Patient Queries Information System

Developed By

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A Report Submitted to

Department of Computer Center

Quaid-i-Azam University

As a Partial Fulfillment of Requirements

For The Award of

PGD in Information Technology

DEDICATED TO

Almighty ALLAH who is most beneficent and merciful, my parents, teachers, little kids and lovely life partner

BONAFIDE CERTIFICATE

This is to certify that the mini project entitled Patient Queries Information System under the tool of MS-Access / Visual Basic 6

Submitted By Dr Khalid Mahmood

In partial fulfillment of the requirement for the award of the degree of **Post Graduate Diploma of Information Technology** is a bonafide record done by him.

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Internal Supervisor:	Munswar
External Supervisor:	
Director:	

PROJECT IN BRIEF

Project Title:

Patient Queries Information System

Tool:

Microsoft Visual Basic 6, Microsoft Access 2006

Operating System:

Windows XP 2007 Professional

System Used:

Pentium-IV, 512 Mb of RAM, 120 GB Hard Disk

Objectives:

securities,

To develop and meet the requirements capabilities and

Easy to learn and use in neurosurgical department in Shifa

International Hospital Islamabad.

Undertaken By:

Dr Khalid Mahmood

Discipline:

PGD-IT 13, 3rd Semester, Computer Center

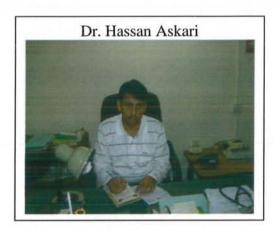
Organization:

Computer Center, Quaid-i-Azam University, Islamabad

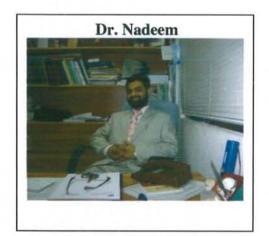
Acknowledgement

At the completion of my project, first of all, I would like to thank "The Almighty Allah" who is the most beneficent and merciful.



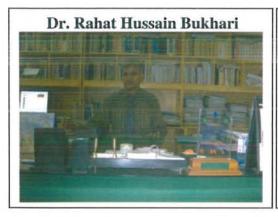


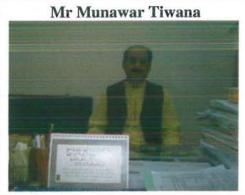
I would like thank "Mr. Noor Mustafa Awan Engineer" Lecturer of Institute of Information Technology and Dr. Hasan Askari, Senior Medical Officer, Quaid-i-Azam University, Islamabad to dig out about my project with full support, warm encouragement, guidance and kindness.



am really thank full Neurosurgeon Dr. consultant Nadeem. Shifa International Hospital, Islamabad for permitting me collect to information about the project.

From the core of heart, I acknowledge the motivation and affection of my parents, my life partner Mrs. Ishrat Khalid and lovely kids Aatika and Naaba, who suffered due to prolonged missing attitude from my side. Their encouragement was fruitful, without which I could not have achieved anything in my life.





The Jugular vein behavior was provided by my teachers especially Dr. Rahat Hussain Bukhari, Director Computer Centre and Mr. Munawar Tiwana (Supervisor), who spared fulltime to help and guided me.

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CHAPTER # 1 Initial Investigation

Initial Investigation

1.1 Project Overview

My project is a guide line of (Microsoft Access/VB6) of database system in a good looking way.

Engineer Noor Mustafa Awan assigned me the project for Hospital database system for those patients who underwent into surgical intervention in Neurosurgery in Shifa International Hospital, Islamabad.

I decided to do some thing in a constructive way for the better management and maintenance for record in a computerized way rather than manual system. In this regard, Dr. Nadeem Neurosurgeon, his colleagues and staff members helped me in a co-operative way and provided me all necessary information regarding my project without any hesitation, for the new installation of the database system in Neurosurgery.

What the Database Project is About?

The project is about Neurosurgical patients to organize them in a database system. Shifa International Hospital is a well equipped hospital situated in H-8, Islamabad. In Neurosurgery, there are three industrious and professionally renowned consultants, who perform a magnificent surgery daily in their department. It was difficult for them to manage the record manually about their patients and to analyze the record regarding the prognosis and follow up. It is my honour to facilitate them to solve their problem by a computerized database system for the quick analysis of the prognosis and follow-up of their patient.

This system will help them to maintain the history sheet of their patients in an excellent way.

Why Database System is Better than Manual System

Manual system consists of labour, registers, paper work etc. which is painful and time consuming. In database system the user has the opportunity to maintain and adjust the data in an easy and excellent way according to the need and requirement.

