

IMPLEMENTATION OF AUTOMATED SYSTEM FOR REFERENCIA Y CONTRAREFERENCIA SAN VICENTE DE PAUL HOSPITAL THROUGH THE USE OF FREE SOFTWARE.

Paul Bolívar Vásquez Méndez

Technical University North

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pvasquez@yachay.gob.ec

SUMMARY - This project is based on the "Implementation of Automated Reference and counter to the San Vicente de Paul Hospital by using Free Software" using the XP development methodology. In Chapter 1 the Background, Problem Description, Current Status, General Purpose, Specific Objectives, in Chapter 2 the theoretical framework of the supporting tools, and study methodology is used to develop the system is described. In Chapter 3 the analysis and design, whether the XP system methodology roles in Chapter 4 the conclusions and recommendations obtained in carrying out the Project Graduation also the impact that the implementation are presented.

KEY WORDS - Reference and counter.

1. INTRODUCTION

The reference and counter system is the mechanism through which the Ministry of Public Health as part of its decentralization of powers and resources, define strategies to ensure the general public access to health services, with the assistance of various stakeholders including the territorial governments, and providers of public health services have character.

1.1 DESCRIPTION OF THE PROBLEM

The reference manual and counter, is a methodological proposal raises and develops concepts in simple patient management to seek quality care and warmth at the first level of health before being sent from the case

to a higher level or vice versa; coordination for this activity levels involved necessary, seek efficient communication, report the event by the doctor and the operational unit to journal of hospitality.

Subsequently, the specialist hospital, after having attended the patient, if warranted, should conduct counter referral patient to the health unit where it came from, the same must accompany your medical history in which attach the disease data, suggestions and treatment advice, or if applicable, the same medical specialty should schedule a new appointment for a certain day.

1.2 PROSPECTIVE

With a web application will allow us to automate, analyze, control, better organize the first level to the second level and vice versa systematizing the referral form and counter to make this process as efficient as possible, thus avoiding extensive lines to be addressed, because it is a vital procedure that performs daily Hospital. In this way we get a quick and easy access to management shifts in statistics especially in patients coming from different parts of the

province and even reflect the unmet demand in this nursing home.

1.3 GENERAL OBJECTIVE

Implement automated reference and counter the Hospital San Vicente de Paul, using Free Software.

1.4. SPECIFICS OBJECTIVES

- Perform requirements gathering and system software based on the IEEE to 830 and IEEE1362 standard.
- Perform Architectural, specific data and application design.
- Develop web application using a programming language, a tool for developing and applying best practices in this regard.
- Perform unit, modular and system testing of the application developed.
- Implement the application in the technological infrastructure of the institution.

1.5 JUSTIFICATION

By meeting by Technical Management Hospital with various leaders of the Manager services,

Assistance Manager, Leader of Statistics in order to solve the problems that occur in the service have taken into account the changes to the top generate discomfort in people coming from some way or another being served by this urgently requested to perform a system which allows managing the care of these outpatients. The development of the application will do with the Symfony PHP framework with the MVC pattern.

With the MVC design pattern allows us to work separately control logic, business logic and presentation logic. Using this type of pattern is possible to achieve higher quality, easier maintenance and one of the most *important* things you can normalize and standardize the development of software.



1.6 BENEFITS

The direct beneficiaries of this project are officials Assurance process to Quality Management San Vicente de Paul Hospital and indirect is the population of the Zone 1 Health is staffed centers and sub-centers of Carchi, Esmeraldas, Sucumbíos and Imbabura, which not only have to travel for booking the turn but sure go for the day and date booked.

2 THEORETICAL FRAMEWORK

2.1 FREE SOFTWARE

Free Software explicitly refers to the freedom that the end user has to run programs whatever the nature or purpose, then the 4 fundamental freedoms with which the user is working in the free software is detailed.

- Freedom to use the program with any prop use or site common.
- Freedom for distribution of copies or n or n some unrestrained
- Freedom to study and modification or n. (Prerequisite: c or source code available)

- Freedom to publish the enhanced program. (Prerequisite: c or source code available)

When we speak of free software should not be expressed as NO COMMERCIAL, all the different programs available for use commercially, commercial development, commercial distribution and commercial programming.

2.2 DEVELOPER TOOLS

For the development of this project was used PostgreSQL 8.4 hand with Symfony framework 1.4 which are free to use in accordance with licenses and wellbeing partakers of Decree 1014 (Delgado, 2007) of the Ecuadorian Government to suggest the use of free software in Public Institutions.

