DS T SEMINAR ON

Application of Computers to Bibliographical

Information Processing: Some Developments in India

(Bangalore) (10-13 July 1978)

A DESCRIPTIVE ACCOUNT OF BIBLIOGRAPHIC DATA BASE
ON HP 21 MX COMPUTER SYSTEM AT IPAG, ELECTRONICS
COMMISSION, *NEW* DELHI

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A bibliographic data base for books
has been developed at IPAG, Electronics Comm-
ission, New Delhi on HP 21 MX Computer system
for in-house utilisation on an experimental
basis. The system uses IrMGE/2000 data base
management system software. Emphasis is given
to retrieval by keyword(s) and/or UDC Number(s).
The data base consists of three data sets ,viz.
manual master set, detail data set, and automatic
master set. The documents are classified
by UDC scheme and keywords are assigned from a
self-generated vocabulary list, based on various
thesauri. The reports generated from the data base
are: (1) Main list (According to broad UDC
Number(s), (2) Keywords grouped according to
UDC numbers, (3) Alphabetical list of subject
fields with corresponding UDC Numbers, (4) List of
UDC search-keys with corresponding subject
fields, (5) Alphabetical list of keywords, (6)
Sorted list (Accession Number wise), and (7)
Updates. General queries are satisfied by ~he use
of Report 10.3, 4 and 1 manually. Specific queries
demand use of Report Numbers 3, 4, 2 and/ or 5 for
subsequent computer retrieval.The

details of the input procedure, .formulation of
the s8arch profile and parameters for retrieval
are given. AdvantagF9 of the system are, also,
mentioned. Specimen copies of Input worksheet
various data base reports (Computer outputs),
Proforma for search request and Retrieval
reports are enclosed as Appendix.

O

INTRODUCTION

Electronics Commission has envisaged a computer
network infrastructure for enabling the development of
interactive computerised databases for various
organizations of the Government of India. The objective is
to establish the feasibility of a system for the provision
of detailed information to Government bodies and to assist
them in making decisions relating to the country's economic
and social development planning. and programme implemen-
tation. For this purpose, a strong documentary information
support is being provided by establishing a large
bibliographic data base which has a direct bearing on
Government Management Information System. This data base
apart from its in house utilization at IPAG, Electronics'
Commission, can also be made use of by other user Depart-
ments participating in the Government Management
Information system through their own terminals. To begin
with, a data base of about 1000 books, on experimentai
basis, has been developed with the computer configur2tion
available at IPAG. The data base and its retirieval
procedure is f0und working satisfactorily with a small
group of users. Such a data base, having subject access
through combination of

keywords and UDC Numbers is found to be more effective'
in document retrieval. Also, the availability of various
reports to user at his desk enables him to exploit the
library resources more efficiently. This paper describes
the details of the data base established and how the
retrieval is achieved.

1   COMPUTER SYSTEM AT IPAG, ELECTRONICS COMMISSION:

        IPAG, Electronics Commission has, at present,
HP 21 MX computer system, on which library data base is
being maintained. The system has 16 bit word 32 K CPU
memory, two tape drives, two disc drives, one card reader
and one liner printer..A console teletypewriter provides
online interaction. The system provides IMAGE/2000 Data
Base Management System. IMA GE/2000 is a set of software
                *
modules designed to provide the user with a general purpose
framework for defining, accessing, modifying, and reporting
on data arranged in structures known as data bases. A
Data Base using IMAGE/2000 is always created and maintained
on disc cartridges and can be accessed by simple commands,
such as, FIND, REPORT, ALTER, UPDATE etc., as well as, by
FORTRAN IV.
        An IMAGE/2000 data base consists of three types of
data sets, viz., (i) Detail data set, (ii) Manual Master
set, and (iii) Automatic master set. Each set consists of
key or key and non-key items. The key item is that item
of the data base through which the sets are linked. The
detail data set is linked to both the master sets by key
items. (Kef. Fig. 1,). The system, also provides a soft-
ware package, 'QUERY ' which facilitates online retrieval

with respect to key and non-key items.

2   DETAILS OF INFORMATION FOR EACH ENTRY OF THE DATA BASE

Presently, book collection is being put on the data base with the following details:

1. Accession Number (5 chrs), 2. UDC Number (30 chrs), 3. IPAG Classification Number (4 chrs), 4. Author (39 chrs), 5. Title (71 chrs), 6. Year of publication (2 chrs) and 7. Keywords (24 chrs).

