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## Establishment of a client / server application for the management of the activities of the prefectural health directorate of Mamou in the republic of Guinea

Ibrahima Toure <sup>1</sup>, Ibrahima Kalil Toure <sup>2</sup>, Binko Mamady Toure <sup>3</sup>, Yacouba Camara <sup>4</sup>

<sup>1</sup> Institut Supérieur de Technologie de Mamou, Département Génie Informatique, Mamou, Guinea

<sup>2,3</sup> Université Gamal Abdel Nasser de Conakry, Centre Informatique, Conakry, Guinea

<sup>4</sup> Institut Supérieur de Technologie de Mamou, Département Energétique, Mamou, Guinea

Corresponding Author: **Yacouba Camara**

### Abstract

It is within the framework of making our contribution to the management of the activities of the Prefectural Directorate of Health of Mamou (Guinea) that we have developed this article which focuses on the implementation of a Client / Server application. During this work, we developed a specification to take into account all the parameters coming

into focus for the creation of this database. The main results obtained after setting up this database are as follows: development of a data dictionary, presentation of the application interface, user connection, application authentication.

**Keywords:** Management, Client-Server, Merise Method, Health, Mamou, Guinea

### 1. Introduction

As technology advances at a rapid pace, data collection and analysis becomes more and more important. Research into automated data management (storage and acquisition) and data mining has intensified with the aim of creating more reliable methods <sup>[1, 2]</sup>. CLIENT-SERVER systems connect clients to servers over a network to support distributed data management, processing and presentation. The extent to which servers share these functions with clients determines the range of potential applications, increasingly complex from distributed presentation (clients provide presentation services to mainframe presentations) to distributed databases (required application data resides on multiple IT platforms). Few computer movements have been as widespread as the migration from mainframe architectures to the client-server approach. Based on the results of a 1995 survey of 2365 mainframe system sites in North America, Guterl <sup>[3, 4]</sup> indicates that 32% of companies surveyed have adopted client-server versus 25% the previous year, 1994 It is therefore not surprising that many business leaders consider the client-server as the new computer model of the 1990s <sup>[5]</sup>. The main reasons reported for client-server adoption are: business benefits, including reduced time to market; improved customer service and increased organizational flexibility; and technical benefits, including improved communication technology, development environments and opportunities for better use of software <sup>[6, 7, 8]</sup>.

"Only 15.5% of all client-server implementations are successful" <sup>[9]</sup>. A recent study of IS managers reveals that only two-fifths of them consider the client-server as "a profitable investment" <sup>[10]</sup>. Apparently, these companies are not achieving the expected profits. This is surprising, given our collective wisdom on developing and implementing computer systems, from large transaction processing systems to decision support systems, gained over the past three decades. Are past strategies, activities and implementation steps still reliable in client-server environment? Are some activities and steps more important than others in obtaining benefits? Given the dismal success rate, these and other related questions call for answers.

As a first step towards resolving these critical issues, we report the results of a study of 350 client-server implementations. The objectives of the study are to empirically determine: 1) the client-server advantages and 2) the implementation factors that are positively related to these advantages. In doing so, we hope to provide managers with advice on how to get the most out of client-server systems.

The existing literature allows us to understand the potential benefits and associated implementation elements for other types of computer technologies. In this study, we combine many of these benefits and implementation elements (some that have been modified) with client-server specific elements obtained from experienced practitioners, taking us beyond a purely exploratory study.

With the management of client-server technology still in its infancy, we have deliberately cast a wide net in terms of the dependent and independent elements reviewed and reported the results of analyzes that explain the benefits, implementation factors and the potential relationships between them. It is in relation to the importance linked to the realization of a client / server application that we proposed this research subject entitled: Setting up a Client-server Application for the Management of the Activities of the Prefectural Directorate of Mamou Health in the Republic of Guinea.

## 2. Material and Method

### 2.1 Material

For the implementation of this database, we used as Database Management System, SQL SERVER 2008 interfaced with Visual Basic Ultimate 2012.

