# TABLE OF CONTENTS

I. Introduction .................................................1

II. User Environment ............................................2

III. Early Analysis Phase ........................................3

IV. Selection of PFS ..............................................6

V. PFS Files Developed ..........................................9

VI. Description of BFS .........................................13

VII. PFS and BFS Compared ......................................14

   Main Function Menu .........................................14
   Design File ..................................................14
   Add Records ..................................................14
   Search/Update ...............................................15
   Print Records ...............................................16
   Delete Records ...............................................17
   Copy File ....................................................17
   Delete File ..................................................18
   Summary .....................................................18

VIII. General Conclusions .......................................19

IX. References ..................................................21

X. Appendices

   A - PFS File Illustration Printouts
   B - BFS User's Manual
   C - BFS Program Documentation
   D - BFS Source Listing
   E - BFS Sample Run
Introduction

The original goal of this project was to develop a suspense system for the Shelton Insurance Agency using an Apple III and a micro data base management system. The suspense system envisioned was to replace all of the current informal ways in which agency employees keep notes concerning policies, clients, or other business items that need attention on an upcoming date. Because the only appropriate software available which would function on the agency's single-drive Apple was not a data base management system, the project was altered to some degree. Using PFS (Personal Filing System), several files were constructed to serve the agency: a general purpose suspense file, a claims file for each of two group policies, a workman's compensation claims file, and a claims file for individual and commercial policies. In addition to applying PFS in these areas, I developed a Basic program (BFS) which performs a restricted set of the same functions performed by PFS. My purpose in writing this program was to improve upon the response times offered by PFS, which I feel to be excessively slow. Response times on record search/update procedures offered in the program I wrote are a substantial improvement over those of PFS. This improvement was made, however, at the cost of a much greater response time during the record addition procedure. In general I feel that more of the functions performed by PFS need to be incorporated into BFS before the two would be truly competitive.
User Environment

This project was conducted in cooperation with two business entities, the Shelton Insurance Agency and Shelton Life. Shelton Life sells individual life and group life and health policies, while the larger Shelton Agency sells individual and commercial policies of all types. Shelton Life leases office space from the Shelton Agency and pays the agency for financial accounting services as well.

The Shelton Agency owns or leases two computers, a TRS-80 which performs policy rating, and an ARCom Agency Information System which maintains an accounts receivable record. The Apple III, the host system, is owned by Shelton Life. It was anticipated by all parties concerned that any system developed in the course of my work on the Apple III should be usable by employees of both businesses, i.e., a casual interface was required. No one person was to be assigned the task of entering data and obtaining desired reports.
Early Analysis Phase

Because the suggestion of a suspense system employing the Apple III was made by a representative of the Shelton Agency without much forethought, it was my initial task to study the current operations of both businesses involved and to produce some recommendations about this suggested system and its merits relative to other potential systems. I was limited in my scope by the Shelton Agency, which wished me to consider only the functions of its raters and claims processors and to ignore the functions of its producers, or agents.

I first considered the operation of Shelton Life, interviewing its one agent and its one rater/claims processor. From our discussions two primary areas of concern emerged, one involving the claims process and the other involving commissions.

Shelton Life is the agent for two large group health policies. The claims submitted by members of these two groups pass through the Shelton office and are forwarded to the companies that administer the policies. Pharmacy bills, lab bills, hospital bills, and doctors' bills, all with accompanying employees' statements, arrive in the office, and are copied and forwarded. A folder is begun for each new claimant. This system is satisfactory but provides no easily obtained summary information. Occasionally questions arise concerning claims. In order to determine whether a particular claimant has met a deductible, his/her folder must be located, and all prior claims scrutinized. There is no indication on the copies of the bills in the folder whether or not a certain bill was paid in full or in part by the company or whether the claim was disallowed.

Two types of summary information on claims seemed desirable: 1) cumulative information on claims submitted per claimant, and 2) annual or biennial summaries reporting total amounts billed by certain providers, average fees for various types of services, and total claims in dollars submitted by each insured group. In addition, an easier way to keep track of the status of individual claims was sought.

The second problem area was agency commissions. Currently the commissions received are recorded in an accounts book. Some way of projecting future commissions without tedious references to this accounts book was desired.

My conversations with the Shelton Agency raters revealed that they were fairly contented with their current methods
of operation. A rater's work starts with a request for a new policy or a policy change originating from a producer, or agent. A policy is either prepared in the office or ordered from an insurance company, and an invoice request is filled out reflecting the amount of premium due and the renewal date. The information from this invoice request is entered into the ARCom computer, a copy of the invoice goes into the policy folder, and another copy goes into a file for renewal notices organized by month. Monthly statements are prepared by computer, reviewed by the producers, and then sent out. At the beginning of each month each rater receives the renewal notices for policies she administers whose renewal dates are upcoming. These renewal notices prompt her to contact the insured or the appropriate producer to make arrangements for a new policy. And the process begins again.

Unfortunately, the process does not always work without snags. Many commercial policies undergo constant alteration. They are extended for two or three weeks instead of being renewed. Coverages go up and down as the number of employees or vehicles owned by the insured changes. Questions arise at renewal time that cannot be answered quickly, and policy folders stack up on desks awaiting various types of resolution.

