Information and Library Management System

Developed By

Sara Afzal Safvi

Submitted to
Computer Center, Quid-e-Azam University
As
Partial Requirement for fulfilment of PGD in Computer Sciences

June 1997

Final Approval

Computer Center
Quid-e-Azam University

This is to certify that we have carefully gone through the thesis submitted by Miss Sara Afzal Safvi, and it is our judgement that this thesis is of sufficient standard to warrant its acceptance by the Quid-e-Azam University, Islamabad for the Post Graduate Diploma in Computer Sciences.

Committee

1. External Examiner :

   Name: _____ _____
   Signature

2. Supervisor :

   Mr. Javed Hussain
   Computer Center, Q.A.U _____
   Signature

3. Director:

   Dr. Ghulam Muhammad
   Computer Center, Q.A.U _____
   Signature

Dedication

To Dear Homeland

Acknowledgement

Profound gratitudes and acknowledgement are due to Staff members of Pakistan Council of Science and Technology, who took efforts to assist me in the developing and analysis phase of this project.

I am extremely indebted to Mr. Javed Hussain, for his excellent and meritorious advice and valueable guidance during during this project and my stay in this center. I can say "Proud to have Jved Hussain as a project supervisor and teacher".

I am also thankful to all teachers for their co-operation and sympathy during the entire academic session.

Sara Afzal Safvi

Abstract

The purpose of this project is to develop and computerise the PCST library where all tasks are performed manually. So it is extremely difficult to handle large amount of data manually and achieve required and efficient results. Through computerisation, such sort of problems can be solved and more reliable results can be obtained. The main objective in the development of the said software is same. The developed software provides efficient means of data storage, information retrieval, circulation, queries, reports, and utilities.

The software facilitates the library administration as well as library users with a plenty of information about each and every aspect of the library automation. As library administrator would be facinated by working his / her daily routine tasks in a beautifully designed graphical user interfaces, while the user will be overwhelmed to get on hand information about the desired matreial.

Contents

System Analysis
for
Proposed System

1.1 An introduction to Organization

The development in the technology has reached to an extent that none of the field is spared from its reach. The different service systems are being mechanized rapidly so as to follow the pace of development.

So, for an organization or institution to produce results up to the mark, its necessary to establish it on latest technological grounds.

Computer has brought brisk revolution in the technology, its vital importance is well recognized in almost every walk of life. Computer plays the sole part in improving the efficiency of an organization, in the sense of promptness, accuracy, time and financial discount. It is being utilized in the fields such as medicines, agriculture, education, space, business, management etc. to promote growth and outcome of the respective fields or departments in contrast to the slowness of some manual system.

Pakistan Council of Science & Technology

Pakistan Council of Science & Technology was established in 1961 and placed under the Ministry of Education and Scientific Research by a resolution of the Cabinet. In 1973, when a separate Ministry of Science & Technology was created, the Council was administratively linked to this ministry. The charter of the Council was revised in 1973 making its membership wider and its functions more broad-based. The Council's charter was revised again in 1982 and 1987 with a view to making it more independent and effective in providing the Government constant advice, consultancy and critisim based on scientific surveys and analytical studies.

The Council has a unique structure as it coprises eminent scientists and technologists representing all major areas of S&T. The members of the Council are the Executive Chiefs of all research councils, Chief Scientist nominated by the ministry of Defence, representatives of all four provinces and five leading scientists nominated by the Federal Government.

Aims & Objectives

- To consider all policy matters, proposals and issues on the overall development of Science and technology in the country and provide recommendations and advice to the National Commission for Science and Technology for facilitating their decision making.

- To identify priority areas of research and development keeping in view the futuristic developments of science and technology, especially those disciplines falling in the high technology fields.

- To act as an independent forum of senior and eminent scientists and technologists of the country and to act as a "Think Tank" to the Federal Government on policies and problems of national importance pertaining to science and technology.

- To collect statistics and maintain a data bank of the research and development institutions of the country.

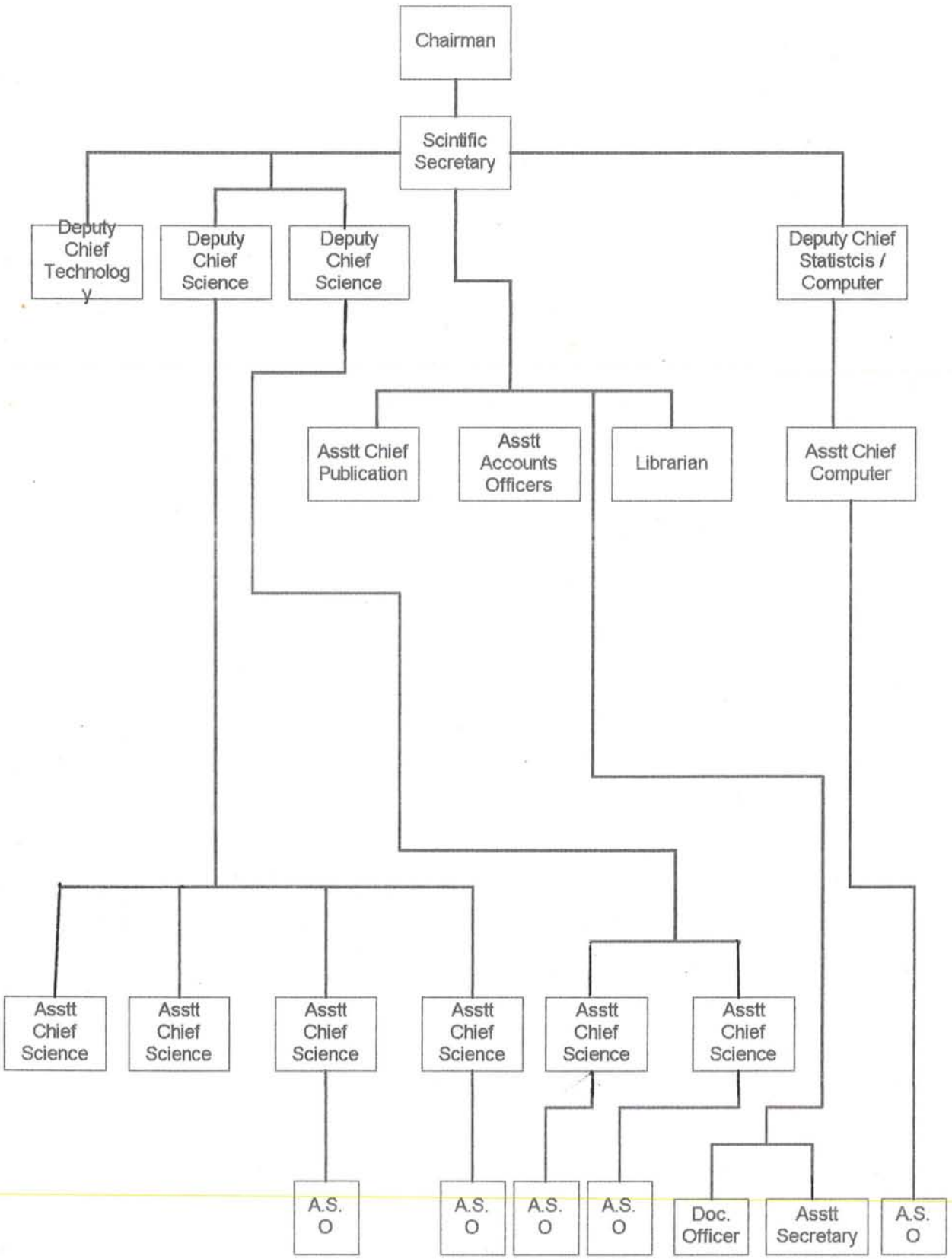
- To provide a forum for coordination of S&T activities with national and international agencies.

- To enter into contracts and agreements with national agencies for undertaking development projects in fields relevant to the functions of the Council.

- To organize study groups and tasks forces for dealing with issues such as :

  (i) Scientometric studies and analysis of science and technology data.
  (ii) assessment of innovations and the impact of science and technology policy and programmes on the overall development of the country.
  (iii) preparation of state-of-the-art reports on important scientific and technological issues.
  (iv) identification of priority subjects which have a bearing on the scio-economic development ; and
  (v) promotion of consultancy services for scientists and technologists in various important fields.

Pakistan Council Of Science & Technology



1.2 What is Library

Almost every day of life, we receive and process information we watch the evening news, we read a billboard. Sometimes we purposely welcome information (e.g. Reading daily newspapers), while at other times information is forced upon us (e.g. almost any T.V commercial).And as students enrolled in various courses they receive various information from their instructors in their lectures and from the text books they read. But receiving and processing information are one thing and finding it is another. And this is precisely where the library comes.

What is a library, any how? It is a place, Where the information is collected and organized for study, reference, reading, to borrow any material. There are different kinds of libraries. But regardless of type, every library can be distinguished as the principal agent in our society for giving us access to information.

1.3 Library Functions

Acquisition is the general term applied to the function of obtaining the library materials such as books, periodicals, articles, audiovisual aids etc., which make up library's collection.

Accessioning is the act of adding materials to the library. It has been traditionally meant as assigning of copy identification number to each volume or other form of library material as it is added to the library collection, and the recording of selected information about it in permanent record.

Cataloguing gives us access by subject, author, title to most of the material owned by the library.

Circulation often serves as the nerve center of the library where any material is borrowed from and returned to, and many informative questions are asked where.

1.4 Problem Statement

Provision of all the information is the ultimate aim of every library or information center. But the information explosion of the present age has made absolutely impossible for a single library or information center or even state to collect all the information being generated through out the world.

In a library computer's utility is of worthy mark. If the researchers are not provided with the up-to-date reading materials quickly, their knowledge can't match the on going developments in the world. So it becomes necessary to provide them latest knowledge to let them extract the material of choice to the extent of their convenience.

In dream of maintaining the information about the material available in library to be available to the researchers at the time of need, I was assigned a task of designing the computerized information and management system, so as to expose the library to the readers and keep the books and members record.

Existing System

Existing System

This chapter provides a detailed description of the existing record keeping procedures of library and its deficiencies. It also narrates the objectives of the proposed system.

2.1 Inventry Record Keeping

Presently all the daily as well as monthly and yearly activities are performed manually. The library deals with technical books. In order to provide quick response to the possible queries, the existing system was studied.

After acquiring any material (i.e. Books, Magazines, Articles, AudioVisual Aids) from the source on the demand of respective authority the stages are as described below.

To each material a unique copy number, called the Access No, is allotted. The accession record is customarily kept in Accession book available. Access No is labled on the left side of the material. The information entered in accession book include the following fields.

*Access No	*Name
*Category	*Author Name

Each type of material is categorized differently with respect to subject, e.g. Chemistry, International Relations, Women Affairs etc. Each subject is assigned a block of numbers, To illustrate this point, let us suppose that a block of numbers (1 - 4000) is assigned to International Affairs then the books related to IR will be accessioned within the assigned block of numbers. In case the books exceed the last number of the block, then a unique one or two letter code is added with the accession number.

2.2 Borrower's Record Keeping

The library has issued two library cards to each user. Each user can borrow only four items (i.e. Book, Magazine, Article, AudioVisual Aid) at a time and can keep these items for 15 days. At the time of issuing Membership Cards to the user, the librarian enters Member's record in a register. The Member's record include the following fields.

*Name	* Membership ID
*NIC No	* Refferals
*Address	* Classification

When any item is issued to the member, proper entries are made in the issue register and Item card along with the Membership card is kept in a separate cabinet.

2.3 Draw Backs of the Existing System

The following deficiencies exit in the existing system.

- There is no type wise classification of each material. It does not help the user to access the required material immediately e.g. if some user needs any article about International Relations then he/she has no way to get each and every available article on this subject.

