



Construction of Campus Smart Party Building Platform Under the Background of Internet Plus

Kebing Cui^(✉)

Henan University of Animal Husbandry and Economy, Zhengzhou, Henan, China
21755540716@sict.edu.cn

Abstract. Based on Web technology, this paper builds a campus intelligent party building platform based on B/S architecture. By using the tools of big data technology such as Flum, HDFS, MapReduce, the problems of imperfection and low transparency in campus smart party building work were solved, and the learning methods of party building were also innovated. It not only realizes the diversification of smart party building activities, but also effectively controls and controls the smart party building work, thus ensuring the efficiency and quality of the smart party building work, and further achieving the goal of scientific and modern level. This paper analyzes the demand of the current campus smart party building work from the whole and local perspectives. Based on the significance of internet plus to the construction of the campus smart party building platform, it studies its construction ideas and contents, and solves the current people's demand, so as to provide reference for the campus smart party building work of colleges and universities.

Keywords: Smart Party Building · Web Technology · Demand Analysis · Construction Research

1 Introduction

The concept of party building is developed according to the concepts of smart earth and smart city, which refers to the intelligentization of party building and is a part of smart earth and smart city. Specifically, campus smart party building refers to optimizing isolated and fragmentary party building information by using technology, and making the party building work more systematic and scientific, so as to achieve the level of modernization and intelligence. Among them, party building information includes party affairs management, party members' service, party members' education and teaching [9]. Because smart party building keeps up with the trend of the times, grasps the pulse of scientific and technological development, and promotes the party's modernization, it has certain advanced and scientific nature. Therefore, building smart party building has become an important way to improve the scientific level of party building in colleges and universities.

This concept of internet plus was formally put forward in 2012, and then applied by many industries and fields, which made the content involved in internet plus more

and more extensive and the scope of influence more and more far-reaching, and the campus smart party building was one of them [4]. Internet plus is a new carrier to promote the vigorous development of smart party building. It has the characteristics of diversified information channels, convenient information transmission and timely information acquisition, which makes the traditional education mode of party building change, instead of discussion, lectures and indoctrination. Incorporating internet plus technology into the construction of campus smart party building not only broadens the coverage of party building work, but also further expands its influence [2]. Therefore, this paper holds that, based on Web technology, using B/S framework and big data technology, a campus smart party building platform based on the background of internet plus is built. This platform not only improves the campus smart party building work, but also innovates the way of party building education. It can also get the hot events of the party at the first time and effectively implement the campus party building work. In addition, because the interactive links in the platform are conducive to broadening people's thinking, the platform will be strongly recognized by the masses.

2 Introduction of Related Application Technology

2.1 B/S Architecture

The full name of B/S architecture is Browser/Server, that is, browser/server structure. There are very few transactions involved in the browser, and the main transactions are mainly implemented on the server side. The system of this framework can be realized only by means of Web browser. The B/S architecture is divided into three layers, namely, the presentation layer, which is mainly used to complete the information interaction between users and the background; the second is the logic layer, which is mainly used to complete the application logic function of the client; the third layer is data layer, which is mainly used for relevant calculation after receiving the client request. The hierarchical structure of the three-tier system is shown in Fig. 1. The advantages of B/S architecture are as follows: first, it is distributed, and can query, browse and other business processes at any time and place; second, business expansion is convenient, and functions can be added by adding web pages; third, the maintenance is simple and convenient, and users can update synchronously only by changing the webpage.

2.2 Html

HTML refers to Hyper Text Markup Language, that is, hypertext markup language. It is a descriptive language that is very easy to learn. Learning HTML means learning all kinds of tags to express what you want to express with tags. The basic tags of HTML include HTML tags (which are used to mark the beginning and end of a web page), head tags (which are the headers of a page and usually define special content, such as content that is not visible in the browser), body tags (which are the body of a page and usually mark content that is visible in the browser). In addition, paragraphs and words also have corresponding labels. The following Fig. 2 is the code of an instance of HTML.

