THAPAR INSTITUTE OF ENGG. & TECHNOLOGY
Patiala (Punjab)

PROJECT REPORT
(Volume 1)

IMPORTING THE DATABASE OF SCIENTIFIC RESEARCH INSTITUTIONS OF INDIA FROM dBASE-IV TO UNIX ORACLE

by

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Deptt. of Computer Science & Engineering
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SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT
FOR THE DEGREE OF
MASTER OF COMPUTER APPLICATIONS

by

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CERTIFICATE

This is to certify that the Project Report entitled **Importing the Database of Scientific Research Institutions of India from dBASE-IV into Unix Oracle** embodies the work done by **Mr Harjinder Singh (MCA-9/89)** under our supervision. The duration of the Project was from Feburary 17, 1992 to June 16, 1992. This work has not been submitted to any other Institution/University for the award of any degree or diploma.

17/6/92

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Harjinder Singh

Contents

Chapter # 1

Introduction

INTRODUCTION

1.1 Establishment

More than forty years ago, in the historic city of Florence, the UNESCO, in its Fifth General Conference, approved the initiative of the Govt. of India in setting up a National Scientific Documentation Centre, and in 1951 an agreement was signed between India and UNESCO whereby the services of three advisers in Documentation, Scientific Translation and Reprography were made available to India for a period of three years. This assistance was further butteressed by a provision of equipment worth $35,000, publications worth another $35,000 and five fellowships totalling $15,000. It was in March, 1952 the Council of Scientific & Industrial Research was entrusted with the responsibility of the National Scientific Documentation Centre under the distinguished care of Dr KS Krishnan, a Fellow of the Royal Society and Director of National Physical Laboratory.

1.2 Functions

Six specific functions were assigned to this Centre as follows:

1. To receive and retain all scientific periodicals which may be of use to the country;
2. To inform scientists and engineers of articles

which may be of value to them by issuing a monthly bulletin of abstracts;

3. To answer specific enquiries from information available only in the Centre;
4. To supply photocopies or translation of the articles required by individual workers;
5. To be a national depository for reports of the Scientific work of the nation, both published and unpublished; and
6. To be a channel through which the scientific work of the nation is made known and available to the rest of the world.

1.3 Services Rendered

INSDOC provides various services to the society in response to specific requests from a wide range of scientific information users. These services include:

1.3.1 Document Procurement Services

INSDOC has facilities for supplying on request a copy of any scientific paper published in any part of the world. In first instance, it draws on the library resources available at the centre, the resources of local libraries as well as libraries in other cities of India. As a last resort, copies are obtained on microfilm of the non-available references from foriegn documentation centres by airmail.

1.3.2 Information Services

INSDOC responds to the request for adhoc bibliographies and references from the scientific community of the country at nominal charges.

1.3.3 Translation Services

Translation services at INSDOC include translation of scientific and technical documents from foriegn languages into English. The translation facility is mainly used by the Govt. departments, universities, R&D organisations, public sector undertakings, industries and others. INSDOC is providing translation for more than 18 foreign languages including modern European languages, Japanese, Chinese, etc.

1.3.4 The Indian Science Abstracts

The primary function of science abstracting is to ensure that scientific publications in the region are adequately listed and abstracted. INSDOC continued the pioneering work of the National Institute of Sciences of India, which published Indian Science Abstracts. The Indian Science Abstracts are now being published monthly and have received universal welcome. Their scope include original articles not neglecting short communications, review and informative articles published in scientific and technical periodicals, proceedings of conferences and symposia, monographs and other adhoc publications as well as their patents and standards.

The primary aim of this abstracting service is

to act as a feeder for international abstracts. It also serves to take stock of the work done in the country.

1.3.5 National Science Library

NSL was set up with the basic objective of building up a comprehensive collection of S&T publications in the country and offering services on a national scale. The NSL endeavours to acquire all important S&T publications, both published and unpublished, generated in the country, surveys the S&T resources available in major science libraries in the country, identifies the gaps and tries to make up by its own acquisitions to complement and supplement the total national collection. The library offers conventional library services like in house consultation facility, reference service, inter-library lending and acts as a referral centre for various scientific and technical information needs of R&D institutions in the country.

1.3.6 Training in Documentation and Reprography

With the increasing tempo of scientific research in the country resulting in the growth of a complex of scientific laboratories, a great need was felt for fully trained persons in documentation and reprography. To meet this requirement, INSDOC started a training course in Documentation and Reprography.

1.3.7 Translation Training Course

The tremendous increase in recent years in the research activity of various universities, research

institutions and laboratories in India has led to a great demand for scientifc and translation services. The number of professional technical translators who can be utilised for this work is, however, extremely inadequate.

Moreover, technical translation has come to be recognised as a separate discipline requiring a specialised training of suitably qualified persons, at a centre actively engaged in doing translation over a number of years, and having at its disposal a staff of experienced translators and a comprehensive collection of translation tools, in the form of technical dictionaries and other reference works. INSDOC has therefore, taken up the responsibility for conducting courses in scientific and technical translation.

1.3.8 Assistance to Scientific Organisations

INSDOC provides assistance to various scientific organisations within the country and outside as well. The organisations like the Indian Institute of Science and Indian Agricultural Research Institute have called upon the resources of INSDOC in producing bibliographies of their publications and catlogues of their serial holdings. In addition, the Civil & Hydraulic Engineering Deptt. of the Indian Institute of Science has entrusted INSDOC with the editing, printing and indexing of the papers submitted to their symposium held in 1965. The Ministeries of Defence & Irrigation

have entrusted the organisation with high priority translation work relevant to important projects they have in hand. The representatives of National Science Foundation of America visited this organisation and had discussions of possibility of INSDOC embarking on translation projects undrertaken for that Foundation in Poland and Israel.

1.3.9 New Services

INSDOC plans to create a number of online databases for access by the users. So far INSDOC has following online databases:

i) National Union Catalogue of Scientific Serials in India (NUCSSI) Database.

ii) INSDOC Serials Contents On Multi Media (ISCOMM) Database.

iii) Polymer Science Database.

iv) Database on Indian Patents.

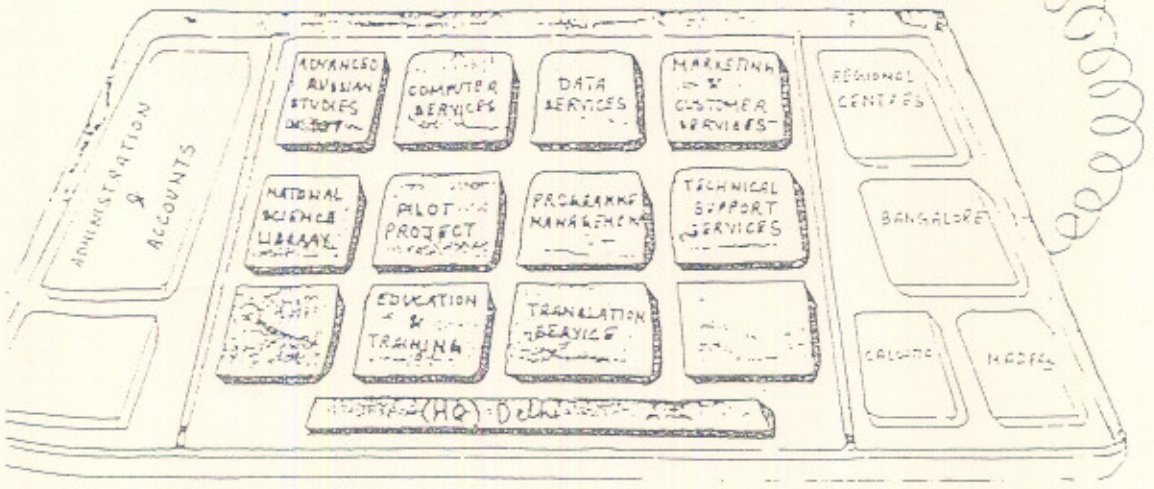
v) Medicinal & Aromatic Plants Abstracts (MAPA) Database.

vi) Material Science Bibliographic Database.

