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TOPIC

**“SYSTEM WEB OF ADMINISTRATION AND CONTROL OF PROCESSES FOR THE
PROVINCIAL ADDRESS OF THE IESE DE IMBABURA”**

APLICATIVO

“MODULE OF ADMINISTRATION AND CONTROL OF INVENTORIES OF SUPPLIES”

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System Web of Administration and Control of Processes for the Provincial Direction of the IESS Imbabura

Module of Administration and Control of Inventories of Supplies

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1. Introduction

The Provincial Direction of the IESS of Imbabura doesn't have a computer system that facilitates him the necessary information for the administration and the control of the inventory of Supplies at the present time.

The Module of Administration and Control of Inventories of Supplies (MGCIS) he/she refers to the control and handling of the different supplies that he/she has the cellar of the Provincial Direction of the IESS of Imbabura.

This system constitutes one of the most convenient alternatives in the effort to reduce the run-time in the different processes and in that way to optimize the form like the inventory of supplies is taken making it in a more efficient way and that it is good to minimize the expenses that he/she has the Provincial Direction of the IESS of Imbabura.

1.1 Problem

The Provincial Direction of the IESS of Imbabura located in the city of Ibarra has a cellar of storage of supplies since the same one that has not been controlled properly with an order from its existence; it doesn't have a computer system that facilitates him the necessary information for the administration and the control of inventories of Supplies.

1.2 Objectives

General Objective:

To implement a computer system that improves the administration and control of the inventory of Supplies for the Provincial Direction of the IESS of Imbabura that

allows the stock control in cellar and activate the process of delivery of supplies.

Specific Objective:

- To study the appropriate tools to use in the development of the project with the previous creation of a demo of the application for the later revision of flaws, and their respective manuals, for the correct use of the application as much for the administrator as for the other users.
- To carry out the correct integration of the modules of Administration and Control of Fixed assets Chattels, Inventory of Supplies and of Elaboration of the PAC and Handling of Budgetary appropriations of Acquisitions.
- To request support and authorization to have access to the required information for the design and implementation of the Module of Administration and Control of Inventories of Supplies for the provincial Direction of the IESS of Imbabura.
- To allow the reduction of times of operation and to maintain the very organized and sure information for the Provincial Direction of the IESS of Imbabura.
- To register the invoices of purchase of the acquisitions of supplies.
- To facilitate the precise identification of a supply, allowing their location, current state and the number of existences in the smallest time.

1.3 Scope

The application has as purpose to systematize and to administer the information that will be used the involved personnel of the different areas of the institution all told efficiently like they are:

Systems: he/she carries out a pursuit of the development of the project, it approves requirements and functionalities.

Officials: elaboration of internal orders of supplies.

Responsible for Supplies: entrance of supplies for purchase and delivery of supplies under internal order.

The Module of Administration and Control of Inventories of Supplies will be integrated with: The Module of Elaboration of the PAC and Handling of Budgetary appropriations of Acquisitions and the Module of Fixed assets of Chattels.

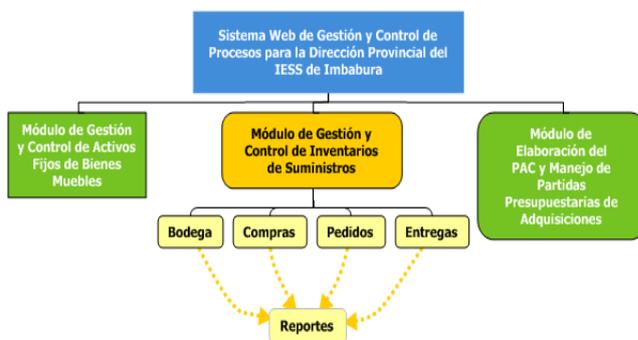


Figure 1: Outline of the Reach of the Project

Module of Cellar

- Creation, Modification and Elimination of Supplies.
- Filter of fields (you go, name, it marks, measure unit, subject to control, stock >=) in the chart of supplies
- Search of supplies for Departure and for field.
- To generate the kardex of supplies.