Each of the document, in addition to the above mentioned details, gets one more UDC number which is called as UDC search key. This UDC search key may be complete UDC number or part of the UDC number assigned for the document. A specimen input worksheet is given as appendix I. Accession Number is given as first field in each card for record identification and card number is given as the second field for controlling the card sequence in a record. Besides accession number and card number, card ho.1 contains UDC Number, IFAG Classification Number, and Author(s) and Card No.2 has title and year of publication. The keywords and UDC search key are given on card No.3 onwards, three keywords per card. The number of cards per document will depend on the number of keywords assigned to it.

3   ACCESS TO THE DATA BASE:

The keywords and UDC search keys (i.e. subject approach) have been given high priority for retrieval

purpose and hence these two are made as key items in the data base. The data base can, also be accessed by non-key items, viz., UDC Number, IPAG classification Number, Author(s) and Title, in which case- search is made sequentially and hence will be comparatively slow. Any number of keywords may be assigned to a document. While assigning the keywords for each of the document, efforts have been taken to index important chapters, articles of the publication. This type of exhaustive indexing will be useful for retrieving documents for very specific queries.

4   STRUCTURE OF THE LIBRARY DATA BASE:

Library data base has 3 data sets as,

1. Manual master set known as REF.

2. Detail data set, known as KEYCHN.

3. Automatic master set, known as AUTOKY.

The Manual Master set -REF contains 5 data items, viz., (1) Accession Number (NACC), (2) IPAG class number (NCLAS), (3) UDC Class Number (NUDC), (4) Author (AUTHOR), (5) Title (TITLE). The detail data set - KEYCHN .contains 2 data items viz., (1; Accession number (ACC), and (2) Keywords (KEY),. The Automatic Master set - AUTOKY contains only one data item, viz., keywords (KEYA)- Fig. 1 shows the structure of the library data base indicating the linkages between the 13 sets.
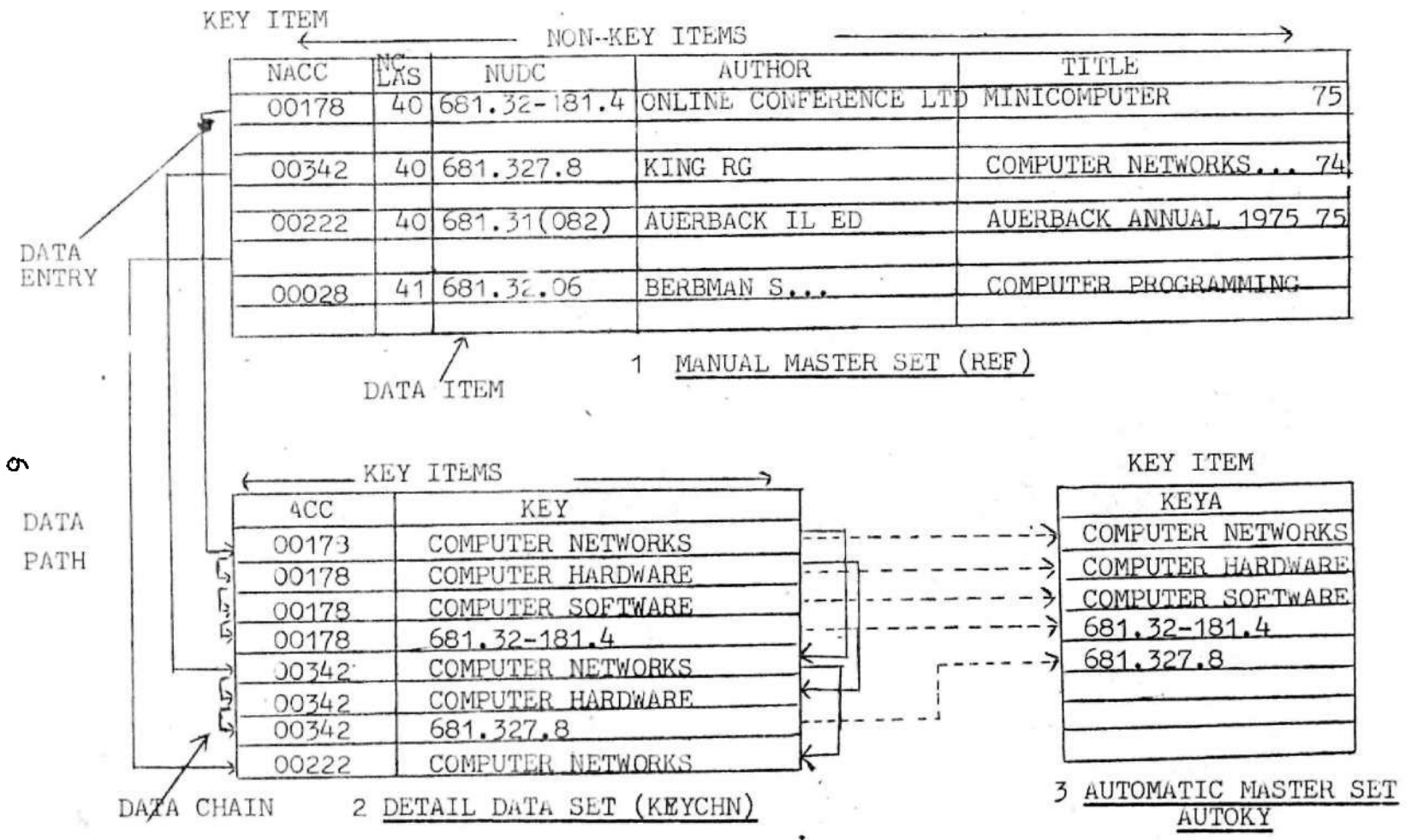
KEY ITEM | NON--KEY ITEMS →

