

Performance Evaluation System Web-Application

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Abstract — *This report is focused on explaining the aim of the web tool Performance Evaluation System in an enterprise environment. We will have details of why the decision was taken to design and develop a tool with the capability to integrate the different tasks that generally do the Human Resources department and supervisors. This paper is aimed to the end user who can be the system administrator, supervisor or the human resources representative. Performance evaluations currently occupy a very important role in the companies, it is common to use employee evaluations conducted in the past to provide opportunities for them to growth within the company, opportunities that are aligned with company and employee goals. The objective of this report is to demonstrate how technology facilitates the monitoring of one of the most important and critical processes of the company, the performance evaluations. Also other advantages like predefined reports, user management and standardization of formats will be discussed.*

Key Terms — *ASP.Net, Objective, Performance Evaluation, Web-Application*

INTRODUCTION

The term performance evaluation is used consistently in the business as the process to stimulate or judge the individual's work performance. Evaluations are usually made from formal assessment programs, based on a reasonable amount of information about the employee's performance at work. The primary goal of the evaluations in companies is to maintain the employee oriented in their tasks in order to get a good performance in their job. Recalling that while the employee is focused on what is expected of him; this will result in a good performance of the employee [2]. Each individual strives according to

the rewards offered and the likelihood that these rewards depend on your effort. [1] The employee performance evaluations appraisals as a tool to drive a company to success is commonplace. If the evaluations are accompanied by a strategic plan, the employer and the employee can be benefited mutually. It is very important to know the benefits that can be provided by the performance evaluations, among these are: identify training and development needs, help employees who need a promotion or job change, improve the employee feedback process and provide a way to schedule a development plan for the employee that meets the goals of the employee and the company [2]. By having knowledge of all the factors involved in a manual performance evaluation I proceed to design a system based on the data collected, by taking in consideration different user perspectives in order to design a system to facilitate this periodic process. When designing the performance evaluation system a range of common issues involved in companies were tacked under consideration. The Performance Evaluation System can be defined as a system that can be coupled to the present and future of the company in order to eventually apply new strategies and concepts [3].

PERFORMANCE EVALUATION SYSTEM

Performance Evaluation System is a tool designed and programmed specifically to facilitate the performance evaluation process of employees in a business environment where there are several departments and shifts. As part of the design process, we proceeded to conduct interviews with supervisors of different companies so we can create a widespread application based on these requirements. The interviews included questions about how the human resources department handles this periodic process in their business, possible

ways to standardize the process and how is the process in their company. After evaluating the different opinions and answers from supervisors we proceeded to select the tasks that are more tedious and which tasks can facilitate the evaluation process.

KINDS OF EVALUATIONS

The manual procedure was the most common way to make performance evaluations. The human resources department generates a form which contains various questions about the employee's performance, then proceed to print multiple copies for distribution to different supervisors. The supervisor fills each of the assessments manually, then discusses with the employee and finally gives them to the human resources department to file. All the analysis related to evaluations completed, performance by department or shift is performed manually. This means that the process can be slow and controlled often leading to human errors that are made in the documentation. Use of Desktop Applications like Microsoft Access or Lotus Notes was another alternative used in some of the companies interviewed. The use of this type kind of applications are more advantageous to perform performance evaluations other than manually because it facilitates the generation of reports to the department and help reduce human errors in data entry, this because the application can have the ability to analyze and warn of input errors. Based on the data collected, I begin the development of my proposal which is design an application focused on web environment [4] where performance evaluations can be made regardless of the architecture of the devices being used (See Figure 1).

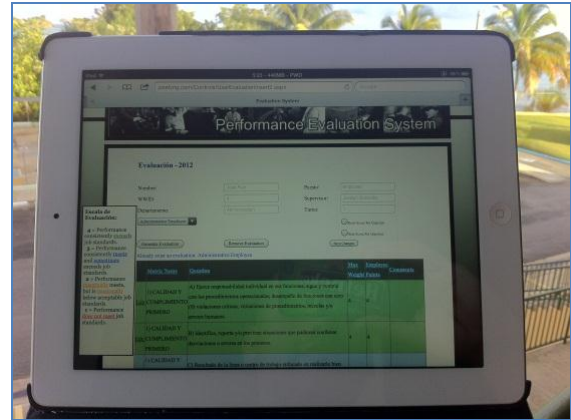


Figure 1
Application Running in iPad

Design a web application contains several advantages. Maintenance is one parameter of the application that was considered at designing phase. When we talk about maintenance I talk about the installation of the application, for example a Web application is installed once on the server, if the user wants the service that the application provides then he uses a web browser with a web address to access the service. To perform an update on the web application they needs to only update the application on the server. Furthermore desktop application must be installed on each computer where you need to perform the evaluation, this raises costs for maintenance. To perform an update on the application the user must install this in each of the computers with the application already installed thus increase the complexity of the process. The availability and ease of access is another advantage that provides a Web application because the supervisor can access the application from any location and from any device.