- No efficient system is present there to let the users know about the fresh arrivals. The proposed system provides the user with the provision to study .
- Access to the material of choice is difficult as one has to search for the required book without knowing its status i.e. whether it is issued or available. So most users quit the library after wasting long time in search of required book.
- When a user comes to the library for borrowing a specific item, he/she has to search in all almirahs manually.

Since the system is maintained and organized manually, so searching any specific item is such a headache for the user, which he/she can't get rid of. Obviously, it takes a lot of time and efforts and hence it makes the overall performance of the system poor.

2.4 Reasons to replace the Existing System

There are two major reasons to replace the existing system.

- As the library authorities purchases some material (e.g. books, magazines etc.), it adds more information and as the number of users also increases, their demands would also be more than what can exactly be supported by the existing system. Naturally it would decrease the efficiency of the system.
- Many user come to the library and if they do not immediately find what they need, they leave the library saying that the library has nothing for them. In doing so they are deprived of the most valueable resources available to them.

To remove the present drawbacks from the existing system and make flexible provisions for the future needs, it became essential to replace the existing system by an efficient computerized system.

Proposed System

Proposed System

This chapter describes the structure of the proposed system in detail. Software as well as hardware requirements are discussed and advantages of the proposed system.

This system is proposed to resolve the problems faced by the users in extracting materials of choice and the librarian to keep the database. The proposed system is computer based automatic system, which functions according to the flow of options in electronic pulses. It is an efficient and error free system.

3.1 Objectives of the Proposed System

Keeping in view the drawbacks of the existing system, it became necessary to computerize the library. This project was initiated by the head of PCST.

The primary objective of this project is to maintain the records of the library. These records should be kept in a user friendly computerized system so that information retrieval is done an efficient and speedy way. It should also facilitate the end user to enter the data of the new records as well. In addition to all this the system should be generic to meet the each and every requirement of libraries regardless whatever system any library adopts. The main objectives of this project are:

- To computerize library for quick and easy retrieval of information and for the proper maintenance of records.
- Preparation of reports which are more informative.
- Conducting various on-line queries on different aspects of the system using different criteria.

3.2 System Description

For the proposed system it is suggested that the information to be stored in a computerized database. A computerized database is consisted of integrated collection of computer files physically stored on any storage media.

This database is designed in such a way that it provides user with a number of facilities for handling data efficiently.

Input to the database is made through a form which is identical to that of screen. Once all the forms are collected, input is made to the database by the data entry operator.

The data about material is stored in the database which can be retrieved through different angles. Material information can be made through Access No, Name, Category, Author, Price etc. The librarian can also retrieve data from this database multidimensially e.g.

- To know about the present no of copies of a particular material through Accession No.
- Total no of material available in the library

The information about Members can be retrieved from the database through Member's Name and Membership Id. The information about material issued and received can also be extracted from the database like; which material is issued to whom, return due date, generate a reminder to a member having any material whose due date is over. It should

also provide every possible query report. The database is designed in such a way that it provides fastest retrieval and utilizes minimum storage with minimum duplication of data.

Furthermore, it provides the facilities of updation, data in the records can also be updated to accommodate any type of changes occurring in the data about materials and members from time to time. New records can be added to the database without any difficulties. Moreover there is a possibility of mistakes committed by the data entry operator during the input operations. But the editing facilities provided in the software ensure the correct and flawless data entry in the database.

3.3 Software Selection

A database can have three aspects input to and output to and from the real world, the programs that manage all the operations and storage of information. Out of these the programming aspect is the most important one as it controls both the input activities and the storage of information inside the database. Thus it is very important that a suitable programming language should be chosen keeping in view all the aspects of the problem.

The proposed system is such that it involves the storage and processing of large amount of data; specifically the records of thousands of material and hundreds of members. Moreover it provides the retrieval of information in the shortest possible time.

Visual Basic (4.0, 32 bit) full fills all these requirements well because of the following features and advanced techniques.

- It is a commercial language and has strength in such applications.
- It has the ability to handle large amount of data. It can process input files and print reports of various formats.
- Its processing speed is fast and has a good set of diagnostic features that helps, locate and identify errors, while programming in it.

3.4 Hardware Requirements

The minimum hardware and operating system requirements for this system are

- Any 486 DX2/100 Mhz computer with minimum of 8 / 16 MB RAM, 540MB hard disk and flloppy drive.
- Any type of printer with a minimum of 80 column paper width.
- Windows 95 operating system or any later version.

3.5 Advantages of Proposed System

The system designing for a particular organization is done keeping in view the present and future needs of the organization, and the basic objective is to provide a more efficient system. Thus it is desirable and necessary that the new system should be more reliable, accurate, flexible, economical and quick in generating results. So the system is designed keeping in view all these points. It would be valueable for the library management to provide easy access to all available material, Members' information with the help of computerized system. The salient features of this system are as follows.

Processing Speed: The use of automated methods almost invariably speed up the flow

of work, therefore, in library new materials can be released sooner for the readers.

Work Control: Work load records can be prepared automatically. Computerized work load records are more accurate than manual ones. Inventry process can also be automated.

Increased Access to Information: Different on line queries and a wide variety of search options is almost a guarantee to the increased access of information.

Staffing: Where possible, it is generally preferable to meet the needs for increasing use of equipment rather than increasing number of personnel employed. Generally equipment is cheaper than personnel it is more reliable, more flexible and does not become bored. Computer is never on vacation, on strike or sick. They are more dependable and can work all the time without getting tired.

Accuracy & Efficiency: The new system will be more efficient and reliable while data entry tasks and searching for any specific material. There is no chance of entering a duplicate or wrong data, because there are all possible consistency validation checks which have been build in the system and they do not allow wrong data entry.

Time Saving: Time is an important factor for the running of an organization. Every one wants a quick response to his/her queries, because decisions are based on up-to-date information. Due to the high speed of information processing, the proposed system will take less time to access information from database.

Flexibility: The proposed system is flexible with slight changes and amendments at any stage the system can be expanded for the future requirements.

User Friendly: The system is user-friendly. No specialized computer staff will be required, because it is a menu driven system through which one can easily proceed further and access the required information through queries and reports. The system prompts the user with appropriate help. So the user gets very friendly environment in order to perform his / her tasks.

Scrolling System This system provides results in the form of beautifully designed screens which scroll on like the turning of pages.

Retrieval is made in a classified manner so that it can meet all the possible queries of the user.

Comprehensive Reports are provided to facilitate the authorities in decision making. These reports can be generated by giving a single formula (Query) statement.

In the light of the above achievements, it is confident that this system will prove to the best level while satisfying all possible queries.

System Designing

This chapter deals with the design of the proposed system. Input, output and file designing is covered intensively. Description of all the data files used in the package is also given.

4.1 The Design Phase

In this phase detailed definition of the tasks are established. These tasks are as follows.

- Input Designing
- Output Designing
- File Designing
- Code Designing

4. 1.1 Input Designing

In order to design a system it is necessary to know input data. Each report or each part of the system depends upon the input data. The data collected from library and its nature are as follows.

4.1.1.1 (A) Data about Books

1. **Accession No** (Each material is allocated a unique accession number, multiple copies of the same material on a particular subject have different accession no.)
2. **Name** 3. **Title** 4. **Author** 5. **ISBN No**
6. **Publisher** 7. **Vol.. No** 8. **Entry Date**
9. **Category** Describes the subject of the book
10. **Level** Describes the information level contained by the book
11. **Purchasing Date** 12. **Edition**
13. **Place** Tells the physical placement of book on shelf.
14. **Mode** Shows whether book is for reference or general purpose.
15. **Publishing Year** 16. **Copies** 17. **Pages**
18. **Contents** Contains the name of contents file.

(B) Data about Magazines

1. **Accession No** 2. **Name** 3. **Month** 4. **Purchasing Date**
5. **Volume No** 6. **Publisher** 7. **Place** 8. **Entry Date**
9. **Contents** 10. **Price** 11. **Pages**

(C) Data about Articles

1. **Accession No** 2. **Topic** 3. **Writer** 4. **Place**
5. **Published In** Shows the name of source i.e. magazine, book etc.
6. **Date** 7. **Abstract** 8. **Pages** 9. **Entry Date**

(D) Data about AudioVisual Aids

1. **Accession No** 2. **Name** 3. **Title** 14. **Pur.. Date**
5. **Type** Tells the medium, Audio/Video Cassette or Cd

6. **Mode** 7. **Place** 8. **Recording Co**
9. **Duration** 10. **Price** 11. **Contents** 12. **Volume No**
13. Entry Date 14. Category

(E) Data about Members

1. **Membership Id** 2. **Name** 3. **Nic No** 4. **Department Id**
5. **Designation** 6. **Mem..ship Date** 7. **Expiry Date**
8. **Classification** 9. **Per.. Address** 10. **Cur.. Adress**
11. **Refferals** 12. **Fee Paid**

4.1.1.2 Data Entry Form Designing

A form is a source to hold perfectly relevant data and is used for recording source of data, input data, processing data and output data. The major factors involve in form designing are as follows.

- Purpose of the form
- Physical characteristics of the form.
- Type of data to be recorded.
- Method of data entry.

A well designed form increases the level of accuracy. The form should be designed consciously to the convenient extent of the user. From aid in providing necessary information to meet the set targets. Therefore the form should be easy to understand.

For library database two types of Data Entry Forms are to be designed to establish the data entry in classified manner.

1. Data Entry forms for Books, Magazines, Articles, AudioVisual Aids.
2. Data entry forms for Members.

4.1.1.3 Data Entry to the Database

The first thing one has to do when one uses a database software is to enter the records. The simplest way of getting them into the machine is to allow the user to type into a form on the computer screen. The screen for this database is designed in such a way so as to make the process of data entry as convenient as possible.

4.1.2 Output Designing

As the system is an information retrieval system, it needs the information not only to be displayed but also to be printed.

4.1.2.1 Screen Display

The retrieved information should be presented in an attractive way and it should enhance understanding and lead the user in a good mood. The screens are designed beautifully, covering the retrieved information. The multiple choices of the retrieval are available with the help of a search screen. Where various fields are available so the user can search specific records according to by entering a simple query statement.

4.1.2.2 Report Writing

Proposed system facilitates the user with a provision to generate reports according to given formula. Actually Crystal Reports for visual basic allow to output data on printer depending upon the conditions given by the user. Suppose if a user needs to generate a report to examine the total available magazines for the month of September, a simple formula statement will him out for the real solution. Simple reports can also be generated.

4.1.3 DataBase Designing

When we collect data and organize it for particular purpose we term it file. The file may be thought of as extension of memory on the secondary storage whether for an indivisual or for a computer. It may be temporary or permanent depending upon its purpose for which it is organized. Visual Basic supports many database engines to work with e.g. Oracle, Foxpro, Paradox, Access. For the said project MicroSoft Access is used which allows to collect several table (Database files) under a single Master Data Base file with the extension MDB. The MDB file for the said project is ILM.MDB which contains following tables.

Table 1 **Books**

Name	100	Text
Accession No	15	Text
ISBN No	25	Text
Title	75	Text
Author	40	Text
Publisher	50	Text
Category	100	Text
Edition	10	Text
Place	25	Text
Copies		Integer
Pages		Integer
Volume No	10	Text
Price		Integer
Entry Date		

Table 2 **Magazines**

Name	100	Text
Accession No	15	Text
Month	10	Text
Volume No	10	Text
Publisher	50	Text
Place	25	Text
Price		Long
Pages		Integer
Title	75	Text
Entry Date		Date

Table 3 **Article**

Topic	100	Text
Accession No	15	Text
Writer	40	Text
Date	15	Text
Published In	50	Text
Pages	15	Text
Place	15	Text

Table 4 **AudioVideo**

Name	100	Text
Title	50	Text
Accession No	15	Text
Place	15	Text
Type	50	Text
Mode	10	Text
Price		Integer

Subject	100	Text
Article	30	Text
Entry Date		Date

Vol No	10	Text
Category	100	Text
Entry Date		Date

Table 5 **Members**

Name	40	Text
MemberShipID	25	Text
NIC No	15	Text
Dept ID	25	Text
Designation	100	Text
Mdate	15	Text
Edate	15	Text
Status	50	Text
Address	70	Text
Fee		Long
Renewal Date	15	Text
Refferal	40	Text

Table 6 **CheckInOut**

Mname	40	Text
MemID	25	Text
DeptID	25	Text
..Name	100	Text
Accession No	15	Text
Issue Date		Date
Return Date		Date
Receiving Date		Date
Status	10	Text
AvlCopies		Integer
Tcopies		Integer

Each available material (i.e. Mags, Article etc.) has its concerned checkInOut table which stores the information about the status and issue, return, and receiving dates of that material. While other tables consist of general data about concerned material.