NACC	NC LAS	NUDC	AUTHOR	TITLE
00178	40	681.32-181.4	ONLINE CONFERENCE LTD	MINICOMPUTER 75
00342	40	681.327.8	KING RG	COMPUTER NETWORKS... 74
00222	40	681.31(082)	AUERBACK IL ED	AUERBACK ANNUAL 1975 75
00028	41	681.32.06	BERBMAN S...	COMPUTER PROGRAMMING

DATA ENTRY

DATA ITEM

1 MANUAL MASTER SET (REF)

6

DATA PATH

KEY ITEMS →

ACC	KEY
00173	COMPUTER NETWORKS
00178	COMPUTER HARDWARE
00178	COMPUTER SOFTWARE
00178	681.32-181.4
00342	COMPUTER NETWORKS
00342	COMPUTER HARDWARE
00342	681.327.8
00222	COMPUTER NETWORKS

KEY ITEM

KEYA
COMPUTER NETWORKS
COMPUTER HARDWARE
COMPUTER SOFTWARE
681.32-181.4
681.327.8

DATA CHAIN   2 DETAIL DATA SET (KEYCHN)

3 AUTOMATIC MASTER SET AUTOKY

Fig. 1: STRUCTURE OF LIBRARY   DATA BASE

Manual master set-REF is generated first, when all the data items meant for the set are given. Of the five data items of REF, accession number is the. only key-item. Next comes the Detail Data Set-KEYCHN with accession number and Keywords as key-items. The Auto-set-AUTOKY which contains Keyword as Key-item is automatically generated out of KEYCHN. The REF is linked to KEYCHN through Accession Number and hence, while KEYChN is being generated, it will be always seen, that, the accession number given is already present in REF. Further, in KEYChN all the keywords given for one entry are enumerated with the accession number of that entry every time. KEYCHN is linked with AUTOKY through the keywords and hence while AUTOKY is being generated automatically, it takes only the unique keywords. Thus AUTOKY will be a list of unique keywords present in the data base. When a keyword is entered into KEYCHN, it gees into AUTOKY as a new record, if it is not already present there and establishes the linkage with AUTOKY. If the keyword is already present in AUTOKY, then the subsequent linkages are made in KEYCHN only,

The UDC search key which is assigned for each of the document is treated on par with keywords for information processing. How the UDC search-key facilitates the final retrieval, in addition to generation of various reports used for information retrieval, is explained in sections 6 to 8.

5   PROCEDURE FOR INPUT

        (i) Books are classified according to UDC and IPAG
classification schemes. The keywords for documents are
assigned from a self-generated authority list. This list
of keywords is compiled by taking the descriptors from
various thesauri. For books on computers, keywords are
derived from NCC Thesaurus of Computing Terms (ED 8th; 1976)
and for books on "Electro-technology" preference Is given
to INSPEC Thesaurus (1977 Ed.). In addition to these two
thesauri, the other thesauri being used are, (1) TE3T-
Thesaurus of Engineering ana Scientific Terms, (2) SPINES
Thesaurus, (3) NASA Thesaurus, (4) INIS Thesaurus, (5) OECD
macro thesaurus - Economics.