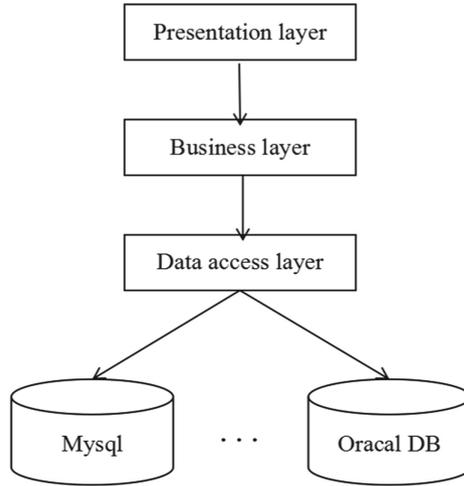


Fig. 1. Hierarchical structure of three-tier system

```

<!DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<title>rookie tutorial (runoob.com)</title>
</head>
<body>
  <h1>my first title </h1 >
  <p>my first paragraph. </p >
</body>
</html>
  
```

Fig. 2. Code of Example

2.3 Java

Java is a programming language, which has the characteristics of simplicity, object-oriented, distributed, security, cross-platform and dynamic. In addition, it has two characteristics that can not be ignored. First, it gets rid of the shackles of hardware platform and realizes the ideal of compiling once and running everywhere, but there is a hidden condition. The advance of “running everywhere” here is to install JVM virtual machine; second, it internally provides a relatively safe management and access mechanism, which avoids the problems of data leakage and pointer out of bounds. Besides, it can write desktop applications, Web applications and so on. Java language will have more obvious advantages and broad prospects under the industrial background of cloud computing and Internet. The execution process of Java language is that after Java source code is compiled by compiler, it needs the help of virtual machine to interpret bytecode,

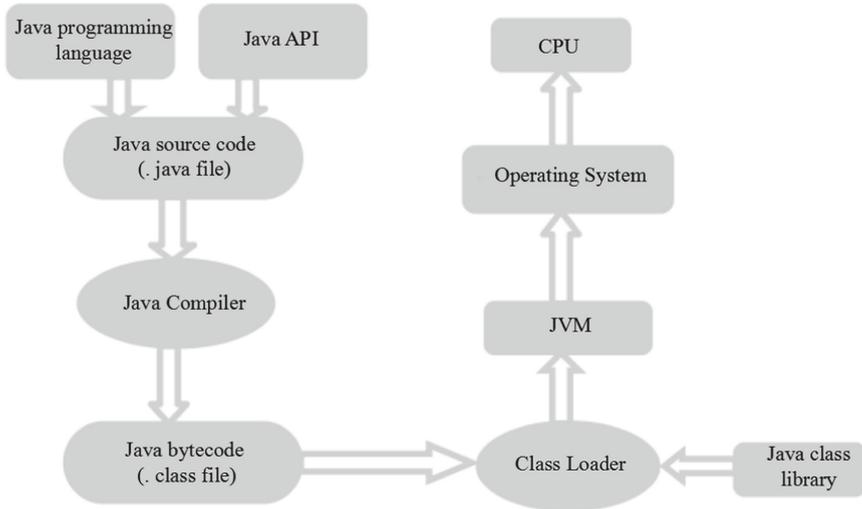


Fig. 3. The execution process of Java language

then it is converted into machine code, and finally it reaches CPU after operation. The execution process is shown in Fig. 3.

Among them, the cross-platform of Java needs to be realized by JVM virtual machine. The virtual machine will send bytecode to the interpreter, then translate it into specific machine code, and then run it on a specific machine, such as the Windows platform in this paper.

The JVM virtual machine is a tool used to analyze and run Java programs, which includes the class loader subsystem, the runtime data area (heap or stack), the execution engine subsystem and the garbage collection subsystem. The feature of JVM is that there is no requirement for language, that is, any language can run on JVM virtual machine when it is compiled into. class file.

2.4 Mysql

Mysql refers to relational database management system, which is one of the best application softwares of relational database management system in Web applications. Mysql database includes many data types, such as integer type, floating point type, fixed point type. Its advantages are easy to learn, low cost, strong portability, and a large number of users. In addition, because the data in Mysql database is related, it improves the running speed and flexibility of data when applying database data.

2.5 Big Data Technology

Big data technology refers to the technology needed in the process of building a big data platform, which includes storage system, database, resource scheduling, query engine. The following is a brief introduction of the technology.

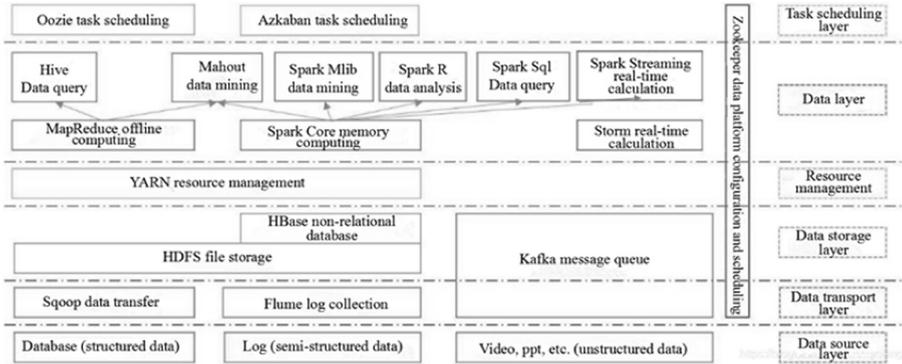


Fig. 4. Hadoop architecture

Infrastructure: Hadoop. It is the infrastructure of distributed system. Users can develop distributed programs and use data technology to perform high-speed operation and storage of data. Figure 4 shows its architecture.

