Cross-platform mobile front-end development based on HTML5 technology

Jinyi Zhou

School of Software, Jiangxi University of Finance and Economics, Nanchang, China

976944083@qq.com

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Abstract: Based on the general jQuery Mobile technology and taking several typical web pages as examples, this paper describes the development process of the front-end system based on HTML5 technology. The whole mobile front-end development consists of three parts: layout design, interaction design and front-end development; The application of HTML5 technology in mobile network front-end system is analyzed. The experimental results show that HBuilder can well implement the front-end web page development in multiple environments, providing a good idea for engineering practice..

Keywords: Html5 technology; Layout design; Interaction design; HBuilder.
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1. INTRODUCTION

Mobile operating systems include Symbian OS, Android OS, Windows Phone, iOS, Blackberry, etc. According to the openness of source code, kernel and application environment, smartphone operating system can be divided into two categories: open platform (based on Linux kernel) and closed platform (based on UNIX and Windows kernel). In terms of market share, there are mainly two mobile phone operating systems, iOS and Android. Facing different mobile operating systems, designers and front-end developers must consider the application scope of the project and propose a cross-platform solution that can meet the needs of mobile front-end development. The powerful performance of HTML5 will provide users with a new use method and new user experience in the mobile network era. HTML5 supports different object inserts, such as images, audio, video, and animation.[1-3].

2. HTML5 TECHNOLOGY OVERVIEW

The first draft of HTML5 was officially released in 2008. In broad sense, HTML5 is a set of technology combinations including HTML, CSS and JavaScript. Its goal is to reduce the browser's dependence on plug-ins and provide rich RIA (rich client) applications. Therefore, CSS3, SVG, WebGL, Touch events, animation support, etc. are all within the scope of HTML5 technology. As the mainstream standard of the new generation of HTML, HTML5 is still in the development stage. HTML5 widely includes HTML, CSS, JavaScript and other technologies, and HTML5-based Web applications can provide users with more features without using different client plug-ins.

Generally speaking, the front-end development team of mobile terminal needs interaction designers, visual designers and front-end development engineers. Among them, vision and interaction belong to the front-end, that is, interface design, while Web front-end development mainly refers to code development.

Layout design is a visual language, which pays special attention to layout and layout. Although the design of home page is not equal to graphic design, they have many similarities. According to the information (including products, services, concepts and culture) that the enterprise wants to convey to the visitors, the website function planning is carried out, and then the page design and beautification work is carried out. As one of the external publicity materials of the enterprise, the exquisite web design is crucial to enhance the enterprise's Internet brand image. Web design is generally divided into three categories: functional web design (service website&B/S software user end), image web design (brand image station), and information web design (portal station). Different web page planning and design schemes should be selected for different purposes. Visual designers also need to use printing and font, which is not only a simple exterior decoration, but also reflects the deep needs of users.

Interactive design refers to the user-centered design concept and the principle of user experience. Interaction design runs through the whole software design process from basic interface to concept expression. Through good interaction design, users can more intuitively experience the ease of use and effectiveness of the product, thus improving users' fun. In the interactive design, from the design of connection to the design of operation process, we should get full attention.

Web front-end development refers to the development of Web interfaces with good experience for users through HTML, CSS, JavaScript and other technologies. Web standards are a huge collection, most of which are drafted and issued by the W3C, and some are European Computer Manufacturing Association (ECMA). According to Web standards, pages can be divided into three levels: structural, expressive and behavioral.

3. CONSTRUCTION PROCESS OF GENERAL MOBILE WEB FRONT-END SYSTEM

The front-end design of the web front-end system first uses the sample renderings generated by design tools such as DreamWeaver and Photoshop, and then converts them into real web pages using HTML, CSS, and Java scripts.

The construction starts with user survey. In order to avoid thinking that as long as it is correct in the analysis, this model should be supplemented, and the construction concept of "user-centered and prototype based" should be put forward. The construction process of the Web front-end system is divided into the following steps:

Focusing on users, we should understand the users, the software or applications developed, and the user's behavior characteristics. So we should first analyze user groups and then classify them. There are many types of classification, simple ones are: age, sex, occupation; Different user groups have distinct characteristics, which is of great significance for future analysis and design.