    First, the UDC Number, IPAG Number and the keywords
selected for a document are noted on a worksheet. Next,
the UDC Number and keywords are finalised after group
discussion which is necessary to maintain consistency
in classification and indexing. The UDC search.key is,
also, decided at this stage and incorporated. Afterwards
the detailed Input worksheet is filled-in.

        (ii) The data as given in the input sheets Is
punched directly on to the magnetic tapes using key-to-tape
machines. The data, after verification and –necessary
corrections, is put on the data base. The data base is
thus ready for report generation and information retrie-
bal. The date base is made up.to-date periodically, by
merging into it the immediate updates.

6   REPORTS OF THE DATA BASE:

        The following reports (computer outputs) based
on the data base are available for information retrieval
(A copy of one page of each of the Report is given as
Appendix II).

        Report-1: Main list (According to broad UDC Nos.).
This report lists all the entries of the date base and the
list is arranged according to broad UDC Numbers, i.e. UDC
search keys. The entries under each of the broad UDC number
are arranged accession numberwise and each entry carries
the details as (i) Accession Number, (ii) IPAG Class Number,
(iii) UDC Number, (iv) Title (v) Year of Publication,
(vi) Author(s). This report will enable the user to know
the entire book collection according to a particular classi-
fication system, i.e. UDC scheme.

        Report-2: Keywords grouped according to UDC Numbers.
This report gives clusters of keywords according to UDC search
keys. The arrangement of keywords in each of the cluster is
alphabetical. This report bring together all the keywords,
that are assigned to various documents but having a common
UDC search key. Thus, the report shows, clubbed under a UDC
search key spectrum of keywords present in the data base.
Report-5 which is described later, lists all the descriptors
present In the data base in alphabetical order. Report-2
breaks this lengthy list into groups of keywords sorted
according to broad subjects and thus enables users to locate
easily keywords of their choice, instead of going through
the complete A to Z list of keywords, i.e. Report-5.

Report-3:. Alphabetical list of subject fields with corresponding UDC Numbers.

Report-4: List of UDC search keys with corresponding subject fields. Report 3 and 4 serve as "Index" to Reports 1 and 2.

Report-5: Alphabetical List of Keywords: This report lists all the unique keywords present in the data base in alphabetical order.

Report-6: Sorted List (Accession Numberwise): This report gives accession number, UDC number under which the document is shelved, and the author(s) for each of the entry, sorted as per accession numbers. This report serves as a check-list for missing accession numbers in the data base.

Report-7; (Updates): The format of this report is similar to Report 1. This list gives additions made to the data base.

The copies of the Report 1,5,6 and 7 (Updates; are kept in the library and computer hall for reference pur-pose. The copies of Report 2,3 and 4 art reproduced by reprographic methods and distributed amongst the groups of users.

7   INFORMATION RETRIEVAL PROCEDURE

The following Reports, as given in the order, are used for information retrieval.

Report-3: Alphabetical list of subject fields with corresponding UDC Numbers

Report-4: List of UDC search keys with corresponding
           subject fields

Report-1: Main List (According to broad UDC Numbers J

Report-2: Keywords grouped according to UDC Numbers,&

Report-5: Alphabetical list of Keywords

The queries that will be answered by this data base
can be (i) General queries (ii) Specific queries (iii)
UDC search key query. A General query is one "where the
subject requirement of the user matches completely with
the subject heading listed in Report-3. However, when
the user is interested in any narrower aspects of the sub-
ject heading, then the query becomes a specific one. For
example, if the user needs books on "Computer Networks",
and since this subject heading is listed in Report-3,
this query could be termed as general. However, if he
is interested in Hardware and Software aspects of com-
puter networks" then the query becomes specific.

If a user is unable to find a suitable subject
heading in Report-3 for Lis query, then he has to select
a subject heading which is nearest to his query. Further,
if he is not able to select such a subject heading, then
he has to refer to Report-5 and select a keyword(s) and
request first, for the UDC search keys for this, particular
keyword(s) and then has to proceed further as given in
(iii) below.