The Database of Scientific Research Institutions of India about which this REPORT deals will also be hosted online.

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Inside organisation chart



Chapter # 2

ORACLE Overview

ORACLE OVERVIEW

2.1 Database Model

A database model is a specific method for describing the structure and processing within a database. There are three most commonly used database models - hierarchical, relational and network model.

2.1.1 Hierarchical Model

In this model, closely related information is stored together as a logical unit. Two of these logical units may contain related information. Various logical units combined in parent-child relation create an upside down tree structure. The hard-wiring of relationships provides the advantage that navigating through the database takes very little time. The disadvantage is that this navigation requires a detailed understanding of the units and their relationships to one another. Another disadvantage is that combining information from two units residing in widely separated branches of tree structure can take a considerable amount of time and effort.

2.1.2 Network Model

The heirarchical model is restricted to having one parent-unit related to multiple child-units through fixed relationships. The units donot form any specific structure but spread like a network of connection. The advantage of a network model is that the database

doesnot have to have a fixed structure.

2.1.3 Relational Model

A relational model stores closely related data in logical units called tables. A table can be visualised as a series of columns and rows, in which each column represents one type of information and each row represents all the types of information about a specific entity. In this system there are no fixed relationships between tables. Relationships are created on temporary basis by an end-user's request for information and they depend upon the query used. The advantage of this type of database is that any column in any table can be directly related to any other column in any other table. A relational database can:

- Select rows from a table based on specific criteria
- List columns from a table by referring the column name
- Perform unrestricted joins between tables.

2.2 ORACLE RDBMS

The ORACLE Corporation was the first company to offer a true Relational Data Base Management System commercially. The ORACLE RDBMS includes the database manager and several tools intended to assist users and Data Base Administrator in the maintenance, monitoring and use of data.

The core of the RDBMS is the Kernnel which handles the following tasks:

- manages storage and definition of data
- controls and limits data access and concurrency
- allows backup and recovery of data
- interprets SQL

One part of the Kernel is the optimizer. The optimizer examines alternate access paths to the data to find the optimal path to resolve a given query.

2.2.1 Structured Query Language

At the heart of the ORACLE RDBMS is the SQL data language - an English-like language that is used for most database activities. SQL is a non-procedural language as it:

- processes sets of records rather than just one record at a time.
- provides automatic navigation to the data.

The SQL implemented by the ORACLE Corporation is a superset of the SQL language statements often divided into forur categories:

2.2.1.1 QUERIES :

These are the statements which retrieve existing data in any combination, expression or order. Query statements usually begin with SQL reserve word SELECT. The SQL SELECT command actually combines the relational algebra operators SELECT, JOIN, PROJECT and

cartesian product. Queries donot change the data, they only retrieve data.

2.2.1.2 Data Manipulation Statements :

These are the statements used to change the data in one of the three ways :

- INSERT new rows of data into a table
- UPDATE column values in existing rows
- DELETE rows from tables

2.2.1.3 Data Definition Statements :

These are the statements used to define and maintain database objects and to drop them when objects are not needed.

2.2.1.4 Data Control Statements :

These are the statements used to control access to the database. e.g. GRANT, REVOKE, and CONNECT.

2.2.2 ORACLE Utilities :

ORACLE offers the following utilities:

2.2.2.1 SQL*PLUS :

SQL*PLUS is an interactive programme for accessing data in ORACLE RDBMS.

2.2.2.2 SQL*FORMS :

SQL*FORMS allows the user to create forms of his own choice on the screen and to access the database by making use of these forms.

2.2.2.3 SQL*LOADER :

SQL*LOADER is a tool for loading data in

external files into tables in an ORACLE database.

2.2.2.4 SQL*REPORT :

SQL*REPORT is used to derive information from a database and generate reports which present this information in the desired format.

2.2.2.5 SQL*MENU :

SQL*MENU is an ORACLE management tool for linking all the components of an application using menus.

2.2.2.6 EXPORT :

Export is used to write data from an ORACLE database to an operating system file.

2.2.2.7 IMPORT :

Import utility is used to read data from export files into an ORACLE RDBMS.

2.2.3 HARDWARE AND SOFTWARE REQUIREMENTS

The hardware and software requirements for the ORACLE RDBMS are as follows:

2.2.3.1 FOR DOS BASED ORACLE

For DOS Oracle Version 5.1B, the hardware requirements include an Oracle certified machine with at least 4 MB RAM and about 20 MB disk space. The machine used to develop the system was a PC-AT with 80 MB hard disk having two partitions of 40 MB each and 4 MB RAM. The various Oracle products required for the project are SQL*Loader, SQL*Plus, SQL*Forms, Oracle Utilities.

2.2.3.2 FOR UNIX ORACLE

The hardware requirement is an Oracle certified machine capable of being made online. The Oracle RDBMS was installed on DCM COSMOS 486 System with:

- INTEL 80486 CPU @ 25 MHz (15 MIPS)
- 16 MB Memory
- 8KB External Cache
- Floppy Disk Controller
- 1.2 MB Floppy Disk Drive
- Intelligent Communication Controller (32 Channels RS232C)
- SCSI Disk Controller
- Max. 128 Terminals can be attached
- Seven units of 750 MB Hard Disk Drive
- 32 Communication Ports
- SCO UNIX Version 3.2
- ORACLE RDBMS 6.0

Chapter # 3

Analysis

ANALYSIS

3.1 INTRODUCTION

In pursuance of the main recomendations of the Research and Industry get-together held in 1965, INSDOC undertook the compilation of a directory of scientific research institutions in India. The following criteria was observed for the inclusion of an institution in the directory:

1. The institutions engaged in fundamental and applied research and in developmental work in the fields of S&T. Exception has, however, been made in the case of a few institutions devoted to activities such as testing and standardisation and dissemination and publication of scientific information.
2. The institutions coming under the subject fields like Mathematics, Physical Sciences, and Engineering & Technology.
3. The academic institutions which are having facilities for the postgraduate research work leading to the award of M.Sc. (by research) and Ph.D. in Pure and Applied Sciences are also included.

A directory providing information on 913 institutions was published in 1969. In 1989, a revised edition of the directory, covering 1397 institutions, was published. This edition contained information upto

date as of 1986 and was organised in five volumes. In each volume, the institutions are arranged broadly by its type namely, Major Complexes like CSIR, ICMR, ICAR, Central and State Govt. Institutions, Universities, Medical, Enggineering & Agricultural Institutions, Public and Private Sector Undertakings and International and other Institutions. It was needed to revise and update the directory from time to time.

INSDOC aims at creating a large number of databases and then hosting them on online system for access by the users. The directory has already been created in dBASE-IV. Since the directory in dBASE cannot be made online, there was the need to convert it into one in Oracle. And so the work to convert the dBASE directory to Oracle was undertaken.