Module of Purchases of Supplies

- This module will take charge of Registering the Invoices for purchase order and to the suppliers to those that have been bought.
- It allows to consult annual plan of purchases of supplies
- To list the purchases of supplies
- To carry out purchases according to the departures of supplies: Office material, Material of Toilet, Material of Impression and computer Material.
- When he/she stays a purchase in the database he/she is carried out a distribution of that supply

for the number of officials that has approved the requirement of that supply.

- To register the purchase in the kardex of that supply
- To execute reports like: report purchase singular, report of the annual plan of purchases of supplies, detailed report of purchases of supplies.

Module of Orders of Supplies

This module will take charge of:

- To negotiate the orders of supplies on the part of the officials.
- It allows to consult the approved requirement according to the PAC-supplies that the official has where it is detailed: quantity of approved supply, requested quantity, quantity to request, delivered quantity.
- The stock official is assigned according to the following calculation.

$$stock\ Funcionario = \frac{cantReqFunc \cdot cantCompra}{cantDetPac} \quad (1)$$

- It will generate an order act on the part of the official that will detail the articles or requested supplies and the requested quantity.

Module of Deliveries of Supplies

- This module will take charge of:
- To control the flow of exit of supplies in each order of an official's of a respective department order.
- To register the delivery in the kardex of that supply
- It will generate an act of delivery reception

Module of Reports

- You consult and Reports according to the requirements of the users of the different Departments.
- Report of Purchases of supplies
- Report of Orders of supplies
- Report of Deliveries of supplies
- Reports of Existences
- Reports of inventories
- Report of Kardex

1.4 Justification

Since the institution meets at the moment in a constant transformation with the acquisition of new goods he/she was carried out a meeting with the Dr. Vicente Muñoz General Director of the IESS of Imbabura and the Engineer Mario Medina Boss of the Department of Systems where the exhibition was made on the problem outlined previously and the systematizing of information of the process of inventory of supplies was suggested offering the support and approval on behalf of the institution.

One has also seen the necessity to implement a system that integrates the processes of the Institution, with tools that help to improve the logistical and administrative administration, allowing the personnel of the institution to have reliable, sure information and in real time.

The institution at the moment doesn't have the up-to-date information, mainly the tool that provides him this information, therefore one has seen the necessity to implement a system Web, with tools that help to improve the administration, allowing the personnel of the institution to have reliable, sure information and in real time.

By means of the handling of these tools it will allow to register in systematized form and opportune the movements of supplies to obtain the information in an immediate and sure way.

To implement the system Web it was used tools Oracle, Framework JSF, design pattern MVC, to offer security in the data that are registered, to obtain a good yield that is stable, scalable among other characteristics.

2. Development Tools

Next the utilized tools are described for the development of the Aplicativo.

2.1 Subversión (SVN Server)¹

Subversion is a system of control of versions that uses the revision concept to keep the changes taken place in the repository.

SVN allows the user to create, to copy and to erase portfolios with the same flexibility with which would make it if is in its local hard disk. Given its flexibility, is

¹ Source:

http://piposerver.com/joomla157/index.php?option=com_content&view=article&id=50:howto-subversion-svn-espanol&catid=20:manuals-howto&Itemid=43

necessary the application of good practices to carry out a correct administration of the versions of the generated software. SVN allows two people at least to modify the code.

2.2. Desing patterns MVC

The Model Seen Controller (MVC) it is a pattern of software design, which divides user's interface and the business logic in three different components.

- **Model:** It is the specific representation of the information with which one works in the system.
- **See:** It is the presentation of the pattern in an appropriate format for the interaction with the same one, typically user's interface.
- **Controller:** He/she responds to events, usually stocks carried out by the user and he/she carries out petitions to the pattern and at sight..

