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Design and implement management system for Health centers in Iraq

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Abstract

Iraq began strengthening its health management information system with an analysis of the strengths and weaknesses of existing information systems. As a first step towards conceptualization and design of the system, a minimum set of indicators was identified and a strategy was formulated for establishing a system in the country by using visual basic

programming environment and system database contend all important information about health center.

The design focused only on the use of information in planning, management and the improvement of quality and coverage of services.

Keywords: System Integrity, DBMS (database management system), visual basic.

1. Source of topic

1- (Problem description)

The problem occurred before having computerized health center system includes:

1.   File lost

When computerized system is not implemented file is always lost because of human environment. Sometimes due to some human error there may be a loss of records.

2.   File damaged

When a computerized system is not there file is always lost due to some accident like spilling of water by some member on file accidentally. Besides some natural disaster like floods or fires may also damage the files.

3.   Difficult to search record

When there is no computerized system there is always a difficulty in searching of records if the records are large in number.

4.   Space consuming

After the number of records becomes large the space for physical storage of file and records also increases if no computerized system is implemented.

5.   Cost consuming

As there is no computerized system them to add each record paper will be needed which will increase the cost for the management of library.

The project aims and objectives that will be achieved after completion of this project are discussed in this subchapter. The aims and objectives are as follows:

- Improvement in control and performance

The system is developed to cope up with the current issues and problems of Health centers .The system can add user, validate user and is also bug free.

- Save cost

After computerized system is implemented less human force will be required to maintain the Health centers thus reducing the overall cost.

- Save time

Admin is able to search record by using few clicks of mouse and few search keywords thus saving his valuable time.

2. Introduction

Health center Management System is an application which refers to Health center systems which are generally small or medium in size. It is used by admin to manage the Health center using a computerized system where he/she can record various transactions like add new health center, searching on health center, delete health center etc. users maintenance modules are also included in this system which would keep track of the user using the Health center and also a detailed description about a Health center contains. With this

computerized system there will be no loss of record or member record which generally happens when a non-computerized system is used.

5. Database Management System

A database management system is a set of rules and procedures which help us to create organize and manipulate the database. It also helps us to add, modify delete data items in the database. The management system can be either manual or computerized[2].

The management system is important because without the existence of some kind of rules and regulations it is not possible to maintain the database. We have to select the particular attributes which should be included in a particular table; the common attributes to create relationship between two tables; if a new record has to be inserted or deleted then which tables should have to be handled etc. These issues must be resolved by having some kind of rules to follow in order to maintain the integrity of the database [4].

5.1 Structure of Database Management System

DBMS (Database Management System) acts as an interface between the user and the database. The user requests the DBMS to perform various operations (insert, delete, update and retrieval) on the database. The components of DBMS perform these requested operations on the database and provide necessary data to the users. The various components of DBMS are shown below:
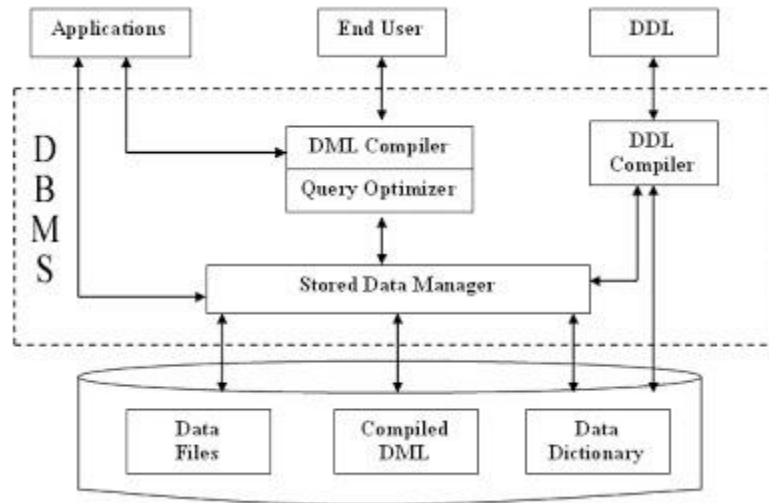
Figure (1): Structure Of Database Management System

5.2 Data Security

Data security refers to protective digital privacy measures that are applied to prevent unauthorized access to computers, databases and websites. Data security also protects data from corruption. Data security is the main priority for organizations of every size and genre.

Data security is also known as information security (IS) or computer security[3].

5.3 Data Independence

This brings us to our next topic: data independence. It is the property of the database which tries to ensure that if we make any change in any level of schema of the database, the schema immediately above it would require minimal or no need of change.

