The Construction of Human Resource Sharing Service Information System under the Background Guide of Data Digitization

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Abstract. Aiming at the problems existing in the traditional human resource management system, we build a human resource sharing service information system based on J 2 EE technology. The system is mainly designed by three-level development mode, and the system architecture is mainly B / S development mode. J 2 EE technology, and the database is used to store and manage the generated data, which can realize data sharing among various departments, and the degree of information is relatively high. The test results show that the system has high security and stability, and also has certain scalability, which can meet the needs of enterprises at this stage.

Keywords: data; B/S; J2EE technology; information system

1 Introduction

Under the background of the rapid development of science and technology, most enterprises have invested in the research and development of human resource management system, which makes the share of human resource management system gradually increase. For the current human resource management system, the development and design process mainly adopts the B / S development mode, which is practical and simple, convenient installation and other characteristics, and is loved by the majority of users[1]. Especially in recent years, J 2 EE technology has gradually improved, the hardware functions are more comprehensive, and the channels to obtain information have gradually increased, realizing the mutual collaboration between websites. At the same time, human resources can be managed and maintained through a variety of modes, solving the lack of communication between various departments of the enterprise, human resource management system is very necessary. Based on this situation, many foreign enterprises began to develop and design human resources operation management system, such as Jogns, based on the digital background, build a systematic and intelligent human resource management system, in the system established a perfect information management platform, the platform contains multiple information management system, and in the information system has been specialized human resource management into the HIS management system, can improve the operation and use of the system[2]. In addition, The Ottawa Hospital in Canada has also built the corresponding information management system, which can realize the patient's electronic medical records, information registration and other operations, and also has the function of human resource management[3].

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2 System design scheme

2.1 Overall system design

(1) System logical structure design

According to the functional requirements of the system, the system design is decided through the B / S architecture, and the system development structure is shown in Figure 1. The design system is mainly composed of three parts, namely, presentation layer, business logic layer and data layer. Through this architecture form, the system development can be ensured smoothly, and the B / S architecture can also effectively reduce the operation difficulty of the system and improve the stability of the system operation [4].

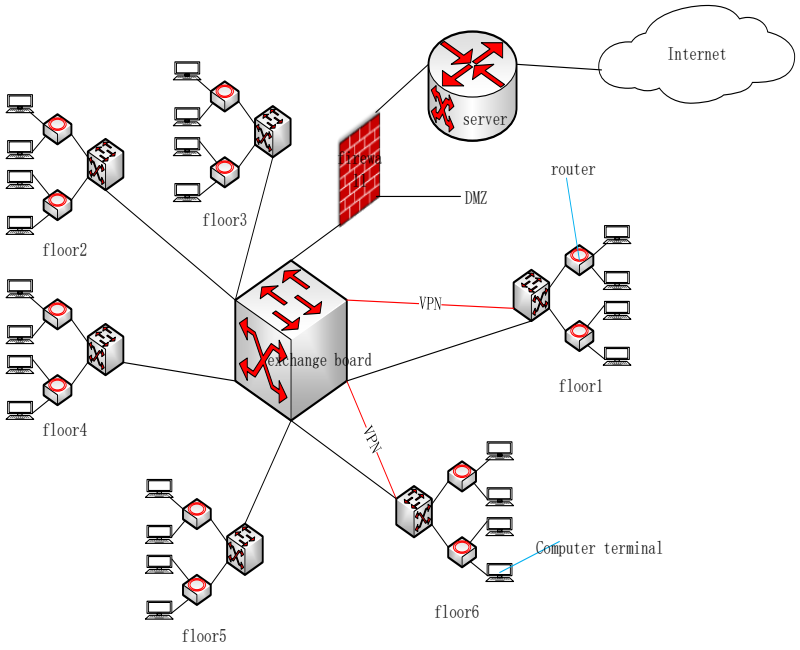

Fig.1 Network topology structure design of the system

(2) System network structure design

The network structure of the design system is shown in Figure Figure 2. In the network structure of the system, include the application server and the database server, through which the client can access the data information. In addition, the VPN network and firewall are added in the server, which can not only effectively prevent the invasion of viruses, but also to avoid abnormal users to destroy the database. At the same time, the system also has the function of regularly scanning the server. When abnormal files are found in the server, it can be isolated in time to ensure the safe and stable operation of the server [5].