3.2 ANALYSIS

The analysis of the existing system was carried out by studying the manual for it. The study of the database structure, program files and other related documentation was also done to have a clear understanding of the existing system and to identify its drawbacks/problems.

Chapter # 4

Problem Definition

PROBLEM DEFINITION

4.1 INTRODUCTION

One of the main objectives of INSDOC is to create a large number of databases and then to make them searchable online. The directory of Scientific Research Institutions of India is a very big database and contains information quite often required by various users. The database has already been created in dBASE-IV. Inorder to host it on online system, the database had to be converted to Oracle.

4.2 OBJECTIVE

The main objective of the project was to import the database from dBASE-IV to UNIX Oracle. This was to be done in two steps:

1. To download the database from dBASE to DOS based Oracle.
2. To import the database from DOS-Oracle to UNIX Oracle and then make it searchable online.

4.3 PROBLEM

The problem was how to download the data from dBASE to DOS Oracle when the database in dBASE contained MEMO fields, i.e. the fields where about 64K data can be entered. The equivalent of MEMO field in Oracle is the LONG field. But this LONG field is not working in

INSDOC. The problem was mainly to find out a method to download this MEMO field data into Oracle database. The maximum width of the character field in Oracle is 240 characters while the dBASE character field can have at the most 254 characters. The existing database in dBASE had 10 character fields with width 254. So another problem was how to download the data of such fields in Oracle.

Chapter # 5

Existing System

EXISTING SYSTEM

5.1 INTRODUCTION

The existing directory of Scientific Research Institutions of India was in dBASE-IV. The database of the directory was contained in five database files. There were 33 fields of the field-types character and numeric. In addition to these, there were four memo fields. The memo fields are the ones in which data of the order of 64K can be entered.

Four database files stored general information of Institutions like the name of Institution, its address, divisions, achievements, objectives and functions, library & information services and other regular activities. These fields are common to all the research institutions. The fifth database file stored the variable information, i.e. special facilities, provided by the Institutions. The term variable information is used because the special facilities differ from institution to institution. Some of them may be common. There are two fields, one for the facility name and other for its description, in this database file. All the five database files are related to one another on the institute code.

5.2 FILE STRUCTURE

The structure of the five database files is

given below:

5.2.1. Structure for Database : SAMPLE1

This file contains general information fields for an institute like name of institute, its code, abbreveation, address, telephone, telegram, telex, fax, name of director, budget, staff, history, areas of research, achievements, library collections, special materials, special services, conferences, periodicals, patents, documentary films, etc.

Field #	Field Name	Field Type	Width	Dec
1.	NM_OF_INS	Character	75	
2.	CODE	Numeric	5	
3.	ABBRE	Character	10	
4.	ADD1	Character	50	
5.	ADD2	Character	50	
6.	CITY	Character	20	
7.	STATE	Character	20	
8.	PINCODE	Character	7	
9.	TELEPHONE	Character	50	
10.	TELEGRAPH	Character	25	
11.	TELEX	Character	50	
12.	FAX	Character	50	
13.	FOUNDED	Character	4	
14.	E1_MAIL	Character	30	
15.	NM_OF_DIR	Character	30	
16.	ACT_BUD	Numeric	9	3
17.	EST_BUD	Numeric	9	3
18.	S_STAFF	Numeric	4	
19.	A_STAFF	Numeric	4	
20.	OTHERS	Numeric	4	
21.	HIST1	Character	254	
22.	AREA_RES	Character	254	
23.	ACHIEVE	Memo	10	
24.	LIB_COLL	Character	254	
25.	NO_OF_PER	Numeric	6	
26.	SP_MAT	Character	254	
27.	SP_SER	Character	254	
28.	CONF	Character	254	
29.	ANN_REP	Character	254	
30.	PERIODICALS	Character	254	
31.	NO_OF_PAT	Character	254	
32.	DOC_FILMS	Character	254	

5.2.2. Structure for Database : SAMPLE2

This file contains fields for information about the divisions of an institute and the code field. The division field is a Memo field. There is the necessity of the code field in this file in order to relate it to other database files.

Field #	Field Name	Field Type	Width	Dec
1.	CODE	Numeric	5	
2.	DIVISIONS	Memo	10	

5.2.3. Structure for Database : SAMPLE3

This file contains fields for information about the field stations of an institute and the code field to relate this file to other database files.

Field #	Field Name	Field Type	Width	Dec
1.	CODE	Numeric	5	
2.	STATIONS	Memo	10	

5.2.4. Structure for Database : SAMPLE3

This file contains fields to store information about the name of facilities and their description alongwith the code field to set relation with other files.

Field #	Field Name	Field Type	Width	Dec
1.	CODE	Numeric	5	
2.	FAC_NAME	Character	50	
3.	FAC_DESC	Character	254	

5.2.5. Structure for Database : SAMPLE5

This file contains a memo field to store the information of the objectives of an institute and the code field.

Field #	Field Name	Field Type	Width	Dec
1.	CODE	Numeric	5	
2.	OBJECT	Memo	10	

5.3 DESCRIPTION

The main-menu of the existing system provided five options to add record, edit record, query, print and delete record along with an additional option to quit. The database fufilled the purpose for which it was designed. There were certain limitations to the database. The institute code was taken same as the record number. So when some record was to be entered extra care was needed. Also when a record was deleted, all the records after that record had their record number reduced by one and since the code for an institute was same as its record number, the code number also changed. So it was required to remember the changed code of institutes each time a record is deleted.

Chapter # 6

Proposed System

PROPOSED SYSTEM

6.1 INTRODUCTION

The basic requirements of the desired system are that the facilities to enter, edit and delete data be there in the DOS-Oracle part alongwith other facilities like loading of data from dBASE to Oracle, making a query, getting a print and an option to exit the system. Since the UNIX part is for the online access, it requires only query and print options alongwith the exit option.

6.2 PROPOSED SYSTEM FOR DOS-ORACLE

The proposed system for DOS-Oracle was decided to be a menu-driven and user-friendly system. The main menu has seven options including an option to exit. Various options of the main menu are:

1. ADD DATA
2. EDIT DATA
3. LOAD DATA
4. MAKE A QUERY
5. DELETE DATA
6. PRINT DATA
7. QUIT

6.2.1 ADD DATA

This option is for the Database Administrator only as it requires userid/password to be entered. The

security measure has been introduced so that not everyone gets access to adding data into the database. After the correct userid/password is entered, a form for data entry is generated. Some important keys are listed with their functions for use in case the need be.

6.2.2 EDIT DATA

This option is again for the Database Administrator as it requires userid/password to be entered. The reason for this is to prevent the database being edited or updated by any person other than the DBA. With the help of enter-query and execute-query keys, the record to be edited/updated is fetched and then necessary editing can be done. After the necessary updation, the record is committed to the database.

6.2.3 LOAD DATA

This option is again for the DBA use only. This option is required only when the data is to be downloaded from dBASE-IV to DOS-Oracle. This option can be removed when data entry starts in the Oracle database.

6.2.4 MAKE A QUERY

This option is open to all. This option provides users with a facility to make some queries on the database. It has a sub-menu called Query-Menu. The various options of the query-menu provide the facility of getting details of any institute or address of any institute or list of facilities in any institute by

entering institute name or its abbreveation. The user can also know about the description of a particular facility in a particular institute or about the institutes having a particular facility or a particular area of research. Besides these options there is an option to exit to main-menu.

