

Research on the Construction of Service Platform of National Fitness

Information Resource under the Strategy of "Internet +"

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Abstract: With the development of society, people are more and more concerned about their own health problems, and the exercise is getting more and more popular. However, there is a wide range of knowledge about exercise, and blind exercise at home often fails to achieve the desired effect. There are some fitness sites, such as China Fitness Network, National Fitness Network, Tencent Sports Network. These sites mainly introduce scientific fitness methods, healthy eating habits and so on. There are many websites for fitness information consultation, fitness advisory services for people. However, the traditional PC Internet can hardly meet the demand of people seeking fitness information anytime, anywhere, unable to provide individual fitness prescriptions, personalize the guidance of fitness, and use different fitness methods for different people. For the above reasons, this paper presents a fitness service platform based on mobile Internet. The platform can let people get personalized fitness guidance, inspire people's enthusiasm for fitness, and better achieve their fitness effect; the other hand, give full play to the role of mobile Internet in fitness services, you can meet people's needs anytime, anywhere, Get fitness information anytime, anywhere, and ultimately achieve fitness goals. Through the analysis of the demand of the fitness service platform under the mobile Internet environment, this paper designs the fitness service platform based on the mobile internet and realizes the fitness service platform based on the mobile internet. Finally, the business model of the fitness service platform is analyzed.

Keywords: mobile Internet; fitness service platform; model design; business model.

1. INTRODUCTION

"Internet +" is a new development under Internet Innovation 2.0, which is driven by the evolution of the Internet and the birth of a new form of economic and social development. "Internet +" is "Internet + all traditional industries", but this is not simply a combination of the two. Instead, it uses information and communication technologies and the Internet platform to integrate the Internet and traditional industries to create new developments. It represents a new social form, namely, the deep integration of the Internet in the economic and social fields, the optimization and integration of the allocation of social resources, giving full play to the role of the Internet, enhancing the innovation capability and productivity of the whole society, making wider use of the Internet as an infrastructure and realizing new Form of economic development. Under the premise of the Internet trend, all industries have dreamed of being able to plug in the "Internet +" wings, of course, the fitness industry

is no exception. In May 2016, the State Sports General Administration promulgated the "Thirteenth Five-Year Plan for Sports Development" and proposed that "the number of regular sports activities will reach 435 million by 2020, the average per capita stadium will reach 1.8 square meters and the total size of the sports industry will exceed 3 trillion yuan". The industry generally believes that for the fitness industry, this is a good opportunity for development. The development of mobile Internet will provide the fitness service industry with more opportunities and broader space for development. The purpose of this study is to make use of mobile Internet as the basis of information service, to effectively integrate fitness services and users of smart mobile terminals, to provide users with a new service experience and to create service without time limit. At the same time, hope that by changing the service mode, you can affect the user's fitness habits, so that users can achieve better fitness results. In summary, we can see that China's existing network fitness platform can provide health counseling, fitness guidance, online information exchange and other functions, but the number is still relatively small. No pertinence, complex information, lack of practicality and other issues. Mobile Internet than the traditional pc Internet more convenient, you can provide more personalized service. For fitness can provide better service. However, the content of the existing mobile Internet fitness platform is relatively simple, and the user experience needs to be improved, and the interestingness of being suitable for the crowd and rich content is raised.

2. INTRODUCTION OF PLATFORM FRAMEWORK AND MAIN FUNCTION

2.1 Platform framework

Fitness service platform framework shown in Figure 1, the overall functional structure of the platform shown in Figure 2:

