

# IMPLEMENTATION OF COMPUTER SYSTEM FOR INFORMATION MANAGEMENT IN THE CENTER OF CULTURAL DISSEMINATION OF THE TECHNICAL UNIVERSITY OF NORTH

*Author Edison TARAMUEL*

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eddy.briss@hotmail.com

**ABSTRACT.** *This study is based on the Implementation of a Management Information SYSTEM for the Cultural Dissemination Center of the Technical Norte University (CUDIC-UTN), Ibarra-Ecuador through both the Development of Information Management modules in Oracle Forms and the Presentation of Information in Portfolio development in Oracle Apex.*

*The Methodology used was the "Rational Unified Process" that allowed to develop a systematic and organized labor. In addition, a study of development tools called Oracle Application Express, more precisely - Oracle Forms 11g – supported by a Database Oracle 11g, with the purpose for the system to meet all quality standards and functional requirements granted by the CUDIC. This system helped to improve the activities carried out within CUDIC as the insertion of the student artistic groups, instructor's management, workshops, laboratories, and artistic groups. As well as recording the events and showing their presentations.*

*With the portfolio, the main purpose is to promote the artistic groups' labor, and demonstrate how the University is involving community with its work, and thus, achieve the mission of the institution to link with society by means of sustainability criteria to contribute to social and cultural development of the region and the country.*

**Keywords.** *Community, Empowering, Management, Implementation, Information, System, Sustainability.*

## 1. INTRODUCTION

Northern Technical University is an institutional reference in the north of the country, thanks to the constant

striving for excellence and national and international recognition of all the people who make this university house. One of the key props to make it to this place of honor, is the relationship with the community that the University has been doing since the beginning of its activities. Leveraging existing multiculturalism in the province of Imbabura, they have developed different artistic groups that have worthily represented this glorious institution in the various activities which have been required.

"The University Centre for Cultural Management is an administrative technical department belonging to the area of Bonding, responsible for formulating and implementing cultural policies based UTN Vision - Institutional Mission and the National Plan for Good Living. Investigates, recovers and disseminates values and most important manifestations of the region and the country. Form and trains students of the UTN in different cultural areas of art and literature, committed to the defense and development of national and regional multiculturalism; Diffuses the cultural production of the UTN in all areas through presentations and demonstrations of artistic groups, inside and outside the university, region, country and internationally representing the University in cultural events " [1].

With this background arises the need for a computer system that enables, energizes, order and help us with better control of the information generated in the different processes involving links with the community well integrated into the overall system ERP1 UTN. Among the main processes taking place within the CUDIC they are: management of laboratories and workshops, insertion of students to artistic troupes, event log and show presentations of artistic groups; all this is handled in the module of information management.

Additionally the implementation of this application using the Portfolio module seeks to show the outside shape as the university is working in a link manner with society, especially the artistic troupes participating in events

representing the university house, heightening the name of this glorious institution.

## 2. MATERIAL AND METHODS

### 2.1 UNIFIED MODELING LANGUAGE (UML)

Large business applications, working with large integrated systems, and maintain a systematic Institution and Northern Technical University, should be more than just a bunch of code modules. They must be structured in a way that allows scalability, security and robustness; besides its structure and its architecture must be defined clearly enough to allow programmers to provide adequate and timely maintenance. Of course, a well-designed architecture benefits any system, not just the largest as we noted at the beginning; Another benefit of a good structure and system modeling is code reuse.

Using a model, responsible for the success of a development project can ensure that the functionality of a project is complete and correct achieving that end-user needs are met.