Flume is used to read the data from the local disk of the server in real time, and then synchronize the data to HDFS. Sqoop is responsible for transferring data between Hadoop and relational database Mysql. HDFS is a distributed file system running on hardware, which has the characteristics of high fault tolerance and high throughput. MapReduce is a distributed computing engine, which completes the task of large-scale data processing through Map and Reduce. Oozie is used to manage all operations in Hadoop. Its operation principle is that the defined workflow nodes in the workflow file are controlled by the directed acyclic graph. The Oozie server submits the map-only Oozie Launcher job to the Hadoop cluster, and the Launcher starts to execute the operations in the workflow.

2.6 Development Environment

The whole environment of the platform is based on Web technology, B/S architecture, HTML front-end tools, JAVA back-end development language and Mysql database. For HTML, HTML5 needs to be installed, because it is the latest version of HTML standard, which expands the contents of semantic tag, local storage, compatibility features, 2D, 3D, animation, transition, CSS3 features and performance and integration. JAVA needs JDK version JDK1.8.0 installed; Mysql needs to install version 8.0.26. In the hardware environment of Web, the physical system needs to adopt Windows 10 system; the application layer needs to install and configure technologies, such as the installation and configuration of JAVA language development environment, and its environment configuration needs to create new variables of JAVA_HOME and CLASSPATH in the environment variables, and finally verify whether the installation is successful or not. At the same time, in the function setting, it is necessary to use big data technology to complete the control in the learning platform.

Through the theoretical explanation of related technologies, the development environment and configuration of the platform are determined, and the feasibility of the

technology and management of the design and implementation of campus smart party building platform based on Web technology is ensured.

3 Demand Analysis

3.1 System Demand Analysis

Taking the work content and process of campus smart party building as the research center, this paper analyzes its three major demands from the overall and local perspectives: first, the overall demand, that is, the overall demand of party building, for example, the campus smart party building needs to be improved and optimized, and its function cannot be fully exerted due to its imperfect function; [3] second, the realistic demand, for example, the transparency of party building is not high. Transparent party building is not only conducive to creating a fair and just atmosphere within the party, but also conducive to the further development of party building; third, personal use needs, which means that individuals are too boring in the process of learning the party constitution and system, and the learning model needs innovation [5]. Through the demand analysis of the content and process of campus smart party building, a platform for campus smart party building based on Web technology is designed, which not only meets the needs of modern social development, but also solves some problems existing in campus party building, thus promoting the party building to achieve the goal of comprehensively and strictly administering the party, and further strengthening the links between party members and organizations.

3.2 Overall Design

The campus smart party building platform based on Web technology adopts B/S architecture. In the front-end application layer, users can see the whole function of the page by logging in or registering accounts. Business control layer, where Web server and JAVA language are deployed, this part needs HDFS and MongoDB to complete data storage, and their specific functions are to realize massive data access and high-speed query response; in the data layer, Mysql is responsible for data storage. Finally, users can query data through data requests and responses, and the query results can be in the form of text, pictures, tables, videos and so on. Among them, big data technology is used, which provides a possible space for the innovation of campus smart party building. For example, on the one hand, it is conducive to the rapid collection and collation of data, on the other hand, it is conducive to the rapid analysis of the details of party building, finding out the outstanding problems, and carrying out targeted governance, so as to finally achieve the goal of optimizing campus smart party building [1].

4 Detailed Function Realization

The functions of the smart campus party building platform are divided into six parts, namely, party affairs platform, learning platform, daily office platform, interactive platform, activity platform and assessment platform. The following mainly explains the learning platform, daily office platform and interactive platform.