USER GROUPS

The role of the human resources department in the performance evaluations is administrative and control because they are leading the process. The System Performance Evaluation System is structured in user groups: administrator, power user and supervisor. The group administrator can make changes to the system and add or edit users, create templates of assessments, reset passwords and lock

the system. The power user group is designed for the human resource representatives who will have access to special reports, view or edit any department performance evaluations. Finally the group called supervisor, this group has the ability to generate and edit assessments but is limited to its own department.

EVALUATION TEMPLATES

Is recommended to generate a performance evaluation that fits the role exercised by the employee in the company [5]. Many companies try to standardize their assessments by segregating the employee roles in categories. For example, administrative employee category includes secretarial role and roles of informants; production employee category includes operator role and role of handyperson. Thus, the supervisor allocated a evaluation in a category depending on the employee's role (Figure 2).



Figure 2
Applying an Evaluation Category to the Employee

The content of assessments may vary from period to period, this due to many factors such as business goals. Taking into consideration the importance of segregating the evaluations in categories and that the evaluations are a periodic task usually led by the Human Resources department. To facilitate the process of generating assessments, the application Performance Evaluation System provides the user inside the administrator group with the ability to generate performance evaluation templates in the system

(Figure 3) and is able to target it to a specific year. Ex Administrative Employee 2012

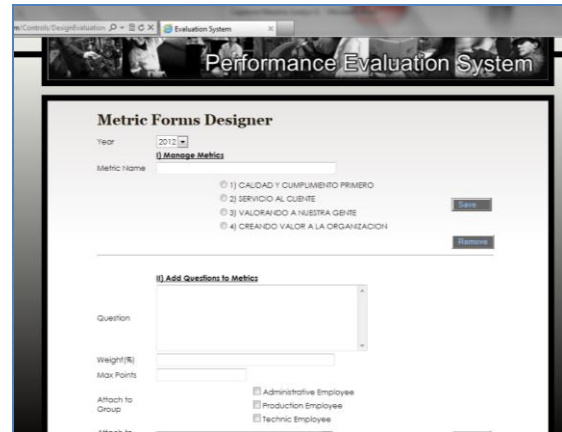


Figure 3
Generating the Template of a Performance Evaluation

Generation of evaluation templates offers the advantage that supervisors will not have to manually generate the evaluation in the system, just have to choose the category to which the employee belongs and the system will search a template based on the category and then create a copy of the template for the employee in the database.

DESIGNING AN EVALUATION

We know that performance evaluations can be generated by employee category (administrative, technical), each evaluation consists of several questions which in turn are a subset of a metric (General Objective) [6]. For example, in an evaluation we put a metric or objective that is called "employee commitment with the company" and ascribe several questions related to absenteeism and efficiency in their duties. In this way our assessment is segregated by objectives or metrics. It can be applied to each question a weight (%), because a metric related to product quality can outweigh a metric related to absenteeism.

RATING SCALE

To measure the level of efficiency achieved by an employee generally rating scales are used [7].

This method is the most used because it reduces their results to numerical expressions using mathematics and statistics avoiding the subjective aspect of the evaluator. The rating scale of the application Performance Evaluation System is generated once the supervisor is editing the employee evaluation while remaining visible by using a script (Figure 4)