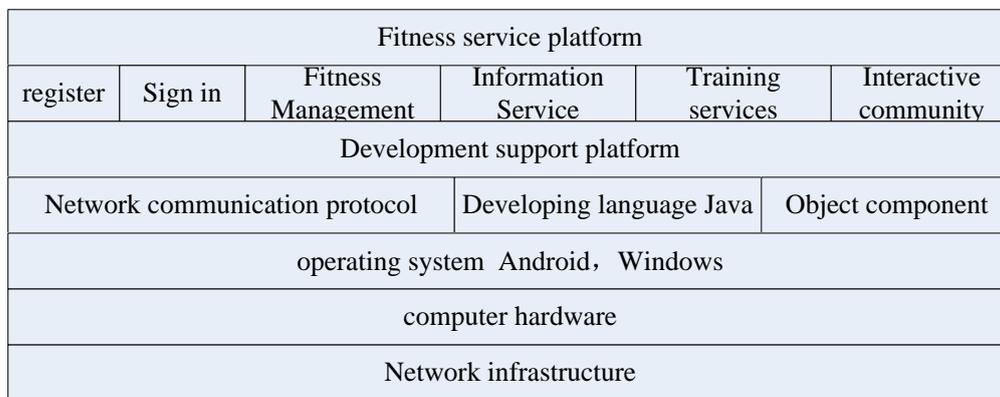


Figure 1. Platform frame diagram

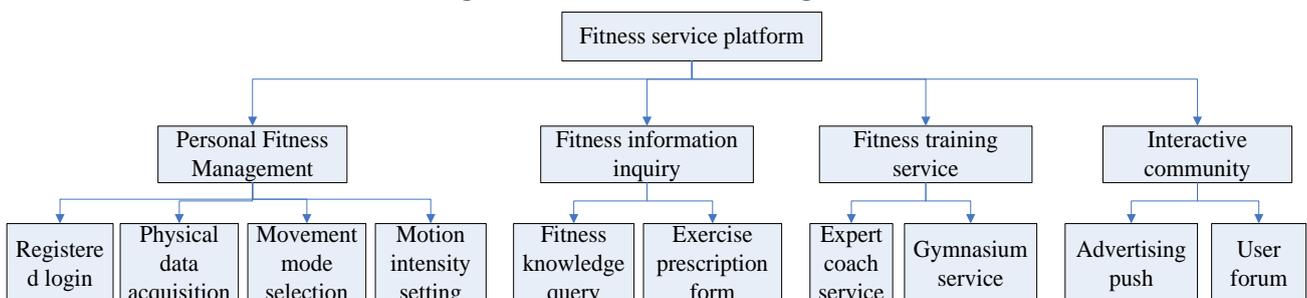


Figure 2. Platform functional structure diagram

2.2 Introduction of the main function

Fitness services platform designed to allow users to experience more convenient, targeted fitness methods, and make better use of fitness services around the resources. The platform consists of personal fitness management, fitness information, fitness training services, interactive community section. Among them, personal fitness management is the core content of the fitness service platform. How to model it not only needs to consider the user's own situation, but also provides a reasonable fitness method, which is the key to the success or failure of the whole fitness service platform. Specific modules are as follows:

2.2.1. Personal fitness management

Personal fitness management is the core of the platform design. The module consists of five parts: user registration, physical data acquisition, exercise mode selection, exercise intensity setting and precautions.

(A). User Registration Login: Including user registration, the purpose is to enable users to register to log in to this platform. Only after logging in legally can the platform be operated and used. Including user name, password, nickname and other information after login successfully, the choice of exercise mode, exercise schedule, exercises frequency to determine the operation.

(B). Physical data acquisition: Including the body shape, physical function, and physical fitness of these three aspects of data collection. The user inputs the basic data of the body, and the system concludes the analysis based on the input data. The results of the diagnosis of the user input, that is, the level of exercise; the diagnosis of the proposed adjustment methods, that is, exercise patterns and exercise intensity.

(C). Exercise options include: upper limbs, chest, lower extremity training methods, including straight arm lift, supine after the stay, the barbell flat, supine and squatting and a series of actions.

(D). Exercise intensity settings: Select the daily exercise time for the user, a regular guide to remind users to exercise, and timing for the user movement.

(E). Matters needing attention: pay attention to some dangerous movements in exercise to prevent the user from injury, provide exercise knowledge, diet advice.

2.2.2. Fitness information query

The module consists of fitness knowledge queries, exercise prescriptions.

(A). Fitness knowledge query: to provide users with the terms of fitness mentioned in terms of action query technology, the results of the diagnosis and exercise options, exercise intensity settings will often be involved, and users do not understand in the database in advance of these information stored , So that users can quickly and easily find in the database.

(B). Exercise prescription generation: The system automatically design a complete set of exercise prescription according to body shape, physiological indicators and physical fitness test results.

2.2.3. Fitness training services

This module is composed of expert coach online service and gym service.