(3) System function and structure design

According to the system requirements, the functional structure of the system is designed as shown in Figure 2.

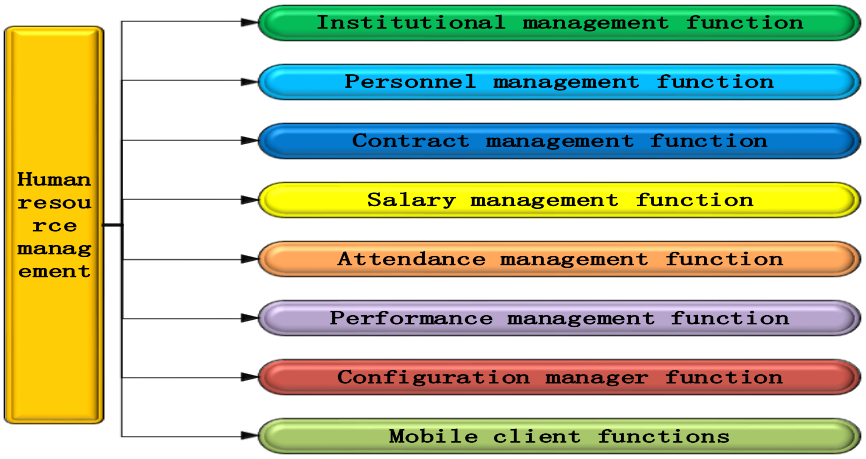

Fig.2 Functional structure design of the system

2.2 Performance appraisal algorithm design

(1) Task configuration algorithm design

A_{ij}Assuming the time spent for J tasks completed by an employee numbered i, the decision variable can be expressed as: B_{ij}

$$B_{ij} = \begin{cases} 1, \text{The } j\text{-th task completed by the } i\text{-th employee} \\ 0, \text{The } j\text{-th task that the } i\text{-th employee did not complete} \end{cases} \quad (1)$$

A_{ij}At this time, based on the basis of derivation, the corresponding mathematical model can be obtained, namely:

$$min\, Z = \sum_{j=1}^{n} \sum_{i=1}^{N} B_{ij} A_{ij} \quad (2)$$

After obtaining the mathematical model, the time spent by employees to complete the task is listed through the matrix, as detailed in Table 1.

Table 1. Employee Task Table (time> 0)

	Assignment 1	Assignment 2	Assignment 3	Assignment 4
Employee 1	YG1	YG2	YG3	YG4
Employee 2	YG5	YG6	YG7	YG8
Employee 3	YG9	YG10	YG11	YG12
Employee 4	YG13	YG14	YG15	YG16

(2) Performance appraisal algorithm design

For the system designed in this paper, it needs to realize the corresponding operation and calculation through the vector feature matching algorithm, and the accuracy of the score should be ensured [6].

If the employee gets 100 points in the monthly assessment process, the assessment data accounts for 62 points, after the corresponding design:

Need to decompose the content tasks, and then determine the key point information existing there, at this time, the task points included can be described as, representing the key elements;$\{P_1,P_2,P_3,P_4,\cdots,P_i,\ \cdots P_n\}P_i$.

After the evaluation and judgment, the results can be described through Ai. At this time, the performance score of each employee can be determined, recorded as A, and each element can be superimposed separately, so as to meet the needs at this time;

This design method is mainly based on the idea of vector space model. In the design process, it is necessary to analyze each element and integrate it into a special vector set, recorded as P, then there are: weight;$\{W_1,W_2,W_3,\cdots,W_i,\ \cdots,\ W_n\}W_i$.