With all this introduction we could emphasize that it is important to define a model, however we define that is a model and its meaning. UML, for its acronym in English (Unified Modeling Language) which means the Unified Modeling Language, is the best known and used in the modeling language software systems. It is very useful if you want to visualize, specify, construct and document a system because it is based on graphs such as:

- \* Class Diagram
- \* Objects Diagram
- \* Components Diagram
- \* Composite Structure Diagram
- \* Package Diagram
- \* Deployment Diagram

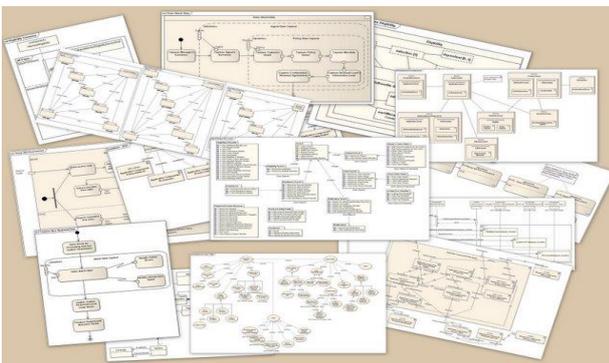


Illustration 1: Unified Modeling Language, [2]

### 2.2 METHODOLOGY RUP

For its acronym in English RUP (Rational Unified Process). It is a standard methodology that helps us with guidelines for the analysis, design, documentation, and

implementation of applications that are object-oriented. The process RUP is a set of adaptable to the needs of the organization in which it will develop the application rules. As we have mentioned RUP is manageable according to the needs of the system, which is divided into four distinct phases, which will help us to develop the system in an organized way without a hitch, meeting times and quality standards necessary for the development a computer system up to any company.

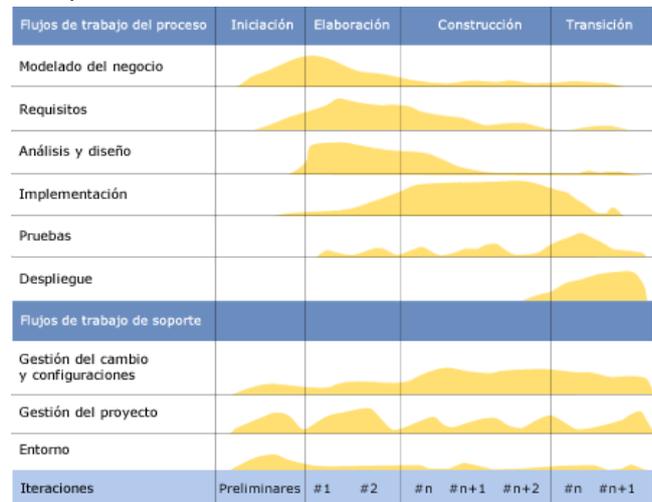


Illustration 2: RUP phases, [3]

#### 1.1.1 PHASES OF LIFE CYCLE RUP

1. **Phase Beginning.**- The main objective of this phase is to define the project scope, identify risks that may arise, to propose a general outline of the application architecture, according to user requirements.
2. **Phase Elaboration.**- Use cases that allow the application to build the base of the system architecture, develop the preliminary design of the solution develops.
3. **Phase Construction.**- Application functionality will be completed, which is due to settle all outstanding requirements, and make changes according to evaluations and suggestions made by users of the system.
4. **Phase Transition.**- The purpose of this phase is to ensure that the application is one hundred percent available to end users, correct errors and defects found in final testing to train end users and provide technical support. To finish, you must verify that the project meets all specifications and requirements provided by users.

## 2.3 MODEL VIEW CONTROLLER

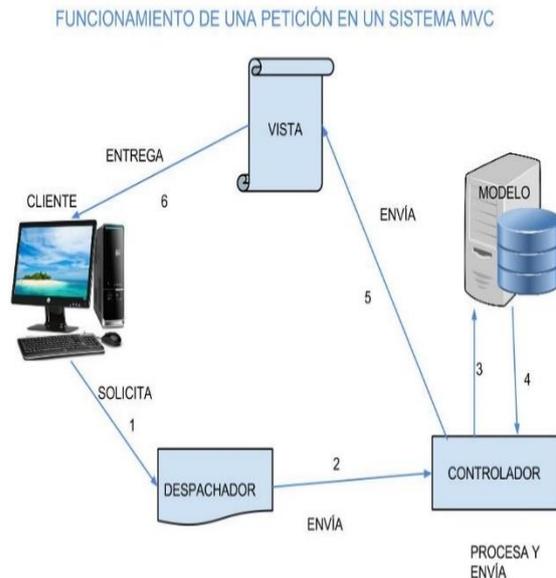


Illustration 3: model view controller

It is a standard software architecture that helps with organization code based on their performance, in other words it separates data interface and business logic of the application. Thus the system is divided into three layers detail below:

