Research and Design of Password Security Service Platform Based on Knowledge Discovery

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Abstract: For the password security service platform, whether the password security service platform service based on knowledge discovery is a very important research in the knowledge age. When people are looking for the complex logical relationship implied in the text, they propose a framework of knowledge discovery system, which can discover and display the complex logical relationship between concepts in text. This paper expounds the current main methods of knowledge discovery, the password security services based on knowledge discovery and the model based on knowledge discovery, and finally discusses the password security service platform based on knowledge discovery.

1. Introduction

Today's information age is an era of knowledge explosion, and the amount of information is growing rapidly. Password security service is based on the knowledge and ability of searching, organizing, analyzing and reorganizing information knowledge. Carrying out password problem solving process according to the difference of users, environment and users' classification can provide password security service that is able to effectively support knowledge application and innovation [1]. Innovation and promotion of password security service platform is of great significance to promote the sustainable development of the platform. However, with the rapid development of digitalization and network information technology, great changes have taken place in the information environment and needs of users, which puts forward higher requirements for the password security service platform. On the one hand, with the fast increase of various kinds of information and data, it is much harder for people to obtain more useful deep "knowledge" in the face of massive information. On the other hand, the uncertainty and security problems of socialized open access information service make it more dependent and demanding on password security service. The traditional password service platform has brought great impact and challenge.

2. Overview of Knowledge Discovery

2.1 Knowledge Discovery

Knowledge discovery is a process of knowledge symbolization. There are many kinds of knowledge discovery methods. At present, the commonly used typical knowledge discovery methods include predicate logic representation, production representation, framework representation, semantic network representation, object-oriented representation, ontology-based knowledge discovery, knowledge template and so on [2]. For well-structured domain knowledge, such as mathematics, physics and other natural sciences, the internal logical structure is usually clear. For some non-well-structured domain knowledge, the internal logical structure is usually not so clear. Knowledge discovery is an interdisciplinary subject rising in the 1980s. It is widely used in database technology, machine learning technology, statistical technology and artificial intelligence technology. Fayyad and other scholars gave a widely used definition in 1996 that it refers to the advanced process of obtaining effective, novel, potentially valuable and ultimately understandable

patterns from a large number of data. Knowledge discovery is a systematic process. The realization of this process is to analyze and process massive databases, data warehouses or knowledge bases, excavate useful information and knowledge, discover potential associations, patterns, rules and trends between data, transform data and facts into knowledge, make use of them, so as to improve people's knowledge innovation and decision-making level.

2.2 General Process of Knowledge Discovery

Database-based knowledge discovery (KDD) process can be roughly divided into three steps: data preparation, data mining and result interpretation and evaluation process [3]. The specific steps are as follows: ① Knowledge discovery personnel cooperate with domain experts to deeply analyze the problems to be solved, so as to determine the operation objects, objectives and tasks of knowledge discovery. ② Extract relevant data. Based on users' needs, personnel extract a group of data from the original database, analyze selected data set, and establish the corresponding database or data warehouse. ③ Data preprocessing. The data set generated in the data selection stage is reprocessed, and the integrity and consistency of the data set are analyzed and checked, generally including the elimination of noise, the filtering of duplicate records, the appropriate conversion of data types and so on. ④ Data conversion. Personnel find out the real useful features from the original features, reduce the number of features or variables to be considered, and improve the processing efficiency. ⑤ Data mining. Personnel use appropriate tools or methods to mine the processed data, and determine the knowledge based on the mining results. ⑥ Result expression or evaluation. According to the end-users' decision-making purpose, the information object set generated in the data mining stage is visualized and analyzed to form understandable knowledge, which is submitted to the decision-maker by the decision support tool.

3. Password Security Service Based on Knowledge Discovery

Taking knowledge discovery as the basic unit, this paper introduces connotation and denotation knowledge in formal knowledge analysis of cryptographic security services [3], and gives the relevant definitions of concept, connotation, denotation, background knowledge, explanation knowledge and guidance knowledge.

Definition 1: Text knowledge is the existing form of human language system in computer, and its minimum transfer unit is concept, which is recorded as C.

Definition 2: The connotation of a concept is the definition of the concept itself, recorded as C1.

Definition 3: The extension of a concept is a collection of all objects belonging to the concept, represented as C2.

Definition 4: The spatiotemporal environment of concept formation is called concept background knowledge, which is the supporting knowledge of concept, and is recorded as C3.

