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Computer Facility NEWSLETTER

26 AUGUST 1969
Volume 2, Number 3

AUGUST STATISTICS

By 6 a.m., 22 August, some 15,094 jobs had been run through the 360/67. If this trend continues, this will be our biggest month yet since installation in April 1967. Our analyses show major programming systems used: 68% FORTRAN (equal parts FORTRAN IV and WATFOR), 8% GPSS, 4% COBOL, 3% PL/1. Also, the jobs were divided 80% testing and 16% production. The breakdown by execution time was 81% running under 15 seconds, 6.5% in range 15 - 30 seconds, 4.2% in range ½ - 1 minute, 5% between 1 - 5 minutes, 1% in 5 - 10 minutes and the rest accounting for 2%.

FACILITY'S ORGANIZATION - CHANGES AFFECTING USERS

Two recent changes in the organizational structure of the Facility will be of particular interest to users. Both are motivated by the desire to improve the services and communications between the user and the Facility. A new position has been defined as Manager, Operations. This person will supervise the operation of all the equipment and in addition will be responsible for the maintenance of the production operating systems. (See announcement below.) Also, a new group has been formed under Roger Hilleary, Supervisor, Applications Programming. This group, called User Services, encompasses applications programming, the consulting services and a new office, Information Services. Most of the latter functions will be handled in an office, In-147, staffed by M. J. Feuerman. This office will be the primary source of information for users on available literature and system facilities, and will perform systems accounting functions, including assignment of user and project numbers. Inquiries about the use of computers and facilities offered by the Facility, etc., should be taken to this office. Matters of a directly operational nature, suspected difficulties over computer runs, etc., should be referred to the Operations Group.

The Facility's programming efforts will still be divided functionally between Systems and Applications Programming, although actual programmer assignments will vary and will be on specific projects. Groups will be organized on a project management basis with overall administrative control being provided by the supervisors. Examples of current projects are OS/MVT maintenance and improvement, CP/CMS support, systems accounting, hardware utilization studies and graphics development.

NEW APPOINTMENT

David Norman joined the staff on 18 August in the newly-created position of Manager, Operations Group. He has considerable experience in operation and programming of IBM 360s both in commercial time-sharing and batch-processing environments. Please refer any questions, suggestions, or problems of an operational nature to him in Room 106 (ext. 2641).

CP/CMS

a. Recent Malaise

The system seems to be back to robust good health again after an unusual bout of sickness lasting 2 weeks or so. There were apparently two unrelated problems, one of a hardware nature connected with the switching of peripheral devices between OS and CP, and the other user-related. As you can imagine, it is extremely difficult to determine the cause of such failures in a general-purpose, time-sharing environment. Operational conditions are seldom duplicated with each failure. We are sorry for any inconvenience caused to users and thank you for your tolerance. The unusual incidence of failures was particularly irritating in view of our previous good experience with the system.

b. Saturation of Available Lines

Although there are fourteen 2741 terminals attached to the 360/67, only twelve of them can be in use simultaneously. This arises because of the present limitation on the number of communication lines at the computer end. Three of these lines are dedicated to the hard-wired terminals in the Facility. This leaves the eleven dial-up terminals in competition for nine available lines--and may mean that you are not able to get on the system. In such cases, the PT&T operator will inquire about the number you were calling. If you suspect this difficulty or have any other question about the operational status of CP/CMS, please call 646-2721 (Operator's Console) for information.

c. CP/67 System Responsibility

Please refer all inquiries, complaints, requests for space, userids, etc., to Mrs. Kathryn Strutynski, In-103, (ext. 2696). She has primary Facility responsibility for this operating system.

d. Recovery for Crashes

When CP/67 'crashes' for any reason, the system automatically dumps critical information on the printer for scrutiny by Facility and IBM personnel. Then the operators have the choice of reactivating the operating system by either a 'cold' or 'warm' start. A 'warm' start is attempted on all occasions, the objective being to recover as close to the point of interruption as possible, with no or minimum loss of information to the user. Thus, your private files are preserved intact as are all pending system I/O requests, e.g., for reading, punching and printing. All information which is filed under the user's name remains intact. If the system goes down while you are editing, you lose the latest changes, i.e., the data set appears as it was when last filed. CP has an excellent record for preserving the integrity (the in-jargon) of user files.

The elapsed time from crash to recovery varies and is dependent on the

availability of the punch and a printer. These have to be shared with OS, and it may take some time for OS to release them. We are investigating ways to speed this process without jeopardizing the security of your files.

ACCOUNTING DATA--CONFORMISM IS GOOD IN THIS CASE!