In it, a single database file is sufficient to manage all your information's according to your requirement. Within the file you can use, tables, forms, queries finding methods and report generation layout.

A database is a system of organizing the data for easily-access, updating, and deletion the commonest type of data base is **relational database** in which tabular technology for organization of data is used. The other method of database is **distributed database** in which data is dispersed or replicated at various points in a network. Another type is **object oriented programming data base** which is congruent with the data defined in object classes and subclasses.

Data base is collection of data records or files such as patient name, age, sex, medical record number, data of admission, diagnosis and the doctor-name etc. Database manager provides the capabilities of controlling write/read access and specifying report generation and analysis for usage. Therefore the database and database managers are prevalent in

- · Large mainframe system.
- Smaller distributed work station and
- Mid-range systems such as AS/400 and Oracle Server, SQL Server, Oracle9im Oracle 10g, Oracle 11g etc. and
- Personal computers.

Structured Query Language (SQL)

SQL is a standard language for making interactive queries and updating a Microsoft access and computer associates.

1.2 Problem Definitions

Every organization, institute or a firm is concerned with some data processing activities like the world; most organizations are willing to have efficient and reliable data processing system by using latest technologies available.

This project helps to handle the time consuming information system by database management rather than manually, to fast access, queries solution, decision making for efficient approach in a reliable manner.

1.3 Initial Description of System

Manual record keeping on papers is a time-consuming, laborious and slow in application-wise while the database management system is cheaper and decreases time factor.

1.4 Manual System: The existing system is manual and has various limitations, and is redundant.

Project Scope:- The scope of the project is to handle the data in a more efficient and effective way.

CHAPTER # 2 System Analysis

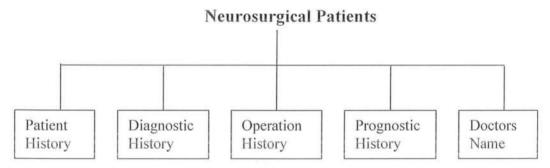
System Analysis

2.1 Organization Overview

This project is based on the computerization of the manual system of the patient's-data. The information of the Neurological patients is

- Patients Personal History
- Diagnostic History
- Operative History
- · Prognostic and follow-up history and
- Doctor's Name.

Graphically it can be shown as



2.2 Existing System → New System

The old system is cumbersome, difficult to manage, more manual work with huge time factor and large data cannot be managed properly in the existing state. The better working environment can easily be created by the computerized data base system.

1. Patient History

- Patient name
- Age
- Sex
- Date of Birth
- Address
- Date of Admission

2. Diagnostic History

Diagnosis

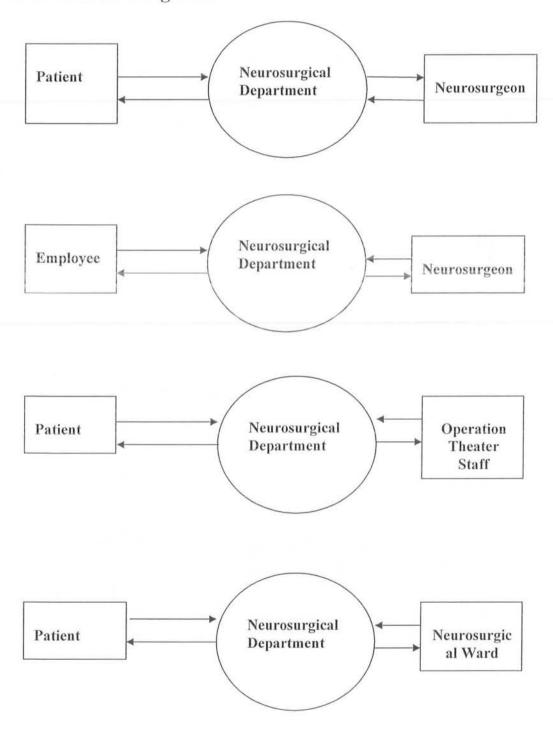
3. Operative History

Name of Operation

4. Consultant involved

Name of Surgeon

2.3 Data Flow Diagrams



2.4 Objectives of the Proposed System

Some objectives are developed to meet the requirements, capabilities and securities.

Authorized Access

Authorized access should be certified by password security and un-wanted/un-liked users are prohibited by this method.

Efficiency

By computerized system, the data can be easily accessed within no time and efficiency of the organization is enhanced by it.

Time Reduction

The system is friendly to use and quick approach to the queries within shorttime.