What does this mean? We know that in a building, each floor stands on the floor below it. If we change the design of any one floor, e.g. extending the width of a room by demolishing the western wall of that room, it is likely that the design in the above floors will have to be changed also[5].
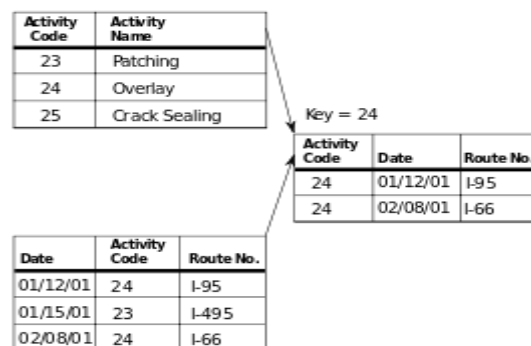
5.4 Data Consistency

Data Consistency refers to the usability of data and is often taken for granted in the single site environment. Data Consistency problems may arise even in a single-site environment during recovery situations when backup copies of the production data are used in place of the original data. In order to ensure that your backup data is useable, it is necessary to understand the backup methodologies that are in place as well as how the primary data is created and accessed. Another very important consideration is the consistency of the data once the recovery has been completed and the application is ready to begin processing [6].

6. Relational Model

The relational model (RM) for database management is an approach to managing data using a structure and language consistent with first-order predicate logic, first described in 1969 by Edgar F. Codd.. In the relational model of a database, all data is represented in terms of tuples, grouped into relations. A database organized in terms of the relational model is a relational database.

The purpose of the relational model is to provide a declarative method for specifying data and queries: users directly state what information the database contains and what information they want from it, and let the database management system software take care of describing data structures for storing the data and retrieval procedures for answering queries[5].

Relational Model

Activity Code	Activity Name
23	Patching
24	Overlay
25	Crack Sealing

Key = 24

Activity Code	Date	Route No.
24	01/12/01	I-95
24	02/08/01	I-66

Date	Activity Code	Route No.
01/12/01	24	I-95
01/15/01	23	I-495
02/08/01	24	I-66

Figure(2):Diagram of an example database according to the relational model

6.1 CODD'S twelve rules

Codd's twelve rules are a set of thirteen rules (numbered zero to twelve) proposed by Edgar F. Codd, a pioneer of the relational model for databases, Twelve rules is part of a test to determine whether a product that is claimed to be fully relational is actually so. Use of the term "fully relational" in this report is slightly more stringent than in my Turing paper (written in 1981). This is partly because vendors in their ads and manuals have translated the term "minimally relational" to "fully relational" and partly because in this report, we are dealing with relational DBMS and not relational systems in general, which would include mere query-reporting systems[2].

6.2 structural parts

A relational database is a collection of tables.

- Each table has a unique name. – Each table consists of multiple rows.
- Each row is a set of values that by definition are related to each other in some way; these values conform to the attributes or columns of the table.
- Each attribute of a table defines a set of permitted values for that attribute; this set of permitted set is the domain of that attribute.

This definition of a database table originates from the pure mathematical concept of a relation, from which the term "relational data model" originates[1].

6.3 Concept of Key

Keys are very important part of Relational database. They are used to establish and identify relation between tables. They also ensure that each record within a table can be uniquely identified by combination of one or more fields within a table.

- Super Key

  Super Key is defined as a set of attributes within a table that uniquely identifies each record within a table. Super Key is a superset of Candidate key.

- Candidate Key

  Candidate keys are defined as the set of fields from which primary key can be selected. It is an attribute or set of attribute that can act as a primary key for a table to uniquely identify each record in that table.

- Primary Key

  Primary key is a candidate key that is most appropriate to become main key of the table. It is a key that uniquely identify each record in a table.

- Composite Key

  Key that consists of two or more attributes that uniquely identify an entity occurrence is called Composite key. But any attribute that makes up the Composite key is not a simple key in its own.

- Secondary or Alternative key

  The candidate key which is not selected for primary key is known as secondary keys or alternative keys [3].

7. System Requirements

A. Non-functional requirements

1. Efficiency requirement

When a Health centers management system will be implemented user will easily access Health centers as searching and transaction will be very faster.

2. Reliability requirement

The system should accurately perform member registration, member validation, report generation, transaction and search.

3. Usability requirement

The system is designed for a user friendly environment so that Admin and staff of Health centers can perform the various tasks easily and in an effective way.

4. Implementation requirements

In implementing whole system it uses VB6.0 with Microsoft Access used for database connectivity and the backend i.e. the database part is developed using MS Access.

5. Delivery requirements

The whole system is expected to be delivered in six months of time with a weekly evaluation by the project guide.

B. functional requirements

1. Admin login

This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system. The user id and password will be verified and if invalid id is there user is allowed to not enter the system.

- user id is provided when they register
- The system must only allow user with valid id and password to enter the system
- The system performs authorization process which decides what user level can access to.
- The user must be able to logout after they finished using system.

2 .Register new admin

This feature can be performed by all users to register new user to create account. The Functional requirements are

- System must be able to verify information

- System must be able to delete information if information is wrong

3 .Register new center

This feature allows adding new Health centers.

The Functional requirements are:

- System must be able to verify information

- System must be able to enter number of Health centers into table.

4. Search Health centers

This feature is found in Health centers maintenance part. We can search Health centers based on Health centers id.

