Frontiers in Economics and Management Volume 2 Issue 2, 2021
ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

Analysis and Design of Community Management System based on Web

Meng Hou

School of Economics and Management, Xidian University, Xi'an 710026, China.

Abstract

This study combines the actual situation and management needs, draws the business flow chart and data flow chart of the community management system, and carries on the feasibility analysis, demand analysis and structural analysis, and divides the functional modules of the system. This paper designs a community management system, which includes the basic information of residents, low rent housing information, volunteer information, family planning information, and announcement information management function.

Keywords

Community Management; System Analysis; System Design; B/S.

1. Introduction

With the widespread application of the Internet and the continuous development of information globalization, information technology plays an increasingly important role in China's market economy and people's daily life. Nowadays, the street community needs effective management, but due to the expansion of China's market economy and the change of people's lifestyle, the traditional community management has been unable to meet people's needs[1]. How to use scientific management methods, strengthen community management, change the previous community management mode, let people really enjoy the government's policy of benefiting the people is an important problem to be solved in today's information society. Only the efficient community service can meet the needs of residents[2]. Therefore, the scientization and informatization of community management has been regarded as an important symbol of the improvement of people's living standards. In the past, the community residents had to go in and out of the community office one after another, but now, the life and work style of the community residents have changed, the computer has also been widely used, the residents need more and more high standard community services, the previous management mode has not been optimistic[3]. The improvement of community management mode and service quality needs to be completed through science and technology[4]. However, some community offices in some communities have installed system software for several individual systems, and have specific management personnel. However, there are some shortcomings in practical application, such as differences in basic information, data sharing and incompatibility among various systems, which lead to problems such as repeated management, high investment and low efficiency at the bottom, and residents can't log in to the system to view their own information[5]. All these hinder the efficient work of community management, and can't make the level of community management develop better and faster. The community management system based on Web can change the previous management mode of community, and realize the informatization and high efficiency of community management.

2. Systems analysis

2.1. Feasibility analysis

Feasibility analysis is to study, analyze and compare the contents and conditions of the system from the aspects of technology and management, and predict the benefits and social impact

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

after the completion of system development, and then put forward the opinions on whether the project is worth investing and how to develop, so as to provide a comprehensive system analysis method for the project[6]. This paper expounds the feasibility of community management system development from three aspects of economy, technology and management. Economic feasibility: the system takes the network management as the basic mode and relies on information technology. With the help of the advantages of fast and error free computer, the community information can be managed in a standardized and effective way, and the service quality and efficiency can be improved. After the community management system is developed and put into use, from development to later operation, it only needs simple basic maintenance, and the cost of the system is very small. Therefore, it is economically feasible and the development of the system is necessary. Technical feasibility: the system uses MySQL as the database, using java language to develop, technology is very mature, and online and library have a lot of information for reference, so it is technically feasible. Management feasibility: the starting point of the development of the system is simple and easy to use, ordinary computer whether hardware or software can meet the conditions, as long as the computer, can operate the system, so in the management is feasible. Through the feasibility analysis of economy, technology and management, the necessity of developing this system can be determined, and it is completely feasible.

2.2. Requirement analysis

Community management system through continuous improvement and improvement in recent years, there are many commercial software, after investigation found that some community offices for several single work installed system software, and there are specific management personnel, but the use of multiple commercial systems, the cost is too high, and there are differences in basic information in practical application, the data between the various systems can't be shared, incompatibility and other shortcomings, leading to the bottom repeated care, resulting in a waste of resources, but also to the management of the work inconvenience. In order to facilitate management and provide users with fast and convenient services, a practical management mode and business process are established. It is necessary to design a community management system.

Table 1: System functions

Function	Explain
Resident information management function	It is mainly used to add, modify, delete and query the basic information of the residents in the northwest first road community.
Family planning management function	This function is mainly to manage the family planning situation of the community, including adding, deleting, modifying and querying the information of newborns and women of childbearing age. Residents can apply for the one-child subsidy, and the administrator can review it.
Information management function of low rent housing	This function is mainly to manage the low rent housing information provided by the government, including publishing, modifying, deleting and querying the low rent housing information. The administrator can process the residents' low rent housing application.
Volunteer service management function	This function is mainly used to manage volunteer information, including the addition, deletion, modification and query of volunteer information, as well as the processing of the application of resident registered volunteers and the appointment of volunteers by others.
Announcement information management function	This function is mainly for the management of announcement information, including the release, deletion and query of announcement information.

