

ATTENTION ALL USERS

\*\*\* NEW HOURS \*\*\*

The new hours beginning September 30, 1984 are:

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User Room	90 Coffey Hall	7:00 A.M. - 11:00 P.M.	Mon.-Fri.
and Computer		8:00 A.M. - 4:00 P.M.	Saturday
Hours (1)		4:00 P.M. - 10:00 P.M.	Sunday

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\*\*\* Sunday activities will be monitored to determine whether to remain with the Sunday schedule.

(1) After hour and weekend access to the Center may require entrance from the Student Center (tunnel passageway), or the need of a key to Coffey Hall.

FALL SHORT COURSES

The St. Paul Computer Center will be offering short courses during the Fall Quarter. The User Orientation presentation introduces new and prospective users to the SPCC facility. Following a brief description of the hardware and software available at SPCC, a short tour of the computer center will be given.

The SAS course will cover the Statistical Analysis System (SAS), a comprehensive statistical package available on the IBM 4341 computer at SPCC. In addition to statistics, SAS provides software tools for data storage and retrieval, report writing, general programming, and graphics. Those people intending to use SAS from either MUSIC or CMS should be familiar with the respective system before attending the SAS course. A computer-based training package for SAS will be part of the course. Users not attending the short course may also have access to this self-study course. Those interested should obtain the handout named "Using CBT for SAS".

The CMS course will introduce the Conversational Monitor System, an operating system that allows one to edit and save files, submit batch jobs, and run jobs interactively. SAS and NOMAD (a data base management system) may be accessed interactively through CMS.

The NOMAD demo introduces a Data Base Management System now available at SPCC. NOMAD is a fourth generation language, which may be used for data management, retrievals, application programming, report writing, and graphics. This demo will emphasize database description and organization using NOMAD2 syntax.

The CMS SCRIPT course will present the basic features of SCRIPT, a text formatting language that allows you to prepare finished typed material such as letters, reports, manuscripts and other similar documents. You can specify that the text will be single or double spaced, right or left justified. SCRIPT can automatically

insert page numbers and headings as well as do footnotes. Only the SCRIPT for CMS will be covered in this short course. Users interested in this course should be familiar with CMS.

The first hour of the SAS, CMS, and SCRIPT, short courses is lecture, and the second hour is a terminal session in which the students may apply what they have just learned. All courses will be offered on the St. Paul Campus.

The short course schedule for the Fall Quarter is as follows:

SHORT COURSE NAME	DATE	TIME
User Orientation	Oct 4 (Th)	3:00-5:00
Introduction to CMS	Oct 8,10,12 (M,W,F)	3:00-5:00
SAS (Statistical Analysis System)	Oct 16,18,23 (T,TH,T)	3:00-5:00
Introduction to NOMAD	Oct 24 (W)	2:30-5:00
Introduction to CMS	Oct 22,24,26 (M,W,F)	3:00-5:00
SAS (Statistical Analysis System)	Oct 30, Nov 1,6 (T,Th,T)	3:00-5:00
Introduction to CMS SCRIPT	Oct 15,17 (M,W)	3:00-5:00
Introduction to NOMAD	Nov 15 (Th)	2:30-5:00

The User Orientation will be held in B35 COB (St. Paul Campus), with no registration required. To register for the other courses, please obtain and complete a short course registration form from SPCC (373-0987; 50 Coffey Hall). Return it to the Main Office, 50 Coffey Hall, prior to the start of the class. Most short courses have a modest fee associated with them and require full payment before the class begins. Sorry, no refunds are made after the class begins.

If you have questions about short courses, their cost, or registration, please call Mel Sauve or Diane Suski (373-0987).

If you have a group of 6 or more people interested in any of the short courses, SPCC can schedule a class just for your group. Please contact Mel Sauve at 373-0987 to make the necessary arrangements.

## C M S N O T E S

### New Release of CMS

The release 3 of VM/SP will be installed in the Fall Quarter. There are very few changes from the current release. The installation date will be announced in a LOG message, and a help file and documentation will be available.

