DEVELOPMENT OF A SYSTEM PORTFOLIO SERVICES UNIT OF THE OFFICE STUDENT OF THE"TECHNICAL UNIVERSITY OF NORTH"

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Abstract. *This project presents the development of a System Portfolio Services Unit of the Office Student of the "Technical University of North", which allows to obtain graduates information by year, college or career; and how many of them exercise their profession. It also allows to obtain general information about the main events which manages the Office Student, such as Job Fair and Graduate Meetings of the Technical University of North.*

A preliminary study of the technology used to implement the system such as Oracle Application Express (APEX), employed in the development of applications on an Oracle 11g database is made. Oracle Business Intelligence Publisher 11g for the modeling business reports and data models; in order to make the project, it you have applied development methodology RUP (Rational Unified Process).

Keywords

Portfolio, Procedure, Methodology RUP, Oracle Application Express, Oracle Business Intelligence Publisher 11g.

1.Introduction

The Office Student at the Technical University of the North based its actions in the educational model for human development and good living, Sustainability, research and innovation point of departure for our students from their first contact as an aspirant to the Academy until the completion of their studies, you provide the mechanisms of support and guidance, so that the experience of studying in the UTN is of high quality, social membership, internationalization and use of ICTS, where the specialty and the human formation achieved in the classroom should be seen as means to contribute to the development of their environment and of the country.

The Unit of the Office Student at the UTN, is responsible for the processes such as: follow-up to graduates, student mobility, internships and scholarships and labor insertion, being the most important processes that operated by the Office of the student. In addition, which these processes are not working in an integrated manner, being more complex to analyze existing data to improve the efficiency and transparency of the unit.

Currently, the processes that operated by the Office of the student of the UTN is done independently, taking as the main problem the delay and collection of specific information. In addition to the ignorance on the part of the students and graduates of the activities carried out by the Office of the student.

It should be borne in mind that there is no adequate monitoring of the processes that currently manages the Office of the student. In addition, that the unit is not equipped with a system that allows you to solve all the drawbacks mentioned above on the information and generation of reports, by what he has seen the need to create a portfolio that integrates all the information obtained by the unit and meets these requirements, avoiding the in formalization of the information.

This project aims to improve the management of information handled by the Office of the student, giving a computing tool that allows the unit to collect relevant information and reports in a more simple. The project will also improve the follow-up processes of graduates, mobility, internships and scholarships and labor insertion.

It is important to emphasize that by integrating the processes, will contribute to the development of the unit, to provide a better attention to the students and graduates of the UTN.

It is important to mention that all the frameworks and add-ons that are to be implemented in the portfolio of the Office of the student, are compatible with Java and give the

system a better presentation and interact in any part in where they are interested persons.

2.Materials and Methods

2.1. What is a portfolio of services?

This is defined as a service strategy, to generate the maximum value by controlling the risks and costs of a company. A portfolio is also addressed, to provide the managers of products or services the task of assessing the requirements of quality and the costs they entail. [1]

2.2. Tools

2.2.1. Database

A database is a collection of data on where is all the important information of a company or institution registered in a structured way, in tables. These tables contain records, and records are composed of fields well identified. [2]

2.2.2. Oracle Database

Oracle Database is a client-server system for the management and administration of database Object-Relational (u ORDBMS by the acronym in English of Object-Relational Data Base Management System), this is a product that is sold at the global level and that was developed by the company of Oracle Corporation.

Oracle Database is considered at the global level as one of the systems of object relational databases more complete compared to other relational database management commercial and free, emphasizing among its most important features such as the following:

- Transaction Support.
- Stability.
- Scalability.
- Multi-platform support.

