

# The Database Design of Party Work Management System in Higher Vocational Colleges

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## ABSTRACT

The design of management system for party work in higher vocational colleges is based on the analysis of system requirements. The goal of system design is to complete the overall design and planning of the system before detailed design and implementation of the system. This paper analyzes and designs the database of management system of Party affairs in higher vocational colleges.

**Keywords:** Party work management, Information system, Database design.

## 1. INTRODUCTION: THE BACKGROUND OF RESEARCH

In order to solve the problems of low efficiency, low quality and cumbersome communication encountered in the office process of the party affairs department of higher vocational colleges, it is necessary to develop a comprehensive management system suitable for party affairs office. Through the design and development of the system, the online office ability of the party affairs department of higher vocational colleges can be realized, so as to improve the efficiency and quality of party affairs office.

## 2. DEMAND ANALYSIS OF PARTY WORK MANAGEMENT SYSTEM

System requirements analysis includes functional requirements, system functional modules, system design principles and database requirements. System requirement analysis is the basis of software development, and its main task is to determine the business function of the system. One is the goal of information system construction. Including the need to standardize the work flow of higher vocational colleges, improve the management level and organizational structure analysis; The second is the need for user analysis of the system.

## 3. SYSTEM DATABASE DESIGN

The database has a particularly important position in the information system, and the efficiency and effect of the system are directly affected by the good and bad structure of the database. The design of database is for a specific system environment, in order to meet the requirements of effective data storage and processing, it is necessary to construct the optimal database schema to establish the database and its corresponding system. The process of designing and establishing database on a specific database management system is one of the key technologies in the process of software system development. In the field of database, all kinds of systems that use database are generally referred to as database application systems. To this end, the database should meet the definition of the standard object naming convention, should conform to the three normal forms of the database; the database should be designed and developed according to the data dictionary and ER diagram. It is a must to understand the needs of users and design the database based on the needs.

### 3.1 Database Overall Structure

The database of the management information system of Party affairs in higher vocational colleges generally includes entities such as users, system administrators, party affairs administrators, party leaders, party affairs, documents, document types,

meetings, departments, and authority. The relationship between the user entity and the meeting leader, the party leader, the party administrator and the authority entity is one-to-one. There is a one-to-many relationship between Party committee leaders, party administrators and party affairs entities. There is a one-to-many relationship between the meeting leader and the meeting entity; the many-to-one relationship between the conference entity and the sectoral entity; the relationship between document and document type entity is many-to-one. System administrators and users have a one-to-many relationship.

### 3.2 Database Table Design

The structure of user table `tb_yonghu_info` is shown in “Table 1”.

Table 1. User table structure

Table Field	Data Type	Length
Yonghu_ID	Int	4
GonghaoID	Int	4
DengluName	Varchar	18
DengluMima	Char	10
Juese_ID	Int	4
Quanxian_ID	char	18
BumenNumber	Int	4

“Table “2 shows the structure of department information table `tb_bumen_info`.

Table 2. Structure of department information table

Table Field	Data Type	Length
Bumen_ID	Int	4
Bumen_Name	Varchar	25
Bumen_Header	Int	4
CreateTime	char	10
Bumen_Remark	Varchar	180
Bumen_State	Int	4
Bumen_Type	Int	4

The table structure of Party Committee leadership information table `tb_leader_info` is shown in “Table 3”.

Table 3. Structure of Party Committee leadership information table

Table Field	Data Type	Length
Leader_ID	Int	4
GonghaoID	Int	4
Leader_Name	Varchar	25
Leader_Tel	Varchar	11
Leader_Address	Varchar	100

The structure of the system administrator table `tb_admin_info` is shown in “Table 4”.

Table 4. Administrator table structure

Table Field	Data Type	Length
Admin_ID	Int	4
Admin_UserName	Varchar	18
Admin_Password	Char	10
Admin_Tel	Varchar	11
Admin_Address	Varchar	100

“Table 5” shows the structure of Party administrator information table `tb_party_work_manager`.

Table 5. Structure of Party administrator information table

Table Field	Data Type	Length
Pw_Manager_ID	Int	4
GonghaoID	Int	4
Pw_Manager_Name	Varchar	25
Pw_Manager_Tel	Varchar	11
Pw_Manager_Address	Varchar	100
Work_Contents	Int	4
Work_StartTime	Date Time	8
Work_EndTime	DateTime	8

“Table 6” shows the structure of `tb_meeting_director`.

Table 6. Meeting Leader information table structure

Table Field	Data Type	Length
Director_ID	Int	4
GonghaoID	Int	4
Director_Name	Varchar	25
Director_Tel	Varchar	11
Director_Address	Varchar	100
Work_Contents	Int	4
Work_StartTime	DateTime	8
Work_EndTime	DateTime	8

The table structure Document information of table tb\_Gongwen is shown in “Table 7”.

Table 7. Structure of document information table

Table Field	Data Type	Length
Gongwen_ID	Int	4
Gongwen_Name	Varchar	45
Leixing_ID	Int	4
ChuangjianTime	char	10
XiugaiTime	char	10
Bumen_ID	Int	4
Yonghu_ID	Int	4
GongwenFile	Varchar	75
GongwenRemark	Varchar	450

The table structure of Official document classification table tb\_GongwenLeixing is shown in “Table 8”.