(A). Expert Coaching Services: A service team of fitness coaches and nutrition specialists interacts with users to understand user profiles. According to the body shape, physiological indicators and physical fitness, for the members to develop sports and fitness as the center, combined with nutrition, psychology and other aspects of health promotion programs, annual health improvement analysis report; with private health consultant, health message tips, dynamic health indicators feedback analysis , Health warning, nutrition plan, online interactive counseling, health liaison service and other means of communication with members to maintain interaction.

(B). Gym Services: Gym upload information. Users can get information about the gym around, to see other users for the evaluation of the surrounding gym, choose the most suitable fitness gym for exercise.

2.2.4. Interactive Community

The module consists of fitness user forum, fitness ads push composition.

(A). Fitness User Forum: fitness users can exchange fitness experience among them, mutual understanding. Mutual PK fitness results, release photos, fitness status.

(B). Fitness ad push

The gym posts ads to attract sports and fitness groups in the surrounding area. Consumers can choose their favorite exercise program for exercise, if there is no equipment can be leased in the museum, but also for physical testing or other services,

Driving sports consumption. Fitness equipment business release fitness product ads for users to choose to buy.

3. DESIGN AND IMPLEMENTATION OF FITNESS SERVICE PLATFORM BASED ON MOBILE INTERNET

3.1 Platform-related technologies

The platform uses the java development environment, the back end using Java Web Servlet, personal server using Tomcat, the database using MySQL. Okhttp is the network request library for the project, fastjson is the json parsing library for the project, eventbus is the publish/subscribe event bus for the project, and loads the framework for the image in the project.

3.2 Java Web backend registration interface design

Client incomes user name, password, nickname, and then the server to verify, depending on the circumstances return different results.

3.2.1. Logical design

First design registration interface, the client registration, you need to get the user name and password and nickname to the server by mail, the latter request all the content encryption processing, cannot make the middleman get the plaintext password server directly To obtain the user name and password and nickname, you need to do the following Judgment, first determine whether the database user name and nickname repeat, if not repeated, the write operation. If there is duplication, the corresponding error code is returned.

3.2.2. Database Design

Design user table `tal_user`, through the above requirements, set five fields: user id, user's `userName`, user's `passWord`, user's `nickName`, and user's token. User token to complete a lot of password cannot be completed task. Token can be regarded as server generated a temporary id of the user, this temporary id in the user table must be unique, it can uniquely identify a user. In this way, the user logs in, the server generates a token, and then returned to the client, the client can use this token each time to obtain data, so that each time you get the data do not have to carry the password to verify, to ensure that the user's Safety. The second reason is that every time a user logs in, a new token is generated to replace the old token. In this way, the user originally logged in to the other device goes offline, so as to limit the user to logging in only one device (Some APP is designed like this). Therefore, the user table also needs to have a token field.

3.2.3. Interface specification

After designing the database, the server side needs to design the standard of client access:

(A). Request standard: All the data is written to the key corresponding to the value of `c`, so that we facilitate all of the data encryption, encryption, `c` corresponds to the encrypted data, this time the server can be decrypted.

(B). Return to the standard: 2.1, the registration is successful {result: 0} 2.2, repeated user name: {result: 1} 2.3, repeated nickname: {result: 2} 2.4, other errors: {result: 100}

Java Web backend registration interface implementation:

Sample request interface request, we need to read from the server side of the request to the results of the request, for example `{s: {"uname" = xxx, "upwd" = xxx, "nkname" = xxx}}`, but if Each time we receive the request, we need to get the `JsonObject` `s` first and then go one by one, which is inefficient and does so much to duplicate the code. So, we can put json parsing into the parent class. Each request in the Java web will be mapped to the `service ()` method in the corresponding `HttpServlet` class object. In the `HttpServlet`'s `service ()` method source code, different methods are called according to the type of the request. For example, if the request is received `Type` gets, then calls its own `doGet ()` method, and calls its own `doPost ()` method if the request type is post. So, you can override the `service ()` method of `HttpServlet` and make json parsing inside it. Json parsing here is the use of Alibaba open source `fastjson`.

Get the request parameters, you should do the appropriate logic, such as to determine whether there are duplicate user names, duplicate nicknames, when no judgment, write, this time if the write fails, you also need to return to the failure `Flag`. We collectively refer to this logical processing class for the `Service` class.