Functional requirements

- System must be able to search the database based on select search type

- System must be able to filter Health centers based on keyword entered

- System must be able to show the filtered Health centers in table view

C. Software requirements

- Operating system- Windows 7 is used as the operating system as it is stable and supports more features and is more user friendly

- Database Microsoft Access 2007 is used as database as it easy to maintain and retrieve records by simple queries which are in English language which are easy to understand and easy to write.

- Development tools and Programming language- VB6 is used to write the whole code.

D. Hardware REQUIREMENTS

- Intel core i3 2nd generation is used as a processor because it is fast than other processors and provide reliable and stable and we can run our pc for longtime. By using this processor we can keep on developing our project without any worries.

Ram 1 Gb is used as it will provide fast reading and writing capabilities.

8. Result

Visual Basic is a third-generation event-driven programming language and integrated development environment (IDE) from Microsoft for its Component Object Model (COM) programming model first released in 1991 and declared legacy during 2008. Microsoft intended Visual Basic to be relatively easy to learn and use.

A programmer can create an application using the components provided by the Visual Basic program itself. Over time the community of programmers developed third-party components.

Programs written in Visual Basic can also use the Windows API, which requires external function declarations.

I used Visual Basic to design and implement the health centers in Iraq because it is easy to use and implement and I can easily create my interfaces and connect it with the external database that supported by Microsoft Access>

first, when the user run the program the login page will appear, so the user should enter the user name and password to enter to the system as shown in following figure and the loading page will appear.

when the user enter the wrong information , the program refuse the entering as shown in following figure

when the loading is finished, the main page will appear as shown in following figure,it have two types of menu for easier access .
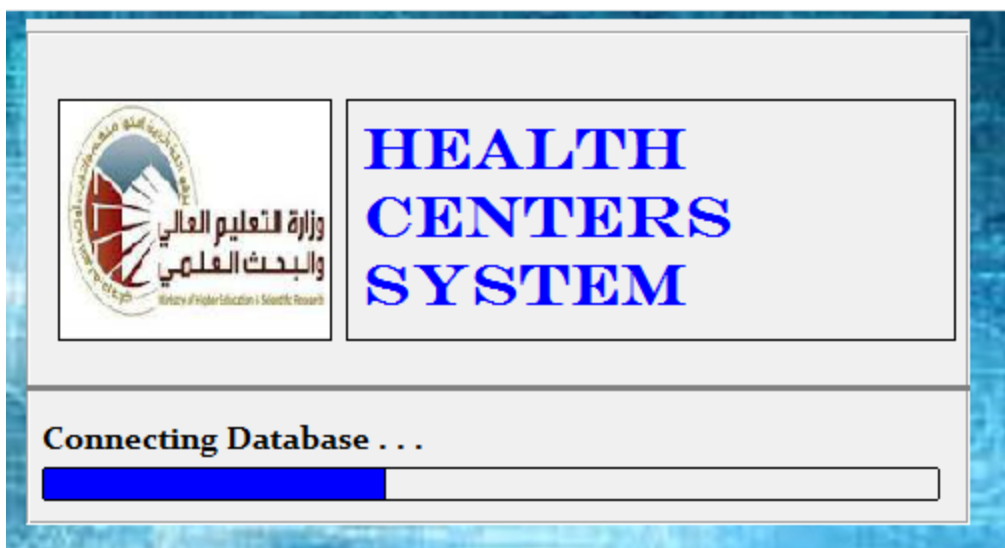
from the main page click to file and select add new option to add new health center as shown in following

figure

and from the main page click to file and select search option to search on health center as shown in following figure

And from the main page click to file and select delete option to delete health center as shown in following figure

then from the main page click to about and select system option to show about system of health center as shown in following figure

then from the main page click to view and select account option to show the information of admin of health center as shown in following figure

then from the main page click to view and select details option to show the information of health center as shown in following figure

then from the main page click to file and select exit option to close the system of health center as shown in following figure

9. Conclusion

The following is the Advantages of Health Center Management System

- Extensibility:

This software is extendable in ways that its original developers may not expect. The following principles enhance extensibility like hide data struct

ure, avoid traversing multiple links or methods, avoid case statements on object type and distinguish public and private operations.

- Reusability:

Reusability is possible as and when require in this application. We can update it next version. Reusable software reduces design, coding and testing cost by amortizing effort over several designs. Reducing the amount of code also simplifies understanding, which increases the likelihood that the code is correct. We follow up both types of reusability: Sharing of newly written code within a project and reuse of previously written code on new projects.

- Understandability:

A method is understandable if someone other than the creator of the method can understand. We use the method, which small and coherent helps to accomplish this.

- Cost-effectiveness:

Its cost is under the budget and make within given time period. It is desirable to aim for a system with a minimum cost subject to the condition that it must satisfy the entire requirement.

The research can and successfully does the objectives that will be achieved after completion of this project is discussed. So this research achieves the following:

1. Online health center management

2. Request column for admin add new center.

3. A separate column for digital Health center

4. Admin login page where admin can enter and alter on system.

5. A search column to search availability of health center.

6. Online notice board about the workshop.

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