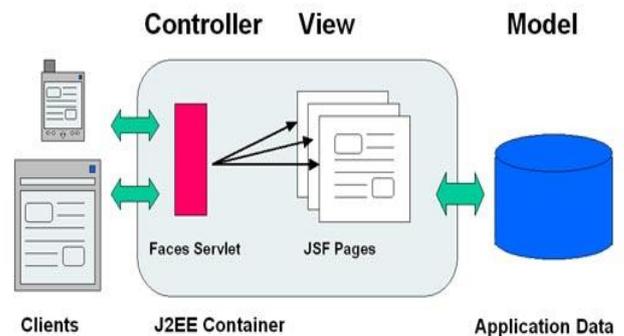


Figure. 2. I Model Seen Controller

2.3. Database Oracle 11g

Oracle is a system of administration of relational database, developed by Oracle Corporation.

It is considered Oracle like one of the most complete systems of databases, highlighting its:

- Support of transactions.
- Stability.
- Escalabilidad.
- Support multi-platform.

Design pattern: It is a solution proven for a problem in a context.

http://catarina.udlap.mx/u_dl_a/tales/documentos/lis/rivera_1_a/capitulo2.pdf

Source: <http://www.comunicacionweb.com/los-pattern-of-design-mvc/>

Stability: It is said that a system is stable when its level of shortcomings diminishes.

- Oracle is basically a tool client/server for the administration of Databases.

- Oracle is portable because it can settle in the great majority of the operating systems and he/she also has a great storage capacity.

2.4. Servant of applications Weblogic

It is a popular servant of applications J2EE of BEA and it is good for the construction of SOA (Service Oriented Architecture), it is a servant of applications Java and services web that he/she takes charge of the managerial logic of the application programs.

The line of products Oracle WebLogic 11g Application Server is a platform Java that allows to develop, to implement and to integrate managerial applications.

2.5. Development IDE² JDeveloper

Oracle JDeveloper is an integrated environment of development that simplifies the development of Java based on SOA and the applications Java EE.

Source: <http://es.wikipedia.org/wiki/Estabilidad>

Escalabilidad: it is the desirable property of a system, a net or a process that it indicates their ability to extend the margin of operations without losing quality, or to manage the working continuous growth in a flowing way, or to be prepared to be made bigger without losing quality in the offered services.

Source: <http://es.wikipedia.org/wiki/Escalabilidad>

Multi-platform: it is an used term to refer to the programs, operating systems, programming languages, or another software class that can work in diverse platforms, that is to say are a hardware combination and software used to execute applications; in their simpler form it only consists of an operating system, an architecture, or a combination of both.

IDE: It is that is to say a programming environment that has been packed as an application program, it consists on to publishing code, to compiler, to debugger and to graphic interface manufacturer (GUI).

IDE: It is that is to say a programming environment that has been packed as an application program, it consists on a code editor, a compiler, a debugger and a graphic interface manufacturer (GUI).

With JDeveloper, Oracle has tried to simplify the development of applications, being centered in providing a visual and declarative focus for the development of applications.

One of the main changes in JDeveloper11g contrary to any previous version of JDeveloper is that starting from this, and after the acquisition of BEA, the absorbed container that he/she comes with the tool and naturally that it is in production it is WebLogic Server 10.3.

2.6. Enterprise Java Bean (EJB)

Son componentes Java EE que implementan la technology Enterprise JavaBeans (EJB).

An EJB is executed in a container of EJB that is an execution environment inside of a servant of applications. Although it reveals for the application, the container of EJB provides a series of services at system level among those that the transactions and the security of the EJBs are included.

The idea of EJB is to move the business logic outside of the layer web and in an independent layer that is centered exclusively in the modelización of the domain of the business and the swap transactions.

An EJB is component on the side of the servant that you/they encapsulate the logic of the business of an application.

The EJB simplifies the development of applications of great behavior that they should be distributed, this is achieved thanks to that the services of transactions, security and distribution are administered by the container and not for the programmer, being able this way to facilitate the administration of the EJB.

Session Beans with state or stateful:

The state stays during the session of the client with the bean.

The instance is reserved for the client and each one stores the information of the client.

The session concludes if the client removes the bean or its session concludes.

The session EJB with state retains the state of each individual client among multiple requirements.

If the state of the bean changes when it is invoked to a method, this state will be available for the same client in the following invocation.