#### 2.1.1. Presentation of the study area

The Prefectural Directorate of Health of Mamou (DPS) is a health institution which aims to prevent and fight against diseases in the social, school environment which is epidemiological or pandemic in nature, it is also responsible for planning the training of the various health workers of all kinds to fight effectively against new cases of diseases reported in the Mamou prefecture. It is limited to the southwest by the prefecture of Kindia, to the northwest by the prefecture of Dabola, to the north by the prefecture of Tougué, to the northeast by the prefecture of Dinguiraye, to the east by the prefecture of Dabola and in the South by the Republic of Sierra Leone.

### 2.1.2. Specifications

A specification is a contractual document describing everything that is expected from the MOE (Project Management) by the MOA (Project Management) used in carrying out a development project.

It is therefore a document containing the most precise information possible with a simple vocabulary, the needs which the MOE must meet.

Thus this document makes it possible on the one hand to guarantee the client that the deliverables will comply with what is requested, on the other hand to prevent the client from modifying his wishes as the project progresses, it must also contain all the elements allowing the project manager to judge the size of the project and its complexity in order to be able to offer the most suitable offer possible in terms of cost. Based on the specifications and the collection of information, we were able to identify the various services that the application would be able to respond to for the management of the activities of the Prefectural Directorate of Mamou (DPS-M):

- The disease prevention and control section;
- The training and research planning section;
- The laboratory and pharmacy section;
- The administration and finance section.

### 2.2 Method

For the realization of this database, we used the MERISE method (Method of Study and Computing for the Enterprise System) because of its ability to produce correct and consistent data. This method results in the diagram below (figure 1).

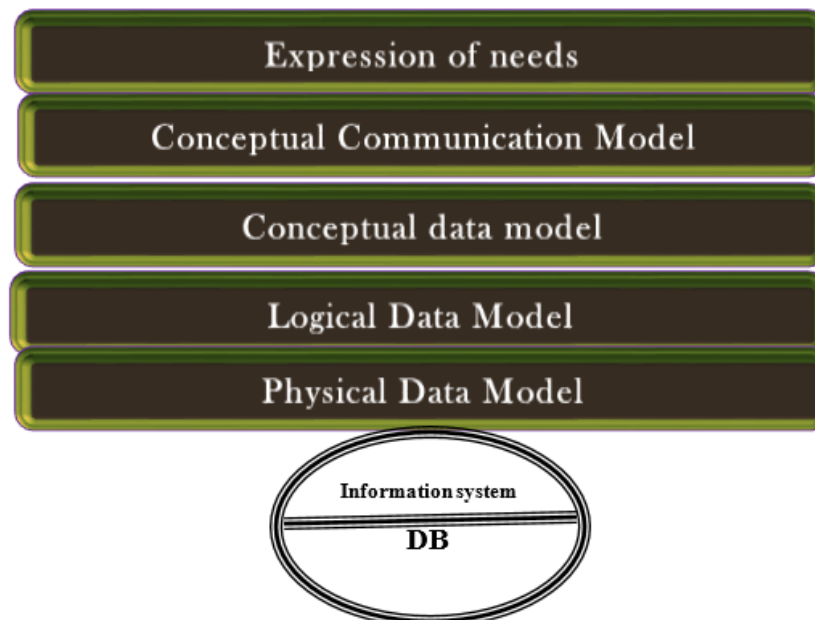


Fig 1: Diagram showing the MERISE method

#### 2.2.1. Conceptual database model

The diagram in figure 2 illustrating the structure of the information system (IS) from the point of view of the data, that is to say the dependencies or relationships between the different data of the information system: the Conceptual Data Model aims to formally describe the data that will be used by the information system. The basic concepts are: entity (or object or class), relation or association, property or attribute,

identifier.

The conceptual data model relating to the management system of the Prefectural Directorate of Mamou (DPS).

The “key” items are used to manage data consistency (called referential integrity):

- Agreement at the level of an Entity defined using unique keys.
- Concordance between several entities defined by links.

