

DreamHome Property Management Case Study Report

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Introduction

The DreamHome Property Management Case Study highlights the first phases of the database development lifecycle (DSDLC) and offers an example of how to set up a database project. This paper focuses on applying fact-finding approaches, establishing user needs, and comprehending and documenting the lifecycle stages. An organised strategy guarantees lucidity and conformity to scholarly and professional norms, offering an all-encompassing perspective that is essential for formulating an effective database system.

Database Development Lifecycle

A database system can only be methodically designed, created, and maintained with the help of the database development lifecycle (DSDLC). The DSDLC, according to Coronel and Morris (2019), consists of a number of steps that are essential to the effective deployment of a database system.

1. Database Planning: In this stage, the objectives and scope of the database project are defined, and their alignment with the strategic goals of the organisation is ensured (Kroenke & Auer, 2014).
2. System Definition: This phase establishes the limits of the system and the primary user perspectives, defining its scope and guaranteeing that all relevant user viewpoints are considered (Rob & Coronel, 2017).
3. Requirements Collection and Analysis: This stage is all about getting requirements from stakeholders and examining them. The key information required for the database is gathered using methods including observations, interviews, and document analysis (Hoffer, Ramesh, & Topi, 2016).
4. Database Design: There are three stages to the design process: conceptual, logical, and physical. Entity-Relationship (ER) diagrams are used for high-level data modelling in the conceptual design (Silberschatz, Korth, & Sudarshan, 2019). In order to ensure data normalisation and define tables, keys, and connections, the logical design refines the conceptual model into a logical data model (Connolly & Begg, 2015). The physical design takes efficiency and storage optimisation into account when translating the logical model into a physical structure for implementation (Elmasri & Navathe, 2016).

5. Application Design: This stage entails creating the user interface and interactions for the programme, making sure that it efficiently facilitates user activities (Teorey, Lightstone, Nadeau, & Jagadish, 2011).
6. DBMS Selection: In order to satisfy the functional and performance requirements, selecting the right Database Management System (DBMS) is essential (Elmasri & Navathe, 2016).
7. Implementation: Creating and connecting the database with the application at this phase ensures proper deployment and construction (Kroenke & Auer, 2014).
8. Data conversion and loading: To ensure proper data transfer, existing data is converted and imported into the new database (Rob & Coronel, 2017).
9. Testing: Thorough testing guarantees that the system satisfies all specifications and is error-free (Silberschatz, Korth, & Sudarshan, 2019).
10. Operational Maintenance: Following deployment, the database system is kept up to date to guarantee seamless functioning and flexibility in response to changing requirements (Teorey et al., 2011).

Fact-Finding Techniques

In order to obtain precise and thorough information early on in the DSDLC, fact-finding procedures are crucial. Several methods consist of:

1. Analysing Documentation: Although time-consuming, this method offers historical information and insights into current systems (Hoffer et al., 2016).
2. Interviewing: Interviews facilitate the collection of comprehensive information and the elucidation of specifics. Although agreeable respondents and trained interviewers are necessary for this strategy to be efficient in gathering qualitative data (Coronel & Morris, 2019).
3. Observing Operations: Although the presence of an observer might affect behaviour, direct observation offers real-time insight of operations (Kroenke & Auer, 2014).
4. Research: Although it might not always yield precise information pertinent to the project, obtaining data from case studies, industry standards, and best practices can help inform the design process (Elmasri & Navathe, 2016).

5. Using Questionnaires: Although questionnaires are an economical way to gather data from a large number of respondents, if they are badly constructed, the data they yield may be biased or restricted (Teorey et al., 2011).

DreamHome Database Requirements

The Connolly textbook's Appendix A describes the data and transaction requirements for the DreamHome database system's Branch and Staff user views. For the purpose of creating a database that supports DreamHome's operations, it is essential to comprehend these needs.

Branch User Views:

1. Information regarding branches, employees, rental properties, property owners, clients, leases, and publications are among the data requirements.
2. Data entry, update/deletion, and inquiries pertaining to branch administration and operations are among the transaction requirements.

Staff User Views:

1. Data requirements: Provide comprehensive details on employees, rental units, clients, and leases.
2. Data input, update/deletion, and inquiries pertaining to staff operations and client administration are included in the transaction requirements.

Analysing a Worked Example

A real-world example of using fact-finding techniques to database design is given in Section 11.4 of the Connolly textbook. It highlights important discoveries and the documentation generated during the requirements capture and planning stages. A thorough system design is ensured by the engagement of numerous stakeholders. Documentation, such as system definition papers and user requirements specifications, is essential for collecting precise requirements and guaranteeing that the database satisfies user demands (Silberschatz et al., 2019).

Documenting the Early Stages of Database Development

The development process must be guided by the documentation created in the early phases of the DSDLC.

Mission Statement and Objectives:

The goal of the DreamHome Property Management database project is to provide a reliable and effective system for managing transactions, client data, and property listings. Providing a centralised database, guaranteeing security and scalability, boosting data accuracy and accessibility, and facilitating real-time transactions are some of the goals.

System Definition Document:

The Branch Manager View, Staff View, and Client View are the main user views. All DreamHome branches in the UK will be covered by the system, which will also support customer, property, lease, and transaction data.

Requirements Specification Document:

To guarantee that the database facilitates effective property management and customer contacts, user requirements contain comprehensive specifications for branch managers, employees, and clients. Real-time data transactions and data security are prioritised in the system specifications, which address performance and security needs.

Conclusion

The initial phases of the DreamHome Property Management database development lifecycle are described in this study. The project guarantees that the database system is well-designed, satisfies user needs, and efficiently supports DreamHome's operations by adhering to defined stages and generating comprehensive

documentation. Clarity and completeness have been ensured by the professional and academic documentation of each phase and delivery.

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