- **Model.-** This layer enables data recovery converting them into meaningful attributes for the application as well as for validation and processing.
- **View.-** This layer presents data model on an interface, ice the use of the information for any request that is present in the system.
- **Controller.-** As its name suggests is a driver or application administrator, making sure that the requests made by the user through the interface reach adequate "workers".

## 1.2 ORACLE DATABASE 11G

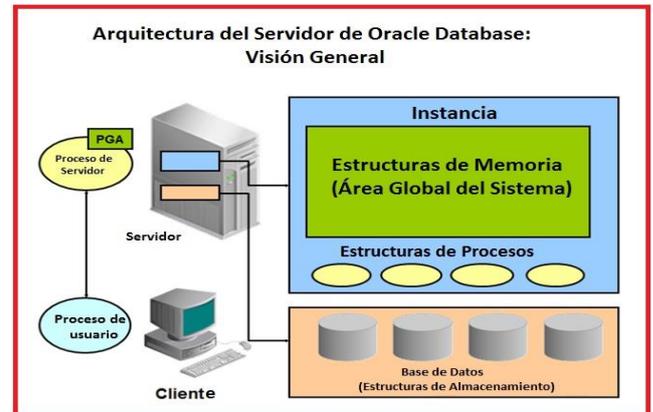


Illustration 4: Database Architecture [4]

Before to analyze ORACLE database, we define its meaning. A database is a set of data organized and classified in one specific place with the same goal, for example we could cite a library, but for our field systems and computer have the same conceptualizing that change the databases in digital format.

Now let's see ORACLE DATABASE, for its size, robustness, stability, scalability and multi-platform support we would say that is considered one of the systems Base most comprehensive market data. For this research we use the 11g R2 version that offers performance and extraordinary scalability due to the functional improvements of safety and compliance with regulations currently in force. The latest version 11g Release 2 Oracle Forms is based on Oracle Fusion Middleware 11g2, which is a set of software tools for the development, implementation and management-oriented (SOA) architecture servers.

It includes what Oracle calls "hot-pluggable" meaning (hotplug), designed to facilitate integration with existing applications and systems from other software vendors. Oracle Forms is used to develop and deploy Forms applications. Forms-based applications provide the user friendly interface and easy to use, and provide access to the database efficiently and very safely by the existence of a strong link between its layers. Applications are integrated with Java and Oracle application server Weblogic3.

## 1.3 ORACLE FORMS 11 g

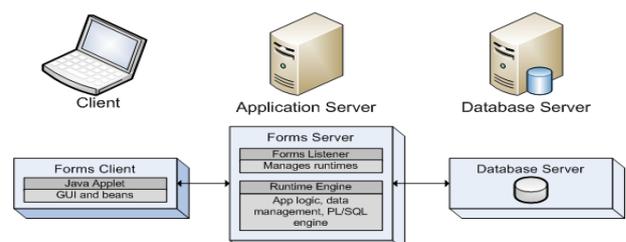


Illustration 5: Architecture Oracle Forms [5]

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### 1.4 ORACLE APEX

Oracle Apex is a user-friendly, versatile and intuitive development, designed to make life easier for the programmer, so you can focus on business logic rather than the details of the interface.

It allows developers to build applications, reports and forms less complex centered on an Oracle database. The APEX development environment is entirely web is due to its features and functionalities is considered a RAD (Rapid Application Development) tool.

