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| Lab 1 | | | Developing the Logic Model for Your Systems | | | | | |
| Issue Date | | 2023-10-10 | | | experimental types | | □validation experiment,  □comprehensive experiment  ☑design experiment | |
| Goal  (1)Analyze the functional requirements of the system you want to build, and describe them by words.  (2)Develop an dataflow diagram according to the description of your system requirements.  (3)Develop data dictionary for the dataflow involved in your dataflow diagram. | | | | | | | | |
| * experimental contents and process   **1. Introduction of the project**  We plan to write a dormitory management system of Southwest University. The dormitory management system of Southwest University is a software system designed for the convenience of school management of dormitory buildings. It provides a convenient, visual way to manage the daily operations and maintenance of student residence halls.  We want to divide the system users into three types: super administrators, ordinary administrators and students. Among them,  The super administrator corresponds to the management of the school, and is responsible for managing the d scheduling of ordinary administrators and students, checking dormitory related information, and allocating relevant personnel in the dormitory building. At the same time, it can also register and manage visitors.  The general administrator corresponds to the dormitory administrator, who is responsible for inspecting and evaluating the internal situation of each dormitory, and can also check the relevant clock-in records of students.  Students should check in with the resident staff for getting up, settling in and cleaning. Students can also check the dormitory evaluation of their own dormitory and rectify the dormitory according to the evaluation.  In short, the realization of Southwest University dormitory management system can improve the efficiency and reliability of dormitory management, reduce the tedious manual operation, and provide convenient and quick services for students and administrators. Such a system helps schools to better manage dormitory resources, provide a good dormitory environment, and improve students' living experience and quality of life.  **2. Division of labor**  We started by talking about what the whole system would do. Then the database used by the system and the system display form are determined. Then according to the interests of each person determined the following system function division.  Xin Huang is responsible for the modification and entry of information.  Jun Xue is responsible for the dormitory information inquiry function, including student information, cleaner information, dormitory administrator information, dormitory information inquiry.  Qianzhe Cai is responsible for the punch card function, mainly including the punch card function of students and the calculation of the punch card rate when checking the punch card situation, and the drawing of the punch card record line chart.  Yufei Sun is responsible for the dormitory evaluation function, through which the dormitory administrator can make suggestions and score the dormitory, and the dormitory members can make timely improvements after seeing it.  Each person draws a data flow diagram of their own functions and describes the features. Finally, the separated data flow diagram and text are integrated.  After completing the above work, we will have a meeting to discuss whether everyone's work content is perfect, mainly including evaluating the various functional modules of the dormitory management system, checking and modifying the data flow diagram. Jun Xue will take the minutes  **3. Functional features**  3.1 Modify and input information function (Xin Huang)  The super administrator and ordinary administrator accounts can only be created by the super administrator. When creating, you only need to input the administrator's name, school number (account), mobile phone number and password and other information to create. To create a student account, you need to input the student's name, gender, major, contact phone number and other information, and the dormitory you live in. When the student information is wrong, you can modify it through your own account. When a student is not satisfied with the dormitory, the administrator or super administrator can adjust the dormitory for the student.  Dormitory can be created by super administrator, input the name of the dormitory, the number of floors, the number of rooms per floor can be created. Super administrators can also assign management staff and cleaning staff to dormitory buildings.  3.2 Query dormitory information function (Jun Xue)  Query dormitory situation: The whole system mainly includes three types of users: super administrator, administrator and student.  The super administrator and management can realize the browsing of students, cleaners, dormitory administrators and dormitory information, and can also observe the latest trends of students, such as early rise dynamics, home dynamics, and cleaning dynamics, so as to realize the circulation and real-time data. At the same time, the information of visiting information personnel can be queried in order to strengthen the management of dormitory buildings. In addition, the administrator can also filter and query the information of dormitory buildings by restrictions (record filter), such as by student number, by time, and by different dormitory buildings. This part is mainly achieved by cascading query in mysql.  However, students can only view the general situation of the dormitory, the information of the current occupant, the evaluation of the dormitory and the dynamics of getting up early, returning home and cleaning. One of the major features is the dynamic line chart, which can be more intuitive to see the dynamic situation of students.  In general, the whole dormitory management system in the query function to achieve a strict division of rights, can have a more reliable protection of data privacy and security.  3.3 Punch function (Qianzhe Cai)  The dormitory management system's check-in feature is a highly useful tool that helps both dormitory administrators and students better manage dormitory life.  Dormitory administrators, as administrators, have full privileges. They can view all students' check-in records and statistics, and have the authority to review or cancel check-in records to ensure data accuracy. Additionally, dormitory administrators can manage system settings and user permissions.  Students, on the other hand, can perform various types of check-ins within specific time periods, including morning check-ins, cleaning check-ins, and curfew check-ins. This helps monitor whether students wake up on time, the cleanliness of the dormitory, and whether they return to the dormitory within the stipulated time. The system records timestamps and the type of check-in for each student action.  The system also provides an automatic calculation of students' check-in rates, which is the ratio of successful check-ins to attempted check-ins. This metric helps assess students' punctuality and discipline. Furthermore, the system can generate line graphs displaying students' check-in records, enabling students and dormitory administrators to gain a clearer understanding of performance trends and changes in discipline.  