Our staff auditors tell us that there are still some users who are not providing complete and correct accounting data on their job cards. Please express your non-conformist spirit and individuality in your programming style and not on the job card! Of the 15,000 jobs run so far in August, some 476 were run but flagged as illegal, i.e., had data inconsistent with our records. Some 516 jobs were rejected by the operating system because the accounting data was wrong. It's in everybody's interests, ours for accuracy of utilization data and yours (if you want your job run) to give the correct information.

The specific requirements for the accounting field of the job cards were explained in the last issue and in announcements on the bulletin boards. Briefly, all jobs require a user identification number, project number and organizational group. The first two numbers, each of 4 digits, are obtained from Room 147, Ingersoll Hall. The third part is your section code provided by your curricular office--or departmental code in the case of faculty and staff.

The Facility's accounting process or program will recognize only authorized codes and legal accounting data. Illegal or erroneous entries are flagged in the daily analysis runs. In some cases, a program will run with incorrect information, but--you will be notified.

IMPROVED EFFICIENCY IN PLOTTING

The method of handling plotting internal to OS/MVT has been greatly improved. One important difference is that all intermediate output is held on disk rather than punched on cards for later processing. This is an internal system change which affects only those users who may still wish to derive a deck or are using a private plotting package. If you use the Facility's standard plotting procedures, no change is required of the user.

If you still want plotting decks for later use, you must override the standard procedure with the following card: //GØ.SYSPLØT DD SYSØUT=B
If you have any questions, please check the bulletin board in In-140 or ask a consultant.

ALLOCATION OF SPACE ON 2314 DISKS

The Facility's policy and procedural rules with respect to the assignment of user space on 2314 disk packs was defined in a memo dated 6 August 1969. Copies are available at the usual sources.

IBM'S 'UNBUNDLING'--"PSST, WANT TO RENT A COMPILER, MISTER?"

June 23, 1969, may well go down as an important date in computer history. On that day, IBM announced significant changes in policy and methods of doing business in the U.S. It marks the first broad attempt by a manufacturer to separate software support and support services from the hardware umbrella--popularly referred to as unbundling. In the future, IBM will charge for certain support services which have hitherto been provided 'free' with the equipment.

Such items include system engineering services (i.e., customer software support at rates up to $35 per man hour), data processing courses (prices ranging up to $1500)--and programs!

New programming systems announced after 23 June 1969 will be categorized as System Control Programming or Program Products. The former provides functions fundamental to the operation and maintenance of the system (e.g., loading, initializing, scheduling, supervising, and data management) and will continue to be provided free of charge. Everything else, classified as Program Products, relate to the application of a system to user tasks (e.g., language processors, utility programs, and application programs), will be available on an individual charge basis from IBM. Fortunately, present programs (Types I-IV) will continue to be provided free. However, in the future, installations will be paying for their FORTRAN compiler, subroutine packages, application packages such as MPS, ECAP, etc. So far, we haven't had the courage to estimate what it 'might' be costing us today for our several dozen such programs. In addition to selling (or rather, leasing) software, IBM will be getting into the software contract business.

Simultaneously with this announcement--ostensibly to compensate!--IBM reduced hardware prices by approximately 3%. Some customers are predicting that these changes may well increase installation operating costs by up to 25%. The financial implications at NPS will be bad enough this Fiscal Year despite the fact that their full effect will not be felt until January 1970. Educational discounts have been reduced to 10% for equipment and to zero for maintenance.

PROGRAM CONSULTING SERVICE - Room 146

We want to remind users that the functions of the Duty Consultant are to help by:

1. interpreting diagnostic messages from the operating system when the user cannot understand them;

2. to give directions and advice for use of subroutine libraries, and

3. to suggest diagnostic procedures for a user to pursue if he reaches an impasse.

At present staffing levels, it is impossible to provide complete diagnostic help for all installed languages and applications packages. Also, it is not intended that the Duty Consultants assist students with classwork exercises in programming or attempt to locate logical errors in the user's program. Further discussion of the present role of the Duty Consultant is provided in a Computer Facility memorandum, dated 9 January 1969.

RECENT ADDITIONS TO SUBROUTINE LIBRARY

The following programs have been added to the Source Library since the last Newsletter. Those programs beginning with a "W" have also been placed in WATLIB and can be called directly from a WATFOR program.