Just a `Service` class is not enough, we also need `DAO` classes for database access, and `DAO` mode is one of the standard J2EE design patterns that developers use to separate the underlying data access operations from the upper business logic, that is, we `DAO` class to use the code to access the database package, you can call the `DAO` class to get the object we need, regardless of the implementation of the database.

Write a BaseServlet subclass, and then overwrite its onPost () method, get the requested parameters, and then call the LoginService class to get the returned parameters, packaged fastjson parsed into json return.

3.3 Client architecture

System API functions are as follows:

- (A). Module used to package login, upload, download request content;
- (B). Encryption module is used to encrypt and decrypt sensitive contents such as user account password, address book data and so on;
- (C). Multi-threaded calls are mainly to speed up the interface response speed, and the background request, resolution, encryption and other time-consuming operation gives progress tips;

The user interface layer mainly provides the following functions:

- ①. Log in to register: to provide registration, it means that each user provides a separate account, and to ensure that account information security.
- ②. Exercise options.
- ③. Time choice.
- ④. Precautions

4. ANALYSIS OF PLATFORM BUSINESS MODEL

4.1 Fitness service platform mode of operation

Fitness service platform mode of operation is divided into two cycles, user cycles and fitness business cycle. The user uploads the physique data, can carry on the information inquiry, and the system produces the exercise prescription, this part is free service, the user according to the exercise prescription, may participate in the corresponding fitness training service, again verifies own exercise result through the physique data. Users can also provide fitness counseling services, through the exchange with the expert coach, experience professional fitness services consulting, this part of the fee. User cycle shown in Figure 3:

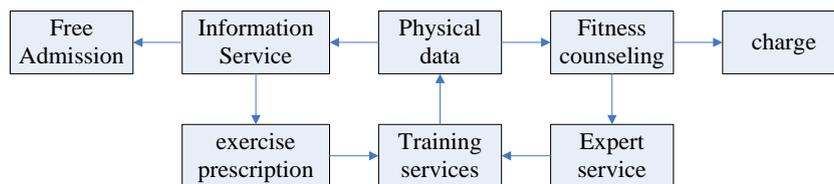


Figure 3. User cycle

The gym can advertise on the fitness service platform, adopt the charging mode, put ads to absorb the surrounding fitness enthusiasts to join the gym, and the fitness users can perform fitness training or exercise body building monitoring services in the gym by members using the fitness equipment. Equipment businesses can also be advertising on the platform to attract gym and fitness users to buy fitness equipment, fitness exercises. As shown in Figure 4:

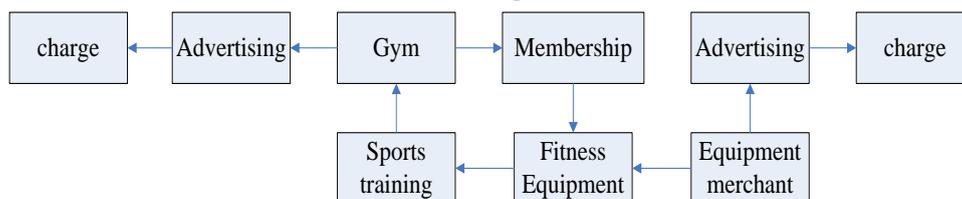


Figure 4. Fitness business cycle

User cycles and fitness business cycle is not independent, the two only cooperate with each other, fitness services platform to better run.

4.2 Fitness Services Platform Business Architecture

The service structure of the fitness service platform mainly consists of the integrated service middle tier, the business process service layer, the aggregation service layer, the service component layer and the information resource layer, as shown in FIG. 5.