### Spool File Space

Beginning July 15, 1984, SPCC implemented the policy of limiting CMS Spool file residency to one month. Spool files (virtual reader, punch and print files) will be automatically purged the morning of the same calendar date the following month, or on the first when there is no corresponding day in a shorter month.

Charging for Spool disk storage space began August 1, 1984. The charges for spool file storage are as follows (rates are based on megabytes per day):

<u>Period</u>	<u>Charge</u>	<u>Minimum charge</u>
	(per megabyte per day)	
First 2 days	\$0.00	\$0.00
Next 5 days	\$0.90	\$0.01
Remainder of the period	\$1.80	\$0.01

The purpose of this change of policy is to discourage the use of spool files as an alternative to normal disk storage or archive storage.

## SAS NEWS

### USING PROC TABULATE

PROC TABULATE is a new procedure available with the 82 release of the SAS system. With this procedure, you can display descriptive statistics in hierarchical tables that contain up to three dimensions: row, column, and page. The following examples illustrate two-dimensional hierarchical tables produced by PROC TABULATE and the code that produced them. The first example contains a PROC FORMAT step, where formatted values are called by FORMAT statements in the examples. The two examples use the SAS data set, SALES, shown below.

```
SALES DATA SET1
OBS  REPNAME  MONTH  WEEKDAY  NUMBER
1    SMITH    2      6      6
2    SMITH    2      5      2
3    SMITH    3      3      2
4    SMITH    2      2      3
5    SMITH    1      2      2
6    SMITH    2      4      1
7    JONES    2      5      2
8    JONES    2      2      1
9    JONES    3      3      1
10   JONES    1      2      5
11   JONES    2      2      2
12   JONES    1      2      25
13   JONES    2      4      5
14   JONES    2      6      1
15   JONES    3      5      4
16   JONES    1      2      11
17   JONES    2      2      1
18   JONES    2      4      2
19   JONES    3      3      2
```

In the first example, the PROC TABULATE statement is used with the DATA= options to specify the data set, SALES, and the FORMAT= options is used to set the default format for each table cell to 8.0. (The default is 12.2.) The CLASS statement defines REPNAME, MONTH, and WEEKDAY as classification variables. The VAR statement specifies the variable, NUMBER, to be used as the analysis variable. Labels are assigned to the procedure-generated statistics and the universal class variable, ALL, with the KEYLABEL statement. The TABLE statement specifies that a two-

S T . P A U L C O M P U T E R C E N T E R

dimensional table is to be constructed. The first dimension is the row dimension, and the second is the column dimension. The two dimensions are separated by commas. The row dimension elements are separated by spaces, which give a concatenation of the variables listed. The universal classifier, ALL, has only one value. This value is represented by all of the observations that share a common level of the next higher classification variable.

In this example, the row dimension consists of each level of MONTH, followed by the special variable ALL, which is used to represent all the combined levels of MONTH. This is followed by each of the levels of WEEKDAY and the special variable ALL, representing the combined levels of WEEKDAY. The column dimension in this example does not contain a specified statistic; therefore, the default statistic, SUM, is used on the analysis variable. An asterisk(\*) denotes nesting. The column dimension consists of a concatenation of two nestings: REPNAME by NUMBER and ALL by NUMBER. The columns consist of the levels of REPNAME, with the sum for NUMBER under each. These columns are followed by the special variable ALL, which contains the sum of NUMBER for all levels of REPNAME.

MONTHLY AND DAILY SALES ANALYSIS ON THE SAME TABLE  
WITH ROW AND COLUMN TOTALS

```

PROC FORMAT;
  VALUE MOFMT 1=JANUARY    2=FEBRUARY    3=MARCH      4=APRIL
              5=MAY       6=JUNE      7=JULY      8=AUGUST
              9=SEPTEMBER 10=OCTOBER 11=NOVEMBER 12=DECEMBER;
  VALUE WDAY  1=SUNDAY    2=MONDAY    3=TUESDAY    4=WEDNESDAY
              5=THURSDAY 6=FRIDAY   7=SATURDAY;
PROC TABULATE DATA=SALES FORMAT=8.0;
  CLASS REPNAME MONTH WEEKDAY;
  VAR NUMBER;
  TITLE MONTHLY AND DAILY SALES ANALYSIS ON THE SAME TABLE;
  TITLE2 WITH ROW AND COLUMN TOTALS;
  FORMAT MONTH MOFMT. WEEKDAY WDAY.;
  LABEL MONTH=MONTH OF SALE
        WEEKDAY=DAY OF WEEK
        REPNAME=NAME OF SALESREP;
  KEYLABEL ALL='**TOTAL*'
          SUM='SUM OF UNITS';
  TABLE MONTH ALL WEEKDAY ALL, REPNAME*NUMBER NUMBER*ALL;