The users are provided with a manual, 'Library Data
Base Users Guide', which describes in detail the pro-

procedure to be followed for use of the data base. A
 'proforma for search request' has been prepared (Appen-
dix III), and the user has to fill-in Form-A while
making specific or UDC search key queries.

    (i) General Query

    Report-3: Subject heading list and Report-4: UDC
Number list will enable the user to enter Report-1 which
is a complete list of all the entries of the data base
arranged according to broad UDC Numbers. Here, the user
gets the bibliographic details of the documents which
are available in the Library.

                                                                          *

    (ii) Specific Query

    .Again, Report-3 and 4, which serve as index to
Report-2 also, will help the user to come to appropriate
UDC search key of his choice in Repdrt-2. Under this
UDC search key he will find a list of keywords for formu-
lating his search profile, and can select keywords of
his choice for online retrieval. The UDC search key and
the keywords thus selected for retrieval purpose are
known as search keys. The user then will fill-in item 1
of Form-A of the proforma and send his request for on-
line search.

   (iii) UDC search key Query

    it may happen that the user may not find suitable
subject heading in Report-3 or appropriate keywords
under UDC search key of his choice in Report-2. In such

cases, by refering to Report-5 user can find whether the keyword(s), which expresses his query, exists in the data base or not. If he finds suitable keyword(s) in Report-5, a provision has been made in the retrieval procedure to find out the UDC search keys for this keyword(s). This is necessary since selecting keyword(.s) directly from Report-5 as search keys may retrieve many irrelevant documents. In such cases the user will fill-in item 2 in Form-A of the proforma. He will then get a list of UDC search keys for the keywords. This facility of searching the UDC search keys for a given keyword(s) gives flexibility in retrieval. After he has chosen the appropriate UDC search key(s) final search will be made for his query.

After receiving the user's request *on* Form-A, the Library and Information Services staff will fill-in the Form-B and forward the same to computer section for on-line retrieval* The user is given the retrieval report along with Form-C. The user sends his comments by re-turning the second-half of Form-C i.e., Feedback Report to Library and Information Services. This helps in re-formulating his query, if necessary. A specimen copy of (i) Document Retrieval Report and. (ii) UDC Search Key Retrieval Report is given as Appendix IV.

8 PARAMETERS FOR THE RETRIEVAL

The following conditions have to be observed at the time of retrieval:

(i) Though any number of search keys (i.e., Key-

words and UDC Search Keys) may be selected for retrieval
purpcse, at a time maximum six search keys will be taken
for searching the data base.

(ii) The first search key, given in a set of search
keys, will have the highest priority and will be present
in each of the document retrieved for this particular set
of search keys. This means whenever more than one search
key is given for online retrieval, the first search key
in the group becomes common for that set of search keys
for searching the data base.

(iii) A threshold value for search keys has to be
given for retrieval purpose. Threshold value is the*
minimum number of search keys required to be present in
each of the document retrieved. The range of the thresho
value is 1 to 6. When threshold value is 1, then the
first search key looses its priority and search is made
for each of the search key. This is an exception to
condition (ii) above. If the   value is more
than 1, then the search will be made first with all the
given search keys and then in descending order of the
number of search keys present, till the number of search
keys equals the threshold value given. For example, if
the total starch keys given are 4 and threshold value is
2 for a search, then, first, the entries having all the.
4 search keys will be reported. Next, entries having 3
search keys and finally entries with 2 search keys will
be reported. Here, it must be noted that the first
search key given, in such cases, will be always present
in each of the document retrieved.

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Thus, it will be seen from the above given conditions that, the meaningful retrieval of documents will depend on how best the search profile is formulated, the number of search keys chosen for retrieval and the threshold value assigned.

9 CONCLUSION

91 Advantages of the system

Besides the usual advantages of the computer based information systems, such as, storing vast amount of data and searching the same with high speed and accuracy, this data base system has the following advantages: -

(I) The most important advantage of the system is that, the user is provided at his desk the various reports which give him subject-wise access to Library collection. During his studies, if he wants to know whether the Library collection contains information on a very specific topic, he can immediately find out this by refering to Report-2, instead of coming to the Library.

(ii) The data base is backed-up by document supply facility, unlike most of the other bibliographic data bases. This immediate availability of the books, also, facilitates in reformulation of the query and thus improve the retrieval efficiency.

