Explore Java Language and Android Mobile Software Development

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Abstract: *As a very important network equipment in the information environment, smart phones provide many convenient conditions for people's work and study, which not only makes the Internet faster, but also meets the needs of daily life and work through mobile phone software. For the development of Android mobile software, Java language is generally used to enhance the security and reliability of Android system. In order to improve the efficiency of Android mobile software development, this paper discusses the practical use of Java language in the development work. Firstly, the characteristics of Android Software Application and Java language are discussed, and the important preconditions of software development are defined. Secondly, it summarizes the Android mobile software development architecture and the application of Java language, and understands the problems that need to be paid attention to in Java language application, so as to develop mobile software suitable for people's use needs and meet the operation security.*

Keywords: *Java Language; Android Mobile Phone; Software Development; Mobile Internet*

With the popularity of smart phones, mobile Internet and intelligent network have also achieved rapid development. More and more types of mobile device software not only develop fast, but also have rich types, meeting the needs of people's life and work. Compared with Android system and IOS system, Android system is more open, but at the same time, it needs to improve the security and stability of system operation, which is also the key point of Android system software development. Based on Android mobile software development experience, Java language is a very important tool, which is conducive to improving the quality of software development, and also reflects the important significance for Android system research. Usually Android mobile software development uses Java language, and from the user's point of view, there is a strong dependence on Java language software development. Developers use java language to write software programs, so that the final developed software can meet the needs of the majority of users, and fully combine it with professional software development technology and tools, which is conducive to optimizing the user experience on the Internet.

1. Android Mobile Software Development and Java Language Overview

(1) Android Software Applications

The basic function of Android mobile phone application is the effective operation of various functions of mobile phone system, which is an indispensable part of the smart phone system. Based on the actual use of Android mobile phone, in order to fully show all the performance and functions, we must adopt the corresponding development technology and methods to ensure that the software and hardware of mobile phone software are compatible with each other, so as to fully reflect the advantages of software and hardware. General Android mobile applications include activity, content, service, and intent. Compared with other applications, the most obvious advantage of activity lies in the large number of data storage areas and independence, which ensures the efficient operation of mobile background system [1]. Intent is a relatively important part of smart phones. Its function is to automatically store and scan system programs, so as to quickly realize mobile phone running activity jump.

From the micro point of view, Java language intuitively reflects the object behavior and attributes in the computer program, and presents the object data in the form of visualization, so as to understand the behavior of objects. At the same time, Java language has strong encapsulation characteristics. In Android mobile phone software development, the application does not need variables, nor does it involve the main function. It is mainly based on objects and simple number types. Interaction between

object types and other objects through Java language [2]. In addition, Java language has obvious application effect in exception handling. After centralized processing, error codes are all reflected in one area, which simplifies the error task processing process and improves the efficiency of software system recovery [3].

Based on the macro perspective, Android mobile software development is based on Google, the key project is the development of software components, through the third-party open source community application of Android applications, strengthen the standardization of software development platform. Therefore, applications are endowed with portability, which is one of the advantages of Android system. From this, we can also summarize the competitive advantages of Android mobile phone in software development, so as to summarize more effective mobile phone software that can ensure the safety and efficiency of the system in the future operation of Android system [4]. At this stage, Java language technology upgrade and popularization, make it more in-depth application in Android mobile phone software development, not only improve the software performance, but also help to drive the rapid development of Android mobile phone software development project.