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

2.2.1. Functional requirements

Functional requirements refer to the analysis of the main functions of the system[7]. After analyzing the existing community management mode and business process, it is determined that the functions of the community management system should include the following aspects, as shown in the Table1As shown in the figure below:

2.2.2. Non-functional requirements

The non-functional requirement of the system mainly analyzes some characteristics of the system, which clearly indicates the service level that the system must meet[8].

This system is mainly aimed at community residents and administrators. It is necessary to realize the security, stability and efficiency of the system. Therefore, the community management system should meet the following rigid requirements:

a. Stability: the website prevents input errors.

b. Efficiency: The information of the community management system can be reflected to the residents in time, and the functions of information query and announcement display should be timely.

c. Friendly interface: The page is simple and easy to operate.

d. Safety: This system has authority management, only the administrator can add and delete resident information, low rent housing information, residents can only view and operate their own corresponding authority, which ensures the security of the system to a certain extent.

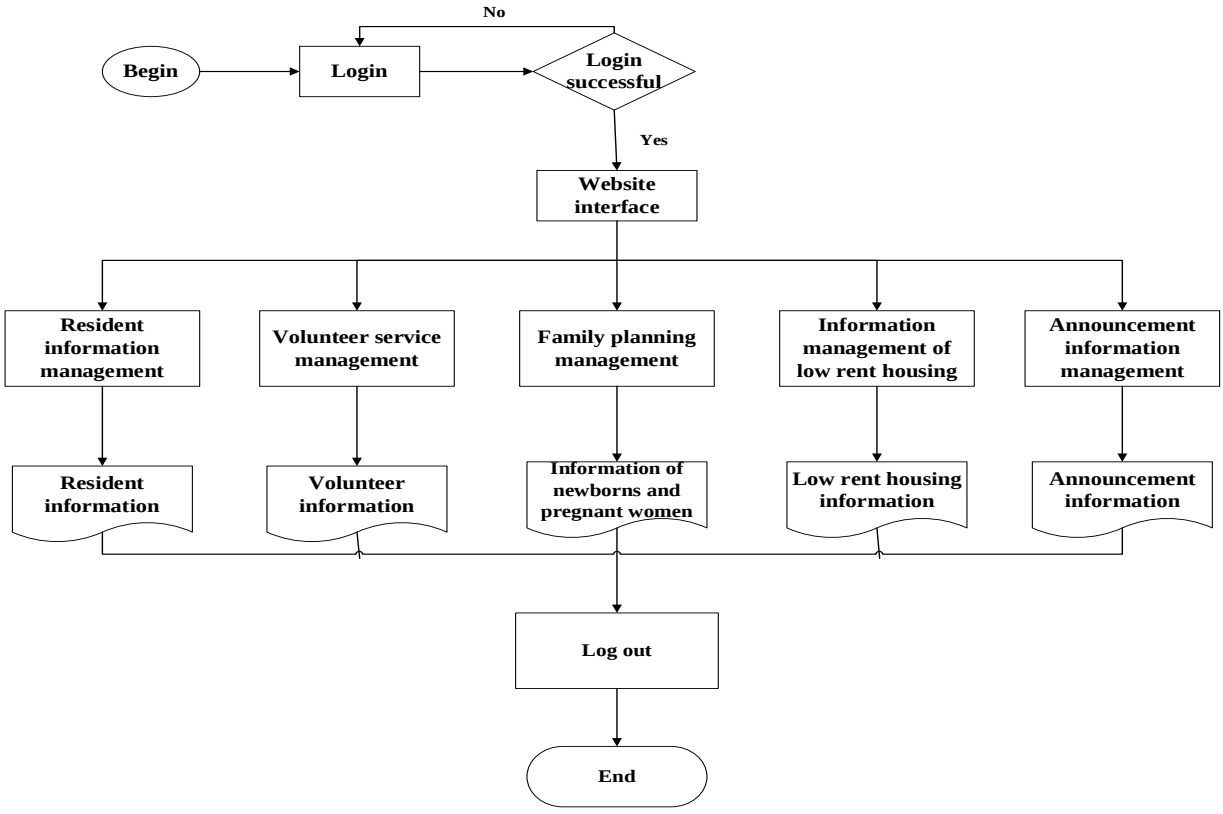

Figure 1: Business flow chart

2.3. Requirement analysis

2.3.1. Non-functional requirements

The business flow chart takes the business process as the center, and describes the business relationship, operation sequence and management information flow among the personnel in