Easy to Use

Friendly environment of the software provides the opportunity to the user to use it in an easy way.

Reduced Redundancy

Redundancy is more in manual system while the data-base system reduces the redundancy by forms and tables mechanisms.

CHAPTER # 3 System Design

System Design

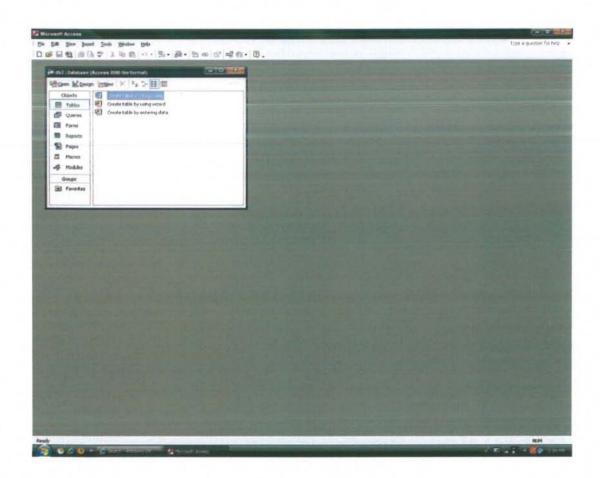
After the analysis of the project, the interface developed in VB-6 while an back end, Microsoft Access 2003 is used to meet the compatibility of the project the hardware is also analyzed as per requirement of the project.

3.1 Software Requirements

The requirement of the project was based on the database software which is easy to design and to use and the written work is done in word-pad word etc. of Microsoft access-2003.

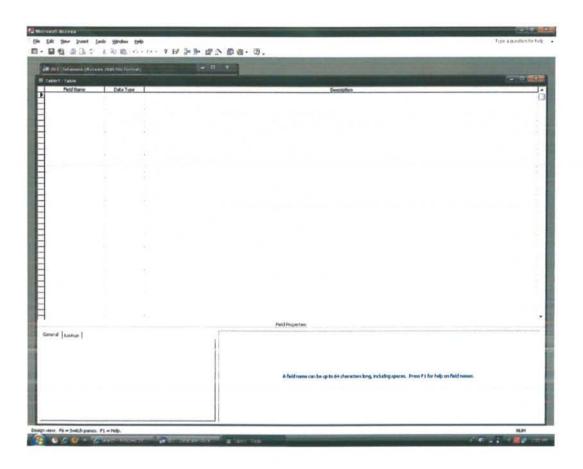
Database Software

Microsoft access 2003 was selected depending on the information of the project.



Microsoft Access

Microsoft access is database software. It is a product of Microsoft Corporation. By using Microsoft access you can create tables, forms and quires.



3.2 About Creating a Table

To create a blank (empty) table for entering your own data, you can:

- Use the Table Wizard to choose the fields for your table from a variety of predefined tables such as
 - a. Business contacts,
 - b. Household inventory OR
 - c. Medical records.
- Create a table in **Design View**, where you can add fields, define how each field appears or handles data and create a primary key.

 Enter data directly into a blank datasheet. When you save the new datasheet, Microsoft Access will analyze your data and automatically assign the appropriate data type and format for each field.

To create a table from existing data, you can:

- Import or link data from another access database or data in a variety of file formats from other programs.
- Perform a make table query to create a table, based an data in a current table. For
 example, you can use make table queries to achieve old records, to make back up
 copies of your tables, to select a group of records to export to another database, or
 to use as a basis for reports that display data from a specific time.

About Designing a Query

When you open a query in design view, or open a form, report or datasheet and show the advanced filter/sort window, you see the design grid, which you can use to make a variety of changes to get the query results you want.

- 1. Add or remove tables, queries and fields.
- 2. Calculate amounts.
- 3. Limit results using criteria.
- 4. Sort records.

3.3 Create a form and Sub-form:

Before linking main-form to sub-form, make sure that, the underlying record sources are related. You are unable to add a sub-form to a form, when it is displayed in Pivot Table OR Pivot Chart view.

Create a Form and Sub-form at the same time

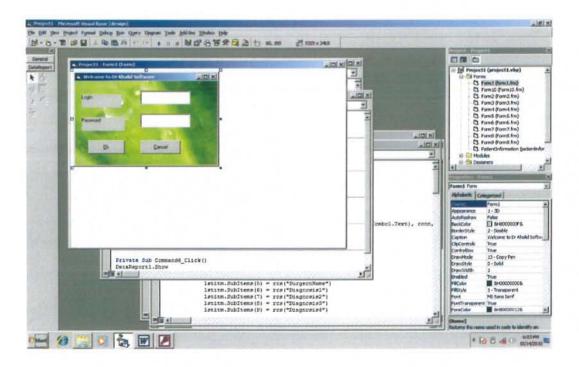
Steps

- 1. In the database window, click Forms under objects.
- 2. Click the **New button** on the database window toolbar.
- 3. In the New Form dialog box, double click Form Wizard.

