



PRENTICE COMPUTER CENTRE

UNIVERSITY OF QUEENSLAND

ST.LUCIA

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NEWSLETTER

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authorisation: Director of the Centre

1.0 AVAILABILITY OF COMPUTER RESOURCES

The Vice-Chancellor in a memorandum of 4th April to all Heads of Departments and Heads of Sections in the University covered aspects relating to current issues on the availability of computer resources. It is reprinted here for the information of all users.

"During the past twenty years there has been a revolution in the application of computers in all areas of society. Teaching and research programmes as well as administrative procedures have partaken of this revolution and, all indicators suggest that there will be continuing growth in the application of computing technology. At this University, the capacity of the central computing facility together with the substantial capability of mini computers in departments provide excellent growth potential for further development.

During the past eighteen months the facilities available within the University have been transformed. This has caused transitional problems in making full use of the significant additional capacity now available through the Computer Centre following a period of saturation of the available capacity in 1976-77. Problems have been reported relating to our charging systems, the allocation of funds, the inadequacy of accommodation, safety issues, hours of operation and the need for education of users and potential users.

These problems are not beyond solution and a number of positive actions have already been taken. Charges for central computing resources have been and will be further reduced to reflect the gains in productivity of the new central computing equipment. The effect of such charge reductions in 1978 and 1979 will mean that 30 to 40 per cent more work can be done with the same dollar expenditure as in 1977. A special fund has been established to encourage innovative use of computing in teaching and research and each department may utilize up to \$100 per annum of computer time for trial and practice use of the central computer.

The 'real' money charging system adopted initially by this University has, I understand, been a matter of contention. I am well aware of the general issues, having been involved a few months ago in reviewing computing policy elsewhere. In universities throughout the world computer usage has come to be rationed at a time of declining real university resources. Rationing systems allow ordered development of large capital investments in central computing facilities. There are now few universities where free access is available to the central computing facility. Some universities have moved into a rationing mode through the allocation of "computer dollars" or

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"funny money" in order to control expenditures. Others have moved to 'real money' charging. One benefit of 'real money' charging is that priorities of University expenditure have to be assessed at the department level; another is that it places pressure on the University Computing Centre and users to be efficient. The charges have to be realistic, and in this University both charges and the Computer Centre's budget are annually reviewed both by the Prentice Computer Centre Management Committee and the Finance Committee of Senate.

I do not believe that the basic problem is one of charging; rather it is one of fund allocation. After all, total receipts from departments by the Computer Centre amount to only 0.7 per cent of the University's overall expenditure and this level is unchanged from four years ago. It may of course be too low. On a plan of ordered development to reach new saturation of the central computer by 1982, it is feasible to contemplate an annual growth rate of 25 per cent for the Centre. This should provide a 40 per cent growth per annum for teaching and research. This growth rate can be sustained by a 3 per cent per annum growth in real costs, allowing for significant charging reductions for all users.

I was surprised to find the Computing Centre was unavailable at weekends. I was also surprised to find that computer science students had to provide personal funds to complete assignments. I recognise that the Centre does not have fully adequate accommodation and that there are problems of safety and security related to the present accommodation. It is also necessary to allow for shutdowns of the equipment to permit regular maintenance not only of the equipment itself but of air conditioning equipment and software, which preclude continuous access to users. Nevertheless, I think that it is important that the current situation should be improved as significant research, in my experience, is frequently undertaken outside the normal working week of the University. I have arranged therefore with the Director of the Prentice Computer Centre that the Centre should provide, at least on a trial basis to assess usage, a limited Sunday service. This accessibility should also aid students, particularly in the Computer Science programme. This new Sunday service will commence on the 15th April and the system will be available between the hours of 9 a.m. and 5 p.m. While no operator functions will be performed, a programming consultant will be on duty to assist academic staff should problems develop. With the aim of giving maximum assistance to research projects involving large amounts of computation, the core available will be 100K. The charge for Sunday working will be one-quarter of the base rate. Although there will be no mounts of magnetic tape or disk packs and no printing services available at this time, it is anticipated that a self-service printer for output of 20 pages or less will be provided later in the year, provided that the

service is seen, through usage, to be worthwhile. The continuation of the service will depend therefore on a review of usage and adequacy at the end of this semester.

