

Library Accounting Applications Using SAS/AF Custom Menus

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INTRODUCTION

Indiana University Libraries recently completed one of the largest installations of the NOTIS Integrated library automation system, across an eight-campus statewide system. Virtually all NOTIS users have implemented base SAS applications to supplement existing reports and provide statistics for fund accounting and circulation applications. This paper discusses an innovative SAS/AF* (Application Facility) menuing system developed to allow a diverse group of users to customize SAS accounting reports to meet local needs. The flexibility of SAS/AF and SAS/SCL* (Screen Control Language) for developing context-sensitive help screens, prompting users for input, verifying input data, and distributing customized reports is illustrated.

SAS/AF

SAS/AF software, to quote SAS Institute, "allows you to create interactive windowing applications that are user friendly." You can create menu-driven environments for submitting and customizing your in-house SAS applications. End-users do not need to touch SAS code, JCL, or understand source data in order to run reports customized for their own needs. Users can select data relevant to their local library and route output to printers convenient to their locations.

SAS/AF, in conjunction with the SAS Display Manager, also provides an interactive program development facility. When you are designing AF applications, you can use the TESTAF command to test and debug the menu application itself.

A SAMPLE SAS/AF APPLICATION

At Indiana University, we are experimenting with SAS/AF as a delivery mode for various Fund Accounting applications. We run SAS interactively in the MVS/TSO environment.

Users can "hot-key" between the CICS-based NOTIS application and the SAS environment at our site, allowing them to use SAS/AF applications as an integral part of their daily work procedures.

A main menu (Fig. 1) offers users a selection of reports relevant to their Acquisitions operations. Users select the report they want to run by tabbing to a "push-button" and pressing the Enter key.

THE EXPENSE CLASS REPORT

The Expense Class report selection provides a breakdown of expenditures by expense class at various levels of detail. The program was locally developed using base SAS and can be run in a batch mode on a regular basis, to create hardcopy reports.

In the interactive AF environment, users can submit the Expense Class program whenever they want, against data that is refreshed daily. The Expense Class Report screen allows users to select the specific library ("processing unit") they wish to view, and also to select the report breaks they need for their own purposes (Fig. 2).

Users can ask for "help" on processing unit selections by entering a "?" in the field in question. Context-sensitive help menus are created using SAS/AF "selection list" facilities allow the user to press enter to select legal processing units (Fig. 3, 4).

Users then select the sort breaks they wish to see in their report. A message prompt reminds the user they need to select one or both of the report breaks available (Fig. 5).

The user runs the report by typing END or pressing PF3. The system accesses SAS datasets previously extracted from application VSAM files. A sample OUTPUT window is shown (Fig. 6).

ROUTING OUTPUT

Users can route output to their default printer by typing PRINT on the OUTPUT window command line. It is possible for users to customize their own printing destination through the FSFORMS window. FSFORMS is a series of windows which allow users to tailor paper size, fonts, and many other print-related parameters. I have shown the TSO Print File parameters window, which allows the user to route output to a convenient remote printer (Fig. 7).

A possible enhancement to our system would be to make the print destination a "window variable" selection on the report screens themselves. Through SCL, the PROC PRINT that generates the reports would route output to a substitute variable name. For now, the FSFORMS window itself gives us all the flexibility we need.

OTHER OPTIONS

On the Acquisitions Inquiry menu, the "Commit/Expense" push-button allows users to run a standard balance sheet report against their fund accounting data. Again, the report can be customized by library "processing unit."

The "Vendor File" push-button produces a report of library material vendors used by a given library. Before now, this report was available only as a batch printed product, which can grow to telephone-book size, and be obsolete as soon as it is printed. When run interactively, users have the convenience of online viewing, up-to-date data, and standard search and find tools available in the OUTPUT window.

SAS/SCL

The SAS/AF menus are "driven" by a special type of SAS code called Screen Control Language (SCL). SCL code is compiled, minimizing system overhead needed to drive the screens in the menuing system. I have included the SCL code which "runs" the Expense Class report screen (Fig. 8). Note particularly the "submit" statements, which allow users to submit canned SAS code.

WHAT DO YOU NEED AT YOUR SITE TO RUN THESE APPLICATIONS?

You need Base SAS software, running in an interactive (time-sharing) environment (such as TSO or CMS). Most NOTIS sites use base SAS and also have TSO to run SAS interactively. You will also need to purchase a license for SAS/AF. Add-on products are relatively inexpensive, once you have base SAS.

