A CUSTOMIZED PAYROLL SYSTEM FOR BAGO CITY COLLEGE

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Abstract

Automation is a necessity and very essential to make work easier and faster. Through this, using automated payroll system in an organization was productive and beneficial for the employees. Thus, this study developed a Customized Payroll System or Bago City College that eliminates the redundancy in preparing the payroll, avoid miscalculation of employee's salaries, make retrieval of payroll records faster, provide data security and generate employees' pay slips easily. The study also determined the benefits that an organization can gain in implementation of the automated payroll system. The researcher used Rational Unified Process (RUP) in achieving the finished and well-functioned system that is reliable and effective in Bago City College.

INTRODUCTION

As technology evolves, businesses also evolve. Business information is now managed by using variety of automated systems. Automation of manual system is now dominant with today's advance technology. It is done to minimize most menial or repetitive tasks. The impact of automation is increasing rapidly, both in the software/hardware and machine layer. The implementation of new artificial intelligence (AI) and machine learning (ML) technologies is currently skyrocketing the evolution of this field. [1] It eliminates the manual process and promotes the use of technology for human to perform job easily. Even small industries are also investing in changing their traditional system to an automated one. They are taking advantage of what technology could offer. Automating computer operations can be surprisingly easy and can reap major benefits. Understanding these benefits—and some obstacles—will help you develop support for an operations automation project. [2]

Every company has its own renumeration system. Some may prefer to use manual while others are now investing money to have an enhanced and automated procedures. All businesses, especially small businesses without their own accountants need a reliable, effective and easy to use payroll system. Payroll is essentially the business process of paying employees. It consists of calculating employee earnings and accounting for payroll taxes and employee benefits withholdings. Payroll can also include a business's financial record of employees, distribution of employee paychecks, and annual records of employee wages. Although it's imperative to every business, the cost of payroll is high, and learning these processes takes a lot of time and effort—which is exactly why we need to automate payroll. [3] A payroll system is said to be reliable if employees are paid accurately and timely.

The proposed payroll system was an automated system. The management, specifically the accounting department, could easily run the payroll for a particular pay period. Using automated payroll system would generate pay slips faster which made easier for employers to keep track of their employees' data and payroll information. It provided security which includes protecting documents and report storage of sensitive payroll information. A payroll automation software saved you time on tasks including filing taxes, processing direct deposits, generating payroll reports, and calculating tax withholdings. All of these processes would take much longer to do without payroll automation. [3]

OBJECTIVES OF THE STUDY

The researcher wanted to create an automated payroll system that is applicable to Bago City College. The researcher set the following objectives to solve the identified problems. This proposal would help the organization to enhance the flow of payroll procedures and eliminate the manual process if calculating employees' wages. It also offered a time monitoring system. The new system would provide a permanent storage of payroll history.

The following are the specific objectives of the study.
1. To minimize the time and effort in preparing the payroll.
2. To have an accurate computation of employees' salaries.
3. To easily retrieve payroll records.
4. To provide a secured permanent storage of payroll history.
5. To provide a detailed pay slip.

INITIAL SCOPE OF THE PROJECT

The study covered the automation of the payroll system of Bago City College. This proved provides accurate and efficient payroll computation of the employees' salaries. The organization had a payroll master or an accounting clerk assigned to run the payroll in a particular pay period. The payroll master generated the pay slips to be given to the employee during the pay period. Each pay slips contained the computation of the gross pay deducted by several holdings such as GSIS, PhilHealth, Pag-ibig, Bank loans, Cash Advances and Tax. The gross pay was calculated by reflecting the Daily Time Record (DTR) of the employee multiplies to employees' wages rate.

The automation of the manual payroll system of the organization was very essential and convenient. The automated payroll system would generate pay slips and payroll reports. The system would save the data recorded for the organization's report. The proposed system would help the organization, as well as the payroll master or accounting clerk to have a quick computation and releasing of employees' remuneration. It would also a benefit to the part of the employees because they can have their remuneration during their pay day without delay and they will have ample time to inform the payroll master if they have complaints with regard to their salaries or deductions.