(iii) Since the data base is maintained on disc, creation, updating and information retrieval is much faster, easier and efficient than the data bases on magnetic tapes.

(iv) This type of data base will, also, be useful in carrying out studies on various aspects like indexing, user studies, user behaviour at the terminals etc.

(v) The data base could, also, be used directly by other user Departments which have been provided with the terminals.

(vi) The copies of the various reports could be distributed to various branches of the organisation situated at different places in the country.

(vii) Some reports of the data base are useful in Library administration work. For example, Report-6 * could be used to check the missing items on the data base.

92 Future Studies

The system has come into operation recently and is being used by a small number of users. The system will be made available on continuous basis to a larger number of users shortly. Because of the flexibility in re-trieval, achieved by retrieving UDC search keys for a given keyword(s) and the provision for conducting search for combination of key and non-key items, the system is expected to work more efficiently and effectively. It has been observed that, to have retrieval efficiency for such a data base system, it is necessary to index docu-ments, as exhaustively as possible, and orient the users for preparing search profiles. The extensive usage of the data base will help in ascertaining the factors

affecting the performance of the online search. It is, alsoₛ proposed to undertake a performance evaluation study of the data base "based on parameters such as, user effort, subject coverage, recall/precision/noise, response time, form of output, etc.

ACKNOWLEDGEMENTS

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3 LANCASTER F W, and FAYEN E G: Information retrieval on-line. Los Angeles, Melville, 1973

					41 42			80
1	00222	1	40	681.31(082)		AUERBACH I L ED		

	IFAG	UDC NO			AUTHOR	76 79 80

| 2 | 00222 | 2 | AUERBACH ANNUAL 1975 : BEST COMPUTER PAPERS | |

	KEY1	31 32	KEY 2	55 56	KEY 3	79 80
3	00222	3	COMPUTER SCI EDN	COMPUTER SOFTWARE	COMPUTER NETWORKS	

	UDC SEARCH KEY	31 32	KEY 5	KEY 6
4	00222	4	691.31	EDP MANAGEMENT	PROGRAMMING	

	KEY 7	KEY 8	KEY 9
5	00222	5	MATRIX ALGEBRA	INFORMATION SCI	INDEXED SEQUENTIAL FILES

6	00222	6	DATA TALK	HAM MACHINE SYST	PACKING ALGORITHMS	
7	00222	7	HASH CODING	ASYNCHRONOUS MACHINES	COST ESTIMATES	
3	00222	a	TERMINALS	DIGITAL STORAGE PROJ	PACKET SWITCHING'	
9	00222	9	COMPUTER ANIMATION	PAGING	FILMS	
10	00222	10	INTERACTIVE PROGRAMING			

ELECTRONICS COMMISSION LIBRARY, IPAG, NEW DELHI
NIC DATABASE

MAIN LIST (ACCORDING TO BROAD UDC MOS)

!   REPORT 1

681.327,8   COMPUTER NETWORKS

        ACCESSION NO   84

        CLASS NO   ' 40 UDC NO 681.327.8:378(7)
        TITLE   STATEWIDE COMPUTING SYSTEMS:COORDINATE ACADEMIC COMPUTER PLANNING 74
        AUTHOR   MOSHANN C ED

°   ACCESSION NO   224
        CLASS.NO   42
        UDC NO   681 .327.8:061 .3
        TlLE   COMPUTER COMMUNICATION NETWORKS.PROC.NATO,SEP 1975   75

        ACCESSION NO   284
        CLASS NO   40
        CDC NO   681.527.3;621 .39DT:061.3
        TITLE   DATA COMMUNICATION SEMINAR PROC   75

        ACCESSION NO   355
        CLASS NO   41
        UDC NO   681.527.8
        TITLE   RESEARCH IN MICRO-TERMINAL DEVELOPMENT AND NETWORK END-TO-END _ REC 74
        AUTHOR   BRYAN R F AND MCAFEE J J

LIBRARY, IPAG, ELECTRONICS COMMISSION,NEW DELHI
NIC DATABASE
KEY WORDS GROUPED ACCORDING TO UDC NOS

REPORT 2

UDC NO	KEY WORDS
681.327.8	COMPUTER NETWORKS

LIBRARY,IPAG, ELECTRONICS COMMISSION, NEW DELHI
NIC DATABASE
ALPHABETICAL LIST OF SUBJECT FIELDS WITH CORRESPONDING UDC NOS
REPORT 3