In this letter I have emphasised the use of the central computing facility. I am aware, however, of the significant mini computer facilities now available in many departments. It is important that these systems be used effectively to advance the specific research areas for which they are purchased rather than that they should be used to perform work which can be more effectively performed on the central system. In speaking to the Professorial Board two weeks ago, I said that I expected to appoint a small committee to review and to report to me as soon as possible on all aspects of the availability of computing within the University together with appropriate recommendations of ways of improving computing accessibility to meet present and future needs.

Unless vastly greater funds are provided to the Computing Centre in the future, problems of access will inevitably continue. It is my hope that these can be minimised and rectified where possible without undue delay. It is important, however, for everyone to realise that additional funds allocated to the Computer Centre have to be found from the General Recurrent Funds of the University and I feel that it is only realistic charging for use that optimal decisions between the various priorities within the University can effectively be made."

Director
extension 2189

2.0 PRIVATE DISK MOUNTS ON SUNDAYS

In the last Newsletter (2nd April), we announced that the System would be available on Sundays on an unattended basis, that is, there will be no operator services such as disk and tape mounts. However, if users wish to have access to private packs on any Sunday they may notify their intention by the previous Friday and effectively book a disk drive for the day.

We offer the service on a first come first served basis because there are only a few free drives. Private packs will be mounted on their drive on the Friday evening and will be then available throughout the following Sunday. Users will have to issue the usual MOUNT command to access their disk.

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To book a drive, ring Glenda Black on extension 3212.

John Barker
extension 3016

3.0 NEW STATISTICAL PACKAGES

Two special interest packages have recently been put up on the System. One of these - the GLIM system came to us via the Mathematics Department and is now available on STA: for general usage. The other, an on-line modelling laboratory MLAB was acquired before Christmas by our Systems Analyst John Barker whilst overseas.

GLIM was developed originally as a framework for the fitting of generalised linear models to data. But it also contains facilities for data manipulation, transformation and selection, which make it suitable for uses such as general data exploration. The Kernal of GLIM is the algorithm for the fitting of generalised linear models. This provides a unified framework embracing classical linear regression models with normal errors, log linear models for contingency tables, logit and probit models for the analysis of proportions, and models with gamma errors. Model specification is simple but powerful, allowing refinements such as prior weights and fixing of certain parameter values. The facilities of GLIM in iterative weight least squares can be used to program many robust regression procedures, and such a procedure, once developed, can be stored as a macro for future use.

MLAB is an interactive system for mathematical modelling. To quote the handbook the heart of the system is a new linear curve fitting program which will adjust the parameters of a model function to minimize the sum of squared errors. A repertoire of mathematical operators and functions, a collection of routines for teletyping and CRT plotting, and mechanisms for saving data between sessions provide a powerful and convenient environment for data manipulation, arithmetic calculations, and for building and testing models.

A feature of MLAB is that the user need only supply the function it is desired to fit - derivatives are not required. MLAB symbolically evaluates and computes the derivatives as needed.

Any further enquiries on either package may be made to the Centre.

Chris McGovern
extension 3944

4.0 STP PROBLEM

Recently, it was brought to our notice that the "ASSIGN" command in STP - which assigns output to the line printer, was not working on the KL system.

This has now been corrected but whereas an "assign" command on the KA automatically queues and prints the file, the KL version leaves this file as S?????.DAT on-line to be queued when and if desired by the user.

5.0 COURSES AND SEMINARS

5.1 Courses

The following courses have been arranged for the mid-semester and mid-year breaks. The limit on each class course is 20 people and interested people should reserve a place with the secretary (extension 2189). Please do not book for several courses if you do not think you can manage them; in the past users have done this and then dropped out of a course too late for us to allow other interested people to come instead. Courses are available free to University of Queensland and Griffith University staff and post-graduate students, and at a fee to others.