Match at the entity level is defined using unique keys. For example, in a HEALTH CENTER entity, the center number is unique. Each recording made must correspond to a

single center identified by its number. To do this, you must define the number property as a unique key.

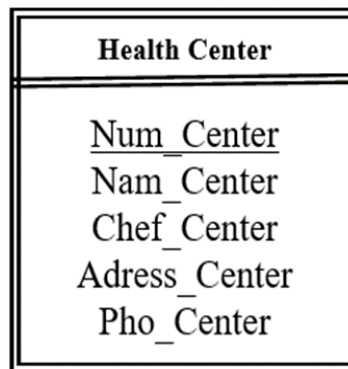


Fig 2: Health Centers Entity

The concordance between several entities is defined thanks to the links. An example of a link used in the MCD: An occurrence can be associated with several occurrences of another entity.

Example: **Sections and Units**  
 ▪ In a SECTIONS one or more units can be assigned; A UNIT is assigned to only one section.



Fig 3

**Data dictionary**

This document allowed us to identify the entities, it contains all the data useful for the development of our application, as well as their description. This description consists of

enumerating: the caption, the type of data, the name of the field (column), the size of the data. Then their classifications (elementary, resulting, parameter), and when it is a result of data, we must provide the calculation rule to find it (Table 1).

Table 1: Data and their description

N°	Codes	Wordings	Types	Sizes
1	Sec num	Section Number	Varchar	10
2	Sec name	Sections name	Varchar	40
3	Ope num	Operation Number	Int	Int
4	word_ope	Wording of the operation	Varchar	Max
5	Disease num	Disease Number	Varchar	10

**2.3 Operation, application interface**

After installing the application, its icon automatically appears on the desktop. To launch the application double click on its icon on the desktop.

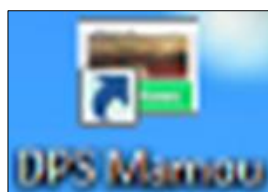


Fig 4



Fig 4

**User Login**

Once launched, the authentication window will appear as follows.

To connect to the application, the user must enter his login and password then validate by clicking on the connection button or the Enter key on the keyboard. Once the information is correct the main menu window is displayed according to its right as follows:

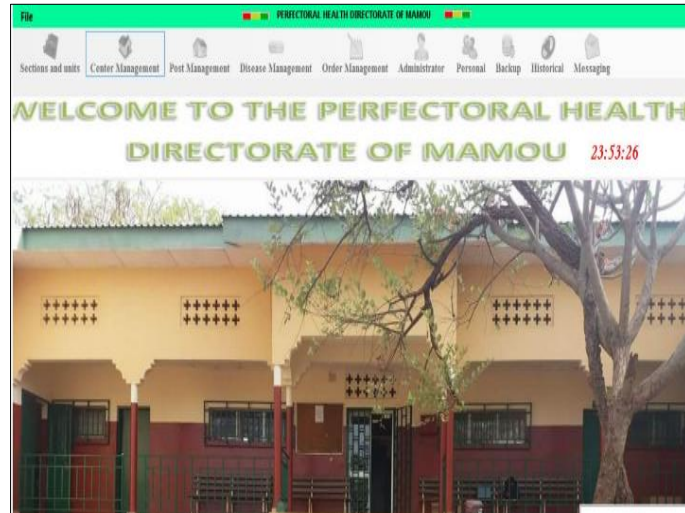


Fig 5

**To add a health center**

Proceed as follows:

- Click on the Center management tab then click on the Add button;

- Enter the center information;
- Click on the Add button.

In case of error, check if all the fields are filled in, because they are all mandatory.



**3. Conclusion**

The operation of this application meets the requirements of the specifications established at the start of this work. Its establishment will contribute to improving the effective and efficient management of the activities of the Prefectoral Directorate of Mamou in the Republic of Guinea and of all health and pharmaceutical structures under its jurisdiction. This application will allow the Management to control the following parameters:

- The feedback of information;
- Disease case management;
- Order management;
- Management of Deliveries.

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