6.2.5 DELETE DATA

This option is for DBA use only. With the help of enter-query and execute-query keys, the DBA can get the record to be deleted. When the delete-record key is struck, before actually deleting the record from the database, the program asks whether to commit the change or not.

6.2.6 PRINT DATA

This option is open to all as it doesnot require any userid/password. This option allows the user to get the print out of any information about an institute. The print option has a print-menu which provides the options to get the print outs of the queries made alongwith an option to exit to main-menu.

6.2.7 QUIT

This option facilitates the user to quit the package and come into operating system prompt.

6.3 PROPOSED SYSTEM FOR UNIX ORACLE

Since the system on UNIX Oracle is to be hosted online, only the options to make a query and then

to have a print out of the output are required. So there are three options in this part - to make a query, to have a print and to exit. The query-menu has the same set of options as the query-menu of DOS part. The print option prints the output of the query made and the exit option exits to the operating system prompt.

Chapter # 7

Design

DESIGN

7.1 INTRODUCTION

Design is the act of defining appropriate procedure and selection of methodology. The design of the new system required to know the method to store the data in the database and to decide the structure of the database. After giving a careful thought to the problems, below mentioned database structure was designed.

7.2 DESIGN

There were basically two main problems to overcome inorder to download the data from dBASE to DOS Oracle.

The equivalent of MEMO field of dBASE in Oracle, the LONG field, was not working. So there was the problem of how to download the MEMO field data. After trying a number of alternatives, it is decided to have a separate table for each MEMO field. Each data line of the MEMO field is stored in the table as a record identified by the code for that record and sequenced by line number. With this, the problem is solved to the desired extent. The advantage of this method is that now the data can even go beyond the 64K limit of the LONG field. So for the four MEMO-fields of the existing database, four separate tables have been

created.

In dBASE, the maximum width of a character field is 254 characters where as its equivalent in Oracle has maximum width of 240 characters. The existing database had 10 character fields with the field width of 254. When downloading of data of such fields was tried, the last 14 characters mixed up with other fields and created problems. Inorder to make up for these 14 characters, a new field was made for the same field. Now for one field of dBASE there are two fields in Oracle. The advantage of this is that previously in dBASE, the data of the 254-character fields was being manipulated and abbreveated so as to fit into the field but now by having two fields at the most 480 characters of data can be entered, thus, saving the effort of manipulating the input data.

7.3 TABLE STRUCTURE

The structure of the six tables used to store the data in the Oracle database is given below:

7.3.1 Structure for Table : SRIGEN

This table contains general information fields to hold the data for an institute like the name of the institute, its abbreveation, address, achievements, objectives, field stations, etc.

Field #	Field Name	Type(Width,Dec)
1	NM_OF_INS	CHAR(75)
2	CODE	NUMBER(5)
3	ABBRE	CHAR(10)
4	ADD1	CHAR(50)
5	ADD2	CHAR(50)
6	CITY	CHAR(20)
7	STATE	CHAR(20)
8	PINCODE	CHAR(7)
9	TELEPHONE	CHAR(50)
10	TELEGRAM	CHAR(25)
11	TELEX	CHAR(50)
12	FAX	CHAR(50)
13	FOUNDED	CHAR(4)
14	E1_MAIL	CHAR(30)
15	NM_OF_DIR	CHAR(30)
16	HEAD	CHAR(25)
17	ACT_BUD	NUMBER(9,3)
18	EST_BUD	NUMBER(9,3)
19	S_STAFF	NUMBER(5)
20	A_STAFF	NUMBER(5)
21	OTHERS	NUMBER(6)
22	NAT_OF_INS	NUMBER(4)
23	SUBJECT	CHAR(50)
24	HIST1	CHAR(240)
25	HIST2	CHAR(14)
26	AREA_RES	CHAR(240)
27	AREA	CHAR(14)
28	LIB_COLL	CHAR(240)
29	LIB2	CHAR(14)
30	NO_OF_PER	NUMBER(6)
31	SP_MAT	CHAR(240)
32	MAT2	CHAR(14)
33	SP_SER	CHAR(240)
34	SER2	CHAR(14)
35	CONF	CHAR(240)
36	CONF2	CHAR(14)
37	ANN_REP	CHAR(240)
38	ANN_REP1	CHAR(14)
39	PERIODICALS	CHAR(240)
40	PERIOD	CHAR(14)
41	NO_OF_PAT	CHAR(10)
42	DOC_FILMS	CHAR(240)
43	DOC1	CHAR(140

7.3.2 Structure for Table : SRIFAC

This table contains fields to hold data for the names of facilities rendered by an institute alongwith their description. There is also the code

field in order to relate this table to other tables.

Field #	Field Name	Type(Width,Dec)
1	CODE	NUMBER(5)
2	FAC_NAME	CHAR(50)
3	FAC_DESC	CHAR(240)
4	FAC_DESC1	CHAR(50)

7.3.3 Structure for Table : SRIACHE

This table contains the fields for storing data of achievements of an institute. There is a separate table for achievements as in the dBASE database this was a Memo field and to load a Memo field into Oracle, with Long field not working, a separate table was needed.

Field #	Field Name	Type(Width,Dec)
1	LINE_NO	NUMBER(3)
2	CODE	NUMBER(5)
3	ACHIEVEMENT	CHAR(60)

7.3.4 Structure for Table : SRISTAT

This table contains fields for information about the field stations of an institute and the code field to relate the table to other tables. Its original version in dBASE database is a Memo field.

Field #	Field Name	Type(Width,Dec)
1	CODE	NUMBER(5)
2	LIN_NO	NUMBER(3)
3	STATION	CHAR(60)

7.3.5 Structure for Table : SRIDIV

This table has the fields to store information about the divisions of an institute and code for the institute. Since its equivalent field in dBASE is a Memo

field, there is an additional field to keep track of number of lines in one record.

Field #	Field Name	Type(Width,Dec)
1	LAIN_NO	NUMBER(3)
2	CODE	NUMBER(5)
3	DIVISIONS	CHAR(70)

7.3.6 Structure for Table : SRIOBJ

This table is also created to store information of the objective memo field of dBASE. The other fields in the table are code - required to set relation to other tables and line_no - required to keep track of number of lines in a record.

Field #	Field Name	Type(Width,Dec)
1	LANE_NO	NUMBER(3)
2	CODE	NUMBER(5)
3	OBJECTIVE	CHAR(60)

7.4 CONTROL PROGRAMS

In order to download data from dBASE-IV to Oracle with the help of Oracle Utility, SQL*LOADER, a program file, called control file, with an extension CTL is written. The file is called control file as it controls the loading of data. There were six control files required to download data from dBASE to Oracle. The function of each of these files is discussed below:

7.4.1 LOADGEN.CTL

This is a program file that loads general information of all the institutes in dBASE database from a data file called GENRAL.DAT to Oracle table named SRIGEN.

7.4.2 LOADFAC.CTL

This program loads the data about the name of special facilities provided by various institutions and their descriptions from the data file called FACILITY.DAT to Oracle table called SRIFAC.

7.4.3 LOADACHE.CTL

This control file helps in loading the achievements of various institutions from the data file termed ACHIEVE.DAT into the Oracle table called SRIACHE.

7.4.4 LOADSTAT.CTL

This control program is used to load the field stations of various institutions from STATION.DAT into the table SRISTAT.