Mon. 14 May-Thur. 17 May	9.00am - 12.00am	Runoff	\$40
Mon. 9 July-Wed. 11 July	9.00am - 12.00am	SPSS	\$60
	2.00pm - 5.00pm		
Thur. 12 July-Fri. 13 July	9.00am - 12.00am	Other Stats	\$40
	2.00pm - 5.00pm	and Maths	
Mon. 16 July - Fri. 20 July	9.00am - 12.00am	Packages	
	2.00pm - 5.00pm	Introductory	
Mon. 20 Aug.-Fri. 24 Aug.	9.00am - 12.00am	Fortran	\$100
	2.00pm - 5.00pm	Advanced	\$100
		Fortran	

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Mon. 27 Aug.-Thurs. 30 Aug. 9.00am - 12.00am Runoff \$40

There will be no introductory course held in the mid-year break. Users intending to come to the SPSS and Introductory Fortran should attend the seminars on batch, terminals and edit.

Runoff Course

This has been extended to four mornings to allow an easier introduction to machine basics before discussing text preparation via Runoff.

SPSS

This is the audio visual course from Newcastle-on-Tyne University. The course is basically batch oriented but there will be a terminal session towards the end of the course. Users should attend the seminars on batch (May 30), terminals (June 13) and editing (June 20 and 27) if they wish to attend this course. This is a beginners' guide to SPSS. It is not intended for users with some prior experience of SPSS who desire an introduction to more advanced options available in SPSS. If there is a demand these could be covered in seminars at a later date.

Other Statistical and Mathematical Packages

This is designed to show people the statistical and mathematical packages available on the system, and how to use these packages.

Introductory Fortran

This course is the audio visual University of London course. Users will be required to buy the manual for this course which is available for \$3.20. Users should also attend the seminars on terminals (June 13) and editing (June 20 and 27) before attending this course.

Advanced Fortran

This is designed for users having knowledge of Fortran who wish to improve their programming ability. Users must have previously attended an Introductory course or have some Fortran programming experience.

5.2 Seminars

The Centre has organized a number of weekly seminars from May until the end of the Year. These will be held each Wednesday afternoon from 4.00 pm to 5.00 pm in Room 214 of the Hawken Engineering Building.

The following topics have been arranged but could be replaced should other more critical issues arise. The Centre would welcome any suggestions from users interested in some particular feature. There will be no limit on attendance at these seminars.

May 2 BACKUP Program and use of magnetic tapes
May 9 Introduction to Minicomputers, Their Uses, Advantages
 and Costs.
May 16 VG data package
May 23 Data Logging with PDP-11s
May 30 Batch Processing
June 6 Data Communications, Plans for PDP-10 and PDP-11s
June 13 Terminal Use (Control characters, SETSRC, Switch.ini
 etc.)
June 20 Basic Edit
June 27 Advanced Edit
July 4 Student Accounting
July 11 Mid Year Break - no seminar
July 18 Mid Year Break - no seminar
July 25 Plotting Facilities available from Fortran
August 1 Microprocessor Development Facility
August 8 CHESTR - file dumping and examining program

6.0 BATCH PRIORITIES

Some recent misunderstandings on the part of a few of our users prompt us to take the opportunity to explain again the relationship between batch priorities, turnaround time and charging factors.

The priority system is designed to encourage users to make maximum use of the computer outside of the prime day-time shift and at the same time saving themselves real money. On the other hand urgent work may be processed more or less immediately but the cost is relatively high. Often a little planning on the part of users to avoid the need for urgent processing can result in significant cost reductions.

Priorities are assigned by selecting a code in the range of 1 (low) to 62 (high). Priority codes apply to batch jobs and spooling functions, ie. printing and plotting. If no priority code is actually assigned, e.g. when printing a file, then the system assumes the default value of 10 which sets "normal" priority.

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Low priorities cause the cost for the job to be reduced but also the expected turnaround time is increased.

The point we wish to make is that the various priority codes (together with some other factors such as the size of the job) determine the order in which jobs will be selected for processing not the absolute time between requesting the job and collecting the output. Generally, however, the Centre is able to keep within the published times (see the table below) especially for batch runs and printing. Turnaround times for plotting on the other hand are more variable. During semester users may expect plotting jobs to take up to five hours at the normal priority 10. This is because plotting is inherently slow and some jobs involve a number of plots.

The following table is from the Centre's General Information Manual, MNT-1.