4. In the first wizard dialog box, select a table or query from the list. For example, to create a categories form that displays product for each category in a sub-form, select the categories table (the "One" side of the "One to many" relationship).

Note: It does not matter which table or query you choose first.

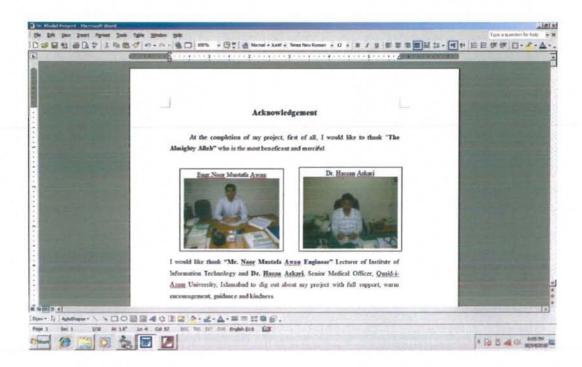
- 5. Double click the fields you want to include from this table or query.
- In the same wizard dialog box, select another table or query from the list.
 Using the same example, select the products table (the "many" side of the "one to many" relationship).
- 7. Double click the fields you want to include from this table or guery.
- 8. When you click next, if you setup the relationships correctly before starting the wizard, the wizard asks which table or query you want to view by using the same example, to create the categories form, click by categories.
- 9. In the same wizard dialog box, select the Form with sub form(s) option.
- Follow the directions in the remaining wizard dialog boxes. When you click Finish, Microsoft Access creates two forms, one for the main-form and sub-form control and one for the sub-form.



3.4 Writing Software

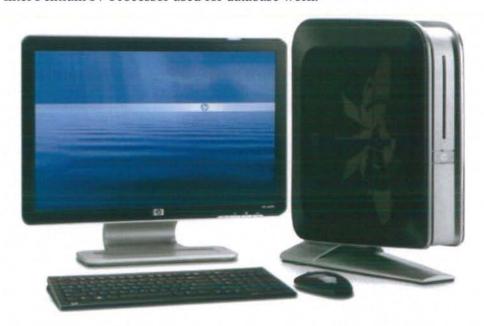
Microsoft World 2000

Microsoft world 2000 is world writing pad which comes with new features of creating, editing and publishing word documents.



3.5 Hardware Requirement

Intel Pentium IV Processor used for database work.



3.6 Operating System

Table Description

Different tables have been created in the database design as follows.

TABLE NO.1

Table Name: Login Table

Primary Key: Login Name

Purpose: This table is used to keep the information of the user name and password