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

the system[9]. The process of community management system is: after the administrator successfully enters the system, the basic information of the community residents, family planning information, low rent housing information provided by the government, volunteer information and announcement information are managed. The business flow chart of the system is shown in Figure 1.

2.3.2. Non-functional requirements

The data flow chart describes the data flow of the system. The system receives some input data and gets the output result after transformation. It reflects the logical structure of the system to a certain extent[10]. The data flow chart of the system is shown in Figure 2.

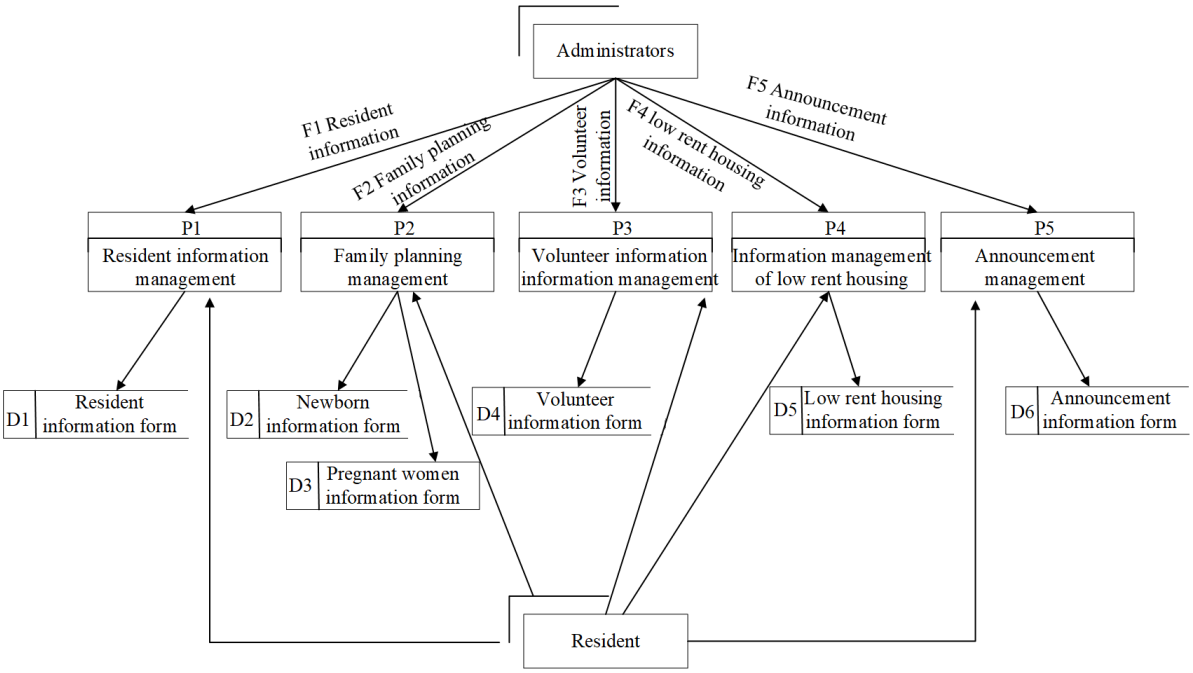

Figure 2: Data flow chart

2.3.3. Non-functional requirements

Data dictionary is a kind of directory that users can access to record database and application source data. The data flow chart only shows the relationship between data processing and data. Data dictionary can further clarify the data processing process and specific content. It also includes five parts: data flow, data item, data storage, processing and external item[10]. The following is an example of what a data dictionary contains.

a) Data flow: Data stream is the data set of processing and output links, carrying and processing information in the system. As shown in Table 2, the volunteer information data flow entries.

