The Bureau of National Affairs, Inc., located in Washington, D.C., is a publishing concern which provides information services to professionals in business, tax, legal, labor, environment and safety fields. The Sales and Marketing department has a data processing group, Marketing Information Systems, which uses the SAS programming language in an MVS environment. SAS is used for the reporting and management of sales and marketing data essential in decision making. Several months ago, our unit began experimenting with the SAS FSLETTER product, as a means of merging subscriber files with advertising and promotion letters. With the aid of our Systems Support Department, we have been able to create personalized letters which satisfy a very discriminating copy department. The system has replaced an antiquated manual operation which was used to send personalized letters to prospective BNA customers who were receiving a BNA service on a free trial basis.

The letters generated are used to encourage those who take one of the BNA services on a forty-five day trial basis to subscribe to that service for a year or more. The system we developed, which began in June of 1988, has proven to be extremely possible replacement for some of the often expensive small personalized promotions which have always been generated out-of-house.

Our objective in this paper is to describe how we incorporated the FSLETTER procedure, several SAS functions, and SAS Macro System in the development a date-driven personalized letter system which allows the department to not only use the SAS language to manage its marketing database for analysis, but to generate real cost savings by producing quality mailing pieces in-house.

DATABASE DESCRIPTION
The database used for the letter generation is housed in a SAS dataset on an IBM mainframe and is updated weekly. It comes from our online CICS customer database, managed by the Information Systems Development Department. The data is read into an upload file on tape from which our macro pulls the appropriate key, checks for duplicates and updates our letter file. The data is stored in upper case and is converted to mixed case in an algorithm described in the subsequent section.

INTRODUCTION

THE MACRO AND THE ALGORITHM

Macro
The system incorporates the use of SAS macros to retrieve the data weekly, reformat the name and address variables into mixed case (a refined letter mode), and print letters for customers whose forty-five day trial period has come to a close. The first macro, "Spiril", retrieves the account information of the active records coded for the 45 day free trial we are tracking, and stores it in a temporary dataset. The second macro "Hiletin" merges the name and address data with the temporary dataset. Following this, the macro "Advlet3" extracts the records that have had the free trial for more than 35 days, updates the permanent dataset and calls the macro "Mease". "Mease" converts the data to upper and lower case, and prints the appropriate letter. See Appendix A for the macro code.

Algorithm
The Algorithm in "Mease" uses a combination of the Translate, Scan, Substr, Trim, Left, and Index functions to convert the data to upper and lower case. The Scan and Index functions are used to separate each value (company name, address, etc.) into words. The Substr function is used to extract the first letter of the word so that the Translate function converts only the remaining portion of the word into lower case. The Trim and Left Functions are used to remove extra spaces when concatenating the words. (See Appendix B)

FORMATTING QUALITY LETTERS USING FSLETTER
Carriage Control Commands and Fonts
Carriage control characters are used to designate the spacing throughout the letter. They are keyed in the first column of the document. The standard printer control characters used are:

<table>
<thead>
<tr>
<th>Carriage Control Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Overprint(No skip)</td>
</tr>
<tr>
<td>0</td>
<td>Double space</td>
</tr>
<tr>
<td>-</td>
<td>Triple space</td>
</tr>
<tr>
<td>1</td>
<td>Top of page</td>
</tr>
</tbody>
</table>

Use of these characters enables us to use the fonts necessary for the various letter formats. (See Appendix C)

The number of fonts available to us at the present time, is ten. The font is indicated in the second column of the letter. (See Appendix C) Using this format, we are able to bold, use italics and underline.
Hardware and Operating System Considerations

Hardware

Although letters can be produced on most IBM terminal with 24 lines and 80 character width per screen, we had to use the IBM 3278, Model 5 which allows 27 lines and 132 character width per screen. This was due to the fact that the copy was formatted on a Wang word processor and the integrity of the copy had to be maintained. The printers available to us are Xerox 8700 and Xerox 4050. mainframe printers.

Operating System

The operating system used to create the letter was MVS/Roscoe. The copier was used:

Options "FSP" was necessary to allow batch processing of proc fsedit, and OPTCD=F which merges and produces the letters, is ETSO emulated under Roscoe. The batch is MVS/Roscoe.

Fonts

Fonts were added to a table through a hatch job which copied the binary stream of bits to disk. The print control language in the body of the letter.

SUMMARY AND FUTURE APPLICATIONS

Through the use of SAS Macros, SAS datasets, the FSLETTER procedure, and our Xerox printer, we have been able to produce a quality product for our advertising department. The cost and time savings alone have made this a much sought after system. We plan to execute letters not only from our customer database, but from our prospect files and the databases of the company's divisions and subsidiaries. We also have plans to experiment with PC SAS, when it becomes available to us, so we can locally print on any letterhead, print envelopes, and insert cards for personalized mailings. We will continue to explore new ways to incorporate FSLETTER in many of our current database related operations.
APPENDIX

PELETTER attribute screen

Command =>>

Symbolic name: SUBNAME Occurrence: 1 Line: 4 Column: 4


Field color: . D=Green B=Blue R=Red M=Magenta Y=Yellow W=White

Field attr: H=Highlight R=Reverse Video B=Blink U=Underline

SAS Variable classes: SUBNAME

---

APPENDIX

Text Body and Margin Information

Command =>>

Text body Information

Characters per Line: 82 Lines on First Page: 43 Lines on Following: 62

First Page Margins Left: Top: 3 Bottom: 3

Following Pages Left: Top: 3 Bottom: 3

---

APPENDIX

TCO Print File Parameters

Command =>>

Destination: SALPR1 Class: A Program:

Pages: PIDX Use: T

Copies: 1 Fish: Hold:

Carriage Control Information No CO: X

Signal Page Skips Before First Print Control Language: X

Following Print Control Language: X

Following Text Pages: X

Additional information needed only for IBM 3800 printers

Character Tables: Burst: Optcode=J: X

Flash Name: Flash Count: Modify Name: Modify Tsc:
APPENDIX F

THE BUREAU OF NATIONAL AFFAIRS, INC.

March 9, 1988

William C. Knapp
425 Provident Bank Bldg
7th & Vine Street
Cincinnati, OH 45202

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