

## Design and Implementation of Campus Website based on Bootstrap Framework

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### Abstract

**BootStrap is a responsive front-end open-source framework, which gives designers more perfect HTML and CSS specifications, but simple and flexible, making the site faster development. In this paper, based on the framework developed campus site, achieve user login, campus news, campus bulletin, message campus, campus online recruitment and other functions, to meet the different mobile terminals, tablet PCs, and other common PC implements responsive layout, to have a better display on a variety of different terminal equipment. Use BootStrap framework to improve the efficiency of Web front-end development, to solve the many incompatibility issues, increase the utilization of the campus site, improve work efficiency and reduce the waste of human and material resources.**

### Keywords

**Responsive design; BootStrap; The campus web site.**

### 1. Introduction

With the continuous development of technology and network technology, the rise of smart mobile devices in recent years has made it an indispensable part of life, and students are the fastest group to accept new things. As a result, more and more students are using mobile smart devices such as mobile phones and tablet computers to browse websites. The campus website is an important part of students' campus life. Students get a lot of news, notices, announcements and other information from campus websites. Traditional campus websites are well suited to PC client browsing. For mobile phones and tablet devices, they cannot fully realize their performance, which needs to be developed again. Not only waste manpower and material resources, but also greatly increase the cost of development. In order to better solve the mobile smart device, campus website display problem. Response design is adopted to improve the overall performance of campus websites. Using the Bootstrap framework, it provides relatively perfect HTML and CSS specifications, making the interface more concise and flexible and greatly reducing the development cycle. Although different interface layouts are displayed on different devices, the same content is displayed and the responsive design is implemented, which greatly improves the overall performance of the website. Thereby increase the utilization rate of the website, improve work efficiency, reduce the waste of human and material resources.

### 2. Research Status and Significance

#### 2.1 Research Status

At present, most of the campus networks of various universities are on fixed or pointing screens, which can display their proper functions well. On mobile phones, tablets, and other screens, the original functions cannot be fully displayed. With the development of The Times, teachers, students and other users are no longer limited to a single display, browsing campus network. In order to better adapt to the development of The Times and browse the needs of web pages on different screens, BootStrap front-end framework is used to make the interface more concise and more comprehensive.

Can satisfy different users, at any time, any place, any screen, you can find the information you want faster, at a glance.

## 2.2 Research Significance

The website adopts the Bootstrap front-end framework, which can be operated through the browser without assembling a dedicated client program. The client interface is simple and beautiful, the function module is clear and convenient for user operation.

This website is an advanced and scientific service website to meet the browsing needs of university web pages, improve work efficiency, school message management and resume management level. Its aim is to realize online recruitment, online message and responsive design. In order to adapt to the continuous development of society, it is urgent for our university to design a responsive design by using computer technology.

## 3. Introduction of Development Tools and Technologies

### 3.1 The Bootstrap is Introduced

The simple, intuitive and powerful front-end development framework makes web development faster and easier. Bootstrap is the most popular front-end framework at this stage. Bootstrap is an open source framework based on HTML, CSS and JAVASCRIPT. It is simple, generous and flexible, making website development faster. Bootstrap, developed by Twitter's designers, is a CSS/HTML framework. Bootstrap also provides designers with a relatively perfect HTML and CSS specification. Bootstrap is the popular front-end open source framework on GitHub, which includes NASA's MSNBC news page. Bootstrap can help us complete the development of the project in the shortest time, enabling users to be immersed in a complete system; There is also a set of relatively complete and consistent design scheme and sound implementation method. There is no need to waste unnecessary time and energy on the page, and Bootstrap can be used to focus the energy on more important functions.

Bootstrap characteristics: adapt to various technical levels; Cross-device, cross-browser; Responsive design; Customizable jQuery plug-ins; Select LESS to build dynamic style; Support for HTML5; Support CSS 3; Open source code.

### 3.2 Dreamweaver is Introduced

Dreamweaver, or DW for short, is the Chinese name for the Dreamweaver developed by MACR. It is the first set of visual web development tools specially developed for professional web designers. It can easily and quickly create living web pages across platform and browser limitations.

Dreamweaver USES the wysiwyg interface and also has an application editing function under the standard general markup language (HTML). It comes in Mac and Windows versions.

## 4. Site Design Overview

### 4.1 Traditional Website Design

The resolution of traditional computers is usually about 1366\*768 pixels, and previous websites were developed to better adapt to the resolution of traditional displays. Nowadays, with the continuous development of technology, more and more users are using different tools such as mobile phones, tablets to check and browse websites. Traditional website design, at the beginning of the design, the content has been fixed on the page. On mobile phones, tablets and other non-traditional screens, the full contents of the page will not be displayed, or there will be a garbled code. It's also important to note that traditional website design, which generally works with a mouse, doesn't work well with other screens that don't work well with the mouse. Therefore, the utilization rate of the website is reduced, which directly affects the user's experience effect and satisfaction.

Campus websites are different from other websites. The campus website targets students. They are not only young and active, but also more receptive to learning and new things.

Responsive design is very different from traditional website design. Traditional websites are usually fixed and designed for PC devices. The size of the design elements and the placement of the content are accurate to pixels, and the content body of the site has a specific width. Traditional websites usually get the best view at the screen resolution of a PC device, but at a larger or smaller resolution, the site may display complete content or appear garbled. In contrast, responsive design places more emphasis on design flexibility. The layout of web content is not limited to a particular browser window size, but is flexible based on the window size, where each page element is dynamic. Accordingly, design drafts under multiple resolutions are usually prepared in response design to reflect the dynamic positioning of various page elements.

