Modelo de software como estrategia de productividad para los cuerpos académicos y grupos disciplinares en las instituciones de educación superior

A software model as a productivity strategy for the Faculty in institutions of higher education

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Resumen

La presente investigación realizada desde el enfoque cuantitativo de tipo exploratorio (Hernández, R., 2006), presenta resultados del desarrollo de una herramienta de software como Sistema Web, para el control y la recopilación de información sobre las investigaciones aplicadas de los trabajos recepcionales realizados por los integrantes el Cuerpo Académico (CA) de Ingeniería de Software (IS) de la División Académica de Informática y Sistemas (DAIS), en la Universidad Juárez Autónoma de Tabasco (UJAT). Su propósito es agilizar y optimizar el proceso de revisión de los trabajos recepcionales y mantener una base de datos orientada a objetos con actualizaciones de los registros y tener resultados para búsquedas de datos en el control de los títulos y trabajos recepcionales que hasta el momento se han realizado. Como objetivo de la investigación, el Sistema Web (Academic Storage) permitirá proveer de resultados

estadísticos para alimentar la productivad académica del CA de Ingeniería de Software ante el Programa para el Desarrollo Profesional Docente (PRODEP), antes Programa de Mejoramiento del Profesorado (PROMEP).

DAIS está dirigido hacia el CA ya que no hay un sistema automatizado que corresponda a estas funciones necesarias. Así, se obtiene una herramienta eficaz para llevar el control de trabajos digitales con un amplio almacenamiento en distintas áreas de las TIC, sustituyendo la evaluación y corrección de los estatus de trabajos recepcionales en proceso de titulación y los que se mantienen en colección para uso académico y como estrategia del objetivo general de PRODEP.

Palabras clave: Ambientes virtuales, Tecnologías de la Información y Comunicación (TIC), consultas, apoyo tecnológico, prototipo, sistema web, software, repositorio de datos académicos.

Abstract

This research was developed from the quantitative approach of exploratory type (Hernández, R., 2006), It presents the results of the development of a software tool like Web system, control and collection of information on the applied research of the final work done by members the Academic Body (CA) Software Engineering (IS) of the academic Division of Informatics and Systems (DAIS), of the Juarez Autonomous University of Tabasco (UJAT). Its purpose is to streamline and optimize the process of revision of the final dissertation and maintain a database object with updates of records and have results for searches of data in the control of the titles and final works that until now have been. Objective of the research, the Web system (Academic Storage) will allow provide statistical results to feed the academic performance of the CA of Software Engineering the Program for Career Teacher Development (PRODEP), before Program of Teachers Improvement (PROMEP).

DAIS is directed towards the CA because there is an automated system that corresponds to these necessary functions. Thus, an effective tool to take control of digital works with a large storage in different areas of ICT, substituting the evaluation and correction of the

final works in the process of certification status is obtained and which are kept in collection for academic use and as a strategy for the overall objective of PRODEP.

Key words: Virtual environments, Technologies of Information and Communication Technology (ICT), consultations, technological support, prototype, web system, software, academic data repository.

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Introduction

Considering the national education strategies determined by the National Development Plan 2012-2018 (Peña, E., 2012), the Secretariat of Public Education of Mexico promotes strategic programmes for public Institutions of Higher Education (IES), through the program called Programme for Professional Development (PRODEP), which prompts in one of its lines production and research of scientific works individually as well as collectively, all through organs called Academic Bodies (CA). Attention of the programme coverage extends to 694 public Institutions of Higher Education (IES) in the country. The problem that seeks to resolve this research is to provide an information system online for consultation of the final dissertations from the DAIS.

Problem Statement

The dissertations carried out at the Juarez Autonomous University of Tabasco (UJAT), Academic Division of Informatics and Systems (DAIS), are very well designed research projects that contribute to the professional training of students, however, these works may not be consulted by students or teachers of the division until after of having passed one year after its release.

Because of this, the need to contribute to the improvement of a service that benefits the student community of the DAIS, consisting of 1566 students and 110 teachers who can provide the UJAT an information system to streamline processes arising search information Recepcionales Jobs by title, author, faculty, year and short, in order to meet the needs of the student community, teachers and academic bodies of the DAIS-UJAT, and do a proper review of the possible errors before release. It also takes into account the strengthening of the demands of the Organizational Development UJAT (Piña, 2012-2016) concerning the improvement of services, such as the Coordination of DAIS Terminals Studies.

The aim of PRODEP is that CA achieve consolidation and consolidated levels as strategies for building support AC productivity related to individualized management, integration of thematic networks of collaboration between CA, the training of human resources, including the publications- development and scholarships for doctoral and postdoctoral studies, among others. (See Figure 1).