```

	NAME OF SALESREP		
	JONES	SMITH	*TOTAL*
	NUMBER	NUMBER	NUMBER
	SUM OF UNITS	SUM OF UNITS	SUM OF UNITS
MONTH OF SALE			
JANUARY	41	2	43
FEBRUARY	14	12	26
MARCH	7	2	9
*TOTAL*	62	16	78
DAY OF WEEK			
MONDAY	45	5	50
TUESDAY	3	2	5
WEDNESDAY	7	1	8
THURSDAY	6	2	8
FRIDAY	1	6	7
*TOTAL*	62	16	78

The second example uses the same classification and analysis variables. This time two statistics are requested: SUM and PCTSUM. Also, different output display formats are requested for each of the statistics.

The row dimension in this second table is made up of month and weekday combinations. The nesting operation (the '\*' operator) arranges all levels of the second operand, WEEKDAY, within each level of the first operand, MONTH. The columns consist of the levels of REPNAME, with the sum for NUMBER and percentage that the sum is for that level for NUMBER under each. The two statistics are requested with their keywords, SUM and PCTSUM. There are several other statistics that can be requested by keyword. For instance: MEAN for mean, STD for standard deviation, and STDERR for standard error. Output formats are specified for each of the two statistics. The SUM should be displayed with a 6.0 format and the PCTSUM with a 7.1 format. Again the ALL universal classifier is used. This time, the summary statistics are computed for each level of REPNAME.

MONTHLY AND DAILY SALES ANALYSIS ON THE SAME TABLE

```

PROC TABULATE DATA=SALES;
  CLASS REPNAME MONTH WEEKDAY;
  VAR NUMBER;
  TITLE MONTHLY AND DAILY SALES ANALYSIS ON THE SAME TABLE;
  TITLE2 WITH ROW AND COLUMN TOTALS;
  FORMAT MONTH MOFMT. WEEKDAY WDAY.;
  LABEL MONTH=MONTH OF SALE
        WEEKDAY=DAY OF WEEK
        REPNAME=NAME OF SALESREP;
  KEYLABEL ALL='*TOTAL*'
        SUM='SUM OF UNITS'
        PCTSUM='% SUM OF UNITS';
  TABLE MONTH*WEEKDAY ALL, REPNAME*NUMBER*(SUM*F=6.0 PCTSUM*F=8.1);
  
```

		NAME OF SALESREP			
		JONES		SMITH	
		NUMBER	PERCENT	NUMBER	PERCENT
		SUM OF UNITS	% SUM OF UNITS	SUM OF UNITS	% SUM OF UNITS
MONTH OF SALE	DAY OF WEEK				
JANUARY	MONDAY	41	52.6	2	2.6
FEBRUARY	MONDAY	4	5.1	3	3.8
	WEDNESDAY	7	9.0	1	1.3
	THURSDAY	2	2.6	2	2.6
	FRIDAY	1	1.3	6	7.7
MARCH	TUESDAY	3	3.8	2	2.6
	THURSDAY	4	5.1	.	.
*TOTAL*		62	79.5	16	20.5

The above examples demonstrate a simple application of PROC TABULATE. This procedure is documented in the SAS BASICS manual, pages 545-574. The default statistic for analysis variables is SUM, though it is only one of many statistics that can be computed by PROC TABULATE. The TABULATE procedure provides a great deal of flexibility and, at the same time, powerful analytical tools.

Parts of this article are from SAS Communications, Summer 1984, pages 22-23.

### SAS Disk Migration

SAS disk migration has begun. Each SAS user with permanent datasets will be contacted by a SPCC staff member to create a CMS minidisk and to transfer their current SAS datasets. We look forward to SPCC users' continued cooperation.