4.1.3.1 Selection of File Organization

File Organization has important effect on the performance and associated cost of the system. Cost is included as storage cost and time per query. Therefore records in a file should be logically organized that they can be retrieved within minimum time for efficient processing. The four major factors considered for the files selection are as follows.
The Database engine which is used to maintain database for the said project is MicroSoft Access. MicroSoft Access supports easy storage and retrieval of information. Moreover it helps to enjoy all plus points given below.

- Volatility
- Activity
- Size
- Life of the file

4.2 Software Development

4.2.1 Development Phase

As the analysis phase ends, here comes the development phase. Which actually full fills the requirements. This phase includes definitions and testing of system. This is the most important and sensitive phase, which makes the system operative. The developed software extends Data Entry, Modifications, Retrieval, Circulation, Study Articles and Fresh Arrivals facilities to the user.

4.2.2 Programming Strategy

Programming environment which is provided by the Visual Basic is Graphical User Interface, which actually allows the user to respond against the events. Events are actually interrupt messages of any device (Mouse, Keyboard etc..) which is directly dependent upon the user who controls or uses it. Visual Basic primarily provides with event driven programming. Event driven programming basically allows the programmer to assign a task to the processor in reply to any occurred event (e.g. user clicked any command button). This doesn't allow the programmer to write a long single program in order to perform his / her tasks. Event driven programming is quite like modular programming.

Each and every command button or control (if programmed) on the screens performs its tasks whenever it receives any event (i.e. Mouse move, Click, Key press etc..).

Information & Library Management is splited into different sections. Each section is responsible for such specific tasks e.g. Inventry control screen is assigned a job of database management, While Issue / Return screen is responsible for the daily circulation of each and every available material of library.

All these sections are integrated under a single menu. User can return to main menu from the very inner level of screen any time. Screens hierarchy is not much complicated.

Implementation

Implementation

This chapter describes testing and implementation phase of the system. Different conversion strategies which can be adopted for switching over to the proposed system are also narrated in this chapter.

5.1 Implementation

It is the process where the manual system is replaced by the computerized system. The goals of system implementation are to transfer the plans, schedules and design into integrated functioning operation.

There are three conversion methods to implement a system. In data processing, conversion is defined as the process of change.

1. From one data processing method to another.
2. From one form of representation to another.

Conversion is referred as the relationship between the old system and the new one.

5.2 Testing the System

The basic concept of system testing is to know that the system designed for the implementation leads towards the accomplishment of the goals and objectives of the organization.

This library system was tested with the sample data of material, and the queries and reports generated by the new system were checked for validation.

The three conversion methods for implementation are as followings.

1. Direct Conversion
2. Parallel Conversion
3. Pilot Conversion

5.2.1 Direct Conversion Method

In this type of conversion, manual system is converted into the new system immediately. Then the presently working system is abandoned and the new system takes its place.

5.2.2 Parallel Conversion

In this conversion the old system continues parallel with the new system. It is the safest approach to run both old and new systems simultaneously, until it is satisfactory established and the results produced by the new system are accurate and reliable. Later on the old system is abandoned.

5.2.3 Pilot Conversion

In this conversion new system is partially implemented, until it can be determined that the new system works correct and can be implemented by the organization.

5.3 Conversion Strategy

The Direct Conversion method is not safe, because in case of any damage the

previous data would be lost.

The Pilot Conversion is not suitable because it is not sure that the remaining systems will operate perfectly even if the pilot conversion subsystem is working smoothly.

The most suitable method is a Parallel Conversion, because in case of any damage, a backup is available there. Moreover the user will get more time to familiarize himself with the new system. So for the sake of security parallel conversion is opted for the current system. It helps the user understand each and every detail regarding system without any time constraints and tension.

User Guide

This chapter contains user guide in the end appendices are given which include system flowcharts, hard copies of input screens, menus and reports.

The system designed is user friendly. It is made intelligent enough to guide user in right way. It displays appropriate messages where necessary. ILM can be installed by entering mere 'A:\Setup.exe' in the Run window. Windows 95 will automatically construct a task bar in the start menu. So the user can invoke ILM by clicking that task bar from the start menu in Windows 95 environment.

As soon as ILM has been run, first comes the system title, this gives a brief information about the system and the name of the designer. After pressing any key, here comes the Password screen. This screen accepts password to invoke Main Menu screen. Each command button available on this screen invokes the concerned routine.

User Guide

On each screen user is provided with help button. If the user needs some help, he/she just has to click the help button, the mouse cursor will be changed to help cursor, now the user can again click the command button which he / she want to know about.

Inventry Control

When the user selects this option, a screen appears with a common command panel and a page like partial screen which allows the user to Add, Edit, Delete, Search, Move records of any of books, magazines, articles, audiovisual aids.

Members Data

This screen allows the user to keep data regarding members. User can Add, Edit, Delete, Search, Move records about members.

Issue / Return

This screen facilitates the Administrator with 'Check In', 'Check Out', 'Availbility' 'Data Deletion' options. Check In option first accept the Membership Id then it checks whether the member has already some issued material or not. If the member has something issued previously and shows this information. As well as it checks the number of issued material, if it is equal to the number of maximum number, member can issue material according to, it simply refuses to check in any further material on account of the member.

Check Out option behaves in the same manner. Except it checks the number of material to be returned. Availability first grasps the input from the user, which is usually the name or title of any required material. Then the system searches the database for the match. This search is quite lenient in order to search for any string, as it could match the input string in between the field contents. Data Deletion option allows the administrator from guarding the database being unnecessarily huge

Reports

Availibility of quick reports is an vital feature of any software developed to manage large sized databases. ILM supports this feature very effectively. By clicking this command button user is facilitated by the provision of generating formula depended and generic reports. Out put can be transferred both to the screen as well as the printer.

Fresh Arrivals

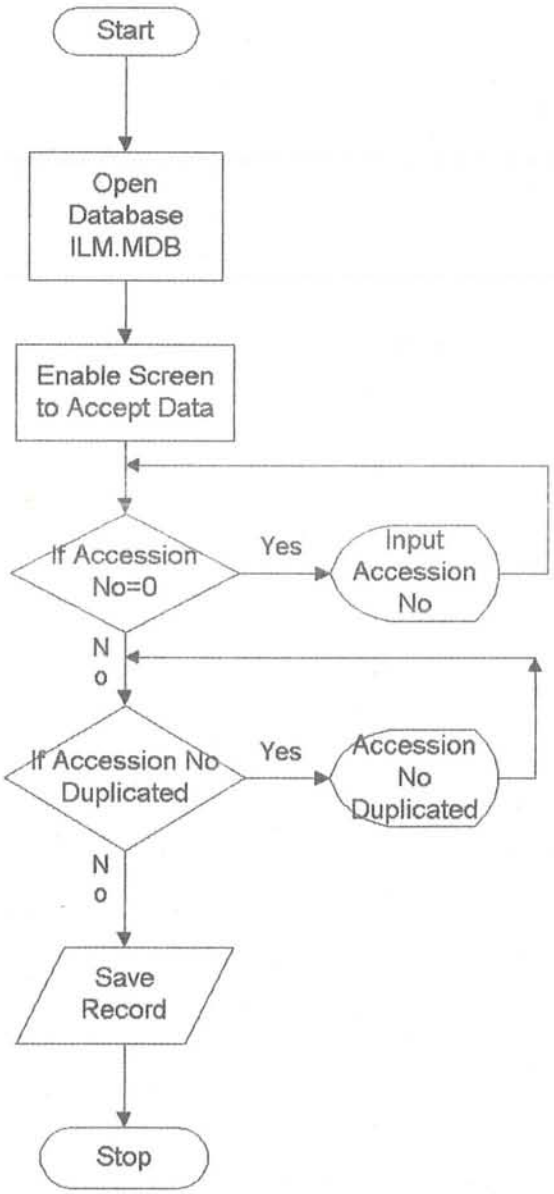
The purpose of this option is primarily to provide the user with the latest information about the fresh arrival within a month regarding any material. It also allows to search any specific material with the help of search screen. User can also search about any topic in the contents file of the concerned material.

Study Articles

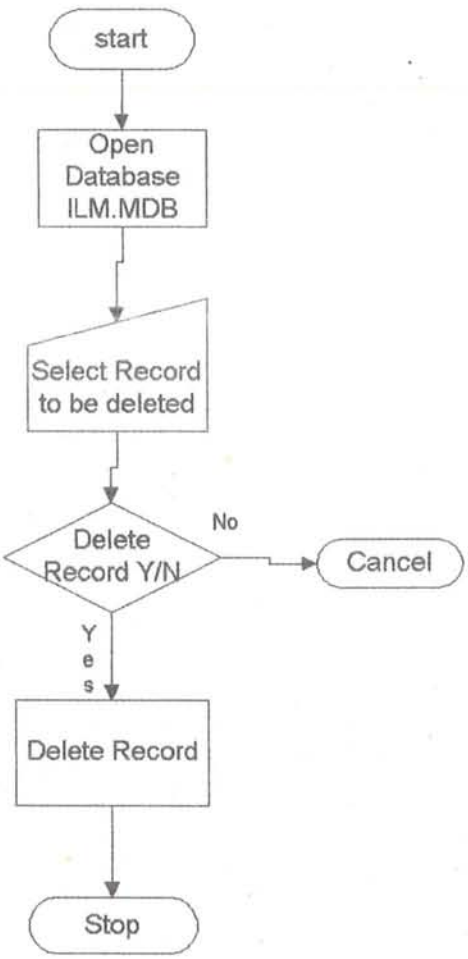
The provision of this facility is basically to provide the user with on line research articles. User can simply scroll into the list of available articles. Simply typing the first character of the article's topic will lead the user directly to that article without scrolling the entire list. User can take print out of that desired topic immediately.