SUBJECT FIELD	UDC NO
AGRICULTURE, FORESTRY FISHERIES	63 •
ALGEBRA	512
APL	681,32,06APL
ASSEMBLER LANGUAGE	681.32.06ASS
AUTOCODERS	681.32.06AUT
AUTOMATA	681,342
BASIC	681.32.06BAS
BIBLIOGRAPHY	01
BIOCHEMISTRY	577.
BUSINESS MANAGEMENT	659
CALCULATORS	681,321
COBOL	681,32.06C0B
CONEINATORICS GRAPH THEORY	519.1
SOMPUTER AIDED DESIGN	681.32CAD
COMPUTER ARCHITECTURE	681,32.011.**07**
COMPUTER GRAPHICS	681.34:744
COMPUTER NETWORKS	681 327.8
COMPUTER PERFORMANCE AND EVALUATION	681 32.004,15
COMPUTERISED SIMULATION	681 32:519 976.5
COMPUTERS AND ACCOUNTING	681 32:657

LIBRARY,IPAG,ELECTRONICS COMMISSION,NEW DELHI
NIC DATABASE
LIST OF UDC NOS WITH CORRESPONDING SUBJECT FIELDS
REPORT 4

UDC NO   SUBJECT FIELD

681.326   PROGRAMMING:CONTROLLING AND CHECKING DEVICES
681.327   INPUT-OUTPUT DEVICES
681.327.45   PUNCHED CARD MACHINES
681.327,8   COMPUTER NETWORKS
681.34:744   COMPUTER GRAPHICS
681.341   PATTERN RECOGNITION
681.342   AUTOMATA

              LIBRARY, IPAG, ELECTRONICS COMMISSION,NEW DELHI
                          NIC DATABASE
                    ALPHABETICAL LIST OF KEY WORDS
                          (REPORT 5)

                    COMPUTER HISTORY
                    COMPUTER INDUSTRY
                    COMPUTER INSTALLATION
                    COMPUTER INTERFACES
                    COMPUTER LANGUAGE
                    COMPUTER LEASING
                    COMPUTER MANUFACTURE
                    COMPUTER MODELS
        --->.   COMPUTER NETWORKS
                    COMPUTER OPERATING PROC
                    COMPUTER OUTPUT PRINTERS
                    COMPUTER PERFORMANCE
                    COMPUTER PERSONNEL
                    COMPUTER PROJECT CONTROL
                    COMPUTER SCI EDUCATION
                    COMPUTER SELECTION
                    COMPUTER SOFTWARE
                    COMPUTER SUBSYSTEMS
                    COMPUTER SYST MAINT
                    COMPUTER SYSTEMS
                    COMPUTER TESTING
                    COMPUTER TYPESETTING
                    COMPUTER-AIDED INSTRUCT
                    COMPUTERISED CONTROL
                    COMPUTERISED INSTRUMENT
                    COMPUTERISED MONITORING
                    COMPUTERISED NAVIGATION
                    COMPUTERISED PICTURE PRO
                    COMPUTERISED SIGNAL PROC
                    COMPUTERISED SIMULATION
                    COMPUTERISED TOMOGRAPHY

ACC	UDC NO	AUTHOR
2	681 .32.0.2DB	DATE CJ
3	681.32.056 •	LORIN N
4	681 .31.00	ADAMS E B COMP AND ED
5	681.31(03^	BELZER J AND OTHERS ED
6	681.32.02DB	- NITTMAN S AMD BORNAN L
7	681,32.8:061.3	' WISBEY R A ED
8	519.816:629.1(73)	BROWN C AND OTHERS ED
9	681.326:061.3	MOARE CAR AND PERROTT R N ED
10	681.32.06:519.23	AFIFI A A AND AZEN S P
11	519.6	ORTEGA J M
12	681.32.06F0R	CHIRLION P M
13	577.4	WATT KE F ED
14	681.32.06:515.5	KUNZI N P AMD OTHERS
15	681.32:55+574:061.3	CUTBILL J L ED
16	681.32:576.087	DAVIES R C
17	519.876.5	CHORAFAS D N
18	681.31(047.1)	TOU J T ED
19	681.31(047.1	TOU J T ED
20	681.31(047.1)	TOU J T ED
21	681.31(047.1)	TOU J T ED
22	530.4	WAIHERDI R E AND OKEN E A ED
23	681.32.004.15:519.23:061,3	. FREIBERGER-W ED

LIBRARY AND INFORMATION SERVICES
IPAG, ELECTRONICS COMMISSION
(Telephone No:654028)

Proforma for Search Request;, NIC Data Base

Form A   Request No:

Tel No:

Name:

Designation:.

