

Design of Mobile Identity Authentication and Database

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Abstract. Mobile identity management system using static and dynamic authentication, the main use of static authentication is to use user name and password to authenticate users, at the same time, dynamic authentication use verification code to improve security authentication, in order to ensure that the load information will not be disclosed. The system uses the SSH framework technology, and using JSP technology and Oracle database to develop the system.

1. Introduction

With the development of science and technology, the Internet is also developing rapidly, the rise of information security technology is very important. Authentication technology plays a very important role in information security; it is the network security line of defense. It is due to the importance of identification, the development of technology has more and more attention, and it has also been rapidly developing in recent years.

2. Mobile identity authentication system

2.1. System design purpose

a). It can be more profoundly aware that the research on mobile identity authentication plays an important role in the information security of today's society. Mobile identity authentication plays an extremely important role in system security and is the first line of defense for information systems. Its purpose is to identify the legitimacy of users and prevent unauthorized users from entering the system.

b). The static password authentication method and dynamic password method were converted from theory into practical application, and the security problems based on Internet application were actually solved.

c). JAVA and other high-level programming languages are used to realize the rational use of mobile authentication methods in specific system projects, and to improve their own analytical and practical capabilities through system structure analysis and database design.

2.2. Module division

In the system design process, in order to ensure the stability of the system and the maintainability of the later stage, the system development process can be managed, and the software is divided into modules according to functions. System development based on modules can clarify the requirements of the system, improve the development of the system, and at the same time ensure the stability of the system. Since the implementation of each module is not the same, the design requirements of each module will also be different, which will lead to different system design. In the development process of the system, some requirements will have a certain link in function, and some requirements have little connection. When designing, not categorizing and dividing according to the demand, in the



subsequent design and development process will often cause many unnecessary problems. In the system design process, functional modules are divided into the system, which can achieve certain benefits.

a). Menu interface display module: The menu contains a variety of links, which are loaded as an independent module at the top of each page, allowing users to enter each page at any time.

b). User module: The user module is the interface that is seen by a user. The user module serves as an interface that directly interacts with the user. While considering the function, the user module also considers the simplicity and convenience of the operation. Mainly include: user login, user registration, and personal information management.

c). Administrator module: Perfect rights allocation mode, this system provides a powerful management mode while considering management operation is simple. Mainly include: administrator login, system management, user management, service management and background service management.

2.3. Process Design

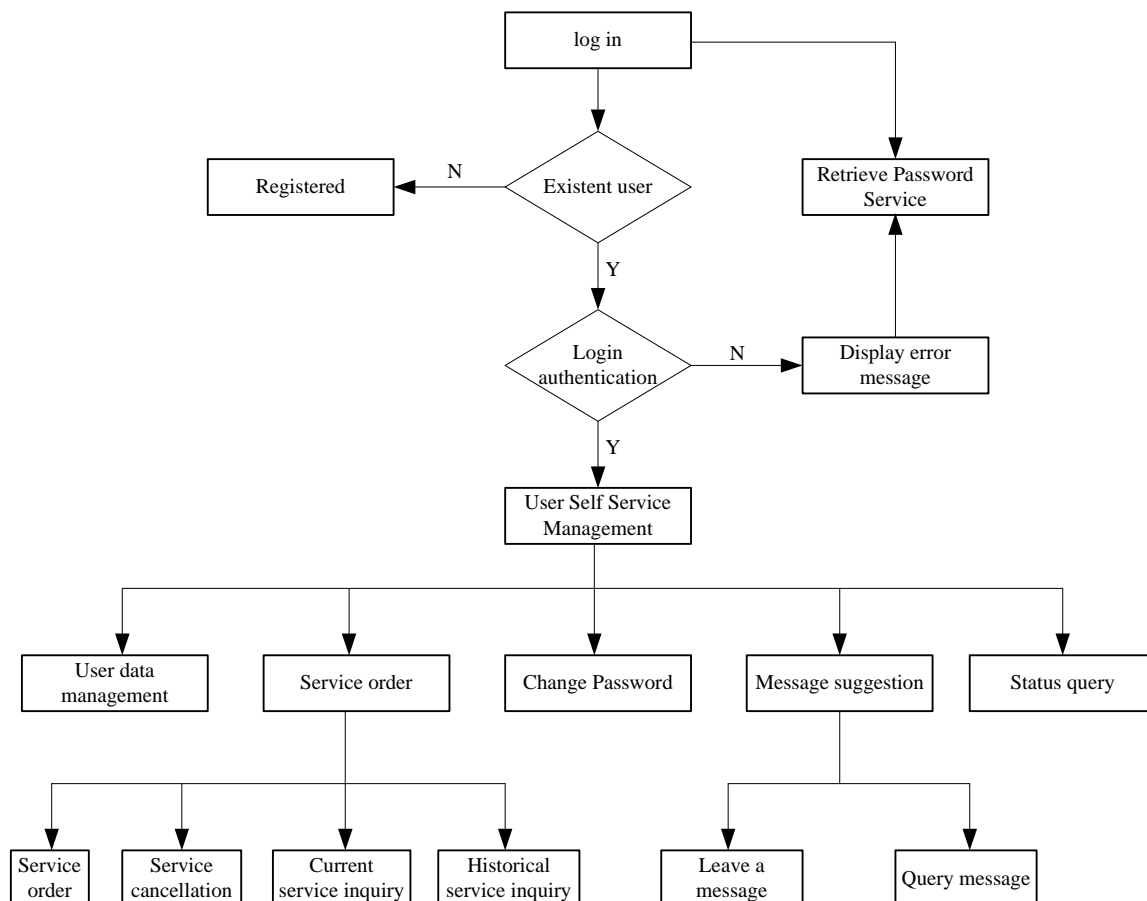


Figure 1. User system flow chart

3. Database Design

3.1. Summary Structure Design

The so-called outline structure design is based on the requirements specification generated during the requirements analysis stage, and they are abstracted into a data model according to a specific method, namely a conceptual model, which does not depend on any specific machine. The conceptual data

model is to model the data and information according to the user's point of view. It is mainly used in the database design stage of system development and is implemented using the entity relationship diagram. It is a system feature and a static description that describes the relationships between entities and related entities in the system.