Flow Charts

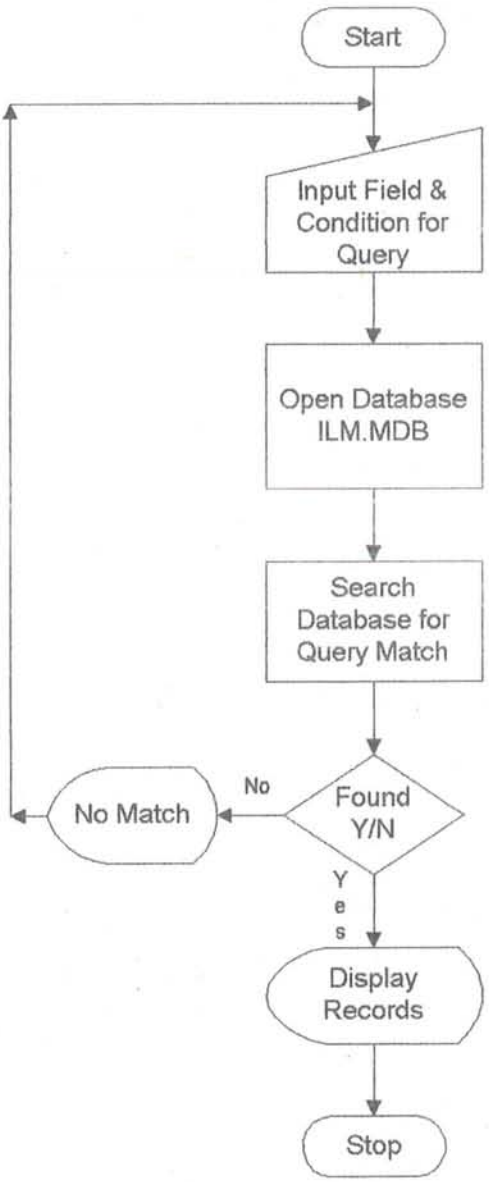
Adding / Editing Record



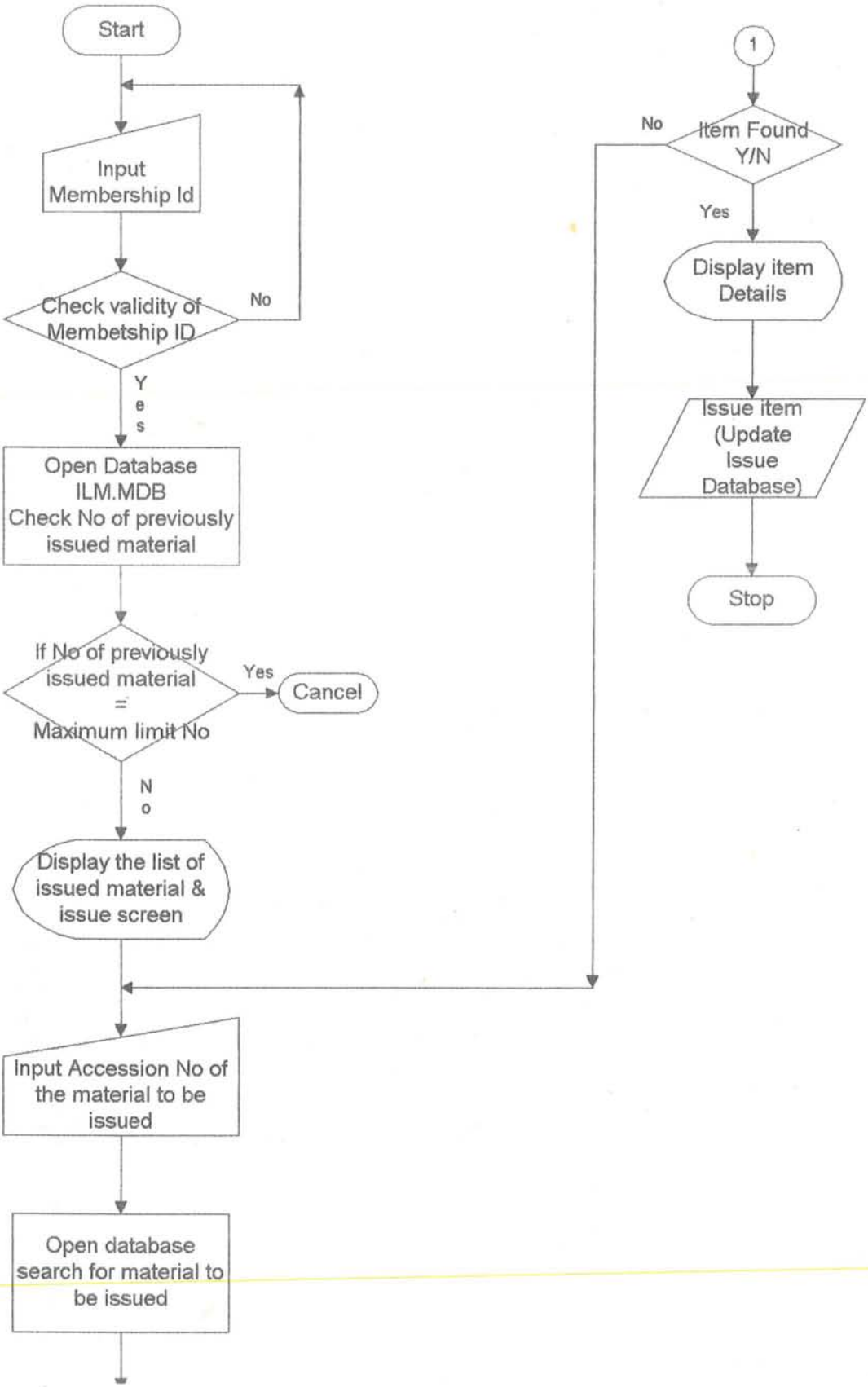
Delete Records



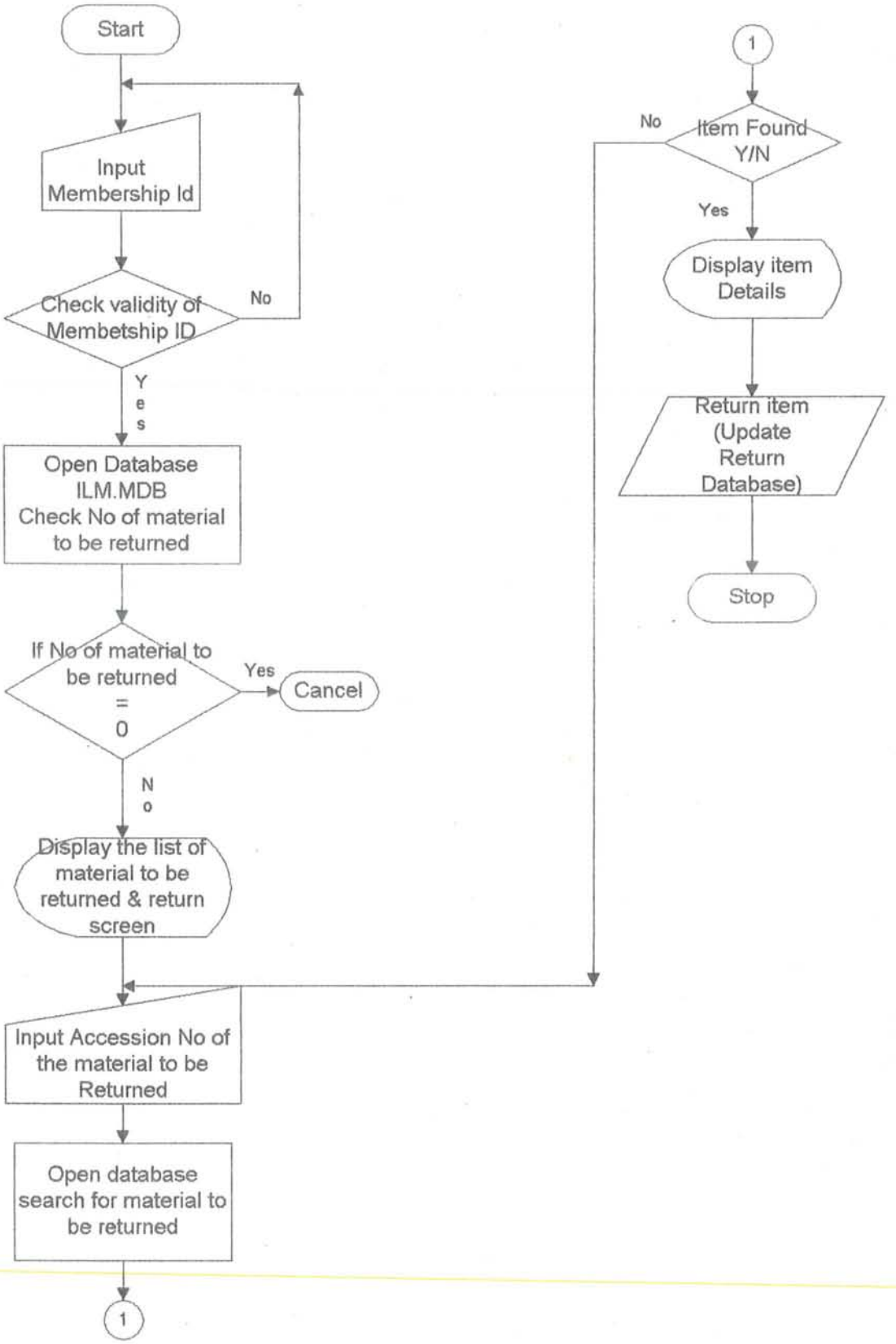
Search Records



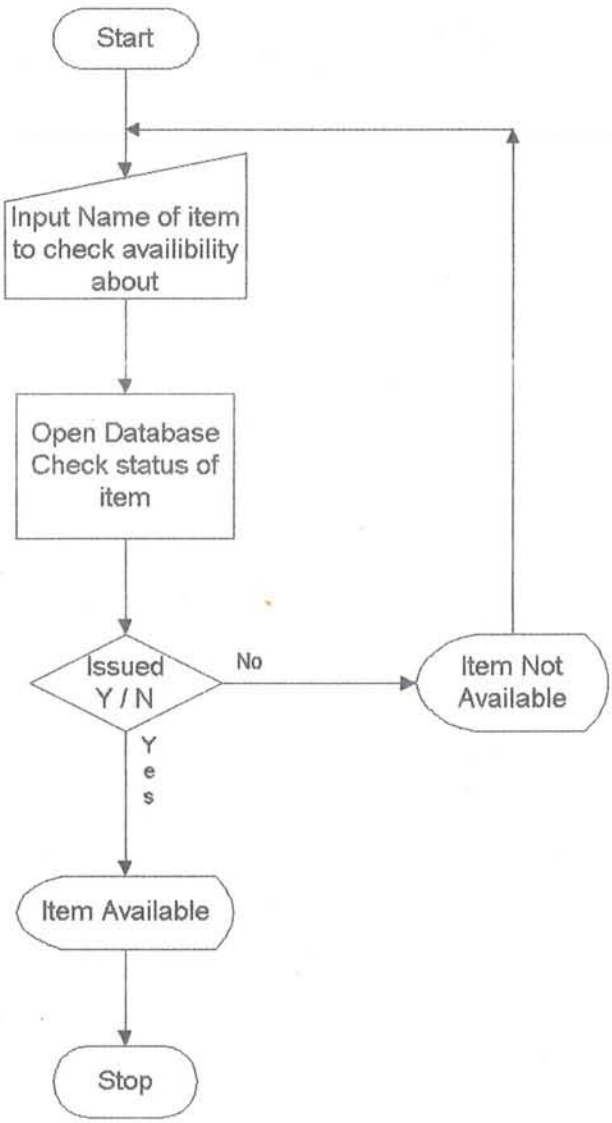
Issue any Material



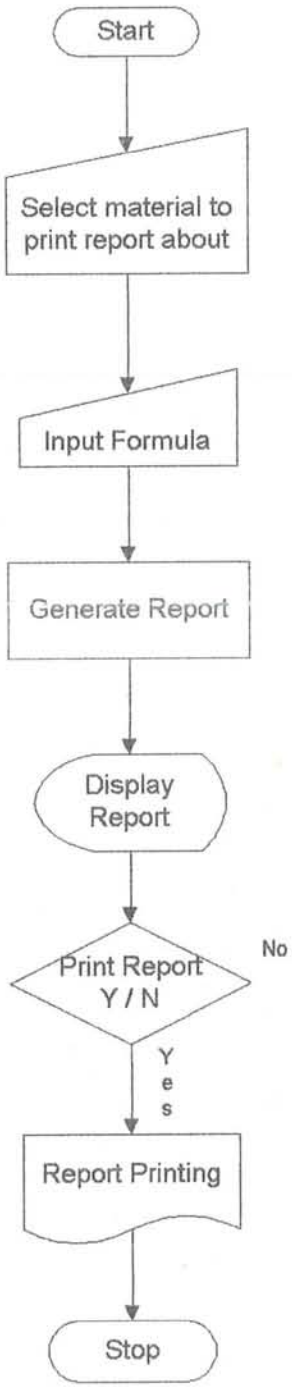
Return any Material



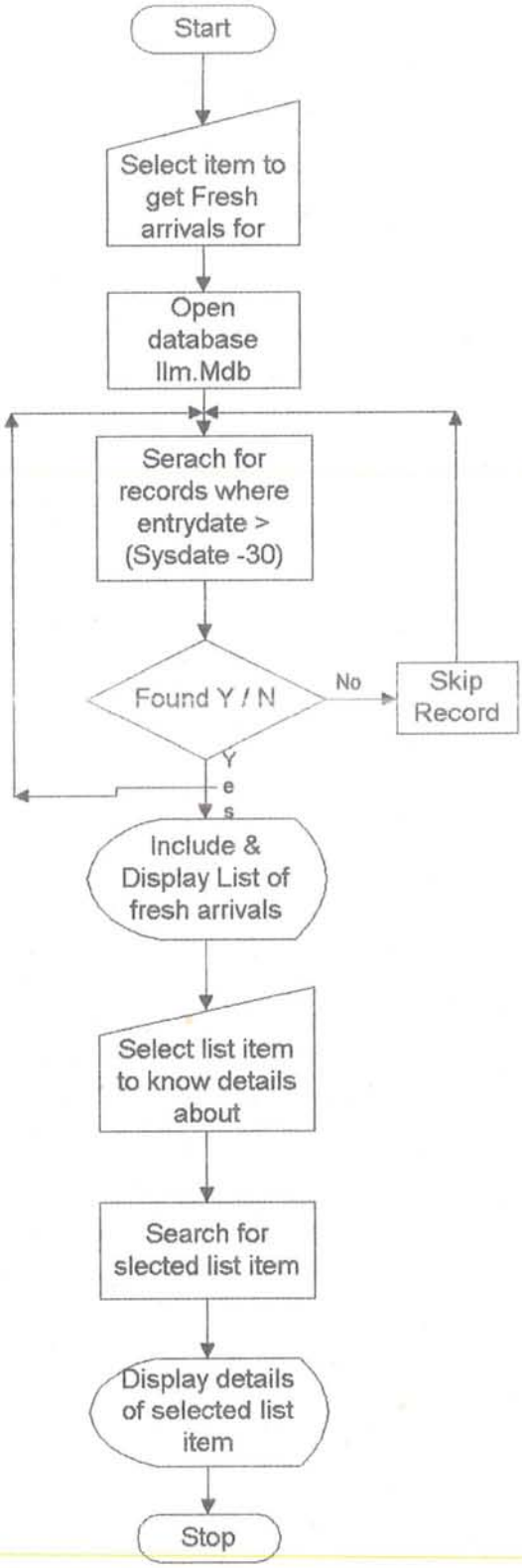
Availibility



Reports


Start
Select material to print report about
Input Formula
Generate Report
Display Report
Print Report Y / N
No
Y e s
Report Printing
Stop

