Universe Scientific Publishing

DOI:10.18686/ahe.v7i34.12144

Research on the Development Process of Mobile Terminal Application

Xiaoxia Wan[Corresponding author][1], **Guomin Wu**[2]

1 .Yancheng Teachers University, Jiangsu.,Yancheng, 224002;

2 .Yancheng Institute of Technology, Jiangsu ,Yancheng, 224051

Abstract: Nowadays,APP shows to be necessary when mobile internet plays an important role in our daily life.Usually,this kind of software can be developed with the following procedure:system analysis,system design,and system implementation. Hereafter,some improvements are presented to optimize developing process for better system performance finally.

Keywords: App;System Analysis;System Design;System Implementation

Fund Project:

The science research project of Yancheng Teachers University(15YCKLY004).

Introduction

With the development of information technology,mobile internet has been drawn much attention from academia and industrial circle[1].The APP on the Android platform can provide different convenience for people in our daily life,such as online shopping,online dating,online ordering,and so on.As usual,these software can be developed,which include these following steps:the analysis of mobile terminal app,the design of mobile terminal app,and the implementation of mobile terminal app[2].

1. Analysis of Mobile Terminal Application

Usually,the analysis of mobile terminal application includes two following parts:reliability analysis and requirement analysis.As to the first part,reliability analysis consists of economic feasibility,technical feasibility,legal feasibility and social feasibility,which are different indexes respectively.For the second part,requirement analysis is comprised of functional analysis,corresponding analysis of user interface and system security.Among them,function analysis is the main part[4].For example,corresponding analysis of core part is presented for online dating APP,which shows its analysis of main function in the following.

Member registration:Users who apply for membership register their information on the website through registration,requiring that the information must be real-name system.The website keeps the privacy of personal information confidential,but users must provide true and reliable information.Only users who have been approved by the background administrator can log in to the website,otherwise,corresponding access rights are granted as tourists.

User login:visitor can change their identity,which is shown as registered user.Furthermore,these users can obtain higher priorities on the online dating App.

Search members:Network users can put forward their own specific needs for making friends according to their preferences.The system searches in the database according to the needs of users in the dating system,and returns the query result set to users.

Comments:Various users can share their thoughts in this section.Regular users can log in and comment on other messages.

Personal Information management:Login users can manage personal information,modify or delete certain specific information.

Inter-user chat:Certain users can chat with other users.These users can then form closer relationships through chat.

2. Design of Mobile Terminal App

Usually,the corresponding design process consists of two parts:overall design and detailed design.

The first part is based on the requirements analysis of the specific system,the whole app is divided into functional modules.

In addition,it is also necessary to clearly analyze some relationships between various functional modules.It is usually necessary to use some diagrams to represent these related functional parts of the whole system,and to express them with functional block diagrams.The second part is the related design of data structure and the corresponding algorithm,which is used to solve the specific problem.On the whole,detailed design plays an important role in different problems.Here,some diagrams are needed to show the solution process,in the form of pseudo-code descriptions,flowcharts,PAD diagrams,and so on.For example,the user login flowchart is presented below as a foreground data stream for an online dating application.

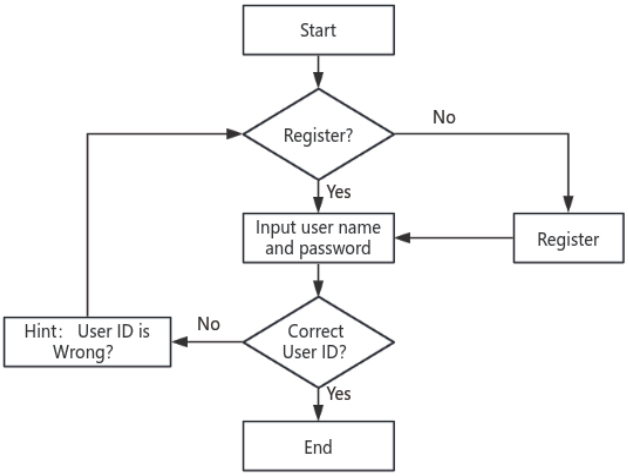

Fig 2-1 User login

In the above mentioned figure,user is required to register their personal information before they can log on the online dating app. If not,system will hint user to restart register their information.

In addition,some data sheet is required to present data relation,which is stored in the back ground library[4].

There are many tables in the background data,storing about the entity used in the system,taking the user information table as an example,the detailed field definition is shown in Table 1 below.