All SAS products come with extensive documentation. Screen Control Language is particularly well documented. The SAS *Screen Control Language* reference is almost overly thorough. A more "usage-oriented" publication is *SAS Technical Report P-199*, which provides many useful tips for developing SCL applications. SAS Institute provides training in all its products. I have attended both the SCL classes and been completely satisfied. The SAS Education division is a very professional and aggressive part of the SAS strategic direction.

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Fig. 1

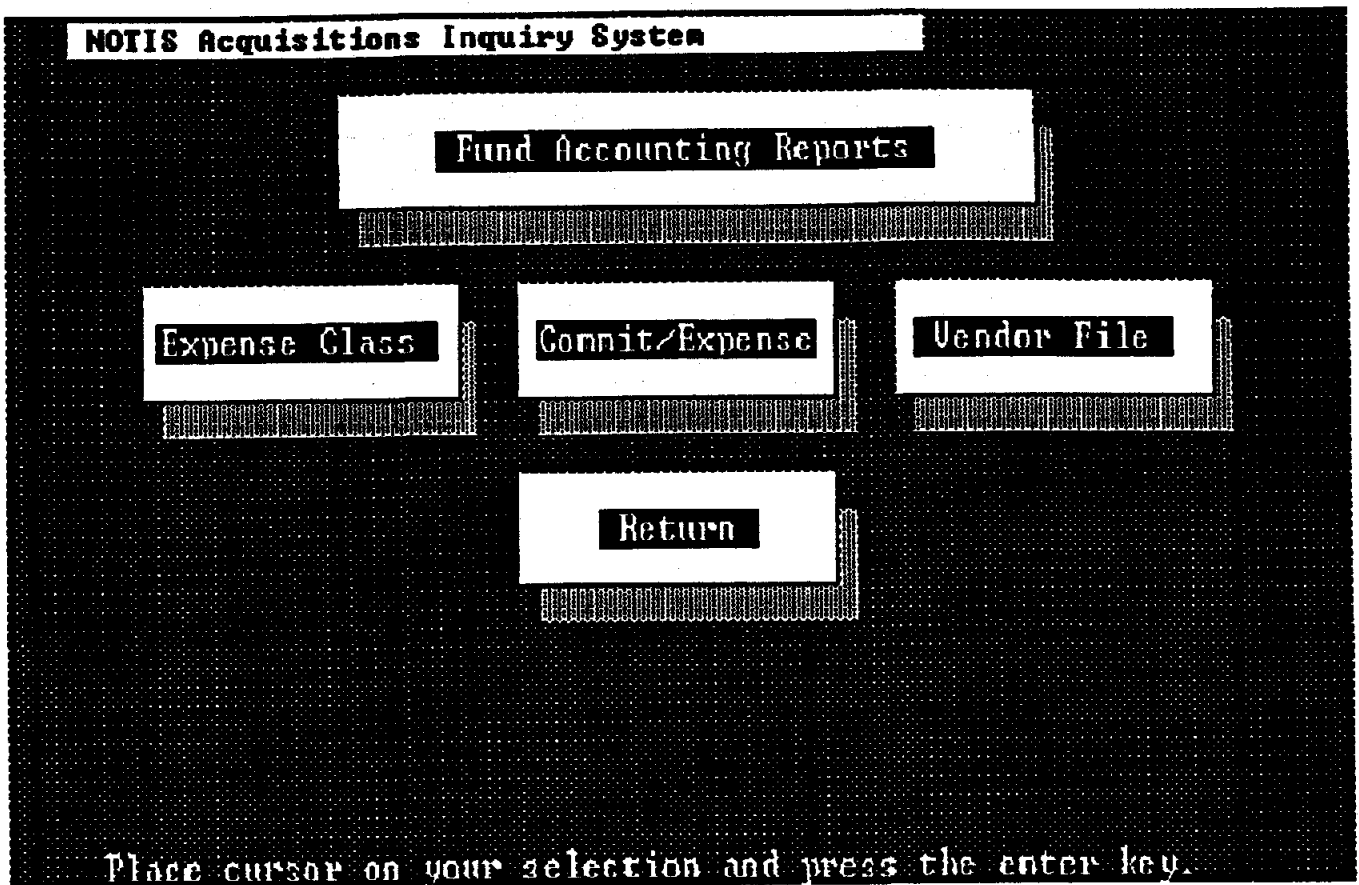


Fig. 2

```
+Expense Class Reports-----+
| Command ==>
|
| The Expense Class report breaks down NOTIS expenditures by expense class
| for the current fiscal year.
|
| _____ Select up to 4 PUs you wish to view (type ? for list).
|
| Type an X next to the breakdown(s) you would like to see.
|
| _ By Fund Group
|
| _ By Official ID
|
| Press PF3 or type END to run report.   Press PF4 or type CANCEL to quit.
```