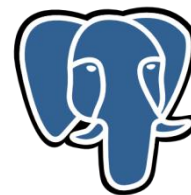
2.3 PHP



PHP is one of the side languages most prevalent on the web server, allows your embed small pieces of

code within the HTML page and perform actions easily and efficiently without having to generate programs in their target languages to HTML.

2.4 POSTGRESQL



PostgreSQL

PostgreSQL is a management system relational database and object-oriented free released under the BSD license with source code freely available.

This management system database is currently the most powerful on the market considering that the latest version has nothing to envy q versions of commercial databases. (Wikipedia, Wikipedia, 2013)

2.5 SYMFONY



Symfony is a framework designed to optimize the development of web

applications with different characteristics separating business logic, the logic of the presentation server and the web application. Provides several tools and classes that are aimed at reducing the development time of a complex web application. Automate common tasks, allowing the developer to devote himself to the specifics of each application. The result of these advantages is that you should not reinvent the wheel every time a new web application is created. (Web, 2007)

2.6 JQUERY



jQuery is considered a JavaScript framework that is, a set of functions that have already been developed and tested, they are ready for use in a very simplified manner. In short we can achieve the same results in less time without programming functionality completely.

Interact with HTML documents, manipulate the DOM, handle events, develop animations (FLV) and add AJAX technical interaction to web

pages. It was filed on January 14, 2006 in Bar Camp NYC. JQuery is the most widely used JavaScript library. (July, 2011)

2.7 DOCTRINE



Doctrine is a library for PHP that allows us to work with a database schema as if it were a set of objects, not tables and records.

It is an Object-relational mapper (ORM) written in PHP that provides a persistence layer for PHP objects. It is an abstraction layer that sits right on top of a DBMS.

2.8 METHODOLOGY

The methodologies and standards used in the development of software to provide guides know all the way forward before starting the implementation, which we ensure the quality of our final system, as well as compliance in the delivery it within a stipulated time.

For the preparation of this thesis project, select the XP methodology that simplifies the design and accelerating the development and maintenance easier, placing more emphasis on adaptability than on predictability adopting best development methodologies according to what is intended to bring out with the project and apply it dynamically during the software lifecycle.

3. ANALYSIS AND DESIGN

3.1 IEEE STANDARD 830

The IEEE (the institute of electrical and electronics engineers), is an international institute dedicated to advancing technological innovation and excellence for the benefit of humanity. The IEEE says q for all work necessary to deliver software to customers' requirements specification, which need, divide and document everything must be properly documented. There is a standard called IEEE 830 SRS for proper specification of requirements for software development.

3.1.1 PURPOSE

The purpose of this requirements specification is to define the requirements of the modules of the application IMPLEMENTATION OF AUTOMATED SYSTEM FOR REFERENCE AND COUNTER HOSPITAL SAN VICENTE DE PAUL THROUGH THE USE OF FREE SOFTWARE developed by Paul Vásquez Méndez as final project prior to obtaining The title of Systems Engineer.

This specification is intended to be read by both the advisor of this project, current and future developers as well as anyone interested in this implementation.

3.1.2 SCOPE

With a web application will allow us to automate, analyze, control, better organize the first level to the second level and vice versa systematizing the referral form and counter to make this process as efficient as possible, thus avoiding extensive lines to be addressed, because it is a vital procedure that performs daily Hospital. In this way we get a quick and easy access to management shifts in statistics especially in patients

coming from different parts of the province and even reflect the unmet demand in this nursing home.

3.1.3 PRODUCT PERSPECTIVE

The product is a web application web roasted therefore requires configuration to access the network. It also requires database software. Regarding the availability of memory is not of major importance and will not need to be installed, as this application will run in the browser installed on the PC.

3.2. PLANNING

3.2.1 USE CASE DIAGRAMS

In Unified Modeling Language, a diagram use case diagram is a form of behavioral UML but improved form. This allows us to perform a graphical notation for representing these use cases. These notations define the nature of the use case, detailing them in a better way.

Its main advantage is the ability to interpret, which are especially useful in communicating with the client.