7.4.5 LOADDIV.CTL

This program down loads the divisions of the institutions in the database from the file DIVSION.DAT into the table SRIDIV.

7.4.6 LOADOBJ.CTL

This control file is used to load objectives from OBJECT.DAT to the table SRIOBJ.

7.5 REPORT PROGRAMS

The outputs of the various queries that a user could make was to be in some fixed formats. To generate the outputs of various queries that a user could make in a desired format required some report programs to be written. These programs had RPT as extension. There are

format. This program is executed before loading data into table SRIDIV. After this step, yet another step is to be taken before ultimately going in to load data into Oracle data tables.

7.6.3 MON.C

In order to load data of Memo fields into Oracle tables, the data file is supposed to be in a desired format (refer Chapter-8). To convert the data file obtained from dBASE database into the format required, this program is run. Generally, this program results in the data file to be in desired format but to be on the safer side it is suggested to make a check, especially on line numbers generated, before finally loading data into Oracle tables.

Chapter # 8

Input-Output Formats

INPUT-OUTPUT FORMATS

8.1 INTRODUCTION

This chapter contains the listings of all kinds of outputs generated by the system with a few input formats and also the menu-screens.

8.2 ORDER OF LISTINGS

Following is the order of the input-output format listings:

1. First screen that appears on screen as the package is run.
2. Main-Menu Screen
3. Query-Menu Screen
4. Print-Menu Screen
5. Input & Output Formats of SRICON.C
6. Input & Output Formats of MON.C
7. Outputs of Various Query Options

W E L C O M E

T O

T H E D A T A B A S E O F

S C I E N T I F I C R E S E A R C H I N S T I T U T I O N S

O F I N D I A

by

Harjinder Singh

Press any key to continue...

DATABASE OF SCIENTIFIC RESEARCH INSTITUTIONS OF INDIA

MAIN-MENU

1. ADD DATA
2. EDIT DATA
3. LOAD DATA
4. MAKE A QUERY
5. DELETE DATA
6. PRINT DATA
7. QUIT

Highlight option with Down-Arrow or Up-Arrow and press RETURN

DATABASE OF SCIENTIFIC RESEARCH INSTITUTIONS OF INDIA

QUERY-MENU

QUERY FOR ...

1. INSTITUTE DETAILS
2. INSTITUTE ADDRESS
3. INSTITUTES FOR A FACILITY
4. FACILITIES FOR AN INSTITUTE
5. DESCRIPTION OF A FACILITY FOR AN INSTITUTE
6. INSTITUTES FOR AREA OF RESEARCH
7. EXIT TO MAIN-MENU

Highlight option with Down-Arrow or Up-Arrow and press RETURN

DATABASE OF SCIENTIFIC RESEARCH INSTITUTIONS OF INDIA

PRINT-MENU

PRINT ...

1. INSTITUTE DETAILS
2. INSTITUTE ADDRESS
3. INSTITUTES FOR A FACILITY
4. FACILITIES FOR AN INSTITUTE
5. DESCRIPTION OF A FACILITY FOR AN INSTITUTE
6. INSTITUTES FOR AREA OF RESEARCH
7. PRINT ALL
8. EXIT TO MAIN-MENU

Highlight option with Down-Arrow or Up-Arrow and press RETURN

** INPUT format for SRICON.C program **

1 Geotechnical Engineering - Mr. Devendra Sharma; Building process, Plant & Productivity - Mr. J. P. Kaushish; Rural Building and Environment - Mr. N. Verma; Efficiency of Building - Dr. B .K Saxena; Information and Overseas Collaboration - Mr. A. Deb; Structural Engineering - Dr. N. S. Bhae; Development Construction & Extension - Mr. N. K. Shangar; Planning Monitoring and Evaluation - Dr. S. K. Mishra; Fire Research - Mr. T. P. Sharma; Education and Health Buildings - Mr. V. K. Mathur; Housing and Planning - Dr. B. B. Garg; Cement & lime products - Dr. N. G. Dave; Clay Products - Dr. R.B. Hajela; Organic Building Material - Dr. R. K. Jain;

2 Biochemistry - Dr. Prem Sagaar; Biopolymers - Dr. K. B. Mathur; Botany - Dr. B. N. Mehrotra; clinical & Experimental Mediicine - Dr. R. C. Srimal; Endocrinology - Dr. V. P. Kambhoj; Fermentation Technology - Dr. S. K.Basu; Medical Mycology - Dr. C. Gupta; Medical Chemistry - Dr. D. S. Bhakuni; Membrane Biology - Dr. C. M. Gupta; Microbial Genetics - Dr. B. S. Srivastava; Microbiology - Dr. G. P. Dutta; Parasitology - Dr. J. C. Katiyar; Pharmaceutics - Dr. J.P. S. Sarine; Pharmacokinetics & Metabolism - Dr. P. K. Grover; Pharmacology - Dr. R. C. Srimal; Physiology - Dr. O. N. Tripathi; Process Development - Dr. S. K. Chatterjee; Toxicology - Dr. (Mrs.) N. Sethi; Technical Information, Industrial Liaison & Planning - Mr. S. K. Srivastava; Lab Animals - Dr. C. R. Bhardwaj; Instrumentation - Mr. K. R. Srivaraman; Documentation & Library Services - Dr. S. S. Iyer; Records - Mr. Ishtiaq Hussain; Laboratory Services - Mr. R. S. L. Srivastava; Administration - Mr. V. P. Bakshi (C. A.); Accounts - Mr. H. R. Handa (Sr. F&AO).

3 Corrosion Science & Engineering Division - Dr. K. Balakrishnan; Industrial Metal Finishing Division - Dr. S. Guruviah; Batteries & Fuel Cells Division - Dr. V. K. Venkatesan; Electrochemical Division - Dr. K. C. Narasimham; Electrohudrometallurgy Division - Dr. S. Visvanathan; Electropyrometallurgy Division - Sri P. S. Desaikan; Electrochemical Materials Science Division - Sri A. S. Lakshmanan; Electrodics, Electrobiology & Pollution Control Division - Dr. G. Prabhakara Rao; Electrochemical Electronics & Instrumentation Division- Sri Y. Mahadeva Iyer.

4 Microelectronics - Dr. P. D. Vyas; Strategic Electronics -I Semiconductor Devices - Dr. S. Ahmad; Strategic Electronics -II Microwave Tubes -

