X,70A1/)
      71  DO 72 I=1,79
      72  READ(8,81)Y
      81  FORMAT(A1)
      GO TO 102
100  REWIND 8
      DO 2 I=1,54
      IF(I.EQ. 1) X=6.
      IF(I.EQ. 7) X=6.
      IF(I.EQ.24) X=6.
      IF(I.EQ.31) X=6.
      IF(I.EQ.41) X=6.
      IF(I.EQ.52) X=6.
      IF(I.EQ.1)WRITE(6,3)
      3  FORMAT(1H1,/////,10X,'II. FISH',/11X,'A. FRESH WATER',/,12X,'1. CA
      XTFISH')
      IF(I.EQ.2)WRITE(6,4)
      4  FORMAT(12X,'2. TROUT')
      IF(I.EQ.3)WRITE(6,5)
      5  FORMAT(12X,'3. OTHER')
      IF(I.EQ.4)WRITE(6,6)
      6  FORMAT(11X,'B. SALT WATER', /12X,'1. FILLETS')
      IF(I.EQ.5)WRITE(6,7)
      7  FORMAT(12X,'2. WHOLE FISH')
      IF(I.EQ.6)WRITE(6,8)
      8  FORMAT(12X,'3. OTHER')
      IF(I.EQ.7)WRITE(6,9)
      9  FORMAT(1H1,/////,10X,'III. SHELLFISH',/,11X,'A. CRABS',/,12X,'1. B
      XLUE (HARD)')
      IF(I.EQ.8)WRITE(6,10)
      10  FORMAT(12X,'2. BLUE (SOFT)')
      IF(I.EQ.9)WRITE(6,11)
      11  FORMAT(12X,'3. OTHER')
      IF(I.EQ.10)WRITE(6,12)
      12  FORMAT(11X,'B. OYSTERS',/12X,'1. ATLANTIC OR GULF')
      IF(I.EQ.11)WRITE(6,13)
      13  FORMAT(12X,'2. OTHER')
      IF(I.EQ.12)WRITE(6,14)
      14  FORMAT(11X,'C. LOBSTERS',/12X,'1. NORTH ATLANTIC (VIRGINIA-MAINE)'
      X)
      IF(I.EQ.13)WRITE(6,15)
      15  FORMAT(12X,'2. FLORIDA (ROCK)')
      IF(I.EQ.14)WRITE(6,16)
      16  FORMAT( 12X,'3. OTHER')
      IF(I.EQ.15)WRITE(6,17)
      17  FORMAT(11X,'D. CLAMS',/,12X,'1. HARD OR QUAHOG')
      IF(I.EQ.16)WRITE(6,18)
      18  FORMAT(12X,'2. SURF')
      IF(I.EQ.17)WRITE(6,19)
      19  FORMAT(12X,'3. SOFT SHELL')
      IF(I.EQ.18)WRITE(6,20)
      20  FORMAT(12X,'4. OTHER')
      IF(I.EQ.19)WRITE(6,21)
      21  FORMAT(11X,'E. SCALLOPS',/12X,'1. BAY')
      IF(I.EQ.20)WRITE(6,22)
      22  FORMAT(12X,'2. SEA')
      IF(I.EQ.21)WRITE(6,23)
      23  FORMAT(12X,'3. OTHER')

```

```

IF(I.EQ.22)WRITE(6,24)
24 FORMAT(11X,'F. SHRIMP',/12X,'1. GULF')
IF(I.EQ.23)WRITE(6,25)
25 FORMAT(12X,'2. OTHER')
IF(I.EQ.24)WRITE(6,26)
26 FORMAT(1H1,/////,10X,'IV. MISCELLANEOUS PRODUCTS',/11X,'A. CONCH')
IF(I.EQ.25)WRITE(6,27)
27 FORMAT(11X,'B. MUSSELS')
IF(I.EQ.26)WRITE(6,28)
28 FORMAT(11X,'C. TURTLES')
IF(I.EQ.27)WRITE(6,29)
29 FORMAT(11X,'D. FROGS')
IF(I.EQ.28)WRITE(6,30)
30 FORMAT(11X,'E. CRAWFISH')
IF(I.EQ.29)WRITE(6,31)
31 FORMAT(11X,'F. EELS')
IF(I.EQ.30)WRITE(6,32)
32 FORMAT(11X,'G. OTHER')
IF(I.EQ.31)WRITE(6,33)
33 FORMAT(1H1,/////,10X,'V. CONVENIENCE FOODS',/11X,'A. TYPE PACKAGES
X MARKETED')
IF(I.EQ.32)WRITE(6,34)
34 FORMAT(11X,'B. TYPE PRODUCTS MANUFACTURED')
IF(I.EQ.33)WRITE(6,35)
35 FORMAT(12X,'1. FISH')
IF(I.EQ.34)WRITE(6,36)
36 FORMAT(12X,'2. BLUE CRAB')
IF(I.EQ.35)WRITE(6,37)
37 FORMAT(12X,'3. OYSTERS')
IF(I.EQ.36)WRITE(6,38)
38 FORMAT(12X,'4. CLAMS')
IF(I.EQ.37)WRITE(6,39)
39 FORMAT(12X,'5. SCALLOPS')
IF(I.EQ.38)WRITE(6,40)
40 FORMAT(12X,'6. SHRIMP')
IF(I.EQ.39)WRITE(6,41)
41 FORMAT(12X,'7. SPECIALITY DISHES')
IF(I.EQ.40)WRITE(6,42)
42 FORMAT(12X,'8. OTHER')
IF(I.EQ.41)WRITE(6,43)
43 FORMAT(1H1,/////,10X,'VI. INDUSTRIAL AND BY- PRODUCTS',/11X,'A. BA
XIT')
IF(I.EQ.42)WRITE(6,44)
44 FORMAT(11X,'B. CRAB SHELLS')
IF(I.EQ.43)WRITE(6,45)
45 FORMAT(11X,'C. OYSTER SHELLS')
IF(I.EQ.44)WRITE(6,46)
46 FORMAT(11X,'D. CLAM SHELLS')
IF(I.EQ.45)WRITE(6,47)
47 FORMAT(11X,'E. FISH TANKAGE')
IF(I.EQ.46)WRITE(6,48)
48 FORMAT(11X,'F. CRAB MEAL')
IF(I.EQ.47)WRITE(6,49)
49 FORMAT(11X,'G. SEA WEED')
IF(I.EQ.48)WRITE(6,50)
50 FORMAT(11X,'H. FISH MEAL')
IF(I.EQ.49)WRITE(6,51)
51 FORMAT(11X,'I. FISH SCRAP')
IF(I.EQ.50)WRITE(6,52)
52 FORMAT(11X,'J. FISH PROTEIN CONCENTRATE')
IF(I.EQ.51)WRITE(6,53)
53 FORMAT(11X,'K. OTHER')
IF(I.EQ.52)WRITE(6,54)
54 FORMAT(1H1,/////,10X,'VII. SPECIALIZED EQUIPMENT',/11X,'A. HARRIS

```