Table 2: Volunteer information data flow items

Data flow System name: community management system Item name: volunteer information	
Source: volunteer information	Where to go: volunteer information form
Data flow structure: Volunteer information: Volunteer number + name + telephone + working time + location + volunteer information subject + appointment status	
Brief description: the administrator can add, delete and modify the volunteer information, and the residents can view the appointment volunteers.	
Modification record:	

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

b) Data item: Data item, also known as data element, is an indivisible data unit. Several data items can form a data structure. As shown in Table 3 low rent housing number data element entries.

Table 3: Low rent housing number data element entries

Data item System name: community management system Item name: low rent housing number	
Belong to data stream: low rent housing information data stream	Storage: low rent housing information table
Brief description: low rent housing code is the identifier of low rent housing information, which is unique.	
Modification record:	

c) Data storage: Data storage is the storage space of data structure, which describes the logical storage structure of data. As shown in Table 4.

Table 4: Resident information data storage entries

Data storage System name: community management system Item name: resident information	
Storage organization: one record per resident	Record number: about 500 main keywords: resident name, ID number.
Record composition: 7 Item name: Name Gender Date of birth ID number Telephone Address Operation Approximate length: 20 2 10 18 15 20 20 (byte)	
Brief description: Residents' information table must clearly record the name, telephone number, ID number and other information of residents.	
Modification record:	

d) Processing: Data processing, also known as data processing logic, describes the logical function of the system in processing information. It is represented by several input data streams transformed into one or more output data streams. As shown in Table 5 household information query processing items.

Table 5: Processing items of neonatal information query

Processing System name: community management system Item name: newborn information query	
Input: name of newborn	Output: information list of a newborn
Processing logic: 1.User input account and password, select administrator, click login. 2.The system verifies and audits the user's input. 3.If the content entered by the user is correct, the system will execute the command; if the condition is not met, the information cannot be submitted for storage, and the command will be submitted again or the operation will exit.	
Brief description: query can quickly locate the required information.	
Modification record:	

e) External item**:** External items are various entities or work links that represent the data source and destination of the system, including entity number, input and output of related data stream, name and description. Administrator external item entry as shown in Table 6.

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

Table 6: Administrator external item entries

External item System name: community management system Item name: Administrator	
Input data stream: application information of one child subsidy	Output data flow: audit information
Main features: administrator according to the application of residents, audit processing, ensure that the system efficient and orderly.	
Brief description: the system mainly selects which operations the administrator can perform according to the administrator's authority.	
Modification record:	

3. System design

3.1. System module design

Community management system is to deal with the existing problems of contemporary society. With the deepening of building a harmonious society in our country, community management needs to be efficient. The development of community management system based on web aims to ensure the normal operation of community services and rapid business processing, and to facilitate community managers and residents. According to the demand analysis of community management, community management business and various management functions are realized. Through the design of these aspects, the community management system mainly includes the following modules.

3.1.1. Resident information management module

a. Add resident information: It includes the name of the resident, the ID number, the way of contact, the date of birth, the address, etc.

b. Modification of resident information: the administrator can change all the information of the residents, and the residents can change their personal information, such as their mobile phone number and address.

c. Resident information inquiry: the administrator can query the information of all residents, and quickly locate a resident and view his personal information by searching. Residents can only view their own information.

d. Deletion of resident information: the administrator can delete the information of a resident.

3.1.2. Low rent housing information management module

a. Low rent housing information release: the administrator can release the information of low rent housing provided by the government, including the name of the landlord, the telephone number of the landlord, the name of the tenant, the telephone number of the tenant, the address of the house, the type of the house, the area, the picture of the house, and the rental price.

b. Low rent housing information modification: the administrator can change the published low rent housing information.

c. Low rent housing information inquiry: administrators and users can query the published low rent housing information.

d. Deletion of low rent housing information: the administrator can delete the published low rent housing information.

e. Low rent housing application review: residents can apply for low rent housing according to their own conditions, and download the application documents on the front page of the system, fill in and seal them, and then hand them to the community office. The administrator can review the documents according to the documents. If the documents are approved, the residents can rent low rent housing.