** OUTPUT format of SRICON.C program **

1 Geotechnical Engineering - Mr. Devendra Sharma;
Building process, Plant & Productivity - Mr. J. P.Kaushish;
Rural Building and Environment - Mr. N. Verma;
Efficiency of Building - Dr. B .K Saxena;
Information and Overseas Collaboration - Mr. A. Deb;
Structural Engineering - Dr. N. S. Bhae;
Development Construction & Extension - Mr. N. K. Shangar;
Planning Monitoring and Evaluation - Dr. S. K. Mishra;
Fire Research - Mr. T. P. Sharma;
Education and Health Buildings - Mr. V. K. Mathur;
Housing and Planning - Dr. B. B. Garg;
Cement & lime products - Dr. N. G. Dave;
Clay Products - Dr. R.B. Hajela;
Organic Building Material - Dr. R. K. Jain;
2 Biochemistry - Dr. Prem Sagaar;
Biopolymers - Dr. K. B. Mathur;
Botany - Dr. B. N. Mehrotra;
clinical & Experimental Mediicine - Dr. R. C. Srimal;
Endocrinology - Dr. V. P. Kambhoj;
Fermentation Technology - Dr. S. K.Basu;
Medical Mycology - Dr. C. Gupta;
Medical Chemistry - Dr. D. S. Bhakuni;
Membrane Biology - Dr. C. M. Gupta;
Microbial Genetics - Dr. B. S. Srivastava;
Microbiology - Dr. G. P. Dutta;
Parasitology - Dr. J. C. Katiyar;
Pharmaceutics - Dr. J.P. S. Sarine;
Pharmacokinetics & Metabolism - Dr. P. K. Grover;
Pharmacology - Dr. R. C. Srimal;
Physiology - Dr. O. N. Tripathi;
Process Development - Dr. S. K. Chatterjee;
Toxicology - Dr. (Mrs.) N. Sethi;
Technical Information, Industrial Liaison & Planning - Mr. S. K.
Lab Animals - Dr. C. R. Bhardwaj;
Instrumentation - Mr. K. R. Srivaraman;
Documentation & Library Services - Dr. S. S. Iyer;
Records - Mr. Ishtiaq Hussain;
Laboratory Services - Mr. R. S. L. Srivastava;
Administration - Mr. V. P. Bakshi (C. A.);
Accounts - Mr. H. R. Handa (Sr. F&AO).
3 Corrosion Science & Engineering Division - Dr. K. Balakrishnan;
Industrial Metal Finishing Division - Dr. S. Guruviah;
Batteries & Fuel Cells Division - Dr. V. K. Venkatesan;
Electrochemical Division - Dr. K. C. Narasimham;
Electrohudrometallurgy Division - Dr. S. Visvanathan;
Electropyrometallurgy Division - Sri P. S. Desaikan;
Electrochemical Materials Science Division - Sri A. S. Lakshmana
Electrodics, Electrobiology & Pollution Control Division - Dr. G
Electrochemical Electronics & Instrumentation Division- Sri Y. M

** INPUT format for MON.C program **

1 The Institute has developed on improved high draught kiln of Bill's type with fixed chimney and dampers; flat tiles for flooring and roof terracing; a semi-mechanised brick plant of capacity 2500 bricks per hour, which has been commercialised; Pilot plant production of autoclaved calcium silicate bricks and blocks; hand coulding table for building bricks; rotary table brick making machine for pressure moulding of bricks, roofing table brick making machine for pressure moulding of bricks, roofing sheets and partitioning boards using sunhemp, sisal and coir fibres and cement or gypsum plaster as binder; technology for glazed wall tiles, floor and facing tiles and grog based sanitary wares; activated lime pozzolzanas mixture from clays, lime kiln rejects, quarry wastes and fly ashes; improved lime kiln of various sizes; hydrators for various types of limes; solar timber seasoning kiln; paper encased reinforced plaster boards for partiions & ceilings; sisal fibre reinforced gypsum plaster boards for partitions and cilings and gypsum plaster acoustic tiles; energy efficient gypsum calcinator; plastic composite panels for partitioning and cladding; IPN based anticorrosive treatments for protection of building materials in highly aggressive conditions; under-reamed piles, bored compaction piles, pedestal piles and skirted granular piles for fundation in different soil conditions; Geotechnical maps of two major landslide complexes in Garhwal; an automatic free fall hammer for conducting SPT and DCPT; precase stone masonry blocks for walling; thin R.C.C, lintels in brick walls; Precast R.C. plank flooring/roofing schemes, R. C. ribbed slab for floor and roots; concrete block making machine; dufferent prefabricated roofing units economising roof construction; mini climbing crane of 1000 kg. m. capacity for material handling; chimney for domestic kitchen; waster water disposal systems for rural areas; non erodable mud plaster for rural houses; low cost sanitation for rural for rural and urban housing; improved methods of brick-laying, plastering, and formwork for increasing productivity; single stack system of plumbing; solar water heaters; noses & its control; dry powders for extinghuishing fibres in metals and hudrocarbans; cooling of building by roof evaporation system; automatic fire

** OUTPUT format of MON.C program **

```
01* The Institute has developed on improved high                    * 01 *
01* draught kiln of Bill's type with fixed chimney and              * 02 *
01* dampers; flat tiles for flooring and roof                       * 03 *
01* terracing; a semi-mechanised brick plant of                     * 04 *
01* capacity 2500 bricks per hour, which has been                   * 05 *
01* commercialised; Pilot plant production of                       * 06 *
01* autoclaved calcium silicate bricks and blocks;                  * 07 *
01* hand coulding table for building bricks; rotary                 * 08 *
01* table brick making machine for pressure moulding               * 09 *
01* of bricks, roofing table brick making machine for               * 10 *
01* pressure moulding of bricks, roofing sheets and                 * 11 *
01* partitioning boards using sunhemp, sisal and coir              * 12 *
01* fibres and cement or gypsum plaster as binder;                  * 13 *
01* technology for glazed wall tiles, floor and facing             * 14 *
01* tiles and grog based sanitary wares; activated                  * 15 *
01* lime pozzolzanas mixture from clays, lime kiln                  * 16 *
01* rejects, quarry wastes and fly ashes; improved                  * 17 *
01* lime kiln of various sizes; hydrators for various               * 18 *
01* types of limes; solar timber seasoning kiln; paper             * 19 *
01* encased reinforced plaster boards for partiions &              * 20 *
01* ceilings; sisal fibre reinforced gypsum plaster                * 21 *
01* boards for partitions and cilings and gypsum                   * 22 *
01* plaster acoustic tiles; energy efficient gypsum                * 23 *
01* calcinator; plastic composite panels for                       * 24 *
01* partitioning and cladding; IPN based anticorrosive             * 25 *
01* treatments for protection of building materials in             * 26 *
01* highly aggressive conditions; under-reamed piles,              * 27 *
01* bored compaction piles, pedestal piles and skirted             * 28 *
01* granular piles for fundation in different soil                 * 29 *
01* conditions; Geotechnical maps of two major                     * 30 *
01* landslide complexes in Garhwal; an automatic free             * 31 *
01* fall hammer for conducting SPT and DCPT; precase              * 32 *
01* stone masonry blocks for walling; thin R.C.C,                  * 33 *
01* lintels in brick walls; Precast R.C. plank                     * 34 *
01* flooring/roofing schemes, R. C. ribbed slab for               * 35 *
01* floor and roots; concrete block making machine;               * 36 *
01* dufferent prefabricated roofing units economising             * 37 *
01* roof construction; mini climbing crane of 1000 kg.           * 38 *
01* m. capacity for material handling; chimney for               * 39 *
01* domestic kitchen; waster water disposal systems              * 40 *
01* for rural areas; non erodable mud plaster for                * 41 *
01* rural houses; low cost sanitation for rural for              * 42 *
01* rural and urban housing; improved methods of                 * 43 *
01* brick-laying, plastering, and formwork for                   * 44 *
01* increasing productivity; single stack system of             * 45 *
01* plumbing; solar water heaters; noses & its                   * 46 *
01* control; dry powders for extinghuishing fibres in           * 47 *
01* metals and hudrocarbans; cooling of building by             * 48 *
01* roof evaporation system; automatic fire                      * 49 *
```

** OUTPUT of QUERY for the DETAILS of an INSTITUTE **

" SEARCH ON Scientific Research Institute DATABASE "