Table 8. Structure of document classification table

Table Field	Data Type	Length
Leixing_ID	Int	4
LeixingName	char	18
ChuangjianTime	char	18
CreateYonghu	Int	4
LeixingRemark	Varchar	240

“Table 9” shows the structure of the approval flow information table tb\_liuchengInfo.

Table 9. Approval flow information table structure

Table Field	Data Type	Length
LiuchengID	Int	4
LiuchengName	Varchar	48
CreateYonghu	Int	4
LiuchengState	Int	4
LiuchengRemark	Varchar	260

The approval flow definition table tb\_LiuchengDingyi has the structure shown in “Table 10”.

Table 10. Approval flow defines the table structure

Table Field	Data Type	Length
DingyiID	Int	4
NowChuliren	Int	4
BeforeChuliren	Int	4
NextChuliren	Int	4
ChuliTime	char	10
ChuliState	Int	4

“Table 11” shows the structure of the tb\_party\_member\_info table.

Table 11. Structure of Party member information table

Table Field	Data Type	Length
Dangyuan_ID	Int	4
GonghaolD	Int	4
DangyuanName	char	15
DangyuanSex	Char	2
DangyuanAge	Int	4
Professional	char	10
Dangyuan_Type	Int	4
JobAge	float	8
DangyuanRole	Char	10
DangyuanTel	char	11
DangyuanAddress	Varchar	220
DangyuanEmail	char	15
Bumen_ID	Int	4
JobStartTime	char	10

“Table12” shows the tb\_meetinglog table.

Table 12. Conference log table structure

Table Field	Data Type	Length
MeetingID	Int	4
MeetingName	char	80
MeetingContent	Varchar	2500
DangyuanId	Int	4
CreateTime	char	10

“Table13” shows the structure of the table of permission information Table tb\_quanxian.

Table 13. Permission information table structure

Table Field	Data Type	Length
Quanxian_ID	Int	4
QuanxianName	char	10
QuanxianTime	char	10
QuanxianRemark	Varchar	220
QuanxianState	Int	4

Party affairs staff table tb\_dangwu\_worker, the table structure is shown in “Table14”.

Table 14. Structure of Party affairs staff table

Table Field	Data Type	Length
Dangwu_ID	Int	4
GonghaoID	Int	4
Dangwu_Name	char	15
Dangwu_Sex	Char	2
Dangwu_Age	Int	4
Professional	char	10
Dangwu_Type	Int	4
JobAge	float	8
Dangwu_Role	Char	10
Dangwu_Tel	char	11
Dangwu_Address	Varchar	220
Dangwu_Email	char	15
Bumen_ID	Int	4

#### 4. SYSTEM SECURITY DESIGN

The security of the system is also a problem that the management information system of the party affairs in higher vocational colleges needs to focus on, because the daily office processing of the party affairs in higher vocational colleges involves a lot of sensitive data and files with high security requirements. Therefore, the processing of such data and files is essential.

At present, the widely used cryptographic algorithms include symmetric cryptographic algorithm DES, asymmetric cryptographic algorithm RSA and hash algorithm MD5. DES is characterized by simple and fast encryption, which is suitable for encrypting large amounts of data, and the encryption key can be calculated from the decryption key. RSA is characterized by the use of different keys for encryption and decryption, including “public key” and “private key” two, RSA key size is large, the encryption/decryption speed is

slow, suitable for high security requirements and small data encryption/decryption occasions. MD5 is a data processing technology based on hash function. MD5 cannot encrypt data and does not generate ciphertext, but generates a 128-bit irreversible hash code for a certain character. Used to provide message integrity protection. No part of the original information can be extrapolated from the hash result processed by MD5.

In this paper, the symmetric cryptographic algorithm DES is used to encrypt and decrypt documents, and MD5 is used to verify the system login account. The details are as follows:

First, the application of MD5 technology in this system is mainly reflected in the system login authentication. In the process of logging in to the Party affairs management information system of higher vocational colleges, it is necessary to verify the user name, password and verification code information entered by the user when logging in. The user password information is processed by MD5 and stored in the database, and the verification process is to first process the user input password information by MD5. Then the processed MD5 string is compared with the one stored in the database. If the comparison is consistent, the user is run to enter the system.

Second, this paper uses the symmetric cryptographic algorithm DES to encrypt and decrypt documents. NET integrated encryption and decryption component System.Security, the most important workflow in the process of encryption and decryption is to first generate a CryptoStream object, and then link the file data stream to the encryption/decryption conversion stream, and finally write the data into the file stream. This completes an encryption/decryption operation based on symmetric cryptographic algorithm DES. The following describes the design of the encryption process in pseudo-code.

- private static byte[] [Encryption function name]([Stream to be encrypted], [ICryptoTransform (stream to be encrypted)])
- {
- try
- {
- // Step 1: Create a MemoryStream (that is, create a stream whose backup is stored in memory)

- // Step 2: Create a CryptoStream using MemoryStream (define the stream that links the data stream to the cryptographic transformation)
- // Step 3: Create a StreamWriter to write the file data stream to be encrypted to the CryptoStream
- // Step 4: Close StreamWriter and CryptoStream objects
- // Step 5: Get the byte array representing the MemoryStream.
- // Step 6: Close the MemoryStream
- }
- catch ([exception object])
- {
- // Exception handling
- }
- }

## 5. CONCLUSION

The overall design of the system is an advanced and excellent performance of the system, the design of a system is related to the stability, security and scalability of the system and other factors, this paper has designed the background database of the Party work management system in higher vocational colleges, the system is easy to use, can better improve the efficiency of the party affairs managers.

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