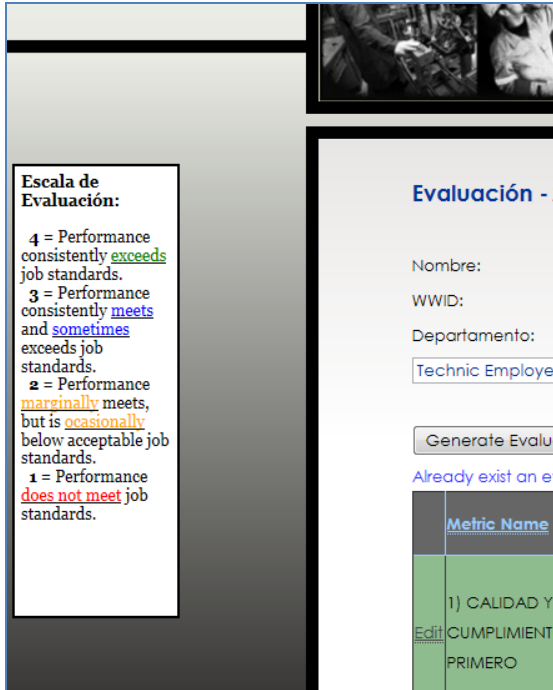


Figure 4
Rating Scale

The rating scale of the application Performance Evaluation System is based on points: 1 = Performance does not meet job standards, 2 = marginally meets Performance, occasionally bus is below acceptable standards job, 3 = Performance consistently meets and Sometimes you exceed job standards, 4 = Performance Exceeds job standards consistently. Was awarded a color to each of the points (rating scale), this due to the psychological factor that ensures that the color can affect how we perceive a situation or object [8-9]. The supervisor once generated the evaluation shall discuss with the employee which in turn can view their evaluation with their respective score and with colors and

discuss identifying opportunities to improve their duties.

EVALUATING THE EMPLOYEE

When entering to the system to make the performance evaluations, the supervisor can see the list of employees that is in charge. The list uses the colors green and red as visual alert to show completed and incomplete evaluations. Completed evaluations or uncompleted evaluation (evaluations already started) has displayed the category adjudicated to employee evaluation (Figure 5) in the main list. The supervisor can choose from this list the employee that they want to evaluate.



Figure 5
My Employee List

The system will search the database for existing employee evaluations, if an evaluation for the selected period the application will provide it to the supervisor otherwise provide the option to generate an evaluation based on the predefined human resource templates. Because performance evaluations only run in a specified period determined by human resources, the system administrator has the capability to lock them with the previous approval of the Human Resources department. However, the supervisor can access performance evaluations outside of the evaluations period in a read-only manner. If the system is activated the supervisor may carry out the evaluation. The evaluation is distributed by

objectives and their questions, where the evaluation system provides the flexibility supervisor to comment on each of the questions in the assessment.

BONUS AND DEVELOPMENT PLAN

The supervisor may award a bonus to the employee in the system. The performance bonus can be given in various situations: employee is a role model, provides among other projects and initiatives. The performance bonus is awarded to the final score so as to compensate the employee who took great efforts over his duties. The application Performance Evaluation System provides to the supervisor and the employee the option to document their comments for each of the objectives in the employee's evaluation. Documenting a development plan for the employee is another advantage that the system provides. The process of documenting the development plan is done because most of the employees tries to get feedback on how they fulfill their activities [2].

EVALUATION RESULTS

When the evaluation is completed the supervisor can view a summary of the evaluation for each objective in which the evaluation was distributed. The summary of the evaluation contains the weight that each objective has on the evaluation; the summary provides the objective in which the employee needs to improve. The total score obtained by the employee's performance evaluation is shown at the end of the evaluation (See Figure 6). In this way closes the individual evaluation process with each employee.

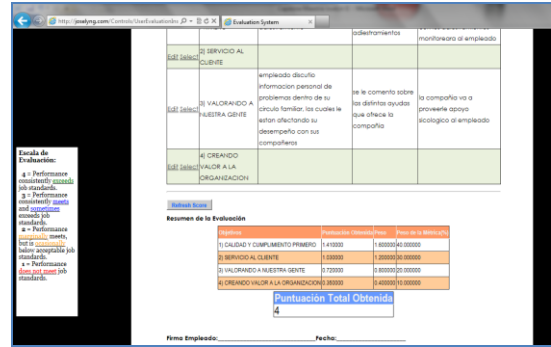


Figure 6 Evaluation Final Score

One of the most tedious tasks especially when done manually is the analysis of the results, because it is often necessary to tabulate the results of the various departments in a short period of time. Perform various analyzes is common in companies, which is why I created four reports which are generated based on the data collected. One advantage of has predefined reports containing predetermined formulas is that it reduces drastically the complexity of data analysis. The first of these reports shows a table with a list of all employees distributed by department, shift and assessment category which shows the final score of each employee. The second report contains the summary of the objective score for all employees distributed by department, shift and assessment category. The third report shows a detailed summary for questions, comments, development plan for all employees distributed by department, shift and evaluation category. The fourth report shows the distribution of supervisors between departments and shifts.