PROJECT VISION

The research expected that through an automated payroll system, remuneration process of the organization will dramatically improve. It would be easier for the Payroll Master to perform the tasks. Through its implementation, the organization would improve its payroll process efficiently and effectively. The automated payroll system would be very helpful to the organization and the employees. The new system helped simplify payroll processes and provides reliable computation not only to the organization but as well as to its employees. The proposed system used a handheld barcode scanner to monitor the time rendered by the employees. Furthermore, the system provided complete and detailed reports which will be used by the organization to evaluate finances allotted to its manpower sources. The organization would have a permanent storage of data to avoid data loss and provide exclusive access to files by authorized personnel of the organization. Having a database, the organization can keep track of the payroll history.

The major changes in implementing the system were: it improved the payroll processes, enhanced file storage, provided an effective time monitoring and limits unauthorized access to payroll record.

METHODOLOGY

Systems development refers to the process of creating software and it requires a higher responsibility which makes it different from simple programming. This process includes requirement for capturing and testing. In developing the proposed system, The researcher preferred to use the Rational Unified Process (RUP), an iterative software development framework [4]. RUP is not a single concrete prescriptive process but rather an adaptable process framework, intended to be tailored by the development organizations and software project teams that will select the elements of that process that are appropriate for their needs. RUP is a specific implementation of the Unified Process.

The RUP has determined a project life-cycle consisting of four phases. These phases allow the process to be presented at a high level in a similar way to how a 'waterfall'-styled project might be presented, although in essence the key to the process lies in the iterations of development that lie within all of the phases. Also, each phase has one key objective and milestone at the end that denotes the objective being accomplished. Inception phase was the first phase and its primary objective is to scope the system adequately as bases for validation initial costing and budgets. In this phase, the case which included business context, success factors (expected revenue, market recognition, etc.) and financial forecast is established. To complement the business case, business use case model, project plan, initial risk assessment and project description (the core project requirements, constraints and key features) were generated. Second phase was elaboration phase and the objective were to mitigate the key risk items identify by analysis up to the end of this phase. The elaboration phase was where the project starts to take shape. In this phase, the problem domain analysis was made and the architecture of the project gets its basic form. Next was the construction phase where the primary objective is to build the software system. In this phase, the main focus was on the development of the components and other features of the system. This was the phase when the bulk of the coding takes place. In larger projects, several construction iterations may be developed in an effort to divide the use cases into manageable segments that produce demonstrable prototypes. This phase produced the first external release of the software. Its conclusion was marked by the Initial Operational Capability Milestone. Last phase was the transition the primary objective is to 'transit' the system from development into production, making it available to

and understood by the end user. The activities of this phase included training the end users and maintainers and beta testing the system to validate it against the end users' expectations. The product was also checked against the quality level set in the inception phase. If all objectives are met, the product release milestone is reached and the development cycle is finished.

The RUP development methodology provided a structured way for companies to envision create software programs. Since it provided a specific plan for each step of the development process, it helped prevent resources from being wasted and reduces unexpected development costs [5].
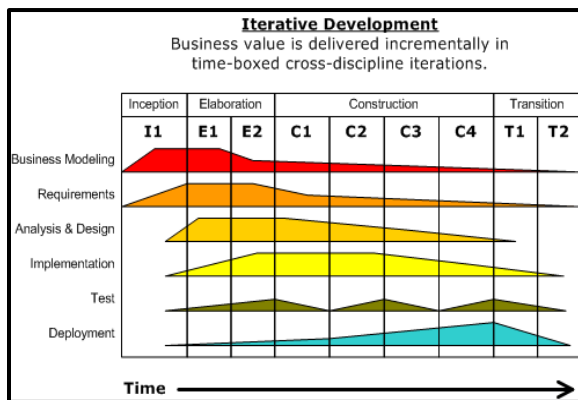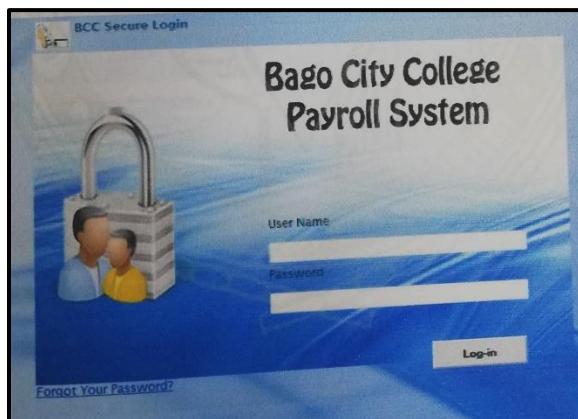

Figure 1: RUP Design

QUICK DESIGN/BUILD

Figure 2: The Log In form

Figure 2 showed the login form. For the user to be able to access the system, he/she must log on first. Before logging in, a user must enter a valid username and password. For a user to log on to the system, he/she must have an existing account otherwise he/she must be given a new account.