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

3.1.3. Family planning information management module

a. The increase of family planning information: The name of gender name, birth date, identity card, father's name, mother's name, birth address, name, age, ID card number, number of girls, number of boys, contraceptive measures, abortion records and time of birth certificate are increased.

b. Inquiry of family planning information: The administrator can query the information of all newborns and women of childbearing age, input and search the name of a newborn or woman of childbearing age, and the corresponding information of this person will appear; the residents can view the family planning information related to themselves.

c. Deletion of family planning information: The administrator can delete information about a new baby or a woman of childbearing age.

d. Revision of family planning information: Administrators can change information about new babies and women of childbearing age.

f. One child subsidy application: Only child households can apply for only child subsidy, apply in the system, and the application documents can be downloaded from the home page of the system, filled in correctly and sealed, and then submitted to the community office. The administrator can review the application submitted by the residents according to the documents, and the residents can also see the review status. If the review is passed, they can get the subsidy.

3.1.4. Announcement information management module

a. Publication of announcement: The administrator can issue an announcement after logging in.

b. View of announcement: Administrators and residents can view the announcement.

c. Deletion of announcements: The administrator can delete the published announcement.

3.1.5. Volunteer information management module

a. Volunteer information inquiry: Administrators and residents can query the information of volunteers, input the name of volunteers and display the corresponding information. Residents can make an appointment to inquire about the volunteers without appointment for volunteer service.

b. Release of volunteer information: The administrator can release volunteer information, including volunteer number, name, gender

Telephone number, service duration, address, and status of reservation.

c. Modification of volunteer information: The administrator can change all the published volunteer information. It includes the title, duration, address, telephone number and release date of the volunteer event.

d. Deletion of volunteer information: The administrator can delete the published volunteer information.

e. Release of Recruitment Information: The administrator can publish the information of recruiting volunteers, including the number, title, duration, address, publisher's name, telephone number and release date of the volunteer project. Residents can register.

f. Recruitment Information Query: Administrators and users can query volunteer recruitment information, input volunteer events, that is, the specific situation of the corresponding recruitment information appears.

The functional structure of the system is shown in Figure 3.

3.2. Database design

Database design is based on people's needs, in some detailed database system Design database structure and create database. It can also create its application system, which is the core

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

technology in the development and construction. The design of the database provides data support for the system, so that the realization of the system has a certain foundation[10].