WNEWRA	ROOTS OF COMPLEX POLYNOMINALS BY NEWTON-RAPHSON (WATFOR)
EL3	ELLIPTIC INTEGRAL OF THE THIRD KIND, FOR N > 0

WDRECT	MINIMIZATION OF FUNCTION BY DIRECT SEARCH, HOOKE AND JEEVES (WATFOR)
WZACF	ZEROS OF AN ARBITRARY COMPLEX FUNCTION, TRAUB'S METHOD (WATFOR)
WQATR	INTEGRATION OF GIVEN FUNCTION BY TRAPEZOIDAL RULE WITH ROMBERT'S EXTRAPOLATION (WATFOR)
SIMDUB	DOUBLE INTEGRATION OF GIVEN FUNCTION USING SIMPSON'S ONE-THIRD FORMULA
WHPCG	SOLUTION OF GENERAL SYSTEM OF 1ST ORDER DIFFERENTIAL EQUATIONS, HAMMING'S METHOD (WATFOR)
RUKUER	RUNGE-KUTTA DIFFERENTIAL EQUATION SOLVER WITH ERROR BOUND
WALI	AITKEN-LAGRANGE INTERPOLATION (WATFOR)
WATSE	TABLE SELECTION OUT OF AN EQUIDISTANT TABLE (WATFOR)
WATSG	TABLE SELECTION OUT OF A GENERAL TABLE (WATFOR)
WATSM	TABLE SELECTION OUT OF A MONOTONIC TABLE (WATFOR)
WSIMQ	SIMULTANEOUS LINEAR EQUATION SOLVER (WATFOR)
LISA	LINEAR SYSTEMS ANALYSIS (DOCUMENTATION ONLY IN SOURCE LIBRARY)
OSPLOT	PLOT ON PRINTER, MULTIPLE CURVE
W4PLOT	PLOT ON PRINTER, MULTIPLE CURVE (WATFOR)
WSRTHO	HOLLERITH INFORMATION SORTER (WATFOR)
EXDIC	INTEGER TO EBCDIC CONVERSION

The following routine has been added to FORTLIB, i.e., it can be called from an OS FORTRAN program without obtaining a source deck:

ATSM	Table Selection out of a Monotonic Table

RECENT ADDITIONS TO COMPUTER FACILITY LIBRARY

The following books are some recent acquisitions of the reference library in In-162:

Title	Author
SEMINUMERICAL ALGORITHMS VOL II OF 'ART OF COMPUTER PROGRAMMING'	Donald E. Knuth
GUIDELINES TO DATA PROCESSING MANAGEMENT	R. Calvin Elliott
COMPUTER SOFTWARE	Geoffrey Knight, Jr., Editor
COMPUTER LITERATURE BIBLIOGRAPHY, VOLUME II	National Bureau of Standards
COMPUTER SELECTION	Edward O. Joslin
TELECOMMUNICATIONS AND THE COMPUTER	James Martin
DESIGN OF REAL-TIME COMPUTER SYSTEMS	James Martin
PROCEEDINGS OF THE SIXTH ANNUAL PERSONNEL RESEARCH CONFERENCE, 20-21 JUNE 1968	ACM (SIGCPR)
PROCEEDINGS OF THE 5th NATIONAL CONFERENCE	The Computer Society of Canada
PL/1 COMPARATIVE EVALUATION, VOLUMES I & II	R. J. Rubey, et. al.
THE SCIENCES OF THE ARTIFICIAL	Herbert A. Simon
PROGRAMMING LANGUAGES: HISTORY & FUNDAMENTALS	Jean E. Sammet

AVAILABLE HANDOUTS FROM THE COMPUTER FACILITY - Room In-140

The following is a list of all current handouts generated by the Facility:

	Title	Dated
1.	The Duty Consulting Service	9 January 1969
2.	Utilization of Public Disk Storage	6 August "
3.	Data Sets Residing on the 2311 Disk Packs	18 July "
4.	WATFOR 7 - Errors (Corrected & Uncorrected)	July "
5.	360 WATFOR Compiler Error Messages	1 July "
6.	Preparation of WATFOR Jobs	July "
7.	Job Preparation for OS/MVT	July "
8.	Ordering of Type I, II, III & IV Programs, IBM	7 July "
9.	An Introduction to CP/CMS	July "
10.	A FORTRAN Programmer's Introduction to CMS - undated - with Supplement dated 12 February 1969	
11.	Directory for IBM System/360 Source Library	15 June "

12.	Computer Equipment	April 1969
13.	General Graph Output Subroutine	Revised July 1967
14.	User's Guide to the WATFOR FORTRAN Compiler	July 1968
15.	System/360 Programming Packages and Compilers in OS/360 at NPS	January 1969
16.	BRUIN User's Guide	September 1968
17.	Summary of BRUIN Commands	16 September 1968
18.	INTEG2	Revised January 1968
19.	Users of DRAW and Plotting Package	15 August 1969
20.	Guide to Use of IBM 029 Card Punch	June 1969
21.	IBM 514 Reproducing Punch	July 1969
22.	The IBM 082 Sorter	July 1969
23.	Job Control Cards for Use of the MPS/360	Undated

Distribution:
List 4
Less B-5, C-1, L-2, L-3, L-4
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Add S-1
50 Copies to Code 0211