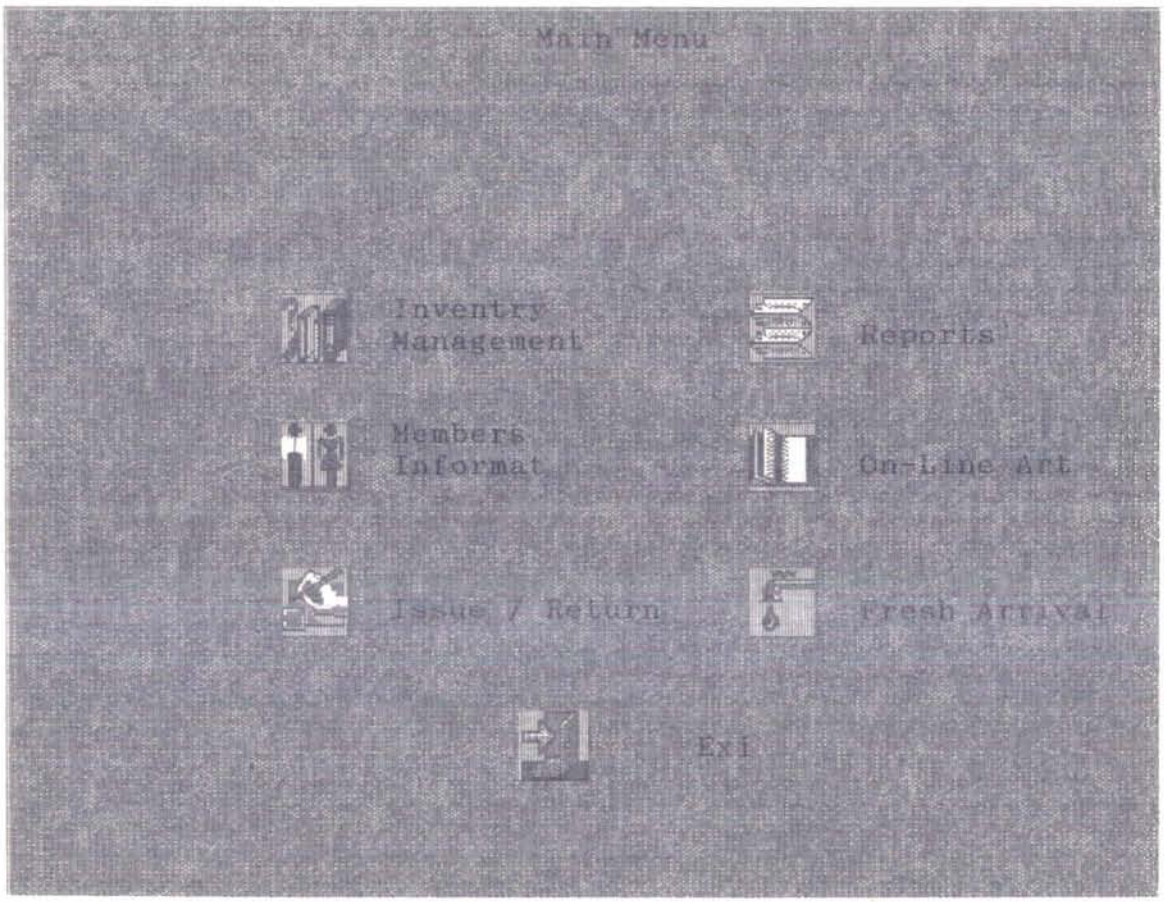
Fresh Arrivals



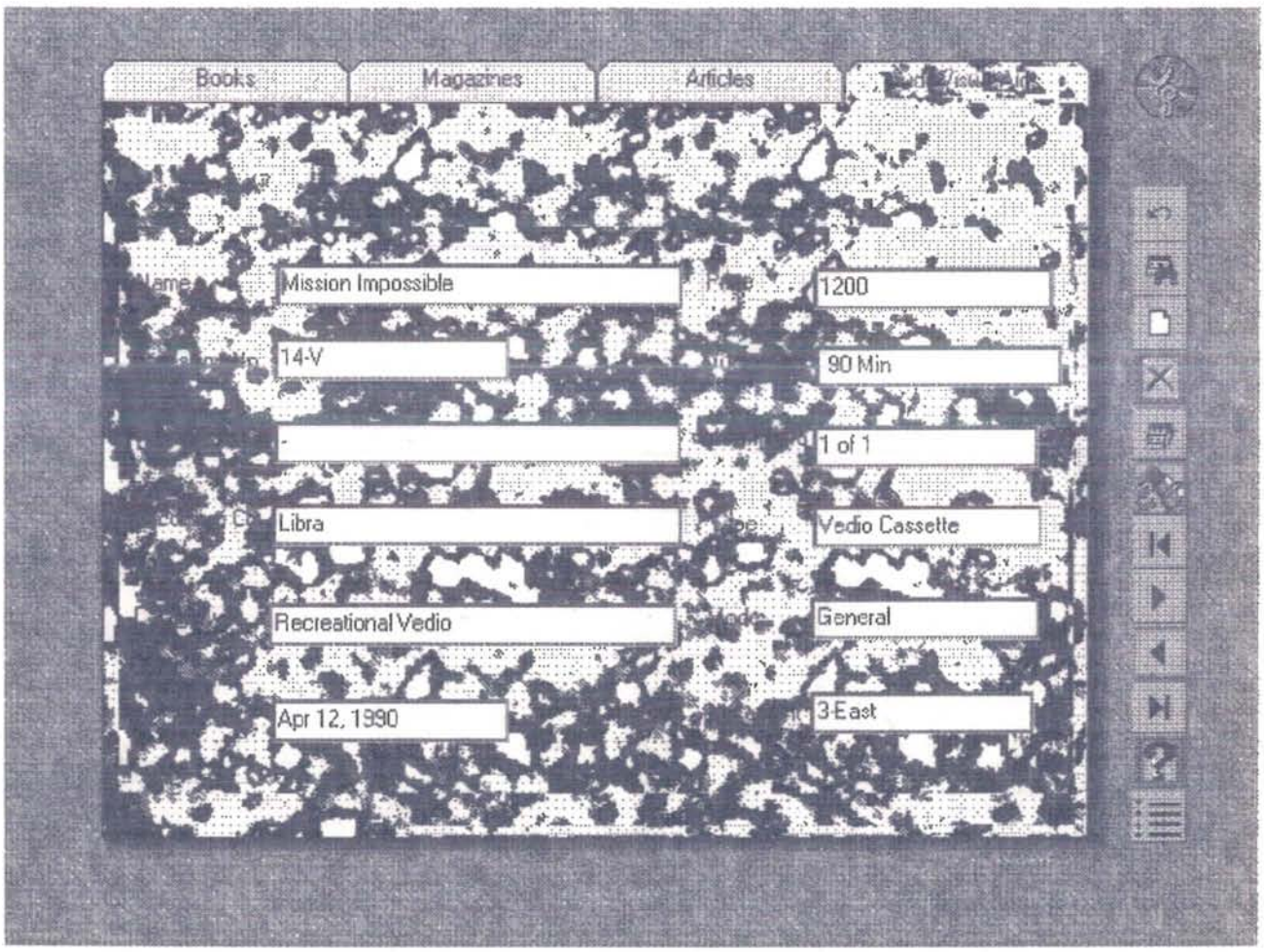
User Interfaces

TITLE SCREEN

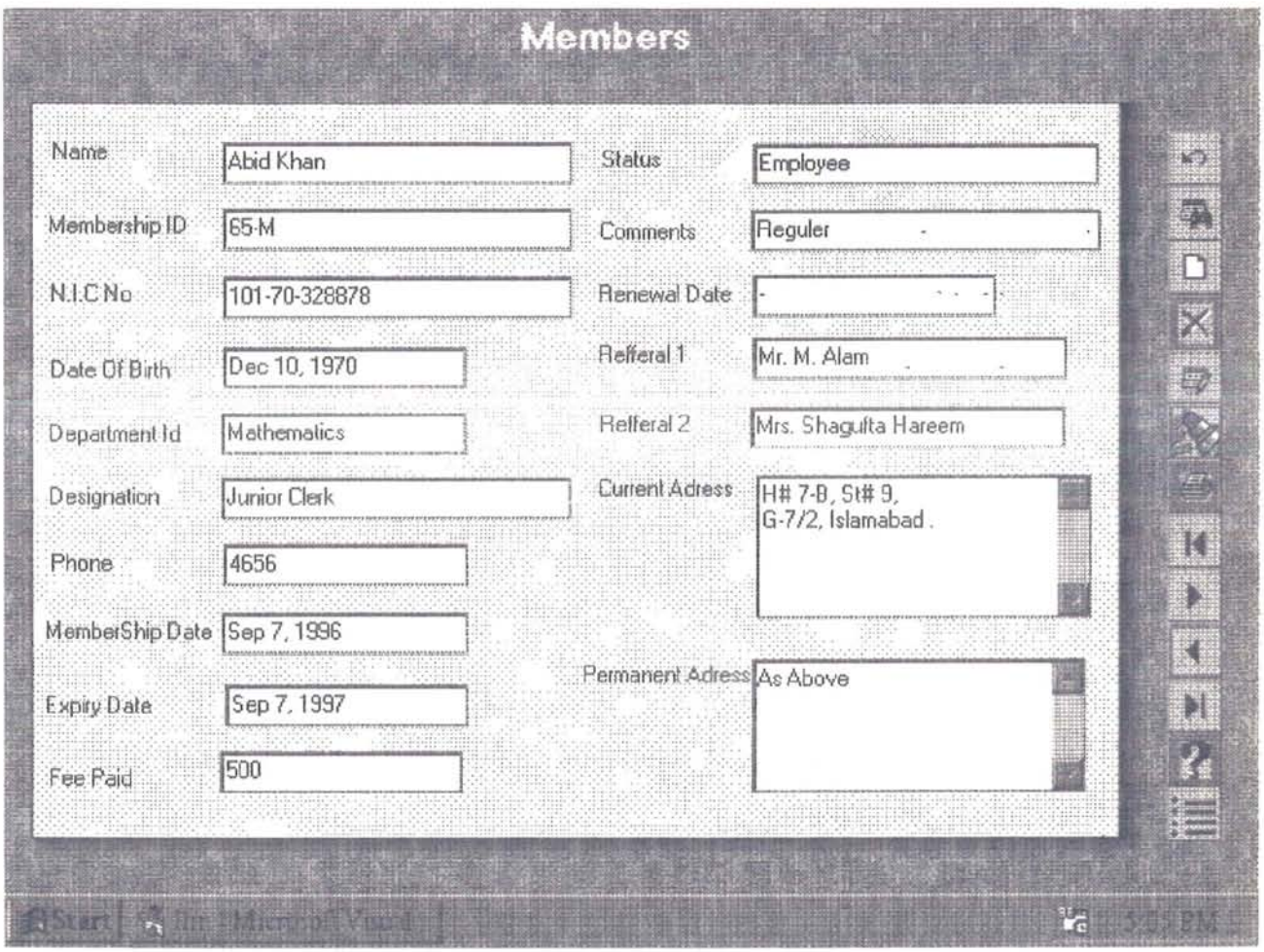
PASSWORD SCREEN


Main Menu
Inventry
Management
Reports
Members
Informat
On-Line Art
Issue / Return
Exi

