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NEWS LETTER

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26 North Hall
St. Paul Campus
373-0987 373-0990

REDUCTION IN COMPUTER CHARGES

The Center has recently purchased the IBM 360 computer and its peripheral equipment under an installment payment plan, which has substantially reduced our monthly financial obligation to the IBM Corporation. This saving is being passed on to the computer users through a reduction in our computer charges from \$90.00 to \$66.00 per hour. This change is retroactive to June 21, 1969, and will be applied to all computer runs since that date.

SPECIAL COMPUTER RUNS

We wish to remind our users that, as a rule, there is no difficulty in providing a computer operator for special computer runs in the evening or on the weekend. This service is provided to the academic staff, when requested far enough in advance, so an operator may be made available. Individuals who are pressed for time because of deadlines, who have a considerable amount of debugging to do, or who have lengthy computer runs and wish to obtain special attention, should contact Jim Palodichuk for making the necessary arrangements.

CARD STORAGE

We are very pleased with the cooperation we have had from the many Computing Center facility users, who have already tagged their data with the required 'Data Set Identifier' labels. Individuals who have not yet tagged their data should do so by September 1, 1969. Data cards still unclaimed or improperly identified with our standard form will be removed from the Center and placed in remote dead storage some time in September.

ANNOUNCEMENTS

Dr. May Wright, who has served so ably as a statistical consultant, for the last 24 months, has now retired. We extend our thanks to Dr. Wright for the generous and continuing assistance she has provided to the Computing Center personnel and to the academic staff.

For the summer, Mr. Y.S. Lin, a Ph. D. candidate in Statistics, is serving as a statistical consultant in the Computing Center. His office is 28 North Hall and hours are 9:30 AM to 4:00 PM daily. Please call him (3-0987) in advance for appointment.

We are pleased to announce that Dave Schempp has recently been promoted to Acting Computer Programmer Supervisor. Please contact Dave with questions arise with regard to debugging programs, system design, scheduling programming services, and on any other assistance required related to IBM 360 computer programming.

CHI-SQUARE PROGRAM (SP55)

The Computing Center has recently released a program (SP55) which calculates the Chi-Square statistic for a given contingency table.

The program outputs the following:

1. Contingency table
2. Row totals, column totals and grand total
3. Row and column proportions (optional)
4. Table of expected frequencies
5. Chi-Square statistic and the associated degrees of freedom

Contingency tables for input may be generated easily via the Multi-Purpose Descriptive Statistics program (SP44). For program documentation, please call our secretary, located in 26 North Hall.

FORTRAN FLOWCHARTING PROGRAM (SP88) NOW AVAILABLE

This program accepts all IBM 360 E LEVEL FORTRAN source decks and prepares a block diagram flowchart of the input program(s). This program handles most other FORTRAN subsets, and although some freedom is permitted in FORTRAN statement structure, it is not without limit. For restrictions and for optional program facilities, please contact our secretary for program documentation materials.

ADDITIONAL FACILITIES TO MULTIPLE REGRESSION PROGRAM SP22

1. SP22 may now be used for transgeneration of data inputted into the program by providing punched output. The punched output for each observation reflects the variable values after transformations (if any) are made. This option may be utilized by providing the following information in the 'PROB' card:

Column 75 Punched output designator
1 = punched output
0 = no punched output

The punched output format of SP22 is as follows (5D14, 6, 2I5):

Columns 1-14 = value of variable 1 (also used for variable 6, 11, 16, etc., on the 2nd, 3rd, 4th card, etc.)
Columns 15-28 = variable punching position 2 (for variables 2, 7, 12, 17, etc.)
Columns 29-42 = variable punching position 3
Columns 43-56 = variable punching position 4
Columns 57-70 = variable punching position 5
Columns 71-75 = card number within observation (1, 2, 3, etc. --- this number begins with 1 and is increased by 1 for every additional card within the observation indicated in Columns 76-80.
Columns 76-80 = Observation number (this number begins with 1 and is increased by 1 for each additional observation)

Note: a) The use of this option does not deter one from requesting any other option, therefore regression equation solutions, and the various matrices may be obtained as before.

b) The use of this option increases the input read time by approximately 35%.

2. The SP22 'PROB' card should now indicate the number of format cards that follow (see below):
Column 76 = number of format cards (if this column is left blank, '1' is assumed)
3. SP22 has been increased in capacity in that it may now handle 70 variables and 99 transformations.

4. SP22 now has the facility for punching out the residual table (the Y value, the Y estimate and difference between the two). This facility is an extension of the options already available in column 17 of the 'REGR' card. Another facility added provides a plotting routine for the residual table. Here the Y, \hat{Y} and $(Y - \hat{Y})$ values are plotted against the observation number. A maximum of 101 observations may be plotted --- if this is exceeded, an appropriate message is printed and no plot is provided. The observed Y value is identified by an '0', the estimated Y value by an '*' and the residual value by an 'R'. Should any of the 3 characters above happen to have the same coordinates, only the last character (in 0, *, R order) will be printed. The options now available are summarized below (note that options 0, 1 and 2 remain the same):

Column	17	0 = no residual table or Durbin-Watson statistic
		1 = print Durbin-Watson statistic only
		2 = print residual table and Durbin-Watson statistic
		3 = print residual table only
		4 = punch residual table and option 1 above
		5 = punch residual table and option 2 above
		6 = punch residual table and option 3 above
		7 = plot residual table and option 1 above
		8 = plot residual table and option 2 above
		9 = plot residual table and option 3 above

Requests for options 1-9 above assume that the 'PROB' card has been punched with a '1' in column 66.

