Building an Intelligent Program Platform with Multiple Interconnections

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ABSTRACT

In recent years, WeChat small program has been rapidly developed, mobile applications, cloud computing, cloud storage technology, etc. also drive WeChat small program to expand in the depth and breadth of the application. First of all, WeChat has a large user group, according to Tencent's official 2022 financial report, WeChat and Wechat have 1.309 billion monthly active users, an increase of 30% year-on-year; the sustained state of growth is amazing! Relying on large-scale user groups, WeChat Small Programs have gradually expanded to more industries, with unique and innovative perspectives in retail, e-commerce, catering, finance, manufacturing and other fields. Our goal is to "build a diversified and interconnected intelligent program platform", "diversified" embodied in the multi-mode, multi-faceted; "interconnected" embodied in the demand for co-creation, customized development; "Wisdom" is reflected in the characteristics of the small program itself: simple, easy to use, convenient and quick, no need to download and install, save development costs, easy to publicize and promote.

KEYWORDS: microsoft applets; code-free development; cloud development; diversification

INTRODUCTION

Zion is one of the small program development software platforms, is a code-free development platform, through the visualization of the development method to improve the development efficiency. WeChat small program in the front-end build, back-end development, provides a nearly complete serverless development function platform, it effectively solves the traditional WeChat small program development need to build servers and buy domain names and other issues. Compared with traditional development methods, its development process is concise and the cycle of the project is short; Zion, as a code-free cloud development application platform, has the inherent advantage of relying on the development platform, inviting collaborators, and multi-functional collaboration.

1. The significance of the project research

The rapid development of the information industry has led to continuous socio-economic development as well as the expansion of cities. In 2017, WeChat's small program released by the founder of WeChat, Bruce Zhang, was officially launched. The application can be used without downloading and installation and is favored by WeChat users; users can open the application by scanning the QR code or searching for the application name. It is characterized by powerful features such as no installation, no uninstallation, lightweight and convenient, sharing and forwarding, etc. Most mainstream APPs have launched small program versions one after another; various government life service windows have also gone online with small programs. As of 2021, the number of WeChat applets has exceeded 7 million, and the number of WeChat applet developers has exceeded 3 million; this substantial growth has provided convenience for the people, and the concept of "use it or leave it" has been highly sought after by the people, which is in line with the era of intelligentization.

In the era of new media, WeChat has changed people's habits of using traditional communication tools in just a few years, which is enough to prove the power of information technology development. After the birth of the small program, the code has become a habit of people, the user does not need to download just by sweeping and searching to open the

application, this "use it and go" way of using is to improve the user experience, showing that people for the new technology, efficient and time-saving demand characteristics.

2. Introduction to the Development Environment
2.1. Introduction to Tools
Zion - a new generation of full-scenario no-code cloud IDE, helps users develop and operate highly customized cross-platform applications faster and at lower cost through automatic code generation technology. Zion is committed to helping more people develop, deploy, and iterate applications without writing code, and has a technical team, a no-code development model, technology patents, and a platform operations team.

2.2. Zion WeChat Small Program Framework
Zion is a cloud-native, low-code development platform that enables users to quickly complete the development of WeChat small programs, shopping malls, collaborative applications, and personal websites through the platform's cloud IDE, which is designed to significantly lower the threshold for building applications that meet the needs of business people faster and at lower cost, as shown in Figure 1.

The concept of low-code is very popular in the last two years, in fact, the concept of low-code is not just out of these two years, it also represents a genre of software development, developers can develop applications in a graphical interface, low-code developers do not need to write thousands of lines of complex code, but by dragging and dropping a visual model to create a complete application with a user interface, data integration, and interaction logic, so that the organization can get applications into production faster.
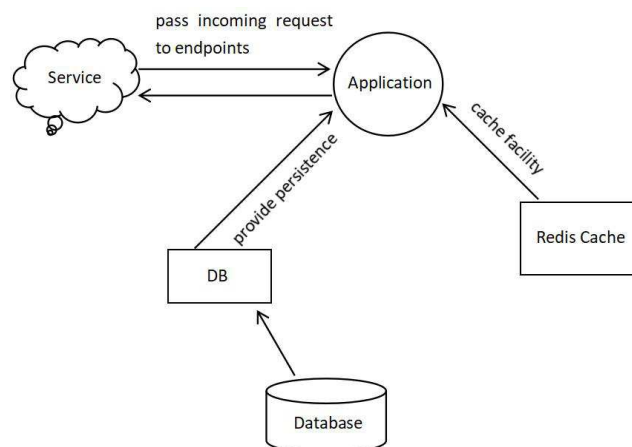

Figure 1: WeChat small program framework

2.3. Technology Introduction
The development of Zion applet is very convenient, based on H5 technology and front-end framework, developers can complete the code writing and real-time debugging in the browser, avoiding cumbersome environment configuration and device connection, reducing the development cost of the project.

2.3.1. Principle of Basic Architecture
The architecture of Zion applet is similar to the architecture of mobile native APP, which is divided into two parts: front-end base library and back-end business logic. The front-end base library provides basic functions such as routing, templates, components, APIs, etc., while the back-end business logic is responsible for handling tasks such as data request, storage, processing and return, etc. The two are linked and collaborated through a lightweight framework, which together constitute a complete applet system.

2.3.2. Front-end technology line
The front-end technology stack of Zion applet mainly includes HTML, CSS, JavaScript, Vue.js, Vant, etc. Among them, Vue.js is a lightweight MVVM framework, and Vant is a component library based on Vue.js, which provides a wealth of practical basic components, making it more convenient for developers to build pages and functions. In addition, zan-ui and weui are also commonly used UI libraries, in the realization of the page layout, style design and interactive effects also have a good performance.

2.3.3. Back-end technology line
The back-end technology stack of Zion applet mainly includes Node.js, Express, Mongodb, etc., where Node.js is a JavaScript runtime environment based on the V8 engine, and Express is a lightweight web framework based on Node.js, which is used to build the back-end business logic of the project. Mongodb is a NoSQL database that can be used to store and process a large amount of JSON format data to meet the application of a variety of business needs.

3. Detailed Design of System Functions
3.1. Design and realization of the home page module
The design of this WeChat small program development is divided into three major modules - home module, theme display module, video exhibition module. The system functional framework design is shown in Figure 2. The framework layer is written by WXML and WXSS, and the component module is used for display, reflecting the data details of the logic layer into the view, and at the same time sending the events of the view layer to the logic layer; through the combination of WXSS styles and WXML components, together to realize the arrangement and complex layout.

Figure 2: Design of the home page module

Figure 3: Design of the Theme Display Module

3.2. Design and realization of theme display module

In the theme display module, a customized design component is adopted, and there is a corresponding "theme word" at the bottom of the display picture. The design of the display image requires the user to first upload an image or take a photo to solve the problem of image uploading; when starting to send an API request, the image is used as the relevant parameter of the request. Before that, it is necessary to solve the problem of image transcoding, and then after the completion of the request to call the API, the recognized data will be output, which can basically realize the display function of the picture, as shown in Figure 3.

3.3. Design and realization of video broadcast module

Zion provides "select a picture from the local or use the camera to take a picture" interface function, use the control interface to upload picture data, run the following small program, click the upload picture button, the system resource manager will pop up, after selecting the picture click OK, you can successfully upload the picture file; as shown in Figure 4.

Figure 4: Design of the video exhibition module

4. Conclusion

Compared with the previous traditional applet development, Zion code-free development environment has one-click automatic deployment, no need to build back-end projects, automatic generation of the management background, multi-person collaboration; visualization of data management libraries, which can be directly operated on the data content.

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