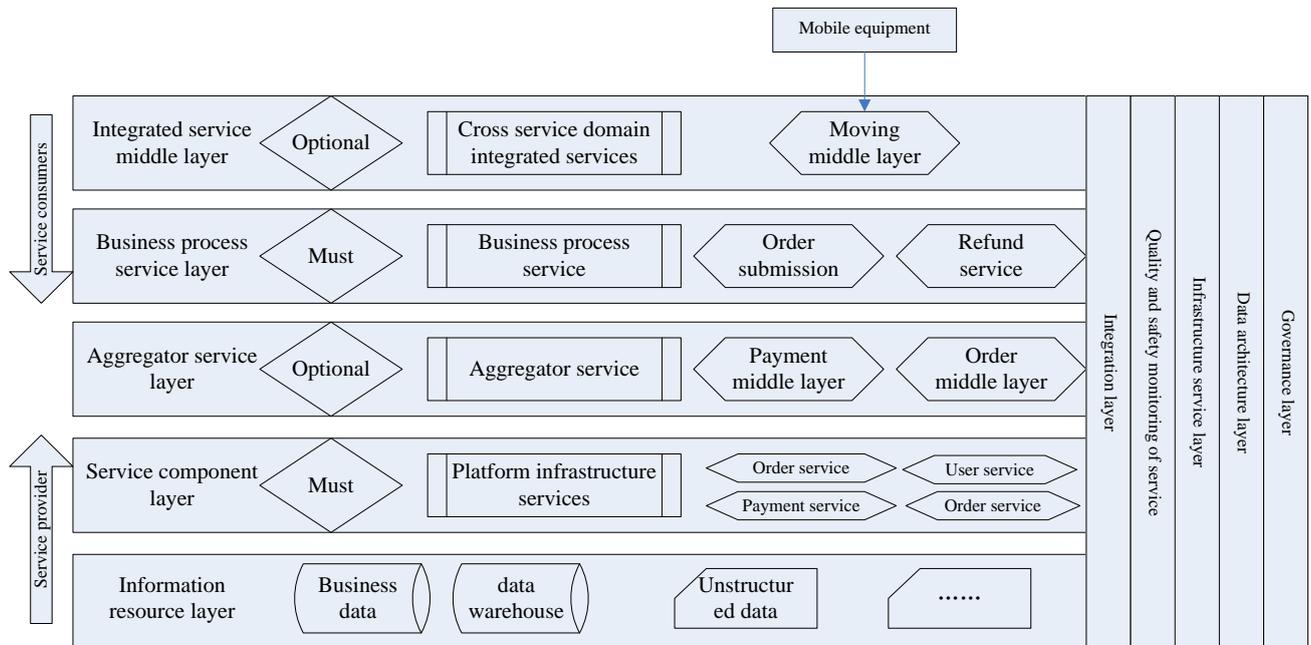


Figure 5. Fitness Services Platform Business Architecture

4.3 Fitness service platform practice needs

4.3.1. Information transmission and interaction

Need to fully take into account the fitness users, fitness experts, trainers, gym managers, equipment manufacturers information exchange, the need for timely and accurate. Users upload forum information needs to be updated quickly, fitness coaches give advice needs timely feedback, fitness hall managers and equipment manufacturers need to update the advertising, the interaction between the various roles need to rely on the platform to complete.

4.3.2. Fitness service platform update

User knowledge of fitness queries need to be constantly updated, the user needs to read some of the updates to meet the needs of users, in order to attract users. Exercise prescription as technology improvements also continue to change in order to achieve better results. Service platform built-in function modules also need to be constantly updated according to user needs changes, fitness exercise is a long-term project, so the platform features updates also need to continue. According to the aesthetic changes of the times, the client interface can be adjusted accordingly. In addition, the APP needs to be continuously optimized to adapt to more devices and run more smoothly.

5. CONCLUSION

This paper presents a fitness service platform based on mobile Internet. The platform can let people get personalized fitness guidance, inspire people's enthusiasm for fitness, and better achieve their fitness effect; the other hand, give full play to the role of mobile Internet in fitness services, you can meet people's needs anytime, anywhere, Get fitness information anytime, anywhere, and ultimately achieve fitness goals.

The main contents and conclusions of this paper are summarized as follows:

(A). Conducted a platform needs analysis, with the collection of fitness user information for users to make scientific planning fitness, fitness knowledge query, record user sports, fitness forum for users to communicate functions. Fitness trainer can get the user's fitness advice, and give advice. Gym and fitness equipment businesses can publish ads and other functions.

(B). The platform was coded to achieve the use of java development environment, Java Web Servlet backend implementation, personal server using Tomcat, MySQL database. Okhttp is the network request library for the project, fastjson is the json parsing library for the project, eventbus is the publish/subscribe event bus for the project, and loads the framework for the image in the project.

(C). Analyzed the business model of the platform: The platform freely provided fitness users with the functions of fitness management and information inquiry, paid training for the service, consulted with the experts and trainers, paid the fees and paid the fitness experts. For the gym and fitness equipment businesses to advertise, are using charges. Or join the gym advertising App ads.

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