In the division, it is necessary to be determined and normalized, which can be calculated by the following formula: W_iW_i

$$\overline{W_i} = \frac{W_i}{\sqrt{\sum_{i=1}^{K_i}(W_i)^2}} \tag{3}$$

After the completion of the above operation, each element can be decomposed according to the progress of the employee to complete the task, and the corresponding data set n can be obtained, and the elements in the set are arranged according to a certain order. At this point, all employees can be characterized by a collection. So the design is particularly important.$\{Q_1,Q_2,Q_3,\cdots,Q_i,\ \cdots,\ Q_n\}Q_i$.

After the analysis and judgment, the progress and target value of the completed task can be determined, and the corresponding performance value can be obtained after the completion of the task. Otherwise, the operation cannot be carried out [7].

After the analysis, the employee's performance can be expressed as follows$\overline{M_i}$:

$$\overline{M_i} = (1 - \sqrt{\sum_{i=1}^{Ki}(W_i - \overline{W_i}) \times \overline{W_i})^2}) \times A_i \tag{4}$$

At this point, the employee is score this month, namely:

$$M = \sum_{i=1}^{n}((1 - \sqrt{\sum_{i=1}^{Ki}((W_i - \overline{W_i}) \times \overline{W_i})^2}) \times A_i) \tag{5}$$

Since the designed system contains multiple non-quantitative operating systems, the design indicators are mainly based on GRS. After the boss determines the employees, the results are transmitted to the leader in charge, effective after the approval, and the score is 40 points [8].

2.3 Some functional module design of the system

(1) Design of the attendance management function

For data processing, attendance report, etc., the operation should be done in the database. The operation process is relatively simple. The design and operation process is shown in Figure 3.

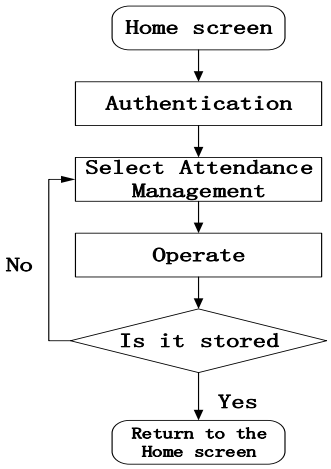

Fig.3 Flowchart of the attendance management function.

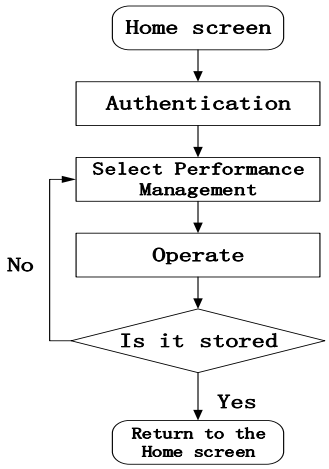

Fig.4 Flowchart of the performance management function

Since the attendance data cannot be stored in the calculation, it is necessary to be managed accordingly. After the data is imported into the system, the database is automatically managed.

(2) Performance management function design

Generally speaking, assessment report is an important way to extract data, which can intuitively present data information in front of users. The design and operation process is shown in Figure

4.Through the process in Figure 4, we can understand the performance management of the personnel of the personnel department, but the corresponding operation can only be carried out through the authentication [9].

2.4 Database design

(1) Physical design of the database

The data form in the design database of this paper mainly includes the system use table, system office management table, system human resource table, system salary management table, system performance appraisal form, etc [10].

The contents contained in the user table include: serial number, user name, etc., see Table 2 for details.

Table 2. System user table

name	type	big or small	null value	Initial state value	remarks
Employee code	nvarchar	10	There must be numerical values	Register to fill in	major key
Employee name					
Employee password					
Processing function registration time					
Employee department		20			
Employee category					
Employee gender					

3 Conclusion

In view of the problems of serious data loss of traditional human resource management system and the difficulty to realize shared service, this paper builds a set of human resource service management system based on J 2 EE technology. The design system innovatively puts forward the performance appraisal algorithm, which breaks the limitations of the original qualitative assessment, and through the quantitative assessment method, fully reflects the policy of more work and more gain. In addition, the design system also has the function of mobile phone client, which provides convenience for users and, to a certain extent, solves the problems existing in the traditional human resource management mode. After passing the system test, it is known that the system security and stability are high, and it also has certain scalability.

References

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