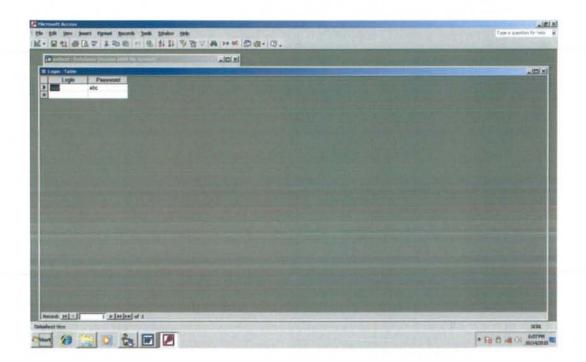


TABLE NO.2

Table Name: Main

Primary Key: DateofOperation and MRNo

Purpose: This table is used to keep the record of Surgeon Name, MRNo and Date

of Operation

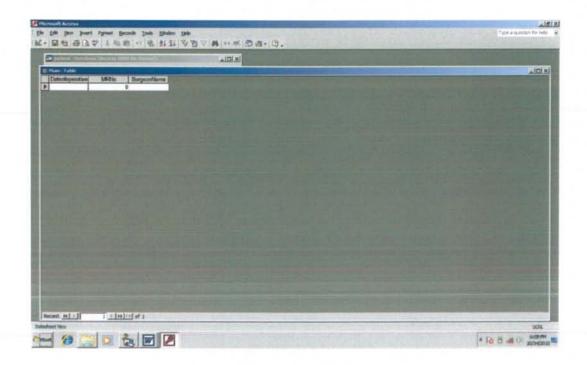


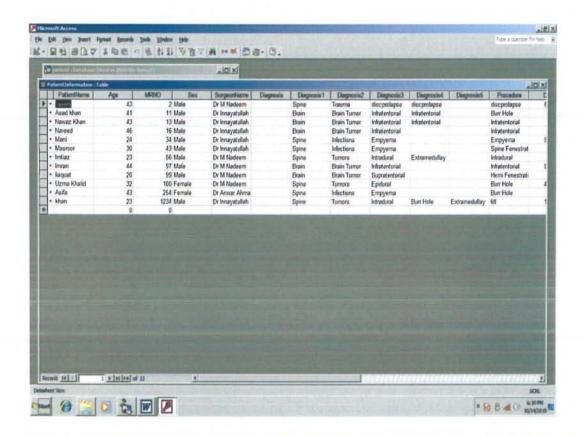
TABLE NO.3

Table Name: Patient Information

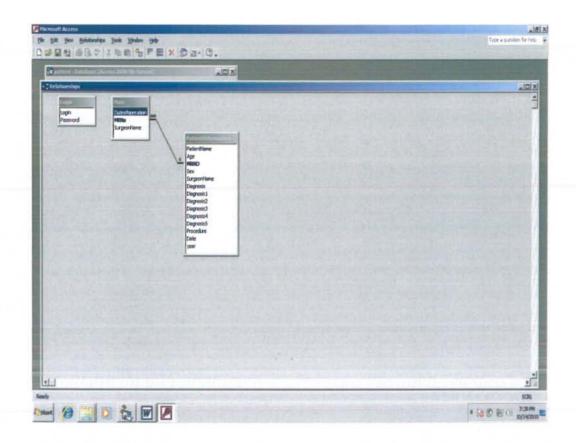
Primary Key: MRNo

Purpose: This table contains basic information of patient including name, sex, age,

MRNo, date of birth an diagnosis information etc.



Relationship between Tables



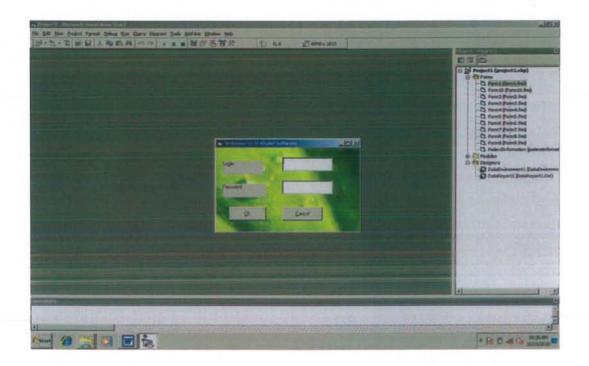
CHAPTER # 4 System Implementation

System Implementation

4.1 Main Screen

This is a main screen of the Patient database system

All the forms, queries and reports can be accessed from this main page.



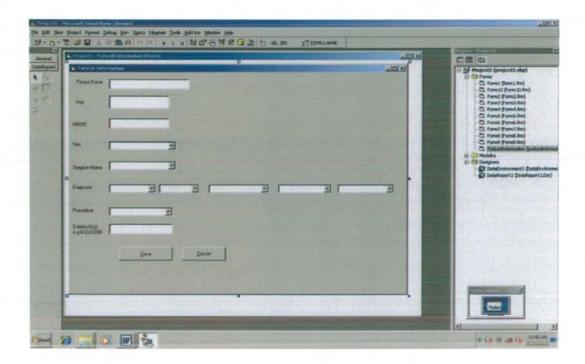
The user can easily approach the required information by just click on the required button.

The main page is developed in Microsoft Visual Basic 6 to make the interaction to user to make the system easier. This main page can be accessed by only authorized user having a password. The unauthorized users are restricted by this method.

The main screen page basically provides the short cuts to the forms, queries and reports. From this screen the user can access any of these items within no time.

4.2 Patient form

When on the main screen, the user click on **patient information** this form will appear as

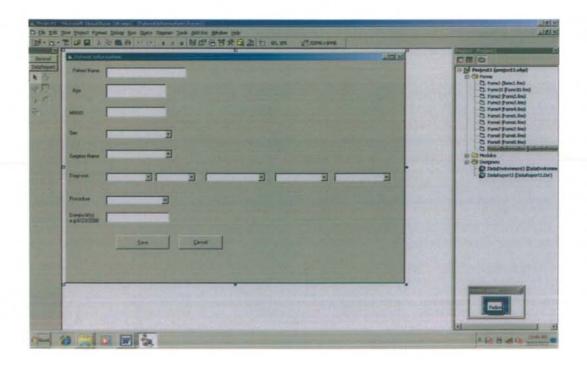


The user can view this form and make any change if need e.g. the user can edit, delete or print out by simple click. This form basically provides the summary of patient and diagnosis history by simple click method.