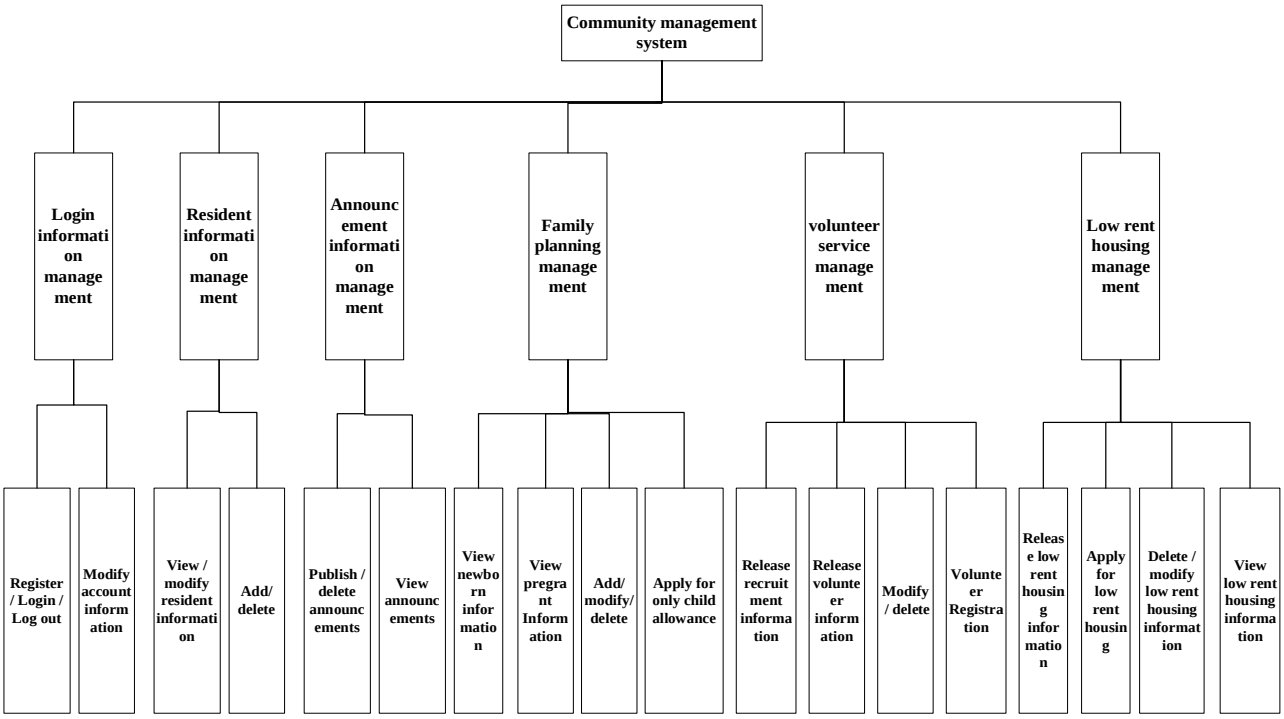

Figure 3: System function structure diagram

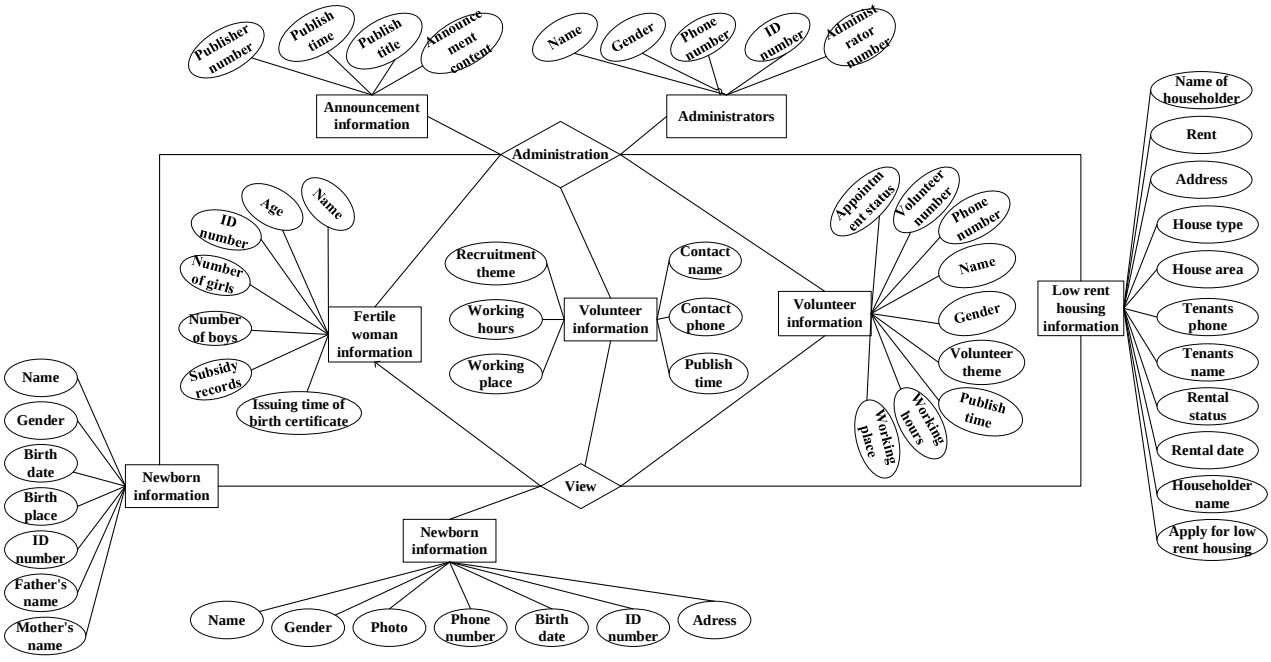

Figure 4: System E-R diagram

3.2.1. System E-R diagram

The "entity relation" diagram is called E-R diagram for short. It is a common method to describe the conceptual structure model in human activities. Provides methods that represent entity types, properties, and relationships[6].

Entity: to describe objective things, represented by rectangles.

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

Attribute: a characteristic of an objective object, represented by an ellipse and combined with its corresponding entity by an undirected edge.

Connection: it is represented by diamond, in which the contact name is written clearly, and then it is connected with the corresponding entity by undirected edge.

