This study focuses on designing a structured database model for the Airbnb use case, addressing the need for efficient data organization in an online booking system. The main challenge in such a system is defining clear relationships between users, property listings, reservations, payments, and communication mechanisms while ensuring data consistency and scalability.

To overcome these challenges, a relational database model using an entity-relationship (ER) approach has been developed. The model ensures data integrity through primary and foreign keys and utilizes Crow's Foot Notation to visually represent entity relationships and cardinalities. Relational databases were chosen for their strong query capabilities and high data consistency, making them ideal for managing structured data.

At this phase, entities, attributes, and relationships have been defined, and key structures implemented to maintain data integrity. Each entity has been assigned attributes that define its characteristics, and logical relationships between tables have been carefully structured for system-wide consistency. The process involved designing fundamental tables such as Users, Hosts, Guests, Properties, Bookings, Payments, and Wishlist, all linked through constraints to enforce referential integrity.

The database design prioritizes modularity and scalability, ensuring it can be expanded and optimized to accommodate increasing data volumes and evolving platform requirements.