There are 3 basic elements in which we will point out the following:

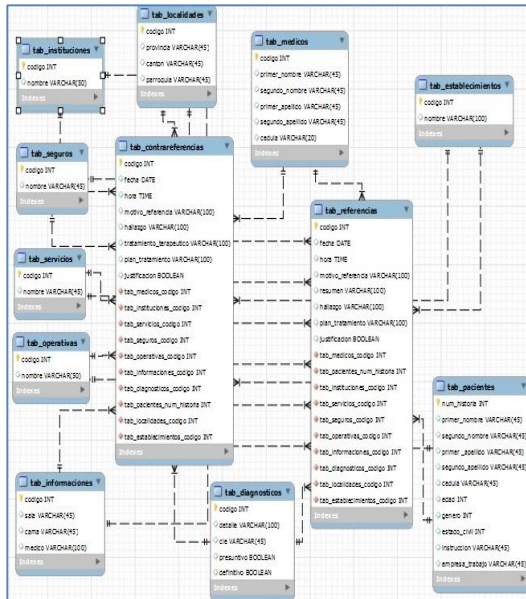
- **Actors**, they represent a type of user in the system need not be a human being, at once can be an existing system within a company.
- **Use case**, the task is going to develop out with the support of the system which we are developing, will usually represented by an oval.
- **Associations**, is an association or n between an actor and a use case if the player u to interact with the system to carry out the use case.
- **Stage**, is the interaction between the system and actors, which can be described by a sequence of messages.

3.2.2 ACTORS

- Administrator
- Medical
- Statistical
- Guest

3.2.3 RELATIONAL DATA MODEL

In this model, relational data, which has implemented the database and counter-reference system interconnections (relationships) between the data (which are in the tables) was established and through these connections relate one or more tables



3.3 IEEE 1362

The IEEE (the institute of electrical and electronics engineers), is an international institute dedicated to advancing technological innovation and excellence for the benefit of humanity. The IEEE says q for all work necessary to deliver software to customers' requirements specification, which need, divide and document everything must be properly documented. There is a standard called IEEE 1362 for proper specification of requirements for system development here you can define both hardware software more and more people more regulations more procedures

3.4 STANDARD IEEE 830

The IEEE (the institute of electrical and electronics engineers), is an international institute dedicated to advancing technological innovation and excellence for the benefit of humanity. The IEEE says q for all work necessary to deliver software to customers' requirements specification, which need, divide and document everything must be properly documented. There is a standard called IEEE 830 SRS for proper specification of requirements for software development.

3.5. PROTOTYPE SYSTEM'S MAIN SCREEN

In the first instance we can see the login screen in which the system requests the username and password to login



4 CONCLUSION AND RECOMMENDATIONS

4.1 Conclusion

- The Information Technology and Communications involves resources which allow reliable way activities, ensuring efficient and quick processing of data or information.
- The implementation of the reference and counter to the San Vicente de Paul Hospital from the Web data processing and storage more efficiently as this will reduce waiting times and better execution quality care and warmth to the end user.
- Applications for the development of the computer system is decided by ministerial decree rules laid down in 1014 and the San Vicente de Paul Hospital, where PHP is used as a programming language and as a driver for PostgreSQL database.
- This system will have an important contribution to both the San Vicente de Paul Hospital and Health Coordination no.1 which go hand in hand for outpatient medical care in the region 1.
- The project developers to students and teachers at the Technical University of Engineering Degree in Computer obtain a source of

consultation and guidance for the development of applications with databases.

- The use of free software today brings new technologies, facilitating the development of applications using fewer resources.
- standardizing Symfony makes a structure allowing the separations of layers grow quickly and efficiently.
- Easy access to the Internet today, data issued by District 1 determined that 99% of operating units are covered for entering the developed system.
- The PostgreSQL database is one of the most powerful database managers and the best part free tool which is compatible with a variety of data types. In turn supports different functionalities engines are commercial databases as constraints, triggers, stored procedures.
- Using the Symfony framework is currently increasing but turn query tools are minimal.

4.2 RECOMMENDATIONS

- With respect to system maintenance on growth data is strictly necessary to

promote growth teams ICT's Hospital San Vicente de Paul assigns one person responsible for it.

- Little support received by the MSP, despite being developed in free software as ministerial decree has been totally negative especially in the technology care is low if a health and therefore more attention is paid to officials who deal with this area of influence.

- This system becomes a completely useful and essential for both physicians and statistical tool which interact directly with the patient, their daily use is recommended, as well as adequate training for personnel designated to understand its proper functioning.

- ICT Leader of the San Vicente de Paul Hospital install a production server for direct access by public ip and dns server is recommended.

- It is recommended to use the system using the Mozilla Firefox any version thus avoid incompatibility templates, css and javacripts.

- The MVC model is fully recommended for web application development because it allows your code organized and easy to maintain.

- Communicate by email ZIMBRA institutional users who will work with this system for their respective socialization in different roles.

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