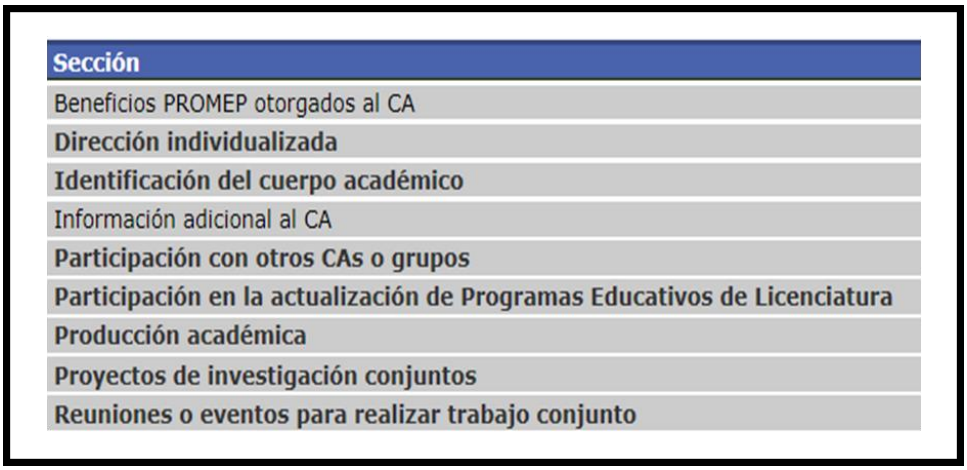

Illustration 1. Elements assessed by PRODEP to strengthen the CA.

Source: SEP-PRODEP Online System, 2014.

For the development of the Information System for Online Consultation Recepcionales Works DAIS, modalities where a printout is generated Delivery will be made, which are: Thesis, Manual of Practice for Laboratory and Field Workshop, Design Equipment, Machines and Specialized Software, Graduate Degree, Working Memory, Certification for Technological

Development, Certification and Qualification by Article Published by Artistic Creation Project. (Degree Regulations, 2011).

Similarly, there are students who attend the Coordination of Terminals Studies (CET) of the DAIS to request the loan of Recepcionales Jobs that have been made in the above division, in order to clarify doubts about similar issues and obtain a support or guidance to perform receptional job, or have a knowledge of the jobs that have been developed in the DAIS. However, this coordination is not authorized to provide these copies, but merely to provide information related to Recepcionales work. Only monitors students who are in the process of diploma and graduates (CET-DAIS, 2012).

According to this analysis, disadvantages arise for the delay in the consultation, which limits access to this information:

• Not being able to have the information at the time the student community requires consultation.

• Release times by the Central Library, Lic. Manuel Bartlett Baptist, to consult Recepcionales Jobs are not fast enough and delay a year in return to the Library Chontalpa Ing. Caesar or Tapia Palace.

These disadvantages have led to problems in the student community by lack of access. It is important that students and faculty researchers at the Academic Division can access any time and day of the year to developed projects in the DAIS recepcionales as a reference tool during the performance of work Recepcionales and display format with permission of the authors.

Development

Software development model prototypes and RNA methodology: On the other hand, a comprehensive methodological model based on two stages was established. Such methodological merger allowed to further support the development of research by integrating step the final elements of the methodology for the development of web system.

The first stage is based on the development model applied to this methodology, which was the Rapid Prototyping, based on the methodology RNA -a method Navigation Relational Analysis (Relationship Navigational Analysis) defining a sequence of steps

to use for the web development. Determines the relationship structure of an application, allowing to define the strategic actions for integration and methodology to be followed during the processing of information for obtaining results and decision fusion (See illustration 2).

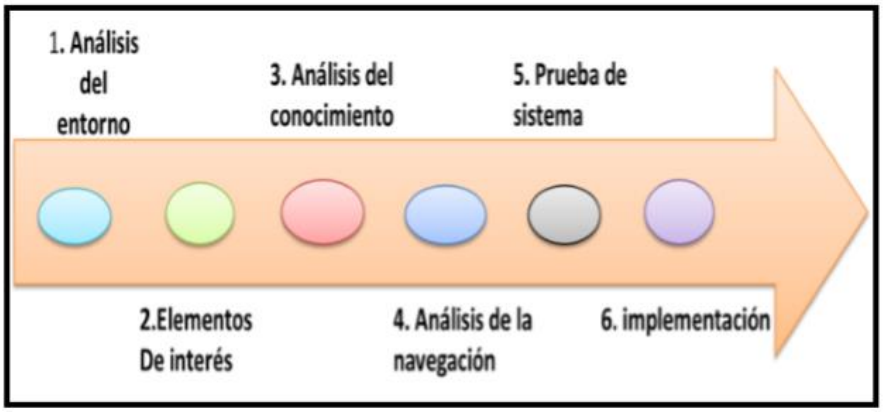

Figure 2. Methodology RNA for web pages.