These process snags inspired the desire for a suspense system on the part of the management. Although each rater feels confident that she knows what actions are expected on what accounts, no one else knows about another's suspended accounts. This has led in the past to an insistence by management that each folder be completely documented with notes of calls, conversations, and letters. Apparently this documentation has at times been inadequate; therefore, in spite of the raters' feelings that it is not necessary, some type of office-wide system was desired by the management.

The agency's single claims processor revealed that she handles a great many claims and keeps information on those claims in several different formats. A folder is begun on each claim. Then claims information (such as date of loss, policy number, kind of loss, date paid, and amount paid) is listed by insured and again by insurance company. The first of these lists is needed at policy renewal time, in order to arrive at the cost of a new policy by examining the insured's losses. The second is needed to explain fluctuations in the commissions paid to the agency by the insurance companies, and it also serves as a review of the efficiency of each company's claims offices. The claims processor was eager to arrive at some way to eliminate this
redundancy of physical record keeping.

Another problem mentioned by the claims processor was that bills sometimes arrive at the office with too little identifying information, and neither the Shelton Agency claims processor nor her counterpart in Shelton Life can identify the policy or the claim connected to the bill. It was suggested that perhaps a computerized list of claimants would aid in identifying these rogue bills.

In summary, the requirements that seemed to be most urgent were: 1) an office-wide suspense system, 2) a system for Shelton Life that kept track of the progress of individual health claims and provided cumulative information on claims submitted during the policy year, and 3) a system for the Shelton Agency that kept track of individual claims and provided summary information on losses.
Selection of PFS

At almost the same time I began interviewing the employees of the agency, I talked with the representative from the MicroComputer Shop from whom the Apple III had been purchased. I learned that instead of several choices of software, there was only one program available that both performed the functions the agency needed and could operate on a single-drive machine. The software was demonstrated for me at the shop, and I realized that although it was adequate for some of the agency's needs, it was not a true database management system.

The program, called PFS (Personal Filing System), is, as its name indicates, just a filing system designed to accommodate small files. PFS is easy to use - the entire manual can be read and mastered in less than an hour. In some ways it seemed ideal for the Shelton group.

The PFS main function menu includes the following operations: design file, add, copy, search/update, print, remove, set up printer, and list files. Within the design file feature, a user can design the record format of a new file and can also change the record format of a file already in use without losing data. (The ability to change the record format of an existing file requires a second disk drive.) The add feature allows the addition of records to a file. The copy feature allows a file to be copied. (This also requires a second disk drive.) The search/update feature allows records to be retrieved and updated. The print feature allows records to be printed, and the remove feature allows records to be deleted from a file. The set up printer feature allows modifications to be made so that many types of printers may be used with PFS. (Our printer did not require the set up printer feature.) The list files feature allows the user to get a listing of the files on the current diskette.

In designing a file, no detailed data descriptions are required. The program offers the console screen as a blank "card" to be filled out with data item names in any arrangement the user desires. Additional screens, or cards, can be attached to the first for longer records, if desired. This one process completes the file design.

When adding records to the file, the user is presented with the screen of data item names just as she arranged them in the design process. The maximum number of characters for any field is simply the number of spaces between the field's name and the next field's name. Any characters can be
entered in any field.

The retrieval process is equally simple. Records may be retrieved by any field or any combination of fields. Matches may be established in several ways. Full item matches require the complete field contents to be entered in the search specification. Substring item matches are entered on the specification using two character substitution symbols, ".." and "*". Numeric matches may be sought (even if the record field contains a mixture of numeric and non-numeric characters) by entering an appropriate symbol before a numeric quantity in a search specification. For example, if a record field contains a date entered as 83-07-05, this record can be retrieved by entering "=830705" in the correct field of the search specification. PFS ignores all non-numeric characters in the record field, converts the 83, the 07, and the 05 to a combined numeric value, and compares it to the value, 830705. Numeric searches may also be made for ranges of values. For example, if all records containing dates within July are desired, an item specification of ">=830701..830731" will retrieve the correct records. The symbols ">" and "<" may also be used to retrieve all dates prior to or later than a particular date. Of course, these numeric retrievals operate on all fields containing numeric characters, not necessarily dates.

There is only one type of retrieval with which the user receives a quick response. PFS maintains an index only on the first field within a record. When the user enters a full item match in the first field of the search specification, an indexed search is performed. In any other case, a sequential search is made of the file for matching records.

In a PFS file, there is no relationship between records. All records must have the same format. The exception to this is that attachments can be made to individual records as needed, allowing a very limited form of variable length record.

Parts of the PFS program could not be used on our single-drive machine. The PFS procedures for copying files and for redesigning existing files were useless on the agency's Apple III. An even more serious limitation was that the report generation software which served as an accompaniment to PFS could not be used, again because of the single drive. This meant that no summary reports could be obtained from the files created by PFS. Little flexibility was possible in the printing of information from the files.
In spite of these limitations, a decision was made by both Shelton Life and the Shelton Agency to buy PFS and put it to use. I felt that it was not a bad decision because the extreme simplicity and low cost of the program outweighed its flaws. If at some future time the agency decides to invest in a second drive, the program will increase tremendously in value.