Fig. 3

```

+Expense Class Reports-----
| Command ==>
|
| The Expense Class report breaks down NOTIS expenditures by expense class
| for the current fiscal year.
|
|   ? _____ Select up to 4 PUs you wish to view (type ? for list).
|
| Type an X next to the breakdown(s) you would like to see.
|
|   _ By Fund Group
|
|   _ By Official ID
|
| Press PF3 or type END to run report.   Press PF4 or type CANCEL to quit.

```

ZOOM

Fig. 4

```

Expense Class Reports.....
. Command ==>
.
. The Expense Class report breaks down NOTIS expenditures by expense class
. for the current fiscal year.
.

```

Type	+Select Data----- Command ==>	o view (type ? for list).
-	Make up to 4 selections.	like to see.
-	* BB	
-	BM	
Pres	* CD	
	IP	PF4 or type CANCEL to quit.

ZOOM

```

+Expense Class Reports-----
| Command ==>
| Please select type of report or type CANCEL
| The Expense Class report breaks down NOTIS expenditures by expense class
| for the current fiscal year.
|
| BB CO          Select up to 4 PUs you wish to view (type ? for list).
|
| Type an X next to the breakdown(s) you would like to see.
|
|   x By Fund Group
|
|   x By Official ID
|
| Press PF3 or type END to run report.   Press PF4 or type CANCEL to quit.
|
|-----ZOOM-----

```

```
+-----+ OUTPUT ----- DATA STEP suspended +-----+  
| Command ==>  
  
SAS Expenses by Class for Fund Group  
Printed Friday, 28JUN91  
  
----- Fund Group=F32A   32 Account -----  
  
EXPENDITURE CLASS                                AMOUNT  
  
0001 One_Time                                    $77.38  
-----  
Total for Fund Group                            $77.38  
  
R
```

Fig. 7

FORM: DEFAULT.FORM (E)

Command ==>

TSO Print File Parameters

Destination:	R117	Class:	A
Forms:		UCS:	
Copies:	1	FCB:	
Writer:		Outlim:	

Parameter options:

Hold output: YES NO

SELECT IBM 3800 print file parameters

To select or deselect, place cursor on choice and press ENTER.

Fig. 8

BUILD: SOURCE EXPCCLASS.PROGRAM (E)-
Command ==>

```

00001 init;
00002 return;
00003
00004
00005 main;
00006   IF BYFNDGRP = ' ' and BYOFFID = ' ' then do;
00007     cursor byfndgrp; _msg_ 'Please select type of report';
00008     _msg_ 'Please select type of report or type CANCEL' ;
00009   END;
00010 return;
00011
00012 test;
00013   if _status_='C' then return;
00014   IF BYFNDGRP = ' ' and BYOFFID = ' ' then do;
00015     cursor byfndgrp; _msg_ 'Please select type of report';
00016     _status_='R';
00017   END;
00018   ELSE if _status_='E' then do;
00019     if pusel gt ' ' then;
00020       subalt;
00021         /* ***** */
00022         /* SELECT BY PU */
00023         /* ***** */
00024         DATA SASUSER.FUNDDATA;
00025         SET LIBSAS.FUNDDATA;
00026         attrib pu length=8;
00027         attrib puchoose length=15;
00028         put '10usel';
00029         PU=SUBSTR(LDRKEY,1,2);
00030         X=0;
00031         X=INDEX('10usel',PU);
00032         PUT PU X;
00033         IF X)0 THEN OUTPUT SASUSER.FUNDDATA;
00034       run;
00035       /* ***** */
00036       /* end select by pu */
00037       /* ***** */
00038     endsubalt;
00039     subalt;
00040     xinclude 'lib.sas.source(fundexp)';
00041   endsubalt;
00042   if byfndgrp = 'X' then
00043     subalt;
00044     xinclude 'lib.sas.source(fundexpf)';
00045   endsubalt;
00046   if byoffid = 'X' then
00047     subalt;
00048     xinclude 'lib.sas.source(fundexpa)';
00049   endsubalt;
00050   subalt continue;
00051   run;
00052 endsubalt;
00053 end;
00054
00055
00056

```