Table 1 user information sheet

Name	Type	Description
name	Varchar(255)	User name
password	int	User password
sex	bit	Male or Female
phone	int	Telephone
ID	Varchar(255)	User Identity

3. Implementation of mobile system app

As to implementation of app,corresponding technology consists of two kinds of parts:foreground technology and background technology.For the first part,some related computer languages act as vital role to implement these functions,such as Java,Python,and so on.As to the second part,some library technologies are utilized to store some related data,which are comprised of Mysql,SQL server,Oracle etc[3].For example,the main page of this online dating app looks like this.Four modules have been included.

The first part is system bulletin board.The second module presents some information about user online friends.The third part shows the function,which can search some required information from online dating app.Finally,the fourth module can recommend corresponding required data for particular user automatically.

In addition,some testing techniques are necessary to test its accuracy for some modules,The whole test includes the following parts:function test,user interface test,security test,database test,performance test,and so on.

In terms of functional testing,there are features that can work for our end users.For example,after the user makes a request to our mobile terminal system,whether they can get the web page they need with their mobile phone.In addition,after a user sends a request for some specific destination page,hype link is tested to ensure an appropriate jump from the source page to the destination page.

For user interface testing,the main purpose is to test the rationality of the system layout of a given app.In addition,the test work also requires that the page style of the entire system is consistent and beautiful..

As to database test,it usually includes the following part:table,view,trigger,procedure,rule,et.These aforementioned parts are important components in the app database.Therefore,all of them are in the range of testing for perfect background database.

In terms of security testing,users are required to log in to the app safely under the condition of providing the correct user name and password.In addition,user permissions are essential for the corresponding testing,which ensures that each user is assigned specific permissions to access the background database.

Finally,app performance testing includes pressure test,load test and strength test.Herein,the testing for the amount of the app loading shows its importance in the whole testing system.

This shows the importance of application load test in the whole test system.

Although a lot of testing ranges have been shown in the aforementioned part,the testing techniques is necessarily presented.In addition,these testing methods consist of two parts:white box testing and black box testing.The white box testing technique is required to test inner logic flow,which is renamed as transparent testing.In this testing method,all the logic flows are tested for its accuracy.The black box testing technique is adopted to test user interface and system function.And outer structure are drawn much attention in the black box testing,which is made up of the relation between module parameter input and output[4].Hereafter，a testing case is made up of the following parts:testing step,testing data,testing result and notes.For example,the above mentioned testing case is demonstrated as follows. For the first part,combination query is presented on the user interface step by step.As to the second part,the corresponding data is used to test aforementioned combination query,which acts as testing data.For the third part,some outputs are obtained on the user interface as testing results.As to final part,some notes are used to explain the whole use case for developer on the online dating app..

4. Corresponding improvement of mobile system application development

Some related improvements comprise the following parts.The clear user requirements ought to be attained in the early app development period.Besides,some testing methods are needful to improve software quality.

For the first part,it is reason that customer do not know their requirements for mobile system application initially.Furthermore,they often change their requirements from time to time.Therefore,it shows to be difficult to obtain the clear user requirements.Herein，more communications between customer and developer are necessary to solve the problem.

For the second part,some testing techniques are required to ensure perfect app quality.In detail,some plans are needful for some scheduled testing work in detail.Afterwards,testing work ought to be done for each step in the aforementioned software development. Finally,corresponding results in the testing work are checked for its accuracy.

Finally,some previous logic problems perhaps leads to serious mistakes.In most cases,it causes much effort to solve these difficulties in the later development period.Hence,some stricter evaluations are required in the different developing stage,which can ensure that less mistakes emerge in the previous development period.Accordingly,the corresponding developing cycle for mobile terminal application can be reduced finally.

5. Conclusion

In summary,this paper puts forward the above development work,including the corresponding mobile application analysis,mobile application design and mobile application implementation.Finally,the corresponding improvement measures are put forward in the development process to improve the application performance.

References:

[1]Han Shuliang.Research and Analysis for App Developing Technology Based on Android Platform[J].Business Report,2019,23(8):5-6.

[2]Zhang Tingjuan.Design,Development and Practice of Portable Library App Competition Project Based on Software Engineering Theory[J].Journal of Jincheng Institute of Technology,2022,15(01):51-54.

[3]Wang Kuiyi,Zhou Gaiyun.Research on Mobile App Development Strategy Based on Android Platform[J]. Software,2021,42(04):144-146.

[4]Mao Min.Research on Software Engineering Technology for the Development of System Software[J].Cybersecurity&Informati on,2021,6(12):100-102.

Acknowledge:

We specially thank Wenxuan Bao,Xinyan Zhang from Yancheng institute of technology,Zhirui Guan,and Rui Qian from Yancheng Teachers University for their work in system design and others.