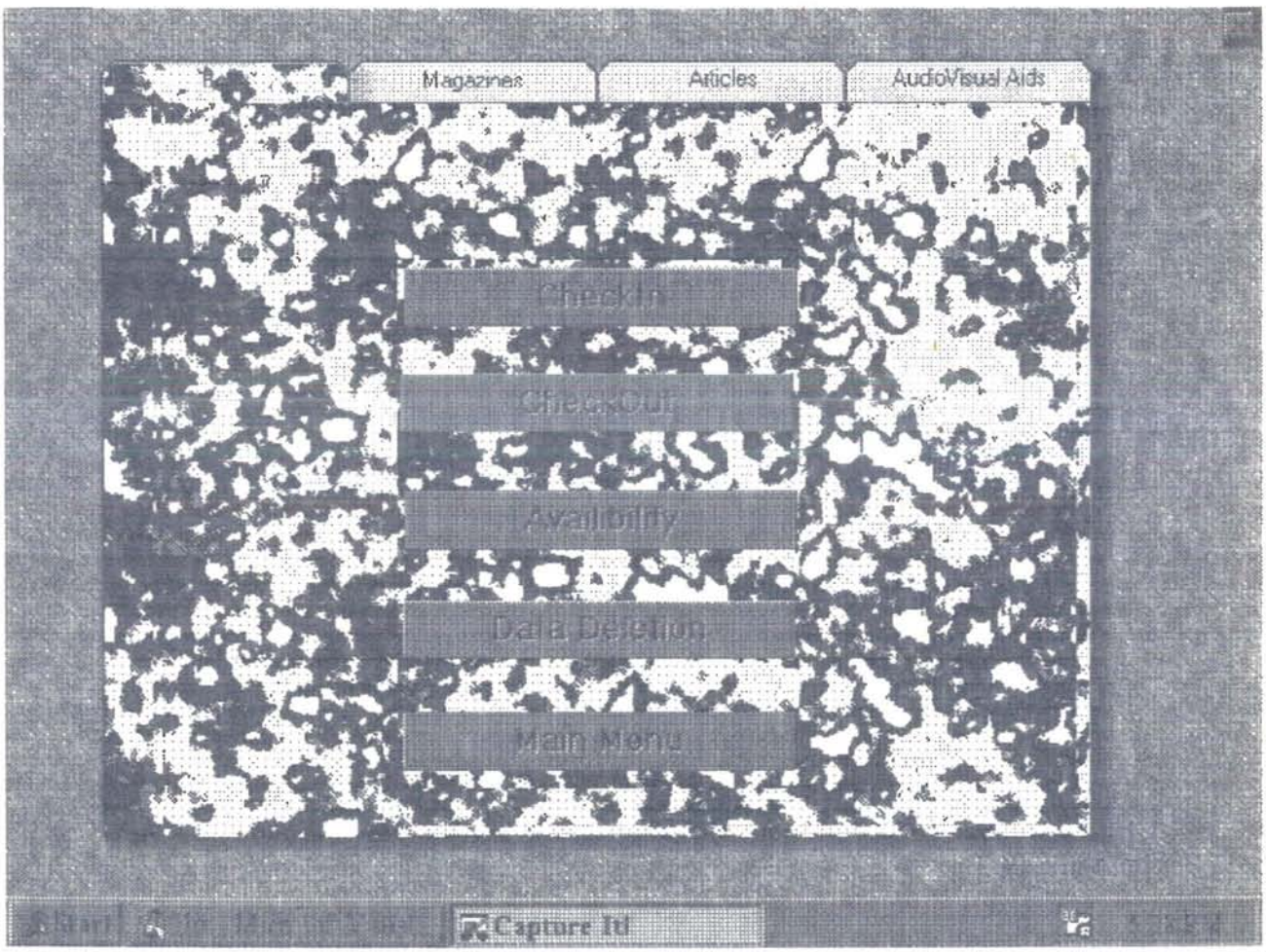
MAIN MENU



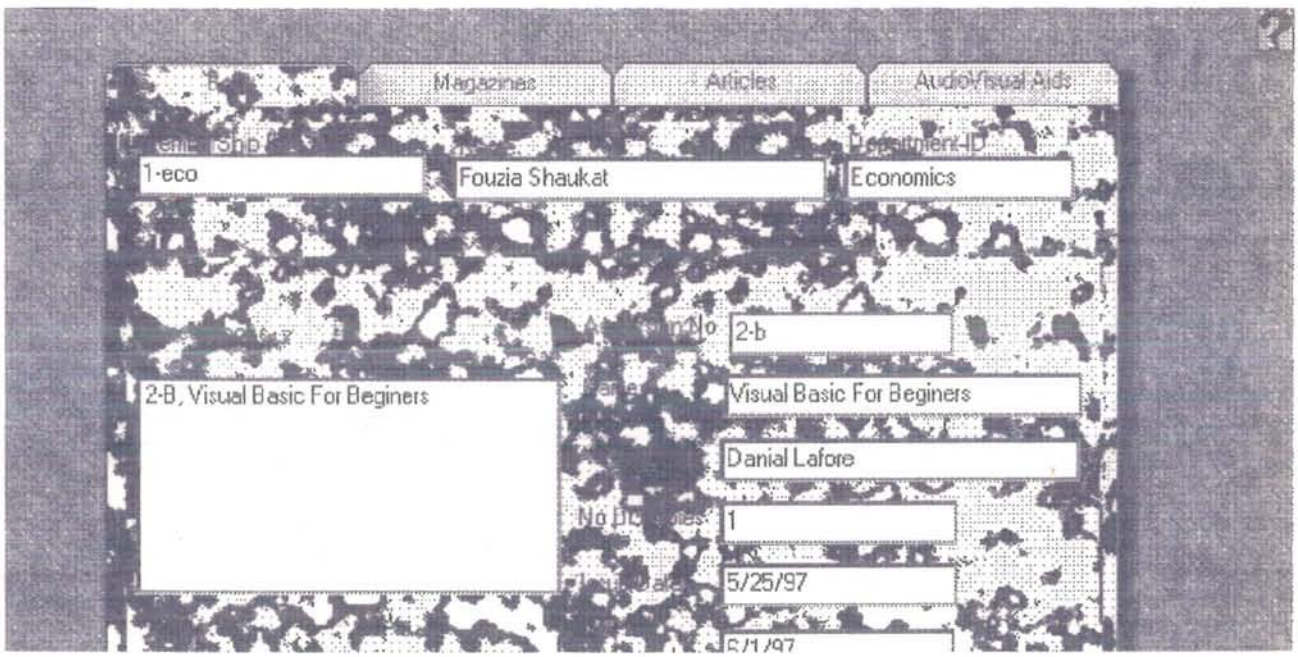
DATA ENTRY SCREEN



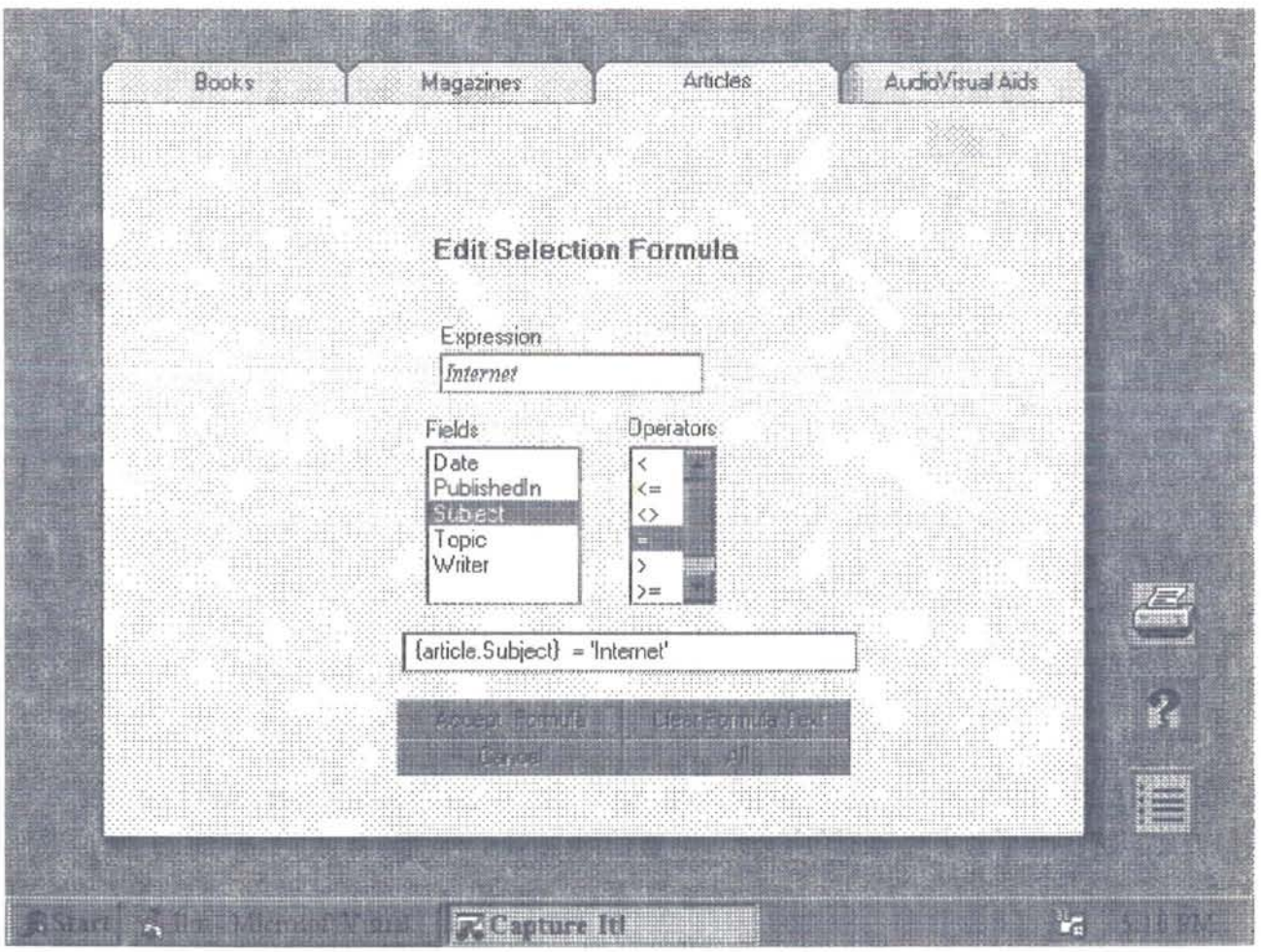
DATA ENTRY SCREEN



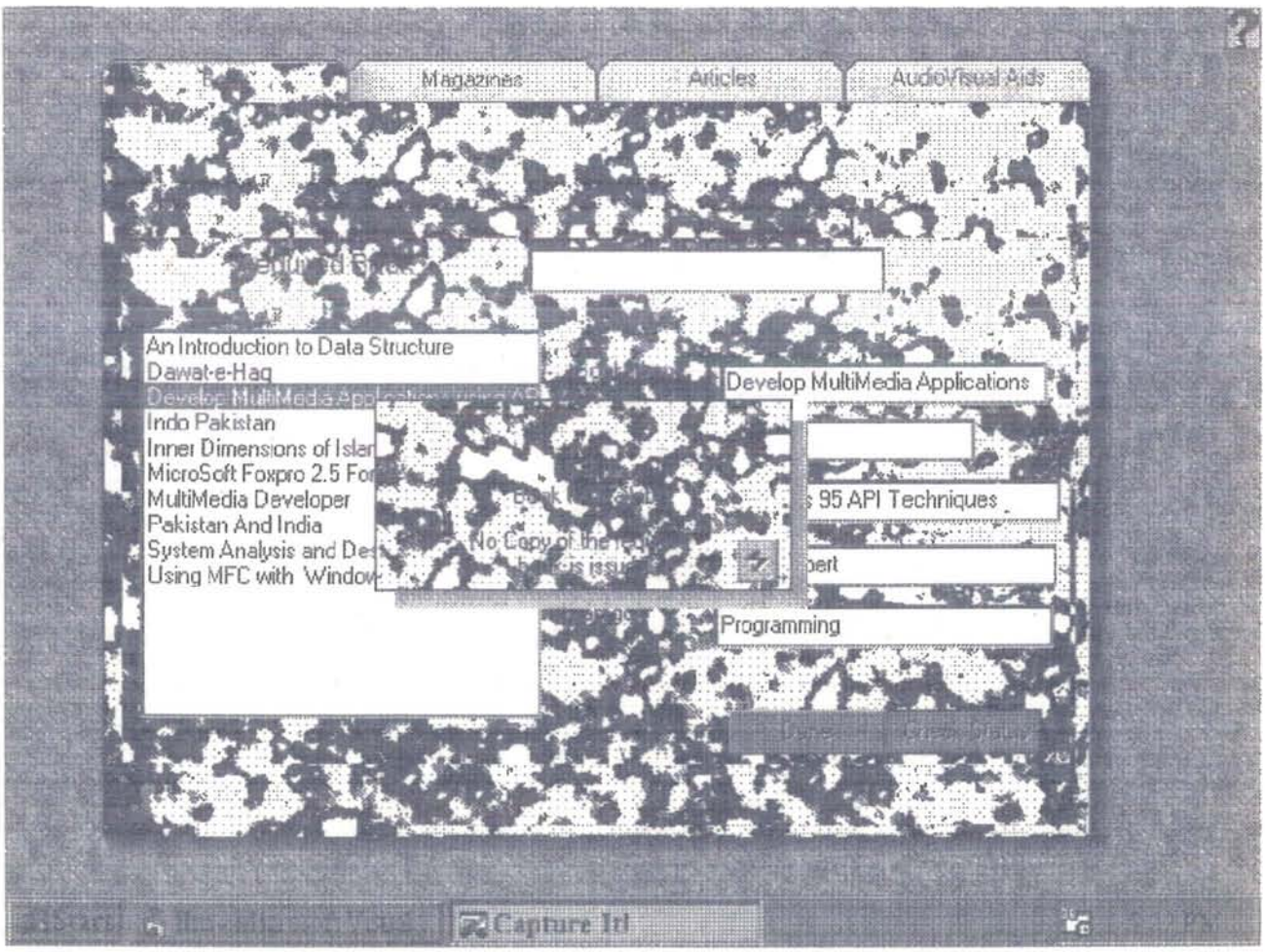
CHECK IN / OUT SCREEN