Figure 3: In/Out

Figure 3 shows the In/Out. This is one of the system functionalities that are very important to the employee. It is where the employee information of punch in and out. It bases it time in the system. In/Out captures the employees' real time attendance. Time in the In/Out module is not editable. It also shows the department where the employee belongs.

EVALUATION

Table 1 presents the fourteen questions that are needed to be answered when computing the function point of the system. These criteria are rated according to the level of significance or influence on the system. It is the list of adjustment responses according to the system reliability, processing and performance and the accurateness of the data. In function points Fi is considered to be a complexity adjustment values because it is based on responses of the following questions rated using a scale that ranges from 0-5. The scale is 0 for no influence, 1 for incidental, 2 for moderate, 3 for average, 4 for significant and 5 for essential.

No.	Questions (as selected by the researcher)	Ratings
1	Does the system require reliable backup and recovery?	4
2	Are the specialized data communications requiring to transfer information to or from the application?	4
3	Are the distributed processing functions well?	5
4	Is performance critical?	2
5	Will the system run in an existing, heavily utilized operational environment?	4
6	Does the system require online data entry?	0
7	Does the online data entry require the input transaction to be built	0

	over multiple screens or operations?	
8	Are the master files updated online?	0
9	Are the inputs, outputs, files or inquiries complex?	3
10	Is the internal processing complex?	3
11	Is the code design to be reusable?	4
12	Are conversion and installation included in the design?	5
13	Is the system designed for multiple installations in different organizations?	5
14	Is the application designed to facilitate change and for ease of use by the user?	4
	Count Total	43

Table 1. Complexity Response Table

CONCLUSION

Bago City College Payroll System had met its objectives and has solved the problems identified by the researcher. The redundancy in preparing the payroll was eliminated. The creation of payroll was done only once by only one person which is the payroll master. The miscalculation in computing the employees' salaries was solved because the system calculates the payroll automatically after the end of pay period. The purpose of the researcher in developing an automated payroll system for Bago City College was to simplify the calculation of employees' wages and to avoid the time-consuming retrieval of the payroll records during the observation. By using BCC Payroll System, previous payroll records were easily retrieved anytime it is needed and can also be printed if necessary. Data security was also one of the concerns; records of payroll reports are just place everywhere in the office and can be accessed by unauthorized person who enters the admin office. With the security function provided by the system, only authorized person with an admin account had the ability to access the whole system like adding, updating and deleting of records. No one could make unauthorized modification in the payroll except the authorized person. The generation of pay stubs or pay slips was also made possible. As one of the reports generated by the system, individual pay slips were easily generated and it contained detailed information of the earnings, tax, deductions and net pay of the employees.

RECOMMENDATION

With the approval of the college to use the system, the researcher would like to recommend that during the implementation stage, Bago City College should comply with the hardware and software requirements. Proper training for the payroll master on how to use the system must be done. He should be familiar with the processes involved in the payroll system. Proper troubleshooting practices should be learned for future use. Employees and staffs other than the payroll master must also have the proper training. They should learn how to use their accounts, most especially the punch in and punch out process. Upon implementing the system, BCC must have a appropriate back-up and recovery plan whenever problems occur. They must have proper support for their database where they store the data of the payroll system. There should be an assigned person to handle and maintain the database server.

Proper training on using the hardware requirements was also advised to prepare them whenever problems like data overload or data loss in the database occur. Policies must also be imposed when the system is implemented. The payroll master who handles the system must be trustworthy enough. He must ensure reliability and integrity of data. He must not easily bribed by his co-workers to change something on their data. Each account especially the admin account must not be shared. For the success of the system, all requirements and policies must be applied.

Moreover, the researcher recommended Bago City College to acquire the needed hardware upon implementation. The use of barcode reader or biometrics could maximize the system performance. With the help of these devices, BCC would be ensured that the attendance of the employees being recorded was the accurate data because the hardware supports real time capturing of data.

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