4.1 Learning Platform

The learning platform is designed for the imperfect part of the smart party building work. The learning platform not only includes the modules of database, question bank, teacher bank, course allocation, course management and examination paper approval. These modules are designed to enable students to complete the party class on the basis and understand the course arrangement. In addition, the follow-up tracking module of learning situation is specially added. The module is added to explain the adjustment of students' situation. For example, in the system of "three sessions and one lesson", the functions of automatic reminding, implementation, attendance, recording, filing, inspection and supervision, statistical analysis and other links of the system video learning are added. Specifically, in order to require participants to sign in online through their mobile phones before participating in the system learning activities, each key node of the conference is set up in the learning process in the platform, so as to automatically remind participants, track and record the implementation of follow-up work in real time, record the specific implementation in attendance, file it, and then make statistics and analysis on the implementation of the system in each area in the file. Then comment on the areas with the best implementation and the areas that need improvement, and analyze the system implementation files of the areas that need improvement again, so as to sort out the specific areas and work that need improvement, and implement them to people and improve the scheme, etc. [7]. In this process, we need to use not only the data collection, storage, analysis, visualization and other technologies of big data, but also the Internet technology. Big data technology, such as using Flume, a big data collection tool, to collect data from data sources such as network logs, business database Mysql, to synchronize the collected study party constitution and its implementation into HDFS, and then through MapReduce calculation and analysis, finally get extremely clear data results, namely the best areas and areas to be improved, with detailed analysis details. In addition, there is a task scheduling and monitoring function in the platform to realize the scheduled scheduling and monitoring task allocation and operation.

4.2 Daily Office Platform

The daily office platform includes such modules as notice, task management, public network disk, party member position report, party member daily newspaper. The platform not only shows the daily work assignment of party members, but also explains the specific situation of party members' work in detail, and finally achieves the goal of high transparency of the smart party building work. The objectives can be divided into the following points: first, to realize information visualization by showing the information of party members, development experience, learning trends and work experience, etc. Second, show the construction and quality of campus party building, and realize the visualization of the construction of party building places; third, the details of party members' declaration, study situation, affairs handling, etc. were released to realize the visualization of work progress; fourth, publicize the achievements of party building and party members, etc., and realize the visualization of the achievements of party building. Visualized details and achievements of party building work make the utilization of data information efficient, convenient and intelligent [8]. In addition, transparent

party building is conducive to promoting the formation of a good style within the party organization.

4.3 Interactive Platform

The modules of the interactive platform are set up as live broadcast room, video conference, knowledge forum, knowledge interaction frequency statistics, etc. It is mainly for innovating learning methods, enhancing communication in the learning process, and making it possible for party members, party organizations and the masses to communicate at any time and place. The setting of the platform not only meets the students' own needs, but also stimulates the enthusiasm of teachers and students to participate in the course, and makes the campus smart party construction get the best effect. The statistical module of knowledge interaction frequency in the platform is actually an assessment method, which is included in the assessment module of party members in the assessment platform. The setting of this assessment method not only innovates the traditional assessment method, but also increases the interestingness of interaction [6].

5 Conclusions

In a word, by connecting the overall and local needs, we can build a platform for campus smart party building in the context of internet plus, aiming at the overall optimization and innovation of party building in all aspects. On the whole, by combining the construction of big data technology and Web technology exploration platform, and giving full play to the advantages of overall management and control, an all-round and multi-level optimized platform for smart party building in internet plus campus was built, which improved the efficiency of party building and solved the problems of imperfection and opacity in party building as a whole. Actively play the role of internet plus locally, and innovate new fields of campus smart party building platform, such as interactive platform, and create a new ecology of smart party building platform.

References

1. Fang, Haiyang, and Yafeina Zuo. 2018. Research on the construction of "smart party building" system in colleges and universities from the perspective of big data. *Exploration*.
2. Feng, Kai. 2018. Research on the countermeasures for the construction of "internet plus" smart party building platform in colleges and universities. *Journal of Harbin Institute of Vocational Technology*.
3. Jiang, Siman. 2021. The construction and application of intelligent party building platform in public security colleges in "internet plus" era. *Journal of the Armed Police Academy*.
4. Liu, Jian. 2017. *Practice and exploration of party building in colleges and universities under the background of "internet plus"-taking Tongren University as an example*. Ability and Wisdom.
5. Liu, Xuhao. 2020. New era grassroots party organizations "smart party building" platform construction strategy-take Hengshui University as an example. *Journal of Hengshui University*.
6. Liu, Yangxi, Li Jiabin, Mengdi Yuan. 2021. The optimized path of smart party building in colleges and universities in the "internet plus" era. *Journal of Hubei University of Economics (Humanities and Social Sciences Edition)*.

7. Wang, Fang, and Jiqiong Peng. 2018. *Research on the construction of smart party building platform in colleges and universities based on internet plus*. Think Tank Era.
8. Wang, Qinghe, and Wenhua Yuan. 2021. The exploration of using information technology to build a platform for intelligent party building in colleges and universities. *Journal of Chongqing Electric Power College*.
9. Zhao, Xue. 2020. *Smart Party Building to create a new situation of party building in colleges and universities*. Think Tank Era.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