The overall E-R diagram of the community management system is shown in Figur4.

3.2.2. Main data sheet of the system

The main data tables of the system include administrator information table, resident information table, volunteer information table, volunteer recruitment information table, announcement information table and low rent housing information table. Each table is connected by the primary key of each table, so that the relationship between tables can be established. All primary keys can't be empty and can't be modified at will.

a. Administrator information table: It mainly records and stores the information of system management personnel. Including ID number, name, gender, ID card number, mobile phone number, login password, etc. The administrator information is updated and modified in this table. The administrator number is the primary key of the table.

b. Resident information form: It mainly records and stores the basic information of community residents. Mobile phone name, gender, ID number, mobile phone number, detailed address and login password are included. Among them, the ID number is the primary key of the table, and each resident corresponds to an ID number, and it is also the key field to verify my basic information.

c. Volunteer information sheet: It mainly records and stores the information of community volunteers. Including volunteer number, name, gender, mobile phone number, location, volunteer information theme, working hours, release time, appointment status. The volunteer number is the primary key of the table. The reservation status shows whether the volunteer has been reserved.

d. Volunteer Recruitment Information Form: It mainly records and stores. Including recruitment number, recruitment subject, working hours, working place, contact name, contact telephone number and release time. Recruitment number is the primary key of the table.

e. Announcement information sheet: The announcement information table is used to display the basic information of the announcement. Including publisher number, announcement title, content, release time, publisher number is the primary key of the table.

f. Information sheet of low rent housing: It mainly records and stores the information of community low rent housing. Including house address, house type, area, rent, householder's name, householder's telephone number, renter's name, renter's telephone number, rental date and rental status. The building number is the primary key of the table.

4. Conclusion

The community management system designed for community analysis is a man-machine management system which uses computer network as a tool to manage the information of community residents and low rent housing. It can accurately and quickly reflect the current situation of community work, community managers can easily operate various business processes, increase resident information, release low rent housing information, volunteer information, etc., and significantly improve the work efficiency of community managers. Administrators can query basic information at any time, such as: residents' information, low rent housing information, volunteer appointment status, etc. in addition, residents can log in to the system to view their own information and low rent housing information. Based on the feasibility study and demand analysis of the community management system, this paper

ISSN: 2692-7608 DOI: 10.6981/FEM.202102_2(2).0019

expounds the design scheme, function module and database design of the system, and completes the basic theoretical research.

References

[1] J.J. Li, Y.T. Liu: Review of Urban Community Management Patterns and Preliminary Analysis of China's Community Management Mechanism. Modern Urban Research, (2013) No.12, p.5-12.

[2] J.X. Li: Analysis of Three Participation Subjects in Community Management——Based on the Perspective of Synergic Governance of Multiplicity. Academics, (2011) No.05, p.79-86.

[3] J.S. Zou: jaundice at an Australian community hospital. Management Review, Vol.29 (2017) No.03, p.231-241.

[4] Z.Y. Peng, X.R. Mei: Brief Survey of Web Community Management Research. Journal of Frontiers of Computer Science and Technology, Vol.5(2011) No.02, p.97-113.

[5] D.X. Shen, J. Bai, J.M.Yao: Design and implementation of community management system. Computer Knowledge and Technology, Vol. 16 (2020) No.15, p.126-127.

[6] V.N. Burkov, L.V. Rossikhina, T.V. Meshcheryakova: Information Technologies for Development Management Systems. Automation and Remote Control, Vol. 79(2018) No.10, p.1813-1822.

[7] R.Fauzan, M.F. Shiddiq , N.R. Raddlya: The Designing of Warehouse Management Information System. IOP Conference Series: Materials Science and Engineering, Vol.879 (2020), p.012054.

[8] S. Mukaromah, A. Pratama, S.A. Ithriah, et al.: Analysis and design student entrepreneurship information system. Journal of Physics: Conference Series, Vol. 1569 (2019),p.022045.

[9] W. Novianti, F. Qadri: Design of Information System Human Resource Management. IOP Conference Series: Materials Science and Engineering, Vol. 879(2020), p.012126.

[10] I. Valova: Database Design for the Web Based University Project Management Information System. TEM Journal, Vol.02 (2013) No.02, p.145-149.