Priority code	Pricing factor	Nominal service
1 - 2	.25	Weekly turnaround
3 - 4	.5	Overnight turnaround
5 - 9	.7	Better than overnight turnaround but processing does not commence until after 1800 hours
10	1.0	One or two hours turnaround depending on load and size of job. The normal priority if a user omits the priority switch.
11 - 20	1.5)
21 - 40	2.0)Super
41 - 60	3.0)Priorities
61 - 62	4.0)

Note: The lowest priority rate does not apply to printing and plotting functions. If an attempt is made to use priorities 1 and 2 for these functions the system will automatically change the pricing factor to that for priority 3 and 4.

John Barker
extension 3016

7.0 TERMINAL RELATED PROBLEMS

From time to time users report difficulties with LOGIN or with some function of their terminals which seem only to be intermittent. For instance, LOGIN may appear not to work and a strange message such as "may not log in local" is typed, or perhaps the horizontal tab no longer works after successfully logging in. Usually the procedure to cure the problem is simple; this article explains why these problems might occur and what to do about them.

For each terminal connected to the system the monitor maintains a small associated table called a Device Data Block or 'DDB', which contains individual terminal characteristics. These characteristics are necessary so that the monitor can communicate sensibly with each terminal and they include the output line width, whether the terminal has tabs, whether it is a remote or local (ie. Computer Centre) terminal, the terminal line speed, etc.).

Terminal characteristics are stored in a system file and are changed by the Operators from time to time for various reasons including user requests and connections of new terminals. The terminal DDB's are set up automatically each day at system start-up by the program INITIA which references the terminal characteristics file.

Normally the link between each terminal and its DDB is unaltered throughout the day, but occasionally, often because a node in the system has failed and been reloaded, some terminals become associated with DDB's containing inappropriate characteristics. Consequently, these terminals may not respond as normal.

The speed at which terminals communicate with the System is another characteristic which can vary and sometimes causes problems. The System must transmit and receive characters at the same speed as the terminal to communicate properly.

Many terminals may be set locally to operate at speeds ranging from 110 to 9600 baud. The system has an "auto baud detect" facility which allows it to automatically detect and set the speed at which the terminals are operating. After setting the speed in this manner for any given terminal, auto baud detect is switched off. If subsequently, the relative speeds are changed for any reason, then there will be difficulty in starting up again.

The normal procedure prior to logging on is to type a couple of ^C's or carriage returns. The system will use these characters to adjust its line speed to that of the terminal if

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auto baud detect is on. The usual response is ".". If this doesn't happen, auto baud detect may be turned on by typing the 'BREAK' key a few times before the ^Cs. If still no luck, and the terminal has the facility, try changing its line speed to 300 baud temporarily (if it isn't already at 300 baud) and try again. If there is still no response you had better call the Centre (extension 3212) and check whether the system or your particular node is up and running.

If the line/terminal speeds are O.K. and the "." has been output but LOGIN fails, try running INITIA, ie. type

.I <cr>

then try LOGIN. If there was a problem with the terminal DDB, then running INITIA before LOGIN will reset the DDB correctly. INITIA should also respond with a line like -

```
PRENTICE KL 603A  2 16:54:05 TTY113 SYSTEM 1189
```

which indicates that it has run as expected.

Following LOGIN, if there are odd effects such as the TAB key apparently not working, try running INITIA, as above and try the tabs again.

If you are still experiencing no joy, then ring the Centre.

John Barker
extension 3016

8.0 STATISTICAL PROGRAMS

Attention users of Professor Stevenson's Fortran source library of routines on STA: A number of new and improved routines are now available on NEW:, also the DOC file "WSPROG.DOC" is now located on DOC:. One month from the date of this publication the files on NEW: will replace those currently on STA:.

G.A. Vandenberg
Program Librarian
extension 3943

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9.0 STATISTICAL PACKAGES

Eileen Lander has resigned from the Centre. I am sure many users will join with me in thanking her for the support she has given in the Mathematics and Statistics area. For the time being statistical support will be shared between Geoff Dengate (extension 3021) and Chris McGovern (extension 3944). Problems should be referred initially to the Duty Programmer on extension 3025.

Director
extension 2189

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