The punched output format for the residual table is as follows

(3D23.15, I6, I4):

Columns 1-23 = Original Y value

Columns 24-46 = Y estimate

Columns 47-69 = Residual value ($Y - \hat{Y}$)

Columns 70-75 = Observation number

Columns 76-79 = Regression equation number

Note: If you use the options now available in items 1 and 4 above, please indicate that punching will occur (see the section on Computer Input/Output conventions).

LINEAR PROGRAMMING SYSTEM (LPSS)

The Linear Programming package mentioned in the last newsletter now has been received and is operational. This package resides on disk and it may be simply invoked by using the following job control cards:

```
//bJOBbnnnn
```

```
//bEXECbLPSS
```

(Linear Programming source deck)

```
/&
```

(here punching begins in column 1, b = blank, and nnnn = SPCCC account number)

Individuals submitting LPSS computer runs must place their inputs in the tray labeled 'LPSS Input'. The output of LPSS will be placed in the standard output location. The maximum capacity of this system is 1500 rows and the column capacity is restricted to the disk space available (presently set at approximately 1000 columns --- capacity here depends somewhat on the non-zero element per column). The system is dynamic in nature --- when the number of rows is reduced, the number of columns may be increased.

```
* * * * * * * * * *
* The Linear Programming system provides a mathematical technique *
* for determining the optimum allocation of resources (such as capital, *
* raw materials, manpower, or other facilities) to obtain a particular *
* objective (such as minimum cost, maximum efficiency, etc.) when *
* there are alternative uses for the available resources. *
* * * * * * * * * *
```

The Computing Center is sponsoring a LPSS class later this summer. The time and date for this class have not yet been determined. Those wishing to attend this class should indicate their desire to do so by placing a call to our secretary (3-0987), giving her their name and phone number.

Should anyone wish to make use of the Linear Programming package, but is unfamiliar with its parametric language, please see our Computing Center Personnel.

COMPUTER INPUT/OUTPUT CONVENTIONS

We request that 360 computer users who submit jobs that require non-standard input/output equipment and/or special considerations (magnetic tapes, punch output, special forms, lengthy computer runs, etc.), indicate these special requests on a blank card. This blank card containing the appropriate message to the computer operator should be placed on end in the job deck. If you wish to have this card returned to you, please indicate 'RETURN' and your account number. It is to the user's advantage to forewarn the operator of non-standard runs, so he may properly stack them in computer job stream and also ready the necessary equipment and/or materials beforehand, thus avoiding any unnecessary clocking of time while a given job is being run. Non-standard runs do not change the normal runaround time or the priority of your computer run.

All computer runs which utilize only the card reader, the printer and disk files 4, 5 and 6 are classified as standard runs and with this type of run, nothing special should be brought to the attention of the computer operator ---unless, of course, the run is lengthy or requires special printer forms and carriage tapes.

NEWSLETTER MAILING LIST CHANGES

If you wish to be included in our newsletter mailing list or wish to remove your name from the list, please fill out the following form and return to Mrs. Eva Klein, 26 North Hall. If you have any colleagues to whom the newsletter might be of interest, please show them this issue.

Name _____
Dept. _____
Campus Address _____

Name _____
Dept. _____
Campus Address _____

COMPUTING CENTER FACILITIES QUESTIONNAIRE

We are interested in providing the best service possible to all facility users within the limitations of the resources at our disposal. To properly evaluate the various types of service we provide, it is necessary to obtain the users' point of view. We request your cooperation in completing the following questionnaire and return it to 26 North Hall or drop it in the SPCCC Suggestion Box. Although we may not be able to respond to all of your suggestions or be able to make immediate changes, we will be aware of the user needs and will take these into account in any future planning.

SPCCC QUESTIONNAIRE I

7-21-69

1. Are you currently using our Computing Center facilities? yes no
2. Do you anticipate using our Computing Center facilities within the next year? yes no
3. Do you use other computing facilities off this campus? yes no
4. Should there be more Computer Science courses offered for credit on the St. Paul Campus? yes no
 What type _____

5. Should the Center offer more orientation sessions or short courses? yes no
 What type _____

 Would you attend? yes no

 When should these be scheduled to meet your needs

6. Do you have any suggestions for the improvement of the following services/products:

 Key punching _____

 Programming _____

 Computer Operation _____

 Data Processing materials _____

 Other _____

7. Please provide any additional information on the back of this questionnaire, that you feel is important to the overall needs of the user of the St. Paul Campus Computing facilities.