2.7. Java Persistence API (JPA)

It provides a standard to negotiate data in applications Java YOU or Java EE, so that the development of the persistence of data it is also simplified.

JPA is an abstraction it has more than enough JDBC that allows to carry out this correlation in a simple way, carrying out the whole conversion between our objects and the charts of a database. This conversion calls herself ORM (Object Relational Mapping - Relational Mapeo of Objects), and it can be configured through metadatos (by means of XML or annotations). It also allows to follow the inverse sense, creating objects starting from the charts of a database. To these objects he/she knows them to him as entities (entities).

2.8. Framework JSF

Java Server Faces (JSF): It is a technology and framework for applications Java based on web that simplifies the development of user interfaces in applications Java EE.

Based on components and events on the side of the servant, it maintains on the side of the servant a representation of user's interface presented in the client.

2.9. RichFaces

It allows an easy integration of the capacities of Ajax in managerial applications of development.

RichFaces is a very useful mark of open code that allows him to add capacities from Ajax to its applications JSF.

2.10. JasperReport con iReport

It is a source open of Java of formless tool that can write in a variety of objectives, such as: screen, a printer, in PDF, HTML, Microsoft Excel, RTF, ODT. In JasperReports the file Jrxml the "source code" is considered for its report. Before being able to execute the report, it should compile the file in a file that has an extension. Jasper.

2.11. IReport

It is the visual tool of more popular design for the library JasperReports.

IReport provides the users of JasperReports a visual interface to build reports, to generate files

“jasper”. Through JasperReports, it is able to compile files jasper and “to execute reports” to fill them using several types of sources of data (JRDataSource) and to export the result to PDF.

2.12. Objectives of the Inventory

To provide or to distribute the necessary materials appropriately to the company. Placing them to disposition in the suitable moment, it stops this way to avoid lost increases of costs of the same ones. Allowing to satisfy the real necessities of the company correctly, to which it should remain constantly adapted. Therefore the administration of inventories debit side to be sincerely controlled and watched over.

2.13. Cellar supplies

They are those of use or permanent or habitual consumption that are had in the deposit or central cellar and that they are usually available for immediate delivery.

2.14. Price of Market

For this method, the merchandises come out to an estimated cost similar to the market price to the moment in that he/she is carried out the sale or delivery; whereas clause that in that same instant in that he/she is carried out this sale or he/she surrenders; he/she should recover the existences, in function of the last market price; more all the additional costs until the article or supply is in the sale place or he/she surrenders.

3. Conclusions

With the Implementation of a computer system it will improve the administration and control of the inventory of Supplies for the Provincial Direction of the IESS of Imbabura allowing to know the stock of the supplies agilely and that the deliveries of supplies are quicker.

The implementation of the System of Administration and Control of Inventories of Supplies, allowed to improve

the quality for the administration of the information, since it was simplified manual processes that took a lot of time and they were not exact neither reliable.

The Module of Administration and Control of Inventories of Supplies was integrated correctly with the other modules: Module of Administration and Control of Fixed assets of Chattels and with the module of Elaboration of the PAC and handling of Budgetary appropriations of acquisitions in a single application denominated System web of Administration and Control of Processes for the Provincial Direction of the IESS of Imbabura.

I applied the acquired knowledge of jsf2, Ejb3 and Richfaces 4.1 for the implementation of the system of Administration and Control of inventories of Supplies.

4. Recommendations

To complete the outlined objectives, it is fundamental the active participation of the involved users.

The officials' collaboration in what concerns to the handling of the system, showing their restlessness and future requirements.

He/she should be carried out a pursuit to the use of the system of Administration and Control of Inventories of Supplies and to look for possible improvements to the system.

The appropriate registration of the information will allow to have real and reliable information in the moment that is needed.

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Realized studies:

Primary instruction: “Institute Mates Miguel the you
Leave him.”

Secondary instruction: “I Associate National Abelardo
Moncayo.”

Superior instruction: “Technical University of the North”

Ability of Engineering in Applied Sciences

Career of Engineering in Computational Systems