The user portal page is used to display value-added content, and the logged-in user can perform related operations. The management portal can be divided into different roles to manage the system, user information management, and service management. The interface subsystem is responsible for connecting the subsystems so that they can be connected.

Table 1. System module table

System module	Features
User portal	Content display
	Forgotten password service
	User self service
	registered
Management Portal	System Management
	User Management
	Service management
Background Services	Unified login
	Interface subsystem

3.2. Logical structure design

In the concept structure design stage, the E-R model obtained from the design is different from any specific data model. It is an abstract expression form of user requirements, so it cannot be supported by any specific DBMS. In order to establish the final physical system, it is necessary to further transform the conceptual structure into a data model so that it can be supported by a certain DBMS, and then the data model can be appropriately adjusted and optimized. These are all based on the logic design criteria and data. The semantic constraints, normalization theory, etc., designed the user sub-mode, and formed a reasonable overall logical structure. This is what the database logic design accomplishes.

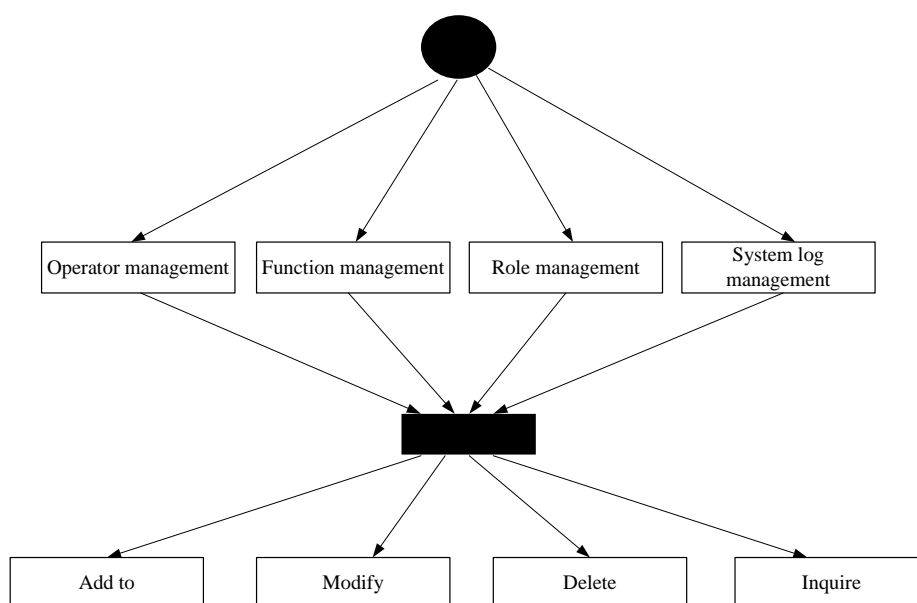
The relational model is a combination of a set of relationships, while the E-R model is composed of three elements: the entity, the attributes of the entities, and the relationships between the entities. Therefore, to convert an E-R model into a relational model, it is necessary to convert entities, attributes, and relationships into corresponding relation models.

Table 2. System classification table

System module	Involved table
User Portal Subsystem	Regional information table TD_AREA_INFO User information table TD_USER_INFO Service Information Table TD_SERVICE_INFO Service Provider Information Table TD_SP_INFO User Subscription Service Form TD_SERVICE_USER_INFO User history status table TD_USER_HISTORY_INFO User complaint information form TD_ADVICE_INFO User login log information table TD_LOGIN_LOG_INFO
Management Portal subsystem	Administrator information table TD_ADMIN_INFO Role information table TD_ROLE_INFO Role correspondence function information table TD_ROLE_FUN_INFO Function information table TD_FUN_INFO Administrator role information table TD_ADMIN_ROLE_INFO Key information table TD_KEY_INFO
	User information table TD_USER_INFO User history status table TD_USER_HISTORY_INFO User complaint information form TD_ADVICE_INFO User Subscription Service Form TD_SERVICE_USER_INFO
Background service subsystem	Service Provider Information Table TD_SP_INFO Service Information Table TD_SERVICE_INFO
	Key information table TD_KEY_INFO

3.3. Data visualization operations

The operation of data is an important function of each module of the system. Management activities need to involve the addition, deletion, and modification of data. The data in the data table can be manipulated by the DAO layer and reflected on the page at the same time, so that the data can be intuitively displayed. Figure 2 shows the system management module activity.

**Figure 2.** System Management Module Activity

4. Summary

The system mainly implements the management of user mobile authentication methods, including the development of personnel management system and background service system. The function is mainly to operate the database through front-end addition, deletion, modification, and query. During the development of this group project, we not only learned about the theory of authentication methods, but also used various development tools and programming languages.

References

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