2.2.3. Oracle Application Express Apex

Oracle Application Express (Oracle APEX), was formerly known as HTML_DB, is a tool of development based on a web browser, which allows you to develop much more quickly applications based on web systems for Oracle Database. Using any web browser and only limited experience in any programming language, you can develop and deploy business applications that are in turn fast and secure. The programming language you will need, if the standard functionality of the package will not completely filled their needs is PL/SQL, in other words if the user or programmer you want to customize the application that is not by default of Oracle Apex. [3]

Oracle architecture Apex

Oracle Application Express is a metadata repository that stores the definitions of applications and an engine (called the Engine Application Express) that makes and renders pages. Works entirely within their Oracle database. In addition consists of nothing more than data in tables and large amounts of code PL / SQL. Figure 1 shows a clear idea of the functioning of Oracle Apex:
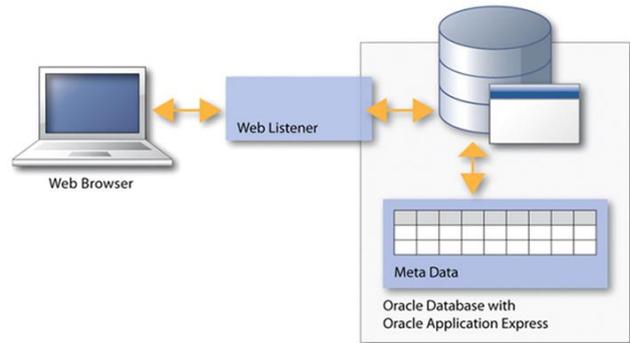

Illustration 1: basic architecture of Oracle Apex. Source: [3]

Application Express components

- Creator of applications: database applications.
- Creator of applications: spreadsheets web.
- Workshop of SQL.
- Restful Services.
- Development of equipment.
- Administration.

Development of Applications

The database applications allow developers to have full control over all aspects of the development process and the final functionality of the application. With the database applications, developers can leverage its expertise directly of programming SQL and PL/SQL. The applications of the database use declarative control on the flow control and support user interface controls complete through the use of templates and themes. [3]

2.2.4. Oracle Business Intelligence 11g.

Oracle leads the Enterprise Performance Management (EPM), to unify the management of performance and business intelligence (BI) and facilitate a wide range of processes of strategic management, financial and operational. Oracle provides a complete and integrated system to manage and optimize performance across the enterprise. This allows organizations to achieve a state of excellence in management, because they earn acumen, dynamism and coordination, which means a competitive advantage and profitability of their operational investment. [4]

Oracle Business Intelligence 11g, provides comprehensive information and business intelligence capabilities, including the presentation of reports of the company, scorecards, ad-hoc analysis, multidimensional OLAP, scorecards, and predictive analysis in one integrated platform. [5]

Oracle Business Intelligence Publisher

The Report Generator Oracle Business Intelligence (BI Publisher) is a business solution that allows you to create, manage and send all kinds of documents, eliminating the need to use other more costly solutions. [6]

End users can easily make their models of reports in the web browser or using tools of everyday desktop, which greatly reduces the time and cost of development, management and maintenance of reports. To be designed in open code, computing and programmers can create models of shareable data from virtually any data source. Can also use the interface of the application program BI Publisher to create custom applications, optimizing existing sources of data and the infrastructure. [6]

BI Publisher is efficient and scalable; can generate tens of thousands of documents per hour with minimum impact on the transaction systems. [6]

➢ **Main features:**
  ✓ Wide range of possibilities for graphics
  ✓ Support for crosstab
  ✓ Conditional formatting
  ✓ Report of interactivity: filter, class, etc.
  ✓ Formulas and Functions
  ✓ Multiple Tables/model forms
  ✓ Specialized Help
  ✓ Aid for dynamic data columns
  ✓ Formatting features native Word and object help
  ✓ Aid for water marks
  ✓ Rich Text Format
  ✓ Integrates with: Business Suite, PeopleSoft, JD Edwards, Oracle BI Enterprise Edition, Oracle BI Discoverer, and Oracle Application Express (APEX), Oracle Hyperion Planning.