Source: Jimenez, J.C.; Alcudia, J. L; Vidal, L. L.B & López, 2013.

It was decided to use XAMPP as it is a separate server platform, free software, which consists mainly of the MySQL database, the Apache Web server and scripting language interpreters: PHP and Perl. The name comes from the acronym for X (for any of the different operating systems), Apache, MySQL, PHP, Perl. The program is released under the GNU license and acts as a free Web server, easy to use and capable of interpreting dynamic pages.

To achieve the research objective quantitative approach was used; Also, sources of information collection defined in two groups were used:

- Primary sources. The application of interviews with members of the CA of IS, to obtain the required information is contemplated, as are the direct people where processes are developed.
- Secondary sources. An analysis of the work recepcionales past years, with a collection of more than 10 years of recepcionales work was performed from

2003 to date for the relevant identification documents, results and bibliographic material used.

The second stage of the methodology was based on the Model Prototyping (Cortés, A., 2000) and started with the definition of the overall objectives for the software, then the known requirements are identified and outline areas where it is needed most Format. This model is used to give the user a preview of the software.

This model is basically trial and error. If the user does not like a part of the prototype means that the test failed, so should correct the error until you are satisfied. The prototype should be built in a short time through appropriate programs and not spend much money on it until it is approved, then you can start the real development of software. (See Figure 3).

Figure 3. Phases Model Prototypes.

Source: Cortés, A., 2000.

The introduction of RNA methodology for websites and methodology of the prototype

Like result of methodological integration using RNA methodologies for web pages and model prototypes for software development, a merger in order to present a single methodology was obtained. (See Figure 3: Merger of prototypes).

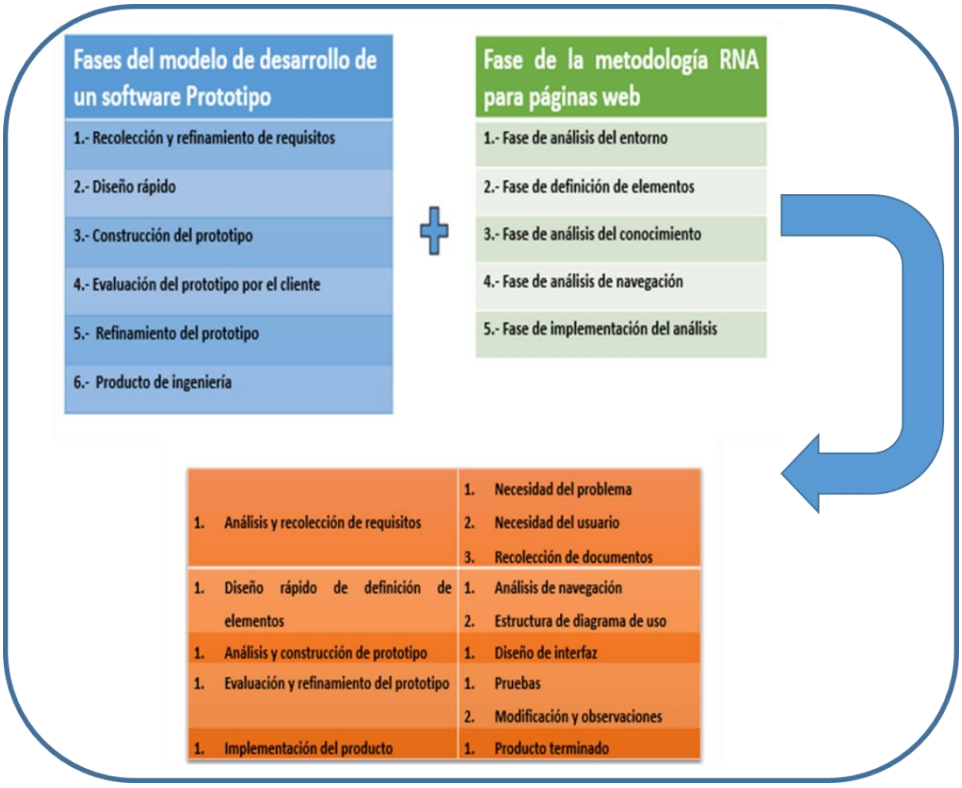

Figure 4. Phases Fusion Prototyping Methodology and Methodology Phases RNA.

Source: Authors.