INSTITUTE DETAILS OF "CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE":

CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (CECRI)
KARAIKUDI 623006 TAMIL NADU
PHONE : 2088 2064 321 3122
GRAM : CECRI
TELEX : 0443-211

FOUNDED : 1953

HEAD : Prof. S. K. Rangarajan

PERSONNEL
S & T : 593
OTHERS: 176

BUDGET
ACTUAL:Rs. 510.001 Lacs
ESTIMATED:Rs. 1234.0 Lacs

DIVISIONS:
Corrosion Science & Engineering Division - Dr.K.Balakrishna
Industrial Metal Finishing Division - Dr. S. Guruviah;
Batteries & Fuel Cells Division - Dr. V. K. Venkatesan;
Electrochemical Division - Dr. K. C. Narasimham;
Electrohudrometallurgy Division - Dr. S. Visvanathan
Electropyrometallurgy Division - Sri P. S.Desaikan;
Electrochemical Materials Science Div - Sri A.S. Lakshmanan
Electrodics,Electrobiology & Pollution Control Division - Dr. G. Prabhakara Rao;
Electrochemical Electronics & Instrumentation Division- Sri Y. Mahadeva Iyer.

FIELD STATIONS:
CECRI Extension Research Unit at Madras - Dr. N. V. Parthasarathy; CECRI Extension Research Unit at Cochin - Sri P. L. Joseph; CECRI Extention Research Unit at Tuticorin - Sri. K. S. A. Gnanasekaran; CECRI Extension Research Unit at Mandapam Camp - Sri G. Subramanian.

HISTORY :
An institution for exclusive research in electrochemical science technology was conceived by Dr. J. C. Ghosh. The CECRI owe its existence to Pandit Jawaharlal Nehru and Dr. Shanti Swaru Bhatnagar, as also to Dr. RM Alagappa Chettiar, wh o donated lan

OBJECTIVES/FUNTIONS:
To conduct basic and applied research/development work in the field of electrochemical science and technology; to improve upon the existing processes and development of indigenous lnow-how for the products hithrto being imported and to carryout

undertake industry sponsored research and development work, provide testing facilities and organize training programmes for persons from industry, government etc; and to desseminate information and offer consultancy services to industry.

AREAS OF RESEARCH :

Reflected under Divisions

ACHIEVEMENTS:

The Institute has developed the following : (i) Decorative Ni-Fe alloy planting with Cr over lay mildy or moderately corrosive service, (ii) Platinised titanium anodes, (iii) Special batteries for literacy mission, (iv) Six Sp0onsored/ Grant-in-aid Projects were taken up sponsored by Government Agencies. (Rs. 30.000 lakhs). 14 Projects are in progress. (155.000 lakhs). 7 Projects were completed (50.00 lakhs), (v) 13 process were released to industry. 11 Processes were demonstrated, (vi) Offered 21 Consultancy Services.

SPECIAL FACILITIES:

ANALYSIS

Centre to provide all types of facilities for testing th materials and anti corrosion products. Create a sophisticate facility for battery evaluation and to develop batter technologies for utilasation.

AUDITORIUM

The present facilities in the existing Auditorium is going to b augmented with peripheral facilities for holding National an International Seminars and conferences.

COMPUTER/HARDWARE/SOFTWARE

New Computer system with configuration on 3AT6 File server wit two deskless nodes, 2XI147 Hard Disks, one CD-ROM drive, on EX-1000 dot matrix printer and 155MB streamer tape drive has bee installed.

CONSULTANCY

Available on corrosion prevention, electrochemical power sources electrometallurgy, electroplating and metal finishing, inorgani and organic electrochemicals, and instrumentation.

DATA BASES

Facilities available are (i) Maintenance and updating of machin readable Data Base, (ii) Press clipping service, (iii) CECR Papers, (iv) Patents, (v) Addresses of Industries, (vi) Document holdings A Biblographic Database.

EQUIPMENT

Special instruments available are: (i) Scanning Electro Microscope (ii) Microwax Computer (iii) Ion Chromotography System (iv) Atomic absorption Spectro-photometer (v) Infra-re spectrophotometer (vi) TIG Welding Equipment and (vii) Arc urnace.

EXTENSION

The Institute has extension units at Madras, Cochin, Tuticorin and Mandapam Camp.

GLASS BLOWING

Scientific Glass Blowing consists of facilities in Scientifi Glass Blowing, Glass Grinding, Glass Cutting, Polishing an Callibration etc.

INDUSTRIAL LIAISION

In addition to research co-ordination, liaison with industries an Government departments and technology utilisation is done Liaison activities are intensified and techno-economic studies ar made.

INSTRUMENTATION

Instrumentation section deals with the repairs and maintenance o costly sophisticated electronic and electrical equipments Fabrication of instruments with speical characteristics is als undertaken.

LIBRARY SERVICES

(i) Procurement of books, periodicals, and micro documents, (ii Processing and making them available to the Researchers, (iii Maintenance of hodings and stack space in working condition, (iv Prodrement of literature in microforms.

ONLINE FACILITY

Is under consideration for establishment.

PATENT INSPECTION CENTRE

The Institute is a Patents Inspection Centre and has received 105 Indian Patents during 1989-90 and presently it has in stock 8426 patents.

PILOT PLANT

The technology for Magnesium metal production has been handed ove for commercial exploitation in public sector. The pilot Plan facility condition to facilitate a smooth transfer of technolog and to make improvement in the process technol ogy.

TECHNICAL ASSISTANCE

Technical Assistance is rendered to various Industries for solvin all the problems as required in their respective areas.

TRAINING

(i) Organises refresher courses on various topics i

Electrochemical Science and Technology. (ii) Offers a 4 Yea Integrated Course - B. Tech. in Electrochemical Science an Technology.

TRANSLATION SERVICES

Rendered to research staff by providing translations of researc articles from foreign language namely German, French, Russian Japanese, Spanish, and Italian.

WORKSHOP

Central Mechanical Workshop including Design and Drawing is a essential facility for improvement to meet the need of th different R & D Projects.

LIBRARY & INFORMATION SERVICES

COLLECTION :

Current serial titles - 738.

NO. OF PERIODICALS: 309

SPECIAL MATERIALS:

Government reports, Patents, Standards, Translations.

SPECIAL SERVICES:

Bibliographic, inter-library loan, Press clipping, reference reprographic, and SDI services. The Institute has 84262. India Patents and is a recognised Patant Inspection Centre.