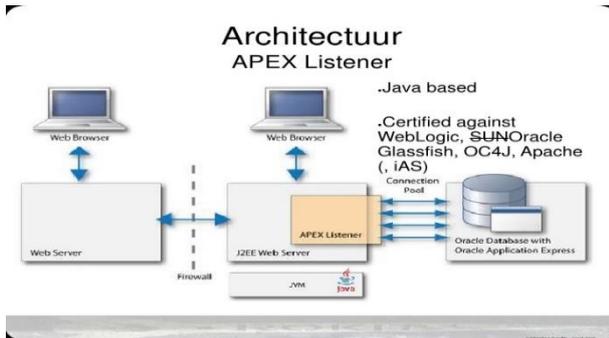


Illustration 6: Architecture Oracle Apex [6]

## 3. RESULTS

### 3.1 SYSTEM IMAGE



Illustration 7: Módulo Gestión, Página de Inicio



Illustration 8: Management module, Incriptions People

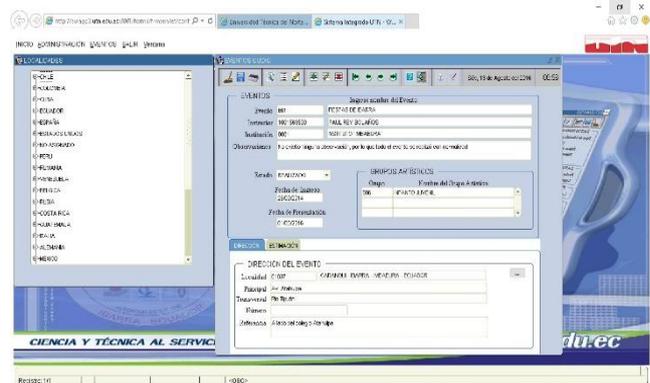


Illustration 9: Management module, Join Events



Illustration 10: Portfolio module, Home



Illustration 11: Portfolio module, Artistic Groups



Illustration 12: Portfolio module, Events

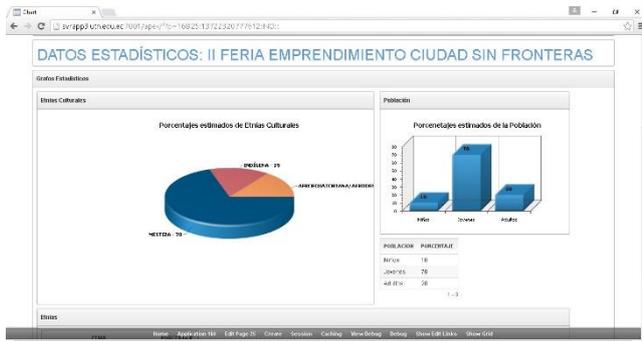


Illustration 13: Portfolio module, Statistics

As we can see, we have recorded in a computer system or information developed in the CUDIC through the Management Module Information developed in Oracle Forms and show the outside the information recorded by the Portfolio module developed Oracle Apex.

This system can be accessed from any computer with Internet access, using the link:

[http://svrapp3.utn.edu.ec:7001/apex/f?p=168:LOGIN\\_DESKTOP:2470403077950](http://svrapp3.utn.edu.ec:7001/apex/f?p=168:LOGIN_DESKTOP:2470403077950)

## 4. CONCLUSIONS

- By analyzing the activities in the CUDIC and requirements obtained by persons who perform their duties within this unit it shall be able to implement a computer, system according to the needs and requirements of stakeholders.
- Oracle is synonymous with development and programming tools attest to this, to develop a computer system feels very confident for the performance, versatility, scalability, security, integration and easy handling of them.
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- With the implementation of the system has improved the management, control and security as far as information is concerned.

## 5. Acknowledgements

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To my family, especially my wife and my children that have made any sacrifice worthwhile.

To all the people who somehow were participants in the successful completion of this project my eternal gratitude.

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## 7. About the Author

**Edison Brisenio TARAMUEL REINOSO**, I was born on August 1, 1981 in the canton Mirror in the city El Angel, Carchi province. My primary instruction was at Fabian Jaramillo Davila primary school, Canton Ibarra Imbabura province, the secondary studies I joined to Teodoro Gomez de la Torre School of the same canton, where I obtained a bachelor's degree in Physics and Mathematics. Finally I entered the career of Computer Systems Engineering to the Technical University of North to get the degree of Computer Systems Engineer.