Abstract

Database Management Functionality

This document presents an overview of a database management system crafted for a dynamic, Airbnb-like platform. The system is engineered to streamline operations and enhance user experiences for hosts, guests, and administrators. It incorporates various essential database features, including triggers, events, and automation mechanisms that contribute to efficient property and booking management. The system empowers the platform to manage listings, bookings, payments, reviews, user ratings, and property statistics.

Triggers

The system incorporates several triggers that respond to specific events. For instance:

CalculateExpectedIncome Trigger: This trigger calculates expected income and occupancy rates for properties after property creation, providing hosts with insights into their potential earnings.

UpdatePropertyCount Trigger: After inserting a property, this trigger keeps hosts informed about the number of properties they manage, thus promoting better host management.

CalculateTotalPriceAndCommissions Trigger: This trigger ensures accurate pricing for bookings by calculating total prices, host commissions, and guest commissions.

OccupancyRate Trigger: It dynamically updates property occupancy rates based on booking and availability data.

UpdateBookingCount Trigger: After inserting a booking, this trigger maintains a count of a guest's bookings, facilitating user management.

PropertyAvailability Trigger: For bookings, this trigger ensures properties are marked as 'Booked' for the relevant dates in the PropertyAvailability table.

CalculateTotalAmount Trigger: This trigger aids in precise financial transactions by calculating the total amount, including guest commissions.

SetStatus Trigger: It establishes the payment status of a transaction based on whether the payment procedure was successful.

UpdateBookingStatusOnPayment Trigger: This trigger updates booking statuses to 'Booked' or 'Failed' upon successful or failed payments, respectively.

UpdatePropertyAverageRating Trigger: It keeps property ratings up-to-date based on user reviews.

UpdateUserAverageRating Trigger: This trigger maintains user ratings by calculating the average ratings for each user.

Events

Automated events further improve the management of the platform. They include:

automate_host_payments Event: This event runs every second, processing guest arrivals older than 24 hours and marking bookings as processed.

AutoInsertReservations Event: This event executes every minute, inserting reservations for bookings with a 'Booked' status.

UpdatePhoneNumbers Event: It runs every minute, ensuring that phone numbers include country codes.

The system's triggers and events automate and enhance the user experience, minimize manual data entry, and provide real-time information, making it an efficient database management solution.

Metadata

The database contains a substantial amount of data, organized into multiple tables, each serving a specific purpose. The key metadata for the system is as follows:

Number of Tables: The database comprises 39 tables, covering various aspects of the platform, including Property, Booking, Host, Guest, PaymentTransaction, User, UserRating, Review, PropertyAvailability, PayoutToHost, reservation, HostBankingInfo, GuestArrival, and Countries.

Corresponding Entries: In general, all tables contain more than 20 entries each, with the User table having 66 entries, encompassing hosts, guests, and administrators.

Size of the Database: The size of the database is 1.4MB, indicating a compact and efficient storage system for the platform's data.

In summary, the database management system is equipped with powerful features, including triggers and events, to optimize property and booking management on an Airbnb-like platform.