OTHER ACTIVITIES

CONFERENCES :

Organised Ninth Science Research Seminar in Tamil on Behavioura Sciences, Brain storming session on Electrochemistry and Biology Science Research Seminar in Tamil ib Science and Management, Brai storming session on Corrosion in Concrete Bridges and

SEARCH IS OVER

** OUTPUT of QUERY for list of FACILITIES in an INSTITUTE **

" SEARCH ON Scientific Research Institute DATABASE "

SPECIAL FACILITIES FOR " CENTRAL DRUG RESEARCH INSTITUTE " :

ANALYSIS

ANIMAL HOUSE

CONSULTANCY

EQUIPMENT

EXTENSION

INSTRUMENTATION

PILOT PLANT

TRAINING

WORKSHOP

SEARCH IS OVER

*****

** OUTPUT of QUERY for list of INSTITUTES doing research in an AREA **

" SEARCH ON Scientific Research Institute DATABASE "

NAME OF INSTITUTES FOR AREA OF RESEARCH " Ecology " :

CENTRAL ARID ZONE RESEARCH INSTITUTE (CAZRI)
CENTRAL FOR RESEARCH IN MEDICAL ENTOMOLOGY (CRME)

SEARCH IS OVER

** OUTPUT format of QUERY for the ADDRESS of an INSTITUTE **

" SEARCH ON Scientific Research Institute DATABASE "

ADDRESS OF " NATIONAL DAIRY RESEARCH INSTITUTE " :

NATIONAL DAIRY RESEARCH INSTITUTE (NDRI)
National Dairy Research Institute,
G. T. Road,
KARNAL - 132001 HARYANA

PHONE : 4293
GRAM : DAIRYSEARCH
TELEX : 0396-204 NDRI. I

"SEARCH IS OVER"

****

** OUTPUT of QUERY for DESCRIPTION of FACILITY at INSTITUTE **

" SEARCH ON Scientific Research Institute DATABASE "

IN CENTRAL DRUG RESEARCH INSTITUTE :

EQUIPMENT
Electromagnetic flow meter; Polygraphs; Microiontophoretic assembly; Multibarrel electrode puller; Stereotaxic instrument; Behavioural and toxicological test systems; Electron Microscope; High Pressure Liquid Chromatographs; NMR and Mass Sp ectometers.

SEARCH IS OVER

****

** OUTPUT of QUERY for list of FACILITIES in an INSTITUTE **

" SEARCH ON Scientific Research Institute DATABASE "

NAME OF INSTITUTES FOR THE FACILITY " ANALYSIS " :

CENTRAL BUILDING RESEARCH INSTITUTE (CBRI)
NATIONAL DAIRY RESEARCH INSTITUTE (NDRI)
NATIONAL BUREAU OF ANIMAL GENETIC RESOURCES (NBAGR)
CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY (CIFT)
CENTRAL INLAND CAPTURE FISHERIES RESEARCH INSTITUTE (CICFRI)
ALL INDIA SOIL AND LAND USE SURVEY ORGN (AISLUS)
DEFENCE BIOENGINEERING AND ELECTROMEDICAL LABORATORY (DEBEL)
INDIAN AGRICULTURAL RESEARCH INSTITUTE (IARI)
AERONAUTICAL DEVELOPMENT ESTABLISHMENT (ADE)
TUBERCULOSIS RESEARCH CENTRE (TRC)
VECTOR CONTROL RESEARCH CENTRE (VCRC)
CENTRAL FUEL RESEARCH INSTITUTE (CFRI)
CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE (CFTRI)
CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE (CEERI)
CENTRAL ELECTROCHEMICAL RESEARCH INSTITUTE (CECRI)
CENTRAL DRUG RESEARCH INSTITUTE (CDRI)

NUMBER OF RECORDS SELECTED: 16

SEARCH IS OVER

****

Chapter # 9

Implementation & Testing

IMPLEMENTATION & TESTING

9.1 INTRODUCTION

Once the system is designed and menus are decided, the next step is to develop the application program. The system was developed in DOS-Oracle. Before the application program was actually developed, a general idea of what the program will actually do was decided. A pseudocode is developed to represent program algorithm in a way that can be easily understood and facilitate actual programme code. A pseudocode is a program written in structured English to make it easier to understand the logic and help in writing the application program.

The pseudocode for the system developed is given below:

- Clear the screen
- Display a welcome to package message
- Clear the screen
- Display the Main-Menu shown below

    1. Add Data
    2. Edit Data
    3. Load Data
    4. Make a Query
    5. Delete Data
    6. Print Data
    7. Quit

- Enter your choice
- If Choice selected is 1

  Then enter data in the form generated.
- If Choice selected is 2

  Then query the record to be edited in the form generated and do necessary editing.
- If Choice selected is 3

  Then the program to load data into the tables is run.
- If Choice selected is 4

  Then display the Query-Menu, Ask the choice and take action accordingly.
- If Choice selected is 5

  Then query the record to be deleted in the form generated and then delete the record.
- If Choice selected is 6

  Then display the Print-Menu, Ask for desired option and perform accordingly.
- If Choice selected is 7

  Then terminate the program execution and exit to dos prompt.

9.2 IMPLEMENTATION

For implementation of the system developed, the requirements are an IBM Compatible PC with hardware specifications - minimum of 4 MB RAM with about 18 MB hard disk for Oracle and sufficient space to hold the

database. And for the online system, the requirement is a mainframe system DCM COSMOS 486 capable of being made online with sufficient enough space to hold the database and connected to various users with the help of telephone lines and modems.

9.3 TESTING

System testing is the stage of implementation which is aimed at ensuring that the system works accurately and efficiently before the actual operations are done.

The developed system was tested successfully with the test data of 28 institutions.

Chapter # 10

Conclusions & Remarks

CONCLUSIONS & REMARKS

10.1 CONCLUSION

The main aim of the project was to import the database of the Scientific Research Institutions of India to Unix Oracle and make it searchable online. This aim was successfully achieved by the system developed.

10.2 REMARKS

The system does the needful job well, but because of the Oracle Long-field not working, it is advisable that the data of the long fields be entered directly in the Oracle database rather than first inputting it in dBASE and then downloading it into Oracle.

Appendix

APPENDIX

This appendix is for the expansion of various field names used in various tables.

Used in table SRISTAT:

Field Name	Field Expansion
LIN_NO	Line Number
CODE	Code
STATION	Field Station

Used in table SRIACHE:

Field Name	Field Expansion
LINE_NO	Line Number
CODE	Code
ACHIEVEMENT	Achievements

Used in table SRIDIV:

Field Name	Field Expansion
LAIN_NO	Line Number
CODE	Code
DIVISIONS	Divisions

Used in table SRIOBJ:

Field Name	Field Expansion
CODE	Code
OBJECTIVES	Objectives
LANE_NO	Line Number

Used in table SRIFAC:

Field Name	Field Expansion
CODE	Code
FAC_NAME	Facility Name
FAC_DESC	Facility Description
FAC_DESC1	Facility Description

Used In table SRIGEN:

Field Name	Field Expansion
NM_OF_INS	Name of Institute
CODE	Code
ABBRE	Abbreveation
ADD1	Address
ADD2	Address
CITY	City
STATE	State
PINCODE	Pincode
TELEPHONE	Telephone
TELEGRAM	Telegram
TELEX	Telex
FAX	Fax
FOUNDED	Year of foundation
E1_MAIL	E_Mail
NM_OF_DIR	Name of Director
HEAD	Head
ACT_BUD	Actual Budget
EST_BUD	Estimate Budget
S_STAFF	Scientific Staff
A_STAFF	Administrative Staff
NAT_OF_INS	Nature of Institute
SUBJECT	Subject
OTHERS	Other Staff
HIST1	History
HIST2	History
AREA_RES	Area of Research
AREA	Area of Research
LIB_COLL	Library Collection
LIB2	Library Collection
NO_OF_PER	Number of Periodicals
SP_MAT	Special Materials
MAT2	Special Materials
SP_SER	Special Services
SER2	Special Services
CONF	Conferences
CONF2	Conferences
ANN_REP	Annual Report
ANN_REP1	Annual Report
PERIODICALS	Periodicals
PERIOD	Periodicals
NO_OF_PAT	Number of patents
DOC_FILMS	Documentary Films
DOC1	Documentary Films