## TEXT PROCESSING

DCF (composed of SCRIPT control words and GML tags) is a text formatting product designed for documents to be printed or displayed. It has many advanced formatting functions such as multi-column formatting, automatic generation of table of contents, title page and page numbering, facilities for drawing boxes and charts creating footnotes and producing numbered or bulleted lists. You can easily format the same information in different ways for different audiences. The text entered by the user can be easily edited to reflect the output formatting desired.

The **SPCC SCRIPT User's Guide** is available for purchase for \$2.50 in Room 50 Coffey Hall. The basic SCRIPT control words and GML tags are presented with examples and exercises.

The current printers available for DCF output are the IBM 3262 draft quality and the Lee Data letter quality, both located in Room 90 Coffey Hall, and the Laser printer at ADPD.

## DATA ENTRY

The turnaround time for Data Entry varies with the workload. Currently, an average sized job (500 - 1000 records) takes less than a week to complete.

For further information about current turnaround time, cost estimates, preparation of data or source documents, contact Linda or Cleo at 376-9222. Account numbers may be obtained at 50 Coffey Hall.

Unless you have made special arrangements with SPCC to purchase tapes, they should be returned to Data Entry as soon as you are finished with them.

## STATISTICAL CLINIC

The Statistical Clinic on the St. Paul Campus, is staffed by graduate students of the School of Statistics, and supervised by faculty members of the Applied Statistics Department. The Statistical Clinic provides statistical consulting to researchers at the University of Minnesota, generally without charge. Assistance on appropriate experimental designs and methods, data analysis, and the interpretation of results are part of the mission of the Clinic.

Many statistical problems can be handled completely by the personnel in the Clinic. However, more difficult problems will be referred to an Applied Statistics faculty member.

The consulting hours of the Statistical Clinic, until classes start in September, are:

Monday, Wednesday, Friday 9:00-4:30  
Tuesday, Thursday 9:00-3:00

Room: 125g COB  
Phone: 376-3845

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S T. PAUL COMPUTER CENTER

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REDUCED RATES FOR OFF-HOUR USERS

Computer processing performed after 5:00 pm daily (Monday thru Friday) and all day Saturday receives a 25% reduction on 3 billable components: Central Processor Time, High Speed Input/Output (disk and tape), and Connect Time.

ACCESS TO FACILITIES

ST PAUL COMPUTER CENTER

SPCC hours, locations and telephone numbers:

Main Office	: 50 Coffey Hall 373-0987	8:00 am - 4:30 pm
Users Room and	: 90 Coffey Hall	7:00 am - 11:00 pm M-F,
Computer Hours (1)	: 90 Coffey Hall	8:00 am - 4:00 pm Sat, and
	: 90 Coffey Hall	4:00 pm - 10:00 pm Sun
Help Desk	: 90 Coffey Hall 376-4602	10:00 am - 12:00 pm M-F
		1:00 pm - 4:00 pm M-Th
		1:00 pm - 3:00 pm F
Data Entry	: 6 North Hall 376-9222	8:00 am - 4:30 pm
Interactive Dialup Number:	376-5820	

(1) After hour and Saturday access to the Center may be achieved by using the tunnel passageway from the Student Center.

MERITSS SYSTEM CONNECTION TO SPCC

Users can now gain access to the IBM 4341 computer system at SPCC through the MERITSS System (Interactive Instructional Labs). There are now six ports dedicated to this type of communications traffic. Those wishing to utilize this type of access can obtain the handout named "Using SPCC's IBM Computer from the MERITSS System" from our Main Office (1 page, no charge).

CLASSROOM OFFICE BUILDING INTERACTIVE INSTRUCTIONAL LAB HOURS

	Doors Unlocked	Doors Locked
Monday -- Friday	8:00 am	10:00 pm
Saturday	9:00 am	1:00 pm

Should you be the last person out of the Lab during the hours shown above, please leave the doors unlocked (SPCC personnel are responsible for locking doors at the designated times). Thank you.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, religion, color, sex, national origin, handicap, age or veteran status.

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