Definition 5: The related expansion and interpretation of concepts belong to explanatory knowledge, which is a further elaboration of the connotation of knowledge, and is recorded as C4.

Definition 6: If some concepts appear in a specific target text, but their connotation is not given in the text, and users need to understand and master these concepts before learning the knowledge of the target domain, it is called guiding knowledge, which is recorded as C5.

Definition 7: One or more other concepts will appear in the connotation, background knowledge and explanatory knowledge of the concept. They are the premise of learning CX and the supporting concept of CX.

The concept CX can be expressed as follows:

(F,c)x={C1,C2,C3}

In other words, the concept CX is composed of connotation C1, background knowledge BK and explanatory knowledge C2. The network has become the lifeblood of the information society and the important basic knowledge economy of the development of the information society, which has an inestimable impact on many aspects of social life and the development of social economy. Computer network enables users to quickly transfer data files, and find and obtain all kinds of

useful information from the network, including images and video files. The computer network is growing at the fastest speed and playing a core role.

3.1 Build a Knowledge Discovery System Based on Knowledge Discovery

Knowledge service platform can fully tap explicit knowledge and tacit knowledge in digital security platform resources, tap the potential useful new knowledge and regular knowledge of users, provide overall, professional and personalized knowledge services for users, optimize the resource allocation of security platform, realize the integration, sharing and personalization of digital resources, and improve the knowledge service ability and level of data security platform positively.

3.2 Construct Security Platform and Knowledge Service Platform Based on Knowledge Discovery

The password security service platform is a password system that integrates all kinds of digital information resources supported by advanced technologies. It connects the digital information resources scattered in different carriers and regions in the form of network to realize the password security service platform. According to the needs of users, the password security service platform intelligently clusters a large number of information resources. Through knowledge discovery technology, it collects, selects and reorganizes existing knowledge from various explicit knowledge resources and tacit knowledge resources to promote knowledge ordering. Through knowledge reorganization and knowledge reengineering, it forms knowledge products with unique value to help users solve problems. These knowledge products with cutting-edge, timeliness, accuracy, diversity and the whole process can greatly stimulate the innovative inspiration and thinking of scientific researchers, accelerate and promote scientific and technological innovation.

Password security service platform is a significant way to realize knowledge service. It has the characteristics of information resource integration, knowledge integration, technology integration and service integration. It can maximize the resource sharing of password security service platform system, and provide users with one-step topic-oriented knowledge services.

4. Overall Design of Password Security Service Platform Based on Knowledge Discovery

4.1 User Layer

The user layer is the entry of the platform. Password security service users can obtain relevant information resources, expertise and problem-solving methods through browser and other tools. At the same time, it is also an exchange interface and knowledge service platform among users, mining analysts and subject experts. Users are allowed to interact with the system. It provides information, optimizes the process of knowledge discovery, and intuitively expresses the users' problem definition and knowledge discovery results.

4.2 Service Layer

The service layer is a chief part of password security service platform, which provides services for users. In addition to data redundancy and data inconsistency, it ensures the integrity of data, and finally forms a database or data warehouse conducive to data mining, which is the most key part of data processing in password security service platform. Users can integrate the information technology means of each knowledge base level through the understanding window, provide integrated retrieval, digital reference, personalized service, knowledge exchange and other service functions, effectively realize the integration of knowledge resources, and realize the exchange and sharing of knowledge. Knowledge service platform based on knowledge discovery can embody the characteristics of user-centered and interactive. With the changing needs of users, the functions of these service modules will be more and more abundant, and new knowledge service modules will be built to better serve users.

4.3 Knowledge Discovery Layer

Knowledge discovery layer mainly includes two aspects: data preprocessing, knowledge base

and other technologies. Data preprocessing contains data cleaning, integration, conversion, reduction and so on. Its main function is to select, purify and analyze the data of the password security service platform database, and present it to users in a visual way. To obtain more effective knowledge, we can go back to the previous steps to extract repeatedly.

4.4 Resource Layer

Resource layer is the infrastructure of knowledge service platform, located at the bottom. It is formed by various digital resources, basic knowledge base and undeveloped knowledge of password security service platform. It contains various unstructured and structured data, explicit and tacit knowledge of different media types. They are the foundation of knowledge discovery and user service.

5. Conclusion

Building knowledge service platform based on knowledge discovery provides useful ideas for the development and design of password security service platform. Knowledge service is the development direction of password security service platform. Building a knowledge service platform to provide users with comprehensive, professional and personalized knowledge services is the inevitable choice of modern password security service platform.

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