Date;

To;

Library and Information Services,

I would like to have a list of references on the following topic:

Search Topic

(Please record below in your own words, a full description of the subject on which you are seeking information from the Library data base)

1 / 27   Document Search

I have selectee the following UDC search key and keywords by using Report 3,4 and 2 for the above mentioned search topic:

(i)   UDC Search Key:

(ii)   Keywords (Please list in priority order)

1 .   5
2.   6.
3.   7.
4.   8.

(iii) Ihreshold value: 12 3 4 5 6
UDC Search Key:

2 I find the following keyword(s) listed in Report 5,but this is not listed under the UDC search key :   of my choice in Report 2.

Keyword(s): 1   2   3   4

I would like to know the UDC search keys for the above mentioned keyword (s) .

Signature

26

LIBRARY AND INFORMATION SERVICES
IPAG, ELECTRONICS COMMISSION
(Tel No: 654028)

Proforma for Search Request: NIC Data.Base

Form E

Requester:

Received date: Time:

To;

Computer Section
    Kindly make a search 1. /____7 Document search,
2.   UDC Search Key search for the following search keys:

    1.   3   5
    2   4   6.

    Threshold value: 1   2   3   4   5   6

                                                    *
                            (Technical Information Officer)

                    Computer Section

Received date.   Time;

Query processed on: Time.

Library & Information Services.
    Enclosed please find a computer output for the query,

                            (Signature)

            LIBRARY AND INFORMATION SERVICES
    Retrieval Report received on;   Time:
Number of References/UDC search keys listed:

27

LIBRARY AND INFORMATION SERVICES
IPAG, ELECTRONICS COMMISSION
(Tel No: 654028)

Proforma for search request:_ NIC_data base

Form C

To:
Shri/Dr:

    Enclosed please find

1 . A list of references for your query on

2. -- list of UDC Search Keys for the keyword(s) you
    have selected.

    Please (f) mark the relevant UDC search keys on
the report and return the same to Library and Information
Services.

Technical Information Officer

FEEDBACK REPORT
(To be filled in by the requester)

Request No -

Library &. Information Services.

    Number of references/UDC Search keys retrieved':

    My comments on the documents/UDC Search keys retrieved:

A- /__/ Documents retrieved: (Please mention the number of
    documents against items 1 to 3 below)
    1. Useful. 2. Not-useful, 3. Cannot decide.
    4, Any other remark.

3, _l_JJ_ UDC Search Keys:

    1. A 27 Following useful:

    2. _f~7_ Any other remark.

,(Signature)

LIBRARY   IPAG. ELECTRONICS COMMISSION,NEW DELHI
NIC DATABASE
DOCUMENT RETRIEVAL REPORT

INPUT SEARCH KEYS

COMPUTER NETWORKS
COMPUTER HARDWARE
COMPUTER SOFTWARE

MINIMUM KEY THRESHOLD-2

NUMBER OF ENTRIES QUALIFIED- 7

		MATCHING KEYS
ACC NO. 170 -		COMPUTER NETWORKS
CLASS NO:40		COMPUTER HARDWARE
TITLE :MINICOMPUTER FORUM.PROC BRUNEL UNIV 73	75	COMPUTER SOFTWARE
UDC NO 1.32-181,4:061.3		
AUTHOR :ONLINE CONFERENCE LTD		
Acc re 377		COMPUTER NETWORKS
CLASS HO. :40		COMPUTER HARDWARE
TITLE .DISTRIBUTED PROCESSING, PROC LONDON.76	76	COMPUTER SOFTWARE
UDC NO :681.327.8:061.3		
AUTHOR :ONLINE CONFERENCE LTD		

LIBRARY$_s$ IPAG, ELECTRONICS COMMISSION,NEW DELHI
NIC DATABASE
UU. SEARCH KEY RETRIEVAL REPORT

KEY WORD--COMPUTER NETWORKS

1. 519.8
2. 681.31
3. 681.31(03)
4. 681.31(047.1)
5. 681.32-181.4
6. 681.327.8
7. 681.32:621.3