#### **4.2 The Design Concept of Campus Website**

The design concept of the campus website is as follows: BootStrap is used as an open source framework to enable the campus website to be fully displayed under the screens of mobile phones, tablets, etc., with different sizes. The main point is that the designed pages can judge the size of the display and display different page layouts without any changes to the content. This enables users to better, more comprehensive, access to information, and greatly enhances the utilization of the site.

By mastering and understanding today's most advanced BootStrap framework, the designed campus website should be able to achieve the following goals. Front desk: a screen capable of displaying different sizes and resolutions. The campus website backstage part: has the powerful message management function; Capable of deleting, modifying and checking messages, managing resumes and carrying out strict inspection; Can provide simple operation and management, ensure that can adapt to the normal use of non-computer professionals.

### **5. Analysis and Design of Campus Websites**

#### **5.1 Demand Analysis and Design of Website Layout**

The page is well organized, with different colors to distinguish different contents. Reasonable layout, simple and generous; Reasonable use of special effects, pictures adopt dynamic effect, increase the beauty of the page; High response efficiency solves the problem of slow loading speed. Use different colors to distinguish different pages. Be seamless with every other page. Rich content, reasonable color, will not let the user, feeling uncomfortable. Make sure the picture is clear and reasonable.

#### **5.2 Analysis of Website Functional Requirements**

Users can log into the campus website and leave messages through their accounts and passwords. The administrator logs into the campus website through the administrator account and password. You can view and delete messages, etc. Users can log into the campus network through account number and password, and submit their resumes online after authenticating their real names. The administrator, through the administrator's account number and password, login the campus network, view the resume, make feedback on the resume, delete, notify the interview, refuse the interview and so on;

### **6. Website Function Implementation**

With the help of BootStrap, the website and application can quickly and effectively adapt to mobile phone, tablet and PC devices through the same code. Complete the development of the entire site using the relatively perfect HTML and CSS specification provided by the BootStrap open source framework. Make all the interface of the website, no matter on any device, can complete display content, will not appear, layout error and messy code. Users can get the information they want better and faster. Plug-ins available:

#### **6.1 The Home Page**

This page is mainly for users to browse and view school information. The menu bar has online messages, school profiles, school news, announcements and online recruitment. Users can get the latest information about the school through the school news, and click the online message. They can

log in/register and leave online messages. Online recruitment shows the most needed positions. Achieve the integration of the page, clean and generous.

### 6.2 The Message Board

In the case of login, this page is mainly for users to browse, view and submit message content; You can also see clearly the nickname and message content of other visitors. Users without accounts can only see clearly the user's nickname and message content, but cannot leave a message.

### 6.3 Position and Resume Page

Opening each message will show the appropriate job page. Click the position page in the position page to see the content of the position. The background is reasonable and consistent with the reading habits of the public. Click the button of online resume delivery, under the premise of real name authentication, can deliver the resume. The image is of reasonable size and the background color makes it easy for users to read content without feeling tired.

## 7. Website Testing

Website testing, mainly using manual or automatic means to test the website. The aim is to test whether the website meets the designer's needs and to understand the difference between the intended effect and the actual effect. The main process of website testing is to design several test cases according to the specifications and internal structure of each stage of website development, use these test cases to run the website and find out the hidden errors in the process. The goal of web site testing is to be able to reveal different types of errors through the site, and to solve them with minimal time and effort.

## 8. Summarize

This paper is a web site for the background of the discussion, a simple site requirements analysis, development tools and use of relevant technologies. At the same time, the system adopts Bootstrap architecture according to user requirements. The operation interface is simple and generous. Users can access the website through the browser and can adapt to different screen sizes. I encountered many difficulties in the process of website development, but with the help of my tutor and classmates, I successfully completed this graduation design. I believe this project experience is an improvement and shaping of my ability.

## References

- [1] li gang. Crazy HTML 5/CSS3/JavaScript handouts [M]. Beijing: electronics industry press. February, 2016.
- [2] [USA]. By Jake Spurlock. Translated by li songfeng.Bootstrap handbook [M]. Beijing: people's posts and telecommunications press.2017.3.
- [3] zhang yafei. HTML5+CSS3 web page layout and style essence [M]. Beijing: tsinghua university press. May 2016.
- [4] liu shuyun, li jicai. Design and implementation of college instrument and equipment management information system [J]. Laboratory research and exploration,2016,30(1):165-166.
- [5] wu fugen, yu zhaoqin, xu xiaoming, et al. Innovative management model to accelerate the construction of experimental teaching demonstration center [J]. Laboratory research and exploration,2015,29(3):109-110.
- [6] du xianchao, long huaibing, wang qingli, et al. Web standards-based website design and development process [J]. Computer engineering and design,2017,33(4):945-948.
- [7] duan tingting, he weiping, zhang wei, et al. Whole life cycle equipment management system based on Web [J]. Computer application research,2012,25(2):626-627.
- [8] Tang Yufang,Zhang Yongsheng.Design and implementation of Personnel Management System Based on Web Services [J].IEEE Beijing Section,2009,17(6):14-15.

- [9] K.-Y.Chen,M.-C.Chen,W.-Y.Liu.Designing data warehouses for equipment management system with genetic algorithms[J]. ZBMath,2008,46(21).
- [10]Thompson Rachel.Delivering information: A descriptive study of Australian women's information needs for decision making about birth facility. [J]. BMC Pregnancy and Childbirth, 2012,12(1).