Results

Quantitative approach was used for this investigation and defined sources of data collection into two groups:

• Primary sources, applying watched interviews members of AC IS, to obtain the required information, as they are the direct people where processes are developed.
• Secondary sources, an analysis of the past years recepcionales work with a collection of more than 10 years of recepcionales work was conducted from 2003 to date for the relevant identification documents, results and bibliographic material used.

An example of the structure of OOP for finding information through the representation of source code by the authors is given.

```
program                                                    (Output)
{Consulta de datos};
<?php
session_start();
include 'scrip_acceso.php';
include 'conexion.php';
echo "..";
?>
<html>  <head>
      <meta http-equiv="Content-type" content="text/html; charset=utf-8" />
      <title>Menu Asesores</title>
      <link rel='stylesheet' type='text/css' href="style.css" />
      <script src="jquery-1.3.2.min.js" type="text/javascript"></script>
<!--/////////-->
<span class="right">PORTAL DE CONSULTAS</span></div>
<div class="spacer"></div>
      <header>   <h2 align="center">PORTAL DE CONSULTAS DE LA UJAT </h2>
</br>
```

```
                <center><h2>División Académica de  Informática y  Sistemas
(DAIS)</h2></center>
                </br>
                <p>Utiliza esta herramienta para realizar una búsqueda en todas
las colecciones de la UJAT, y aprovecha todos los recursos de información que tenemos
disponibles para la comunidad universitaria.</p>
                <fieldset>
        <legend>Bienvenido <?php echo $_SESSION["nombre_u"]?></legend>
        </fieldset>
                </div>
                </section>
                </div>    </br>
 <footer> &copy;Universidad Juares Autonoma de Tabasco (UJAT)</footer> </br>
<div id="a" style="text-align:center"> <p>Universidad Juares Autonoma de Tabasco
(UJAT).</p> </header> </div> </body> </html>
```

Búsqueda del Documento.

```
<header> <h2 align="center">PORTAL DE CONSULTAS DE LA UJAT </h2> </br>
<nav>
<ul class="group"> <li><a href="index.php">Inicio</a></li>
<li><a href="alta_tesis.php">Altas datos</a></li>
<li><a href="busqueda.php">Consultas</a></li>
<li><a href="actualizar1.php">Actualizar Archivo</a></li>
<li><a href="buscar_doc.php">Búsqueda Archivo</a></li>
<li><a href="cerrar.php">Cerrar session</a></li>
</ul> </header>
<section id="main-content"> <div id="guts">
<center><h2>División Académica de Informática y Sistemas (DAIS)</h2></center>
</br>
<form name="busc" action="traer_pdf.php" method="post" target="_blank">
<fieldset> <legend>Búsqueda Documento</legend> <ul> <li>
<label>Clave del proyecto:</label>
```

<input type="text" name="clave" value="" placeholder="Clave proyecs"/>   </fieldset>
<input type="submit" name="boton" value="Buscar" /> </form> </section>

It was also achieved the objective of finding a tool that can handle large volumes of data digitized form as it is MySQL that allowed storing data, which could be provided in digital form quickly and effectively to students, resulting productive queries.

In developing interfaces appreciate the following modules, which have the tool to manage storage volumes for recepcionales work, and each of the roles.

Figura A

Figura B

In Figure "A" you can see that is the adaptation of the "Consultation student", where students can navigate in the fields concerning your project and its progress interface.

Taking the figure "B" field "Project data", where we found everything about the project is illustrated.

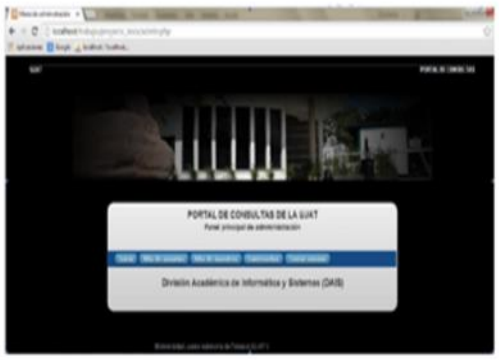

Figura C

Figura D

Figure "C" shows the "Main Administration Panel", which has the function of managing the operating parameters such as:

• High user

• High teacher

• Recovery of passwords

In Figure "D" we mean creating new users entering academic data as you go along in the project.

Figura E

Figura F

The interface refers Figure "E" is the module where project data to be appended to the database for viewing and editing in future applications are introduced.

The figure "F" results in the introduction of data receptional manage work such as academic data, grade level and name.

Conclusions

This research could provide a solution to the problems facing the university community DAIS regarding the detailed search of certain Recepcionales work under the command of CA, giving optimal results when making execution tasks, with automation, reducing search time and optimizing work performance, which have certain restrictions such as release times and UJAT guidelines regarding these loans work Recepcionales.

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