When the user clicks on the details of diagnosis and operation, history by clicking, all the details are revealed out along with graphic presentation.

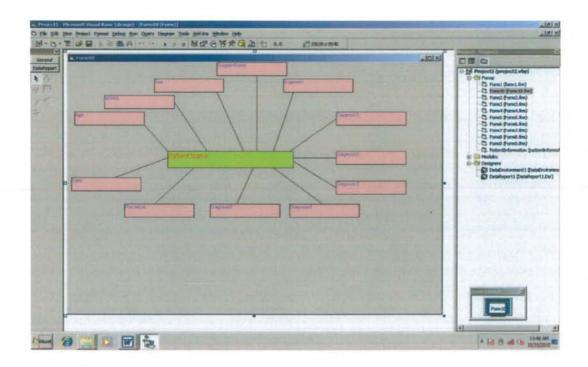
4.3 Prognosis and Follow up details

The prognosis and follow up details can also followed by simple click method and graphic presentation can also be seen.



Visit Record

The visit record can also be upgraded by using the form technique.



Surgical History

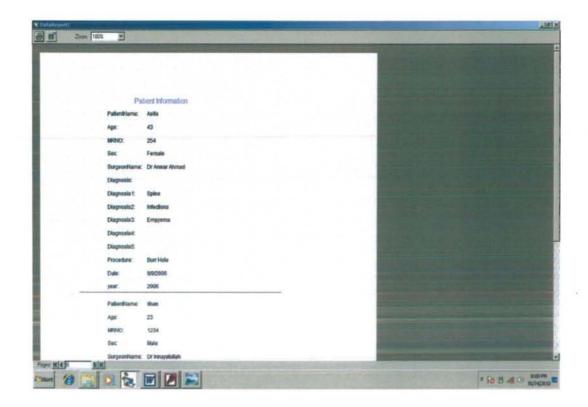
The surgical history (the diagnosis and surgery performed) along with the name of surgeon can be easily shown by click method.

4.4 Queries

By simply entering the MR # or name of the patient, the detailed information regarding that patient can be approached.

4.5 Report Generation

The reports can be generated with the patient history, surgical history along with the treatment and follow up of the patient. The main screen provides the shortcut about the report generation.



CHAPTER # 5

Testing After Implementation

Testing after Implementation

Testing

Testing is the process of executing a program with the explicit intention of finding errors.

There are **three parts** of testing which are used to determine whether the system is working correctly **or** not.

Unit Testing

Different modules of the developed system are tested independently. In the testing, each can be checked separately to locate and correct errors.

Integrated Testing

In it, the system is thoroughly checked to ensure that every part is working properly.

System testing

In it the system is tested to know that the system is working according to the designed requirements and specifications.

System Implementation

To bring the developed system in use is called system implementation. This is the final phase of system development life cycle and it starts at the beginning of the development phase with an implementation plan.

Conversion

This is the process of changing old system into a new system.

Evaluation

To every kind of work, there is room for improvement. Human effort is ever complete and perfect. When the system is implemented success fully, the designer and user are in the best positions to point out any changes which are needed to be made because they are the ones who are going to use the software, so it is best if the user point out the errors in the system.

Merits of the System

Merits of the developed system are:

- Security
- Accuracy
- Efficiency
- User friendly

Security

The system is only allows the authorized users to enter and an unauthorized personals is blocked.

Accuracy

This new system is designed to input the right order of data. The software keeps a check on the data if wrong data is provided. The user will get an appropriate massage to correct it.

Efficiency

The most import part of the project was that the new system should save time, such problems have been removed with the help of the new system, it is less time consuming.

User Friendly

The new system provides the user with user friendly environment. The software is easy to understand and is more interesting that before.

CHAPTER # 6

Microsoft Access History

T.

Visual Basic History

Micro-Office Access

Micro Office Access Previously known as Microsoft Access is a relational database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and soft ware development tools. It is a member of the Microsoft Office suite of applications and is included in the professional and higher versions for windows and also sold separately.