To ensure data security and privacy, the system implements appropriate security measures to prevent unauthorized access to data. Additionally, the system offers check-in reminders and notifications to prevent students from forgetting to check in. It also allows dormitory administrators to receive important updates and notifications, such as notifications for late students or students who have not checked in.  The entire system will feature a user-friendly interface that is easy for both students and dormitory administrators to use, ensuring simplicity and ease of understanding in operations. Most importantly, the dormitory management system's check-in feature assists in monitoring students' discipline, providing data support to enhance the quality of dormitory life.  3.4 Dormitory evaluation function (Yufei Sun)  The dormitory evaluation feature allows dormitory administrators to assess various aspects of the dormitory, such as cleanliness, facility maintenance, and safety management, based on their observations and management experience.  This feature should provide real-time feedback, enabling dormitory administrators to check evaluation results at any time. This allows them to stay informed about the dormitory's operational status and take appropriate measures based on the evaluation results.  Students can also use the scores and feedback provided by dormitory administrators to clean and enhance their dorm rooms to potentially achieve higher scores in future evaluations.  In summary, the dormitory evaluation feature provides a valuable tool for dormitory management, allowing them to assess dormitory conditions and implement timely improvements. It also offers feedback to students to encourage them to enhance the overall quality of the dormitory.  **4. Data flow diagram and data dictionary**  4.1 Top-level data flow diagram    4.2 Tier 0 data flow diagram    4.3 Tier 1 data flow diagram  Decomposition of "4 students punching in and counting punching in records".    Decomposition of "5 evaluation dormitory".    4.4 Tier 2 data flow diagram  Decomposition of “4.2 Punch card Statistics”.    4.5 Data dictionary  Personnel information = dormitory administrator information + cleaner information + student information + dormitory information  Dormitory information = Dormitory name + dormitory floor number + dormitory room number + dormitory number  Evaluation requirements = dormitory evaluation = Dormitory administrator rating + dormitory administrator comments  Clock requirement = clock operation time  Query requirement =[Dormitory staff comment on | punch in]  Data file ={Staff information + clocking situation + dormitory evaluation}  **5. Meeting minutes**  Date: 2023/10/9Attendees:1. Qianzhe Cai2. Yufei Sun3. Xin Huang4. Jun Xue  Meeting Agenda:1. Review the progress of developing the logic model for the Student Dormitory Management System.2. Discuss any challenges or issues encountered during the development process.3. Provide feedback and suggestions for improvement.4. Analyze and summarize the work results of this stageProject leader CAI Qianzhe presided over the meeting and welcomed all participants, and agreed to continue the review of the student dormitory management system logic model, data flow diagram and data dictionary.  Jun Xue presented the progress made in developing the logic model. The logic model outlined the main components and functionalities of the system, including user registration, room allocation, inventory management, maintenance requests, and reporting. The flow of information and interactions between different modules was also explained.During the discussion, several points were raised by the attendees. Xin Huang suggested incorporating a feature for tracking student attendance and integrating it with the dormitory management system. Yufei Sun recommended adding a notification system to inform students about important announcements or events. Qianzhe Cai emphasized the importance of data security and suggested implementing appropriate measures to protect sensitive information.The attendees appreciated the efforts made in developing the logic model and acknowledged the comprehensive coverage of functionalities. They also provided valuable feedback and suggestions for improvement.After the discussion, the attendees agreed on the following action items:1. Yufei Sun and Qianzhe Cai will begin to learn to write the framework of the student dormitory management system to prepare for the next stage of development.  2. Xin Huang will improve the writing of the introduction of the project and the specific improvement and development of the feature about system entry and modification of members and dormitory information.  3. Jun Xue will carry out specific improvement and development of the feature about inquiring the dormitory situation, and complete the writing and summary of the meeting minutes.  The meeting concluded with Qianzhe Cai expressing gratitude to all attendees for their active participation and valuable inputs, and inspired us to make even greater efforts in the next stage. | | | | | | | | |
| * Experimental summary/ Analysis   In this project, we have accumulated a wealth of knowledge and experience. First, through teamwork, we deeply understand the importance of teamwork and learn to collaborate, communicate and assign tasks effectively. This gives us more confidence in future cooperation projects. We also reviewed what we learned in class, practiced the drawing of data flow diagram, and completed the preliminary analysis of our project | | | | | | | | |
|  | Criteria | | | | | | | scale |
| Goal | | | | | | | A B C D E |
| Process | | | | | | |
| Design | | | | | | |
| Algorithm | | | | | | |
| Code | | | | | | |
| Data/Results | | | | | | |
| summary | | | | | | |
| written | | | | | | |
| Score | | |  | | tutor Signature：  Date: : | | |
| * Lab Evaluation Criteria   A: This lab is exceptional, working and meeting all of the specifications. The code is exceptionally well organized and very easy to follow. The code could be reused as a whole or each routine could be reused. The documentation is well written and clearly explains what the code is accomplishing and how. The program was delivered on time. The code is extremely efficient without sacrificing readability and understanding.  B: This lab is very good-- works and produces the correct results and displays them correctly. It also meets most of the other specifications. The code is fairly easy to read. Most of the code could be reused in other programs. The documentation consists of embedded comment and some simple header documentation that is somewhat useful in understanding the code. The program was delivered within a week of the due date. The code is fairly efficient without sacrificing readability and understanding.  C: This lab is adequate, with only minor deficiencies. The program produces correct results but does not display them correctly. The code is readable only by someone who knows what it is supposed to be doing. Some parts of the code could be reused in other programs. The documentation is simply comments embedded in the code with some simple header comments separating routines. The code was within 2 weeks of the due date. The code is brute force and unnecessarily long.  D: This lab shows some effort but has at least one major deficiency. The program is producing incorrect results. The code is poorly organized and very difficult to read. The code is not organized for reusability. The documentation is simply comments embedded in the code and does not help the reader understand the code. The code was more than 2 weeks overdue. The code is huge and appears to be patched together.  E: This lab is poorly written and shows very little effort or understanding. | | | | | | | | |