The user group is a group of users with similar characteristics. However, in order to facilitate the design and analysis in the future, it is often necessary to make the characteristics obtained by users detailed and specific to shape a representative role. Then, the roles of the characters will be

documented and applied in the future settings to ensure that the product designers and developers have a unified understanding of the needs of users.

User survey is the starting point of the whole mobile design process. At this time, user participation is the largest. The results of this stage and subsequent requirements and prototype design have a great relationship with the degree of satisfaction of users. Common methods of user research include questionnaire survey and usability test. Data mining can obtain some hidden and interesting information from user data, which is very useful for designers. You can immediately collect and analyze the server. The terminal data makes a large amount of data intuitive and understandable.

The data collection is divided into two parts: client and server. The data on the data server usually includes Web server logs, data collected by network messages, and data submitted by users. Because these data are massive, special database systems are needed to store them. The client-side data collection is based on user behavior. Compared with the server-side data collection mentioned earlier, the data adopts common technologies such as cookies and sessions.

After completing the requirement survey, the developer can develop the corresponding prototype system. It can be divided into two stages: low fidelity prototype and high fidelity prototype. In the process of low fidelity prototype design, you can first develop a simpler "model" for users to test and discuss at a cost, and then continuously collect users' opinions during the use process. Later, a higher fidelity prototype is designed in the low fidelity prototype system. High-fidelity prototypes are often tested before the development team decides to market them.ad.

4. EXAMPLE DEMONSTRATION

4.1 Establishment of web page framework

Use HBuilder to create an index.html open page. The structure required for HTML5 has been generated by default in the project. The code is as follows

```
<! DOCTYPE html>
<html>
<head>
<meta charset="utf-8">
<title></title>
</head>
<body>
</body>
</html>
```

The first line of code is a declaration that tells the web browser which HTM version the current page should use for parsing.The<html>tag is the outermost wall of the entire page and is used to "wrap" all the contents of the page.The<head>tag is equivalent to my ID card, which includes all the important information of the page. This part of the content will not be displayed on the page, and the viewer cannot see it directly.The<body>part is the main part of the page, which contains all the content information to be presented on the browser, that is, the content that the browser can reach.Add the title and content in the label:The title uses<h1>tag,Use<p>tag for content,The button uses the<div>label.Here, because the elements in the<body>tag are scattered, the<div>tag needs to act as

a "transparent box" to store the elements inside the box. You can use the class attribute to add a class name to the<div>tag to distinguish it.body>

```
<div class="container">
<h1>Let's start our first page!</ h1>
<p>Welcome to my website,
Open a wonderful world together!
</p>
<div class="btn" id="start">start</div>
</div>
</body>
```

4.2 Interface design and beautification

You need to create a new<style>tag in the<head>tag. The tags in the page are placed inside the<style>tag. Page dynamic effect: When the mouse moves over the button, the shape of the button changes. And add "hover" after the button selector to indicate the state of the mouse moving to the button btn:hover{

```
background-color: royalblue;
width: 300px;
height: 100px;
line-height: 100px;
font-size: 36px;
margin: 100px auto;
}
```

4.3 js plug-in code

Add offcanvas plug-in and audio-video accordion plug-in on the website. The Off-canvas plug-in can display the canvas on the four sides of the browser. Accordion is implemented by cards and folding in bootstrap4, which is directly used as a plug-in here.

4.4 Commissioning and operation

View page style adjustment on mobile phone: set the mobile terminal's viewport display window in<meta>of HTML document.

5. CONCLUSION

This paper provides a general design method for the front-end design of the current non-network mobile terminal system, and demonstrates its process with a simple example. The technologies involved include HTML, CSS, JS script and other basic technologies; This paper analyzes some new technologies added in HTML5, including Canvas, Device API and form technology, providing a development idea for relevant developers.

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