Access store data in its own format based on the Access Jet Data base Engine. It can also import or link directly to data store in other Access databases, excel, share point lists, text, XML, outlook, HTML, dBase, Paradox, Lotus 1-2-3 or any ODBC complaint data container including Microsoft SQL server, Oracle, MySQL and PostgreSQL. Software developer and data architects can use it to develop application software and non-programmer "Power users" can use it to build simple applications. Like other office applications, Access is supported by Visual Basic for Applications, an object-oriented programming language that can reference a wide variety of objects, including, DAO (Data-Access Objects) and ActiveX Data objects and many other ActiveX components provided by Microsoft or by third parties. Visual objects used in forms and reports expose their methods and properties gracefully in the VBA programming environment, and a huge selection of Windows Operating System functions can be declared and called from VBA code modules, making Access a rich programming environment.

History

Access version 1.0 was released in November 1992, quickly followed in may 1993 by an Access 1.1 release to improve compatibility with other Microsoft products and include the Access Basic Programming language.

Microsoft specified the minimum hardware requirements for Access v2.0: Microsoft Window v3.1 with 4MB of RAM required, 6MB RAM recommended; 8 MB of available hard disk space required, 14MB hard disk space recommended. The product was shipped on seven 1.44MB diskettes. The manual shows a 1993 copyright date.

Originally, the software worked well with relatively small data bases but testing showed some circumstances caused **data corruption**. For example file sizes over 10MB were problematic (note that most hard disks were smaller than 500 MB at

the time this was in wide use), and the Getting started manual warns about a number of circumstances where obsolete <u>device drivers</u> or incorrect configuration can cause <u>data loss</u>. With the phasing out of Window 95, 98 and ME, improved network reliability and Microsoft having released 8 <u>service packs</u> for the Jet Database Engine, the reliability of Access databases has been vastly improved in both size and number of users.

With Office, Microsoft Access 95 became part of the Microsoft Office professional Suite joining Microsoft Excel, Word, and Power Point and Transitionally from Access Basic to Visual Basic for Applications (VBA). Since then there have been releases of Microsoft Access with each release of office. This includes Access 97 (Version 8.0), Access 2000 (Version9.0), Access 2002 (Version 10.0), Access 2003 (Version 11.5) and Access 2007 (Version 12.0).

The native Access database format (the Jet MDB Database) has also evolved over the years. Format includes Access 1.0, 1.1, 2.0, 95, 97, 2000, 2002 and 2007. The most significant transition was from the Access 97 to the Access 2000 format; which is not back ward compatible with earlier versions of Access. At the time of this writing, all newer version of Access support the Access 2000 format. New features were added to the Access 2002 format which can be used by Access 2002, 2003, and 2007.

In the Access 2007, a new data base format was introduced: ACCDB. The ACCDB supports complex data types such as multi value and attachment fields. These new field types are essentially record sets in fields and allow the storage of multiple values in one field.

Prior to the introduction of Access, the desktop database market was dominated by <u>Borland</u> with their <u>Paradox</u> and <u>dBase</u> programs, and FoxPro. Microsoft Access was the first mass market database program for Windows. With the purchase of FoxPro and incorporating its Rushmore <u>query optimization</u> routines into Access, Microsoft Access quickly became the dominant database for Windows effectively eliminating the competition which failed to transition from the <u>MS-DOS</u> world.

Access's initial codename was Cirrus; the forms engine was called Ruby. This was before Visual Basic-Bill Gates saw the prototypes and decided that the BASIC language component should be co-developed as a separate expandable application, a project called thunder. The two projects were developed separately as the under lying

forms engines were incompatible with each other; however, these were merged together again after VBA.

Access was also the name of a communications program from Microsoft, ment to complete with ProComm and other programs. This proved a failure and was dropped years later, Microsoft refused the name for its data-base software.

Database Interconnectivity

A: Application Program Interface (APIs)

An application program interface (API-and sometimes spelled Application programming Interface) is the specific method prescribed by a computer operating system or by an application program by which a programmer writing an application program can make requests of the operating system or another application.

An API can be contrasted with a graphical user interface or a command interface (both of which are direct user interfaces) as interfaces to an operating system or a program.

B: Open Database Connectivity (ODBC)

ODBC is an open standard API for accessing a <u>database</u>. By using ODBC statements in a program, you can access files in a number of different databases, including Access, dBase, DB2, Excel, and Text. In addition to the ODBC software, a separate module or driver is needed for each database to be accessed; The main proponent and supplier of ODBC programming support is Microsoft.