SOFTWARE ARCHITECTURE

The application Performance Evaluation System was designed in ASP.Net platform due to the advantages that gave me. Microsoft Visual Studio was used to develop the application in ASP.Net because it has a powerful IDE (Integrated Development Environment), which facilitated the development of the application in a limited amount of time (constraint). ASP.Net provides a large number of utilities and configurable components;

this means that asp.net generates JavaScript code which makes client side validations, thus improving the performance of our application. Another advantage provided by the Visual Studio is the possibility to do a complete application debugging in a simple manner. ASP.net is a compiled language which has the advantage of being much faster[10]. The application was developed using the C# programming language in the back-end, which is an object oriented language. The maintenance of the application will be much easier because modules (dlls) were developed, which allows to have a much more structured and organized code (See Figure 7).

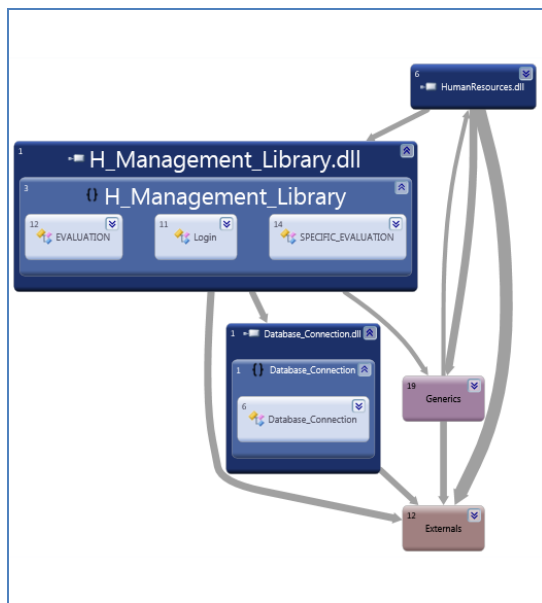


Figure 7
The Diagram Shows the Interaction Between Modules

AJAX (Asynchronous JavaScript and XML) is a technology that was used to complement the application Performance Evaluation System. AJAX is compatible with the ASP.Net Web programming language. Provides the advantage of making a small request to the server without the need to reload the website completely, only modifies a small section of the page [11]. The aesthetics of the application was improved by the implementation of AJAX because it provides a nice interface with the user while performing queries to the server (ex. edit

employee score). The database options that were considered for the Performance Evaluation System application in order to develop a relational database were: MySQL, Microsoft SQL Server and Oracle. The option of using Oracle as the database was discarded because of its high cost and because few web hosting providers offers this option. Another considered option was use a mySQL database, an advantage is it low cost and several web hosting sites provides this database. I had some conflicts with MySQL and the configuration of some controls in Visual Studio, which difficult its integration with the ASP.Net platform. The choice that gave me a better integration and compatibility with ASP.Net was Microsoft SQL Server. I decided to use Microsoft SQL Server because it offered me more advantages in the development of the Performance Evaluation System application. Currently I have more experience working with Microsoft SQL Server and public hosting sites like Godaddy offers the option to configure your database to SQL Server.

CONCLUSION

Having designed and developed the system performance evaluations was a project in which I used and put into practice many of the terms learned in class as communication protocols, programming languages and database design. During the initial phases of the project in which I met with several users and employers, I learned about the importance and criticality of this process in the industry. Process which is generally performed annually and that is attached to a limited amount of time to develop the evaluations. Having designed the tool to a web environment focused on companies avoided local software installations; this because the only thing the end user (supervisors and human resources representatives) needs is a web browser and internet to access the application. Another advantage that comes with having developed an application focused on Internet is that the user can use any device to perform performance evaluations or to generate reports. As for

application updates, only is needed to do it into the application that is hosted on a server giving the advantage of not having to go to individual installations for each customer. As part of the design process, concepts of database systems were implemented. Being able to design a database focused on user requirements and which includes all customer requirements was a challenge that could be achieved with a good analysis of all internal and external factors that may influence performance evaluation. The technologies implemented in the programming of the system were the result of an analysis of the advantages they offer. Developing the application using the programming language C # allowed the application to be developed object-oriented, which allows it to be much more structured and you can add eventually functionalities (evolution) thus fulfilling the requirement that the application can be coupled to the future company. Another technology in the system was implemented AJAX (Asynchronous JavaScript And XML), this allowed us to have a much smoother application, reducing load times of the application. Have developed standard and predefined reports facilitates the process of getting reports that are commonly used and needed at real time, thereby reducing manual report generation by the Human Resources department. Finalizing, this project can see how to use the technology facilitates extremely complex processes such as performance evaluations.

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