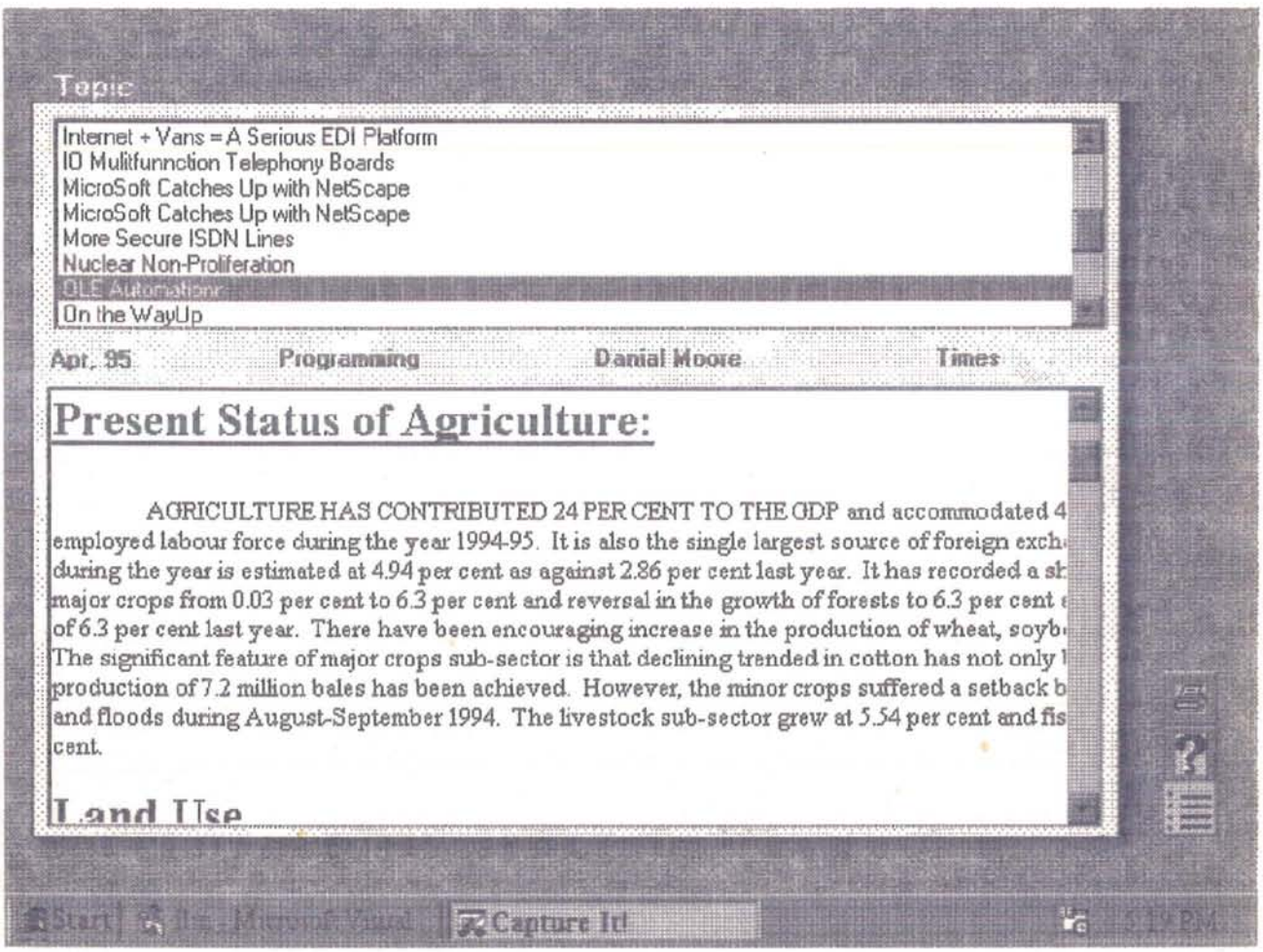
ISSUE / RETURN SCREEN


Books
Magazines
Articles
AudioVisual Aids
Edit Selection Formula
Expression
Internet
Fields
Operators
Date
PublishedIn
Subject
Topic
Writer
<
<=
<>
=
>
>=
{article.Subject} = 'Internet'
Capture It!

