N-183
9JUN75

UNIVERSITY OF QUEENSLAND

Prentice Computer Centre

NEWSLETTER

Authorisation: Director of the Prentice Computer Centre.

1 CHECK POINTING AND RECOVERY PROCEDURE

Users are expected to include adequate check pointing and recovery facilities into their programs where lengthy production runs are involved. For this reason, the Centre has limited its liability to a maximum credit for a re-run due to system failure to twenty minutes. In a time sharing system run times will vary significantly with the load on the system and there are time wasting administrative problems involved in negotiating credits on large production jobs particularly where adequate check pointing and recovery procedures have not been included. The maximum claim for a re-run as a result of a systems failure has therefore been established at $40. This may be of assistance to users in their planning of large production jobs.

2 MINIMUM CHARGE EXTERNAL USERS

One of a number of conditions which apply to external users is that we should receive a revenue of at least $100 per annum to compensate for the overheads of maintaining an account. This has been difficult to control and it has been decided that a minimum charge of $10 per month will apply to all external user charge accounts.

3 AIR CONDITIONING MAINTENANCE

Our airconditioning plant has given sterling service since it was commissioned in 1962. The stage has been reached when major maintenance is required. This will take place during July. We hope that there will be little interference to our normal operation.

4 FILE SPACE

The shortage of file space on the public disk system has meant that we have had to purge more frequently (the purge period is now 21 days) and delete a variety of non-essential files from the public area.

Strangely, the problem is directly related to the shortage of Computer Room accommodation. We do have additional disk drives, a disk controller and data channel to be connected to the system but currently we have no space on the computer room floor. We hope that by the end of the year we can remove the GE225.

We are aware also that the File Migration System needs revision to improve retrieval response and lower costs. This project has been commenced but version 2 of FMS is unlikely to be available before the end of the year.

There has been a tremendous growth in usage of the system and in a situation of limited resources of all kinds, there has been significant pressure on the Centre. We must rely on the help of our users to meet these problems which are, we hope, of a temporary nature. Your co-operation in the following areas will be greatly appreciated.

(a) Do delete all non-essential files at the end of each run.

(b) Do archive any files you are not going to need for some time.

(c) Do not 'beat' the system by circumventing current procedures. Under present circumstances we have the file system under continuous review and such strategies are obvious.

Periodically, we will delete "garbage" files of the following types *.TMP, *.MAP. Files of the following types will be queued and then deleted *.LOG, *.LPT, *.PLT. Such queued listing or plot files will be kept for a short period before disposal.

We would be most reluctant to shorten the purge period still further and with the co-operation of all this should not be necessary.

5 STORAGE SPACE FOR CARD DECKS

The Prentice Computer Centre is not only short of disk space, but of space to put practically everything from people down. Some users have become accustomed to leaving card decks at the Centre between runs. We really do not have the space for anything but the transient storage of card decks and would ask all users to remove their card decks after runs.

6 INTRODUCTORY FORTRAN COURSE

The Centre will be conducting an Introductory Fortran Programming course during the mid-year break over the week of 21st to 25th July.

The course will commence at 9.00 am in room B18 of the Hawken Building and occupy each morning (9.00am-1.00pm) of the week.

The course will be free of charge to staff and post graduate students of the University of Queensland and Griffith University, and available at a fee of $40 to others.

Those wishing to attend the course should make application on the 'Nomination for Computer Centre Course' forms available at the enquiries window at the Centre. Nominations close on 18th July.

7 BMDØ5M and BMDØ7M - MAHALANOBIS D SQUARE STATISTICS

(a) The statistic V in the BMDØ5M program is a Hotelling generalized T_0^2 statistic and should not be thought of as a "generalized" Mahalanobis D-Square statistic. In the case of two groups, V (or T_0^2) is a version of the standard Hotelling T^2 statistic (see Anderson, 1958, pp 108-9) and can be written as

$$\frac{N_1 N_2}{N_1+N_2} \Delta^2$$

where $\Delta^2 = (\bar{X}_1 - \bar{X}_2)' D^{-1} (\bar{X}_1 - \bar{X}_2)$

is the Mahalanobis 0-Square statistic (See Rao, 1973, p 566).

Also, for any number of groups, the χ^2 distribution for V holds only if D is the true common population covariance matrix, or holds approximately if ΣN_i is very large. In general, the Hotelling generalized T_0^2 statistic is given by

$$T_0^2 = \nu_2 \text{ tr } HG^{-1}$$

where H and G are independent mxm Wishart matrices with common covariance matrix and degrees of freedom ν_1 and ν_2 respectively.

The statistic V in BMDØ5M can be written in this form with

$$H = \sum_{i=1}^{g} n_i \, (\bar{X}_i - \bar{X}) \, (\bar{X}_i - \bar{X})'$$

with $\nu_1 = g - 1$ degrees of freedom, and

$$G = (\sum n_i - g)D$$

with $\nu_2 = \sum n_i - g$ degrees of freedom.

(b) In the BMDØ7M program, a Mahalanobis D-square statistic is calcualted for each pair of groups. This usage is correct, and the F distribution is exact (assuming normal theory). It should be pointed out, however, that

$$\frac{n_m \, n_i}{n_m + n_i} \, D^2_{mi}$$

is a Hotelling T^2 statistic. For comparing more than two groups the Wilks Λ likelihood ratio test statistic and its F approximation are given.

Reference. Anderson, T.W. (1958). An Introduction to Multivariate Statistical Analysis, New York, Wiley.
Rao, C.R. (1973). Linear Statistical Inference and its Applications 2nd ed. New York, Wiley.

8 NEWSLETTER DATED 15 MAY 1975

This Newsletter was numbered incorrectly and should be N182.

* * * * *