ODBC is based on and closely aligned with <u>The Open Group</u> standard <u>SQL</u> Call Level Interface. It allows programs to use SQL requests that will access databases without having to know the proprietary interfaces to the databases. ODBC handles the SQL request and converts it into a request the individual database system understands.

C: Java Database Connectivity (JDBC)

JDBC is an API specification for connecting programs written in <u>Java</u> to the data in the database. The API lets you encode access request statements in SQL that are then passed to the program that manages the database. It returns the results through a similar interface. JDBC is very similar to ODBC and, with a small "bridge" program you can use the JDBC interface to access databases through the ODBC interface.

JDBC actually has two levels of interface. In addition to the main interface, there is also an API from JDBC "manager" that in turn communicate individual database product "drivers" the JDBC-ODBC bridge if necessary, and a JDBC network driver when the Java program is running in a network environment (that is, accessing a remote database).

When accessing a remote database, JDBC takes advantage of the Internet's file addressing scheme and a file name looks much like a web page address (or <u>URL</u>).

JDBC specifies a set of <u>Object-Oriented Classes</u> for the programmer to use in building SQL requests. An additional set of classes describes the JDBC driver API. The most common SQL <u>data types</u>, mapped to Java data types, are supported.

History of Visual Basic

Visual Basic is a popular programming language that is used specifically for developing Window programs. It was derived from BASIC (Beginners All-purpose Symbolic Instruction Code).

BASIC was developed in the mid-1960 by Professor John Kemeny and Thomas Kurtz, the purpose of BASIC was to provide an easy programming language.

Microsoft Corporation created Visual basic in 1991. Since 1991, many versions of Visual Basic have been released. Visual Basic 6 was released in September 1998. The latest version is Visual Basic .Net.

CHAPTER # 7

User Guide

USER GUIDE

- 1) Install Visual Basic 6 or Visual Studio 2006 Edition in your computer.
- 2) After this I installed MS-Office in my computer.
- 3) I have used MS-Access for data base connectivity to my front end of software.
- 4) I have started programming in Visual Basic 6 and made all the forms in Visual Basic 6 for my complete software.

FORMS DETAILS

1- Login Form

- For the first time when we run the program we get the Login Form which contains the information about User and its Password and after entering the valid password a new main window of software will open which contains many buttons. If the password and User name will be wrong then we will get another window of Invalid User and Password.
- In the Login form I have implemented the programming for Administrator and Local User rights. Administrator will have all the rights of controlling the full software while the local user has only two rights which are data entry and to print the reports.

2- Form 2 (Main Option Form)

When Administrator will Log on he will get the following rights

- Enter Patient Information
- View patient Information
- View patient Information by MRNO
- View patient Year Wise
- View patient Disease
- View patient report
- View patient
- Add User

3- Local User Form

When Local user will Log on He will get the applicant form which have following options only

- * Enter Patient Information
- View Patient Information
- Cancel

4- Details (For Administrator Only)

1- Patient Information Form

Patient Information Form has following input entries

- a) Patient Name
- b) Age
- c) MRNO
- d) Sex
- e) Surgeon Name
- f) Diagnosis
- g) Procedure
- h) Date
- i) Save
- j) Cancel

2- View Patient Information Form

View Patient Information Form has a Combo Box for selecting particular Patient and after selection it will show the following output result

- k) Patient Name
- l) Age
- m) MRNO
- n) Sex
- o) Surgeon Name
- p) Diagnosis
- q) Procedure
- r) Date

3- View Patient Information by MRNO

View Patient Information by MRNO has a Combo Box for selecting particular Patient and after selection it will show the following output result

- s) Patient Name
- t) Age
- u) MRNO
- v) Sex
- w) Surgeon Name
- x) Diagnosis
- y) Procedure
- z) Date

It has also two more option buttons for Edit Patient Information and Delete Patient's Information.

4- View Patient Information Year Wise

View Patient Information by Year wise has a Combo Box for selecting particular Patient and after selection it will show the following output result

- a) Patient Name
- b) Age
- c) MRNO
- d) Sex
- e) Surgeon Name
- f) Diagnosis
- g) Procedure
- h) Date

It has also one more option button for Close

5- View Patient Information by Disease

View Patient Information by disease has a 2 Combo Boxes one for selecting Particular disease and other is for Sex selection (Male and Female) the it will It will show the result as follows:

- a) Patient Name
- b) Age

- c) MRNO
- d) Sex
- e) Surgeon Name
- f) Diagnosis
- g) Procedure
- h) Date

6- View Patient Report

It will show the report of the patients

7- View Patient

It will show all the Information of Patient

6- Add User

It will add the users as Administrator / Local User