2.2.5. Data Mining.

The data mining is the process of detecting specific information that is found in large data sets. In addition to the mining of data uses the mathematical analysis to deduce the patterns and trends that exist in the data. Normally, these patterns cannot be detected through the exploration of traditional data because the relationships are too complex or because there are too much information in the database. [7]

In Figure 2 shows graphically the steps of data mining:

Illustration 2: Steps for Data Mining

2.2.6. What is the methodology RUP?

The Rational Unified Process is a software development process and together with the Unified Modeling Language UML, constitutes the standard methodology more used for the analysis, implementation and documentation of object oriented systems. [8]

The outermost regions is not a system with steps firmly established, but a set of methodologies adaptable to the context and needs of each organization. It was originally designed a generic process and in the public domain, the Unified Process, and a more detailed specification, the Rational Unified Process, it was sold as a standalone product. [8]

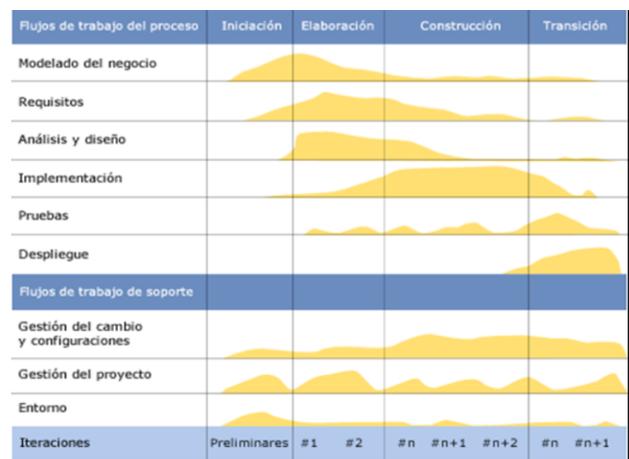In Figure 3 shows in detail the life cycle of the RUP methodology:

Illustration 3: life cycle of OUTERMOST REGIONS

3. Results

- Once analyzed all the information which the Office works of the student, was able to obtain important information for the generation of reporting to the system can.
- Oracle Tools: Oracle Application Apex and the Oracle Database 11g, one can say that they are very important for the development of software, because they are tools are very versatile and easy to use. It should be emphasized that Oracle Application Apex is very easy to access and its handling is very feasible for people with little knowledge of programming.
- To integrate the processes that operated by the Office of the student, the generation of information and reports is much easier now that these processes are within the same system.
- The reporting by business intelligence is very clearly toward the end user, for your

graphics, deployment of data, and quality of information that generates.

- For the development of systems to be used the rules provided by the Department of Informatics of the UTN, since it is a standard that must be followed.

As a final result is obtained a software on the web which can be accessed from any computer with internet, by accessing the following web address into the browser:

http://svrapp3.utn.edu.ec:7001/apex/f?p=168:LOGIN_DESKTOP:6484368373703

3.1 System

Below are some screenshots of the system can:

Illustration 4: Main Page

Illustration 5: Information of the Coordinator

Illustration 6: graduates who practice their profession

Illustration 7: Total number of graduates surveyed

4.Conclusions

- With the implementation of the system it is possible to obtain specific information about the processes that operated by the Office of the student in a manner more fast and optimal.
- With the use of the Oracle tool Application Apex has been implementing a much faster than other frameworks of development.
- Using the data mining has been able to obtain specific information of all the existing

information that holds the office of the student.

- The system can, to be developed in Oracle Application Apex, is easy integration with other systems that manages the Technical University of the North.
- To work with the Oracle Database, the data can be confident, because this platform has a great security in regard to confidentiality.

5.Acknowledgments

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7.About the Author

Byron Sebastian ROSERO DIAZ, I was born a 15 August 1989 in the parish the Jordan from the city of Otavalo. My primary instruction the perform in the Liberator Simon Bolivar School of the canton Otavalo, at the end I joined the Experimental School Jacinto Collahuazo the same canton, where I got the bachelor of physic-mathematical. Finally I joined the race in Computer Systems Engineering from the Technical University of the North to obtain the title of Engineer in Computer Systems.