(2) Characteristics of Java language

Summing up the experience of Android mobile phone software development, developers will more often use computer language for programming. Java language is widely used in the field of computer, and it has obvious value in the research. It not only has a wide range of applications, but also can ensure the security of software development. This paper summarizes the characteristics of Java language, including object-oriented features, security and reliability:

1.1. Characteristics of Facing Objects

Java language faces objects mainly including physical objects and virtual objects. Developers program through Java language. Objects are the center of development, and the programming is completed by information driven. When programming mobile phone software, Java language has integration function and encapsulation, which makes all software development methods and data integrated and unified. Java program classes are very important for encapsulation of Android systems. Nowadays, most developers prefer Java language because of the convenience of Java application. Moreover, Java language can define classes in advance, and there are a lot of Java class libraries. Based on the basic class library, the mobile phone software program can be written, which can be directly referenced and rewritten without redefining the classes, so that the working efficiency of developers is constantly improved. At the same time, classes can also be used as object templates, which can be embodied in Android system, and the effect of object instantiation can be directly implemented. Android mobile phone software development package object is the class in Java language. The process of programming is generally only to observe the common methods in the class, and then rewrite it. However, it can not directly understand the implementation process of the method and the operation of storing data in the class. This is directly related to the encapsulation of Java language. In order to implement encapsulation, all member access rights need to be set in advance during the definition of class.

For classes in the Java language, to express the connections between all classes. It can be achieved by inheritance. The inherited class is the parent class. If it is necessary to inherit the classes of other classes, it can be called a subclass. Generally, the subclass can inherit all variables in the parent class, and it supports rewriting inheritance methods. A parent class inherits a subclass that is not limited to a single number, and a subclass can inherit several parent classes [7]. Finally, Java language has polymorphism, and its research object is the method with the same name in the class, and the method overload and rewrite can directly realize polymorphism. When the function is overloaded, developers adjust the number and type of parameters passed, and use the number and type of functions to clear the function objects in the function stage. Function rewriting is applied in inheritance relation. Overriding object is the method of subclass to rename parent class, and it can be understood that it directly covers some variables contained in it.

1.2. Safety and Reliability

Java language is used in Android mobile software development, showing the advantages of security and reliability. Software design enters the final process. Different kinds of electronic consumer products can also use java language, and the application has been very mature, which also shows the reliability of Java language in Android mobile software development. At the same time, Java language

does not support pointers to avoid illegal access and illegal operations during the operation of Android system [8]. The function of automatic unit acquisition can also protect the data and memory inside the system, so as to avoid loss, thus improving the security of system operation and storage data. Through the Java language security mechanism, strengthen the external virus defense of the system, check the check of the control code regularly, classify the contents stored in the system, so that the self decoding of Java language can be written into the interpreter, so as to avoid the interference of different kinds of applications, and also ensure the security of programming operation of Java language mobile phone software.

2. The Development Architecture of Android Mobile Phone Software Based on Java Language

(1) Application

According to the analysis of Android mobile phone software, it is understood that software development and core applications must be released at the same time, so that the software functions can be fully reflected. There are a large number of applications in mobile software, such as client side of each software, system self-contained program, such as map, browser, SMS, etc., all of the above programs can be written directly in Java language, and the characteristics of Java language are used to strengthen the interaction between different programs. This is an important one for Android mobile software development in Java language Premise [9].

(2) Application framework

Mobile phone software developers directly access the core application and understand the main framework of the program. This framework is not the key point in the design of recombining components. At any time, the application can emphasize the importance of software framework function module by releasing the system function. However, the security of the framework must be taken into account, and the integrity of the main structure of the framework should be ensured. In addition, through the first mock exam system, software developers can help the main application to be replaced more efficiently.

(3) Library

Android mobile software development, it is recommended to combine Java language with C language program. The application advantages of C language program can be applied in the software components of Android mobile phone. The application framework of Android mobile phone can be used to ensure the quality of service enjoyed by developers. But it is important to note that the Java language is still the main tool for application library development.

(4) Runtime

The essence of Android mobile phone system is the core library, which is an important premise for the realization of Java language related functions. Android mobile software development of core service system, must use the Java language has the function, in the design process to ensure the software operation security, but also can strengthen the mobile phone system memory management and process management, through network protocol and drive two modules, so that the Java language function advantages are fully reflected [10]. In addition, Java language is a very important core part outside the software and hardware of Android mobile phone. The security mechanism in this language can avoid the influence of virus on download program and main program for the development of mobile phone software. When Java bytecode is written in the interpreter, it is necessary to strengthen the check of the byte code verifier to avoid mutual interference.