```

X CLAW PICKING MACHINE')
IF(I.EQ.53)WRITE(6,55)
55 FORMAT(11X,'B. HARRIS OYSTER STEAM MACHINE')
IF(I.EQ.54)WRITE(6,56)
56 FORMAT(11X,'C. OTHER')
105 READ(8,66,END=109) (OWNAME(J),J=1,72)
READ(8,67)(CONAME(K),K=1,72)
DO 107 JJ=1,9
107 READ(8,70)Y
DO 108 L=1,79
READ(8,65)NUM,(DESCR(K),K=3,72)
IF(NUM.NE.I)GO TO 108
X=X+4.0
IF(X.LT.50.0) GO TO 201
X=1.0
WRITE(6,200)
201 WRITE(6,73)(CONAME(J),J=1,72),(DESCR(K),K=3,72)
108 CONTINUE
GO TO 105
109 IF(I.EQ.54)GO TO 104
REWIND 8
X=X+2.0
IF(X.LT.50.0) GO TO 2
X=1.0
WRITE(6,200)
200 FORMAT(1H1)
2 CONTINUE
104 WRITE(6,101)
101 FORMAT(1H1,'END OF INPUT DATA')
STOP
END
/*
//LKED.SYSLMOD DD DSN=&TEMPN(MAIN)
//GO.FTO8FOOL DD DSN=&QST,UNIT=SYSDA,
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7200),
// DISP=(OLD,KEEP)
/*

```

```

//B0899PR9 JOB 50462,SHOEMAKER,MSGLEVEL=1
/*MAIN LINES=20
/*SETUP DDNAME=SORTIN,UNIT=SYSDA,ID=(USR301)
/*FORMAT PR,DDNAME=FTO6FOO1,FORMS=PFGU3UPL
// EXEC SORTD,PARM='MSG=AP,CORE=100000'
//SORTIN DD UNIT=SYSDA,DISP=(OLD,KEEP),DSN=VA.SEAFOO.A50462
//SORTWK01 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK02 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK03 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK04 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK05 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK06 DD UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTOUT DD UNIT=SYSDA,DISP=(NEW,PASS),SPACE=(7200,(6,1)),
// DSN=&VA,DCB=(RECFM=FB,LRECL=7200,BLKSIZE=7200)
//SYSIN DD *
    SORT FIELDS=(410,50,CH,A,81,50,CH,A),SIZE=E100
    END
/
// EXEC FORTGCLG
//FORT.SYSIN DD *
    IMPLICIT INTEGER*(A-Z)
    COMMON OWN(8),I1(12),CO(8),I2(12),ADD(8),I3(12),CIT(8),I4(12),
1 CTY(8),I5(12),SZ(8)
    DIMENSION IREC(1800)
    EQUIVALENCE (OWN(1),IREC(1))
    DO 100 I=1,24
    WRITE(6,6005)
    WRITE(6,6006)
    WRITE(6,6007)
    WRITE(6,6008)
    WRITE(6,6009)
6005 FORMAT(37X,'1 CENTER THIS LINE IN MIDDLE')
6006 FORMAT(37X,'2-----***-----***-----*****')
6007 FORMAT(37X,'3-----***-----***-----*****')
6008 FORMAT(37X,'4-----***-----***-----*****')
6009 FORMAT(37X,'5 LAST ADDRESS LINE ON LABEL',/)
    100 CONTINUE
    150 READ(8,8005,END=500) IREC
8005 FORMAT(90(20A4))
    WRITE(6,6010) OWN,OWN,OWN
    WRITE(6,6010) CO,CO,CO
    WRITE(6,6010) ADD,ADD,ADD
    WRITE(6,6010) CIT,CIT,CIT
    WRITE(6,6011) SZ,SZ,SZ
6010 FORMAT(1X,8A4,4X,8A4,4X,8A4)
6011 FORMAT(1X,8A4,4X,8A4,4X,8A4,/)
    GO TO 150
    500 STOP
    END
/
//LKED.SYSLMOD DD DSN=&TEMP1(MAIN)
//GJ.FTO8FOO1 DD UNIT=SYSDA,DISP=(OLD,DELETE),DSN=&VA
//

```

## Program 9

This Program Was Used to Produce Mailing Labels in Ascending Zip Code Order.

