Development of a System for Salary Calculation for State Establishments in Republic Of Iraq

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Abstract*: Human progress is going through the teamwork, especially in terms of implementation and business development. However, in order to provide the cooperation between members of the team, there must be a guarantee of the rights of everybody in the process of work. In a private case, it is important to show the monthly salary for each employee of a company. The goal of the research is the development of a system for salary calculation for state establishments in Republic of Iraq. Thus, the institutions and organizations have a composed structure. If they have branches in different cities far between each other, they will need methods of communication between those branches (departments). Calculation of a salary is a complex process; the computer-aided system for it will ensure the performance of the accuracy of the results and ensures the possibility of registering and authorizing at such a system for all employees in the organization in order to see the components of his own salary with ensuring the privacy of it. Simultaneously, the benefits and deductions applied to the employees are different according to the rules established by the governments or public administrations of these institutions or organizations. So that, the system must be rather flexible to provide different implementation of companies' rules.*

I. Introduction

Salary systems – also referred to as compensation plans or pay structure – are a collection of steps, policies and practices employers use to pay employees for their work. Salary systems consist of more than producing a weekly, biweekly or bimonthly paycheck. Components of a salary system range include everything from pay scales to the method employers use to reward employees for performance.

Employee salaries are part of the earliest stage in business development. Before creating a formal business plan, prospective business owners calculate salaries in the operational expenses. These are usually rough estimates, however. They are figures typically based on a cursory review of salary levels for the types and numbers of employee roles for the initial business phase. Forward-thinking owners may project growing business needs and calculate additional salaries based on projected business success and expansion. Although a concrete salary scale does not become part of the business plan, the salary system is definitely a component of the financial records and projects that owners present to potential lenders and investors

II. Research Goal And Objectives

For the reaching this goal we must solve the following objectives:
1) to describe the mathematical model of salary calculation in the state establishments in Republic of Iraq;
2) to study the modern tools of web sites developing and make the comparative analysis of the content management frameworks for web-development;
3) to develop the structure of the required database for salary calculation system;
4) to develop and implement the system for salary calculation for state establishments in Republic of Iraq;
5) to test the system.

The practical significance

This project is useful for all state and private organization in Republic of Iraq because they all have the similar algorithm of salary calculation. The difference between them is only about scores for benefits and deductions. This project can be useful because it contains several features to assist the special experts in a company who calculates and checks the salary and gives the possibility for usual workers to see all the components of their salary:

1) secure access for the private data about the employees, including the individual identification at the site for all users;
2) saving the time and efforts while working at site;
3) ensuring data integrity in different departments of a company;
4) uploading documents confirming the deductions, benefits, loans and others;
5) easily process of calculation of a salary and getting a monthly report of salary;
6) easily dealing with the site for its friendly-man design;
7) unlimited number of users;
8) ability for the following development of the site.

The problem statement

The calculation of salary is a very important task for all companies. There is a specific characteristic of the procedures of salary calculation in Iraq. So that, I have decided to develop my own site for calculation salary, which will be very useful and cozy for Iraq companies.

The calculation of the salary is usually done according to the formula 1:

$$TSal = (NSal + QSal + MSal + CHSal + RISal + POSal + BOSal + HOSal) \quad (1)$$
$$- (Loans + NPSal + PESal + VASal),$$

where: TSal – Total Salary;
NSal – Nominal Salary;
QSal – Allocations Qualifications;
MSal – Allocations Marital Status;
CHSal – Allocations Children;
RISal – Allocations Riskiness;
POSal – Allocations Position;
BOSal – Allocations Bonuses;
HOSal – Allocations Honor;
NPSal – Deduction Not Present;
PESal – Deduction Penalties;
VASal – Deduction Vacations.

Use case diagram

The result of developing the use case model is shown at the fig. 1.

There are five main actors: Administrator, Director, Legal expert, Accountant and Employee. They use different use cases to work with tables in the database. For example, they can see salary, enter and modify data in different tables. There are two main use cases, which can be extended depending on the user who uses these functions: "See salary of all employees" is the extension of the use case "See salary of definite employees" as well as "Enter data in definite tables" is the extension if the use case "Modify records in table "Loans".
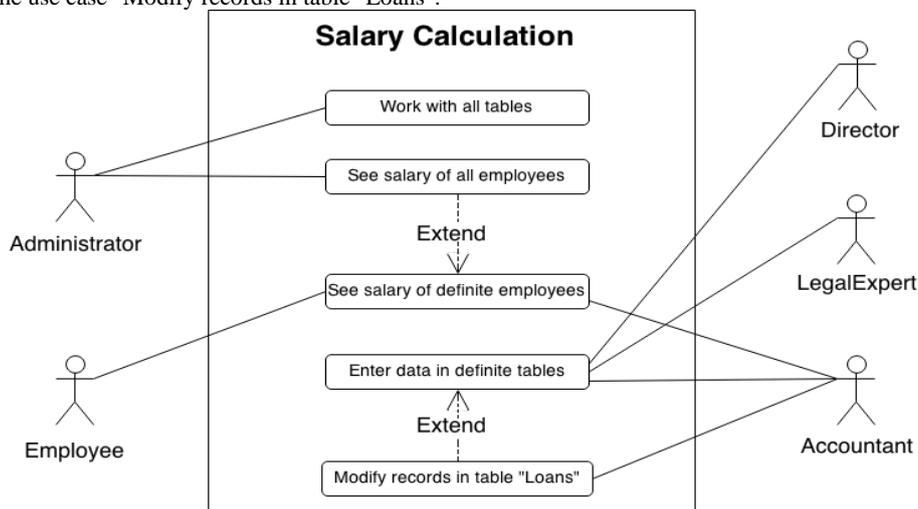
Fig. 1. Use case diagram

Forms of the application

I have developed a web-interface for the system for salary calculation using the Bootstrap library. The interface of the developed web-forms is provided on the fig. 2.

Fig. 2. Login form and the main page

The main page contains several sections that the system can provide, based on user need in the system. After the user choose a section, he must pass the Login page to be ready to use the application as he needed.

III. Conclusion

In Republic of Iraq there is a staggered methodic to calculate salary for all most all company, but there are old information management systems to help organizations to automate this process. So as, it takes now a lot of time and a lot of efforts. Therefore, it is a very important task to develop and to implement in Iraq's organizations such a system, which will help to calculate salary. It includes such subtasks as to check all dates of vacancy and absences of employees; to calculate their riskiness for ranks and to check a lot of other information, which is needed for directors, legal experts, and accountants in order to calculate how many money each employee must get at the end of month. There must be a lot of statistic information at such a system.

During the developing of the web application, we solved the following tasks:

1) the mathematical model of salary calculation in the state establishments in Republic of Iraq is described;
2) the modern tools of web sites developing and make the comparative analysis of the content management frameworks for web-development are studied;
3) the structure of the required database for salary calculation system is developed;
4) the system for salary calculation for state establishments in Republic of Iraq is implemented and tested.

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