3. Application of Java Language in Android Mobile Software Development

According to the key points that Java language should pay attention to in software development, after starting software development, we should make a plan in advance, select the development method and determine the focus according to the requirements of Java language, especially to establish a software development environment, so that Android mobile software development can fully reflect the advantages of Java language and ensure the safe operation of mobile software.

(1) Java language requirements

Android mobile software development suggests following the basic principle of "what you see is

what you get". The software interface layout is implemented through XML language. Developers use XML to write code and display the interface in real time. They can use the simulated interface to display it intuitively. Moreover, XML language involves many kinds of layouts, such as linear layout and relative layout Layout), which are the two most common layout forms for Android mobile software development. In addition, the application of Java language also needs corresponding controls, such as button, text view, edit view, list view, radio button and check box [11]. The above basic controls and layout combined with Java language application can optimize the final rendering effect of Android mobile phone software development foreground interface. These components need to be applied to write background java code. Among them, activity is mainly used in mobile application interface and window design. Many activities are set to present all interface dialog boxes in an independent form, and then quickly jump to each application interface through intent. Bundle can realize real-time storage of massive data, or directly use intent to store data. To transfer data from one interface to other interfaces quickly, you can use bundle and intent [12].

(2) Application method of Java language

Android mobile software developers use java language to write software and applications, which are presented in the form of APK file after sorting. At this time, the application is directly set to any file by default. If the Android mobile application is directly set as the default program, then Linux will switch to the automatic running state [13]. Assuming that any application needs to execute code, the corresponding program will be started automatically. If the code does not meet the actual running requirements, the running of the application will be terminated immediately. Android mobile applications help to prevent the interference between programs, and ensure the security of the running process by running independently.

(3) Software development focus

For the development of Android mobile software, as developers, we must pay attention to the security settings of permissions. On the one hand, to improve the effect of software interface design, on the other hand, it is necessary to collect different types of data information. From the perspective of mobile applications, setting security permissions can play the role of core protection. When naming software, developers need to obtain operation permission in advance to ensure the effect of user experience [14]. At the same time, developers should add the corresponding tag, which is the premise of text description, to ensure that users can fully understand the importance of tag establishment. When designing user interface, developers can directly apply code to generate corresponding interface, or use XML configuration to generate corresponding interface. If developers choose the design method of XML configuration, they need to optimize the UI design to achieve the effect of linear and relative layout. When the program is written, Java language is applied, and the file format is supported. When the program starts to run, different types of resources can be parsed, so that the non code tracking can be completed more orderly.

(4) Establishing software development environment

Developers need to do the following three things to establish a software development environment: 1) select the methods and technologies to establish a software development environment according to the actual development needs; 2) implement eclipse and plug-in installation efficiently; 3) check whether the Android SDK installation is accurate [15]. When setting up Java language environment, developers must ensure accurate installation of JDK. In this way, Java environment variables can be improved. When installing plug-ins and eclipse, you need to download the corresponding software in advance to prepare for the final plug-in installation. In fact, the installation of Android SDK requires all resources to be packaged. After the packaged components are downloaded by developers, the design method is adjusted and optimized according to the installation requirements of Android SDK, and targeted links are selected to complete the construction of Android mobile software development environment.

4. Conclusion

To sum up, Java language is an object-oriented programming language, which has the advantages of C + + language in software development. It also solves the problems that C + + can't understand multiple inheritance and pointer, showing strong functional advantages and simple operation. Using java language in Android mobile phone software development is not only the most commonly used programming language in mobile phone software development, but also can strengthen the fit between

programming language and mobile phone system, so that mobile phone software can run more safely in the system. With the characteristics of distributed, security, platform independence, portability, dynamic and so on, Android mobile phone software can be developed in the future Accumulating experience is helpful to improve the level of mobile phone software development and strengthen the standardization of code and application programming.

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