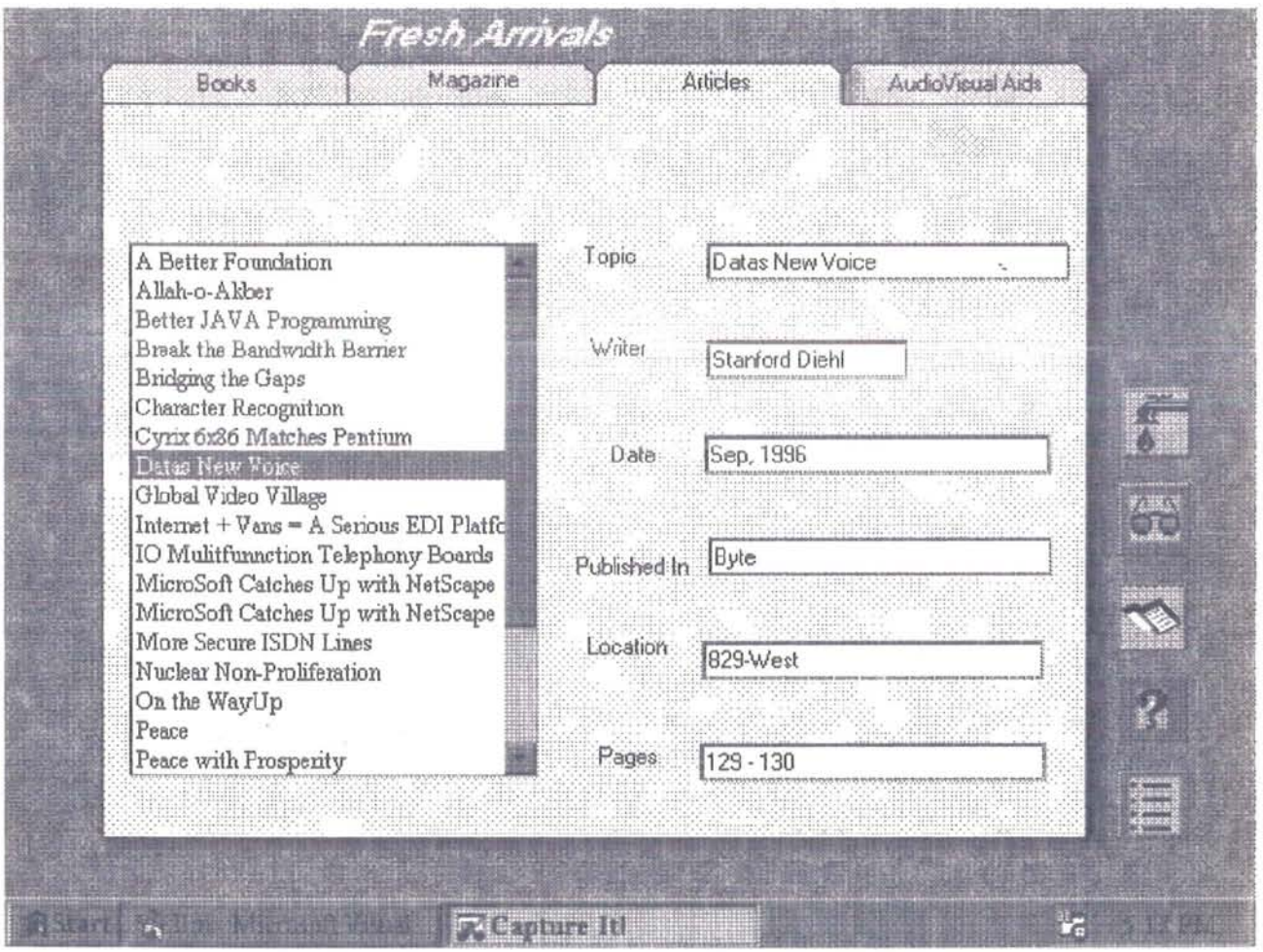
REPORTS



AVAILIBILITY



ON LINE ARTICLES



FRESH ARRIVALS

Sample Reports

Pakistan Council of Science & Technology

Books List

Dated 27/5/1997

Category	Name	Author	Mode	PurchasingDate	Price
Accounting					
	Financial Accounting	Robert Meigs	General	Sep 5, 96	900
Chemistry					
	Copper Alloys	David Bertlz	General	Jul 6, 96	1,000
Communication					
	Web Site	Victor Barlow	Reference	Oct 27, 95	800
Communication					
	Computer Networks	Andrew Horton	Reference	Mar 2, 97	500
Data Structures					
	An Introduction to Data Structure	Jean Paul	General	Jan 31, 97	1,000
History					
	Pakistan And India	Ehsan-ullah Saqib	General	Jul 1, 1992	279
History					
	Indo Pakistan	K. Ali	General	Jul 7, 1993	50
	The Emergence of Pakistan	M. K. Alam	General	Feb 25, 91	800
International Relations					
	Comparative Analysis of Super Powers	Dr. Brian Mular	Reference	Aug 2, 96	800
Pakistan Studies					
	Culture Shock	Karin Mittmann and Zaffar Ik	general	May 2, 1994	125
	Pakistan	Isobel Shaw	General	Jul 8, 1992	210
Programming					
	Using MFC with Windows95	Cynthia Morgan	reference	Oct 9, 95	120
	Visual Basic For Beginers	Danial Lafore	general	Oct 6, 95	1,000
	Visual C++	John Lafore	general	oct 5, 96	120
Programming					
	Develop MultiMedia Applications using API	John Robert	General	Jan 31, 1997	5,000
	MicroSoft Foxpro 2.5 For Dos	Robin Stark	Reference	May 21, 96	800
	MultiMedia Developer	Robert Lafore	General	Jan 31, 1990	7,000

Pakistan Council of Science & Technology
Books List
Dated 27/5/1997

Category	Name	Author	Mode	PurchasingDate	Price
Communication					
	Web Site	Victor Barlow	Reference	Oct 27, 95	800
Communication					
	Computer Networks	Andrew Horton	Reference	Mar 2, 97	500
International Relations					
	Comparative Analysis of Super Powers	Dr. Brian Mular	Reference	Aug 2, 96	800
Programming					
	MicroSoft Foxpro 2.5 For Dos	Robin Stark	Reference	May 21, 96	800
Recreational					
	Zamzama	M. Chughtai	Reference	Jan 1, 1995	700
Religion					
	Dawat-e-Haq	Molana Mahfooz Jhangvi	Reference	May 12, 1992	500
	Inner Dimensions of Islamic World	Muhtar Holland	Reference	May 7, 1992	312
				Total:	4,412.00

Pakistan Council of Science & Technology

Magazines List

Dated 27/5/1997

Month	Name	Title	PurchasingDate	VolumeNo	Price
Apr 96	Benjo	Flute Mosaic	Apr 2, 96	2 of 3	300
Apr, 97	Byte	Wraping the Gaps	Apr 5, 97	10	120
Dec 95	Windows	API WIzard	Dec 1, 95	3 of 4	820
Dec 96	LAN	Networking	Dec 4, 96	1 of 1	210
Feb 97	Fractal Frenzy	Fractal Art	Feb 5, 97	1 of 1	160
Feb 97	Lan	Intranet Development	Feb 5, 97	1 of 1	230
Jan , 97	Clipper	Scientific and Technical	Jan 5, 97	1 of 1	70
Jan 97	PCinema	Tera Hits of 80's	Jan 5, 97	1 of 1	290
Jan 97	Vedio Audio	Giga Hits of 96	Jan 2, 97	1 of 1	160
Jan, 96	Byte	Hard Drives	Sep 25, 94	1 of 1	1,220
Jun , 96	Time	Bridging the Gaps	Jun 2, 96	1 of 5	250
Jun 199	Herald	On the way up	Jun 5, 97	1 of 12	800
Mar 96					

Pakistan Council of Science & Technology

Articles List

Dated 27/5/1997

Subject Topic	Writer	Date	PublishedIn	pages
Communication				
Serving Up Data on the Web	Mark Hettler	Sep, 199(	Byte	112 - 116
Communications				
Break the Bandwidth Barrier	Tom R. Halfhill	Sep, 199(	Byte	9 - 12
Datas New Voice	Stanford Diehl	Sep, 199(	Byte	129 - 130
More Secure ISDN Lines	Mark LaPedus	Sep, 199(	Byte Magazine	87-88
Communications				
Global Video Village	Udo Flohr	Sep, 199(	Byte	137 - 144
Defence				
On the WayUp	Dr. Adnan Ahmad	Nov 5, 9(	The News	1 - 2
Hardware Achievments				
Cyrix 6x86 Matches Pentium	David Arnold	Sep, 199(	Byte Magazine	26 - 27
IO Mulitfunnction Telephony Boards	Maggi Bender	Sep, 199(	Byte	80 - 85
International Relations				
Peace	M. Arshad Ghani	Oct 9, 96	The News	12 - 13
Peace with Prosperity	Dr. Mihan Khan	Jan 31, 1'	Times	45 - 48
Super Powers vs Morals	Dr. Michal Eastwood	Feb 5, 19	Times	35-37
The European Community	Miss Kiran Farooq	Apr10, 9'	Pakistan Times	7 - 8
Weapon of Oil	Tahir Khuaja	Mar 2, 9'	Times	9 - 10
Internet				
Bridging the Gaps	Dr. A.S. Maqsood	Mar 12, 1	Daily Jang	1 -2
Internet + Vans = A Serious EDI Platform	Peter Hofland	Oct, 199(	Byte Magazine	187 - 188
MicroSoft Catches Up with NetScape	Rex Baldazo	Feb, 199:	Pc Magazaine	41
MicroSoft Catches Up with NetScape	Rex Baldazo	Feb, 199:	Pc Magazaine	41
Nuclear Weapons				

Pakistan Council of Science & Technology

Articles List

Dated 27/5/1997

Subject Topic	Writer	Date	PublishedIn	pages
Internet				
MicroSoft Catches Up with NetScape	Rex Baldazo	Feb, 199:	Pc Magazaine	41
Bridging the Gaps	Dr. A.S. Maqsood	Mar 12, 1	Daily Jang	1 -2
MicroSoft Catches Up with NetScape	Rex Baldazo	Feb, 199:	Pc Magazaine	41
Internet + Vans = A Serious EDI Platform	Peter Hofland	Oct, 199(	Byte Magazine	187 - 188

Pakistan Council of Science & Technology
AudioVisual Aids List
Dated 27/5/1997

Type	Category	Name	RecordingCo	Title	PurchasingDate	Price
	Software					
		Pc Explorer	iuigi	hdwdhwh		0
Audio Cassette						
	Recitational Audio					
		Quran	Taj Co	Surah Yaseen	Nov 27, 1996	900
	Recreational Audio					
		MacroMedia	Disxc	Greatest Hits of 97	Oct 7, 1990	75
Audio Cassette						
	Rcreational Audio					
		Jubilee 97	Dino	Rock Fellows	Dec 22, 1996	100
	Recreational Audio					
		Burma 2	Disc	Jazz Hits	Mar 25, 1995	120
Cd						
	Encyclopedia					
		Grollier 97	G Co	Ver 8.0	Feb 25, 1990	800
	Language					
		Visual Basic	Microsoft	Enterprise Edition	Jun 7, 1996	900
	MultiMedia Cd					
		Memphis	Disc	Media Clips	Feb 8, 95	273

Pakistan Council of Science & Technology
AudioVisaul Aids List
Dated 27/5/1997

Type	Category Name	RecordingCo	Title	PurchasingDate	Price
Cd					
	Encyclopedia				
	Grollier 97	G Co	Ver 8.0	Feb 25, 1990	800
	Language				
	Visual Basic	Microsoft	Enterprise Edition	Jun 7, 1996	900
	MultiMedia Cd				
	Memphis	Disc	Media Clips	Feb 8, 95	273
	Recreational Vedio				
	The Quest	Disc	-	Mar 2, 1992	1,200
	Software				
	Delphi	EMI	Software Collection	Mar 5, 95	1,000
	Grafx Xpress	-	-	May 8, 1990	820
	Office & BookShelf	Microsoft	Office Suite with Integrated CD-RO	Aug 8, 1992	900
	Installer 1	Microsoft	-	Aug 4, 1992	700
	Software				
	Installer 5	EMI	Cd Express	Apr 5, 97	900
	XSoftware Plus	EMI	CD 1	Mar15, 95	0
	Teacher Cd				
	Mastering Visual C++	EMI	OnLine Tips and Tricks	July 15, 1996	6,000
Cd					
	Software				
	Windows 95	-	95 Collections	Sep 25, 1990	1,900

Pakistan Council of Science & Technology

Members List

Dated 27/5/1997

DepartmentID	Name	MembershipID	Status			
Biology						
	Kamal Haq	1-B	Student	Jan 7, 97	Jan 8, 98	-
	Munir Illahi	13-Bio	Student	Feb 2, 1996	Feb 2, 1997	-
Biology						
	Daud Mumtaz	9-Bio	Student	Apr 4, 1997	Apr 5, 1998	-
	Nadeem Azfar	2-Bio	Student	May 7, 1997	May 8, 1998	-
Botony						
	Jahangir Ahmed	2-B	Employee	Jan 3, 96	Jan 3, 97	-
	Alia Khan	12-Ps	Student	Feb 2, 96	Feb 5, 97	-
	EEsa Ibrahim	13-Ps	Employee	Jan 2, 96	Jan 5, 98	-
Buissness Admi						
	Hareem Iqbal	23-MBA	Student	Aug 7, 1996	Aug 10, 1998	-
Computer Scienc						
	Aini Tariq	209-CS	Employee	July 4, 1997	July 7, 1998	-
	Farzana Illahi	89-CS	Student	July 31, 199(	July 31, 1998	July 31, 1997
Computer Scienc						
	Salva Bashir	65-CS	Student	Oct 30, 1996	Oct 30, 1997	-
Economics						
	Fouzia Shaukat	1-Eco	Student	Feb 1, 96	Feb 2, 97	-
	Fahad Khan	89-QAU	Student	Jun 4, 96	Jun 6, 97	-
Mass Comunicat						
	Irum Hanif	5-MS	Student	Aug 9, 1996	Aug 12, 1997	-
Mathematics						
	Abid Khan	65-M	Employee	Sep 7, 1996	Sep 7, 1997	-
Mathemetics						
	Rashid Latif	35-M	Student	Oct 8, 1996	Oct 10, 1997	-
Political Science						
	Asal Deen	101-PS	Student	May 2, 1997	May 5, 1998	-